



**NGC HOLDINGS LIMITED**

**COMMERCE COMMISSION**

**GAS CONTROL INQUIRY**

**CROSS-SUBMISSION IN RESPECT OF SUBMISSIONS ON THE  
DRAFT FRAMEWORK PAPER**

**19 September 2003**

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## **A INTRODUCTION**

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3 This cross-submission is provided in accordance with the Commission's timetable in respect of the Inquiry, and relates to submissions on the Commission's Draft Framework Paper dated 16 July 2003.

4 Commercially sensitive information is identified and highlighted. A public version of the submission has been made available separately to the Commission.

5 NGC assumes that the Commission will follow this cross submission process with a revised and final Framework Paper that reflects the Commission's assessment of submissions and cross-submissions. Such a revision is necessary to guide both the Commission and interested parties during the upcoming months of the Inquiry.

## **B OVERVIEW OF CROSS-SUBMISSION**

6 The key aspects of NGC's cross-submissions in respect of submissions on the Commission's Draft Framework Paper are:

6.1 The choice of regulatory form in the factual (section C);

6.2 The application of the competition analysis (section D);

6.3 How the Commission should interpret price discrimination (section E);

6.4 Asset valuation (section F); and

6.5 WACC (section G).

**C FRAMEWORK FOR EVALUATING CONTROL**

- 7 The Commission raised a query at the conference<sup>1</sup> about how it should view the characteristics of the factual (control). The Commission noted that there are a wide range of potential means of control, even within a relatively narrow form such as “price cap control” and it would be difficult to fully describe the features of the factual, especially since it is the Minister that would have the final say on the form of control.
- 8 NGC agrees with the Commission that the form of control, and probably just as importantly, the attitude of the regulator, is critical to incentives and therefore efficiency. For example, a price cap that excludes consideration of profitability in the price control formula (and the regulator can commit to excluding profitability as a criterion in future) would likely create superior incentives for efficiencies than a price cap that resets prices to deliver a particular expected return over the regulatory period.
- 9 A further issue arises with the mechanics of applying price controls. For example, price caps can be based on recent trends in total factor productivity or be based on a more intrusive “building blocks” forecast of future demand and costs, which imply markedly different levels of intrusiveness in the price control setting process.
- 10 Despite these differences within the class of price cap controls, the following features would likely apply to all types of price cap control:
- 10.1 Quality standards must be set by the regulator to ensure that the level of quality is not diminished by incentives to cut costs by cutting quality;
  - 10.2 Quality levels above the standard set by the regulator would not be provided because the price cap discourages a higher level of quality being provided;
  - 10.3 Unless the Commission and Government credibly reflect option values, stranding risk and other project specific risks into the allowed rate of return, investment will be delayed and/or stifled; and
  - 10.4 Higher permitted returns must be provided to ensure that there is appropriate compensation for bearing volatility in demand over the regulatory period.

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<sup>1</sup> Conference transcript, day 4, page 522.

- 11 In other words, it is difficult to think of a control mechanism that will not have significant quality and dynamic efficiency implications. The allocative and productive efficiency implications are more likely to materially depend on the details of the control mechanism.

### **C1 Thresholds Regime**

- 12 An issue arose at the conference as to how the thresholds regime for electricity lines businesses fits into the range of regulatory forms.
- 13 NGC takes the view that the thresholds regime imposed on electricity lines businesses, falls within the category of price cap regulation as the regime shares so many common features with formal price cap regulation.
- 14 Firms breaching price cap type thresholds would become subject to investigation and then either more formal financial controls (via a control declaration), informal controls (a settlement with the Commission), or become subject to thresholds again. Under any of these scenarios there is a constraint on prices and uncertainty about what the Commission may subject a utility to under formal or informal controls.
- 15 It is difficult to see that a thresholds regime is all that distinct from the price cap form of control, albeit with a degree of uncertainty about the regime until lines businesses have been able to observe the Commission's decision process when a business breaches the thresholds. At this stage NGC notes that the Commission has specifically not excluded a profit consideration from potential future thresholds, so at present the thresholds regime might well be viewed as having at least some characteristics of rate of return regulation.
- 16 In any event, NGC considers that s52 of the Act requires the Commission to develop a factual that contemplates the use of formal price control mechanisms. Once control is imposed by the Minister under s53, those goods or services can only be provided if an authorisation is granted by the Commission under s70 (s55). If it is to make an authorisation, s70 requires the Commission to assume actual control based on the use of formulas or other methods from which prices or revenues may be determined (s70(2)).
- 17 NGC notes for completeness that the Minister has not required the Commission under s54 to advise him on the thresholds that would assist him in assessing whether goods or services should be controlled.

### **C2 Recommendation – Characteristics of the Factual**

- 18 Overall, NGC would agree with the Commission that it is not necessary to define the precise mechanism and parameters of control in the factual. While these would probably materially affect the allocative and productive efficiency implications of the factual, they are unlikely to make any material difference to the far more important dimension of dynamic efficiency, or for that matter

quality. Furthermore, quantification of the costs and benefits of control is not an exact science, and should not be considered as such. Rather, the purpose of quantification is to add rigour and transparency to the analysis (for example, by making assumptions clear), and to give an approximate feel for the size of the efficiency effects. In the scheme of things, precise definition of the factual is unlikely to affect the overall scale of efficiency effects.

- 19 It should suffice for the Commission to define the likely characteristics and performance of the pipeline industry based on the characteristics common to all forms of price control.
- 20 Overall, the key characteristics of the factual could be:
  - 20.1 The regulator's ability to set efficient price caps and quality standards is severely limited by its information disadvantage over and above the risk intrinsic to the business which itself cannot predict the environment perfectly (in particular the Commission should evaluate the likelihood of being able to set efficient prices in the presence of a high degree of demand volatility and to anticipate and define the quality characteristics that customers would prefer);
  - 20.2 There would be a material risk of reduced levels of investment under a declaration of control, resulting in losses of dynamic efficiency;
  - 20.3 Pipeline businesses would invest heavily in regulatory strategy in preference to focussing on customers' needs;
  - 20.4 Pipeline providers would reduce levels of quality to that required by the Commission and not provide levels of quality that customers would otherwise be willing to pay for; and
  - 20.5 There would likely be a reduction in productive efficiency in the years immediately prior to reset of the price path.
- 21 NGC considers that these factors would tend to be generic to almost any form of price cap / incentive-based regulation, even without explicit P0 adjustments.
- 22 A critical factor in applying incentive-based regulation over a period is the ability to reasonably accurately forecast the future, or determine a stable trend in total factor productivity if an index-based mechanism is to be used.
- 23 NGC questions whether in fact it would be possible to implement price controls for periods longer than 1-2 years in the current environment, where there is significant uncertainty about gas price, availability, and demand for gas.

### C3 Interaction of Competition and Regulation

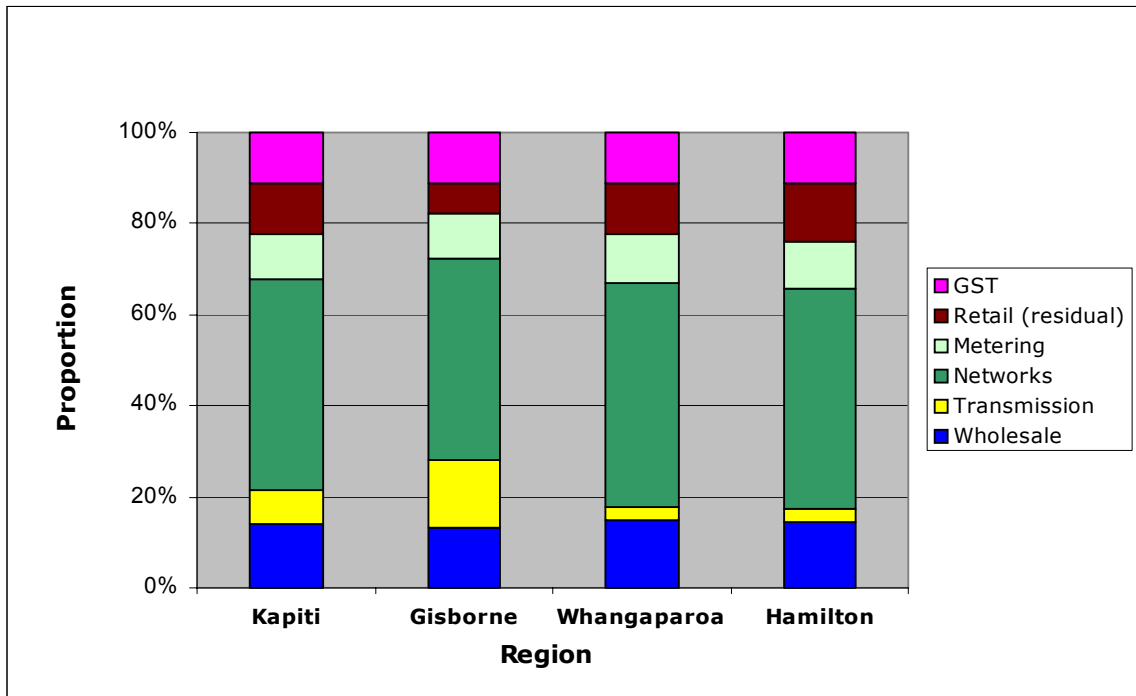
- 24 An area related to the determination of the choice of factual and likely costs and benefits that price cap regulation would typically involve is the impact of regulation in the presence of fringe competition. Initial indicators are that the constraints imposed on gas pipeline operators by inter-fuel competition and other forces are actually quite strong, i.e. gas pipeline operators face workable or effective competition. The Commission needs to go through a rigorous process of assessing this. It is very likely that gas pipeline operators face significant constraints from other fuels, by-pass, etc., which strongly indicates that control is not necessary.
- 25 In assessing the benefits of price cap forms of control the Commission should also examine the degree to which customers would actually benefit from control. Under a price cap form of control, the Commission would be required to set base weights for the regulatory period (as it has for the purpose of assessing pricing behaviour of electricity lines businesses).<sup>2</sup> Under a weighted average price cap the regulated business is permitted to set tariffs consistent with the overall weighted average price cap, but any individual customer would not necessarily receive price changes consistent with the X-factor in the price cap.
- 26 If the real constraint on a gas pipelines operator in respect of a particular group of customers is competition from bypass or inter-fuel substitutes, and the price of the substitute is decreasing (in relative terms) then these customers would get lower delivered prices, but other customers may gain no benefit from the price cap because compliance with the price cap is gained by reducing prices to a select group of customers.
- 27 Accordingly, if the Commission makes a finding that the constraint from inter-fuel and bypass competition is limited, it is still necessary to factor into the analysis of the benefits of control that customers that the regulator would most want to protect may not actually benefit. This is a particularly relevant consideration where competition from inter-fuel substitutes increases over the next few years as delivered gas becomes more expensive and special deals are required to keep customers from disconnecting from the gas network.
- 28 For example, Figure 1 shows the components of an average residential customer's annual cost attributable to each part of the supply chain<sup>3</sup>. NGC is the

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<sup>2</sup> This would be particularly problematic for the Commission in the gas sector where demand is so volatile.

<sup>3</sup> As different retailers have access to NGC's networks in the four regions shown, this analysis has assumed a wholesale gas price to retailers of \$3.20 and has calculated the retailer portion as the residual amount once the other components are accounted for. If a particular retailer faces a higher or

network owner in the four regions shown. The variation in transmission component reflects both the distance to market and system utilisation, for example the Auckland/Waikato region (represented by Whangaparoa and Hamilton) is much closer and accounts for a much higher portion of load than Gisborne.



**Figure 1: Breakdown of Average Residential Bill (25 GJ per annum)**

	New Zealand	Australia	United States
Connection Density (Customers per km)	19.4	46.0	62.5
Connection Density Ratio <sup>4</sup>	1	2.3	3.2
Average Household Demand (GJ/year)	25.2	44.8	87.4
Household Demand Ratio	1	1.8	3.5

**Table 1: Comparison of International Industry Cost Structures<sup>5</sup>**

lower wholesale gas price then the portion available to meet their costs would be correspondingly lower or higher.

<sup>4</sup> Relative to New Zealand.

- 29 NGC presented the information in Table 1 to the Government's Gas Review process in January 2002 and repeats it here to illustrate the effects of two of the key cost drivers at the distribution level, connection density and demand per customer. The relatively low levels of both factors in New Zealand results in the distribution component being a significant proportion of the delivered price. NGC notes that the figures for Australia are averages and similar contrast would be seen between New South Wales and Victoria as is apparent between New Zealand and the United States.
- 30 Any attempt to deal with the problem of which customers have or have not benefited from inter-fuel and bypass competition is likely to be fraught with difficulty and complications, as it would effectively entail segregating groups of customers into distinct markets, and regulating only some of those markets. For example, any price control on transmission could only result in a small benefit for residential customers in the Auckland/Waikato region but would likely result in significant costs that would impact their annual bill. Alternatively, the price cap could entail a uniform reduction for all customers, i.e., not involve a weighted average. However, this is likely to entail allocative efficiency costs.

## **D COMPETITION ANALYSIS**

### **D1 Competition Framework**

- 31 The Commission heard substantial evidence of customers at risk of switching and who had switched to alternate fuels and alternate pipeline providers. The Commission sought comment from a number of parties on the materiality of inter-fuel substitutes and bypass on pipeline businesses behaviour.
- 32 The key consideration for the Commission is whether there are rents available to pipeline providers, and if so, whether those rents reflect "Ricardian rents", "innovation rents" or "pure rents". It is only the latter that should be of concern to the Commission from a regulatory perspective. Ricardian and innovation rents "are benign sources of rent from an antitrust perspective: from a public policy perspective they are beneficial as they encourage investment in valuable knowledge assets and in innovation" Teece and Coleman (1998, 818).<sup>6</sup>

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<sup>5</sup> Sources: Australian Gas Association, Sept 2001, *Gas Statistics Australia 2001*; MED, *Energy Data File - July 2001*; Pacific Gas & Electric Company, *Company Profile*; Arthur Anderson & CERA, 2000, *North American Natural Gas Trends 2000*; Energy Information Administration, Dec 2001, *Natural Gas Monthly*.

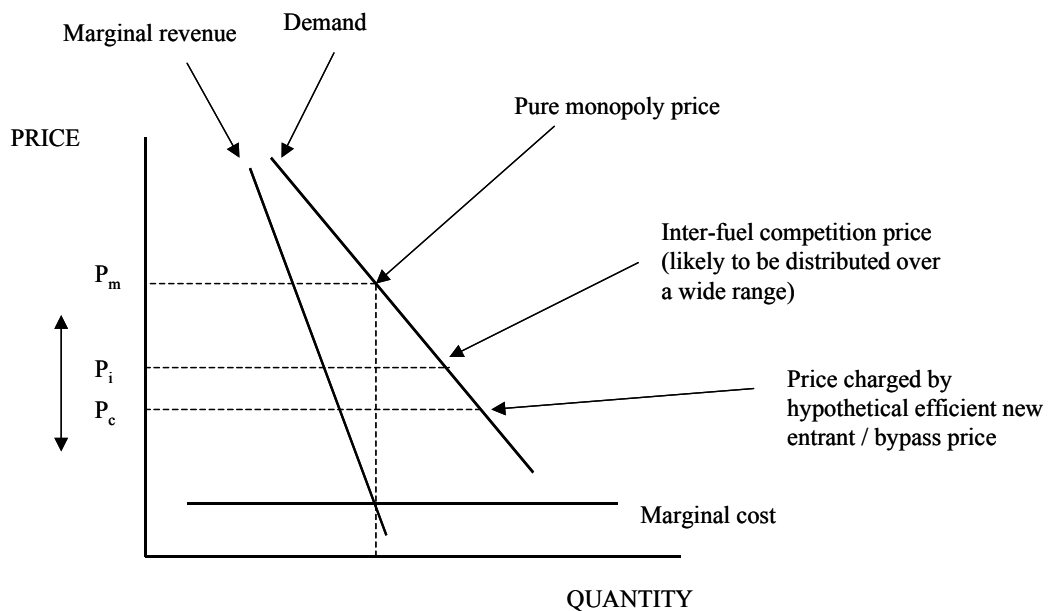
<sup>6</sup> Teece, David J. and Mary Coleman (1998) "The meaning of monopoly: antitrust analysis in high-technology industries", *The Antitrust Bulletin*, Fall-Winter, 801-857.

- 33 Sanderson and Winter (2002) provide definitions of Ricardian rents and profits or “pure rents”:<sup>7</sup>

*Ricardian Rents - In any market a number of buyers and sellers meet to trade a product. At the market equilibrium price, demand and supply are equal ... On the supply side, the marginal firm is the firm that breaks even, i.e., the firm whose marginal cost is just covered by the equilibrium price. All other firms, again called inframarginal firms, would have been willing to supply their good to the market for less than the equilibrium price. Ricardian rent refers to the income derived in a market by owners of inframarginal factors of production above the minimum amount necessary to elicit their supply in a market.*

*Pure Rents - Pure rents or profits refer to the excess of revenue over costs that is due to barriers to entry into a market. A firm earns economic profits or pure rents when it acquires and maintains a monopoly position in a market not through particular acumen in meeting the demands of consumers but through anticompetitive, exclusionary practices or through allocation of monopoly rights by a government.*

Figure 2 illustrates this possibility of limit pricing:



**Figure 2: Illustration of Constraints on Pricing**

- 34 The issue that the Commission must address is the extent to which  $P_i$  (the inter-fuel constraint price) actually differs from the price charged by the workably

<sup>7</sup> Sanderson, Margaret and Ralph A Winter (2002) “Profits’ Versus ‘Rents’ in Antitrust Analysis: An Application to the Canadian Waste Services Merger”, *Antitrust Law Journal*, 70(2).

competitive entrant across customer segments and geographic regions, and the extent to which pipeline bypass opportunities constrain prices.

- 35 Clearly there is a range of customers beyond just the three main customer types – residential / small commercial, industrial and electricity generation. So the substitution prices for bypass and alternative fuels in reality would not be a point constraint, but would range across customer types and geography, which requires the Commission to consider each customer segment separately. NGC considers the issues relevant to each segment in turn.

*Electricity Generators*

- 36 The Commission expressed concern that electricity generators were captured by pipeline providers because they could not readily convert to alternative fuels in the event of a *ssnip*. In NGC's view, the application of the *ssnip* test to pipeline prices to existing electricity generators is not necessarily economically meaningful. NGC would be extremely surprised if any electricity generator does not have a long-term gas transmission contract which was negotiated before commitment to the generation investment. Accordingly, it would likely be impossible for a gas transmission pipeline owner to impose a *ssnip*, since the long-term contract would prohibit this.
- 37 In the electricity generation setting the proper application of the *ssnip* test is not on existing electricity generators, but applied prospectively to new electricity generators who would potentially use gas as a generation fuel. The appropriate application of the *ssnip* test would be to consider whether a generator would switch to an alternative fuel, to a bypass pipeline (whether contractually or via vertical integration) or to a different location, e.g. Auckland, Huntly or Taranaki in response to an increase in the competitive price of gas transmission.
- 38 Clearly this is an issue that the Commission would need to test out in the market-place. However, in order for a new electricity generator to receive transmission services near Auckland, construction of a new pipeline would be required, which would be a contestable activity. In addition, the Southdown partners and Contact Energy negotiated transmission contracts equivalent to the bypass price prior to commencement of the Otahuhu B combined cycle gas turbine generator. The bottom line is that, in NGC's view, new generators have countervailing power.
- 39 Even if the Commission finds that competition is limited in the provision of transmission services to electricity generators, in assessing the benefits and costs of control the Commission would need to factor into its analysis the presence of long-term transmission contracts. A regulator would have to decide whether the benefits to existing customers of over-riding the contractual terms and conditions would exceed the likely longer-term costs to new generators. Pipeline providers would become unwilling to enter into future long-term contracts for fear that the regulator would over-ride terms and conditions of new contracts which could lead to generators having to vertically integrate into gas transmission in order to

obtain services. Overriding existing contractual rights is likely to have significant dynamic efficiency implications.

*Residential Sector*

- 40 During the conference, Commissioners asked several questions relating to the existence of switching costs between gas and other fuels. NGC does not have detailed analysis available. However, if it is assumed that switching costs between fuels are material, what does this imply about the pricing behaviour of gas pipeline businesses?
- 41 The economics literature on switching costs shows that while switching costs affect how competition operates in a market, they do not necessarily make markets less competitive.
- 42 For residential gas customers, market penetration is low. In addition, NGC has developed a strategic emphasis on growing this market. Further, pricing to residential consumers is uniform across geographic regions or, in other words there is no price discrimination. NGC vigorously markets to grow the residential sector on the basis that gas will continue to be available to that sector which is only 3.7 percent of total usage<sup>8</sup>. This marketing activity constrains prices to the competitive level since NGC is always (even for new subdivisions) competing with electricity as the default fuel. Further, there is open access to networks and subdivisions are contestable. NGC does not price discriminate against customers once they connect: it plainly would be counterproductive to do so. In such an environment NGC would not expect switching costs to be a material factor that allows exploitation of existing customers. In other words competition for the market disciplines prices for existing customers.
- 43 Overall, given the low level of penetration of gas appliances in the domestic setting, and long term constraint provided by the lower capital costs of electric appliances, NGC would expect that, on a prospective basis, competition for the market and to maintain market share there would likely to be a continued discipline on gas pipeline charges.

*Commercial / Industrial Sector*

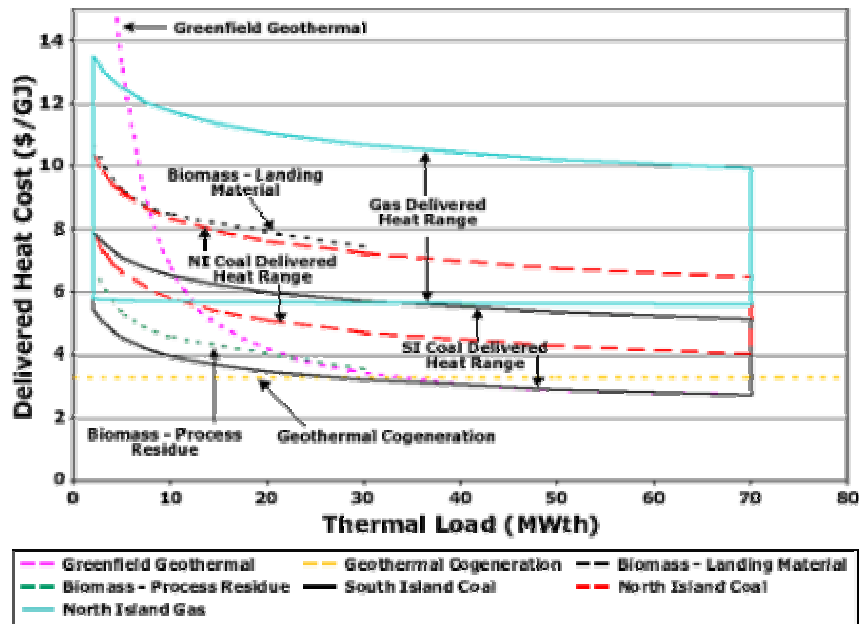
- 44 In the commercial and industrial sector, gas is predominantly used for heat or steam raising using fairly generic boiler technology. For example, 80% of NGC Energy's industrial gas supply contracts involve customers using gas for heat or steam raising. In that regard alternative fuels such as coal or biomass are substitutes.

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<sup>8</sup> MED, *Energy Data File – July 2003*.

- 45 NGC notes that the Commission requested significant further data from NGC in relation to its pricing for "special" Transmission Services Agreements (Special TSAs) and prices for alternative fuels resulting in changes to NGC's transmission charges. Some of the information was provided by NGC on 12 September 2003.
- 46 As at 1 August 2003, NGC had a total of 28 Special TSAs negotiated with retailers to supply individual end users. Each of these Special TSAs has been negotiated in response to a threat of either bypass or switching to an alternative fuel.
- 47 The Special TSAs feature a range of pricing which have been negotiated with the customer - from fully variable with a minimum annual charge, to a mix of fixed and variable fees. In most cases the negotiations are done with the retailer. NGC therefore does not have access to a great deal of data about the customer. The factors that NGC would usually take into account in fixing the price are:
- 47.1 Actual/historic gas delivery data, if available (data is usually available for an existing customer supplied off an NGC transmission or distribution system).
  - 47.2 An estimate of what the gas supplier's cost of transmission *might* be, given existing posted prices.
  - 47.3 An estimate of the optimum cost of transmission for that end user at the particular Delivery Point where the end user is located.
  - 47.4 The average and optimum level of transmission charges for all consumers (i.e. aggregated, across all gas suppliers) at that Delivery Point.
  - 47.5 Relativities to other special deals that have been struck in the area, and elsewhere in similar circumstances.
  - 47.6 The alternative options available to the end user and possible intentions.
- 48 Appendix I provides examples of the terms of some of NGC's Special TSAs negotiated in circumstances where the customer was threatening to switch to an alternative fuel. This information is confidential to NGC.
- 49 These examples illustrate the point that retailers act as agents for end users and are generally well informed to their needs. In a market characterised by increasing energy price, the retailers could be expected to promote special transportation arrangements to help secure customers.

- 50 In 2002 MED commissioned East Harbour Management to examine the potential for renewables to displace fossil fuels. The following graph from their report<sup>9</sup> indicates that coal and biomass have material price advantages over gas.



**Figure 3: Delivered Heat Costs for Different Fuels**

- 51 It is notable that delivered heat costs from North Island coal fall predominantly inside the lower bound of delivered heat costs from gas.
- 52 The report goes on to note that users can be willing to pay a 50% premium over coal prices for gas because of non-price advantages such as ease of deliverability. If those non-price advantages were monetised, it would appear from the graph above that there would still be a significant overlap in delivered heat costs from gas and coal.
- 53 Consideration of both price and non-price relativities between gas and other fuel types makes it difficult to implement the *ssnip* test. For example a straight application of the *ssnip* test using data above would automatically lead the Commission to conclude for the commercial and industrial segment that gas and coal are in the same market.<sup>10</sup>

<sup>9</sup> East Harbour Management Services Ltd, *Availabilities and Costs of Renewable Sources of Energy for Generating Electricity and Heat*, September 2002.

<sup>10</sup> NGC understands that conversion costs of making a switch from gas to coal or biomass are not significant, and viewed from a longer term perspective where gas pipeline owners have to recover their

- 54 In an empirical sense, it would be difficult for the Commission to use the *ssnip* test to determine whether inter-fuel competition is a material constraint, because of these non-price factors. In that regard, a suitable means of examining the competitive issue would be to move from the hypothetical application of the *ssnip* to observing actual market-place behaviour. If customers in the industrial and commercial segments are using different fuels in otherwise similar settings, then this should be taken as sufficient evidence that inter-fuel competition is a material constraint on pricing. Also relevant would be past evidence of customers' switching responses to relative price changes and NGC's price response to prevent switching.
- 55 During the conference the Commission asked whether the initial cost might prevent users from switching fuels. Table 2 provides indicative examples of the energy and switching costs for three different "users". As the costs are likely to be amortised over the life of the plant, the initial cost has been converted into a cost per GJ<sup>11</sup>.

	Annual Delivered Gas Cost (\$000)	Annual Gas Use (TJ)	Initial Switching Cost (\$000)	Annualised Cost (\$000)	Cost per GJ (\$)
Regional Hospital	450	110	1,300	212	1.92
Large Glasshouse	650	135	700	114	0.84
Large Sawmill	990	220	1,100	179	0.81

**Table 2: Estimated Switching Costs per GJ for Industrial Customers**

- 56 It would also be valuable for the Commission to question (and rigorously test) commercial and industrial consumers with heating and steam raising requirements on their likely future behaviour given delivered gas prices are increasing because of gas scarcity.
- 57 In conclusion, in the industrial and commercial sector, gas is predominantly used for heat and steam raising, which requires a relatively uniform technology. Gas is at a price disadvantage relative to other fuels, although there are offsetting non-price advantages. Accordingly, to make a determination of whether gas use in the commercial and industrial segment falls within its own market or falls within a wider energy market, the Commission should examine the actual penetration of fuel types in the market-place, and consider the likely dynamic change in the market resulting from increases in gas prices.

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costs over a lengthy time-frame, if pipeline services are excessive this would raise risks of asset stranding.

<sup>11</sup> Assuming a 10 year life, 10% discount rate and constant demand.

## D2 International Competition

- 58 The Commission sought information on the degree to which gas users are exposed to international competition, which would affect downstream demand for pipeline services. While looking backwards can tell the Commission something about future levels of demand volatility caused by international competition, it is important to note that the global energy environment is likely to change as the world moves towards limiting emissions of green-house gases. Accordingly, on a prospective basis New Zealand, as an extremely energy intensive producer, is likely to face significant economic effects from emissions reductions regimes.
- 59 The energy intensity of New Zealand's GDP is second only to that of Canada in the OECD. Every \$ of GDP requires slightly over 7¢ of energy input. This reflects New Zealand's sources of GDP, which are focussed on primary production and sectors adding value to the primary production sector.
- 60 Ratification of the Kyoto Protocol and domestic shortages of gas mean that New Zealand's export competitiveness is likely to decline in future as increases in domestic energy costs lead to reduced competitiveness relative to Annex A and non-ratifying countries. While exchange rate adjustments would partly off-set the decline in international competitiveness of New Zealand exporters, it is likely that there would still be an output loss associated with the increase in energy prices.
- 61 According to the New Zealand Institute for Economic Research<sup>12</sup>, the following sectors are exposed to competition in export markets to countries that are not intending to ratify the Kyoto Protocol, or are excluded from the first commitment period commencing in 2008: Trade and Transport<sup>13</sup>; Dairy Products; Cattle Meat Products; Chemicals; Other Food; Paper Products; wool; machinery; Non-ferrous Metals; and Wood Products. Almost all of these sectors are significantly exposed to competition from non-ratifying countries in their key export markets.
- 62 The likely changes in relative prices of fossil fuels with different carbon contents will clearly have implications for future competition between fuel types. The imposition of carbon taxes will tend to increase the price of gas less than the increase in the cost of coal, although both fuels would be disadvantaged relative to renewable energy sources. On the other hand, as discussed on day 3 of the conference, it is generally expected that relative scarcity of gas will result in the

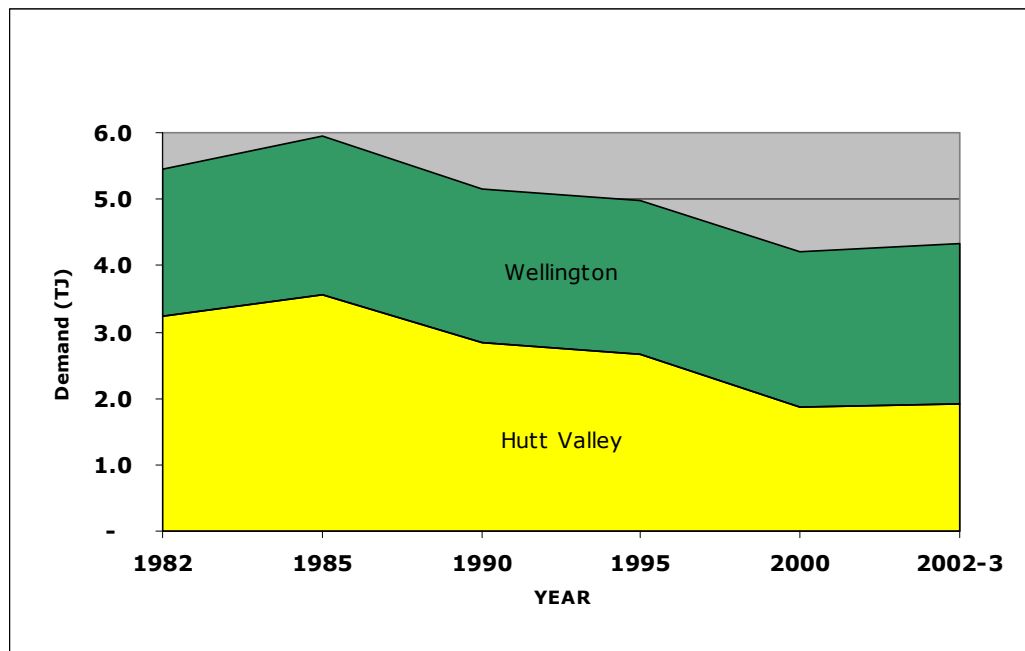
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<sup>12</sup> NZIER (2002) *The Kyoto Protocol: issues for New Zealand's participation. Trade realities and New Zealand's role in the international response to the threat of global warning*. Report to the Climate Change Pan Industry Group February 2002

<sup>13</sup> Trade and transport includes tourism (hotels and restaurants), retail trade and air water and land transport.

gas price rising more quickly than the coal price as coal is readily available from international markets.

- 63 The impact of downstream demand changes can be illustrated by NGC's experience with the transmission system servicing the Wellington/Hutt Valley region. In the 1980s there was strong demand growth which led to NGC reinforcing its system by "looping" sections of the pipe (i.e. a second parallel pipe). As Figure 4 shows the demand in the region dropped steadily through the 1990s as industries closed down or moved leaving NGC with under-utilised assets. The pipeline owner is exposed to risk from consumers' decisions on location of facilities whether in New Zealand or overseas, for example the aggregation of dairy factories with the emergence of Fonterra.



**Figure 4: Transmission Demand to the Wellington/Hutt Valley Region**

- 64 Accordingly, the impact on demand for gas is highly uncertain in the current environment. Gas will likely:
- 64.1 Improve its competitive position relative to other fossil fuels, such as coal, due to the imposition of emissions charges, although other factors would result in opposite pressures;
  - 64.2 Decline in competitiveness relative to renewables based energy sources;
  - 64.3 Be likely to be used more in end-use applications, rather than electricity generation; and

64.4 Be subject to industries exiting New Zealand to non-carbon tax environments.

65 It is quite unclear what the sum of these effects will be on demand for gas, and the extent to which fuel shifts will leave some pipeline assets stranded and create new demands elsewhere.

### **D3 Competition Analysis in a Regulatory Setting**

66 In the restrictive trade practice and merger / acquisition settings the Commission is considering the impact on a market of a behavioural or structural change. In contrast, in a regulatory setting, the change is in respect of the agent that makes decisions about prices to be charged and the level of quality to be provided.<sup>14</sup>

67 Regulation typically occurs in infrastructure sectors where there are elements of long-lived assets requiring recovery of capital costs over lengthy periods. The Commission typically requires that any supply-side or demand-side response occur within 1-2 years of an increase in price, in order for constraints to be a material discipline on behaviour. While it appears that for most customers switching can readily occur within this timeframe, the key consideration for the Commission when considering the profitability of raising pipeline charges is whether there is a long-term benefit to the pipeline business from doing so. Because gas assets are long-lived a price increase that is NPV positive over a period of 1-2 years, could well be defeated or NPV negative if customers respond over a longer time period and this leads to asset stranding.

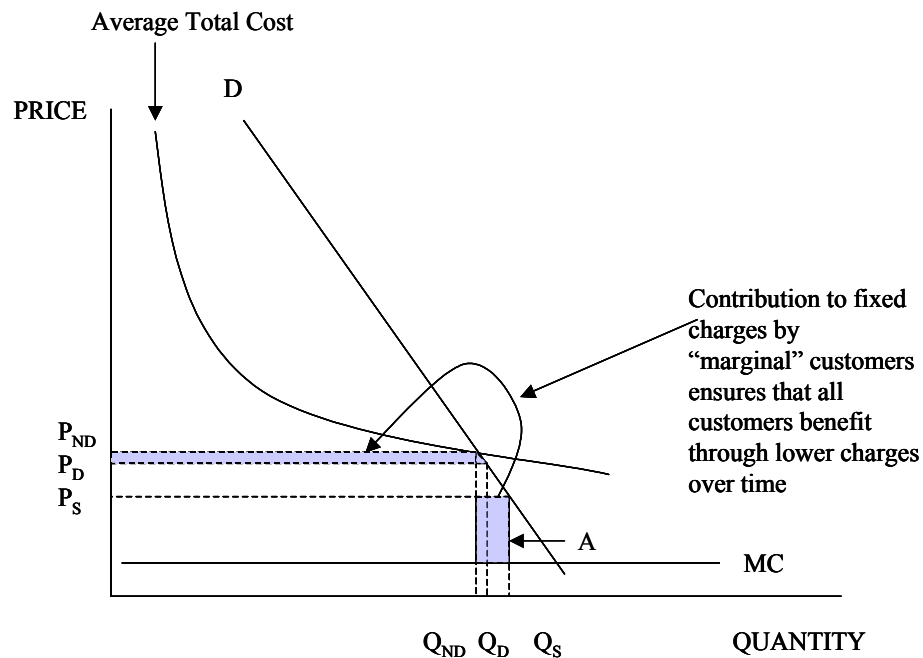
68 Accordingly, NGC considers that the Commission needs to revisit its requirement that there be demand or supply-side responses within two years for competition to be effective, since it does not appear to have a strong rationale in an infrastructure sector given that capital cost recovery takes place over decades rather than a period of one to two years.

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<sup>14</sup> Although the change in price and quality decision-makers will also induce an important behavioural response.

## E INTERPRETATION OF PRICE DISCRIMINATION

- 69 The Commission heard evidence at the conference of price discrimination to customers that are at risk of completely disconnecting from the gas network. In some cases discounting from posted terms and conditions can be 20% or greater.<sup>15</sup>
- 70 In NGC's view, it is important to put the practice of discounting in its proper context. Because of the fixed cost nature of the pipeline business there is in fact no relationship between the 20%+ discount and the application of the *snip* test.
- 71 As NGC and other pipeline providers have experienced, posted tariff structures may discourage some customers from using the network, but rather than have the customer exit and make no contribution to fixed costs it is better to have the customer remain on the network. As long as the customer is covering variable costs, it is worth maintaining the connection.<sup>16</sup>



**Figure 5: Illustration of Efficient Discounting**

- 72 Customer retention in this way benefits other consumers over the longer term as it reduces all customers' bills by spreading common costs over a great number of

<sup>15</sup> Conference transcript, day 3, p320.

<sup>16</sup> Although it may not be economic to replace assets to such customers at the end of the physical life of the asset.

consumers. It also benefits the pipeline provider by reducing the risk that other customers might exit if there is an attempt to spread fixed and common costs over fewer remaining customers.

- 73 Figure 5 shows that customers who would otherwise have to pay the price  $P_{ND}$  benefit by discounting pipeline charges to customers on the demand curve who would otherwise not be connected to the network by charging those customers  $P_S$ . The contribution of the shaded area "A" means that other customers would benefit by paying  $P_D$  in order to meet the fixed costs of the network.
- 74 This type of price discounting practice is observed in a number of competitive industries where there are fixed costs. For example, movie theatres typically heavily discount tickets for off-peak showings. This benefits all users, including those viewing at peak times because of the reduced requirement to contribute to fixed costs.
- 75 Recent economic theory and research confirms that price discrimination is prevalent in a number of, what could only be described as, workably competitive industries.<sup>17</sup> For example, in books, fresh fish, banking, movie theatres, hotels and airlines there are significant amounts of price discrimination. Baumol and Swanson (2003)<sup>18</sup> show that (page 662):

*...scale economies in general, and repeated sunk costs in particular, force firms in the affected industries, if they operate in competitive markets, to adopt prices that are discriminatory and exceed marginal cost...*

- 76 Similarly, Varian (1996)<sup>19</sup> states:

*The evidence shows that differential pricing is ubiquitous in industries that exhibit large fixed or shared costs. This is true for industries that are highly concentrated and industries that are highly competitive. If there are large fixed costs, and low marginal costs, differential pricing may be required for a producer to be economically viable.*

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<sup>17</sup> For discussions, see Levine, Michael E (2000) "Price Discrimination Without Market Power", Harvard Law School Discussion Paper No. 276, and Asplund, Marcus, Rickard Ericsson and Niklas Strand, "Price Discrimination in Oligopoly: Evidence from Swedish Newspapers", SSE/EFI Working Paper Series in Economics and Finance No 468. More generally, see the "Symposium on Competitive Price Discrimination" in the *Antitrust Law Journal*, Volume 70, 2003.

<sup>18</sup> Baumol, W J and D G Swanson (2003) "The New Economy and Ubiquitous *Competitive Price Discrimination*: Identifying Defensible Criteria of Market Power", *Antitrust Law Journal*, 70, 661-685.

<sup>19</sup> Varian, H (1996) <http://www.firstmonday.dk/issues/issue2/different/>.

- 77 In NGC's view, the Commission should view the practice of price discounting to some customers as a welfare enhancing practice. It is not evidence that gas falls in a distinct market, rather it merely establishes that for some customers there is a ready constraint provided by substitutes<sup>20</sup>. This does not necessarily imply that higher prices for customers not receiving the discount reflects a lack of substitution possibilities for such customers. A *ssnip* applied to these customers would still need to be evaluated – it may just be that the switch point for these customers to other fuels is higher up the demand curve, but not necessarily at a level that would allow for monopoly rents.

## **F ASSET VALUATION**

- 78 The Commission asked NGC how it valued land in its statutory accounts. In NGC's Annual Reports land is valued at cost and easements are valued as part of the ODV valuation of pipelines, compressors and gate stations.

## **G WACC**

- 79 At the conference the Commission's adviser, Martin Lally, acknowledged the need to provide a margin above the CAPM approach to cost of capital to reflect market friction and optimisation risks. He requested that Mr Boyle provide the Commission with the calculations behind the NGC "upper bounds" of the margin required above WACC. A copy of those initial estimates is attached to this cross-submission as Appendix 2.
- 80 These estimates were provided to demonstrate that quantification of the margin above CAPM is possible. NGC acknowledges that the development of a robust methodology is required so the margin can be implemented in practice.

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<sup>20</sup> For example, wood processors have easy access to wood waste so fuel substitution possibilities might be easier than for a user that could potentially substitute to delivered coal.

**CONFIDENTIAL SECTION**

**APPENDIX 1 CONFIDENTIAL EXAMPLES OF SPECIAL TSAS**





## **APPENDIX 2 GLENN BOYLE'S INITIAL ESTIMATES OF WACC MARGINS**

The calculations on the next two pages show how the figures presented at the conference were derived. They also reference the LECG submission for NGC on the Framework Paper.