

Annex 1

Part F summary

There are significant regulatory reforms under way in the New Zealand electricity industry that alter the way decisions are to be made about investment and operation of the national grid.

In particular, reforms introduce economic objectives and decisions by the independent Electricity Commission into decisions previously made principally by Transpower. Those Commission decisions must promote its primary objectives, including protecting customer interests, and overall efficiency of the electricity industry, rather than efficiency of Transpower alone.

Part F of the Rules has been through a significant transition from the original model proposed by industry in 2003. Therefore, we consider it important to review the regulatory context and purpose of Part F of the Rules as they now bind participants and the Commission.

1 Overview of Part F Rules

The following extract is from the Ministry of Economic Development's explanatory paper that accompanied the release of proposed Part F Rules in March 2004.¹

"The principal objectives of Part F are to facilitate efficient investment in the national grid, and to ensure balanced commercial arrangements between Transpower and its customers.

"These objectives are achieved through appointment of an independent regulator with transparent processes to identify needs, then test and approve some or all of the investments proposed by Transpower in its grid upgrade plans; and by contractual and pricing provisions that underpin those approved investments.

"The key components of Part F are:

- i) Empowerment of the Electricity Commission as an independent regulator to make binding decisions affecting transmission contracts, pricing and investment. The regulator is bound by its statutory objectives and administrative law to adhere to good regulatory practice, including effective consultation and transparent decision-making processes.

¹ Ministry of Economic Development *Part F Transport Rules: Explanation of Decisions and Response to Submissions*, 18 March 2004

- ii) Benchmark transmission agreements, with the structure, content and counterparties to be determined by the Electricity Commission. The agreements will be included in the rules, and will be sufficiently detailed for application as default agreements between Transpower and its customers, where negotiated contracts are not in place.
- iii) An obligation on Transpower to negotiate with existing and prospective transmission customers who seek different contract terms and conditions from the benchmark agreements, and dispute resolution by the Rulings Panel where negotiations fail.
- iv) Development of grid reliability standards, the detailed content of which is to be determined by the Electricity Commission subject to specified principles and a grid investment test, and then incorporated in the rules. There is flexibility provided to enable existing transmission planning standards and practices to be adopted initially (provided these are determined to be consistent with the rules) and more sophisticated practices (e.g. probabilistic planning) to be pursued at the discretion of the Electricity Commission.
- v) Development of a grid investment test to ensure that grid reliability standards are set at a sensible level (taking into account the value that electricity users appear to place on reliable supply of electricity and the cost of meeting those standards) and to ensure that the benefits of proposed investments exceed the costs.
- vi) A statement of opportunities for transmission and transmission alternatives (SOO) published by the Electricity Commission with industry assistance, including in particular assistance from Transpower. The content, detail and frequency of SOOs are to be determined by the Electricity Commission. The purpose of the SOO is to establish a transparent basis for preparation of Transpower's grid upgrade plan and provide information to assist proponents of transmission alternatives.
- vii) Grid upgrade plans, to be developed by Transpower at its own behest, or as and when requested by the Electricity Commission. The content is to include reliability investments and economic investments, both of which are to be assessed by Transpower in accordance with a grid investment test developed by the Electricity Commission and incorporated in the rules.
- viii) A process for the Electricity Commission to consider and approve investments proposed in a grid upgrade plan. The Electricity Commission's assessment and approval process includes:

- for reliability investments to meet grid reliability standards
 - review for compliance with agreed processes, consultation, and with powers for the Electricity Commission to require Transpower to explore different transmission investments to those proposed; and
 - for economic investments (investments justified on grounds other than reliability)
 - review, consultation and testing of Transpower's application of the grid investment test to proposed economic investments.
- ix) There is provision for investment contracts that enable bilateral agreements between Transpower and counterparties, although this is not expected to be the predominant means of investment decision making, at least initially.
- x) A transmission pricing methodology determined by the Electricity Commission and reflected in the terms of transmission contracts. The pricing methodology will enable Transpower to calculate and allocate prices for end users that include costs associated with approved grid investments (with these costs subject to regulation through the Commerce Commission threshold regime). The benchmark agreement will include a requirement for parties to pay the amount calculated by Transpower in accordance with the methodology, and for this amount to be recoverable by Transpower as a debt.
- xi) FTR (financial transmission rights) rules that require the Electricity Commission to oversee development of detailed rules to enable implementation of FTRs, principally to improve the efficiency of the wholesale and retail markets.”

2 Content of transmission contracts

Part F Section II stipulates the content of transmission contracts generally, and of the benchmark agreements. Key points to note are:

- benchmark agreements must apply the grid reliability standards
- benchmark agreements require designated transmission customers to pay transmission charges calculated in accordance with an approved pricing methodology (and hence, payment of costs associated with approved grid investments)

- to the extent practicable, benchmark agreements should include service definitions, service levels, and service measures
- negotiated transmission agreements must be consistent with benchmark agreements and grid reliability standards, unless varied with approval of the Commission².

The content and principles to be applied by the Commission in developing benchmark agreements are as follows:

Section II Rule 4.2 Principles for Benchmark Agreements

Benchmark agreements should:

- 4.2.1 reflect a fair and reasonable balance between the requirements of designated transmission customers and the legitimate interests of Transpower as asset owner;
- 4.2.2 reflect the interests of end use customers;
- 4.2.3 reflect the reasonable requirements of designated transmission customers at the grid injection points and grid exit points, and the ability of Transpower to meet those requirements;
- 4.2.4 reflect the differing needs of different classes of designated transmission customers;
- 4.2.5 be appropriate to the technical requirements of services provided at the point of connection to the grid, but not duplicate requirements that are more appropriately included in the grid reliability standards;
- 4.2.6 establish common standards for a common configuration based on factors such as size of connection and voltage level;
- 4.2.7 encourage efficient and effective processes for enforcement of obligations and dispute resolution.

Rule 4.3 Contents of Benchmark Agreements

4.3.1 Benchmark agreements must include:

- 4.3.1.1 an obligation on the parties to design, construct, maintain and operate all relevant plant and equipment in accordance with:
 - relevant laws;
 - the requirements of these rules (including obligations on designated transmission customers to provide information to facilitate system planning, as set out in rule 3 of section III); and
 - good electricity industry practice and applicable New Zealand technical and safety standards,

- 4.3.1.2 an obligation on designated transmission customers to comply with Transpower's reasonable technical connection and safety requirements;

² Section II, Rules 3.2.

- 4.3.1.3 an obligation on designated transmission customers to pay prices calculated in accordance with the application of the transmission pricing methodology approved by the Board under section IV;
- 4.3.1.4 arbitration or mediation processes for resolving disputes; and
- 4.3.1.5 service definitions, service levels, and service measures to the extent practicable.
- 4.3.2 Grid Reliability Standards³**
- Benchmark agreements must be consistent in all material respects with the grid reliability standards.

3 Regulatory context for transmission contracts

This sub-section describes the regulatory context and some characteristics of Part F transmission contracts.

3.1 Part F modifies freedom to contract

The regulatory framework under Part F modifies the freedom that Transpower and its customers may otherwise have to negotiate whatever bargain they may strike. It does so by instilling disciplines to ensure a fair allocation of risks, transparency, consistency with good industry practice, and by protecting end use customers and other third parties who may be affected by the terms of bilateral/ multilateral agreements that Transpower enters.

3.2 Infrastructure vs. system operation

Transmission contracts will relate to the matters associated with Part F of the Rules only; i.e. matters relating to the transmission infrastructure and services associated with connection to and use of the grid. The transmission contracts will *not* deal with system operational matters covered by the remaining Parts of the Electricity Governance Rules and contracts, except perhaps to the extent necessary to:

- enable benchmark agreements to include service definitions, levels and service measures to the extent practicable, or
- to enable the Commission to meet its obligations regarding integration and consistency between Parts C and F of the Rules.

³ The process and principles for establishment of the grid reliability standards are set out in Part F Section III rule 4.

3.3 Contracts as enforcement tool

Transpower's obligations to its customers will be enforced by those customers in accordance with their individual transmission contracts; they will *not* be regulatory obligations enforced by the Electricity Commission.

As such, the role of the counterparty in monitoring enforcing Transpower's contractual obligations to meet grid reliability standards and other service measures potentially assumes greater importance than in other regulatory models.

3.4 Decisions form basis of benchmark agreements

A benchmark agreement or agreements will be developed by the Commission based on these decisions on structure and counterparties. Those agreements will become binding default transmission agreements that:

- apply automatically between Transpower and designated transmission customers where no negotiated commercial agreement is in place
- establish the benchmark from which Transpower is obliged to (and designated transmission customers have a right to compel Transpower to) negotiate variations for specific user needs or connections, and
- give designated transmission customers access to the Rulings Panel to settle disputes around negotiation of individual transmission agreements.

The benchmark agreements will establish the obligations of Transpower to provide transmission services, obligations of connected parties / system users to pay charges for transmission services calculated in accordance with the Commission's approved pricing methodology, a mechanism for binding dispute resolution, and other matters stipulated in Part F.

3.5 Contracts affected

Based on the limited number of existing transmission contracts that are preserved by Part F, default benchmark agreements or negotiated transmission agreements based on the benchmark, could account for

76%⁴ of Transpower's transmission revenues, or around \$365m (based on current Transpower transmission revenue⁵).

3.6 Counterparties' role in consultation

Designated transmission customers enjoy a number of consultation 'rights' under Part F, particularly in relation to the process for reviewing and testing Transpower's proposed grid upgrade plans, and seeking further analysis of alternative cost/reliability trade offs, and of any viable transmission alternatives.

Designated transmission customers enjoy additional rights to seek a public conference under Part F Section III after the Commission publishes its intention to approve all or some of Transpower's proposed grid investments.⁶

3.7 Commission reliance on stakeholder input

The Commission has limited capability and resources to identify potential alternatives to reliability investments; in practice the Commission is expected to rely on transmission customers and other affected parties for this input.

Hence, in the context of introducing informed debate to challenge Transpower's assertions regarding necessary grid investments, designated transmission customers perform an important role. However, several consultation requirements in Part F require consultation not just with designated transmission customers, but also with persons that the Commission thinks are representative of the interests of persons likely to be substantially affected by the decision or action required (e.g. consultation on the reliability investments and content of draft grid upgrade plans).

⁴ Estimate based on advice from Transpower in March 2004 on the number of customers currently billed on the basis of posted terms, rather than written contracts.

⁵ Transpower publication, "Pricing for Grid Connection Services from 1 April 2004"

⁶ See Part F Section III rule 15.2.

Annex 2

Industry features

1 Characteristics of electricity transmission

In interconnected transmission networks:

- The pattern of electricity flows may be uncertain. Point-to-point rights (such as FTRs) may not be able to capture the full economic benefit of grid investment.
- Several factors affect network capability and performance. Events in one part of the network often affect the capability and performance in other parts. Transpower as asset owner and transmission system operator is able to control some of these factors, but not all (for example, Transpower cannot control the effect of the pattern of generation on network stability).

The key feature to be considered in establishing commercial and regulatory arrangements for a competitive market is that the core physical transmission system will comprise a large number of interconnected injection and off take points and the commercial arrangements will involve (potentially) multiple parties transacting at those points.

The combined effect of these physical and market features is that the core system must be designed, constructed, maintained and operated to a common set of standards. The periphery of the transmission system is characterised by an increased ability to define the capability and performance of the transmission assets (for instance to take account of regional circumstances).

2 Overview of the NZ System

The New Zealand electricity sector has undergone a transformation over the last fifteen years. From a centrally planned statutory monopoly covering generation and transmission, backed by over 60 local authority franchise retailers, the sector has made the transition to full lines/energy separation, and a market in generation and retailing that is focussed on five major generator/retailers.

In a structural sense, the electricity industry now has five generic elements:

Generators own and operate power stations spread across the country. These are mainly connected to the national grid, although some generation is connected to local networks (“embedded generation”). There are five large generating companies, of which three are state-owned enterprises (SOEs) and two are privately owned. Some embedded generation is associated with major industrial processes (“cogeneration”). There is a mix of hydro, thermal, geothermal and wind generation.

Transpower owns and operates the transmission system spanning the length of the country (the “national grid”). This transports electricity from approximately 40 power stations to connect with the local networks operated by the distribution companies. The grid is an AC transmission system, incorporating a DC connection from the lower South Island across Cook Strait to the bottom of the North Island. Transpower also provides a co-ordination service to the industry (“system operation”) whereby it schedules the production from all stations, monitors the interconnected network, ensures reliability, voltage and frequency targets are met, and manages grid emergencies. Transpower is an SOE.

Distribution (“lines”) companies interconnect with the national grid and distribute electricity over local networks to end-use consumers. They typically, but not always, sell their services to retailers rather than end-use consumers. There are 28 distribution companies of varying sizes and with a mix of ownership structures.

Retailers compete to meet consumers’ electricity needs. They provide a full service by purchasing electricity from the wholesale market and transmission/distribution services from distribution companies. There are five major retailing companies (including three SOEs) and some smaller ones. Almost all end-use consumers purchase electricity through a retailer, however consumers are able to purchase directly from the wholesale market.

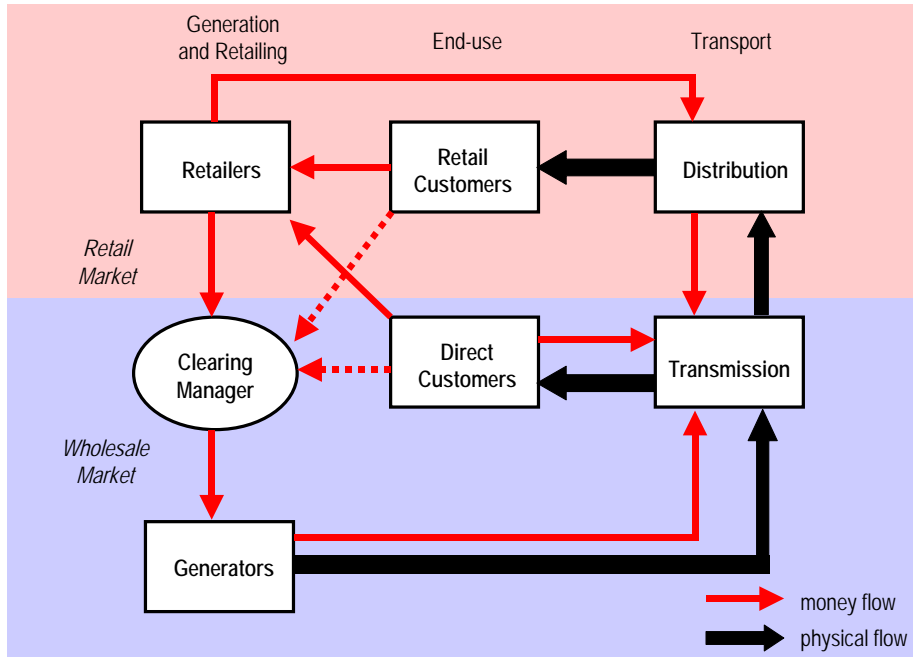
Consumers, spread throughout NZ, are typically categorised as domestic, commercial or industrial consumers. Most consumers are connected to the local networks, however a small number, such as the Comalco aluminium smelter and BHP NZ Steel, are directly connected to the national grid (“direct consumers”).

The transmission system (grid) can be thought of as a common “pool” into which power stations feed electricity and from which consumers draw off electricity.

The operation of the wholesale and retail markets is according to a set of rules, largely developed by industry participants over the last ten years, but now operating with the force of regulation, and under the jurisdiction of the Electricity Commission. These arrangements are illustrated in Figure 1,

which identifies the pattern of electricity and money flows in the New Zealand electricity market.

Figure 1 - New Zealand Electricity Market Schematic



Electricity Commission has regulatory oversight of Retail Market, Wholesale Market, Transmission Contracts
 Commerce Commission has regulatory oversight of distribution and transmission pricing
 Electricity Commission has contracts with service providers for market operation services; Clearing Manager is one of these

The national transmission grid acts as the physical hub of the wholesale market with generators competing to supply electricity to retailers and end-use consumers across the grid. Spot electricity prices are set through the market rules for over 200 locations across the national grid. Prices at each location reflect the national balance between supply and demand, modified to account for marginal transmission losses and grid constraints. The wholesale market rules also provide for scheduling, dispatch, reconciliation and settlement.

Typically, generators and purchasers trading electricity through the half-hourly spot market experience significant price volatility as a result of the rapidly shifting balance between supply and demand and competitor interaction. To manage this price risk, buyers and sellers tend to enter bilateral financial contracts referenced to spot market prices. The most common form is a two-way hedge for a fixed volume. While the primary contracts market tends to be reasonably active, there is very little if any secondary trading of these financial contracts.

The retail market arrangements have been introduced progressively since the retail market was deregulated in 1992. End use customers are free to elect which retailer to purchase from. At the heart of these arrangements is a set of rules which provide:

- a basis for reconciliation of end-consumer consumption with wholesale market purchases;
- arrangements for the use of deemed-profiles for the reconciliation of small customer purchases without half-hourly metering;
- arrangements by which end-use customers can switch retailers.

3 Generation and retail market participants

The progressive break-up of ECNZ, combined with the rationalisation of the retail sector that followed line/energy separation in 1999, has resulted in five relatively large integrated generation and retail businesses – three state-owned enterprises (Meridian Energy, Genesis Power and Mighty River Power) and two privately owned businesses (Contact Energy and Trustpower).

The approximate generation and retail market shares of the five key players in the electricity market are outlined in Table 1 and Table 2. It should be noted that the generators' share of the wholesale market varies from year to year as fuel availability changes, particularly hydro inflows.

Table 1 – Estimated Retail Position

| Company | Customer Numbers | Volume (GWh) |
|--------------------|------------------|--------------|
| Meridian Energy | 230,000 | 9,900 |
| Contact Energy | 520,000 | 7,100 |
| Genesis Power | 500,000 | 8,000 |
| Mighty River Power | 300,000 | 5,100 |
| Trustpower | 275,000 | 5,700 |

Source: Concept Consulting Group estimates

Notes:

(1) Customer numbers are estimated current position from Annual Reports and other sources (as at late 2003)

(2) Volume is estimated consumer energy demand for 2003 and is consistent with total expected generation of approximately 39,900 GWh.

Table 2 – Generation and retail market shares

| Company | Generation (1) | Retail (2) |
|--------------------|----------------|------------|
| Meridian Energy | 32% | 27% |
| Contact Energy | 28% | 20% |
| Genesis Power | 16% | 22% |
| Mighty River Power | 14% | 14% |
| Trustpower | 5% | 16% |
| Other | 5% | 1% |

Source: Concept Consulting Group estimates

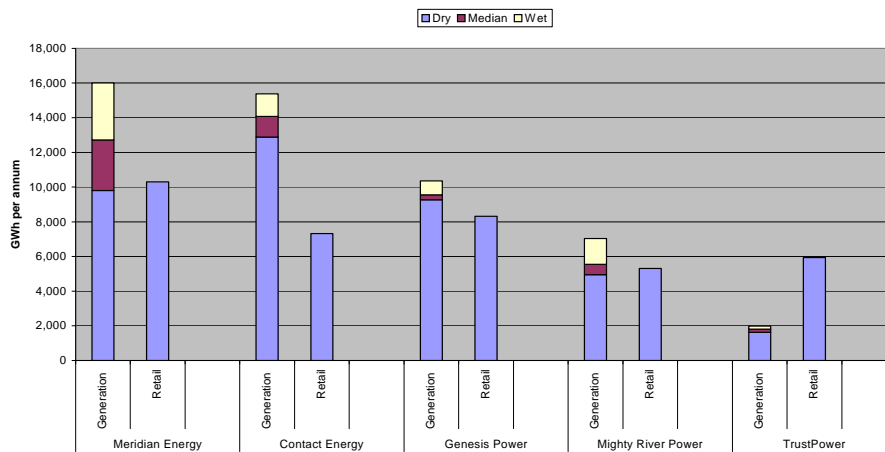
Notes:

(1) Generation share according to estimated mean energy production.

(2) Retail share according to estimated customer energy demand.

The generation / retail balance for the key players is highlighted in Figure 2 which contrasts retail demand with generation capacity for each business under average, wet and dry years.

Figure 2 - Generation Capability versus retail for key participants



Source: Concept Consulting Group

Generator-retailer integration

Most retailers in New Zealand are vertically integrated retailer/generators. In recent years a trend has developed for retailer/generators to seek to balance load and generation within a region so as to avoid risks associated with transmission congestion.

This in turn has led to a degree of concentration in each region and heightened concerns with the competitiveness of the retail and generation markets.

The degree of retailer/generator integration and the strong regional nature was recognised in a report prepared by Dr Grant Read for the Ministry of Economic Development⁷ (the EGR Report). We assess that this feature is relevant to considering the incentive a retailer has in relation to scrutinising transmission investment.

4 Transmission investment requirements

In New Zealand electricity generation is typically located at a distance from the main demand centres. Large South Island hydro schemes, in particular, generate a surplus of power that needs to be transmitted to the North Island. Similarly, thermal power stations located close to Taranaki gas fields, mean that generation is exported from the west to the upper North Island where the major demand centre is located.

Limited hydro storage and the lack of South Island thermal plant means that during dry periods, this pattern is reversed, with significant power flows from the North to the South.

The transmission system is designed to accommodate both the typical South – North power flow and the occasional North–South power flow. Inevitably, the small scale of New Zealand’s power system dictates that there are compromises to be made in the transmission system that lead to constrained areas under certain generation/load patterns.

This has been compounded by relatively low investment in the transmission grid over the last ten years. As demand has risen and flows across the network have increased, constraints in the network have become more frequent. It is now more common for planned network maintenance or network contingencies to cause network constraints. Under these circumstances generation is often required to run out of merit order, in order to maintain supply in particular areas.

Transmission pricing and investment in the network has been an unresolved and contentious issue amongst electricity market participants for many years. Limited investment in the network is partly a result of these unresolved issues. Transpower has indicated that it sees \$1.5bn investment by 2010 as necessary to achieve reliability standards. There is now significant pressure to resolve these issues and free up investment in the network. Government has clearly indicated that this is a priority matter for the incoming Electricity Commission.

⁷ Financial Transmission Rights for New Zealand: Issues and Alternatives; EGR Consulting, May 2002

Implications for Contract Structure and Counterparty Decision - Transmission investment requirements

The move towards a period of potentially high investment in the grid indicates that the efficiency of grid investment decisions could be a very relevant factor in the context of contract structure and counterparty decisions.

The framework provided by Part F clearly establishes the Electricity Commission as a key decision maker in this area, and points to a need for a high level of engagement between the Electricity Commission and stakeholders.

5 Commerce Commission targeted control regime

This section discusses the implications of the Commerce Commission's regulation of electricity lines businesses under the targeted control regime.

Electricity lines businesses are regulated by Part 4A of the Commerce Act which requires the Commerce Commission to set thresholds for the declaration of controls on electricity lines businesses. Any business that breaches these thresholds may be subject to price and quality controls under the Act. The Commerce Commission has set two thresholds for the regulatory period beginning in 2004: a price path threshold of the form $CPI - X$, and a quality threshold.

A lines business will breach the price path threshold if its average price changes at an annual rate exceeding the change in the CPI, less the annual rate of $X\%$ that is set by the Commission for that business.⁸

The approach to quality thresholds has been designed to "provide incentives for lines businesses to ...supply electricity distribution and transmission services at a quality demanded by consumers". To demonstrate compliance with the quality threshold, a lines business must satisfy:

- a reliability criterion⁹, which will be assessed on an annual basis; and
- a consumer engagement criterion, that will be assessed at least once every two years.

Transpower is treated somewhat as a special case, primarily due to uncertainties associated with the proposed investment programme. Nevertheless, Transpower is required to reduce average prices in real terms ($X = 1\%$) for the year commencing 1 July 2004. Quality thresholds will also apply to Transpower; however the reliability criterion is to be

⁸ The X factors range from -1% to $+2\%$.

⁹ Based on calculation of SAIDI and SAIFI.

monitored through trends in unplanned interruptions, and total interruptions expressed as system minutes.

Treatment of transmission costs in distribution line changes

The price path threshold for distribution lines businesses allows “pass through” of certain operating costs, including transmission changes, rates and any levies imposed by the Electricity Commission. These costs are excluded on the grounds that they are largely beyond the control of distribution businesses and are not always stable or predictable. Excluded transmission charges include any amount payable for connection, interconnection, new investment, system operation, loss and constraint rentals, and the settlement of FTRs.

In principle, distributors should be commercially indifferent to options on counterparties. To the extent the transmission costs may not be passed through in practice, then this should be addressed in the context of the application of the Commerce Commission’s targeted control regime.

Treatment of reliability criterion

The reliability criterion for distribution line businesses is based on two standard measures:

- System Average Interruption Duration Index (SAIDI) covering all planned and unplanned interruptions arising from within the distribution network, and
- System Average Interruption Frequency Index (SAIFI) covering all planned and unplanned interruptions arising from within the distribution network.

A distribution business will comply with the reliability criterion if neither SAIDI nor SAIFI exceed the average during the previous five years. Any distribution business breaching the reliability criterion may be excused from further investigation if the Commission is satisfied that the breach was due to uncontrollable circumstances.

Implications for transmission contracts structure and counterparty decisions are”

- Transmission charges are to be excluded from the calculation of average distribution network prices for the purpose of determining compliance with the price thresholds. This means that transmission charges are effectively a “pass through” for price regulation purposes.
- Interruptions arising within the transmission network are to be excluded from SAIDI and SAIFI calculations for the purpose of determining compliance with the reliability criterion.

- There are no particular requirements for distribution lines companies to remain as counterparty to transmission contracts that arise as a result of the regulation of electricity lines businesses.

6 Locational marginal pricing and transmission rentals

At the introduction of the wholesale electricity market in 1996 New Zealand adopted a system of Locational Marginal Pricing (LMP). Although this was controversial at the time, and continues to be debated around the world, LMP is increasingly becoming recognised as one of the essential ingredients to a properly functioning electricity market.

Under LMP, supply and demand is cleared for every half-hour at each of 244 locations across the grid. The locational prices reflect marginal losses and constraints in the network. The typical flow from South to North, dictates that average locational prices tend to increase from South to North.

A feature of LMP based electricity markets is the surpluses that arise from the wholesale market settlement systems. These surpluses are often characterised as “transmission rentals” because, as a matter of economic principle, they are economic rents to the transmission system. The settlement surpluses are currently paid to Transpower and used to offset transmission charges to distribution line businesses.

One of the outcomes of LMP is that when a line serving a region is in constraint, the prices in that region will rise above prices outside that region. Although this is generally efficient, it can also create short-term localised market power problems as a result of limited generation competition within that region. This, in turn, can create difficulties for retailers supplying customers within those regions, and can therefore limit retail competition within those regions. It is partly for this reason that retailing of electricity has tended to become dominated by vertically integrated generator-retailers, each supplying areas where they have generation.

Industry participants and most commentators are generally agreed that the status quo is not delivering satisfactory outcomes, at least for regions experiencing significant constraints on import flows. Financial Transmissions Rights (FTRs) and/or the allocation of “transmission rentals” have variously been advocated as solutions to the regional constraint and market power problems.

Although there is now a generally common view that LMP, without an appropriate allocation of the settlement surpluses, delivers unsatisfactory

outcomes, consensus on how to proceed has remained elusive. In particular, there has been much controversy amongst industry participants about the ownership, and appropriate means of allocation, of the settlement surpluses. Transpower has advocated the introduction of tradeable FTRs funded by the settlement surpluses, while other parties have advocated changes to the way that settlement surpluses are allocated.

The continued impasse over FTRs and settlement surpluses caused the Ministry of Economic Development to commission a report (*Financial Transmission Rights for New Zealand: Issues and Alternatives; EGR Consulting, May 2002*) into the issues and a subsequent amendment to the Government Policy Statement. The report recommendations included that:

- in principle, allocation of the transmission rentals (settlement surpluses) should be to end-users through the distribution line businesses;
- the rents on particular lines should be rebated to the regions “using” those lines, rather than spread nationally;
- a short to medium term FTR market should be developed to cover the entire interconnected grid, under the governance of the Electricity Commission;
- rentals should be rebated within regions by allocating long-term “hub-to-node” FTRs to distribution line companies and direct connected users;
- distribution line companies should be required to pass through FTR revenues and rentals to end-users in a transparent, non-discriminatory and non-distortionary manner.

This set of recommendations appears consistent with best international practice, and consistent with the GPS. The recommendations have effectively sat on the shelf for almost two years, awaiting the outcome on overall industry governance arrangements. Now that the Electricity Commission has been established with clear governance over this issue some resolution of these matters is likely.

Implications for Contract Structure and Counterparty Decisions - Locational marginal pricing and transmission rentals

The EGR Consulting report 10 concludes that the "transmission rentals" should be rebated to end-users in a transparent, non-discriminatory and non-distortionary manner, and that the distribution line businesses are the best means of achieving that outcome.

7 Transmission outage management

Grid management decisions (being decisions related to maintenance, outage planning etc) are undertaken by Transpower.

Part C provides for protocols for outage management associated with system operation. Current Transpower connection agreements also include provisions for outage management.

In our experience, grid management decisions ultimately involve judgement; as such, from a "societal" perspective, there is inevitably potential for more or less efficient grid management decisions to be made.

For example transmission outage management decisions could be based on more flexible criteria for outages risk occurring and/ or be more dynamic over time, for example taking into account the value of energy at risk at different times.

Analysis must consider whether the decision on counterparties may influence transmission outage management efficiency, and whether there are alternative means of achieving these benefits.

8 Distribution networks

Despite significant rationalisation of the distribution sector over the last fifteen years, New Zealand still has 28 distribution line businesses. Many of these are very small; while at the other end of the spectrum, over 60% of customers are now supplied by the two largest distribution businesses. Distribution businesses are subject to a targeted regulatory regime, overseen currently by the Commerce Commission. This regime, outline further in section 6.3, establishes price and reliability thresholds that, if breached, could lead to specific controls being applied.

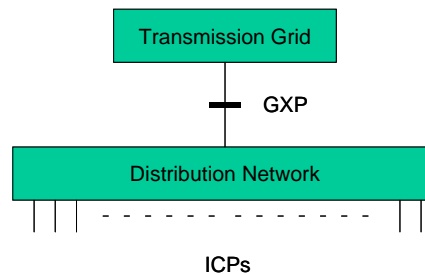
The distribution line businesses own and operate typically low voltage lines in defined geographic areas, currently act as the counterparty for transmission contracts with Transpower, and provide use of system services to retailers operating in their area.

¹⁰ *ibid.*

9 Distribution Pricing

There are two main categories of distribution pricing used in New Zealand – Grid Exit Point (GXP) pricing and Installation Control Point (ICP) pricing. Both types of charges are set to recover transmission and distribution costs.

Under GXP pricing the local network company charges each retailer for the combined transmission and distribution service based on quantities reconciled at Transpower points of supply to the local network. To calculate GXP charges the line company takes the reconciled quantities through each GXP and allocates its charges to retailers on the basis of the reconciled quantities purchased by each retailer at the GXPs. Using this method tends to limit the risk faced by the local distribution business, since the transmission charges can become a direct pass through cost.



Under Installation Control Point (ICP) pricing the local network company charges for the combined transmission and distribution service based on quantities reconciled to each ICP. That is, charges are referenced to the point of supply to the customer – generally to a metered supply point. Line charges to each retailer are calculated as the sum of line charges for all ICPs supplied by that retailer. Charging for use of the network in this manner potentially carries a risk to the line company because it may fail to recover 100% of the Transpower charges at each GXP. It also relies on the accuracy of the central registry to allocate ICPs amongst retailers.

Of the major line companies, PowerCo and Orion have adopted GXP pricing, while all other line companies have adopted ICP pricing.

Implications for Contract Counterparty Decisions - Distribution Pricing

If the downstream counterparty for transmission use of system continues to be the distribution line businesses, then the use of GXP and ICP pricing could continue as at present.

If the counterparty were to change to retailers, there would be little change for the situation where GXP pricing is currently used. Instead of the retailer being billed for transmission service by the local distribution lines company based on reconciled GXP

quantities, it would be billed by Transpower based on exactly the same reconciled GXP quantities. Where ICP pricing is currently used, there would be a change to the current basis of charging, since the transmission component would need to move from an ICP based charge to a GXP based charge. Retailers trading across networks using ICP pricing could therefore experience slightly different charges for transmission.

10 Monies attributable to Part F transmission contracts

Based on current figures, the total Transpower revenue recovered through transmission contracts is approximately \$483m, distributed as outlined in **Error! Reference source not found..**

Table 3 - Transpower Revenue Estimates Year Ended 31.3.2005

| Component | Connection | Interconnection | HVDC | Total |
|--------------|-----------------|-----------------|----------------|-----------------|
| Capital | \$80.5m | \$172.6m | \$47.6m | \$300.7m |
| Maintenance | \$13.6m | \$44.2m | \$7.5m | \$65.3m |
| Operating | \$4.4m | \$3.2m | \$0.7m | \$8.3m |
| Overhead | \$3.5m | \$95.4m | \$10.2m | \$109.1m |
| Total | \$101.9m | \$315.5m | \$66.0m | \$483.4m |

Source: Transpower publication; Pricing for Grid Connection Services from 1 April 2004

Information provided by Transpower, March 2004

Breakdown of revenue

- Signed Connection contracts: 16%
- Posted terms: 76%
- Tiwai Point Connection Contract 7.5%
- Input connection (historical agreements) 0.5%

The breakdown has been made on year to date revenue achieved through all contracts.

The Part F transmission contracts will apply to all bar existing written contracts. Currently, we understand that there are fewer than 10 connection and use of system agreements with directly connected customers and a generator/ retailer in place, and over 30 transmission customers who do not have executed agreements with Transpower. There is also a suite of agreements relating to Comalco.

Implications for Contract Counterparty Decisions

Part F will preserve existing agreements, which will be enforceable in accordance with their terms. The implications are:

- Development of benchmark agreements may trigger a desire to terminate or renegotiate existing agreements (or possibly amount to a regulatory change that triggers review clauses);
- There could be provisions in existing contracts (e.g. most favoured nation clauses) that impeded the efficacy of any proposed changes to remaining transmission contracts.
- There are material revenues associated with transmission contracts that will be developed in accordance with the Electricity Commission's decisions on contract structure and counter parties, such that material benefits are theoretically possible.
- Existing contracts appear unlikely to create material constraints on the magnitude of potential benefits, or the ability to implement any proposed changes. However, further analysis would be necessary to test this conclusion.