

NEW ZEALAND BUSINESS ROUNDTABLE

Submission to the Ministry of Economic Development on
the Discussion Document *Cartel Criminalisation*

March 2010

1. Introduction

- 1.1 This submission on the Ministry of Economic Development discussion document *Cartel Criminalisation* is made by the New Zealand Business Roundtable, an organisation comprising primarily chief executives of major business firms. The purpose of the organisation is to contribute to the development of sound public policies that reflect overall national interests.
- 1.2 For the avoidance of doubt, we state at the outset that we support the need for competition law in regulating business activities and agree that it should cover cartel conduct.
- 1.3 That said, we believe the role of competition policy should be kept in perspective. We agree with the view of the 2025 Taskforce that “In economies with open markets, competition policy is likely to be, at most, a minor contributor to economic performance.”¹ We note, for example, that two other small and open economies, Hong Kong and Singapore, attained levels of per capita income much higher than New Zealand’s before they developed comparable antitrust laws. This raises an issue about the level of scarce human and other resources that should be devoted to competition policy and its enforcement.
- 1.4 Paradoxically, and contrary to logic, competition policy has become more, not less, intrusive since the opening up of the New Zealand economy from the mid-1990s. The general stance of the Commerce Commission has also become more interventionist. The Commission has grown substantially to around 200 staff, and under its previous leadership was perceived by many to be aggressive and suspicious of business. These trends are unwarranted in our view. In addition, as the 2025 Taskforce noted, the goal of the Commerce Act has become blurred, with wealth transfers rather than efficiency entering into some of the Commission’s decisions. There are numerous other problems with the Act that deserve attention. We concur with the Taskforce’s recommendation that “a review of the Commerce Act in

¹ *Answering the \$64,000 Question*, First report of the 2025 Taskforce, New Zealand Government, November 2009, p130. .

2010 should be undertaken” and ask the Ministry to pursue this recommendation with the government.

- 1.5 We also note that it is unwise for New Zealand to import elements of competition law just because they exist in other jurisdictions. In this context we agree with the following remarks in a recent *New Zealand Law Journal* editorial:

As followers of the America's Cup will know, when you are behind you have to do something different from the leader. If one tacks when the leader tacks one is doomed to remain permanently behind. One can only catch up by being on a different tack. New Zealand can only catch up with Australia by offering a more benign environment ... in which businesses can operate.²

- 1.6 Until recent years cartels were not a significant feature of the Commerce Commission's workload. Under its previous leadership, apparently influenced by developments in Europe including criminalisation, they became a more prominent issue. We are not persuaded that cartel conduct is a major economic problem in New Zealand, given its small size (which is conducive to cartels being more easily detected) and its more open markets than those in Europe and some other OECD jurisdictions. Many OECD countries are stagnating from over-regulation and OECD policy prescriptions should be viewed with caution. New Zealand should also look to the models of more dynamic countries in developing business law. To the best of our knowledge, Singapore, for example, has not criminalised cartel conduct.
- 1.7 The paradoxes of competition (antitrust) regulation also need to be recognised. In particular, antitrust seeks to prevent:
- firms setting prices above 'competitive' levels (monopoly pricing)
 - firms setting prices below 'competitive' levels (predatory pricing)
 - firms setting prices by agreement at the same level as their competitors (cartelisation).

² 'Criminalising cartels', *The New Zealand Law Journal*, March 2010.

The challenges to regulators of making correct decisions on these matters and the risks of doing more harm than good are very great, especially in view of the fact that price is but one element of competition.

2. Comments on *Criminalising Cartels*

2.1 In our view many aspects of *Criminalising Cartels* are deeply problematical. Without evidence or analysis it appears to reflect a view that cartels are a significant economic problem in New Zealand.

2.2 In the first paragraph of the Ministerial foreword it is stated that “Cartels are recognised as the most harmful form of anti-competitive behaviour, because they suppress and eliminate competition.” This claim seems dubious on several grounds:

- statutory monopolies which largely or entirely exclude competition are arguably much more harmful, as experience in the past with entities such as the Post Office, rail and the producer boards demonstrates. Current examples include ACC, Zespri and Pharmac. We see these as higher priorities for competition policy review;
- we see little difference between market power exercised by a dominant firm and market power exercised by a number of firms in collusion (a cartel). We return to this issue below;
- by far the most common form of price fixing in the economy is collective wage bargaining. In addition, there is currently a union monopoly on collective bargaining. Collective bargaining is often efficient in open product and labour markets (for transaction cost reasons alone) but it can give rise to monopoly behaviour. Yet it is exempt from the Commerce Act and not discussed in the discussion document;
- cartels rarely survive for long periods of time. Members defect and the incentive of prices set above competitive levels encourages other firms to enter the market; and

- the word ‘cartel’ is usually a pejorative term, yet many forms of cooperation between firms enhance economic efficiency (as the discussion document recognises and as we discuss further below).

- 2.3 It is striking that no information is provided in the discussion document about the incidence of cartel conduct in New Zealand. We understand that no claims of cartel behaviour have been presented to the Commerce Commission over the past 12 months. Some legacy cases are on its books, but we suspect many of them are minor and of little economic significance. At a recent conference John Land of Kensington Swan used as a (probably hypothetical) illustration of a cartel a market sharing arrangement between dog groomers in Wellington, the Hutt Valley and Kapiti – a trivial possibility on which public enforcement resources should not be wasted. A recent actual case of this kind concerned sellers of Bike Lights on Trade Me. Earlier investigations that we understand the Commission has undertaken, no doubt at considerable cost to those targeted, include Dunedin pubs, for a liquor accord aimed at reducing excessive student drinking (2006), and South Island tow truck operators (2006) and Manawatu funeral directors (2005), for joint tenders to provide services to government agencies. We think MED should seek information about these examples from the Commission, and evaluate whether these investigations represent a wise use of taxpayer funds and support a case for criminalisation.
- 2.4 Cartels which are international in scope may have greater economic impact but they are likely to be investigated by antitrust authorities in other countries, and any incremental ‘deterrence’ that criminal sanctions in New Zealand may offer is likely to be negligible compared with heavy penalties overseas. The Commission should be asked by the Ministry to confirm exactly how many of the cartel investigations on its books are domestic as opposed to international. It is difficult to make informed comments about policy towards cartels when the discussion document provides no information about the incidence either of domestic or international cartels.

- 2.5 Even more seriously, no analysis is provided in the document about the claimed or likely welfare losses associated with cartels that may exist. The document states that “The substantive regulatory impact assessment elements (problem, options and impacts of these options) have been included in the text of the discussion document.” But the core of an RIA is a cost benefit analysis of whether the benefits of an intervention exceed the costs of the problems it is trying to solve. The absence of such an analysis is in our view a breach of the Cabinet Manual requirements concerning RIAs.
- 2.6 We believe it is entirely feasible to give policy makers some feel for the possible welfare losses associated with cartel conduct. To illustrate, we set out in an annex estimates of the deadweight losses associated with hypothetical action by Transpower to exercise monopoly power (the calculations are for 2004/05). Most people would see transmission services as having monopoly characteristics (to a greater extent than most cartels), although we would note that even in the case of this presumed ‘hard core’ monopoly, factors such as by-pass (generation close to load centres), competition from other forms of energy, and possible technological developments constrain pricing power. Moreover, Transpower is a large entity with a big impact on the economy. On the assumption that Transpower may be able to raise its prices and hold them by, say, 10 percent above some hypothetical competitive level for a non-transitory period (a standard antitrust test), it is possible to estimate likely deadweight costs using a range of demand and supply elasticities.
- 2.7 The figures presented in the annex suggest that the welfare losses are small. For reasonably inelastic demand and reasonably elastic supply, the annual deadweight loss is likely to be less than \$1 million. Even when the annual loss exceeds \$1 million, it is unlikely to reach even 0.1 percent of GDP. Yet Transpower is a very large firm relative to the likely size of any cartel. Moreover, it is more likely to be able to exercise market power on an ongoing basis whereas most cartels break down. This analysis leads us to suspect that the economic costs of cartel conduct in New Zealand are not large.

- 2.8 We believe it is incumbent on MED to undertake a similar analysis of cartel situations (hypothetical if need be) in New Zealand. Such deadweight costs should be compared with the costs associated with anti-cartel enforcement, including criminalisation, to arrive at a measure of possible net benefits. Current enforcement expenditure on cartels by the Commerce Commission is put at around \$3 million per annum in the discussion document, to which should be added the deadweight costs of taxation to fund that expenditure. The document also acknowledges costs of criminalisation under the headings of chilling pro-competitive activity, the costs of obtaining convictions against the standard of reasonable doubt (it suggests trials could take 30 days), and the costs of incarceration. The costs to private parties involved in actions as defendants and witnesses are omitted. Clearly the sum of these costs could be very considerable. Hence our answer to Question 1 in the discussion document, 'Do you consider cartels to be harmful?' is yes, in certain circumstances (notably where barriers to market entry exist), but the magnitude of the economic harm is the crucial issue for policy. It needs to be assessed against the costs of interventions (including criminalisation) aimed at preventing it, and the likely success of those interventions, to judge what form and level of intervention is worthwhile. Many recent post mortem analyses of successful cartel prosecutions have failed to find that the relevant markets after prosecution actually reaped any benefits in terms of lower prices.³
- 2.9 The comparison of a cartel with a hypothetical monopoly situation like Transpower gives rise to a further query about the case for criminalisation. It is open to members of a cartel to attempt to consolidate into a single (dominant) firm which engages in the same kind of pricing behaviour, bid rigging, market sharing or restriction of output as the former cartel. Alternatively, a firm may become dominant by organic growth and engage in the same kind of pricing behaviour. Why should such conduct be criminalised in the former case but not in the latter ones? The discussion document seems to suggest that greater efficiencies may be achieved within a single firm,

³ See Jason Soon, *The Folly of Criminalising Cartels*, Issue Analysis No 111, The Centre for Independent Studies, 3 June 2009.

arising from such things as economies of scale and scope. But at least some efficiencies of this kind could also be achieved by agreements among members of the cartel. Moreover, unlike the case of the dominant firm, the exercise of market power by a cartel is likely to break down, and if cartels are short-lived they are less likely to retire capacity to restrict output than the dominant firm. It needs to be borne in mind that proving agreement to fix prices (or share markets etc) is simply a legal issue. The fundamental economic issue – the source of the monopoly problem – is the ability to achieve monopoly prices by restricting output. Currently the Commerce Act treats cartels and monopolisation the same way in an economic sense, and this treatment seems to us appropriate. It would seem anomalous to introduce criminalisation in one case and not the other.

- 2.10 The discussion document shows an awareness of the economic benefits of forms of cooperation between firms and refers to joint ventures, franchises and networks. There are others such as alliances. It also notes the range of exclusions from the Commerce Act on similar grounds. The benefits of such arrangements cannot be over-emphasised. Economic efficiency is not simply a matter of competition between atomistic firms, as is often naively imagined. There are enormous economic benefits from cooperation between firms, and it is not an easy task to distinguish forms of beneficial cooperation from monopoly behaviour.
- 2.11 Professor Lew Evans of Victoria University of Wellington has expanded on this issue at length in a recent presentation to the Law and Economics Association of New Zealand, at which the Ministry of Economic Development was represented, and his analysis is not repeated here. It includes the point that the economic costs and benefits of pricing above and below presumed competitive levels are not symmetrical. Dynamic efficiency is more likely to be associated with higher prices because investment is attracted into the industry, whereas it is sacrificed in the case of artificially constrained lower prices because investors are unable to achieve adequate returns. Wrong decisions about cartel conduct may therefore be very harmful for dynamic efficiency.

- 2.12 The foreword to the discussion document states that, “Cartels are relatively easily recognised – we know them when we see them.” We submit that far more than casual observation is needed to identify cartel conduct. Many people believe that near-identical petrol prices or interest rates are the result of collusion between oil companies or banks whereas they can be readily explained by competition. The US Supreme Court has recently recognised this difficulty in *Bell Atlantic v Twombly*. Distinguishing legal from illegal conduct in the absence of documented evidence can be very difficult.
- 2.13 This raises two important rule of law issues. A widely cast offence subject to a prosecutorial discretion or guidelines is essentially the smacking ‘solution’ applied to very much more complex circumstances. There is some good case law from the Privy Council and House of Lords about the rule of law implications of widely cast offences. Justice Antonin Scalia has also published an article which touches on this subject.⁴ It traces the historical development of the idea that citizens should be able to predict in advance with fair certainty what conduct is punishable.
- 2.14 Secondly, there will be the need for prosecutorial independence. It would be inappropriate for the Commerce Commission to maintain its roles as (a) a clearance body and investigative agency and also (b) a prosecutorial agency. If a criminal offence is introduced there should be a clean handover of prosecutorial control to the relevant Crown Solicitor’s office.
- 2.15 The Commission’s investigative powers would also need to be reassessed if cartel conduct becomes a criminal offence. It would be inappropriate for the Commission to have more intrusive investigative powers than the police in circumstances where people under investigation are subject to substantive criminal sanctions (as opposed to the status quo where the principal criminal sanctions are for matters like misleading the Commission). It would also be necessary to reassess the compulsory interview procedures in the light of the right to silence and the right not to be compelled to

⁴ Antonin Scalia, ‘The Rule of Law as a Law of Rules’, 56 U. Chi. L. Rev. 1175 (1989).

incriminate oneself under sections 23(4) and 25 of the New Zealand Bill of Rights Act.

2.16 There is a further Bill of Rights angle. Section 24(e) of the Bill of Rights provides: “Everyone who is charged with an offence ... shall have the right, except in the case of an offence under military law tried before a military tribunal, to the benefit of a trial by jury when the penalty for the offence is or includes imprisonment for more than 3 months.” Prosecutors should not be able to apply for a judge-alone trial justified on the basis that a trial will be long and highly complex. Antitrust prosecutions in the United States are heard before juries.

2.17 A number of legal commentators have made other points about the discussion document with which we agree, namely:

- Criminalisation was considered some 10 years ago and rejected in favour of higher civil penalties. Subsequent penalties imposed have been well short of the maximum allowable penalty. Inadequacies in the current levels of detection and deterrence in New Zealand have not been demonstrated.
- The discussion document gives only cursory treatment to the issue of overseas cartels that affect New Zealand. This is a complex area.
- The relevant Australian law has been described as a “mess” and it has yet to be tested by any prosecution.⁵ One of the most influential Australian experts of the last two decades, Professor Bob Baxt, recently described the Australian criminalisation reforms as “...one of the most unfortunate examples of the failure (on a continuous basis I regret) of successive governments to appreciate the importance of joint venture activity in the Australian economy.”⁶

⁵ Andy Nicholls, 'Is it Too Late to Get the Horse Back Before the Cart in Cartel Criminalisation?', *Boardroom*, March 2010, p14.

⁶ Editorial (2009), 37 ABLR 209.

- There needs to be a principled basis for applying criminal rather than civil penalties in any area of business law; no such principles are suggested in the discussion document.
- There also needs to be a demonstration that criminalisation would serve a useful purpose. We are not aware that criminalisation of insider trading, for example, has done so.

2.18 As noted earlier, the most common form of price fixing in New Zealand is collective wage bargaining by unions. In his well-known textbook *Principles of Economics*, former chairman of the US Council of Economic Advisers, Gregory Mankiw, writes:

A union is a type of cartel. Like any cartel, a union is a group of sellers acting together in the hope of exerting their joint market power ... When a union raises the wage above the equilibrium level, it raises the quantity of labor supplied and reduces the quantity of labor demanded, resulting in unemployment ... Normally, explicit agreements among members of a cartel are illegal. If firms that sell a common product were to agree to set a high price for that product, the agreement would be a "conspiracy in restraint of trade." The government would prosecute these firms in civil and criminal court for violating the antitrust laws. By contrast, unions are exempt from these laws.⁷

The antitrust exemption in the United States and New Zealand owes its historical origins to the (Marxist/Fabian) belief that workers have unequal bargaining power in dealing with employers. This is a fallacy and we see no reason for the exemption to be maintained. If it were removed we expect the vast majority of collective wage agreements would not attract scrutiny in a free labour market. They would be no different from, say, a collective organisation of grape growers negotiating with a winemaker (which should not be regarded as an anti-competitive cartel). However, where unions attempted to extract monopoly wages they would rightly be subject to Commerce Commission investigation. Such cases would be most likely to occur where there is a single employer, eg in the public sector. For our part we do not see a need to apply criminal (as opposed to civil) penalties for such cartel conduct but any case for criminalisation should be considered in this area *pari passu*.

⁷ Gregory Mankiw, *Principles of Economics*, Harcourt Brace & Company, 1998, p576.

2.19 Similar comments apply to certain other exemptions in section 44 of the Commerce Act such as those which legitimise export cartels and shipping consortia.

3. Conclusions

3.1 Commentators on the discussion document have suggested that the government's decision on criminalisation is "all but made". We understand that lawyers were consulted on that basis by MED officials at a meeting in Auckland. This raises the question of whether consultation is occurring in good faith. We would be very concerned that interested parties have been put to the trouble and cost of making submissions if that is not the case. We suggest that a test of the integrity of the process will be whether the Ministry of Economic Development engages with submitters such as ourselves in a professional and rigorous way on concerns they have raised.

3.2 We agree with commentators who have said that the arguments for criminalisation put forward in the discussion document appear to be "thin or based on rhetoric".⁸ In particular we are critical of:

- the lack of empirical evidence regarding the incidence of cartel conduct in New Zealand
- the failure of the discussion document to carry out any analysis of the welfare losses arising from cartel conduct, even on a hypothetical basis
- the anomalous treatment proposed for cartelisation and monopolisation
- the inadequate weight paid to the efficiency benefits of cooperation among firms
- the inadequate weight paid to the potentially chilling effect of criminalisation on cooperative and entrepreneurial activity

⁸ Simon Ladd, 'Cartel Criminalisation – Where Australia stands we stand?', *NZ Lawyer*, 5 March 2010, p19.

- the naïve view that identifying cartel behaviour is a straightforward matter
- the inadequate recognition of the costs of criminalisation in the form of enforcement activity, court actions, and the opportunity costs of time diverted from productive activity
- the failure to demonstrate that the present regime is inadequate, and
- the absence of any discussion of the principles that should determine whether civil or criminal sanctions should apply in business law generally and competition law in particular.

3.3 In our view the point about the chilling effect of criminalisation is particularly important. Criminalisation carries a serious risk of making managers risk averse – more risk averse than shareholders in a company would wish them to be – because of the potentially devastating personal effects of a prosecution. The inescapable fact is that economic theory is not clear on whether particular conduct is harmful and firms may get conflicting legal advice on proposed actions. Severe penalties are not appropriate when firms and their advisers cannot be clear whether they are complying with the law.

3.4 Our conclusion is that the case for criminalisation is not made out in the discussion document. Net benefits from criminalisation need to be justified in a rigorous impact analysis if the proposal is to proceed. We also think that there are much higher priorities in the competition policy area for the use of official resources. We recommend that these should be used instead to:

- (i) undertake a general review of the Commerce Act as recommended by the 2025 Taskforce
- (ii) review the case for maintaining current statutory monopolies such as Zespri and the union monopoly on collective bargaining

- (iii) review more generally the case for maintaining the exemptions in sections 44 and 45 of the Commerce Act, and
- (iv) consider whether the resources currently allocated to the Commerce Commission should be cut back to former levels, with the Commission being refocused on areas where there are significant issues of market power.

3.5 New Zealand cannot hope to become a dynamic and prosperous country and close the income gap with Australia if it keeps burdening the business sector with ever-increasing ill-justified regulation. Nor can it improve its regulatory framework simply on the basis of adopting regulations from other countries. Criminalisation of cartel conduct may appeal to populist sentiments and to simplistic notions of the benefits of trans-Tasman harmonisation. However, we are not persuaded that it would be in the national interest and we believe there are much higher priorities for competition law reform.

Matrix of deadweight losses (\$ pa) for a range of elasticities

Supply Elasticity	Price elasticity of demand							
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
0.1	\$56,814	\$290,470	\$861,995	\$2,106,066	\$4,784,212	\$10,866,996	\$26,543,516	\$78,734,459
0.5	\$11,813	\$62,650	\$192,484	\$486,015	\$1,139,098	\$2,665,489	\$6,697,897	\$20,412,637
1	\$6,188	\$34,173	\$108,795	\$283,509	\$683,459	\$1,640,301	\$4,217,194	\$13,122,410
10	\$1,125	\$8,543	\$33,476	\$101,253	\$273,384	\$717,632	\$1,984,562	\$6,561,205
100	\$619	\$5,980	\$25,944	\$83,028	\$232,376	\$625,365	\$1,761,299	\$5,905,084

Matrix of deadweight losses (%GDP) for a range of elasticities

Supply Elasticity	Price elasticity of demand							
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
0.1	0.000%	0.000%	0.001%	0.001%	0.003%	0.007%	0.018%	0.053%
0.5	0.000%	0.000%	0.000%	0.000%	0.001%	0.002%	0.005%	0.014%
1	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.003%	0.009%
10	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.004%
100	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.004%

Observations:

1. When the supply curve is very elastic (ie approaching horizontal) there is very little deadweight loss of producer surplus
2. The more elastic the demand curve, the greater the deadweight loss from the loss of consumer surplus.
3. For reasonably inelastic demand and reasonably elastic supply, the annual deadweight loss is likely to be less than \$1 m pa.
4. Even where the annual deadweight loss exceeds \$1m pa, it is unlikely to reach even 0.1% of GDP.

Indicative Deadweight Losses if Monopoly Pricing has Lifted Transpower Revenue by 10%

Matrix of deadweight losses (\$ pa) for a range of elasticities										
<small>(Shaded area shows elasticity ranges where DWL is less than \$1 m)</small>										
Supply Elasticity	Price elasticity of demand									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.1	\$0	\$112,504	\$427,162	\$1,115,851	\$2,531,329	\$5,467,671	\$11,960,530	\$28,350,885	\$82,015,061	\$410,075,305
0.5	\$0	\$67,502	\$199,342	\$446,340	\$911,278	\$1,822,557	\$3,759,024	\$8,505,266	\$23,693,240	\$114,821,085
1	\$0	\$61,877	\$170,865	\$362,652	\$708,772	\$1,366,918	\$2,733,835	\$6,024,563	\$16,403,012	\$77,914,308
10	\$0	\$56,814	\$145,235	\$287,332	\$526,516	\$956,842	\$1,811,166	\$3,791,931	\$9,841,807	\$44,698,208
100	\$0	\$56,308	\$142,672	\$279,800	\$508,291	\$915,835	\$1,718,899	\$3,568,668	\$9,185,687	\$41,376,598

Matrix of deadweight losses (%GDP) for a range of elasticities										
Supply Elasticity	Price elasticity of demand									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.1	0.000%	0.000%	0.000%	0.001%	0.002%	0.004%	0.008%	0.019%	0.055%	0.276%
0.5	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.003%	0.006%	0.016%	0.077%
1	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.002%	0.004%	0.011%	0.052%
10	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.003%	0.007%	0.030%
100	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.002%	0.006%	0.028%

Observations:

1. The less elastic the supply curve the greater is the deadweight loss from supply, because the fall in marginal cost is greater.
2. The more inelastic the demand curve, the smaller the deadweight loss from the loss of consumer surplus.
(This is because Transpower can achieve the assumed monopoly revenue increase with a smaller %P and -%Q.)
3. For reasonably inelastic demand and reasonably elastic supply, the annual deadweight loss is likely to be less than \$1 m pa.
4. Even where the annual deadweight loss exceeds \$1m pa, it is unlikely to reach even 0.1% of GDP.

Indicative Deadweight Costs if Transpower revenue is too high by 10%

	Source
Transpower Revenue in 2004/05	
Total revenue, \$m (excludes gain on cross border lease)	\$601,471 p 2, 46, 2005/06 Transpower Annual Report
Transmission revenue, \$m	\$509,417 p 2, 46, 2005/06 Transpower Annual Report
Wholesale market revenue, \$m	\$79,610 p 2, 46, 2005/06 Transpower Annual Report
Residual revenue, \$m	\$12,444 p 46, Transpower2005/06 Annual Report
Final Electricity Demand in 2004/05	
Total electricity consumption in NZ 2004-05, MWh	36,897,840 Energy Data File Sept 06, p 142
Total electricity consumption in NZ 2004-05 \$m exc GST	\$4,320,311 Energy Data File Sept 06, p 142
Average price \$ per MWh, excluding GST	\$117
Average price cents / kWh, excluding GST	11.71 Energy Data File Sept 06, p 142
Transmission revenue as % of total consumption	13.9%
Assumed % by which Transpower revenue is too high	10%
Implied competitive level of revenue for Transpower, \$m	\$546.79
Implied extent to which revenue is too high, \$m	\$54.68
Add, markup to end users	\$7.61
Implied extra annual cost to end-users (excl GST), \$m	\$62.29
Implied competitive annual charge to end-users, \$m - (R)	\$4,258
Increased cost as % of competitive cost to end-users (%R)	1.5%
Possible price elasticity of demand	
Implied price increase to end-users (%R = %P(1-elasticity))	0.0
Implied reduction (-) in quantity consumed	1.5%
Implied annual deadweight loss (demand side only) (\$ pa)	\$0
= 1/2*elasticity*(% price)^2*R	\$56,252 \$142,387 \$278,963 \$506,266 \$911,278 \$1,708,647 \$3,543,861 \$9,112,785 \$41,007,531

Nominal GDP in 2004-05, \$m	\$148,484	NZIER, QP, Dec 2006, p 48
Annual deadweight loss as % of annual GDP	0.000%	0.000%

Note, if the electricity supply curve has an upward slope the deadweight loss will be somewhat higher.

For example, take the case of price elasticity of demand of 0.5

Possible supply elasticity	0.1	0.5	1	10	Infinity
Implied reduction (-) in marginal cost due to monopoly	-9.8%	-2.0%	-1.0%	-0.1%	zero
Implied loss (+) of producer surplus triangle due to monopoly, \$ pa	\$2,025,063	\$405,013	\$202,506	\$2,025	zero
Add loss of consumer surplus in this case	\$506,266	\$506,266	\$506,266	\$506,266	\$506,266
Total deadweight loss, \$ pa	\$2,531,329	\$911,278	\$708,772	\$526,516	\$508,291
% of GDP	0.002%	0.001%	0.000%	0.000%	0.000%

(Formula is 0.5*q*q*p*revenue = 0.5*q*q*p*revenue/supply elasticity)

Notes:

There is zero DWL if either %P or %Q are zero, without the other being infinite. So when either elasticity takes the value zero or infinity we get zero DWL in respect of that aspect.

At a zero elasticity of supply, the marginal cost of the last unit was zero, making the deadweight cost of not supplying it zero.

At a unitary elasticity of supply %Q = %P.

At an infinite supply elasticity, there is no fall in price, so the deadweight cost of not supply is zero

Castalia used an indicative price elasticity of demand of 0.5 in a submission in 2006 to the electricity commission.

(See <http://www.electricitycommission.govt.nz/pdfs/submissions/pdfs/transmission/HVDC-issues/hvdjan06/Comatco-Castalia.pdf>)

No information was to hand about a likely marginal cost of supply elasticity.