NZIER Analysis of an Industry

EGB and the counterfactual Crown EGB

Report to Transpower New Zealand Limited

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Preface

The New Zealand Institute of Economic Research (NZIER), based in Wellington, was founded in 1958 as a non-profit making trust to provide economic research and consultancy services. Best known for its long-established *Quarterly Survey of Business Opinion* and *Quarterly Predictions*, the Institute also undertakes a wide range of consultancy activities for government and private organisations. It obtains most of its income from research contracts obtained in a competitive market and trades on its reputation for delivering quality analysis in the right form, and at the right time, for its clients. Quality assurance is provided on the Institute's work:

- by the interaction of team members on individual projects;
- by exposure of the team's work to the critical review of a broader range of Institute staff members at internal seminars;
- by providing for peer review at various stages through a project by a senior staff member otherwise disinterested in the project;
- and sometimes by external peer reviewers at the request of a client, although this usually entails additional cost.

Authorship

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1. INTRODUCTION

This paper reviews the items that the Commerce Commission has decided to incorporate in its assessment of the benefits and detriments of an Industry EGB compared with the counterfactual a Crown EGB. The Commerce Commission has formed a preliminary view that the impact of the proposed arrangement could range from a net $56.5 million in benefits to a net detriment of $67.3 million.

In making comparisons of this type it is important that a realistic assessment of both the proposal and the counterfactual be undertaken. A comparison of the best attributes of one regime with the worst possible scenario under the other will not produce an appropriate weighting of benefits and detriments.

To help illustrate our arguments we will draw on examples from the operations of the rule making process to date within the existing arrangements, and the likely issues that will arise in future.

Finally arising from our earlier analysis we make proposals to change the Commerce Commission's preliminary estimation of benefits and detriments and also to include benefits and detriments not dealt with by the Commission's Draft Determination. The proposals we make reflect the most likely impact of the difference in regimes.

2. THE COMPARATIVE INSTITUTIONAL FRAMEWORK

The proposition that self-regulation is always better than government regulation is clearly nonsense. There are many instances when government regulation is more appropriate, just as there are numerous instances when self-regulation works better.

The key determinant is assessing the relative risks of each form of regulation. On the one hand, government regulation creates the risk of bureaucratic ineptitude, costly acquisition of information and the resulting ossification of industry. On the other hand, self-regulation creates the risk of control by a small number of insiders, resulting in reduced competition and ossification of the industry. Which risk is higher in the present case?

Self-regulation is generally less risky, and thus preferable, if it has the following characteristics: (a) it is voluntary; (b) it reduces transaction costs and information acquisition costs; and (c) private decision-making structures produce collective interest in gains from innovation and improved efficiency. All three of these conditions are absent in the Arrangement.

The attempt to design the Rulebook as voluntary in an industry that requires a single set of comprehensive Rules has resulted in an Arrangement that is neither truly

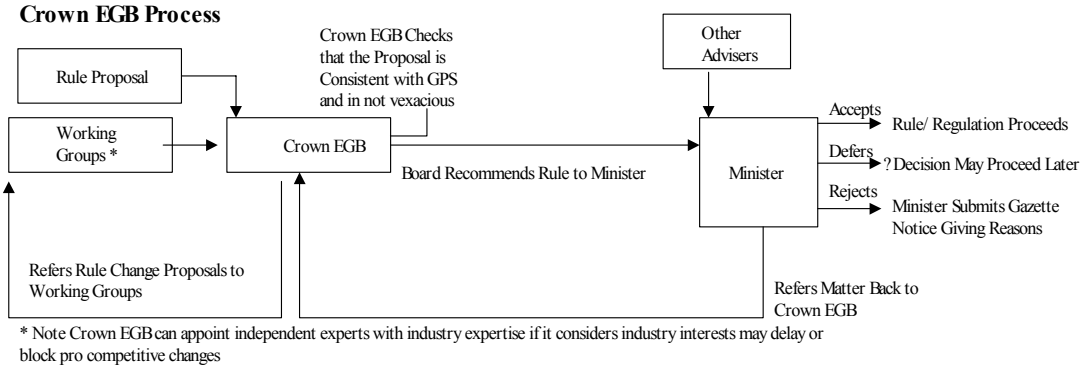
voluntary nor likely to be comprehensive. Truly voluntary self-regulation can only operate where joining or leaving is an option that provides benefits, but the functioning of the industry is not dependent on everyone joining. The attempt to label the Arrangement "voluntary" while at the same time delivering comprehensiveness may be more dangerous than open compulsion, since it will reduce scrutiny and accountability.

Secondly, the Arrangement does not reduce transaction costs. Industry negotiations are costly, as evidenced by the development of the Rulebook itself[1]. Experience shows that electricity industry rule making has always required tacit pressure and leadership from the government.

Lastly, as discussed elsewhere, voting rules do not create incentives for efficient rule changes. Widely dispersed consumer interests are likely to be under-represented. Insiders have effective control and no incentive to let more efficient outsiders in.

The absence of these three conditions indicates that self-regulation is not an appropriate option for the electricity industry. The Applicant has failed to analyse the specific conditions of the industry and the nature of the Arrangement and instead has elected to simply assert the benefits of self-regulation in blanket terms regardless of these specific factors.

3. THE CROWN EGB PROCESS AND THE INDUSTRY CROWN EGB PROCESS



An attempt was made to construct a similar flow diagram for the Industry EGB process. Due to the complexity of the EGB process it was impossible to construct a diagram on one A4 page. To ensure the Commission fully understands the process it is being asked to approve, the applicant should be asked to present a process

[1] The present status of funding for the establishment of EGBL and progress toward completion of the Rulebook can be found in EGEC paper "Budget and Funding" 31 January 2002.

diagram for the Industry EGB. Complex processes increase transaction costs and can be used to delay pro-competitive changes.

4. WHAT REALLY CHANGES UNDER THE CROWN EGB REGIME

The Industry EGB is elected by the industry and its decisions can be overturned by an industry vote. The final decision maker under the Industry EGB proposal is the industry vote. The Crown EGB would be appointed by the Minister. The Crown EGB would make recommendations to the Minister with the Minister having very limited ability to depart from those recommendations. Minister's decisions are final, and are not subject to industry oversight by way of a vote.

The majority of industry rules which are technical, non controversial and have little impact on the relative interests of industry incumbents or new entrants will continue to be made by industry participants in working parties with the final adoption being almost a formality.

However, where the changes to the rules are controversial, impact on the relative profitability of incumbents or the possibility of new entrants joining the industry then there are winners and losers involved. Self-interested decision making processes as proposed under the Industry EGB will lead to inefficient and anti-competitive outcomes.

5. DECISION QUALITY

The analysis that follows leads to the conclusion that decision quality will be superior under the Crown EGB when compared with the likely outcome of using an Industry EGB.

Accountability issues and Appointment Quality

The unusual set of accountabilities of the Industry EGB means that it may have problems getting quality candidates. The Industry EGB has some accountabilities to the Minister (agreeing annual performance standards and providing an annual performance report under sections 172ZL and 172ZM of the EAA). The Industry EGB is required to comply with the Rulebook's Guiding Principles, which differ from the GPS, but is still primarily accountable to the industry who elect it. It lacks power by threat of industry override. The Industry EGB has very limited powers and so it is in the invidious position of being responsible for outcomes it can not control because ultimate power resides with the Industry. This is not a formula to attract the best qualified to the Board.

Moreover, the Industry EGB cannot include anyone with a current industry involvement and therefore is completely dependent on the industry working groups for information. Furthermore, they are accountable to the industry by virtue of their election by the industry and the fact that they can be overruled by the industry.

By contrast the Minister responsible for this Crown EGB will not have his or her appointments subject to an industry vote so can appoint the best qualified even if they include individuals that would not be favoured by particular segments of the industry.

Under a Crown EGB there is no need for all Board members to be so called "independent", a majority of independents is sufficient because public interest accountabilities are clearly defined.

Contestable Advice

The Industry EGB will only receive advice from industry dominated working groups. A Crown EGB will have its own experts and will appoint independent experts to working groups where this is considered desirable. Industry EGB board members that attempted to make similar "outside" appointments may find themselves dropped after the next Board election. If the submissions from the industry are to be subject to expert review the proposals will be better prepared and less likely to contain self serving recommendations.

Influence of Lobbying

There has been the suggestion that in the Industry EGB process industry participants will be induced to make sensible proposals in the knowledge that they need to persuade their well-informed industry colleagues to adopt them. This is unlikely given that industry participants have no incentive to put forward a sensible or compromise proposal if the proposal benefits their class of participant and their class of participant has all the necessary or majority of the votes (for instance generator/retailers in respect of Part G, H, etc).

Under a Crown EGB it is suggested the same industry participants will adopt extreme positions because in a political lobbying environment "a split the difference" final decision is likely. This assertion lacks logic. The Crown EGB is making recommendations to a Minister with final decision making powers that are difficult to overturn. In this circumstance the Crown EGB will find it easy to reject extreme self-serving proposals. Lobbying will be confined to persuading the Minister to either implement the recommendation or decide not to act on it, defer making a decision on it, or refer it back to the EGB for further consideration. In such circumstances the lobbying industry player will achieve the best result by putting up the most favourable option to the Crown EGB and having it accepted. As the Crown EGB builds a record of competence the likelihood of Ministerial rejection of proposals will decline, as will the returns to lobbying. This result is similar to final offer arbitration where the competing interests are incentivised to minimise their differences because the worst outcome is likely to be other side's best offer.

Logic and experience would suggest that it will require the preparation of a quality case to persuade a Crown EGB (and subsequently the Minister) of a particular course of action. The Minister knows it is a final decision. Compare that to a working party where there are two more stages following recommendations (and your industry colleagues are likely to be predisposed to the argument if it enhances their interests over industry outsiders). If you have the votes to get your way the quality of the case becomes immaterial.

For those reasons in matters relating to the promotion of competition the information flow and quality of advice will be superior under the Crown EGB counter factual. In the case of non controversial and technical matters the two regimes will be equally effective.

Incentives

The Board member knowing he or she will not be re-elected if a significant proportion of the industry doesn't like his or her recommendations will hide behind the collective, knowing anything controversial will be voted down and will pass on anything uncontroversial without amendment. As at present it would be expected that most rules or rule changes will be based on unanimity. Any controversial matters will become bogged down in the working groups. In these circumstances it is extremely unlikely that any pro competitive change, if it adversely effects any incumbents interests, will emerge from a working group. Under the Industry EGB, the incentives applying can have perverse effects. An industry participant in a working group that wants a proposal to fail will send a recommendation forward knowing that its flaws can be used to have it defeated by way of industry vote.

Under the Crown EGB non-controversial and technical matters not impacting differentially on incumbent interests will continue to be effectively decided by working groups. Controversial and pro competitive changes will be dealt with by the Crown EGB or by working groups that the Crown EGB has formed to ensure industry self interest will not predominate over the public interest. Working to a timetable set by the Crown EGB such a working party can be expected to more expeditious in deciding on issues which could impact negatively on incumbent's interests.

6. PLAYING BY THE RULES

On the basis of the previous analysis the Crown EGB will be superior to an Industry EGB in terms of expected outcomes. Case studies from the past performance of the electricity industry rule making process under arrangements controlled by industry incumbents are described in Transpower's main submission to the Commission. These examples provide compelling evidence that the process as proposed by the applicant has and will block or delay pro competitive or public benefit rule changes for the electricity industry.

When New Zealand commenced its electricity reform it was a world leader. Innovations such as nodal pricing were world firsts. However New Zealand is now being consistently lapped by market developments in systems which started their reform programmes well after New Zealand. A consistent pattern has occurred with the New Zealand reforms, industry resistance to pro competitive changes and the major changes being politically not industry driven following pressure from consumers. The proposed Industry EGB structure would further embed such practices and performance by allowing industry self interest to predominate over market developments in the public interest.

7. LOOKING AHEAD

New Zealand electricity consumers are currently enjoying low energy costs as a result of the overbuilding of generation capacity in the 1970's and 1980's. In such conditions, outside of dry winters or when transmission constraints are binding, most electricity sold is being priced at close to short term marginal cost which only covers the fuel cost and cash operating costs of the marginal generator. As the total demand in the New Zealand market moves closer to the total capacity of the system we can expect price spikes to become more common and eventually for prices to lift to the level of long run marginal cost.

Recent work undertaken by NZIER indicates that the LRMC most likely to emerge in the New Zealand market is considerably higher than that which has usually been assumed. In the past a LRMC based on being able to contract for the economic life of a new plant and recovering all costs has produced an estimate of 4-5 cents per kWh compared with our revised estimates of around 6-8 cents per kWh. A new entrant into the New Zealand electricity market faces a situation where only 30% of customers (the major users) are available to contract for long term supply as most retail customers are the customers of retailers that are tied in effect to an existing generator.

It is unlikely that the major user customers would be prepared to contract with a new entrant generator for more than 3 years into the future given the commercial uncertainty. Any supply contract negotiated can only come into force once a plant has been constructed. The market view is that the most likely technology for new generation is a CCGT plant, which would take 18 months to 2 years to build. Before that was built a Resource Management Act consent would need to be obtained which would take 2 years, as it is likely to be contested. Any requirement to change the market rules to accommodate a new entrant could take several years under the Industry EGB if market incumbents as is likely would benefit from delaying the process.

A new entrant or innovator seeking a change in the rules to allow a new business or practice to be established in the industry will, under the Industry EGB, have its

proposals examined by its potential competitors in the working groups. The incumbents, acting in natural self-interest, are likely to conclude with a recommendation to reject the rule change proposed. If despite this, a rule change were recommended by the working group to the Board, the industry would retain the option to vote it down. In the case of the Crown EGB the new entrant or innovator would be able to have a rule or regulation decision made without the interests of incumbents predominating. This is because the Crown EGB Board could make a recommendation to create the new rule or regulation that would be put in place even if it were objected to by industry interests. In the case of the Industry EGB logically no new entrant or innovator would put forward a proposal that could either be put in place by an incumbent and thereby denying the benefit to the proposer, or where a delay in making a new rule would reduce or eliminate the benefit of the innovation to the proposer.

It is unlikely that a new investor would commence a Resource Management Act consent application before any rule change to make such a new plant commercially viable had been obtained. The arrival of a new entrants capacity is likely to reduce the returns to all incumbents if the new capacity will move total system capacity above the usual maximum demand. In these circumstances the incumbent generators would be strongly motivated to delay making rule changes that would allow a new entrant to compete.

We would argue that the LRMC cost in the New Zealand context is now considerably above current prices and that an industry dominated rules making process as proposed under the Industry EGB will make it less likely that a new entrant could enter the New Zealand market. If a Crown EGB was in operation the Minister in pursuit of the Governments Policy Statement for the electricity sector is more likely to make rule changes that minimise barriers to new entrants and other pro competitive changes that are likely to keep prices lower.

The existent of an Industry EGB would in effect further increase the LRMC for electricity and delay the arrival of new competitors in the sector.

8. BENEFIT AND DETRIMENT ESTIMATES

In the preceding section we undertook a detailed comparison of how the decision-making processes are likely to work under the proposal and the counterfactual. We looked at the incentives, information requirements, structures and procedures. In this section, we apply this analysis to the Commerce Commission's estimates of public benefits and detriments.

8.1 Public Benefits

8.1.1 Lower Cost of Capital for Private Sector Generator/Retailers

The Commission estimates that an Industry EGB would lower the cost of capital to the industry by between $11 and $22 million. The Commission based its view on the Murray and Hansen suggestion that the Crown EGB regime would increase regulatory uncertainty, reduce regulatory quality and as a consequence, would increase the cost of capital for the New Zealand Electricity Industry.

The key logic behind the estimated benefit is that investors would perceive the Crown EGB as increasing the risk on their investment by reducing their probability of being paid or by increasing the variability of returns. In fact, it is difficult to see how this can be the case. When industries appear to be under closer Government supervision or ownership, investors perceive that the chance of an implicit Government guarantee is greater. This usually reduces the cost of capital. Internationally, utilities that are regulated with respect to return have always paid less for their capital than entities where earnings are more volatile. A Crown EGB, if anything, is more likely to be perceived as enhancing the stability of the industry, making the returns more predictable.

To the extent that investors price in the risk of sudden regulatory U-turns (such as compulsory unbundling of distribution and retail, and significant new regulatory requirements), it is unlikely that they will perceive any difference between an Industry EGB and a Crown EGB. This is because the risk of new regulation will remain regardless of the governance structure. In fact, the Industry EGB may be seen as unsustainable due to its capacity to enhance industry incumbents' interests over those of consumers. Hence, capital markets will price in the expectation of government intervention behind the scenes. Since government pressure on the industry behind the scenes is likely to be less transparent, and more unpredictable than explicit regulation, this may lead to greater uncertainty.

Overall, there are many aspects to regulatory quality. Measures of regulatory quality of sufficient rigour that they could be linked with the cost of capital for an industry are hard to identify. Murray and Hansen base their analysis on one research paper that attempted to do so. Given the idiosyncratic aspect of any regulatory quality index, one should treat such results with a grain of salt. (We note our concern that this major item amongst the benefits or detriments is based on a paper, which has not been submitted along with the application).

The Commission will be familiar with this kind of debate around telecommunications market regulations, and will know the difficulty of even deciding whether any particular regime is relatively more or less "light-handed". For example, there is intense debate going on at the moment about the relative rankings of the Australian and New Zealand telecommunications regimes.

What this means in practice is that capital markets are highly unlikely to be influenced by headline descriptions of the quality of the New Zealand regulatory regime in the electricity sectors. Rather, they will focus their attention on the real

business risks. We note, for example, information provided by Transpower that despite the varied proposals for the electricity market in New Zealand (post-Transpower separation) there has never been a change in the interest rates structure of its loans that could be linked to those proposals. From this business perspective, capital markets are unlikely to perceive any significant difference between an Industry EGB and a Crown EGB for industry incumbents. However, the industry process – being a club of incumbents – will increase the risks faced by new entrants. Hence, capital costs to new entrants are likely to be higher under the proposal than under the counterfactual.

Double counting

We also note that the Commerce Commission may have misinterpreted the Murray and Hansen paper. That paper described two alternative approaches to valuing the quality of regulation. The first is the direct approach, involving the consideration of transactions costs, the quality of potential decisions, and their impact on the industry. The second is the indirect approach, attempting to value the regulatory outcomes via changes in the cost of capital to the industry with and without the regulations. The point is that the two valuations can not be added together, as the Commission does in the draft determination.

In conclusion, there are no grounds to expect the Crown EGB to result in a higher cost of capital than an Industry EGB. There may be factors tugging the cost of capital in both directions. On balance, there is unlikely to be any difference for market incumbents, while new entrants are likely to pay more under the proposal.

Equally importantly for the Commission's overall evaluation of the benefits and detriments, the estimated $11million to $22 million benefit can not be added to the directly estimated benefits: it is another way of measuring the same thing. The Commission has to choose one approach or the other. In fact, the analysis of likely changes in capital costs provides a useful reality check for the directly estimated benefits. Since you are measuring the same thing, the alternative methodologies should produce the same estimates. The Commission's range for the benefits of lower capital cost is significantly smaller than its direct estimates of $48.3 million to $96.4 million. In other words, for the direct estimates to be plausible, the likely reductions in capital costs would have to be about 4 times greater than the Commission itself finds plausible.

8.1.2 Comparative Advantage of Industry Decision-making

The analysis of the claimed benefits under this heading requires a careful distinction between the aspects of the proposal that will impact on the overall level of competition in the generator market, and those that relate to the more narrow aspects of generator operations relating to the provision of common goods, such as network security. The overall, productive and dynamic efficiency by generators will depend on:

- Existing competition in the market. This may be reduced through the operation of the incumbent's club.
- While marginal costs will not be affected, market prices will be influenced by any cartel- like behaviour. We discuss this later in relation to detriments.
- Ownership structures of various generators. These will not be affected.
- Potential new entry into the industry. This may be more difficult under the Industry EGB than the Crown EGB, since the industry process will operate as a club of the incumbents.

The Commission itself notes the likely strike-down of pro-competitive rules (discussed later in this paper) as a detriment. It makes no sense to claim a simultaneous pro-competitive benefit and anti-competitive detriment from the proposal.

Hence, even if the Industry EGB was able to generate consistently better decisions than the Crown EGB in relation to network security and other common goods, the impact of these decisions can not be measured in terms of the overall productive and dynamic efficiency. The Commission estimates that generators would be induced to generate an average annual cost inefficiency under the counterfactual relative to the proposal of 0.275% to 0.55%. In addition, it estimates a relative dynamic inefficiency of 0.05% to 0.1%. Let us accept these for the moment. The key point is that it makes no sense to apply these estimates to the generators' total annual production cost of $920 million. The bulk of this cost will have nothing to do with the provision of common goods. Various estimates we have seen suggest that less than 10% of the total operating expenditure by generators could be directly linked to the common goods influenced by the choice between the proposal and the counterfactual. If we take the 10% figure as an upper end estimate, and apply the Commission's guesses relating to induced inefficiency, the range of benefits declines to $2.8 million to $5.6 million.

In fact, we see little reason that even these benefits would be achieved. The idea that the proposal, compared to the counterfactual, would generate better decisions relating to relevant aspects of generators' operations is based on the view that industry decision-makers have better information than outside regulators. Indeed, industry participants are the best potential source of certain types of information, but that simply begs the question as to whether they are prepared to reveal the information or not. It is clearly shown above that where it is not in the interests of a segment of industry to reveal certain types of information, outside technical experts have to be relied on. Such 'outsider' information is not ideal, but it is the best unbiased information that can be brought to bear on many pro-competitive situations. In practice, both the Industry EGB and the Crown EGB would need to rely on external information to counteract self interest.

In fact, a Crown EGB, unlike the Industry EGB, can include people with current industry expertise. A Crown EGB is also more likely to appoint independent experts to working groups when it considers industry self interest could result in delays or

strike down of pro competitive proposals. Hence, the suggested benefits under this heading – even once irrelevant decisions are excluded – are likely to be illusory.

8.1.3 Lower Transactions, Compliance and Lobbying Costs

We are puzzled at the Commission's suggestion that the Industry EGB would involve lower compliance and transactions costs than a Crown EGB. In fact, the industry Rulebook is quite explicitly designed to be process oriented, and such designs inevitably have higher transactions costs. The hope is that higher transactions costs may lead to better quality decisions. We explained above why those benefits are likely to be illusory. Here we address the transactions costs directly.

The key features that contribute to transactions costs in the proposal compared to the counterfactual include:

- A less direct decision-making structure, aimed at promoting industry consensus and building in certain procedural checks and balances. This consists of a complex, and highly formalised process for passing issues back and forth between industry working groups and the EGB, the ability to refer issues to the rulings panel, and the industry voting process. By contrast, a Crown EGB is more likely to operate a relatively streamlined regulatory procedure.
- A significantly more complex enforcement procedure, compared to the counterfactual. The industry EGB will rely on breach of contract in enforcement actions against members, and on the little tested common law concept of quantum meruit for enforcement actions against non-members. Both of these instruments are poorly adapted to regulatory enforcement, and are relatively more costly than the standard regulatory enforcement processes available to the Crown EGB.
- The requirement to obtain Commerce Commission authorisations for all future rule changes which risk contravening the Commerce Act (i.e. pretty much anything that is not technical). A conservative estimate is that each such authorisation would cost in the region of $500,000 to $1 million for the Industry EGB, the Commerce Commission and other parties involved. In other words, in addition to the costs of the industry processes, each rule change would be subjected to the same kind (but not the same quality) of policy scrutiny from a government agency that could be expected of a Crown EGB. The Crown EGB would, however, avoid some of the industry costs.

Lobbying

Moreover, as we discussed earlier in the paper, it is implausible to suggest that an Industry EGB would lead to lower lobbying costs. Since the industry decision-making will be underpinned by a voting process, it will remain inherently political. Market participants will lobby each other to influence voting behaviour in order to

achieve their desired outcomes. In addition, the electricity industry - given its essential role in modern society and its complex environmental impacts - will always be politically sensitive from the Government's point of view. The formation of an Industry EGB creates a vacuum between the market participants and the political market without the linkage mechanism between the two, which is inherent in the counterfactual. For this reason lobbying costs can be expected to be higher with an Industry EGB.

The relative vacuum has implications for compliance and transactions cost as well. The Industry EGB has no solution to the problem of how free riders can be required to pay a fair share of the benefits when the value of benefits are hard to assign in a network industry. In this type of situation, the solutions are almost always political rather than transaction based. Therefore lobbying is an inherent part of both regimes.

The capacity of the Crown EGB to make recommendations that will become rules makes it likely that lobbying will be less protracted and will induce better proposals from the industry than endless attempts to shunt joint costs onto other industry participants or customers.

The suggested benefit of $5.9 million to $11.9 million appears to be based on a high level comparison of a theoretical industry process and a theoretical political process. $2.2 million to $4.5 million of that estimated benefit comes from an assumed production efficiency loss derived over total industry transactions costs of $40 million. We were unable to replicate Commission's calculations, as the text (which mentions $20 million) appears to relate to a different number than the table setting out the calculations. In any case, such calculations lack credibility, as they ignore the actual processes under the proposal and the counterfactual explained above.

The estimate of additional employment of $3.7 million to $7.4 million under the counterfactual is not plausible. In fact, the proposal will require greater employment in handling industry processes, in developing expertise within the Commerce Commission (which will replicate expertise that would have been required within the Crown EGB) and in undertaking expensive compliance processes and obtaining authorisations for rule changes.

Overall, a detailed analysis of the two processes, set out at the start of this paper, would suggest a detriment, rather than a benefit, of a similar magnitude. Increased transactions costs need to be offset against any expected improvements in the quality of decisions resulting from those costs.

8.1.4 Avoidance of Over-investment in Transmission

This benefit appears to be based on the belief that the Crown EGB will have a strong bias towards over-investment. We are unable to find any evidence for this view. The Commission does not appear to have taken into account the policy tradeoffs faced by a Crown EGB. Any over-investment would result in higher electricity prices, and a Crown EGB would be very cognisant of the trade-off.

More importantly, it is difficult to see any circumstances where the Crown EGB would even have an opportunity or incentive to over invest in transmission capacity:

- Firstly, the evaluation process under Part F of the Rule Book (which would be retained under the Crown EGB) ensures that only investments where the benefits match or exceed the costs are put forward. So, only projects which are consistent with efficient investment strategies will be presented to the EGB for decision.
- Secondly, if an investment that exceeded customers' service requirements were made, Transpower would risk suffering a write down in its asset value at the next ODV revaluation. This creates a very powerful incentive on Transpower to propose only efficient investments.

In combination, the above two factors would make it unlikely that the Crown EGB would be able to enforce inefficient investments in transmission.

The existing bias in the system is to under invest in transmission assets. In fact, the industry process for voting on investment in transport is an attempt to overcome that bias. The voting process is an attempt to restrict hold out on projects that have passed the evaluation processes, but are bogged down in fights over cost allocation. However, as the Commission's analysis of detriments suggests, the Industry EGB would be only a small improvement on the status quo (in the absence of the investor of last resort), and would still retain a significant under-investment bias.

The Crown EGB is the most likely mechanism for removing the systemic under-investment bias. However, it requires a leap of imagination to suggest that it would generate a bias in the other direction. In fact, given the distribution of lobbying interests in the industry, there is a risk that even the Crown EGB would not remove the under-investment bias entirely. Certainly, the experience from the days when the entire electricity sector was in government hands provides no support that a Crown EGB would have an over-investment bias.

Overall, we see no plausible grounds for the Commission's estimated benefit of $10.7 million to $21.5 million. We also have significant problems with the detail of the benefit calculations. The calculations appear to confuse quite different aspects of transmission grid management: investment choices and operational choices. The incentive to reduce operational costs, to invest in most efficient technologies, and to seek operational productivity gains will not differ between the proposal and the counterfactual in any way. These incentives are derived from the ownership structure of Transpower and, in the future, the price control regime for lines companies, which has nothing to do with the present proposal. We are not aware of any proposals to privatise this company which may be linked to the current regulatory proposal.

Hence, even if the Commission believes that the Crown EGB will have an over-investment bias, the only additional costs that can be imputed would relate to the capital and maintenance costs of that investment. The belief in the over-investment bias (unjustified as it is) provides no grounds for claiming any changes in dynamic

efficiency. The only effect of such bias would be that the transmission grid would have greater capacity than may have been optimal. In other words, at worst – if the over-investment bias existed – its effects would be limited to additional capital costs and maintenance costs linked to that capital. These are estimated by the Commission to be in the range of $4 million to $7 million.

Moreover, even if we accept the claimed over-investment bias, the above range would still be an overestimate of the benefit. This is because gross increases in capital and maintenance costs need to be offset against the benefit of that investment. The over-investment claim is based on the idea that this additional investment would not provide the same benefit as efficient investment. However, it is wrong to claim that it would provide no benefit at all. If the additional investment were only half as efficient as optimal investment, the claimed benefit would be in the range of $2 million to $3.5 million. In fact, since any over-investment bias is likely to be marginal, the benefit would also be marginal.

8.1.5 Competition in Service Provision

The draft determination appears to rely on the exaggerated claims of Murray and Hansen regarding the relative abilities of the Industry EGB to provide for contestable services. We are unable to see any basis for these claims.

The simple fact is that the existing service providers are entrenched in the process. Being a service provider in the New Zealand electricity market requires investment in highly specific human and process related capital. Once that investment is undertaken, the relationship is fundamentally transformed, and future contestability becomes very unlikely. We note, for example, the existence of a legal opinion supporting the rule making process service provider's claim to copyright of the existing NZEM rules. This degree of entrenchment makes potential for contestability extremely low. Unsurprisingly, there has not been a vigorous pursuit of contestability in the support roles for the rule making process to date.

The issues are even more clear cut when it comes to competition for the system operator role. At present, this role is bundled with the grid operator function within Transpower. Any future separation of the two functions, which would be necessary to make the system operator role contestable, would depend on the decisions of Transpower's owner – the government. There is no obvious reason why this decision would be linked to the existence of either an Industry EGB or a Crown EGB. Hence, it is implausible to claim this possibility of future contestability as a benefit of the proposal. In fact, the government may be more comfortable with unbundling the system operator role if the whole regulatory process was managed by a Crown EGB.

8.1.6 Total Benefits

In summary, we see little reason in logic or fact for the claimed public benefits. If we take care to avoid double counting, the Commission arrives at a view that the benefits fall within the range of $11 million to $22 million if counted indirectly, and $48.3 million to $96.4 million if counted directly (which the Commission incorrectly

sums up to a range of $59.3 million to $118.4 million). The discrepancy between the two estimates should itself ring alarm bells. The bulk of this discrepancy is accounted for by the mistaken impression formed by the Commission that the choice of the regulatory mechanism will affect the production decisions within the industry. As we explain, the incentives to reduce operating costs and utilise efficient technologies that exist within the generation and transmission sectors have little to do with the industry governance arrangements, which are primarily designed to achieve co-ordination and the delivery of public goods. The production and dynamic efficiencies are determined by the ownership structure and the degree of competition within industry. Hence, an analysis of productive and dynamic efficiencies in the transmission and generation sectors is not relevant for this application. Moreover, as the Commission itself notes, the risk that the Industry EGB may strike down pro-competitive provisions could, in fact, lead to lower production and dynamic efficiencies under the proposal.

We have explained that the indirect estimate of the range of benefits is implausibly high. A careful analysis of the relevant direct benefits confirms this view. In particular, there is no evidence that transactions costs will be lower under the proposal. The remaining direct benefits – of which we are highly doubtful – appear to be in the range of $1 million to $4 million.

In fact, both the direct and indirect estimates of benefits based on a detailed and realistic analysis of the decision-making processes under the counterfactual and the proposal indicate that the benefits would be either negligible or non-existent.

8.2 Public Detriments

In this section we address the Commission's estimate of the detriments from the proposal. In our view, the Commission has generally under-estimated the detriments for the same reason it over-estimated the benefits.

8.2.1 Under-Investment in Transmission

The powerful free-riding incentive on the purchasers of transmission services supports the Commission's view that under-investment will continue to occur under the proposed Industry EGB, despite Part F rules aiming to reduce the opportunity for hold out. The under-investment bias is far less likely to occur under the Crown EGB process. Transmission investments, where the benefits exceed the costs, are stalled because the likely beneficiaries refuse to pay for the improvements.

If left to themselves, industry players are incentivised to off-load the costs of improvements onto others (preferably their competitors or final consumers). The existence of transmission constraints that would be reduced by new investment in transmission assets allows generators to exercise market power if they can generate above constraints. The Crown EGB provides mechanisms to force both these games to come to an end earlier and for transmission under-investment to be substantially reduced.

We consider these detriments in more detail below. Under-investment in transmission will have the direct effect of increasing the risk of outages and making the transmission grid less efficient. It will also have the indirect effect of allowing generators to maintain and exercise their market power behind the transmission capacity constraints caused by under-investment. We analyse these in turn.

a) Direct impact on the grid

Choice of Location for New Investment

The Commission's assumption of a 5% likelihood of inefficient locations being chosen is predicated on the severe limits that exist for new large scale hydro and gas generation plants. This figure is too low because the rapidly advancing technological improvements can be expected to relax location constraints significantly in a competitive New Zealand energy market. Hence, the likelihood would more likely be an order of magnitude higher.

Additional production costs if investment is inefficiently located will tend to mirror the price increases possible under weak competition. Our analysis below (in the context of looking at the indirect effects) shows that these price increases (markups over cost) can be expected to be in the range 10-30 percent. A median cost inefficiency estimate of 20% would accordingly be appropriate in this area of productive inefficiency.

Increased Risk of Transmission Outages

We are not clear how the Commission calculated the cost of non-supply (of $12,000 per MWH). However, the framework outlined above does suggest that the probability of transmission outage (2%) is too low and the probability that distributors vote against investment that achieves N-1 security of supply (25%) is far too low[2]. The proposal will not achieve complete industry coverage in an environment of increased entry of diverse small generation sources. Discrimination against such entrants is highly likely in the proposed decision-making environment with the result that there is a very high probability that global N-1 security will not be achieved. That fact in turn will mean that the probability of outage under the proposal, compared to the counterfactual, will be much higher than 2%.

b) Effect via Generator Market Power

The Commission has assumed that the markup on price under weak competition under the Arrangement would lie between 2.75 and 5.5 percent. The potential for the use of market power by generators is high, absent regulatory issues, because:

- Most generators face declining average cost curves over the full range of their output.

[2] There are strong arguments, supported by comparable levels of security required overseas, that a major urban centre such as Auckland should be served by assets achieving an N-2 level of secuity.

- The structure of the industry is rapidly moving towards vertical integration at the generator and retailer levels and on a regional basis. The generator/retailers are tending towards regional monopolies.
- Barriers to entry at the generator level are very high and they are very high at the retailer level for a new entrant by virtue of the incumbent regionally arraigned generator/retailers.
- The short-run demand elasticity is low.
- The sector is politically sensitive and unexpected price rises are likely to lead to political responses which reinforce the market power of generators.

Under the proposal, generator/retailers can virtually set the agenda of the Industry EGB and can guide its decision making processes to a considerable extent.

Five percent markups on price are frequently found in markets without the structural factors which exist in this industry and with more elastic demand curves. The key factors determining such markups in economic models are the number of players in the market, market shares, entry barriers and demand elasticities. Given the demand elasticities and entry conditions in the market for electricity generation, the range of price markups of 2.75 – 5% assumed by the Commission is very likely to be far too low. By way of illustration, even in the more elastic long-run situation, a theoretical monopolist in this situation could attain a markup over cost of over 80% (the negative reciprocal of a demand elasticity of –1.2). In the short-run, the theoretical regional monopolist would have a much higher markup still (well over 100%). If we take a ten year horizon then an appropriate range of markup on price under weak competition under the arrangement might be 10 – 30 percent.

Furthermore the probability of under-investment will be higher than 66% given the market structure, regional natural monopoly elements and the proposed arrangement. In this environment, it is almost certain to occur. An appropriate conservative figure might be 90 percent.

Moreover, while the demand elasticities would seem to be appropriate but there are difficulties associated with the supply elasticity. The structure of the supply side of this market is far from perfect competition, as outlined above. Accordingly, some major participants have considerable scope for strategic behaviour, particularly under the Arrangement. In this environment supply elasticities have little or no meaning – they do not reflect the likely behaviour of firms as prices change (which is the usefulness of supply elasticities in the perfect competition case).

Productive Efficiency

Productive efficiency is greatly affected by the cartel-like arrangement proposed because the generator/retailer linkages and regional natural monopoly elements almost invariably lead to productive inefficiency. Monopoly profits are very difficult to find in the real world for just this reason.

Managerial Slack and Dynamic Efficiency Losses

In a competitive market environment, management is going to be stretched in the future (as argued above in relation to the changed energy environment in New Zealand) to cope with rapidly advancing technology and the competitive threats of new technology introduced by new entrants.

Under weaker competition, average efficiency losses could easily be of the order of 3-5%. Cartel-like arrangement often result in negative total factor productivity growth and energetic industries in New Zealand, like communications and farming, can sustain 3-7% productivity growth for long periods.

The probability of under-investment is certainly going to be more than a half, as the Commission assumed, but is likely to be closer to 100% under the Arrangement given the structural and behavioural characteristics discussed above.

Total Under-Investment in the Grid

The Draft Determination estimates detriments under this heading between $28.7 to $54.4 million. The framework and factors discussed here could make an order of magnitude difference to these numbers. There are very few pro-competitive checks and balances in the proposed arrangement relative to the counterfactual. That fact in conjunction with a supply-side exhibiting important strategic vertical integration and a tendency to regional natural monopoly is likely to involve much larger detriments than are typically found in imperfectly competitive markets in New Zealand.

8.2.2 Strike-down of Pro-competitive Rules

A number of the elements of the suggested Industry EGB framework are intrinsically anti-competitive. A voluntary association of this type does not have built-in safeguards to effectively force supply-side and demand-side tradeoffs to increase market efficiency. The proposal contains little restraint on an industry tendency to set a self-serving agenda and organise an appraisal process to make it happen. The Industry EGB is essentially an authorised cartel where the Commission cannot be sure what it has authorised.

a) Allocative Efficiency

Higher Prices in All Years

The average markup on price should be of the order of 10-30% for the structural and behavioural reasons discussed in the previous section on under-investment in the grid, rather than the 2.75-5.5% price increases assumed in the Draft Determination.

Loss from Delayed New Investment

The Commission has assumed that winter capacity would be 9.2GWH with new investment and 7.8GWH without. In a more competitive environment than that which is likely to exist under the Arrangement, generators can be expected to respond to the incentives inherent in the New Zealand market to provide high value

electricity and electricity substitutes for dry winter conditions. Such conditions are partially forecastable with reasonable resolution. The marginal cost of providing such facilities is assumed, by the Commission, to be of the order of $80 per MWh.

Our analysis suggests that the Commission's estimates are supportable in the immediate future. However, in the longer term, investment will tend to discount the vulnerability of the Southern Lakes and place greater weight on more assured generation capacity or electricity replacement.

b) Productive Efficiency

We have already analysed the propensity for the Arrangement to lead to efficiency losses because competition will be considerably weaker. Our analysis had lead to the conclusion that the Commission's assumptions of 0.28 to 0.55% losses are much lower than should be expected given the structure of the industry and the anti-competitive behaviour expected under the Arrangement. The efficiency losses here are likely to be of the order of 3-5%.

c) Dynamic Efficiency

The Commission has assumed that the proposed arrangements are likely to lead to an increase in productivity of between 0.9 and .95%. At this point in our argument it almost goes without saying that we think this assumption is not supportable by the facts and a reasonable behavioural framework. The proposed Arrangement will involve dynamic losses of around 1-2%, as for the previous issue.

d) Total Detriments Arising From the Likely Strike-down of Pro-Competitive Rules

The Draft Determination estimates that the public detriment under this heading would lie between $33.3 and $72.2 million. NZIER considers that the correct figure is much higher than the top of this range.

8.2.3 Continuation or Development of Anti Competitive Rules

The Draft Determination contains no estimate of the likely detriments from the continuation or development of anti competitive rules under the proposed Industry EGB compared with the counterfactual. The decisions made to create "transitional" dispensations (which in fact confer permanent benefits to incumbents over new entrants) points to the potential for anti competitive rules to be continued or developed under the proposed regime. NZIER considers the continuation and development of anti competitive rules is a detriment that should be estimated and be included in the calculation of total detriments.

In particular, we do not consider that having to obtain Commerce Commission authorisation for each significant rule change provides adequate protection. The competitive impact of many rules is difficult to detect *a priori*. On-going review by a body such as the Crown EGB is more likely to result in adequate detection of anti-

competitive rules than a series of "snap shot" reviews by the Commerce Commission.

Overall, the risk of development of anti-competitive rules will produce a similar level of inefficiency to the risk of strike-down of pro-competitive rules.

8.2.4 Scope of the Authorisation, the Mandatory v Voluntary Issue

NZIER considers there are considerable detriments that will arise from the Industry EGB relative to the counterfactual due to the ambiguity as to the scope of the authorisation being sought and the problems that will arise from encouraging potential free riders. Free riders will have to be paid off to join the rule making club. Logically no potential free rider will join, unless the benefits of joining are greater than the costs avoided by being a free rider.

The Crown EGB process can produce decisions with precise coverage that are binding on all industry participants. We would suggest that the costs of clarifying what an authorisation will cover, the cost of inducing total coverage by negotiation, and the cost of failure to achieve such comprehensive coverage are substantial detriments that have not been estimated in either the application or in the Commerce Commissions Draft Determination.

8.2.5 Total Detriments

NZIER considers that the current estimate of detriments of $62.0 to $126.7 million significantly understates the likely detriments from the proposal. This is in part because some of the likely detriments have not yet been included in the estimates.