Retail Competition and Transmission Capacity: Statement of Proposal

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GAS INDUSTRY COMPANY LIMITED

About Gas Industry Co.

Gas Industry Co was formed to be the co-regulator under the Gas Act.

Its role is to:

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

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Executive summary

Since Vector announced in mid-2009 that its North Pipeline had reached its physical capacity limit, large end users who have sought bids for their gas supply report that the level of competition has significantly reduced. It is clear from a consideration of the commercial arrangements that only retailers who hold enough pipeline capacity to supply an end user will be able to make an unconditional offer to supply it. Because retailers wishing to compete are generally unable to obtain the necessary pipeline capacity, incumbent retailers face reduced competition.

This situation is of concern to Gas Industry Co because the facilitation of competitive markets is an underlying principle of the Gas Act, also reflected in the GPS.

Several reasonably practicable options have been considered to minimise barriers to competition. On evaluation, the preferred option is for transmission capacity to 'follow the end user'. The main feature of the option is that when a large end user on a constrained pipeline changes retailer, the transmission system owner transfers the 'old' retailer's capacity to the 'new' retailer.

Implementing this solution requires regulation in the form of Gas Governance (Constrained Transmission Pipeline) Rules (the Rules). The Rules would apply to all transmission pipelines, but would affect capacity arrangements only when and where a pipeline becomes constrained and existing arrangements impede competition. We see the Rules being immediately applied to the North Pipeline. That application would mostly likely be revoked or superseded when a medium-term capacity solution for Vector pipelines is implemented.

We encourage and welcome feedback from interested parties on this Statement of Proposal. We ask that submissions are made by Friday 10 December 2010.

Contents

1 Introduction

1.1 Purpose of this paper

In this paper, Gas Industry Company Limited (Gas Industry Co) proposes introducing the Gas Governance (Constrained Transmission Pipeline) Rules (the Rules).

The Rules ensure there are no unintended effects on competition arising from a transmission system owner's (TSO) commercial arrangements for transporting gas on constrained transmission pipelines.

1.2 Purpose of the proposal

In 2009, Vector Gas Limited (Vector) announced it was unable to sell any more Reserved Capacity[1] on its North Pipeline[2] because the pipeline had reached its physical capacity limit (that is, constrained). Certain features of the commercial arrangements between Vector and its shippers have reduced retail competition on the constrained pipeline. End users wishing to obtain bids for their gas supply find it is often only the incumbent supplier who can make an unconditional offer. Other retailers must make offers 'subject to the availability of transmission capacity'.

The purpose of the proposed rules is to provide for commercial arrangements on a constrained pipeline that allow retailers to compete for end users by ensuring they have access to capacity.

We identified and considered several reasonably practicable options for resolving the competition problem. On evaluation, we consider the best option is for transmission capacity to 'follow the end user'. This approach best meets the objectives of the Gas Act 1992 (Gas Act) and the April 2008 Gas Government Policy Statement on Gas Governance (GPS). The main feature of the preferred option is that when an end user changes retailer, the TSO transfers the 'old' retailer's capacity to the 'new' retailer. Implementing this solution requires regulation.

Much of the analysis in this paper relates to the current constraint on Vector's North Pipeline, and we see the Rules having immediate application there. However, the Rules would apply to all transmission pipelines, affecting capacity arrangements only when and where a pipeline becomes constrained and existing arrangements impede competition.

[1] Reserved Capacity is the amount of capacity reserved and held by users under the Vector Transmission Code. Reserved Capacity sets the limit on the amount of gas a user can have transported without incurring overrun charges.
[2] The North Pipeline extends from the end of the Maui pipeline at Rotowaro (near Huntly) to Auckland and Whangarei.

1.3 Longer-term improvements to access arrangements

Gas Industry Co has also been considering how Vector's access arrangements could be improved in the longer term. We have delayed this work while we deliberate on the immediate competition issue. The longer-term issues include, but are broader than, the competition issue covered by this Statement of Proposal; however, one of the criteria for selecting the preferred option is consistency with any longer-term solution that might be implemented.

1.4 Reasons for the North Pipeline capacity constraint

Gas Industry Co has made reasonable enquiries of Vector about the extent of the capacity constraint. This paper assumes Vector's judgement to issue no more Reserved Capacity on its North Pipeline is correct. We acknowledge Vector would make that judgement in accordance with its obligations as a reasonable and prudent operator.

Gas Industry Co understands that the decision to limit Reserved Capacity on the North Pipeline is based on Vector's system modelling of a 2006 cold winter demand scenario[3]. The key constraints on Vector's North Pipeline, as indicated in Vector's August 2010 *Pipeline Capacity Disclosure* [4], are the ability to provide:

- Southdown power station with a Maximum Daily Quantity of 37,800 gigajoules at a minimum operating pressure of 49 bar (table 8.1);
- Otahuhu power station with a Maximum Daily Quantity of 60,000 gigajoules at a minimum operating pressure of 38 bar (table 8.1); and
- a survival time[5] of one hour.

Given these physical constraints, we understand Vector considers it should sell only about 175 terajoules per day of Reserved Capacity to shippers on the North Pipeline.

1.5 Overcoming the North Pipeline capacity constraint

Overcoming the North Pipeline capacity constraint can be achieved only through building new infrastructure and/or introducing new demand management practices. These are matters Vector is currently considering and are not dealt with in this paper. We understand Vector is also participating in the Commerce Commission's consultation processes on matters affecting investment decisions.

It is accepted regulatory practice to allow utilities a reasonable return on 'prudent investments'. However, we note that New Zealand has no established approach to determining what a 'prudent

[3] In this scenario, residential and commercial demand is approximately 18% above the average demand for these end users.
[4] http://www.vector.co.nz/sites/vector.co.nz/files/Vector%20Pipeline%20Capacity%20Disclosure%202010%20Transmission.pdf
[5] For the North Pipeline, survival time is the time from loss of supply at the start of the pipeline at Rotowaro to minimum pressures being reached (for example, for pressures at delivery points in Northland to fall to 20 bar).

investment' in pipeline capacity would be. In common with other investments, we would expect a prudent investment to comprise:

- an assessment of overall market conditions (defining the market, and forecasting supply and demand conditions in that market);
- identification of the investment opportunities (including new pipelines, compressors, and demand management); and
- an assessment of the costs and benefits of the investment opportunities.

Prudent investment must also operate within an administrative framework. Such a framework is likely to include:

- an allocation of responsibilities between the pipeline company, the Commerce Commission, and Gas Industry Co;
- consideration of input from the beneficiaries of pipeline services (who ultimately fund the investment through pipeline tariffs); and
- an approval and review process.

Gas Industry Co is forming a view on what role we should have in relation to these matters.

Although nothing prevents Vector investing in new pipeline capacity, it has said there is too much regulatory uncertainty for it to do so.

The Gas Act provides for Gas Industry Co to recommend that regulations be introduced to require that new pipeline investment be made[6]. However, we currently have no related work underway.

1.6 Invitation for submissions

Gas Industry Co invites submissions on this Statement of Proposal. We are particularly seeking responses to the questions highlighted at various points in the paper. Submissions on the questions should be provided in the format shown in Appendix A.

Submissions are due by **5pm on Friday 10 December 2010**. Please note that submissions received after this date might not be considered.

We prefer receiving submissions in electronic form (Microsoft Word format and PDF). Submissions may be uploaded on our website at www.gasindustry.co.nz. You will need to log in as a user and upload the submission on the consultation page by clicking on the submissions button.

[6] Section 43F(2)(d) provides that regulations can be made for the purposes of requiring expansions, upgrades or service quality improvements to gas transmission pipelines including specifying how these will be paid for.

Gas Industry Co will acknowledge receipt of all submissions electronically. If you do not receive electronic acknowledgement of your submission within two business days, please contact Jay Jefferies on 04-472 1800.

Gas Industry Co values openness and transparency and therefore submissions will generally be made available to the public on our website. If you intend to provide confidential information in your submission, please discuss this first with Ian Wilson at Gas Industry Co (04-472 1800).

2 Background

2.1 Gas Industry Co's approach to the capacity review

The Associate Minister of Energy and Resources (the Associate Minister) wrote to Gas Industry Co in December 2009 requesting we release an options paper on transmission capacity issues. Gas Industry Co began its review of transmission capacity by identifying issues with the capacity services offered by Maui Development Limited (MDL) and Vector. These companies own the pipelines making up New Zealand's open access transmission pipeline system. In February and March 2010, we interviewed industry participants for their views. Their concerns were mostly about Vector's access arrangements and, in particular, Vector's decision to restrict capacity reservations on its North Pipeline for the then current 'gas year' (1 October 2009 to 30 September 2010). Vector considered the restrictions were necessary because the pipeline was operating at the limits of what a reasonable and prudent operator would allow.

Following the interviews, Gas Industry Co focused its attention on Vector's access arrangements. We considered how these might be changed to resolve participants' concerns and better meet the Gas Act and GPS objectives. In May 2010 we published an options paper on the subject: *Options for Vector Transmission Capacity* (Capacity Options Paper)[7].

2.2 Capacity Options Paper

The Capacity Options Paper considered options for changing Vector's access arrangements in the medium term. We evaluated the options against criteria for an effective capacity regime while paying particular attention to the situation on the North Pipeline. The evaluation considered how well the options would:

- ensure efficient pricing of capacity;
- ensure efficient allocation of capacity;
- promote efficient investment in capacity;
- facilitate competition in related markets;
- favour simplicity and transparent design and operation;

[7] The Capacity Options Paper is available here:
http://www.gasindustry.co.nz/sites/default/files/u180/Vector_transmission_capacity_options_paper_20_May_2010_153383.3_0.pdf

- allow price stability;
- provide the level of service firmness users require and are willing to pay for; and
- minimise costs of transition from current arrangements.

In the paper, we described and evaluated the current arrangements and five options, which were: contract carriage, common carriage, hybrid option, MDL carriage, and incremental change. Table 1 is an overview of the options.

Table 1 Overview of Vector transmission capacity options

Option	Key aspects
Contract carriage	Under the contract carriage model, pipeline capacity is contracted to users under long-term contracts.
Common carriage	Under common carriage, express capacity entitlements do not exist, but capacity is available for all users to share.
Hybrid	Under the hybrid option, users can elect to contract for long-term capacity but will otherwise share available pipeline capacity.
MDL carriage	Under the MDL carriage option, users share pipeline capacity, but can elect to buy 'Authorised Quantity' rights if they wish to have priority use of capacity.
Incremental change	Incremental change involve progressively introducing such elements as a capacity planning policy, transparency of capacity requests, and capacity assigned to large end users, rather than retailers.

The evaluation of the options showed that, overall, the hybrid option rated well.

2.3 Identification of a competition problem

Gas Industry Co received 12 submissions on the Capacity Options Paper from a range of industry participants and major end users. All submitters agreed Vector's current regime could be improved, and most agreed some form of hybrid arrangement would best meet their concerns. Vector included in its submission further options for the industry to consider. Several industry participants, including large end users, argued that since the announcement of Vector's North Pipeline capacity constraint, competition in the retail market had reduced.

Opinions varied on Gas Industry Co's next steps; for example, Greymouth Gas preferred a short-term regulated solution to resolve the competition issue, whereas Mighty River Power's view was that Gas Industry Co should do no further work unless the industry rejects the various possible solutions that Vector had proposed.

Gas Industry Co thought further work was required to refine the preferred access option, but that the competition issue raised in the submissions required more immediate attention. End users affected by

the competition issue did not consider that a capacity constraint should necessarily constrain competition to supply existing end users. Rather, the problem appeared to arise as an unintended consequence of the capacity 'grandfathering' rights provided for in Vector's commercial arrangements.

We expect the outcome of our medium-term work on Vector's access arrangements to resolve the competition issue. However, effective competition is essential for an efficient gas market and in this paper we propose a low-cost solution to this problem, which can be implemented in a short time.

This paper:

- describes the competition issue in more detail;
- presents an economic analysis of the problem, which provides a conceptual framework to aid understanding;
- establishes a regulatory objective to aid the identification and evaluation of options;
- describes the reasonably practicable options for meeting the regulatory objective;
- identifies a preferred option; and
- states our proposed solution and describes how it would be implemented.

2.4 Note on terms used in this paper

In this paper, we define a shipper as 'a person who buys capacity from Vector, as defined in the Vector Transmission Code (VTC)'; and a retailer as 'a shipper who sells delivered gas to end users'. This paper uses both terms interchangeably depending on the context.

There is a glossary on page 114 containing other terms frequently used in the paper.

2.5 Note on interaction with the Commerce Commission

As this matter concerns competition issues, Gas Industry Co has informed the Commerce Commission of the development of this paper. We note that Gas Industry Co has its own mandate to examine such issues given the explicit objectives in s 43ZN of the Gas Act relating to competition (minimising barriers to competition and providing access to competitive market arrangements).

It should also be noted that s 55I of the Commerce Act contemplates that the industry body may develop gas governance arrangements that are relevant to the Commission's powers in respect of regulating gas pipelines. Given the technical nature of this issue, we consider it appropriate for Gas Industry Co to be undertaking the development of a gas governance arrangement to address it.

3 Description of the retail competition problem

3.1 The nature of the competition problem

Description

In mid-2009, Vector announced it was unable to issue additional Reserved Capacity on its North Pipeline because deliverability was constrained. Since then, a large end user seeking competitive bids for gas supply might find that only its current retailer can make an unconditional offer—other offers are likely to be 'subject to the availability of transmission capacity'. The incumbent retailer therefore has a strong competitive advantage, which may deny the end user an effective choice of supplier.

If an end user changes retailer, total demand remains the same. However, the end user's old retailer might wish to retain the capacity it was using to serve that end user (either to supply a new source of demand or simply for 'insurance'). If that were the case on an unconstrained pipeline, Vector could issue 'new' capacity to the end user's new retailer.

On the North Pipeline, however, Vector's obligations as a reasonable and prudent operator do not allow it to issue 'new' capacity. It is unable to do so because of the physical limits of the pipeline and because it is unable to recall capacity from the old retailer. Once a retailer has purchased capacity the VTC allows it to renew the same level of capacity from one year to the next. These 'grandfathering' rights were intended to provide retailers the ability to enter into multi-year contracts with their end users. They were not intended to give the incumbent retailer a competitive advantage when contracts come up for renewal, although this is their effect now that pipeline capacity is constrained.

Possible duration of the competition issue

Without change to Vector's commercial arrangements, the competition issue will remain until the pipeline becomes physically unconstrained. Only new investment or new demand management practices can relieve physical capacity shortages. It is uncertain whether or when Vector will expand physical capacity, and therefore the timescale of the competition problem is unknown. How long the problem remains could depend to some extent on when the details of the Commerce Commission's

price quality regime for transmission pipelines are concluded. The Commission is due to finish its work by 29 February 2012.[8]

Recent developments on the North Pipeline

We understand Vector was able to meet all requests in the annual round for allocating capacity for the gas year 2010-11, which is an improvement on the previous year. It is unclear whether this improvement reflects an easing of the capacity shortage or a change in shipper behaviour (for example, shippers might now be requesting only the capacity they immediately need, because they believe Vector will refuse requests that simply 'stake a claim').

Vector has indicated there is no longer any room for significant commercial or industrial growth on the North Pipeline. However, it considers that organic growth (from residential and small commercial end users) on the North Pipeline can be accommodated to 2015 (at a rate of 1.5–1.9% based on historical trends).

3.2 Industry participants' views of the competition problem

Written submissions

The level of participation of end users at Gas Industry Co's workshops on capacity issues was high. That indicates considerable interest about how the North Pipeline capacity constraint might be limiting market growth and reducing retail competition. In relation to the competition issue, submissions on questions Gas Industry Co posed at its workshops confirm several major end users, and their representative organisation, the Major Electricity Users Group, believe competition is being damaged. Greymouth Gas also considers end users can switch only to retailers who already hold sufficient capacity to supply them. (Refer to Appendix F for a summary of the submissions on the competition issue.)

However, not all retailers accept there is a competition issue or, if there is a competition issue, that it is caused by Vector's access arrangements. For example, Nova Gas considers it is not the access arrangements *per se* inhibiting competition, but the fact that Vector has the monopoly on capacity. Contact Energy suggests the extent of any problem is unclear because no evidence of damage to competition had been presented. Genesis Energy considers the main problem is the physical capacity constraint, and that access arrangements are secondary. Mighty River Power has similar views and suggests the real competition issue is that retail prices are unrealistically low (compared with wholesale prices).

Also, Vector suggests shippers' behaviour might be negatively affecting competition, rather than the access arrangements themselves limiting competition. Vector posits that capacity problems may provide a convenient excuse for some retailers not to tender for supply; but the real reason is that supplying that customer is commercially unattractive.

[8] See page 4 of the Commerce Commission's *Initial Default Price-Quality Path for Gas Pipeline Businesses Issues Paper (12 April 2010).*

Industry workshops

Gas Industry Co held three industry workshops, one in June 2010 and two in August 2010. The purpose of the June 2010 workshop was to discuss the Capacity Options Paper before submissions closed. The workshop was open to all industry participants. The competition issue was raised and discussed at the workshop.

The August 2010 workshops were also open to all industry participants. Their purpose was to present an analysis of submissions received on the Capacity Options Paper, and to discuss options for dealing with the retail competition problem. The options included additional 'sub-options' Vector had proposed in its submission.

After the workshops, Gas Industry Co circulated a set of questions about the retail competition issue. We received nine submissions on the questions. The majority of submitters agreed the immediate competition concerns should be remedied through a short-term solution rather than waiting for Gas Industry Co's consideration of the wider access issues. Submitters generally preferred that a solution is implemented through changes to the VTC rather than regulation. However, many recognised that changing the VTC may prove difficult, because it is in some shippers' interests to maintain the status quo.

Appendix F is a summary of responses to the workshop questions.[9]

Capacity Working Group

In September 2010, Gas Industry Co convened a small group of industry experts (the Capacity Working Group) to discuss the competition issue in more depth and to refine the options for resolving the issue. Group members represented shippers, end users, and other interested parties. Gas Industry Co presented three broad options and the Capacity Working Group discussed variations on those options.[10]

3.3 Evidence of a competition problem

Gas Industry Co understands it would not be in the commercial interests of shippers who are benefitting financially from the current arrangements to acknowledge a competition issue. Also, for reasons related to the Commerce Act 1986 (Commerce Act), parties to the VTC may not wish to acknowledge some of those arrangements might be damaging competition[11].

However, the discussion in section 3.1 makes it clear that if Vector denies retailers the capacity they need to bid for requests for proposals (RFPs) for gas supply, then competition is reduced. The

[9] Materials associated with the workshop (presentations and notes) can be found here: http://www.gasindustry.co.nz/work-programme/transmission-pipeline-capacity?tab=1849

[10] A note of the Capacity Working Group's discussion can be found at: http://www.gasindustry.co.nz/work-programme/transmission-pipeline-capacity?tab=1849

[11] Section 27 of the Act prohibits anyone from entering into, or implementing arrangements with the purpose, or effect or likely effect, of substantially lessening competition.

anecdotal evidence of end users and energy brokers we have talked to confirms this view. It is also a view strongly held by end users.

Nevertheless, the evidence provided to Gas Industry Co does also point to some continuing competition.

Current competitive activity

To indicate the number of end users seeking competitive bids for their gas supply, one major energy broker has advised us it handles about 50 RFPs annually for gas supply from the North Pipeline. Of these, 10 relate to end users with an annual demand over 10 terajoules.

In the year since Vector announced the capacity constraint, 20 end users supplied from the North Pipeline and with annual demand over 10 terajoules switched their retailer. The total number of end users in this category is 132.

For the whole transmission system (including the North Pipeline), 70 out of 378 end users with annual demand over 10 terajoules switched retailers in the past year.

From the above, the proportion of switches in the North Pipeline appears to a broadly similar proportion to the system as a whole (15% and 19% respectively).

This is evidence of at least some degree of competition in the North Pipeline. But it does not follow that the amount of competition has not reduced, as is explained below.

Competitive activity has reduced

We have been provided with confidential information about the results of tenders to supply major end users, each with annual demand greater than 50 terajoules. The tenders have all occurred since Vector's capacity constraint was announced. The information suggests that, since the capacity constraint, fewer retailers are responding to RFPs to supply major end users. It also suggests end users have been unable to accept the lowest offers, thereby missing out on significant savings. However, it is clear that some degree of competition does exist.

We provide two examples to support the argument that competitive activity continues on the North Pipeline, but at a reduced level.

The first example involves an Auckland-based end user with demand characterised by a five days per week operation, with little seasonality. The broker seeking bids for this end user noted it would normally expect at least six of the seven retailers to quote, but only four quotes were received. Of the three retailers who declined to quote, one stated in writing it was as a direct result of the pipeline constraint problem.

Of the four prices bid:

- the lowest two offered reductions of $440,000 per year and $170,000 per year;
- the incumbent offered to keep its price unchanged; and
- the highest offer would have resulted in an increase of $270,000 per year.

The price range was approximately 70–120% of the current price. The lowest bid could not be accepted because it was made subject to the availability of transmission capacity. The retailer who made the second lowest bid already had sufficient capacity and its bid was accepted.

In the second example, the end user received seven offers. Some were 'subject to the availability of transmission capacity'. But the two lowest-priced offers were both made by retailers with sufficient reserved capacity to supply the end user.

In both examples the incumbent lost the tender.

From this information we conclude:

- there is still a degree of competition on the North Pipeline (evidenced by switching records and the number of bids received by end users in the above examples); but
- competitive activity appears have reduced because not all retailers who would like to bid for an end user's gas supply are able to access capacity (a view strongly held by energy brokers and end users, and supported by the above examples).

Cost of reduced competition

The above evidence indicates the high cost to end users of reduced competition. In the first example, the end user was able to reduce annual costs by $170,000—but only because the retailer making the winning bid already had significant capacity. If it did not have sufficient capacity, the end user would not have the benefit of the cheaper gas. Also, the winning retailer potentially now has insufficient capacity remaining to bid for other users' gas supply.

It could be argued that the end user in the first example might have saved $440,000 per year if it could have accepted the lowest bid (which was made subject to capacity). However, some retailers have told us they believe certain offers have been made to end users at unrealistically low prices. They consider the retailer making those offers is confident they will be rejected because they are made 'subject to the availability of transmission capacity'. The accusation is that the offers were made to dramatise the competition issue. The retailers also suggested the prices at which those end users are being supplied are already low (relative to the sum of input prices: wholesale gas, transmission, and distribution).

We accept that the size of the overall effect on end users of the loss of competition is debatable. Nevertheless, the evidence suggests end users are potentially losing significant value because not all retailers are able to bid for their gas supply.

Views and behaviour of participants reinforce Gas Industry Co's concerns

Retailers seeking to compete and finding they are denied access have more reason to dramatise the situation if it is a real situation. Also, if competition is reduced we would expect those who are disadvantaged—the end users and retailers wishing to compete— to be vocal about the problem; and those who are benefitting—the incumbent retailers—to deny that a problem exists, and resist efforts to remedy it. We are observing exactly this pattern of views and behaviour.

Conclusion

On the basis of information presented to Gas Industry Co, and our conceptual analysis of the economics underlying the situation (see section 4), we are convinced that rivalry between retailers to supply the needs of large end users on the North Pipeline has reduced. Competition has therefore been damaged and Gas Industry Co is obliged to consider how the competition objective of the Gas Act can be better met.

3.4 Conflicts with the Gas Act and GPS objectives

Gas Industry Co considers the reduced competition conflicts with the Gas Act and GPS objectives. These objectives are as follows.

- Barriers to competition in the gas industry are minimised (s 43ZN(b)(ii) of the Gas Act).
- Delivered gas costs and prices are subject to sustained downward pressure (s 43ZN(b)(iv) of the Gas Act).
- Competition is facilitated in downstream gas markets by minimising barriers to access to the essential infrastructure to the long-term benefits of end users (paragraph 12(b) of the GPS).
- Gas industry participants and new entrants are able to access transmission pipelines on reasonable terms and conditions (paragraph 13 of the GPS).

Question 1: Do you agree with our description of the retail competition problem?

4 Economic analysis of the competition problem

4.1 Comparison of competitive and non-competitive outcomes

The solution to the competition issue will not—and is not intended to—solve the underlying problem of a shortage of capacity on the North Pipeline. The objective of the short-term solution is to ensure the retail market remains competitive despite this shortage.

Before proposing any change to the existing arrangements, we must first understand conceptually the detrimental effects on a market when competition is lacking on a 'constrained pipeline'.[12] As a framework for developing this understanding, we compare the characteristics and outcomes of competitive and uncompetitive markets. We do this by building theoretical market models:

- a 'competitive model' where there is effective retail competition; and
- a 'franchise model' where there is no retail competition.

In this section we assess the current situation on the North Pipeline—as we understand it— in the context of these theoretical models. We also discuss other issues arising from the current situation. This analysis helps to establish the reasons for intervening to solve the competition issue.

4.2 The competitive model of the retail gas market

In a free market, if the demand for a good increases but its supply is fixed, then its price must increase. The higher price prevents demand from exceeding supply and allocates the good to those who value it most.

The primary market for pipeline capacity—Vector's issuance of capacity to shippers—does not function in this way. The price is fixed at the Capacity Reservation Fee (CRF) posted by Vector Transmission. If demand for capacity exceeds supply, demand is rationed by reference to 'grandfathering rights'. In effect these rights ration capacity on a constrained pipeline by quantity rather than allowing prices to perform the rationing role. Under grandfathering rights, current holders of capacity, the gas retailers, have first refusal in Vector's annual process for issuing capacity.

[12] In this general context a 'constrained pipeline' is one where the owner, acting as a reasonable and prudent operator, will not sell more firm capacity because it considers that doing so would increase the risk of interruption to other holders of firm capacity to an unreasonable level. In the context of particular options the term 'constrained pipeline' may take on a more specific meaning. See Glossary.

However, in the competitive model, the prices in related markets—the wholesale gas market, and secondary capacity markets—are free to move. These prices will reflect the true 'market price' at which supply and demand for gas are matched.

Figure 1 illustrates the competitive model. The top graph presents the situation where the issued capacity is less than the capacity limit. Here the delivered gas price equals the delivered gas cost. The lower graph presents the situation where the available supply of capacity is exhausted. Here the market demand has increased, shifting the demand curve to the right. At the delivered gas cost, demand would now exceed the capacity limit. The price will rise until demand is choked off to the point where it equals the available capacity. At this point the delivered gas price includes the delivered gas cost and the 'capacity rent'[13].

Capacity rent accrues to the parties who hold capacity entitlements. Under current commercial arrangements those parties are the gas retailers. These retailers, who are also the gas shippers, have bought capacity from Vector for the current gas year. They also have grandfathering rights giving them first option on buying the same amount of capacity in the following gas year. Any change to these rights would cause the rent to be redistributed.

[13] 'Rent' refers to the amount by which payment for the service exceeds the cost of providing the service.

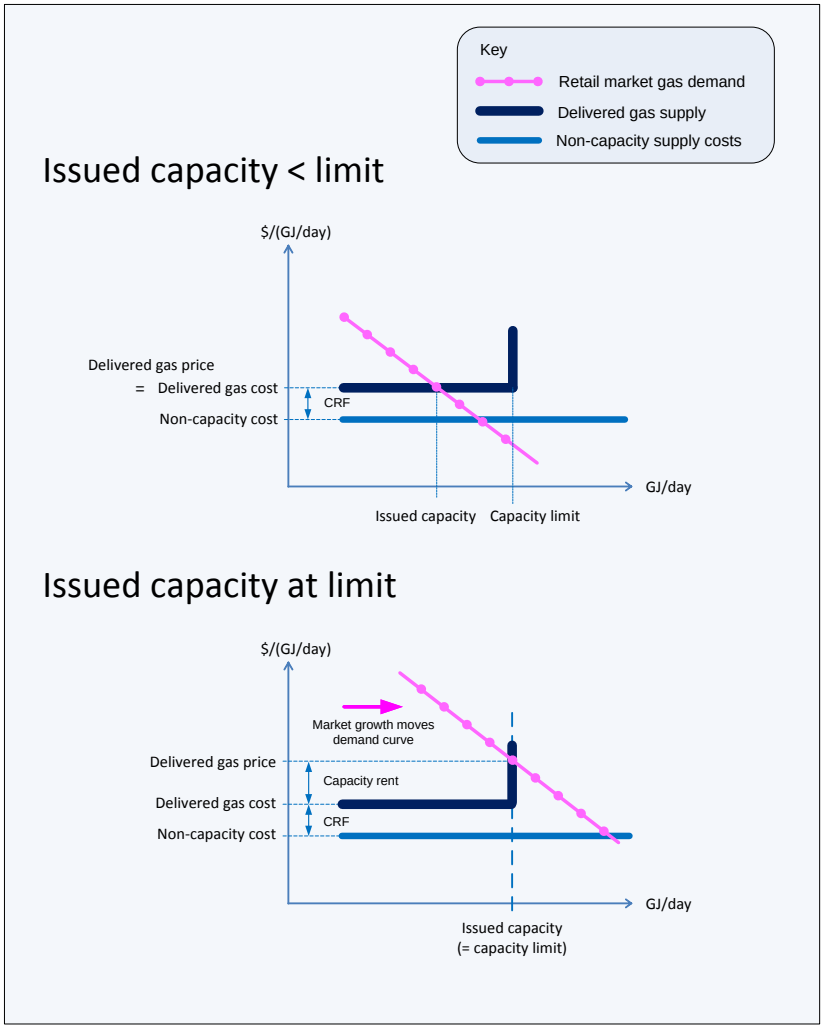

Figure 1 Competitive model outcomes

It is important to note capacity rent arises because, in the primary market for pipeline capacity, the price for capacity (the CRF) is set on the basis of a pricing methodology, and not by the market. In the competitive model, the rise in the market price for capacity (the CRF plus the capacity rent)—and the corresponding rise in retail prices—are caused by a shortage of capacity, not a lack of retail competition. Indeed, the competitive model dictates that the retail market reveals a market price for capacity, which will reflect its scarcity.

4.3 The franchise model of the retail gas market

Retailers obliged to serve existing end users but unable to compete for new end users

For retail competition to be effective, retailers must be able and willing to compete for end users. When the amount of capacity held by each retailer is fixed, a retailer can compete for new end users only if it:

- has spare capacity;
- is able to buy capacity on the secondary market; or
- is able to 'drop' an existing end user to free up capacity to supply a new end user.

Under the current arrangements, spare capacity is likely to be held by just a few retailers. Because of grandfathering, retailers whose market share is growing will quickly run short of capacity; whereas retailers losing market share will have spare capacity—if they make full use of their grandfathering rights. This suggests that, because some retailers are likely to grow as others shrink, spare capacity is unlikely to be held equally between retailers.

The opportunity for a retailer to buy capacity on the secondary market is also limited. Vector allows secondary trading of capacity; however, the secondary market is illiquid—little, if any, capacity is traded on the secondary market—so, in general, secondary capacity is unavailable to buy. Some possible reasons for the secondary market being illiquid are summarised below. For a more detailed discussion, refer to section 6.5 of *Review of Vector Capacity Arrangements: A Research Paper* (the Capacity Research Paper). [14]

- Larger, more diverse retailers might have less commercial interest in secondary trading. Without efficient trading, retailers must reserve sufficient capacity to book all their peak demand irrespective of whether it coincides with the system-wide peak; this is less costly for a diverse retailer than a retailer with no diversity. With efficient secondary trading, each retailer needs to reserve capacity only to cover its coincident peak demand; this cost is the same for all retailers, irrespective of their diversity. So, secondary trading would reduce or eliminate the diversity-related competitive advantage for major retailers.
- Liquidity is self-reinforcing; traders join markets where there are many buyers and sellers, thus adding more buyers and sellers. In a capacity secondary market, liquidity concerns are more acute. If users aren't confident about buying secondary capacity, they book sufficient capacity to cover their peak demand. They then have no need for secondary capacity and the market remains illiquid.
- The transaction costs associated with finding a trading partner and agreeing a price might outweigh the benefits of lower capacity costs.
- Users with non-standard transmission services agreements may be prohibited from secondary trading by the terms of their agreement.

The possibility of 'dropping' an existing end user is also problematic. Although a retailer might 'drop' an end user by letting a contract lapse at renewal, it is risky for two reasons. First, the new end user

[14] Creative Energy (2009) *Review of Vector Capacity Arrangements: A Research Paper*, available here: http://www.gasindustry.co.nz/sites/default/files/publications/Vector_Capacity_Research_Paper_149282.2.pdf.

might be less profitable than the dropped end user. Second, if no other retailer is willing or able to supply the dropped end user, the end user would be left 'stranded' with no gas supply. Such a situation could have adverse public relations effects for the dropping retailer. The scenario in which a retailer is obliged to continue to serve existing end users but is unable to compete to serve new end users can be thought of as a 'franchise' model. The retailer's 'franchise' is its existing end users.

Value of capacity predicated on demand elasticity of existing end users

If a retailer's capacity can be used to supply only its existing end users, and its end users have no alternative supplier, then the value of the capacity to the retailer is predicated on the elasticity of demand of each end user.

Under the franchise model, the retailer is effectively the monopoly supplier of each individual end user and, acting rationally, will price at the monopoly price. The monopoly price will maximise the capacity rent from each individual end user. This is illustrated in Figure 2.

The top graph represents an end user with an inelastic demand. The demand curve reveals the end user's 'willingness to pay'. Its steep slope indicates that this end user is relatively price insensitive. The lower graph represents a larger user with a more elastic demand—it is more price sensitive. In each case the retailer will pitch its price at a level that maximises its rent, but (given the same input costs) the price will be higher for the user with the more inelastic demand. In contrast, a competitive market reveals a single market price.

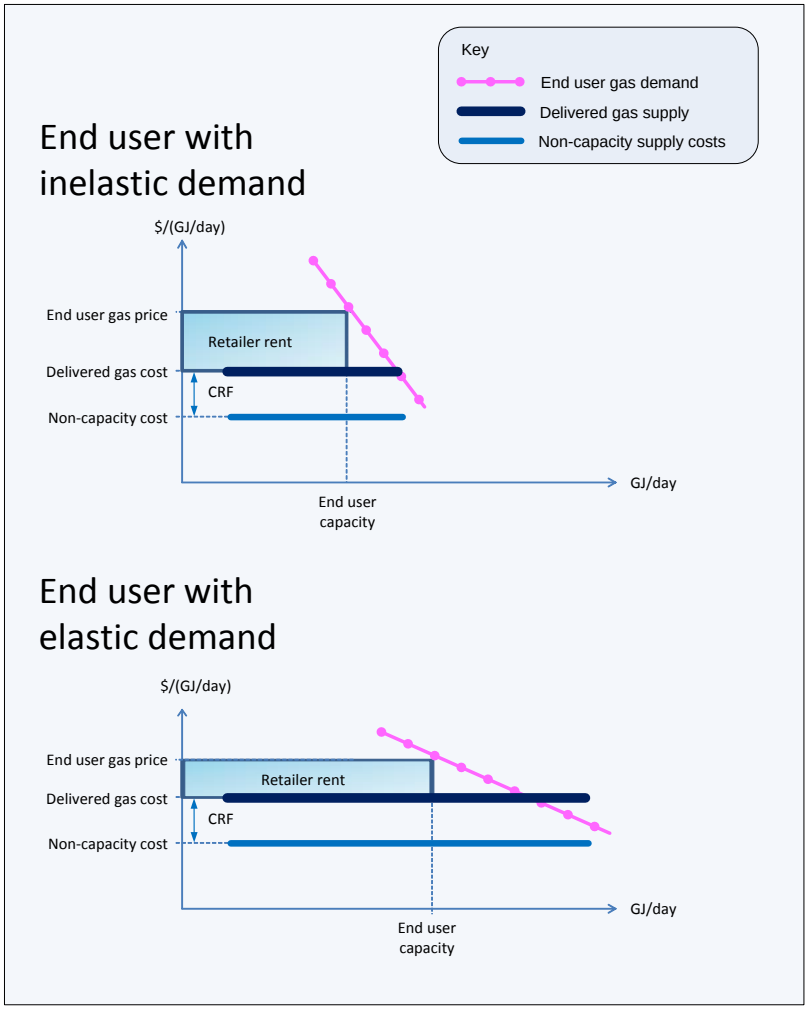

Figure 2 Franchise model outcomes

The retail prices and retailer rents in this franchise model have no direct relationship to the retail price and capacity rent in the competitive model. Many end users will be charged a retail price higher than in the competitive model[15]; others will be charged a lower price. So end users may be better or worse off than under the competitive model, depending on their price sensitivity.

4.4 The loss of economic efficiency caused by lack of competition

Retail market

By comparing the competitive model with the franchise model, we can identify the hypothetical 'dead-weight losses' (the loss of economic efficiency) arising from the lack of retail competition.

Under the franchise model, retail gas prices may vary according to end users' willingness to pay. The deadweight losses in the franchise model do not arise from the capacity rent, because this exists in

[15] Theoretically, the prices in the short term will be higher than in the long term because an end user's demand will be more inelastic in the short term. It generally takes end users time to respond to higher prices. For example, the end user's gas-fired equipment might have no alternative use, and might not be easily substituted.

some form in both models. Rather, they arise from the loss of a uniform, retail gas price in the franchise model. End users are charged based on their willingness to pay. So end users for whom gas has a low value may be using scarce capacity at the expense of end users who value gas more highly.

Related markets

The analysis above does not take into account the effect of the loss of retail competition on two related markets: the wholesale gas market and the 'retail services market'. These markets are discussed in the next section.

4.5 Other issues arising on a constrained pipeline

Effect on wholesale competition

A competitive retail market is a channel for wholesale gas producers. Producers of cheap gas can gain end users by undercutting retailers. Another channel for producers is the wholesale gas market. As discussed above, the retail market is currently uncompetitive, particularly for larger end users. The competitiveness of the wholesale gas market is unknown. If it, too, is uncompetitive, the lack of retail competition could exacerbate the problem.

If competition in the wholesale market is reduced as a result of the loss of retail competition, productive inefficiency would result. Expensive gas would be produced and cheaper gas would either not be produced or diverted to low-value uses.

However, the size of the retail market affected by the lack of competition is relatively small (measured in petajoules) compared with the size of the New Zealand wholesale gas market. Therefore, the lack of competition in the retail market would have only a limited effect on the wholesale market.

Effect on retail services

The 'retail services' a retailer provides to an end user include wholesale sourcing, pricing, packaging and delivery, and associated billing and settlement. Some gas retailers might provide services more efficiently than others. In a competitive market, efficient providers of retail services should grow at the expense of less efficient providers.

A lack of retail competition disadvantages efficient providers and could result in less efficient retail services being offered to end users. However, because the capacity shortage is currently affecting only large end users—who are small in number compared with the myriad 'mass market' end users—its effect on the retail services market is unlikely to be material.

Value of grandfathering rights

Under the competitive model, the capacity rent arising from the capacity shortage is allocated to the holders of 'grandfathering rights' under the VTC (refer section 4.2). In the franchise model (section 4.3), retail franchises—and the retailer rents accompanying them—are founded on these grandfathering rights. In both models, then, the rights may create substantial commercial value for

their holders. Grandfathering rights are evergreen and so have value as long as the capacity shortage remains.

Grandfathering rights are predicated on the VTC. Under the VTC change process, these rights could be removed without the consent of the holders of those rights.[16]

Withheld capacity

The Capacity Options Paper described the complexity of determining the commercial capacity of a pipeline. The paper also discussed the risk of Vector underestimating commercial capacity and, in effect, withholding capacity from the market.

Vector has indicated it sets prices to follow a fixed revenue path. If it sells additional capacity, revenue remains the same, but capacity prices fall. Therefore, the incentive on Vector to under-estimate capacity—to ensure firmness of issued capacity—may outweigh the incentive to over-estimate capacity.

Nevertheless, Vector is obliged under the VTC to act as a reasonable and prudent operator and so is not permitted to unreasonably withhold capacity.

4.6 Conclusion

Given the North Pipeline capacity constraint and the grandfathering rights under the VTC, economic theory suggests that a franchise model would apply and some loss of allocative efficiency would result. There may also be some minor loss of efficiency in the markets for wholesale gas and retail services.

The theory also casts some light on how competition might be increased while preserving the security of supply standard. At present, two mechanisms preserve security by suppressing growth in end user demand for scarce pipeline capacity:

- prices are higher than if capacity were unconstrained; and
- new end users are denied a gas supply (a mechanism that could appear only in a non-competitive market).

A short-term solution to improve competition that removes both of these features would result in 'uncontrolled' increases in demand, at some point leading to increasing frequency of congestion and curtailment. Therefore, any short-term solution will have at least one of these features:

- high capacity prices;
- a mechanism to control the ability of new end users to obtain a gas supply; and

[16] Any proposed change to the VTC that is declined because of lack of support can be appealed. Gas Industry Co considers the appeal and its recommendation is final and binding (although Vector may decline the recommendation if it requires Vector to incur substantial cost). Section 8.1 contains a brief explanation of the VTC change process.

- increasing levels of congestion and curtailment.

None of these features is attractive. The challenge is to identify the 'least bad' outcome. Evaluation criteria are developed in section 7 to help guide this choice.

Question 2: Do you agree with the economic analysis?

5 Legislative framework

Gas Industry Co acknowledges the industry's preference for a non-regulatory (voluntary) solution to the competition problem. However, as described in this paper, Gas Industry Co has concluded a regulatory solution will best meet the objectives of the Gas Act and the GPS, and the regulatory objective. This section describes the legislative framework with which Gas Industry Co, as the 'Industry Body' under the Gas Act, must comply when making recommendations for rules and regulations. The description includes Gas Industry Co's powers under the Gas Act to make rules and regulations.

5.1 Rule and regulation making powers under the Gas Act

The Gas Act allows for the Government to directly regulate gas industry participants to ensure effective outcomes for consumers of gas.

Gas Industry Co, as the Industry Body, may propose a regulatory capacity option under the following sections of the Gas Act.

- Section 43F(2)(c) prescribing reasonable terms and conditions for access to transmission or distribution pipelines.
- Section 43S providing for a person or persons to carry out functions in relation to those regulations and the recovery of any related costs.

5.2 Gas Act requirements when recommending rules and regulations

Section 43L(1): Consultation

Before making a recommendation to the Minister, Gas Industry Co must first comply with section 43L(1) of the Gas Act. This section requires Gas Industry Co to:

- undertake an assessment under s 43N; and
- consult with all persons the recommending body thinks are representative of the interests of persons likely to be substantively affected by the proposed regulation; and
- give those persons an opportunity to make submissions; and
- consider those submissions.

Section 43N(1): Assessment

The assessment under s 43N(1) of the Gas Act requires Gas Industry Co to:

- seek to identify all reasonably practicable options for achieving the objective of the regulation; and
- assess those options by considering:
  - the benefits and costs of each option;
  - the extent to which the objective would be promoted or achieved by each option;
  - any other matters the industry body considers relevant;
- ensure the objective of the regulation is unlikely to be satisfactorily achieved by any reasonable practicable means other than the making of the regulation (for example, by education, information, or voluntary compliance); and
- prepare a statement of the proposal for the purpose of consultation under section 43L(1).

Section 43N(2): Statement of Proposal

A statement of proposal must, under s 43N(2) of the Gas Act, contain:

- a detailed statement of proposal;
- a statement of the reasons for the proposal;
- an assessment of the reasonably practicable options, including the proposal, identified under subsection 43N(1)(a); and
- other information that the industry body considers relevant.

5.3 Rules or regulations

Gas Industry Co considers rules are more appropriate

For the regulatory options considered, Gas Industry Co must also determine whether it would be more appropriate to recommend rules or regulations. Section 43Q(1) of the Gas Act allows the Minister to make a rule for all or any of the purposes for which a gas governance regulation may be made. Section 43Q(2) states the Minister must, when deciding whether rules are more appropriate, have regard to only:

- the importance of the rule, including whether the rule has material effect on the rights and interests of individuals;
- the subject matter of the rule, including whether the rule contains detailed or technical matters rather than matters of general principle;

- the application of the rule, including:
    - whether the rule applies principally to a particular group (for example, industry participants) rather than the general public;
    - 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;
- the expertise and rule-making procedures of the recommending body.

Gas Industry Co considers rules rather than regulations are appropriate for implementing the preferred option. The reasons are set out below.

Existing contractual rights are affected

Under the proposal, shippers on a constrained pipeline are required to surrender a defined amount of capacity if an end user chooses to be supplied by a new retailer. Therefore, on Vector's North Pipeline, we consider the proposed option will have some material effect on the rights and interests of individuals. However, we note it was never intended that these rights would be a source of market power for these retailers. In particular grandfathering rights were intended to provide shippers the ability to enter into multi-year contracts with their end users. They were not intended to prevent, or limit, end users from obtaining competitive bids for their gas supply, which is currently the case on the North Pipeline.

The subject matter is technical

The subject matter of the proposal concerns detailed and technical matters, which are more appropriate for rules. The rules will require that, when a TSO considers a pipeline is constrained, it provides the Industry Body with technical information on the perceived constraint. The Industry Body is then required to assess the material and determine whether or not to declare a pipeline, or part of a pipeline constrained. The rules will specify (with reference to a gigajoule threshold) the large end users who can trigger the capacity transfer process. When one of these end users switches to a new retailer, the TSO determines the amount of capacity to be transferred using a formula specified in the rules.

The rules apply to a specific group

The rules will apply to a specific group—shippers, large end users, and TSOs—rather than the general public. Shippers and large end users are subject to the rules only if they are operating on any pipeline declared constrained.

The benefits of publication outweigh the cost

Gas industry participants find it useful to access existing gas governance rules and regulations from Gas Industry Co's website, and the cost of posting the rules there is small. We therefore consider the benefits of publication in the manner under s 43R outweigh the costs.

Gas Industry Co has the required expertise

Gas Industry Co, as the industry specific regulator, will be involved in the drafting of the rules and the ongoing compliance with the rules. We consider the expertise of the recommending body is therefore high and that our rule-making procedures are robust.

6 Regulatory objective

6.1 Gas Act and GPS objectives and outcomes

Where Gas Industry Co recommends gas governance regulations and rules it must ensure they align with Gas Act and GPS objectives.

The Gas Act

Part 4A of the Gas Act relates to the governance of the gas industry. In particular, s 43ZN sets out the objectives of Gas Industry Co as the Industry Body in relation to gas governance rules and regulations. Section 43ZN states that the principle objective of Gas Industry Co in recommending gas governance rules and regulations under s 43F is to:

> ...ensure that gas is delivered to existing and new customers in a safe, efficient, and reliable manner.

The other objectives are listed below.

- 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.
- 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.
- Consistency with the Government's gas safety regime is maintained.

GPS

A further Government objective for Gas Industry Co is for it to take account of fairness and environmental sustainability in all its recommendations. To this end, and as stated by the GPS, the Government's objective for the entire gas industry is to:

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

Gas Industry Co must have regard to this objective when making any recommendations and report against it.

Paragraph 12 of the GPS adds five additional objectives Gas Industry Co must also have regard to when making recommendations:

- energy and other resources used to deliver gas to consumers are used efficiently;
- competition is facilitated in upstream and downstream gas markets by minimizing barriers to access to essential infrastructure to the long-term benefit of end users;
- the full costs of producing and transporting gas are signalled to consumers;
- the quality of gas services where those services include a trade-off between quality and price, as far as possible, reflect end users' preferences; and
- the gas sector contributes to the Government's climate change objectives as set out in the New Zealand Energy Strategy, or any other document the Associate Minister of Energy may specify from time to time, by minimising gas losses and promoting demand-side management and energy efficiency.

The GPS also identifies the specific outcomes for the gas industry against which Gas Industry Co must report. These are consistent with the objectives found under the Gas Act. The outcomes relevant to the retail competition issue include:

> Gas industry participants and new entrants are able to access … transmission pipelines… on reasonable terms and conditions.

The other relevant outcomes include:

> Gas governance arrangements are supported by appropriate compliance and dispute resolution processes.

6.2 Purpose relevant to the retail competition issue

Where Gas Industry Co recommends gas governance regulations and rules it must be for a purpose listed in s 43F.

Section 43F of the Gas Act provides that rules or regulations may be made for all or any of the purposes in s 43F(2). The purpose specifically relating to the retail competition issue is for:

(c) prescribing reasonable terms and conditions for access to transmission or distribution pipelines.

6.3 Gas Industry Co's regulatory objective

When considering regulatory intervention Gas Industry Co finds it helpful to develop a concise statement of its objective for intervention. The regulatory objective should encapsulate the problem, and what needs to be done to achieve the objectives of the Gas Act and GPS. The regulatory objective we have developed for the retail competition issue is:

> To ensure that, in the short term, end users who are able to be supplied by existing pipeline capacity are not prevented from having an effective choice of supplier. The solution should not compromise achieving the Gas Act and GPS objectives in the longer term.

The meaning and relevance of phrases in this objective are discussed below.

'Short term'

An immediate solution to competition problems on the North Pipeline is needed. The objective is for a solution to be in place as soon as any necessary rules or regulations and/or contractual changes can be implemented.

Short-term options exclude investment in infrastructure that significantly expands physical pipeline capacity, which is a long-term undertaking. Introducing the more complex and comprehensive contractual (or regime) changes described in the Capacity Options Paper is also infeasible in the short term; this is a medium-term solution.

The short-term solution will last until:

- the capacity scarcity is relieved, for example because of expanded physical capacity; or
- it is replaced by a medium-term solution (see 'compromise' section below).

Neither expanding physical capacity nor implementing a medium-term solution has an associated timetable, so the short-term solution has an unspecified end date. We expect a medium-term solution could be introduced in two to three years.

'Existing pipeline capacity'

Given the currently limited physical capacity, it is not feasible for existing or prospective end users to receive a substantial new gas supply, competitive or otherwise. The regulatory objective acknowledges this physical constraint, but also recognises there may be some scope to allow new end users to be supplied. For example, existing end users may reduce their gas consumption, or cease business, thereby freeing capacity to supply new end users. Such new end users should be able to obtain competitive bids for their gas supply. The objective therefore refers to 'end users' rather than 'existing end users'.

‘Effective choice of supplier’

We understand that many retailers’ offers to supply an end user are either:

- subject to the retailer being able to obtain the necessary capacity; or
- include terms that pass on any overrun charges.

However, such offers do not give end users genuine choice, because they are generally too risky or unaffordable. In this context ‘effective choice’ means an end user receives multiple reasonable offers for supply that it can choose from.

‘Not compromise achieving Gas Act objectives in the longer term’

Although Gas Industry Co’s current focus is a rapid improvement in retail competition, any actions taken must be in the context of the more general objective of better achieving all the Gas Act objectives over time. The Capacity Options Paper stated the Gas Act objectives in the context of commercial capacity arrangements. The seven capacity-specific objectives are to:

- ensure efficient pricing of capacity;
- ensure efficient allocation of capacity (when it is in scarce supply);
- promote efficient investment in capacity;
- facilitate competition in related markets;
- favour simple and transparent design and operation;
- allow (capacity) price stability; and
- provide the level of service firmness that users require and are willing to pay for.

As noted, Gas Industry Co intends to develop and promote reforms to the Vector access arrangements to help achieve these objectives. However, we recognise this will take time and the competition issue is pressing. Gas Industry Co is seeking to avoid the situation where the short-term solution to the competition issue prevents, delays, or complicates the medium-term solution. There are several ways a short-term solution could compromise the medium-term objectives:

- by diverting industry participants’ scarce resources (however, this effect should be modest given the need for a quick, simple solution);
- by creating new transition problems for the medium-term solution (that is, the short-term solution is ‘further away’ from the medium-term solution than the status quo); or
- by encouraging Vector, shipper/retailer, or end user behaviour inconsistent with the medium-term objectives.

Ideally a short-term solution would advance and promote the medium-term objectives by easing the transition and encouraging suitable behaviour. The short-term solution should be a 'stepping stone' towards a medium-term solution rather than a diversion.

The 'transition' part of the objective is somewhat problematic because the form of the medium-term solution is unclear. Analysis in the Capacity Options Paper favoured some form of 'hybrid' model. (The hybrid model is described in section 10 of the Capacity Options Paper.) However, the final form of the solution has yet to be decided.

Question 3: Do you agree with the proposed regulatory objective?

7 Evaluation criteria

This section identifies and discusses the criteria against which the reasonably practicable options are evaluated.

7.1 Criteria based on regulatory objective

Consistency and competition

The regulatory objective has two sub-objectives related to competition and consistency with longer-term changes. For evaluation purposes, it is helpful to separate the regulatory objective into these two sub-objectives, because an option might perform well against one but not the other. The two evaluation criteria are:

- Competition: to ensure that end users who are able to be supplied by existing pipeline capacity are not prevented from having an effective choice of supplier.
- Consistency (with longer-term changes): The solution should not compromise achieving the Gas Act objectives in the longer term.

Timeliness

The regulatory objective implicitly contains another criterion, timeliness. The regulatory objective is required to be achieved 'in the short term', so any short-term solution must be quick to implement. The solution should be able to be developed, implemented, and operational in a short time.

Because cost is typically proportionate to implementation time (although in some cases, time can be reduced by increasing cost), the timeliness criterion provides a reasonable proxy for implementation cost.

7.2 Other criteria

This section discusses other evaluation criteria that provide measures of how 'reasonably practical' each option is.

Minimise the effect on existing contractual rights

Under the status quo, grandfathering rights may have a substantial value; a short-term solution might diminish or remove this value. Generally, a major change to existing contractual rights is to be avoided. It can create uncertainty about the integrity of other rights and diminish incentives to invest.

However, grandfathering rights to capacity were introduced to ensure retailers have the ability and confidence to enter into multi-year contracts with end users. The rights were not intended to limit the ability of end users to select their preferred gas supplier, or to confer market power on the holders of transmission capacity That suggests abolishing grandfathering rights may be beneficial, so long as the ability to supply multi-year end users is preserved.

To capture all of these concerns, one evaluation criterion is that the solution minimises the effect on existing contractual rights by preserving the ability to enter into multi-year contracts, but without limiting the ability of end users to select their gas supplier.

Minimise price shock

End users and shippers rely on stable transmission tariffs. A substantial increase in prices would either leave retailers operating at a loss or would be passed through to end users, with adverse results. It is often possible to phase in a solution that would otherwise cause a price shock. However the 'short term' requirement of the regulatory objective prohibits such an approach in this case.

Vector has indicated it adjusts prices to maintain a fixed revenue. Therefore, an increase in one component of its tariff must be offset by a reduction in other components. Where one component is fixed and another variable, this can lead to cashflow effects even where price levels overall are broadly unchanged. Any increase in the proportion of revenue coming from a variable component, increases the volatility of Vector's cashflows.

This issue of price shock would be highlighted if a short-term solution were implemented within this current gas year, because Vector will not have budgeted for its effects. A severe revenue effect may prevent a solution from being implemented before the start of the next gas year (October 2011).

To capture all of these concerns, we have included an evaluation criterion related to 'shock'; that is the solution should minimise effect on prices, revenues, and cashflows for end users, retailers, and Vector.

Minimise curtailment

As noted, the current arrangements help to suppress demand growth and so reduce the likelihood of curtailment. Under some short-term options, curtailment might increase.

Power stations usually bear the brunt of curtailment—they are large consumers requiring supply pressures higher than distribution networks. So when pressure in the pipeline falls below their operational limit, they must reduce gas consumption.

The cost of power station curtailment is directly related to the electricity spot price. The spot price represents the cost of the generation needed to replace the lost output of the curtailed power stations. In the extreme event of a shortage of generation, the curtailment of power stations may lead to the curtailment of electricity consumers.

It is unclear whether, and in what circumstances, Vector would be liable to compensate curtailed power stations. If Vector were liable, the VTC seems to provide for Vector's costs to be recovered from over-running shippers. However, under some short-term options (for example, where there is insufficient pressure in the Maui pipeline to meet Vector pipeline demand), there may be no over-running shippers to bear these costs.

In addition to issues of cost and liability, an evaluation criterion must also take into account the specific Gas Act objective relating to service firmness (s 43ZN(b)(v)):

> ….risks relating to security of supply, including transport arrangements, are properly and efficiently managed by all parties.

In summary, curtailment may have several adverse effects:

- by imposing direct costs on power station owners and, potentially, electricity consumers;
- by creating potential liabilities for Vector and/or shippers; and
- by breaching a Gas Act objective.

Based on these considerations, an evaluation criterion is that the solution should minimise the frequency and severity of curtailment.

7.3 Summary of evaluation criteria

Table 2 summarises the evaluation criteria.

Table 2 Evaluation criteria

Criteria	Description
Competition	The solution should ensure that end users who are able to be supplied by existing pipeline capacity are not prevented from having an effective choice of supplier
Consistency	The solution should not compromise achieving the Gas Act objectives in the longer term
Timeliness	The solution should be able to be developed, implemented and operational in a short time
Existing contractual rights	The solution should minimise effects on existing contractual rights by preserving the ability to enter into multi-year contracts, but without limiting the ability of end users to select their gas supplier
Shock	The solution should minimise effects on prices, revenues and cashflows for end users, retailers and the TSO
Curtailment	The solution should minimise the future frequency and severity of curtailment

Question 4: Do you consider the evaluation criteria are appropriate for evaluating the options?

8 Overview of options considered

8.1 Reasonably practicable options

Under s 43N(1) of the Gas Act, Gas Industry Co is required to identify all reasonably practicable options for achieving the objective of the regulation. Regulatory and non-regulatory (voluntary) options are available for dealing with the competition problem.

Non-regulatory solutions

Non-regulatory solutions require changes to the relevant transmission codes, which in the context of the problem on the North Pipeline is the VTC. Any party to the VTC may propose a change to remedy the competition problem. This would help ensure the VTC promotes competition, and demonstrate that self-regulation is viable.

Although responses to the workshop questions suggest few shippers are likely to support a change proposal altering the status quo, a code change is still possible. Any party to the VTC can appeal a proposed code change that does not meet the acceptance threshold (support from Vector and 75% of Vector pipeline shippers). Gas Industry Co would then consider the appeal and make a recommendation. The recommendation is final and binding, although Vector may decline the recommendation if it requires Vector to incur substantial cost.

Some industry participants have suggested that it would be better for Gas Industry Co to propose a suitable change to the VTC. However, for legal reasons, our involvement in proposing VTC code changes is limited to advocating for change at the conceptual level only. Gas Industry Co's role as appeal body for VTC changes precludes it from making the proposal.

If a voluntary solution proceeds through to implementation, the process is as follows.

- Vector or shipper(s) draft and propose changes to the VTC.
- Parties to the VTC vote on the proposed changes.
- If the proposed change does not achieve the required threshold of support, any party may appeal to Gas Industry Co.

- If Gas Industry Co upholds the appeal (that is, Gas Industry Co supports the change), and Vector does not decline that recommendation on the basis of unreasonable cost, then the process continues.
    - Systems to implement the solution are developed and commissioned.
    - Solution is implemented.

Gas Industry Co has no control over when a voluntary solution might be proposed. It may occur before a regulated solution can be implemented.

Regulatory solutions

If a regulatory solution proceeds through to implementation, the process is as follows.

- Statement of Proposal published and consulted on.
- Regulations or rules drafted and recommended to the Minister.
- Regulations or rules supported by the Minister.
- Systems to implement solution developed and commissioned.
- Solution implemented.
- Transmission codes changed to align with regulations or rules.

A regulatory solution would be slower if it required extra time to draft and review regulations, and to implement systems. Detailed and specific regulations may take longer to draft and review than less complex regulations, but they may also lead to faster systems implementation because they require less interpretation.

The change process required to align the VTC with the regulations should not delay a regulatory solution. The VTC could be changed after the regulations are in place, because inconsistencies would be overridden by the regulations in the meantime.

Rules or regulations would apply to all transmission pipelines but, under most options, would affect capacity arrangements only when and where a pipeline becomes constrained and where existing commercial arrangements impede competition.

The rules or regulations would mostly likely be revoked or superseded when a medium-term capacity solution is implemented.

8.2 Main features of the options considered

This section summarises the main features of the reasonably practicable options for resolving the competition problem. As noted at the beginning of this paper, much of the analysis leading to the development of these options relates to the current situation on Vector's North Pipeline. However, any option, if implemented, would apply to all pipelines. They would come into effect only when and where a pipeline becomes constrained and existing arrangements impede competition.

The options are described more fully, discussed, and evaluated in appendices, as shown in Figure 3.

In section 9 we describe the process for evaluating the options and choosing the preferred one.

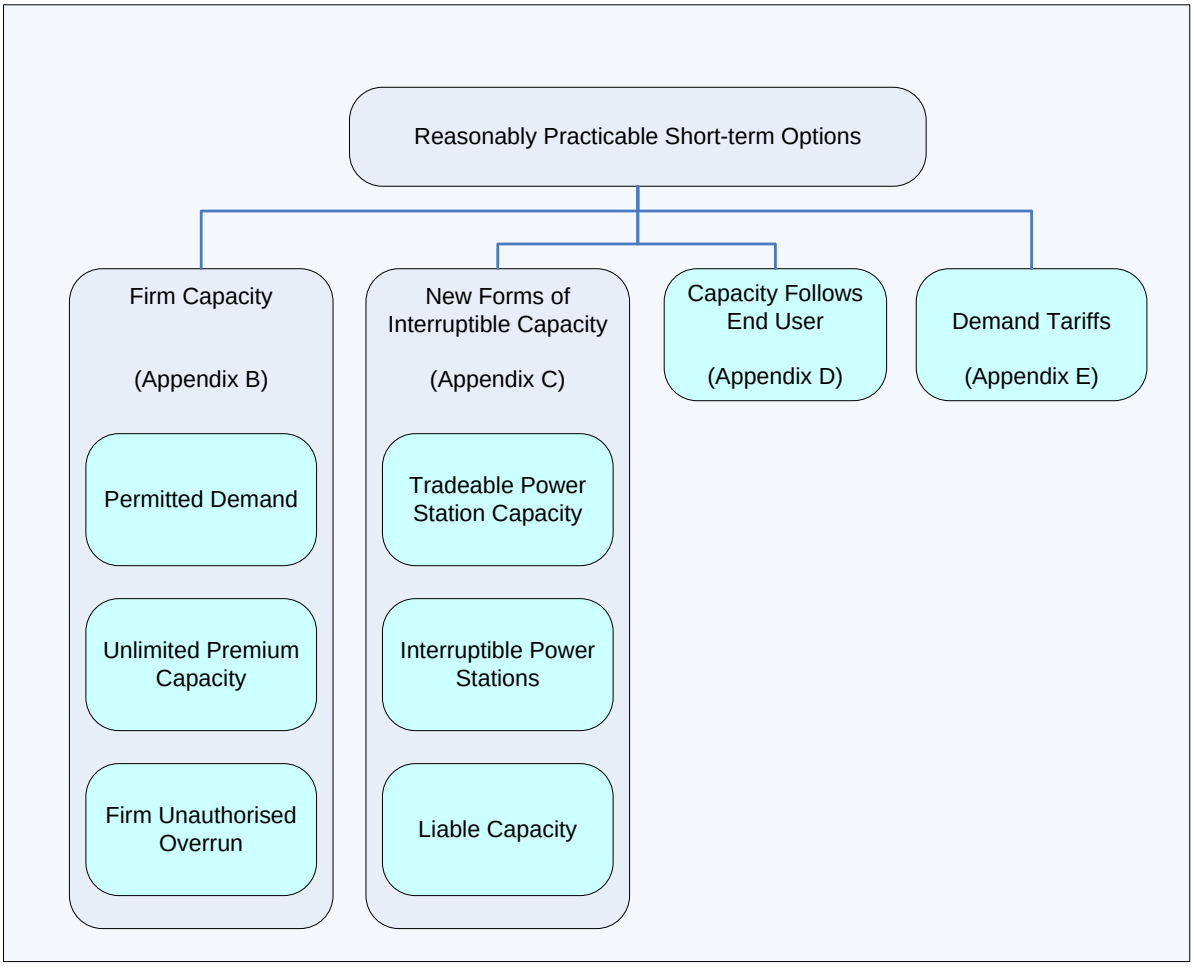

Figure 3 Reasonably practicable options considered

Firm capacity

This category has three regulatory options. The options in this category limit the growth of physical demand by administrative rules or price signals. The options are summarised in Table 3. Full descriptions and an evaluation of the options can be found in Appendix C.

Table 3 Summary of firm capacity options

Option	Main features
Permitted Demand	Retailers may hold as much Reserved Capacity as they wish. However, at large sites on a constrained pipeline, they may deliver gas only to a permitted level of demand. Retailers pay a new transmission charge for any deliveries above the permitted amount.
Unlimited Premium Capacity	Retailers on a constrained pipeline may access as much additional capacity as they wish; however, they pay a premium price for that additional capacity.
Firm Unauthorised Overrun	Retailers on any Vector pipeline may meet new demand using Vector's unauthorised overrun service. Retailers pay Vector's standard overrun charges, but are not liable for any other charges, including damages.

New forms of interruptible capacity

This category has two regulatory options and one non-regulatory option. The options in this second category indirectly relieve the capacity shortage by encouraging some shippers and end users to switch from firm to interruptible capacity. The options are summarised in Table 4. Full descriptions and an evaluation of the options can be found in Appendix C.

Table 4 Summary of interruptible capacity options

Option	Main features
Tradeable Power Station (PS) Capacity	Capacity supplied to power stations under supplementary agreements to long-term contracts may be traded on a constrained pipeline. Retailers may contract with a power station to purchase such capacity.
Interruptible Power Stations (PS)	Vector seeks to enter into contracts with shippers (most likely power stations) that allow it to interrupt supply in return for direct compensation. Vector can then issue a corresponding amount of 'new' capacity without breaching its RPO obligations. Vector may pass compensation costs on to the retailers holding the new capacity.
Liable Capacity	Vector issues unlimited new capacity. Retailers holding that capacity share liability for any curtailment damages payable by Vector.

Capacity follows end user

This category has one regulatory option. The 'capacity follows the end user' option ensures retailers with growing demand have sufficient capacity to serve their end users. The option is summarised in Table 5. A full description and evaluation of the option can be found in Appendix D.

Table 5 Summary of capacity follows end user option

Option	Main features
Capacity Follows End User	A retailer who wins a contract to supply a large end user on a constrained pipeline receives a 'Reserved Capacity Increment'. Vector transfers this amount of capacity from the old retailer to the new retailer. If the old retailer held more than the Reserved Capacity Increment to supply the large end user, it relinquish the difference to Vector.

Demand tariff

This category also has one regulatory option. The 'demand tariff' option removes the need for retailers to hold Reserved Capacity to supply end users. The option is summarised in Table 6. A full description and evaluation of the option can be found in Appendix E.

Table 6 Summary of demand tariff option

Option	Main features
Demand Tariff	The Demand Tariff option replaces the Reserved Capacity regime on all Vector pipelines. Retailers are entitled to as much capacity as they require. They pay a tariff based on the demand during the system peak; that is, they are charged on the basis of actual demand rather than Reserved Capacity. However, at large sites on a constrained pipeline, retailers may deliver gas only to a permitted level of demand. Retailers pay a new transmission charge for any deliveries above the permitted amount.

9 Evaluation of options

This section contains a summary of the evaluation of options and how Gas Industry Co, based on this evaluation, determined the preferred option. The full assessment of each option can be found in the corresponding appendices.

9.1 Evaluation summary

Evaluation ratings

Each of the options is evaluated against the six criteria discussed in section 7. The options are rated on a four-point scale as follows.

- Very good: the option completely satisfies the evaluation criterion.
- Good: the option largely satisfies the evaluation criterion.
- Moderate: the option partly satisfies the evaluation criterion.
- Poor: the option largely fails to satisfy the evaluation criterion.

The ratings are based on a qualitative assessment of how the options would be implemented and how they are likely to change behaviour and outcomes in the capacity and retail markets. Gas Industry Co believes a quantitative assessment of overall efficiency gains is impractical, as is explained in 9.5.

Evaluation ratings for each option

The ratings awarded to the options are summarised for comparison in Table 7.

Table 7 Comparison of evaluation ratings

Criteria	Firm capacity options			Interruptible capacity options			Capacity Follows End User	Demand Tariff
	Permitted Demand	Unlimited Premium Capacity	Firm Unauthorised Overrun	Tradeable PS Capacity	Interruptible PS	Liable Capacity		
Competition	✓✓	✓	×	××	××	××	✓	✓✓
Consistency	×	✓	✓	✓	✓	××	×	✓
Timeliness	✓	×	✓✓	✓	××	××	✓✓	××
Existing contractual rights	×	✓	✓	✓✓	✓✓	✓✓	×	×
Shock	✓	×	×	✓	✓	✓	✓	××
Curtailment	✓✓	×	×	✓✓	✓✓	××	✓✓	✓✓
×× Poor		**× Moderate**			**✓ Good**		**✓✓ Very good**	

9.2 Priority of objectives

Table 7 shows no single option outperforms all others on all criteria. Identifying a preferred option means aggregating or combining the ratings in some way. To do this, we first need to consider the relative importance of the different objectives.

Achieving the regulatory objective (that is, the first three criteria) might, at face value, appear to be of prime importance. There is no point in implementing a solution that does not deliver the objective.

However, even an option that rates moderately or poorly against the regulatory objective could potentially form part of a short-term solution. Not all the options are mutually exclusive.

Competition is a critical criterion, but so too is timeliness. An option that cannot be implemented in the short term cannot be a short-term solution. It may form part of the medium-term solution, but that is beyond the scope of this proposal.

Of the remaining (non-regulatory) objectives, 'curtailment' is considered the most important because it impinges on the regulatory objective. Most end users desire a reliable gas supply. Therefore, they do not have an effective choice of supplier if none is able to deliver a reliable supply.

'Shock' is ideally avoided, but this is not critical. Retailers must manage plenty of other shocks, for example, changes in wholesale gas prices. Changes in capacity prices should also be manageable.

'Existing contractual rights' is considered least important. Almost by definition, a regulatory solution will impinge on contractual rights. If rights need not be impinged, then a voluntary solution could probably be found. For non-regulatory solutions, existing contractual rights are not at issue.

9.3 Short-listing

The first step is to exclude options that cannot be quickly implemented: that is, those that rate as 'poor' against the 'timeliness' criterion. This eliminates Interruptible PS, Liable Capacity, and Demand Tariff; and leaves five options remaining: Permitted Demand, Unlimited Premium Capacity, Firm Unauthorised Overrun, Tradeable PS Capacity, and Capacity Follows End User.

The second step is to consider which of these five remaining options are mutually exclusive. This is set out in Table 8. Cells marked with a cross indicate the two associated options are mutually exclusive—they cannot both be implemented.

Table 8 Mutually exclusive options

×=options mutually exclusive	Permitted Demand	Unlimited Premium Capacity	Firm Unauthorised Overrun	Tradeable PS Capacity	Capacity Follows End User
Permitted Demand		×			×
Unlimited Premium Capacity	×				×
Firm Unauthorised Overrun					
Tradeable PS Capacity					
Capacity Follows End User	×	×			

The Firm Unauthorised Overrun and Tradeable PS Capacity options do not exclude any other option. Therefore, a decision on whether to implement either or both can be taken independently of the other options. These two options rate poorly or moderately on the competition criterion, so it is insufficient to implement just these two options. The other options need to be considered also.

The remaining three options are all mutually exclusive: only one of the three may be implemented. The exclusivity of Permitted Demand and Unlimited Premium Capacity is straightforward. If new capacity is to be issued, it must either be at the CRF or at another price. It cannot be both.

The Permitted Demand and Capacity Follows End User options are mutually exclusive because, if capacity were unlimited at the CRF, the capacity transfer would have no purpose—the old and new retailers could simply acquire or rescind whatever capacity they like at the CRF.

The Unlimited Premium Capacity and Capacity Follows End User options are not explicitly exclusive. The capacity transfer may leave either the old or new retailer with an unsatisfactory capacity holding. A retailer may wish to top this up with Premium Capacity. Furthermore, the capacity transfer does not provide any opportunity to procure capacity to supply new end users. These could potentially be supplied with Premium Capacity.

However, consider a new end user supplied using Premium Capacity. If the end user changes retailer, the old retailer will be forced to relinquish some Reserved Capacity and be left holding—and paying for—the Premium Capacity. It is unlikely any retailer would take on a new end user if it were exposing itself to this liability. For this reason, the major benefit of the Unlimited Premium Capacity option—that it allows new end users to enter—would be lost. Therefore, combining the Unlimited Premium Capacity and Capacity Follows End User options makes little sense.

This leaves us needing to choose one of three options: Permitted Demand, Unlimited Premium Capacity, or Capacity Follows End User.

9.4 Preferred option

The evaluation ratings for the remaining three options are repeated in Table 9. The evaluation criteria have been re-ordered so that the most important criteria—as discussed above—come at the top of the table.

Table 9 Ratings of short-listed options

Criteria	Permitted Demand	Unlimited Premium Capacity	Capacity Follows End User
Competition	✓✓	✓✓	✓
Timeliness	✓	×	✓✓
Consistency	×	✓	×
Curtailment	✓✓	×	✓✓
Shock	✓	×	✓
Existing contractual rights	×	✓✓	×
×× Poor	**× Moderate**	**✓ Good**	**✓✓ Very good**

The table shows Unlimited Premium Capacity is equal to or inferior to both other options against all criteria apart from existing contractual rights and consistency. It rates only moderately on timeliness, casting some doubt on whether it could be implemented in a reasonable time. Its stronger rating on consistency and lower rating on timeliness suggests that it might be better suited for a medium-term solution rather than a short-term solution. On this basis, the Unlimited Premium Capacity option is eliminated from consideration.

The remaining two options score very similarly. Permitted Demand rates slightly better than Capacity Follows End User on competition, and lower on timeliness.

Capacity Follows End User rates lower than Permitted Demand for competition. It does not ensure a competitive supply for new end users with existing pipeline capacity until they come to renew their supply contract. They are then regarded as 'existing' end users. Therefore, for a small number of end users, competition is delayed. The materiality of this deficiency is limited.

The lower rating for Permitted Demand on timeliness stems from the potential complexity surrounding the entry barrier. End users have a strong incentive to gain 'permission' from Vector to be supplied and this is likely to create stresses on the operation of the entry barrier. The definition of 'Large Sites' needs to be water-tight. Regulations need to carefully specify the process by which Vector manages the entry queue to ensure neither the regulations nor Vector is exposed to legal challenge. The identification and determination of prospective end users who have already been 'promised' capacity may be difficult and contentious. All of these issues could potentially slow down the drafting, approval and implementation of regulations.

On this basis, the Capacity Follows End User option is considered superior to the Permitted Demand and is selected as the preferred option.

9.5 Costs and benefits of preferred option

The above analysis is a qualitative assessment of the costs and benefits of the options. Here we consider the financial cost of implementing the preferred option, and discuss why a financial assessment of the efficiency gains is impractical (and unnecessary).

Financial cost of implementing the preferred option

The principal costs associated with the proposal are: for the Industry Body, writing and promulgating the Rules (see Table 10); and, for participants, the ongoing costs of fulfilling their obligations under the Rules (see Table 11).

Table 10 Writing and promulgating the Rules

Item	Description	Estimated cost
Drafting	Legal drafting and review of rules.	$50,000
Consultation	Consultation on legal drafting with industry participants.	$40,000 (Includes Gas Industry Co's and industry participants' time).
Promulgation	Sundry administration costs of providing advice to Minister and Gazetting the Rules.	$10,000

Table 11 Ongoing obligations on participants

Item	Description	Estimated cost
TSO notifies the Industry Body when it declines a retailer's request for increased reserved capacity	This notification is required when a TSO has declined a request for reserved capacity because of security of supply concerns. The notice must include details of the declined request and reasons why the TSO has security of supply concerns. Most of the work would already have been done for the TSO's initial consideration of the request. The information would need to be compiled and submitted to the Industry Body.	$20,000 per TSO notice
The Industry Body considers information received from TSO to decide whether to declare a Constrained Pipeline declaration	On receiving a notice from a TSO, the Industry Body verifies the supporting information and may consult on the matter. The costs involved relate to processing documents, including preparing a Constrained Pipeline declaration.	$50,000 per TSO notice
Incumbent retailers must notify TSO of the demand history of an end user tendering its gas supply	The retailer already has demand information, but would need to submit it to the TSO.	$100 per tender
TSO calculates Capacity Amount	The Capacity Amount calculation may take a few hours of a billing clerk's time.	$200 per tender
TSO agrees a Reserved Capacity increment with each bidding retailer	Bidding retailers are already required to assess the affect of new end users on their overall portfolio, so the incremental work should be minimal.	$400 per tender

From Table 10, the estimated cost of establishing the rules is $100,000.

From Table 11, declaring the Constrained Pipeline would cost $70,000.

In the case of the North Pipeline (assuming 70 tenders per year), the ongoing costs would be approximately $49,000 per year. This cost is insubstantial in the context of the value of gas transacted

on the North Pipeline. We estimate that end users on the North Pipeline (excluding the Otahuhu and Southdown power stations) pay approximately $150 million to gas retailers each year.

Financial value of efficiency gains

Nature of efficiency gains

The first order impact of increased competition is likely to be lower prices to end-users. The fact that capacity is constrained means that the normal demand-promoting impact of a price cut will not be able to operate. So the first round impact will be largely a transfer from retailers to end-users. Those end-users operating in competitive markets will tend to pass on a share of the transfer benefit to their own customers however, so there are likely to be allocative efficiency gains in markets downstream from the gas markets.

In addition, there may be a productive efficiency gain as a result of the potential for lower cost gas to supplant gas with a higher cost. We understand that at least one producer with relatively low cost gas could expand supply under the 'capacity follows user' model. Cost savings of this nature are efficiency gains.

There may also be dynamic efficiency gains resulting from enhanced competition. The most obvious source would arise from innovation and/or investment by gas users, which could be stimulated by a combination of lower prices and greater certainty of effective future competition in the gas sector. However the restoration of competition might also spur innovation in gas retailing itself.

Value of efficiency gains

While Gas Industry Co expects the above efficiency gains to occur, it is not feasible to reliably predict their value. In most regulatory cost-benefit analyses, valuation is primarily focussed on the allocative efficiency gains. Pipeline constraints mean that in this case the allocative gains occur in downstream markets (they are in the nature of general equilibrium effects). Moreover, the fact that gas contracts are negotiated bilaterally rather than traded at posted prices means that retail gas prices are variable across users and largely confidential. The same applies to the potential size of the initial price cuts that trigger the allocative gains.

9.6 Conclusion

Gas Industry Co proposes the Capacity Follows End User option. We consider this option to be the reasonably practicable option that best achieves the regulatory objective. In particular, it is quick means of ensuring that end users on a constrained pipeline can choose their preferred gas supplier,

We found the Firm Unauthorised Overrun and Tradeable PS Capacity options were insufficient in themselves to satisfy the regulatory objective; but they could help the proposed solution better achieve the objective. Industry participants could implement these two options through contractual

arrangements. Therefore, we have not included them as part of the regulatory solution; however, industry participants may wish to consider progressing these options to further facilitate competition.

It is clear that increased competition will lead to efficiency gains. Although it is not possible to put a value on those gains, the cost of fixing the competition problem by means of the Capacity Follows End User option is minor. We therefore consider it unnecessary to numerically evaluate the efficiency gains in this instance. However, we do recognise that many industry participants do consider a numerical analysis of efficiency gains to be important. Gas Industry Co will consider how best to obtain confidential price information to allow it to perform such an analysis should that be required for future work.

Question 5: Do you have any comments on the evaluation of options?

Question 6: Do you agree that Gas Industry Co has, through the evaluation of options, correctly identified the 'Capacity Follows End User' as the preferred option?

10 Statement of proposal

Pursuant to section 43N(2)(a) of the Gas Act, this section contains Gas Industry Co's proposal for a solution to the retail competition issue. We see the solution having immediate application on Vector's North Pipeline. But it will be framed to be applicable on any constrained pipeline where existing commercial arrangements impede competition.

Section 10.1 states the proposed solution; we then present the details of the proposal.

10.1 The Gas Governance (Constrained Transmission Pipeline) Rules

Gas Industry Co proposes proceeding with the Capacity Follows End User option. The solution comprises a set of rules called the Gas Governance (Constrained Transmission Pipeline) Rules (the Rules).

The Rules require that when a large end user on a constrained pipeline changes retailer, the TSO transfers an amount of capacity from the old retailer to the new retailer.[17]

We consider the Capacity Follows End User option best meets the proposed regulatory objective based on its 'good' rating on competition and its ratings of 'very good' for timeliness and curtailment when evaluated against other options.

Terms used in the Rules

The details of the Rules presented below uses several defined terms. These are shown in Table 12.

Table 12 Defined terms used in the Rules

Term	Meaning
Capacity Amount	The amount of capacity an incumbent retailer is required to relinquish when a Large End User changes supplier.
Constrained Pipeline	A pipeline, or part of a pipeline, on which a capacity shortage has arisen and which the Industry Body has declared to be a Constrained Pipeline.
Industry Body	The body appointed under s 43ZL of the Gas Act (Gas Industry Co).

[17] The Rules need to allow for a situation where the retailer is not the shipper. We consider this to be a technical drafting issue, which will not affect the overall purpose or application of the Rules.

Term	Meaning
Large End User	A user in Allocation Groups 1 and 2 (as defined by the Gas (Downstream Reconciliation) Rules 2008.
Reserved Capacity Increment	The amount of capacity that a new supplier acquires when it takes over the supply to a Large End User.

10.2 Purpose of the Rules

The purpose of the Rules is to provide for commercial arrangements on a constrained pipeline that allow retailers to compete for end users by ensuring they have access to transmission capacity. The Rules achieve this by:

- permitting the Industry Body to declare a transmission pipeline, or part of a pipeline, to be a 'Constrained Pipeline' if a shortage of reserved capacity could result in a loss of retail competition; and
- require that if a Large End User on a Constrained Pipeline wishes to change retailer, its old retailer must relinquish some transmission pipeline capacity, which would become available to the new retailer.

10.3 Process for declaring a Constrained Pipeline

TSO notifies the Industry Body of security of supply concerns

The TSO is required to notify the Industry Body promptly if it is unable to meet a retailer's request for increased reserved capacity at a delivery point. The notification is required only if the TSO has refused the request because it is concerned the security of supply will fall to an unacceptable level if the request is approved. (In other words, the TSO does not have to notify refusals made for reasons other than those related to capacity—credit concerns, for example.)

The TSO's notification must include the following information.

- Details of the declined request for reserved capacity, including:
  - the amount of reserved capacity sought by the retailer;
  - the delivery point(s) at which the reserved capacity is being requested;
  - whether the reserved capacity sought is new or transferred from another delivery point;
  - the reasons why the reserved capacity is being sought, if known;
  - the total reserved capacity and demand at the delivery point(s) over the previous three years; and
  - any other information the TSO considers relevant.

- Reasons why the TSO expects security of supply to fall to an unacceptable level if it allows the increase in reserved capacity, including:
    - the security of supply standard that the TSO is concerned about breaching;
    - any relevant system modelling work, including modelling assumptions for the delivery point(s) or area of the pipeline affected; and
    - any other information the TSO considers relevant.
- The TSO's expectations for future demand growth at the relevant delivery point(s).
- The TSO's opinion on whether the situation justifies a Constrained Pipeline declaration, and the reasons for that opinion.

The TSO must also specify which of the information it has supplied is confidential.

The Industry Body decides whether to declare a Constrained Pipeline

After receiving the above notice from the TSO, the Industry Body decides whether the security of supply issues justify declaring a Constrained Pipeline. To make this decision, the Industry Body:

- assesses the information and makes whatever reasonable enquiries of the TSO are necessary to verify the information;
- may consult with affected parties on particular matters related to the TSO's security of supply concerns (industry participants and end users are required under the Rules to respond promptly to Gas Industry Co's enquiries for related information); and
- assesses whether the security of supply concern is likely to be sustained.

The Industry Body may consult on a provisional decision

Before making its final decision, the Industry Body may make a provisional decision on whether or not to declare a pipeline constrained. The Industry Body publishes the provisional decision and consults with affected parties. Information it receives during the consultation period is taken into consideration when making its final decision.

The Industry Body to make a Constrained Pipeline declaration

If the Industry Body decides, with reference to the purpose of the Rules, to declare a pipeline constrained, it publishes its final decision and reasons for the decision.

Content of the Industry Body's declaration

A Constrained Pipeline declaration must include:

- details of the pipeline or delivery point(s) within a pipeline to which the declaration applies; and

- the process for reviewing the status of the constrained pipeline.

10.4 Capacity transfer processes on a Constrained Pipeline

Incumbent retailer notifies the TSO when a Large End User it supplies is considering a new gas supply contract

When a retailer is notified a Large End User it supplies is considering alternative gas supply arrangements, that retailer must:

- promptly notify the TSO of the tender;
- provide the TSO with the user's daily demand history for the period the retailer supplied that user; and
- certify that the user agrees the history is accurate.

The TSO calculates the maximum Capacity Amount

Within five business days of receiving notification of a contract being opened to negotiation, the TSO must:

- calculate the maximum Capacity Amount, being the arithmetic average of the Large End User's daily demand over the five peak days of the incumbent retailer's total daily demand on the Constrained Pipeline during the past 12 months;
- make the maximum Capacity Amount available to any interested party, including publishing it on its website; and
- notify the Industry Body that the maximum Capacity Amount is available to retailers wishing to buy that quantity of reserved capacity for transporting gas to the Large End User.

This amount of reserved capacity is priced at the standard posted price (on the North Pipeline, this is the Capacity Reservation Fee).

Bidding retailers agree their Reserved Capacity Increment with the TSO

Before making a bid, each retailer (other than the incumbent retailer) agrees with the TSO the amount of increased capacity it may obtain as reserved capacity should its bid be successful. This amount, the Reserved Capacity Increment, may be less than, or equal to, the maximum Capacity Amount.

New retailer notifies the TSO of the outcome of the tender process

On being notified of the outcome of the contract negotiation and obtaining a switch date in accordance with the Gas (Switching Arrangements) Rules 2008, the new retailer advises the TSO:

- it has won the contract and will be the Large End User's new retailer; and

- the date it will begin supplying the user (the 'switch date'); that is, the date it requires the Reserved Capacity Increment.

The TSO transfers capacity on the switch date

On the switch date, the TSO transfers the Reserved Capacity Increment from the old retailer to the new retailer. If the Reserved Capacity Increment is less than the Capacity Amount, the old retailer rescinds the difference to the TSO.

Process if incumbent retailer wins tender process

If the incumbent retailer has won the tender, it notifies the TSO of the outcome and no transfer of capacity takes place.

10.5 Funding

The Industry Body's costs: establishment and ongoing

Any costs incurred by the Industry Body under the Rules would be recovered by market fees, in the same way as for other rules and regulations. There would be two types of market fees: one for establishing the arrangements and the other for the Industry Body's continuing costs. Establishment and ongoing costs would be levied on the TSO.

The establishment fee is a one-off fee; ongoing fees would be invoiced monthly and include costs incurred in relation to compliance. Gas Industry Co does not expect the costs to be significant. The main costs would be related to the Industry Body's role when declaring a pipeline constrained as well as any compliance and monitoring costs that might be incurred.

The TSO's costs

The TSO will incur costs associated with performing its role under the proposed Rules. The Rules will specify that the TSO will be able to recover these costs from retailers.

10.6 Monitoring and enforcement

Compliance

The Gas Governance (Compliance) Regulations 2008 (Compliance Regulations) would be amended to cover the Rules. The recommendation to include the Rules would propose an amendment to the Compliance Regulations to include references to the proposed Rules, and affected parties and processes. A recommendation would be made for this amendment at the same time as the recommendation for the new Rules.

Disputes

Changes to the Compliance Regulations would ensure breaches under the new Rules would be subject to Gas Industry Co's compliance regime. Any industry participant can report alleged breaches.

The Market Administrator receives alleged breaches, escalating them to the Investigator if they are material. The Rulings Panel settles any unresolved breaches.

10.7 Relationship with existing industry arrangements

The Rules take priority over existing transmission system arrangements, including the VTC. Any contractual arrangements must be read subject to the Rules. The Rules will specify that if obligations in relation to the same matter are imposed, the obligations under the Rules prevail.

10.8 Amendments to the rules

Amendments to the Rules will follow Gas Industry Co's 'Guidelines for the management of proposed changes to gas governance rules and regulations (the Guidelines).[18] The Guidelines were designed to deal with rule change proposals for the Gas (Downstream Reconciliation) Rules 2008 but are framed so that they can apply to all gas governance rules and regulations.

10.9 Timeline for implementation

The Minister has 90 days to consider a recommendation. Implementation of the rules would begin after the rules are Gazetted by the Minister. The Rules would then 'go-live' one month after this date. Figure 4 illustrates a possible timeline.

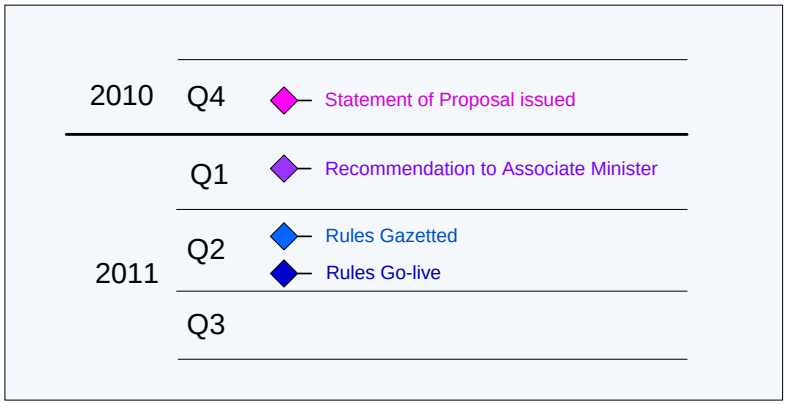

Figure 4 Possible timeline for implementation of rules

To implement the Rules, the TSO will need to design and implement systems to determine the Capacity Amount. These systems are separate from existing ones, and require data not currently held by the TSO.

The system will be used only when a Large End User puts a contract up for tender. This is approximately every two or three years. Gas Industry Co considers the systems do not need to be highly automated and therefore should be able to be implemented relatively quickly.

Question 7: Do you have any comments on the details of the proposal?

[18] Available on Gas Industry Co's website.

11 Conclusion

Gas Industry Co's consideration of the retail competition issue has led us to conclude that some form of regulation is required. We acknowledge the industry's preference for non-regulatory solutions. For the competition problem discussed in this paper, a non-regulatory solution requires a party to the VTC to propose a change. However, as many industry participants have noted, achieving a voluntary change to the VTC may prove difficult, because it is in some shippers' interests to maintain the status quo. Therefore, even if a change were proposed, it would probably not gain the required level of support, and would need to be appealed. Such a process is unlikely to be any quicker, or cheaper, than introducing regulations.

Given the uncertainties of a non-regulatory solution, Gas Industry Co believes a regulatory solution is necessary.

A regulatory solution will ensure current arrangements fulfil the objectives of the Gas Act and GPS and the regulatory objective. The regulatory objective is re-stated below.

> To ensure that, in the short term, end users who are able to be supplied by existing pipeline capacity are not prevented from having an effective choice of supplier. The solution should not compromise achieving the Gas Act and GPS objectives in the longer term.

We consider the reasonably practicable option, Capacity Follows End User, will best meet the objectives.

Under this option, the Rules would apply to all transmission pipelines, but would affect capacity arrangements only when and where a pipeline becomes constrained and where existing commercial arrangements impede competition. The Rules would mostly likely be revoked or superseded when a medium-term capacity solution is implemented.

12 Next steps

Submissions on the Statement of Proposal are due by 5pm on Friday, 10 December 2010. For more information on how to lodge a submission, please refer to section 1.6 of this paper, 'Invitations for submissions'.

An analysis of the submissions received on this Statement of Proposal will be released early next year.

Gas Industry Co will continue work on developing the preferred option. If no significant issues arise out of consultation on the Statement of Proposal, we are likely to make a recommendation to the Associate Minister at the start of next year. The Minister then has up to 90 days to accept or reject the recommendation. Assuming the Minister uses the full 90 days, implementation would begin in May 2011.

Table 13 Next steps

Date	Step
12 November 2010	Release Statement of Proposal for consultation
10 December 2010	Submissions on Statement of Proposal due
31 January 2011	Issue Analysis of Submissions on Statement of Proposal and Recommendation to Minister

Question 8**:** Do you agree with the next steps?

Appendix A Format for submissions

To assist the Gas Industry Co in consider stakeholders' responses, below is a suggested format for submissions. The questions are the same as those contained in the body of this document. A word version of this template can be downloaded from our website:

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

QUESTION	COMMENT
Q1 Do you agree with our description of the retail competition problem?	
Q2 Do you agree with the economic analysis?	
Q3 Do you agree with the proposed regulatory objective?	
Q4 Do you consider that the evaluation criteria are appropriate for evaluating the options?	
Q5 Do you have any comments on the evaluation of options?	
Q6 Do you agree that Gas Industry Co has, through the evaluation of options, correctly identified the 'Capacity Follows End User' as the preferred option?	
Q7 Do you have any comments on the details of the proposal?	
Q8 Do you agree with the next steps?	

Appendix B Options (1): firm capacity

Overview

The three options in the 'firm capacity' category aim to achieve the regulatory objective by limiting the physical demand on constrained pipelines. Vector is able to issue as much firm capacity as is requested because the physical demand growth is constrained. The options differ in the mechanisms they use to suppress physical demand growth and so ensure continuing service reliability.

- The Permitted Demand option establishes an administrative 'entry barrier', which prevents gas being supplied to significant new end uses on a constrained pipeline.
- The Unlimited Premium Capacity and Firm Unauthorised Overrun options charge a premium price for new capacity on a constrained pipeline, thereby suppressing demand.

These three options are described below and then evaluated.

Glossary

The descriptions of the options in these appendices refer in some places to existing Vector charges for transmission services. Vector's pricing regime for these services is made up of three main parts, which are described in Table 14. These charges apply to shippers/retailers (not end users).

Table 14 Vector's existing charges

Term	Meaning
Capacity Reservation Fees	Vector recovers the fixed costs of pipeline assets through Capacity Reservation Fees. The fees are calculated in dollars per gigajoule of Reserved Capacity per year. They are expressed as dollars per gigajoule of reserved Maximum Daily Quantity (MDQ) or $/GJMDQ.
Overrun Fees	Overrun fees apply to any deliveries made above reserved MDQ. Unauthorised Overrun Fees are 10 times the average Capacity Reservation Fee. For example, if the capacity reservation fee were $60/GJMDQ, then the transmission cost of each gigajoule of Unauthorised Overrun would be 10×60/365=$1.64/GJ.
Throughput Fees	Vector recovers all other costs via Throughput Fees. Fees are expressed in dollars per gigajoule of gas delivered. Throughput charges vary from month to month, in line with the quantity of gas delivered. The same Throughput Fee applies to gas delivered anywhere on the system.

The defined terms used for options in the firm capacity category are listed in Table 15.

Table 15 Defined terms used in the 'firm capacity' category of options

Term	Meaning
Constrained Pipeline	A Vector pipeline, or part-pipeline, on which a capacity shortage has arisen and which Gas Industry Co has declared to be a Constrained Pipeline.
Large Site	A Site with a history of gas demand above a defined level (for example greater than10 terajoules per annum).
Premium Capacity	Firm capacity that is identical to Reserved Capacity except for the tariff at which it is sold and its lack of grandfathering rights.
Permitted Demand	A specified level of daily gas consumption at a Permitted Site. For consumption above this level, the supplying retailer must pay overrun charges.
Permitted Site	A Large Site on a Constrained Pipeline which is permitted to receive a gas supply.
Premium CRF	The price at which Premium Capacity is sold by Vector.
Marginal Cost of Expansion	The annualised cost (in dollars per gigajoule of capacity) of expanding physical pipeline capacity.
Site	A single location where gas is used by a single end user.

Option 1A: Permitted Demand

Overview

Under the Permitted Demand option, retailers may hold as much Reserved Capacity as they wish. However, at large sites on a constrained pipeline, they may deliver gas only to a permitted level of demand. Retailers pay a new transmission charge for any deliveries above the permitted amount.

The features of the Permitted Demand option are as follows.

- Option implemented by regulation.
- Gas Industry Co declares a 'Constrained Pipeline' if a capacity constraint causes Vector to refuse (or scale back) requests for additional Reserved Capacity.
- On a Constrained Pipeline, Vector must:
    - refuse transfers of Reserved Capacity into the pipeline (but otherwise the capacity transfer and tradability arrangements are unchanged);
    - declare existing Large End User Sites Permitted Sites;
    - establish Permitted Demand quantities for each Permitted Site;
    - meet all retailers' requests for Reserved Capacity;
    - introduce a new transmission charge (based on the Marginal Cost of Expansion) for all deliveries above Permitted Demand, otherwise transmission charges are unchanged;
    - queue requests for significant new end use until physical capacity becomes available, at which time Vector must allow the new use to become Permitted Demand.
- On a Constrained Pipeline, retailers may hold as much Reserved Capacity as they wish. However, they may deliver gas only to small Sites and Permitted Sites, where they pay the new transmission charges for any deliveries above Permitted Demand.

The process for declaring a Constrained Pipeline is as follows.

- Vector must notify Gas Industry Co when it believes it is unable to issue any further Reserved Capacity on a pipeline, or a part of a pipeline, without breaching its obligations under the VTC.
- On receiving such notification from Vector, Gas Industry Co considers whether a material and sustained shortage of capacity is likely; and, if so, declares that pipeline, or part pipeline, to be a 'Constrained Pipeline'.
- When Gas Industry Co declares a pipeline to be a Constrained Pipeline, Vector assists it to determine the Marginal Cost of Expansion.

The process for establishing and managing Permitted Demand is as follows:

- Large Sites that have a gas supply from the Constrained Pipeline at the time of Gas Industry Co's declaration are registered as 'Permitted Sites' and assigned a level of 'Permitted Demand' based on their historical MDQ (Maximum Daily Quantity).
- Large end users must apply to Vector to have their Sites declared as Permitted Sites, and provide records of their gas demand to allow Vector to calculate the Permitted Demand. Vector notifies Large End Users when their Site is declared a Permitted Site, and advises them of the Permitted Demand at that Site.
- Vector establishes a queue of new Large End User requests for new Permitted Sites and/or additional Permitted Demand.
- Vector may approve a queued request, on the principle of 'first in, first out' and updates Permitted Site and Permitted Demand data accordingly.
- Shippers are prohibited from supplying, from the Constrained Pipeline, gas to any Large Site that is not a Permitted Site.
- Shippers who supply gas on a day to a Permitted Site above its Permitted Demand pay Permitted Demand overrun fees to Vector on the excess, at a rate equal to the Marginal Cost of Expansion. This charge is additional to any other transmission charges that are payable.

These features are discussed below and illustrated in Figure 5.

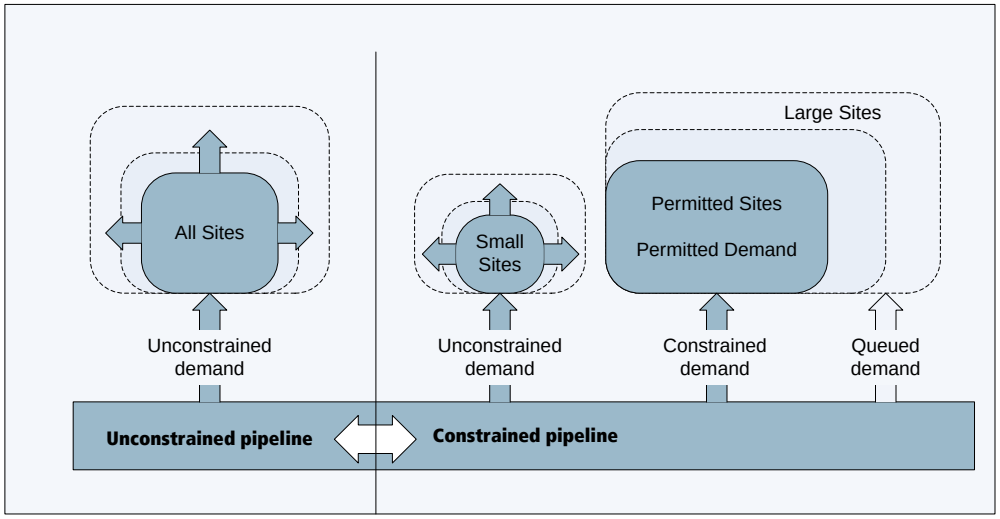

Figure 5 Permitted Demand concept

Decision to declare a Constrained Pipeline

In general, a short-term solution is required only where constraints on physical pipeline capacity are causing Vector to refuse (or scale back) requests for additional Reserved Capacity. Vector knows when these circumstances arise.

Under the Permitted Demand option, Vector is obliged to notify Gas Industry Co when it is refusing requests for additional Reserved Capacity. Any shipper or other stakeholder aware of a request refusal could also inform Gas Industry Co, who would verify this information with Vector.

However, the decision to declare the pipeline 'constrained', and so put the short-term solution into effect, is Gas Industry Co's, not Vector's. Gas Industry Co may first seek other information to see if the capacity shortage can be redressed in any other way; for example, by the shipper withdrawing its request, or by Vector finding a way to issue additional capacity. Gas Industry Co would also need to obtain information from Vector on the extent of the problem; that is, whether the capacity shortage affected an entire pipeline, part of a pipeline, or one delivery point. If the capacity shortage were immaterial, temporary, or affected few delivery points, declaring a Constrained Pipeline might be inappropriate.

Having considered all of these matters, Gas Industry Co decides whether to declare a Constrained Pipeline and, if so, specify which delivery points are affected. Based on our knowledge and understanding of the current situation on the North Pipeline, we expect it would immediately be declared a Constrained Pipeline for all delivery points north of Rotowaro.

Capacity issuance

On a Constrained Pipeline, Vector is obliged to approve all requests for Reserved Capacity. The only exceptions are those requests that would be refused for reasons other than a shortage of capacity. Examples of such refusals are credit concerns, or because part-year capacity is being requested but the VTC conditions for issuing this have not been met (the conditions are set out in section 4.10 of the VTC). The obligation to approve all capacity requests over-rides all other Vector obligations under the VTC, for example to act as an RPO.[19]

The standard CRF continues to apply to all issued Reserved Capacity.

Sites

The entry barrier operates by reference to 'Sites' at which gas is consumed. Note that such Sites may not themselves be delivery points on the Vector transmission system, but embedded in downstream gas networks. The Permitted Demand barrier would constrain increased gas demand at 'Large Sites', that is, those Sites where daily or annual consumption exceeds a specified threshold. There is no attempt to control gas demand at small Sites, existing or prospective.

[19] Under the VTC, Vector may refuse capacity requests if, acting as an RPO, it considers this could lead to unreasonable risk of curtailment. It might, as an RPO, similarly refuse requests under this option if, for example, it considers the entry barrier will be ineffective. Thus, the RPO obligation needs to be explicitly overridden in the regulations, to ensure capacity requests are approved.

For simplicity, Sites could be based on existing categorisations. For example, Large Sites could be defined as those in allocation groups 1 and 2 (as defined in the Gas (Downstream Reconciliation) Rules 2008). These are end users who consume more than 10 terajoules of gas in a year.

Entry barrier to new end use

The objective of the Permitted Demand entry barrier is to slow the growth of gas demand on the Constrained Pipeline to prevent an unreasonable increase in curtailment frequency. The entry barrier involves taking a 'snapshot' of gas demand at Large Sites at the time of the declaration and constraining any substantial increase in demand at these Sites or at new Large Sites.

Each Large Site supplied from a Constrained Pipeline in existence at the time of the Gas Industry Co declaration is registered as a 'Permitted Site'. It is assigned a 'Permitted Demand' based on historical peak daily gas consumption at that Site. The calculation of Permitted Demand should allow for some variability in gas demand, perhaps by allowing a small tolerance over and above the historical peak quantity.

We expect the Permitted Demand will be a single number that refers to MDQ at that Site, rather than an annual profile. In principle, this might allow substantial peak demand growth from Sites currently peaking in summer. But this is expected to be an insignificant problem in practice—at least in the short term.

Demand growth will continue in the 'small' Site sector (that is, everywhere excluding Large Sites). This growth would eventually lead to increased curtailment frequency. Gas Industry Co will aim to set the 'Large Site' thresholds at a level that avoids this small Site demand growth causing a significant problem during the timeframe of the short-term solution. We will seek Vector advice on these thresholds.

Application of entry barrier

The entry barrier is applied slightly differently to new versus existing Sites. The different application is for verification and enforcement reasons, rather than economic ones. At new Sites the entry barrier is administrative. All new Sites have to be registered on the Switching Registry before they can receive gas supply. It should be straightforward to identify which end users join the Registry after the Constrained Pipeline was declared. Retailers can easily verify that their supplied Sites are permitted and can refuse to supply Sites that are not.

At existing Sites, the entry barrier is effected through prices signals to the retailer (via the overrun charge). Existing end users will have a gas supply agreement with a retailer and it is not appropriate, feasible or necessary for such agreements to be broken or otherwise interfered with. Under most gas supply agreements, a retailer has no direct control on gas demand. It is therefore inappropriate for regulations to oblige retailers to limit consumption. Instead, under this option, any daily gas

consumption above the Permitted Demand is subject to an overrun charge. This charge is levied on the retailer, not the end user.

The overrun charge under this option is similar to Vector's present Overrun Fee, except that it applies to consumption above the Permitted Demand level, rather than above the Reserved Capacity level (although we expect Permitted Demand and Reserved Capacity would be similar). Currently, a retailer who supplies gas at a delivery point above its Reserved Capacity level is subject to an overrun charge. We assume retailers already have provisions in existing supply agreements allowing them to pass on overrun charges to large end users who have contributed to the overrun by exceeding an agreed MDQ. We therefore expect existing provisions would allow retailers to pass-through overrun charges incurred under the new entry barrier provisions.

Queued requests for new demand

As noted above, the 'snapshot' approach of the entry barrier should maintain supply reliability levels. But the entry barrier may be 'too successful' if it prevents additional gas supply that could be accommodated by existing physical capacity. Vector is in the best position to assess how much additional physical demand should be permitted.[20] Vector also has experience in managing queued requests, because it does this currently in relation to Reserved Capacity. Therefore, the Permitted Demand option gives Vector responsibility—and discretion—for managing this excess.

One problem might arise at the time a Constrained Pipeline is declared. The problem relates to dealing with prospective new demand at Large Sites (existing or prospective) for which end users have been promised future supply. If a retailer has purchased Reserved Capacity to cover this new demand—and this can be demonstrated to Vector's satisfaction—the demand should be permitted immediately. If, however, the prospective demand is subject to a pre-existing queued request for Reserved Capacity, Vector places a corresponding request for new Permitted Demand at the front of the queue; however, Vector admits the extra demand only when new capacity becomes available.

[20] That is, by considering whether the additional demand would lead to unreasonable risk of curtailment.

Option 1B: Unlimited Premium Capacity

Overview

Under the Unlimited Premium Capacity option, retailers on a constrained pipeline may access as much additional capacity as they wish; however, they pay a premium price for that additional capacity.

The features of the Unlimited Premium Capacity option are as follows and illustrated in Figure 6.

- Option implemented by regulation.
- Gas Industry Co may declare a pipeline to be a 'Constrained Pipeline' in the same way as in the Permitted Demand option.
- On a Constrained Pipeline, Vector is obliged to offer an unlimited amount of new capacity—Premium Capacity—and must agree to all shipper requests for this service (subject to reasonable credit requirements).
- Vector sells Premium Capacity at a Premium Capacity Reservation Fee (Premium CRF). As for the CRF, the Premium CRF must be calculated according to a specific pricing methodology and posted annually by Vector. The Premium CRF is set according to pricing principles specified in the regulation. The objective is that the price reflects the cost of the investment required to provide additional physical capacity on the Constrained Pipeline. This is referred to as the 'marginal cost of expansion' or MCE.
- Reserved Capacity and Premium Capacity offer the same service; that is, they provide for a firm, flat daily volume across a gas year.
- As for Reserved Capacity, Premium Capacity may be purchased for a part-year or rescinded midway through a year, and charges adjusted proportionately, in accordance with existing provisions in section 4.10 of the VTC.
- All other terms and conditions for Premium Capacity are identical to those for Reserved Capacity.

These features are discussed below and illustrated in Figure 6.

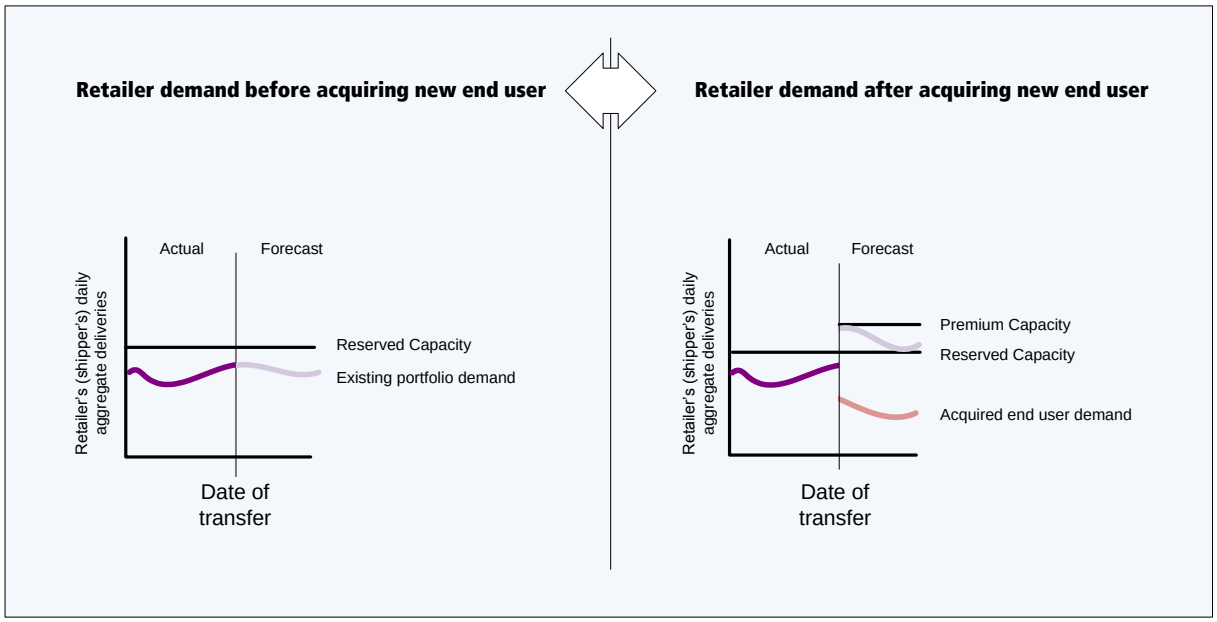

Figure 6 Unlimited Premium Capacity concept

Premium pricing

Under the Unlimited Premium Capacity option, Vector is obliged to issue whatever amount of additional capacity is requested (Premium Capacity) and sells it at the Premium CRF. In contrast, under the Permitted Demand option, Vector sells unlimited additional capacity (Reserved Capacity) at the CRF, but that capacity can be used to supply only small sites and Permitted Demand at Large Sites. In all other respects, Reserved Capacity and Premium Capacity are the same.

Under the Permitted Demand option, the price of capacity is the CRF. The concern is that this price prompts new demand and causes reliability problems—hence the need for an entry barrier in that option.

In the Unlimited Premium Capacity option, the higher price for new capacity means demand growth is less of a concern because it is constrained by price. Indeed, demand growth could be checked entirely by pricing at the 'right' level; that is, the price at which demand for capacity matches its supply. So in this option, a price barrier replaces the administrative barrier used under the Permitted Demand option.

However, the principle for pricing Premium Capacity has been chosen to reflect the cost of expanding capacity rather than preventing excess demand for existing capacity. There are two reasons for this choice.

- In practice, it is impossible to establish a 'market price' for capacity in which supply matches demand.

- Basing the Premium CRF on the MCE satisfies the medium-term objective that capacity should be priced efficiently.[21]

Continued demand growth at the Premium CRF would indicate new investment is needed and justified, because end users would be signalling their 'willingness to pay' the investment cost. However, other obstacles may prevent investment; if that were the case, service reliability may decline over time.

Conversely, a faltering or decreasing demand growth would suggest new investment is unjustified. In those circumstances, it may be appropriate for the Premium CRF to be reduced, but not so much that demand growth again becomes problematic. Excessive demand growth would become apparent only gradually, so Gas Industry Co would review the Premium CRF from time to time.

Marginal Cost of Expansion

The MCE is a function of the capital cost of a pipeline expansion project, the amount of extra capacity the project provides, and the rate of return on the capital cost.[22]

Vector has presented some indicative expansion options and costs for the North Pipeline.[23] These options are summarised in Table 16, together with some indicative MCEs based on Vector's numbers.

Table 16 Marginal cost of expansion

Project	Cost range ($m)	Capacity range (TJ/d)	MCE range[4] $/(GJ/d)/yr[5]	
			Scenario 1 (step demand)	Scenario 2 (20yr demand ramp)
Partial Looping[1]	80-120	22-32	260-560	580-1200
Full Looping[2]	150-200	140-160	100-150	220-330
Compression[3]	19-49	9-12	160-560	350-1200

(1)33km of looping between Rotowaro and Smales Rd.
(2)83km of looping between Rotowaro and Smales Rd.
(3)Compressor at Southdown and possible Rotowaro compressor upgrade.
(4)Capital costs are converted to an annualised cost using an assumed real WACC of 10% and a 40-year asset life with economic depreciation.
(5) Annual fee per gigajoule reserved each day.

The MCE is estimated for two scenarios. In the first, a major new end user (for example, a power station) requires the additional capacity and uses it fully from day one. The second scenario represents organic demand growth, which only gradually uses the additional capacity, reaching full utilisation

[21] Refer to section 5.1 of the Capacity Options Paper for the medium-term objectives.
[22] The MCE is discussed in more detail in section 3.4 of the Capacity Research Paper.
[23] Vector presentation, *North Pipeline: Winter 2010 (and Beyond)*, March 2010.

after 20 years. Under the organic growth scenario, less additional capacity is sold, so the cost per gigajoule of capacity sold is higher.

Total demand on the North Pipeline, excluding power stations, is only about 90 terajoules per day; so, the 'full looping' option would be uneconomic to meet organic demand growth. Therefore, the MCE to meet organic demand growth is likely to be in the range $160 (the lower limit of the compression option) to $1200/(GJ/d)/yr (the higher limit of the compression and partial looping options). In comparison, the existing Auckland Zone tariff is $60/(GJ/d)/yr.

These numbers are indicative only. If the Unlimited Premium Capacity option were implemented, Vector would be required to undertake more detailed analysis to determine an appropriate Premium CRF.

Revenue recycling

The additional revenue Vector receives from selling Premium Capacity is 'recycled' to shippers by reducing other tariffs (similar to Vector's reduction in capacity prices when it sells additional Reserve Capacity). Under existing regulations, Vector is not permitted to 'keep' the extra revenue. The 'recycling' could be done by reducing the Throughput Fee on the Constrained Pipeline.[24]

[24] Reducing the standard CRF on the Constrained Pipeline seems counterproductive. Reducing tariffs on other pipelines could be seen as a cross-subsidy that may be prohibited by economic regulation.

Option 1C: Firm Unauthorised Overrun

Overview

Under the Firm Unauthorised Overrun option, retailers on any Vector pipeline may meet new demand using Vector's unauthorised overrun service. Retailers pay Vector's standard overrun charges, but are not liable for any other charges, including damages.

The features of the Firm Unauthorised Overrun option are as follows and illustrated in Figure 7.

- Option implemented by regulation.
- The option applies to all pipelines, not just constrained pipelines.
- Retailers may meet any new demand by using Vector's unauthorised overrun service.
- Vector may levy only the existing unauthorised overrun tariff (10 times the CRF). It is prohibited from levying damages or any other charges on overrunning retailers.

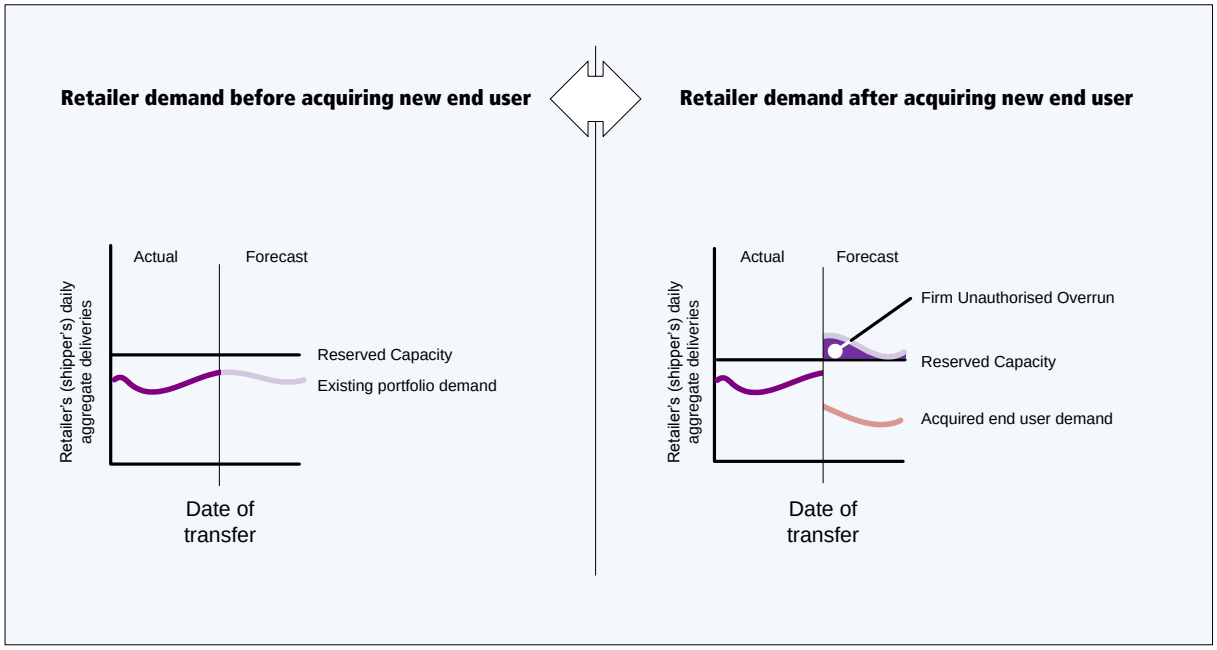

Figure 7 Firm Unauthorised Overrun concept

These features are discussed below.

Unauthorised overrun

A retailer does not need to hold Reserved Capacity to supply an end user's demand. The VTC provides that any demand above a retailer's capacity holding is regarded as unauthorised overrun. Vector charges a tariff on overrun quantities equal to 10 times the CRF.

When a pipeline is unconstrained, the unauthorised overrun tariff is prohibitive. A retailer will reserve sufficient capacity to avoid overrun charges except for a few days a year of peak demand. However, on a constrained pipeline, the 'market price' of capacity (the price at which demand would match capacity supply and which is embedded in retail prices) might be higher than the unauthorised overrun tariff. In this case, a retailer could supply an end user, profitably and competitively, despite holding no Reserved Capacity for that end user.

The CRF for the Auckland Zone is $60/(GJ/d)/yr, or about $0.164/GJ for an end user with a flat demand profile[25]; so the unauthorised overrun charge is about $1.64/GJ. Anecdotally, we have heard tender offers typically vary by $1/GJ or more. It is therefore plausible the unauthorised overrun cost could be accommodated within a competitive offer.

However, a major drawback for a retailer in using unauthorised overrun is that it could become liable to the end user for damages during a period of curtailment.

Curtailment liability

The VTC (section 4.23) requires overrunning shippers to indemnify Vector for any loss of fees if overrun causes curtailment. At face value, the financial exposure associated with this clause appears modest, being only the lost capacity reservation fees from the curtailed customer. However, the VTC clause also refers to a $10 million limit to liability from any one event. This suggests the VTC might be interpreted and applied in a way that would make financial exposure substantial.

To remove any uncertainty about liability, this option allows Vector to charge overrunning retailers only the standard unauthorised overrun tariff. Vector may not levy damages, or any other charge, on these retailers.

[25] 0.164 = 60/365

Evaluation of firm capacity options

Competition

Retailers' inability to obtain sufficient capacity to make competing offers to end users is currently impeding retail competition. The firm capacity options remove that impediment.

It might be argued the Unlimited Premium Capacity option fails to facilitate retail competition. Under that option, the incumbent retailer has the advantage of purchasing capacity at the CRF, whereas a competing retailer must pay the Premium CRF. The incumbent's advantage seemingly results in the end user having no 'effective' choice of supplier. Similar concerns arise under the Firm Unauthorised Overrun option.

However, market mechanisms suggest such concerns may be unfounded. Under the current arrangements (which reflect the franchise model), retailers are charging prices for delivered gas based on the end users' willingness to pay. End users with a low willingness to pay, currently pay relatively low prices. Under the Unlimited Premium Capacity and Firm Unauthorised Overrun options, these end users might face an increase in prices when they come to renew their contracts. New charges will be at, or closer to, either the Premium CRF or the firm unauthorised overrun tariff (because competing retailers would be able to bid for the end user's business, freeing the incumbent supplier from the 'obligation' to maintain a low price to its franchise customer). The increase in price might force some end users to reduce gas consumption or, in the worst case, to become insolvent. However, this outcome is consistent with competition.

Nevertheless, market mechanisms might work only to an extent. First, although efficient markets would reflect the Premium CRF, in practice prices tend to be 'sticky' meaning they take time to respond to changed circumstances. Retail prices could remain too low to accommodate the Premium CRF and so the market might remain uncompetitive—whether it does or not depends on the current level of prices, retailers' willingness to increase prices, and the level of the Premium CRF. Overall, we consider the risk is modest that 'sticky prices' cause these options to be ineffective.

Second, the unauthorised overrun tariff is ten times the CRF and this will lead to extreme prices for Firm Unauthorised Overrun on parts of the North Pipeline. For example, in Whangarei, the CRF is $600/(GJ/d)/yr or about $2/GJ, meaning the firm unauthorised overrun tariff would be about $20/GJ. Therefore, even if the Firm Unauthorised Overrun promotes competition in Auckland it will almost certainly fail to do so elsewhere, where tariffs are much higher.

These considerations suggest to us that, under the Unlimited Premium Capacity and Firm Unauthorised Overrun options (for Auckland end users at least):

- an end user is likely to receive competing offers;
- the offers will contain comparable prices; and

- the end user therefore has effective choice of supplier.

The incumbent retailer therefore has no guarantee of retaining the end user.

The Permitted Demand option prevents end users with 'non-Permitted Demand' from having an effective choice in supplier (or any supplier) unless 'permitted' by Vector. However, the regulatory objective applies only to those end users 'able to be supplied by existing physical capacity'. New Large Site demand that has not been permitted by Vector cannot be supplied by the existing pipeline and so is not covered by the regulatory objective.

On the basis of the above analysis, ratings are as follows: 'very good' for the Permitted Demand option, 'good' for the Unlimited Premium Capacity option, and 'moderate' for the Firm Unauthorised Overrun option.

Consistency

The Permitted Demand option rations demand administratively but permits new demand at Permitted Sites for an additional charge, which reflects the marginal cost of expansion. This pricing approach is consistent with Gas Industry Co's medium-term objectives, particularly the objective that capacity should be allocated and priced efficiently. However, the entry barrier prevents gas supply to new demand at Large Sites, even if the end user is willing to pay the market price for capacity. Some end users may therefore decide to switch permanently to another fuel or market. However, we expect these 'lost' end users to be the exception rather than the rule. Most large end users rely on a cheap, reliable gas supply, which would not be provided under a market price for capacity on a Constrained Pipeline. In effect, the Auckland area has become a high-cost area for gas supply. In an efficient market, end users requiring cheap gas should locate elsewhere.

Under the Permitted Demand option, progress towards an appropriate medium-term outcome may be slowed; but it will not be reversed. Therefore, the Permitted Demand option is rated 'moderate' under the consistency criterion.

Under the Unlimited Premium Capacity and Firm Unauthorised Overrun options, gas would be supplied to new demand only if the end user is willing to pay the premium price. Existing end users not prepared to pay this price might be forced to leave the market. However, if the premium price under these options is equal to or less than the medium-term price for capacity, these effects are consistent with the medium-term objective of efficient capacity allocation.

Under the Firm Unauthorised Overrun option, a retailer with no Reserved Capacity pays the Premium CRF on all its gas demand, even at off-peak times when unutilised capacity is plentiful. However, in practice, most retailers will hold enough Reserved Capacity to cover their demand at these off-peak times and so will not be paying overrun charges.

Under the Unlimited Premium Capacity and the Firm Unauthorised Overrun options, there will be progress towards the medium-term price for capacity. Therefore, the Unlimited Premium Capacity and the Firm Unauthorised Overrun options are rated 'good' under the consistency criterion.

Timeliness

The Permitted Demand option establishes an entry barrier. The processes for administering the entry barrier would be mostly separate from Vector's existing processes. The only interface is with Vector's billing system, which needs to accommodate overrun charges relating to supply of 'non-Permitted Demand'. Therefore accommodating and integrating the new processes should be straightforward.

The complexity of the entry barrier depends on how many Large Sites it covers. If these number, at most, in the hundreds, establishing the entry barrier is unlikely to be problematic. Even if establishment were delayed, the option could still be introduced, because breaches of the entry barrier would be dealt with retrospectively.

Therefore, the Permitted Demand option rates 'good' under the timeliness criterion.

The Unlimited Premium Capacity option requires Vector to track holdings of Premium Capacity and to calculate unauthorised overrun for these holdings. The tracking process would be simplified if Vector decided to prohibit transfers of Premium Capacity. Such a prohibition would be unlikely to constrain most retailers, who would hold Reserved Capacity they could transfer instead.

Therefore some IT development might be needed to implement the Unlimited Premium Capacity option. It is unclear how much this might delay implementation. The Unlimited Premium Capacity option therefore rates 'moderate' for timeliness.

The Firm Unauthorised Overrun option would not require any changes to Vector systems and is straightforward to define. The Firm Unauthorised Overrun option therefore rates 'very good' for timeliness.

Existing contractual rights

All firm capacity options will preserve the ability of retailers to enter into multi-year contracts, but without limiting the ability of end users to select their gas supplier.

However, the Unlimited Premium Capacity and Firm Unauthorised Overrun options might affect the value of grandfathering rights. The Permitted Demand option removes the value entirely from grandfathering rights (under this option, all shippers have the same access to Reserved Capacity, irrespective of existing holdings). In effect, under the Permitted Demand option, there is a substantial transfer of value from shippers with grandfathering rights to end users with Permitted Demand, because the retailer rents arising from the scarcity of Reserved Capacity will dissipate when Reserved Capacity is no longer scarce.

Therefore, the Permitted Demand option only rates 'moderate' under the existing contractual rights criterion; the Unlimited Premium Capacity and Firm Unauthorised Overrun options rate 'good'.

Shock

Under the Permitted Demand option, Vector is permitted to issue additional Reserved Capacity, but it is unclear how much more it will issue. Unutilised capacity no longer has any strategic value (that is, retailers have no incentive to hoard capacity), so much of it could be rescinded, potentially offsetting the new capacity issued. The new capacity is issued at the CRF, which is low in the Auckland Zone where most demand is situated; therefore, the new capacity is unlikely to substantially affect Vector's revenue or, as a result, have a substantial effect on tariffs.

Similarly, it is unclear how much new Premium Capacity or unauthorised overrun Vector will sell under the Unlimited Premium Capacity and Firm Unauthorised Overrun options, respectively. To the extent that some is sold, that will create (in the short term) an equivalent amount of unutilised Reserved Capacity. Some of this might be sold into the secondary market (at a discount to the Premium CRF) rather than hoarded, provided the grandfathering rights are preserved.[26] However, the secondary market has been illiquid to date and it is unclear that simply setting a premium price on capacity will change this.

Premium Capacity and unauthorised overrun will be sold at a premium tariff. If significant amounts are issued, this could materially affect Vector's revenue and hence its other tariffs.

Apart from any tariff effects, neither option affects existing retailers supplying existing end users. Retailers can continue to supply using existing Reserved Capacity at the existing CRF. However, as discussed under 'competition' above, new retail contract prices are likely to reflect the premium tariffs. This could mean a significant change to current retail prices.

Under the Permitted Demand option, any premium value on Reserved Capacity in the market—as well as any retailer rent associated with the introduction of competition—is removed. This is likely to lead to a lower price, but this is less of a 'shock' than a price rise.

These effects are summarised in Table 17, together with the ratings under this criterion.

Table 17 Firm capacity options: evaluation under 'shock' criterion

Option	Effect on existing contracts	Effect on new contracts	Rating
Permitted Demand	Not material	Price falls	Good
Unlimited Premium Capacity	Possibly material	Price falls and rises	Moderate

[26] Preserving grandfathering could be achieved by, for example, requiring any traded capacity to be returned to the seller on the 30th September.

Option	Effect on existing contracts	Effect on new contracts	Rating
Firm Unauthorised Overrun	Possibly material	Price falls and rises	Moderate

Curtailment

Under the Permitted Demand option, demand growth can be tightly controlled through the entry barrier. Whilst organic growth at small sites will continue, Vector has stated it believes this can be accommodated in the short term (depending on the definition of 'small sites'). Therefore, curtailment frequency should remain manageable. The Permitted Demand option is rated 'very good' under this criterion.

Under the Unlimited Premium Capacity option, the rate of demand growth depends on the price for the new service. If it is too low, the new service will facilitate increased demand growth and curtailment may increase correspondingly.

The price will be set according to the marginal cost of expansion. There is no direct connection between this price and the price needed to control demand growth and avoid curtailment, so curtailment might be a problem. Therefore, the Unlimited Premium Capacity option rates 'moderate' for curtailment.

Similar concerns arise in the Firm Unauthorised Overrun option. It is unclear whether the unauthorised overrun tariff will be sufficiently high to throttle demand growth, particularly in the Auckland Zone. The analysis of MCE above suggests the overrun tariff could be higher or lower than the MCE-based Premium CRF. Therefore, the curtailment concerns are similar to the Unlimited Premium Capacity option

Therefore, the Firm Unauthorised Overrun option also rates 'moderate' for curtailment.

Evaluation summary

Table 18 summarises the evaluation ratings for the firm capacity options.

Table 18 Evaluation of the firm capacity options

Criteria	Firm capacity options		
	Permitted Demand	**Unlimited Premium Capacity**	**Firm Unauthorised Overrun**
Competition	Very good	Good	Moderate
Consistency	Moderate	Good	Good
Timeliness	Good	Moderate	Very good
Existing contractual rights	Moderate	Good	Good
Shock	Good	Moderate	Moderate
Curtailment	Very good	Moderate	Moderate

Appendix C Options (2): new forms of interruptible capacity

Overview

The options in the previous section look at ways to increase the amount of firm capacity issued by Vector. This is a direct response to the problem a shortage of firm capacity creates for retail competition.

The options in this section instead consider interruptible capacity. Interruptible services are unsuitable or unattractive for most end users or retailers and so these options do not directly address the competition issue. However, even if a minority of end users or retailers choose to switch from their existing firm service to one of these interruptible services, some firm capacity for the majority might become free.

Vector currently offers unlimited interruptible capacity on constrained pipelines. Thus a solution must look to new forms of interruptible capacity rather than increasing the supply of the existing interruptible service.

Glossary

The defined terms used for options in this category are listed in Table 19. Note also that because shippers own the power stations referred to in this section, the term 'power station' refers either to a shipper or an end user, depending on the context.

Table 19 Defined terms used in the 'new forms of interruptible capacity' category of options

Term	Meaning
Constrained Pipeline	A Vector pipeline, or part-pipeline, on which a capacity shortage has arisen and which Gas Industry Co has declared to be a Constrained Pipeline
Interruption	Instruction to an interruptible shipper or associated end user to reduce gas demand, in accordance with an interruptible contract
Curtailment	Instruction to a firm shipper or associated end user to reduce gas demand
Liable Capacity	Capacity under which the retailer is liable to pay any contractual damages Vector incurs as a result of curtailment

See also Table 14 on page 58 for a description of existing Vector charges.

Option 2A: Tradeable Power Station (PS) Capacity

Overview

Under the Tradeable Power Station (PS) Capacity, capacity supplied to power stations under supplementary agreements to long-term contracts may be traded on a constrained pipeline. Retailers may contract with a power station to purchase such capacity.

The Tradeable PS Capacity option includes the following features.

- Option implemented by regulation.
- A Constrained Pipeline could be declared by Gas Industry Co, as in the Permitted Demand option.
- Regulations would provide that all capacity on a Constrained Pipeline—including capacity committed under long-term contracts—would be permitted to be traded. Reserved Capacity could then, subject to Vector's approval, be transferred to another delivery point.
- Capacity acquired from a power station has the same rights and obligations as Reserved Capacity, except the power station continues to pay the CRF, not the acquiring retailer.
- The power station also continues to make any other existing contractual payments associated with the traded capacity.
- Apart from the CRF payment, capacity trading is on the same basis as existing VTC terms relating to trading of Reserved Capacity (section 4.27 of the VTC).
- Regulations over-ride any existing terms that prohibit capacity trading.

These features are discussed below.

Permission to trade capacity

Because Reserved Capacity is already tradeable, this option primarily affects the capacity supplied to power stations under supplementary agreements to long-term contracts. The option allows a shipper holding 'long-term capacity' to transfer some of it to a retailer needing capacity to serve existing or new end users.

The shipper is not obliged to offer or sell any capacity. This is entirely a matter for the shipper and the prospective purchaser.

Payment terms for traded capacity

Under the VTC, if a retailer sells Reserved Capacity to another retailer, the purchaser is obliged to make CRF-based payments to Vector for the capacity. The seller is correspondingly relieved of this obligation.

It is difficult to apply a similar approach to trading power station capacity, because this is provided under different terms—and at a different price—from Reserved Capacity. The proposed approach is for capacity payments to Vector to be unaffected by trading of power station capacity.

Capacity likely to be traded

The Tradeable PS Capacity option is under the 'interruptible capacity' section even though it involves trading of firm capacity. If a power station sells long-duration (for example, annual) firm capacity, the power station is necessarily 'interrupted' from operating at full capacity.

Alternatively, if power station output is to be unaffected, the traded capacity must be unavailable to the purchaser at times or available only for short durations, which is similar to interruptible capacity.

Therefore, trading requires either the power station or the purchaser to be interruptible in some way.

Option 2B: Interruptible Power Stations (PS)

Overview

Under the Interruptible Power Stations (PS) option, Vector seeks to enter into contracts with shippers (most likely power stations) that allow it to interrupt supply in return for direct compensation. Vector can then issue a corresponding amount of 'new' capacity without breaching its RPO obligations. Vector may pass compensation costs on the retailers holding the new capacity.

Features of the Interruptible PS option are as follows and illustrated in Figure 8.

- The option is voluntary (non-regulatory). There is no obligation on Vector, power stations or retailers to enter into any of the contracts described below.
- Vector seeks to enter into contracts with power station shippers (and, potentially, other shippers) that would entitle Vector to interrupt gas supply to power stations (or other end users). In return, Vector compensates these shippers according to an agreed formula.
- With its new ability to manage pipeline congestion, Vector can issue a corresponding, additional amount of Reserved Capacity to retailers without breaching its VTC obligations.
- The additional capacity is sold at the CRF. However, purchasers are obliged to pay Vector in full for any compensation it makes to power station shippers under the interruption contracts.

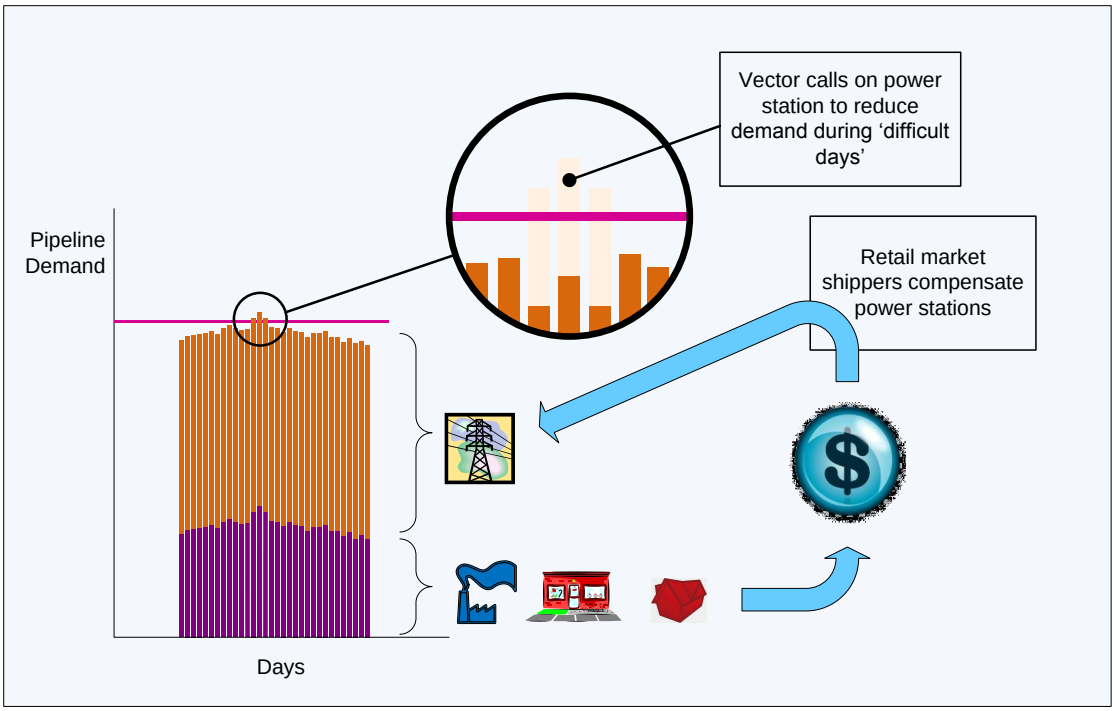

Figure 8 Interruptible Power Stations concept

These features are discussed below.

Interruption contract

Vector currently provides an interruptible service, which allows it to interrupt a shipper at any time, subject to its RPO obligations. The shipper is not directly compensated for interruptions; the attraction of the service is in its lower tariff and its variable, rather than fixed, payment structure.

If shippers with firm capacity decide to switch to Vector's current interruptible service, some capacity would be freed that could be sold to retailers. Currently, however, the probability of shippers switching significant capacity to this service appears low.

Under the Interruptible PS option, shippers receive direct compensation for interruption, which makes the interruptible service more attractive. The service is particularly attractive if a shipper's compensation matches the direct costs it incurs when interrupted. Including compensation in this option is directed at existing firm users to encourage them to become interruptible. The option is therefore framed as an addition to firm capacity service, rather than a new or revised service.

We refer to interruptible contracts with power stations (in the context of shippers), because power stations are the end-users most able to free up significant amounts of firm capacity. However, the interruption contract could be made with any large end user shipper who was able and willing to be interrupted.

Vector issues new Reserve Capacity

With the new interruptible contracts, Vector would be able to issue a corresponding amount of capacity while still meeting its obligations as an RPO. For example, if an interruptible contract provided for power station demand of 10 terajoules to be interrupted at any time, Vector would be able to issue 10 terajoules of Reserved Capacity. If the extra 10 terajoules of firm demand caused congestion, Vector could call upon the interruptible power station to reduce demand by 10 terajoules and bring demand back to its previous level. The reliability of firm service is therefore unaffected.

Compensation formula

Vector and a shipper would agree a formula for determining payments from Vector to the shipper in the event of interruption. Because the shipper lacks control over the frequency, timing or duration of interruptions, it would likely seek a formula reflecting the costs it incurs when interrupted. The shipper is then financially indifferent to being interrupted.

Power stations arbitrage the 'spark spread' by buying gas from the wholesale market at one price and selling electricity into the electricity market at a higher price (after allowing for thermal efficiency, operating costs, and so on). So the cost of interruption to a power station is a straightforward function of the gas price, the electricity price, and the period and extent of interruption.

Given the uncertainty for the power station of when it will be interrupted and what the electricity price will be at that time, the shipper would probably seek an exact formula for its cost. For example,

the formula might refer to the actual electricity price at the time of the interruption, rather than an average or expected electricity price.

Pass-through to retailers

Requiring Vector to bear the compensation cost would create substantial revenue and regulatory implications. Such a requirement might also cause price shocks for retailers as Vector adjusts tariffs to maintain aggregate revenue at the regulated level. For this reason, the Interruptible PS option provides for the costs to be passed through to retailers who purchase the new Reserved Capacity that the interruptible contracts allow Vector to issue.

Allowing pass-through does not solve the problem of the end users' lack of control over interruption, it simply passes the cost to the retailers holding the new capacity. In our view, the risk would be too high for retailers—except perhaps affiliates of the power stations.

Retailers who are affiliates of the power stations would have more control over risks. They would have a better understanding of the possible levels of compensation and could perhaps ensure the power station acted to minimise these risks. The power station itself might be able to manage risks through actions in the electricity market.

Option 2C: Liable Capacity

Overview

Under the Liable Capacity option, Vector issues unlimited new capacity. Retailers holding that capacity share liability for any curtailment damages payable by Vector.

Features of the Liable Capacity option are as follows.

- Option implemented by regulation.
- Vector issues additional unlimited new 'Liable Capacity' on Constrained Pipelines (declared as in previous options).
- Holders of Liable Capacity have shared liability for any curtailment damages payable by Vector.
- New capacity is charged at the standard CRF and, apart from the liability, is the same as Reserved Capacity.

These features are discussed below.

Curtailment damages rather than interruption payments

The Liable Capacity option is similar to the Interruptible PS option. More capacity is issued at the CRF with no entry barrier. Demand growth will eventually lead to increasing congestion, and increasing need for Vector to operationally manage congestion by curtailing supply to the power stations.

The salient difference is that Vector does not enter into interruption contracts. Therefore, Vector has no new contractual right to interrupt the power stations; and the power stations have no new contractual right to be compensated. Instead, the compensation for curtailment is payable in accordance with existing contracts.

We have not seen the terms of the power stations' long-term capacity contracts with Vector. However, we expect Vector has some liability to compensate power stations for curtailment that results from Vector issuing Permitted Demand.

Curtailment damages passed onto retailers

The cost of damages paid to power stations—or other curtailed end users—are allocated between the retailers holding Liable Capacity. This cost allocation is similar to the Interruptible PS option and is established for a similar reason: to avoid the regulatory and pricing implications of Vector paying these costs and recovering them from all shippers. As with the Interruptible PS option, only a retailer who is a power station affiliate is likely to be willing to bear this level of risk.

However, the behaviour of power stations in managing their affiliates' risks might be slightly different from the previous option. Given the uncertainty about how they might be curtailed and what level of

damages might be payable, the power stations may prefer to act in advance of congestion to avoid curtailment ever being necessary. Avoiding curtailment would give a power station better control over its risks across the electricity and gas markets. However, the North Pipeline supplies two power stations, so there may be a 'free rider' problem of one power station doing nothing but benefiting from the actions of the other.

Evaluation of interruptible capacity options

Competition

It is a common feature, and potential shortcoming, of all of the 'interruptible' options that they do not directly deal with the competition issue. New firm capacity is made available only to the extent that some retailers switch from a firm service to an interruptible service and rescind the freed-up firm capacity. It is therefore unclear:

- how much firm capacity will be freed up;
- how much of this freed-up capacity will be rescinded or traded; and
- whether the rescinded or traded amount will be sufficient to facilitate retail competition.

In the power station interruptibility or curtailment options, the interruptible capacity is most likely to be taken up by a retailer affiliate of the power station, for reasons discussed above. The North Pipeline has only two retailers who are power station affiliates. We understand one of them already has a strong 'incumbency' position and significant unutilised capacity. The most plausible outcome is that these retailers would retain freed-up firm capacity rather than pass it to the rest of the market. Therefore, competition may be increased somewhat, but less than if the capacity were made available to all retailers.

All the interruptible capacity options are rated as 'poor' under the competition criterion.

Consistency

The two power station options seek to provide new capacity services for retailers and end users. These new services are less firm or have a lower level of certainty over costs than the existing firm service; but are more firm and have greater certainty over cost than the existing interruptible service. The power station options also seek to strengthen the interaction between the gas and electricity markets by making scarce pipeline capacity available (at the margin) to whichever market values it more highly. Both options are consistent with the medium-term objectives of seeking greater flexibility and choice in the use of pipeline capacity; that is, they ensure efficient allocation of capacity and facilitate competition in related markets.

The Liable Capacity option relies on increased levels of curtailment—and recirculation of associated liabilities—to ensure efficient allocation of capacity. Although increased curtailment may be suitable in the short term, it is an inappropriate approach for the medium term.[27] Ideally, curtailment should occur infrequently, with congestion being managed through interruptibility rather than curtailment.

Therefore, the Liable Capacity option is rated 'poor' for consistency, and the other interruptible capacity options are rated 'good'.

[27] A medium-term objective requires shippers are able to access a firm service if they are willing to pay for it.

Timeliness

The Tradeable PS Capacity option may need a change to Vector's systems to track any trades, but does not seem to require any other changes. It requires no renegotiation of the power station contracts, because regulation would over-ride any terms prohibiting trading. The Tradeable PS capacity option therefore rates 'good' for timeliness.

The Interruptible PS option requires Vector to:

- negotiate and execute interruption contracts with power stations;
- define how the interruption costs are passed to holders of new capacity;
- make settlement and billing arrangements for the interruption costs; and
- change pipeline operations for power stations to be interrupted during congestion in accordance with the terms of the interruption contract.

These are complicated arrangements, which will take time to design and implement. Therefore, the Interruptible PS option is rated 'poor' for timeliness.

The Liable Capacity option can be implemented without interruption contracts. However, it also requires costs to be passed to holders of new capacity. This option potentially involves substantial legal complexity in defining curtailment damages and determining whether Vector's issuing of capacity and causing curtailment is inconsistent with its RPO obligations. Regulation could deal with these matters, but that might create further uncertainty about whether curtailment damages can be claimed. Given this complexity, the Liable Capacity option is rated 'poor' for timeliness.

Existing contractual rights

Although interruptible capacity options involve new contractual arrangements, these arrangements are always entered into voluntarily by power stations, retailers or end users. The options do not affect existing rights to Reserved Capacity or capacity contracted under long-term agreements.

The Tradeable PS Capacity option removes Vector's right to prohibit capacity trading. However, because such trading can occur only on Constrained Pipelines, it cannot 'cannibalise' Vector's Reserved Capacity market. Therefore, the effect on Vector is modest.

New Reserved Capacity made available under these options is likely to be limited and expensive, so the commercial value of grandfathering rights is most likely retained.

In summary, all the interruptible capacity options rate 'very good' under the existing contractual rights criterion.

Shock

The interruptible capacity options have been designed to minimise revenue shock on Vector. Specifically, any additional costs associated with interruption or curtailment are passed through to retailers who have opted to purchase new capacity. Vector or other retailers are unaffected. The Interruptible PS and Liable Capacity options allow Vector to sell additional firm or interruptible capacity; however, the amount of additional capacity sold is likely to be modest and not materially affect Vector's revenue or tariffs.

Therefore, all the interruptible capacity options are rated 'good' for shock.

Curtailment

It is intrinsic to the Liable Capacity option that curtailment increases. Therefore the Liable Capacity option rates 'poor' on this criterion.

The other interruptible capacity options will not increase curtailment. New firm capacity is issued or available only to the extent this is allowed by existing firm retailers or end users becoming interruptible. Therefore, the remaining interruptibility options rate 'very good' on curtailment.

Evaluation summary

Table 20 summarises the evaluation ratings for the firm capacity options.

Table 20 Evaluation of the interruptible capacity options

Criteria	Interruptible capacity options		
	Tradeable PS Capacity	**Interruptible PS**	**Liable Capacity**
Competition	Poor	Poor	Poor
Consistency	Good	Good	Poor
Timeliness	Good	Poor	Poor
Existing contractual rights	Very good	Very good	Very good
Shock	Good	Good	Good
Curtailment	Very good	Very good	Poor

Appendix D Options (3): capacity follows end user

Overview

This category has one regulatory option.

Glossary

Defined terms used for this option are listed in Table 21.

Table 21 Defined terms used in the 'capacity follows end user' category of options

Term	Meaning
Capacity Amount	The amount of capacity that an incumbent retailer is required to relinquish when a Large End User changes supplier
Large End User	An end user whose peak daily or annual gas consumption exceeds a specified threshold
Reserved Capacity Increment	The amount of capacity that a new supplier acquires when it takes over the supply to a Large End User

See also Table 14 on page 58 for a description of existing Vector charges.

Option 3: Capacity Follows End User

Overview

Under the Capacity Follows End User option, a retailer who wins a contract to supply a large end user on a constrained pipeline receives a 'Reserved Capacity Increment'. Vector transfers this amount of capacity from the old retailer to the new retailer. If the old retailer held more than the Reserved Capacity Increment to supply the large end user, it rescinds the difference to Vector.

Features of the Capacity Follows End User option are as follows and illustrated in Figure 9.

- Option implemented by regulation.
- A Constrained Pipeline is declared as in the Permitted Demand and other options.
- When a Large End User on a Constrained Pipeline changes retailer, Vector transfers an amount of capacity from the old retailer to the new retailer.
- A Capacity Amount is determined by Vector, based on the historical daily gas demand of the end user over the period of peak demand of the incumbent retailer on the Constrained Pipeline.
- Vector agrees with a Reserved Capacity Increment with each retailer (other than the incumbent retailer) who is bidding to supply the Large End User.
- The Reserved Capacity Increment may be less than, or equal to, the Capacity Amount.
- Should the Large End User choose to tender for a new supplier, the old retailer is obliged to provide Vector with the end user's demand data.

If the Large End User chooses to be supplied by a new retailer, the process for making the transfer is as follows.

- Vector determines the Capacity Amount within five days of an incumbent retailer notifying Vector a Large End User is tendering for a new supply contract. The retailer provides the demand data for the Large End User to Vector. The retailer must certify that the user agrees the history is accurate.
- Vector notifies the Capacity Amount to any retailer wishing to tender for the end user's supply.
- Before making a bid, each retailer agrees with Vector the amount of incremental capacity it will obtain should its bid be successful (the Reserved Capacity Increment).
- If a bidding retailer requires more than the Capacity Amount, it may request additional capacity from Vector. Vector decides whether to approve the request in accordance with its VTC obligations (as it does now).

- If the incumbent retailer loses the tender, a 'switch' takes place in accordance with the Gas (Switching Arrangements) Rules 2008.
- On the switch date, Vector transfers the Reserved Capacity Increment from the old retailer to the new retailer. Any difference between the Capacity Amount and the Reserved Capacity Increment is rescinded to Vector.
- Retailers make no payment to each other in relation to the transfer. Payments are due to Vector as usual, based on the CRF.

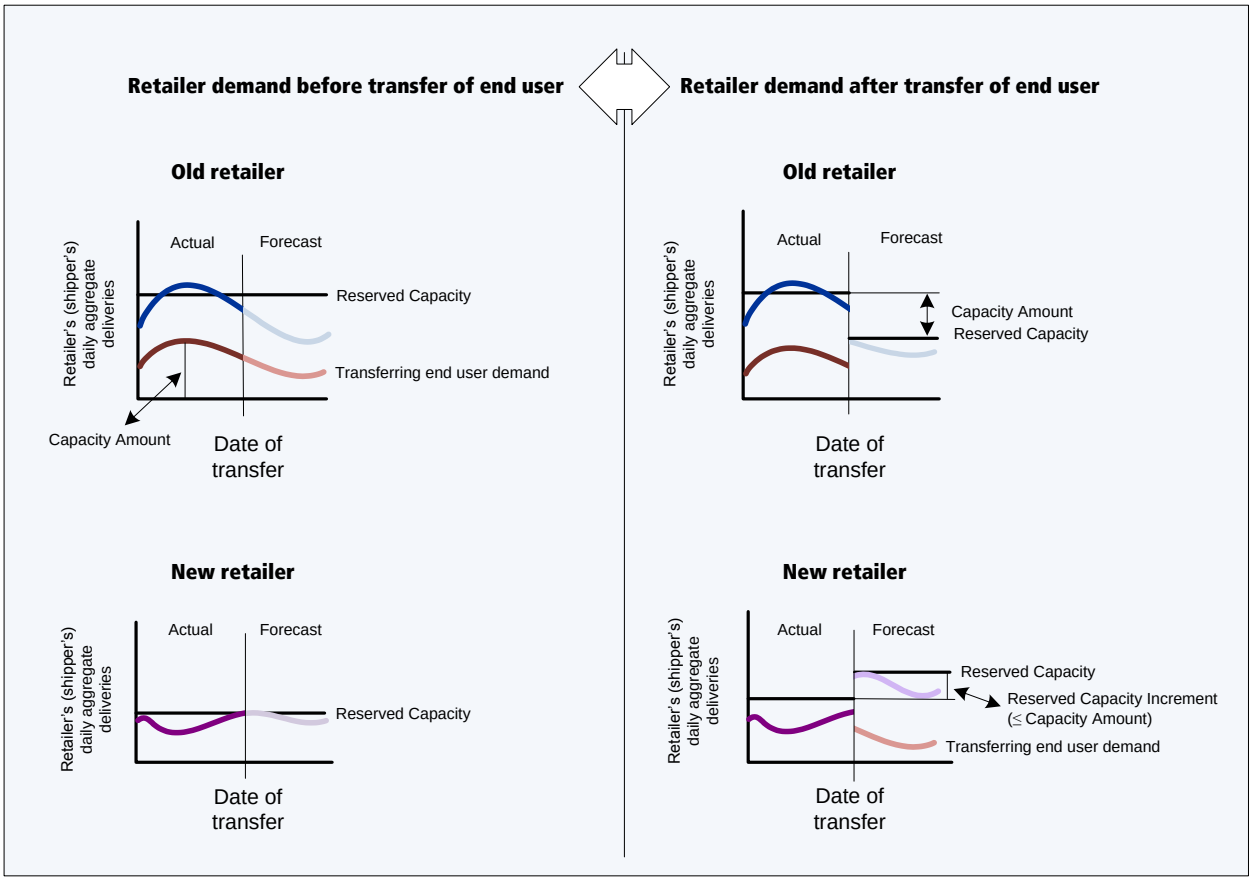

Figure 9 Capacity Follows End User concept

These features are discussed further below.

Definition of Large End User

A 'large' end user is defined in relation to an annual demand threshold. Gas Industry Co specifies the threshold in the regulations, taking into account the objectives of facilitating competition and the practicality of implementing and operating the option.

Capacity Amount determined by Vector

If a retailer loses an end user, it requires less capacity to serve its (reduced) end user portfolio in aggregate. Similarly, if a retailer gains an end user, it requires more capacity in aggregate. The Capacity Amount aims to approximate the contribution the end user demand made to the incumbent retailer's peak demand.

A retailer requires sufficient capacity to cover the peak demand of its end users. Because capacity can be transferred between delivery points on a Constrained Pipeline[28], the relevant peak demand for calculating the Capacity Amount is the incumbent retailer's peak demand on the Constrained Pipeline, not its demand at a delivery point where the end user is supplied.

If a Large End User chooses to be supplied by a new retailer, that winning retailer might require more or less capacity than the Capacity Amount. If the winning retailer requires less than the Capacity Amount, then only that lesser quantity is transferred from the losing retailer; the old retailer rescinds the remainder to Vector. If the winning retailer requires more than the Capacity Amount, it must negotiate with Vector on the same basis as any other retailer seeking additional capacity. If Vector is unable to provide additional capacity, the winning retailer runs a greater risk of overrun.

Old retailer's peak demand

For simplicity, the old retailer's peak demand period on the Constrained Pipeline will be specified (in the regulations) in a simple way, for example, the five days of highest deliveries in the previous 12 months. The Capacity Amount will be based on the average end user demand on these five days.

Timing of processes

The Capacity Amount is determined after notification of an upcoming end user tender. The determination should occur before the tender starts, allowing each prospective retailers time to agree with Vector what its individual Reserved Capacity Increments will be (it must be less than, or equal to, the Capacity Amount). Each retailer can then factor this information into its tendering strategy.

The capacity transfer occurs at the start of the new end user contract. The new retailer receives its Reserved Capacity Increment, and Vector receives any difference between the Capacity Amount and that Reserved Capacity Increment.

[28] It is assumed capacity cannot be transferred into or out of the Constrained Pipeline.

Evaluation of Capacity Follows End User

Competition

The Capacity Follows End User option allows retailers to tender for Large End Users. Retailers know that if they win, they will receive additional capacity (the Reserved Capacity Increment) to supply that end user. Although the amount of additional capacity is possibly insufficient for some retailers, it should be close to sufficient for most.

The Capacity Follows End User option does not deal with competition for small end users; however, we are unaware of competition problems in this sector. Nor does this option deal with competition to supply new end users or new demand from existing end users. Retailers are not issued additional capacity to serve these end users, even if pipeline capacity is sufficient to serve them. However, a retailer with unused capacity could use it to supply a new Large End User. Once supplied, that new end user becomes an 'existing end user', entitled to the same treatment as other Large End Users.

Therefore, the Capacity Follows End User option rates 'good' under the competition criterion.

Consistency

The Permitted Demand option was rated 'moderate' for consistency, because the scarcity of capacity is not signalled to all end users. This is a problem for the Capacity Follows End User option also, but only for Large End Users, as discussed below.

In pricing for a tender put out by a Large End User, a new retailer knows that, if it wins, it will be awarded capacity at the CRF. The incumbent retailer knows that, if it loses the end user, it must rescind capacity at the CRF. In each case, the opportunity cost of supplying the end user is—in relation to capacity—the CRF. Retailers will price on this basis and will not signal any capacity scarcity to these end users. As far as Large End Users are concerned there is no scarcity.

This argument applies only for Large End Users. Capacity will remain scarce for supply to small end users and will retain its current commercial and strategic value.[29] However, Large End Users are likely to be the most responsive to price signals and so the absence of appropriate signals for them under this option is a significant shortcoming in terms of consistency with the medium-term solution.

Therefore, the Capacity Follows End User option rates 'moderate' for consistency, which is the same rating as for the Permitted Demand option.

Timeliness

This option requires Vector to design and implement systems to determine the Capacity Amount. These systems are separate from existing ones, and make use of data not currently held by Vector.

[29] The different situations for large and small end users create a 'cliff edge' issue. Small end users just smaller than the Large End Users threshold could potentially be paying a substantially higher retail gas price than those Large End Users just above the threshold. The threshold needs to be clearly defined.

The new systems need to be used only for Large End Users when they put their contracts up for tender, perhaps once every two to three years. The systems do not need to be highly automated and should be able to be implemented quickly.

The only interface with Vector systems is the capacity transfer itself, which Vector systems already accommodate.

Therefore, the Capacity Follows End User option rates 'very good' on the timeliness criterion.

Existing contractual rights

The Capacity Follows End User option effectively preserves the ability of retailers to enter into multi-year contracts, but without limiting the ability of end users to select their gas supplier. The transferred capacity would have been fully utilised previously and the level of unutilised capacity is (approximately) unchanged. However, the strategic value of unutilised capacity is substantially reduced, because capacity to serve Large End Users is now readily available to all retailers.

In summary, the Capacity Follows End User option rates 'moderate' on the existing contractual rights criterion.

Shock

Under the Capacity Follows End User option, total capacity on issue, and Vector's revenue, remains unchanged. Although Vector may issue small amounts of supplementary capacity in exceptional cases, this small change in issued capacity is unlikely to materially affect tariffs.

Existing retailers serving existing end users are unaffected by this option. However, a retailer who loses an end user could find its ability to serve its remaining end users is affected if the determined Capacity Amount is too high.

Large End Users are—on renewing their contracts—likely to see a price fall as a result of the effect on capacity pricing discussed above. Small end users should be largely unaffected.

In summary, shocks on end users and retailers are likely to be modest; and so the Capacity Follows End User option is rated 'good' for the shock criterion.

Curtailment

To the extent that there is any net change in capacity issued, this will reflect a corresponding change in retailer diversity. The capacity will be unavailable to supply new demand.

Therefore, the Capacity Follows End User option should not cause any change to curtailment and is rated 'very good' on the curtailment criterion.

Evaluation summary

Table 22 summarises the evaluation ratings for the Capacity Follows End User option.

Table 22 Evaluation of the Capacity Follows End User option

Criteria	Capacity Follows End User
Competition	Good
Consistency	Moderate
Timeliness	Very good
Existing contractual rights	Moderate
Shock	Good
Curtailment	Very good

Appendix E Options (4): demand tariff

Overview

Retail competition is currently impeded because retailers must reserve capacity to serve new end users, but are unable to get it. All of the previous options have dealt with the supply of capacity, directly or indirectly. Demand tariff options instead deal with the requirement to reserve capacity. Under a demand tariff, pipeline services are paid for based on actual usage. There is no requirement to reserve capacity in advance.

This category has only one option. In the medium term, there are possible variations, which come under the general term 'common carriage'. Common carriage is discussed in the Capacity Options Paper.

Glossary

Defined terms used for this option are listed in Table 23.

Table 23 Defined terms used in the 'demand tariff' category of options

Term	Meaning
Demand Tariff	A charge on shippers, which is based on their actual demand rather than on a level of Reserved Capacity

See also Table 14 on page 58 for a description of existing Vector charges.

Option 4: Demand Tariff

Overview

The Demand Tariff option replaces the Reserved Capacity regime on all Vector pipelines. Retailers are entitled to as much capacity as they require. They pay a tariff based on the demand during the system peak; that is, they are charged on the basis of actual demand rather than Reserved Capacity. However, at large sites on a constrained pipeline, retailers may deliver gas only to a permitted level of demand. Retailers pay a new transmission charge for any deliveries above the permitted amount.

The features of the Demand Tariff option are as follows and illustrated in Figure 10.

- Option implemented by regulation.
- A new capacity regime applies to all Vector pipelines (not just Constrained Pipelines).
- Under this regime, there is no Reserved Capacity and shippers previously supplying end users via Reserved Capacity are instead charged for pipeline use based on their demand.
- Shippers holding capacity under long-term contracts (for example, power stations) continue with the existing regime.
- For each delivery point, a Demand Tariff is calculated, which is proportionate to the existing CRF. Tariffs are scaled up or down to leave Vector's total revenue approximately the same as current revenue from Reserved Capacity.
- The Demand Tariff is levied on each retailer based on its average demand at each delivery point over the peak winter period.
- An entry barrier is established on Constrained Pipelines, identical to the entry barrier described for the Permitted Demand option.

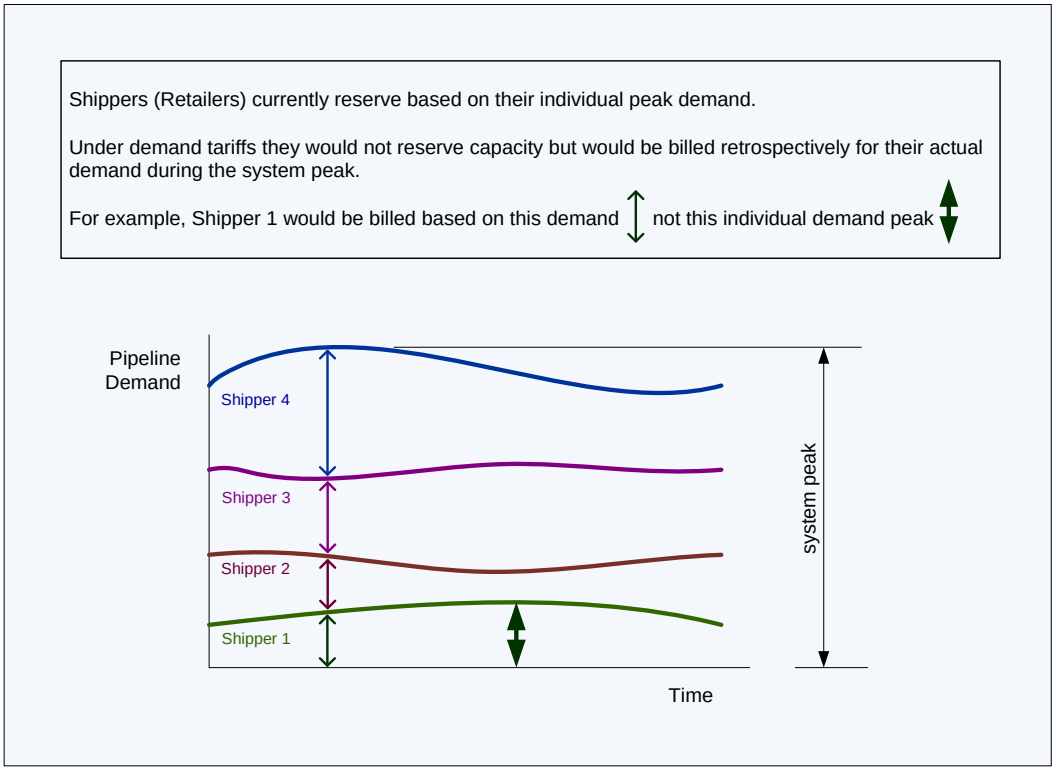

Figure 10 Demand Tariff concept

These features are discussed below.

Demand tariff

Regimes that charge based on actual use of a transmission service, rather than a level of reserved capacity, are common in the energy transmission sector, both in New Zealand and overseas. MDL operates such a regime on the Maui pipeline. These regimes are often referred to as 'common carriage'. However, common carriage regimes typically include other features. One such feature is the right of all users to obtain whatever level of access they require. Another is the obligation on the transmission provider to expand transmission capacity to maintain a defined standard of service, particularly in relation to service reliability. Because these two features are absent from this option, the term 'common carriage' may be misleading and is avoided; instead we have used the term 'demand tariff'.

Pipeline charges

Pipeline charges for each retailer at each delivery point are based on the following formula, which is explained below.

$$\text{Pipeline Charge} = K \times CRF \times \text{Retailer Demand}$$

Retailer Demand is calculated for each retailer based on its average demand over the peak period for the pipeline. For example, 'Retailer Demand' might be that retailer's average weekday demand over

July and August (the peak period for the pipeline). The detailed definition of this demand measure would be a matter for Vector, in accordance with principles set out in regulations.

CRF is the existing capacity tariff applying to the delivery point

K is a single factor, which is applied uniformly to all retailer demand across all delivery points. It is set at a level that ensures Vector recovers the same aggregate revenue under the demand tariff as it would under the existing arrangements. The retailer's demand over the pipeline peak period will be no higher—and will often be lower—than its own peak demand (as it is for Shipper 1 in Figure 10). For most retailers, their 'Retailer Demand' value will be lower than the level of Reserved Capacity they would book under the current arrangements. This means the value of K needs to be greater than one.

Effect on retailer

Although aggregate revenue from retailers will be the same as now, individual retailer charges may change, possibly substantially.

If a retailer has its peak demand over the pipeline peak period, the gigajoule amount it pays for under the Demand Tariff is likely to be similar to the amount of capacity it reserves currently.[30] Such retailers would see their Vector charges increase by the factor K.

Other retailers may have their peak demand away from the peak period. Therefore, the gigajoule amount they pay for under the Demand Tariff option will be less than current Reserved Capacity. These retailers may see their Vector charges fall.

Entry barrier

Because the existing impediment to demand growth created by the capacity shortage is removed, another barrier is needed to prevent demand growth leading to increased curtailment.

The entry barrier would be identical to the one described for Permitted Demand.

[30] Its actual peak demand may be higher than the average amount, but retailers currently are liable to book less than their peak demand and bear some limited exposure to overrun charges.

Evaluation of Demand Tariff

Competition

Under the Demand Tariff option, retailers are automatically entitled to whatever level of pipeline capacity they require to serve their end users. In competing to gain end users, capacity is no longer an issue. Therefore, in relation to existing end users, the retail competition problem is resolved.

The entry barrier means the situation for new end users is the same as in the Permitted Demand option—new end users are admitted by Vector (and able to obtain a competitive supply) if and when the existing pipeline is able to accommodate them.

For these reasons, the Demand Tariff option is rated 'very good' for competition, which is the same as the rating for Permitted Demand.

Consistency

The Demand Tariffs under this option (one at each delivery point) are proportionate to the existing CRF. Capacity is always available to serve existing end users at these tariffs. Therefore, the price premium required to reflect capacity scarcity is removed, as in the Permitted Demand option. End users are therefore unable to respond appropriately to the scarcity.

However, this option is a stepping stone towards a full common carriage regime. The Capacity Options Paper concluded that a 'hybrid' arrangement was likely to be the most effective access regime for the medium term. Under this hybrid, the retail market would be served by a common carriage arrangement. An optional contract carriage arrangement would be available for end users who did not wish to participate in the retail market (instead buying gas wholesale and arranging their own delivery). Therefore, the Demand Tariff option is likely to provide a stepping stone towards the medium-term solution.

Apart from the competition benefits, the Demand Tariff option improves efficiency. It achieves this by levying charges on retailer demand coincident with the pipeline peak rather than on the non-coincident retailer peak. Again, this is discussed further in the Capacity Options Paper.

The Demand Tariff option is therefore rated 'good' for consistency.

Timeliness

The Demand Tariff option represents a new way for Vector to charge for pipeline services. It therefore requires an overhaul of Vector's existing billing systems and tariffs to be recalculated. Because the new charges are, in effect, set annually, it would probably be feasible to introduce it only after the start of the next gas year.

In summary, the Demand Tariff option rates 'poor' for the timeliness criterion.

Existing contractual rights

Under the Demand Tariff option, all retailers are charged on a common basis. There are no grandfathering rights and the existing rights have no meaning or value in the new regime. However, the 'loss' of these rights does not affect retailers' ability to supply end users on multi-year contracts.

The Demand Tariff option replaces only Reserved Capacity. Power stations on long-term capacity contracts are unaffected.

Therefore, the Demand Tariff option is rated 'moderate' for the existing contractual rights criterion.

Shock

As discussed under 'pipeline charges' above, retailers will see an increase or decrease in their capacity charges depending upon how well aligned their own peak demand is with the pipeline peak demand. Those with high alignment will see increased charges; low alignment will lead to reduced charges. These changes apply to all retail demand and it may be difficult for some retailers to pass any additional costs through to existing end users.

The demand-based tariff—and the resulting price shock—applies to all Vector pipelines, not just constrained pipelines.

Demand cannot be known in advance, so under this option, neither can Vector's revenue. Vector can set tariffs based on recovering its revenue requirement from the expected demand, but will then see over- or under-recovery due to demand forecasting errors. Forecasting errors are an existing problem, but the demand for Reserved Capacity tends to be more stable because it is based on retailer's forecasts of demand (rather than actual demand). Any over- or under-recovery could lead to Vector adjusting tariffs in the following year.

In summary, there are several possible sources of significant price shock. The Demand Tariff option is therefore rated 'poor' for this criterion.

Curtailment

As in the Permitted Demand option, the capacity regime no longer controls demand growth. Control is instead through the entry barrier. Therefore, the Demand Tariff option scores the same rating for curtailment as the Permitted Demand: that is, 'very good'.

Evaluation summary

Table 24 summarises the evaluation ratings for the firm capacity options.

Table 24 Evaluation of the demand tariff option

Criteria	Demand Tariff
Competition	Very good
Consistency	Good
Timeliness	Poor
Existing contractual rights	Moderate
Shock	Poor
Curtailment	Very good

Appendix F Summary of submissions on competition issues

Participant	Introductory comments
Carter Holt Harvey (CHH)	• Support an urgent review of the Vector Transmission Code (VTC) for short-term solution to reducing competition and capacity issues. • Including user representation in any group reviewing the code would be most useful in reaching a balanced result.
Contact	• Unclear whether urgent intervention is needed to promote competition. Vector has tools to provide capacity if a supplier will not relinquish capacity after a switch. • Vector could make its capacity allocation procedures more flexible, which would help make physical capacity more available. However, no one has proposed a change request seeking that. • Vector's contractual arrangements constrain access to transmission capacity, but there has been no convincing demonstration that there is any shortage of physical capacity. • Gas Industry Co should identify whether there is a shortage of physical capacity or a requirement to improve the quality of gas transmission services; and the value at issue. It should then consider how and when it should exercise its powers under the Gas Act to solve the issue including a requirement that Vector must expand capacity. • Gas Industry Co should take care to ensure that dealing with transfer of capacity at a supply switch does not divert from the physical capacity issue.
Fonterra	• Any solution that allocated capacity to new customers, leaving existing customers stranded would be a major concern. Security of supply is critical to Fonterra's operations. • Transmission costs are also important.
Major Electricity Users Group (MEUG)	• Transparency remains a key issue because we still do not know if the pipeline operating regime of Vector Transmission is overly conservative compared with a comparable Reasonable and Prudent Operator standard.

Participant	Response to question 1 Do you consider that industry codes need to promote competition?
CHH	• The gas transmission system should operate neutrally with respect to competition in gas energy supply.
Contact	• Neither the Maui Pipeline Operating Code (MPOC) nor the VTC includes such an objective. Competition can be promoted without such a provision. • Both the MPOC and the VTC include a change request process, which could be designed to promote competition. • Gas Industry Co can, under the Gas Act, recommend regulations amending the MPOC and the VTC to promote competition.
Fonterra	• Yes they should.
Genesis	• Industry codes should support a competitive market environment.
Greymouth	• Yes, absolutely. In addition industry codes should at all times facilitate the objectives of the Government's energy strategy.
MEUG	• Yes. If not, then parties to the code could be in breach of the Commerce Act.
Might River Power (MRP)	• Promoting competition is not an essential part of all industry codes. Many codes are technical in nature, including access codes such as the VTC. Rather than actively promoting competition, a more important issue is that these codes should be neutral, non-discriminatory, and not promote anti-competitive activities and/or practices.
Nova	• Yes. • The current VTC is efficient because Vector allocates all available capacity to retailers/users (according to Vector at least). • Except for Supplementary Agreements and long-term power station capacity contracts, capacity can be traded between retailers/users.
New Zealand Refining Company (NZRC)	• Yes—absolutely crucial.
O-I New Zealand	• In all cases, yes.
Vector Transmission (Vector)	• Believes industry codes should support competition.

Participant	Response to question 2 Do you consider that existing Vector access arrangements are damaging competition in: (i) the retail gas market, and (ii) the wholesale gas market?
CHH	• (ii) Transmission access rights under the present arrangements seem to make supplier changes very difficult if not impossible.
Contact	• Unclear, because Gas Industry Co has not identified facts showing the significance of such an issue. • Vector's involvement in providing gas transmission services and gas trading potentially allows Vector to cross-subsidise its gas trading activities at the expense of competition.
Fonterra	• As presented, yes; but need to be mindful of the criticality of supply.
Genesis	• Physical capacity constraints are having a detrimental effect on competition (to what extent is unclear) and are also likely to constrain demand growth. Access arrangements are a second-order issue.
Greymouth	• (i) Yes, the ability of end users to change retailer depends on the new retailer having sufficient excess booked capacity. End users are therefore only able to switch to retailers that are hoarding capacity.
MEUG	• (i) Yes, large end users are unable to obtain competitive bids from retailers. This will also apply to new entrant gas fired peaking plant or base load plant trying to enter the market. • (ii) Yes, competition among gas producers may also be restricted.
MRP	• These questions appear straightforward, but in fact raise issues that are far from simple. This question should not be asked with reference to the access arrangements to the Vector Transmission system, which is clearly offered on a neutral and non-discriminatory basis. The question should be confined to the issue of allocating capacity on part of a transmission system deemed to have become constrained over time. • (i) For the residential retail market, constraint on the North pipeline has not materially affected competition; this sector is driven primarily by competition within the electricity market. It has created some problems in commercial and industrial markets. However, MRP wonders how many customers have been affected and how big a problem it actually is. • (ii) No evidence the constraint on the North pipeline has affected competition in the wholesale market. Information given at the workshop suggests the wholesale price of gas is higher than retail prices. Is this the real competition issue Gas Industry Co needs to investigate? • Question whether, as suggested in the question, the VTC's access arrangements are actually anti-competitive; or, rather, has Vector failed to properly invest in their assets in a timely manner?
Nova	• (i) No. • (ii) No. • The aspects of transmission arrangements that are inhibiting competition and the efficient allocation of capacity are: o the monopoly nature of transmission pipelines meaning that Vector is the only likely viable source of incremental capacity; o unwillingness of participants to recognise that transmission prices must rise to ration demand to available supply and to provide the basis for investment in additional

Participant	Response to question 2 **Do you consider that existing Vector access arrangements are damaging competition in: (i) the retail gas market, and (ii) the wholesale gas market?**
	capacity; o restrictions on the trading of long-term capacity contracts held by generators.
NZRC	• Don't know. It certainly sounds like it, but because we do not have access to any reserved capacity this issue does not affect us directly.
O-I New Zealand	• (i) Yes, customer ability to change shipper relies on new shipper having booked capacity to accommodate that new volume. • (ii) Can't comment—not involved in wholesale gas market.
Vector	• Does not believe that the access arrangements are themselves negatively affecting competition. • Users' operation under them may however be negatively affecting competition. If that is the case, the industry is correct to consider whether incentives need to be re-aligned to further support competition in the retail market. • Whether competition has, in fact, been affected is a difficult question to answer – capacity problems may be being highlighted by some users as a convenient excuse for not tendering for loads, when in fact the loads are perceived to not be attractive for other business reasons or to further other agendas. • Unaware of any capacity related competition issues in the wholesale market.

Participant	Response to question 3 Do you consider that the annual review of the VTC should allow for changes to be made if existing arrangements are damaging competition?
CHH	• Yes.
Contact	• The VTC does not provide for an annual review. The change process can be exercised at any time. • At renewal, the VTC is subject to a negotiation process where any shipper and Vector has been free to promote any change. Changes are taken up or rejected depending on support. • Vector has indicated some willingness to consider future changes to its capacity regime but says it wishes to avoid any significant change until the methodology for price control is determined. • We again note that Gas Industry Co has powers to require Vector to make changes.
Fonterra	• Yes, but care needs to be taken to ensure one problem is not solved by creating others.
Genesis	• There is not an annual VTC review process. Amendments may be proposed at any time and for any reason.
Greymouth	• If the existing arrangements are limiting competition, the VTC should be changed immediately. These changes should not have to wait until the annual review. Gas end users do not align contract end to VTC revision dates. • The current VTC change process is flawed and too time consuming. VTC should allow for the industry co-regulatory body to propose changes to the VTC to enhance competition. The VTC change request process should be able to be fast tracked in certain circumstances.
MEUG	• This is essential. If the annual review of the VTC is not proactive in dealing with barriers to competition, then it should be replaced with a regulated solution.
MRP	• The existing VTC allows for changes to be proposed and implemented at any time.
Nova	• The VTC change process provides for change. • What the VTC is unable to do (and is precluded by provisions of the VTC) is to provide for new investment.
NZRC	• Yes—absolutely. A monopoly supplier needs to be appropriately regulated to ensure the best possible outcomes for 'NZ Inc.'
O-I New Zealand	• If competition is damaged, VTC should allow for immediate changes—gas end users do not align contract end to VTC revision dates.
Vector	• The VTC contains a Change Request process which can be utilised at any stage to effect changes to arrangements. This is a quick and effective process – particularly if 75% User and Vector agreement can be obtained. • The reviews held to date provide another mechanism, but the industry should not limit itself to these processes.

Participant	Response to question 4 Do you consider that an urgent change to the VTC is required to improve competition?
CHH	• Urgent consideration should be given to changes to the VTC to allow greater competition for energy supply; and to improve the physical/commercial issues capacity issues on the Northern line and the end of the Bay Of Plenty line (Whakatane).
Contact	• See no evidence of an issue requiring urgent intervention. • There have been no change requests seeking to improve competition. • Unsubstantiated reports of problems have occurred only on Vector's North Pipeline. Analysis indicates capacity usage has declined on this section of the transmission system. The claim that there is a problem results from changes to Vector's management of capacity on the North Pipeline. An investigation of the reasons for those changes may show they were unnecessary.
Fonterra	• Yes that is apparent but security of supply (grandfathering) is critical when processing perishable raw materials, especially when there is no control over the supply of that raw material.
Genesis	• No. However, consideration should be given to reducing overrun charges and associated liability provisions. Shippers would reduce their capacity reservations because they would be willing to face greater exposure to overrun charges. In turn, this would free up capacity while increasing the likelihood of curtailment during peak demand periods. The regime would shift slightly towards a common carriage model.
Greymouth	• Yes. Since June 2009, the retail gas market has not functioned efficiently and end users are unable to take advantage of lower-priced gas.
MEUG	• An urgent change to the VTC should be considered. • Agree that efficient allocation and facilitating competition are key short-term issues that could be addressed with an urgent rule change. • Agree with Gas Industry Co that 'on preliminary consideration …. No detriment to business confidence if 'grandfathering' is adjusted.'
MRP	• Reserves judgement on this question. Gas Industry Co should clearly define the size of the competition issues. • Changes to the VTC must be clearly thought through and not unfairly advantage a relatively few commercial and industrial customers who already have significant competitive pricing advantages over mass market customers.
Nova	• No. More physical capacity is required together with removal of restrictions on capacity trading—particularly that associated with long-term power station contracts.
NZRC	• Yes—based on what we've heard. See Q2.
O-I New Zealand	• Yes.
Vector	• If the GIC considers that competition is currently negatively impacted, Vector Transmission agrees, in accordance with the GPS, that the VTC should be amended to better support competition.

Participant	Response to question 5 Do you consider that it is preferable to change the code through the existing code change provisions or through regulation?
CHH	• Prefer existing code changes by agreement; but if this cannot be achieved quickly, then there should be little or no delay in regulating.
Contact	• Code changes can be simpler, more effective in building on established arrangements, lower cost, and better directed towards meeting users' needs. • Particularly where it is necessary to intrude on contractual rights to make changes, regulation may be necessary but that should be limited to circumstances where the benefits exceed the costs. • Gas Industry Co must define the issue and quantify the likely costs of failing to deal with the issue before developing expensive regulatory intervention.
Fonterra	• Use of the existing code change provisions is preferred.
Genesis	• Regulation. It is unclear why any shipper would relinquish its grandfathering rights through the VTC change process. However, regulation needs to be supported by a robust cost-benefit analysis assessment of various options. • Although Genesis Energy has an open mind, it is not clear that the benefits of pro-competitive intervention would be material in this case.
Greymouth	• The optimal approach is one that results in the most prompt solution. • The VTC change request process and the regulatory process are time consuming. They should be progressed in tandem, led by GIC and subject to strict deadlines. If an industry deadlock exists during the VTC change request process then GIC must move promptly and decisively to effect a regulatory solution. • If GIC cannot solve this issue, NZ should adopt a different regulatory model.
MEUG	• Prefer changing the VTC using the existing code change processes. However MEUG is not optimistic this is possible because: o only existing Shippers and Vector can propose a code change, not end users and possible new entrants; o existing Shippers have little common ground or incentive for reaching an agreement in the national interest if it means some (most) will have to concede grandfathered capacity rights. • GIC, parties to the VTC, and other interested parties should discuss a process for improving the VTC to avoid regulation, for example an industry working group.
MRP	• Yes, industry-led solutions are almost always preferable to regulation.
Nova	• Depends on the nature of the change. Regulation is necessary if it is decided to interfere with retailers' transmission rights. Should that be the case, then it should extend to users with long-term capacity contracts. Those large contracts consume a much larger proportion of total capacity and should be treated no differently from posted terms capacity. • If change is necessary, a more significant and fundamental review of the transmission capacity pricing regime is required rather than tinkering with the existing VTC and reallocating capacity rights when customers switch supplier.
NZRC	• The quickest option, that is, existing code changes.

Participant	Response to question 5 Do you consider that it is preferable to change the code through the existing code change provisions or through regulation?
O-I New Zealand	• Regulation should be avoided whenever possible, because (1) they take time, but the issues affecting competition are short term, (2) they often come with compliance costs, which are likely be passed to end users of gas, (3) an industry solution is flexible.
Vector	• The VTC contains an effective Change Request process which could certainly be utilised. Regulation may however be more appropriate if proposed changes have a significant effect on existing rights and/or businesses. • This matter could perhaps be re-addressed once a preferred change option is identified.

Participant	Response to question 6 Do you consider that there are risks to your organisation if an urgent change is implemented? If so, please specify.
CHH	• No.
Contact	• Until the urgent change is specified and quantified that cannot be assessed and determined. • Some proposals may increase gas transmission costs because shippers would be unable to manage transmission capacity as part of a portfolio. Some of the Vector proposals would require it to exert a high degree of control over the gas industry, which is inappropriate. • Linking capacity to a specific end user can remove flexibility and increase transmission costs. Such an approach entrenches existing end users at the expense of the development of new and more efficient end uses.
Fonterra	• Yes if the points made above regarding security of supply are not fully taken into account. These can, however, be worked through, it should not be a show stopper.
Genesis	• Yes. Genesis Energy may have less certainty about its ability to supply its customers downstream of the constraint.
Greymouth	• There are no risks to Greymouth Gas if a change enables gas users to freely select a provider. • Conversely, there are substantial risks to Greymouth Gas if such a change is not implemented. Greymouth Gas has lost significant income as a result of not being able to contract with customers on the North pipeline because it is not able to access the capacity required. Greymouth's proposed customers have also incurred significant losses.
MEUG	• On the basis of the work to date we see no show stoppers to proceeding with detailed investigation of short-term solutions.
MRP	• Without knowing what any actual changes to the VTC would be it is impossible to answer this question.
Nova	• Yes. Any changes to capacity rights affect Nova Energy's ability to provide continuity of supply to its customers. Nova does not believe that would be acceptable to its customers; it is not acceptable to Nova because there are legal risks associated with customer contracts. • In addition, the current contract for transmission services entered into by retailers provides for retailers to procure capacity from Vector on an aggregated basis and use that capacity to sell gas on a delivered basis to consumers. A part of that proposition is that retailers bear a number of responsibilities including the credit risk associated with consumers default. • If capacity is allocated to users, the appropriate mechanism would be for consumers to

Participant	Response to question 6 Do you consider that there are risks to your organisation if an urgent change is implemented? If so, please specify.
	contract directly with Vector Transmission.
NZRC	• No.
O-I New Zealand	• Cannot answer adequately without knowing what the urgent changes may be. However, in general, we have security of supply under our current contract with gas retailer/shipper and would be disappointed if current stability is jeopardised through any urgent change.
Vector	• At this stage, it is difficult for us to comment on this question. We will be in a better position to comment once the options are clear and a preferred option identified.

Participant	Response to question 7 Do you consider that there are options to improve competition in the short-term that were not canvassed at the 18 August 2010 workshop? If so, please specify.
Contact	• A survey of other open access regimes and how capacity is allocated may identify other options.
Genesis	• Gas Industry Company can require transmission pipeline capacity upgrades and determine who should pay. This could be a valid option if the competition benefits and the benefits of greater capacity for demand growth were large enough to outweigh the costs. • In a 'do nothing' scenario, end users could negotiate with their suppliers to ensure transmission capacity is relinquished at the end of any supply contract. • Only 36% of pipeline capacity is reserved capacity; options freeing up access to the other 64% tied up in 'non-tradable' supplementary transmission services agreements could be considered.
Greymouth	• Tagging capacity to end users is the most effective short-term solution. Shippers should be required to justify their capacity bookings and provide a list of end users to prevent hoarding. • Investment by Vector (or others) in new pipeline infrastructure to add to physical capacity. Vector remains reluctant to invest in essential infrastructure, therefore Greymouth Gas would like Gas Industry Co to confirm it will recommend regulations to ensure third party requests for access (to lay a new pipeline) to all current designations and easements for Auckland region pipelines (particularly the North pipeline).
MEUG	• No; apart from re-emphasising that in considering short-term solutions greater transparency is needed from Vector of the current regime.
MRP	• One option is interruptible arrangements with major users. This appears to be a relatively simple and cost effective solution to the problem on the North pipeline. Complications include incentives for considering such a proposal and an agreement with the shippers to fund compensation for lost production on interrupted days. • Non–code shippers could be allowed to sell, on a short-term basis, a proportion of their contracted capacity during the winter period.
Nova	• The economic issues are fundamentally mis-stated. The current transmission problem has been stated as large end users unable to obtain competitive bids from retailers because of the capacity constraints. This is incorrect because there is evidence of:

Participant	Response to question 7 **Do you consider that there are options to improve competition in the short-term that were not canvassed at the 18 August 2010 workshop? If so, please specify.**
	○ consumers obtaining competitive offers for supply; ○ North Pipeline consumer switching retailers. • Also the problem as stated by the Gas Industry Co does not contemplate new users seeking capacity or existing users seeking incremental capacity. Suggestions that existing users should be protected against being displaced by new users concern Nova—it conflicts with the economic principle that capacity should be allocated to the highest value use. • In any normal competitive market where demand exceeds supply, prices rise to efficiently ration demand and ensure that available supply is allocated to the highest value use. The appropriate solution to the Northern capacity constraints is to simulate the outcome that a competitive market would deliver, which is incremental investment in capacity supported by marginally higher prices for all consumers in the affected region. • The existing allocation of property rights is economically efficient because retailers have the incentives to price transmission capacity rights appropriately to ensure capacity is allocated to the party that values it most. Allocating existing capacity to users is unlikely to lead to trading of capacity to higher value users because existing users are more likely to hold the capacity for their own (relatively lower value) use than on-sell it to others. We note that users can actually contract for capacity and some have done so and currently provided for within the VTC. • Nova understands that some longer-term electricity generation transmission service agreements contain provisions that prevent that capacity being on-sold to other retailers or users. These contracts represent as much as 65% of total capacity on the Vector North Pipeline and as such represent a significant opportunity for the parties to those agreements to review those terms so that capacity may be on-sold to others who may have a higher value for that capacity.
NZRC	• No.
O-I New Zealand	• A cost impost for under-run to booked capacity as well as over-run. Both have a demonstrable effect on pipeline management, the former on ability to serve market given physical capacity limitations, the latter in terms of promotion of competition given apparent hoarding of un-utilised booked capacity.
Vector	• No, not currently

Participant	Response to question 8 **Are there any other factors relevant to the short term issues that you believe Gas Industry Co should consider? If so, please specify.**
CHH	• The VTC should urgently be examined to ascertain what can be changed within the code (with no/minimal capital investment) to enhance the practical capacity of the North Pipeline, and end of Bay of Plenty transmission lines.
Contact	• Open access to quantitative data would identify whether or not there is an issue and the magnitude of the issue. • Attention could become focussed on the perceived short-term issue rather than determining whether there is a lack of physical capacity and how that could be solved.
Fonterra	• Concern has been expressed that addressing short-term issues may prejudice the outcome for arriving at an improved long-term arrangement. We believe that that can be managed, in any event waiting until July 2012 is not really an option.
Genesis	• Gas Industry Company needs to assess the magnitude of the competition concerns, whether they are likely to be enduring, and whether the costs of any intervention to address competition concerns would outweigh the benefits.
Greymouth	• Any working party should ensure that end users are adequately represented and consulted—some shippers/retailers are approaching the issues from their self interest rather than the greater good. • Almost all gas consumers are subsidizing heavily discounted tariff contracts written by Vector on the Auckland pipeline network. If such discounted rate contracts exist, they should be disclosed by Vector. • Whether the transmission system operator should be allowed to own and operate a competing shipper/gas retailer or whether compulsory disposition should be required should be examined.
MEUG	• On the material published to date we do not believe solving the short-term issues will prejudice the path for better long-term arrangements. • Greymouth Gas has indicated it is prepared to invest in capacity if Vector won't. That might require Greymouth Gas to access Vector-held easements on reasonable terms. Gas Industry Co could assist by investigating whether such access would improve competition in the pipeline market to enable investment to be made much quicker than waiting for the new Commerce Act Part 4 arrangements that commence July 2012.
MRP	• It should never be forgotten that if a shipper has unauthorised overruns on a day it is required to indemnify Vector up to $10 million for a single event and $30 million for a series of events. Gas Industry Co has correctly declined to criticise shippers for their current capacity reservations because the reasons for their levels of reservation are unknown. Gas Industry Co, as a minimum, should attempt to answer this question before to developing any changes to the VTC.
O-I New Zealand	• Any working party should ensure the voice of customer is adequately provided. 'Customer' is not shipper, but rather the end consumer of gas. Some shippers are approaching the short-term issue from their self interest rather than the greater good.
Vector	• We have no further comments on substance at this stage, but believe any identified preferred option should meet a cost-benefit test.

Participant	Concluding comments
Nova	• The existing VTC arrangements that allocate capacity to retailers are not necessarily inefficient or the cause of constrained competition. The real constraint on competition is the lack of physical transmission capacity. • The main barrier to efficient market outcomes is the slow progress of pipeline regulation by the Commerce Commission. • The most efficient solutions are those that mimic competitive markets—that is, marginal increases in transmission prices for all consumers and incremental investment. • Auckland is major part of the New Zealand economy and requires increased infrastructure development to maintain economic growth.
NZRC	• Our primary concerns are the long-term considerations. For the good of this country investments in national infrastructure projects (like the gas pipeline) are imperative even when an immediate return cannot be guaranteed. The nature of these kinds of projects is such that o the return cannot be guaranteed, and o will result from growth which will be slow and develop over a longer period, but o without such an investment, the demand growth (and hence country economic growth) will be destroyed, thereby negating the need for any future investment • This would undermine further hydrocarbon exploration, because end-user demand will be curtailed. • The economic return of this national monopoly asset needs to be based on the wider picture and what it enables (for the wider NZ economy), rather than on the pipeline as a stand-alone asset. Progressing the long-term issues (the regulatory and investment issues) are crucial matters in shaping this country's future energy supply.

Glossary

Auckland Zone	A zone defined by Vector comprising a set of delivery points where the capacity reservation fee is $60/GJ/day. The delivery points are located at Papakura, Westfield, Hunua, Alfriston, Flat Bush, Waitoki, Warkworth
Capacity	Reserved Capacity or Supplementary Capacity as defined in the VTC, or similar products defined in the options
Capacity Amount	The amount of capacity an incumbent retailer is required to relinquish when a Large End User changes supplier
Constrained Pipeline	In the context of the options presented in this paper, a Constrained Pipeline is a pipeline, or part-pipeline, on which a capacity shortage has arisen and which Gas Industry Co has declared to be a Constrained Pipeline
constrained pipeline	In the general context a 'constrained pipeline' is a pipeline where the owner, acting as a reasonable and prudent operator, will not sell more firm capacity because it considers that doing so would increase the risk of interruption to other holders of firm capacity to an unreasonable level.
CRF	Capacity Reservation Fee; the fee Vector charges for Reserved Capacity
Curtailment	Process under which Vector requires that shippers (and associated end users) that have not agreed to be interruptible are required to reduce their gas demand
delivery point	An interconnection point to a pipeline where gas is taken by the interconnected party
End User	A person who buys and consumes gas
Interruptible (shipper or end user)	Where a shipper or end user has agreed with Vector that they may be interrupted from time to time.

Interruption	Process under which Vector requires that shippers (and associated end users) that have agreed to be interruptible are required to reduce their gas demand
Large End User	A user in Allocation Groups 1 and 2 (as defined by the Gas (Downstream Reconciliation) Rules 2008
Large Site	A Site with maximum daily gas consumption greater than [x]TJ and/or annual gas consumption above [x]PJ
MDQ	Maximum Daily Quantity
Overrun Fees	The charge Vector makes for gas deliveries made above reserved MDQ
Permitted Demand	A specified level of daily gas consumption at a Site. For consumption above this level, the supplying retailer must pay additional Permitted Demand overrun charges
Permitted Site	A Large Site on a Constrained Pipeline which is permitted to receive a gas supply
Physical Capacity	The maximum amount of gas that can be transported by a pipeline
Premium Capacity	Firm capacity that is identical to Reserved Capacity except for the tariff at which it is sold and its lack of grandfathering rights
Premium CRF	The price at which Premium Capacity is sold by Vector
Primary Capacity Market	The 'market' in which Vector sells capacity to shippers, normally under posted tariffs
Reserved Capacity	The amount of capacity reserved and held by users under the VTC; the limit on the amount of gas a user can have transported without incurring overrun charges
reserved capacity	The amount of capacity reserved and held by users under a capacity contract with a pipeline owner
Reserved Capacity Increment	The amount of capacity a new supplier acquires when it takes over the supply to a Large End User

Retail Market	The market in which retailers sell delivered gas to end users
Retailer	A shipper who sells delivered gas to end users
RPO	Reasonable and prudent operator
Secondary Capacity Market	The market in which shippers sell capacity to other shippers
Shipper	A person who buys capacity from Vector, as defined in the VTC
Site	A single location where gas is used by a single end user
Supplementary Capacity	Firm capacity with special terms and conditions relating to its term, price and transferability
Throughput Fees	Fees charged by Vector according to the amount of gas delivered