



Discussion paper

Electricity Commission: Review of the first five years

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Electricity Commission: Review of the first five years

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Auditor-General's overview

In 2003, the Government established the Electricity Commission (the Commission) to provide better governance over the generation, supply, and use of electricity in keeping with the Government Policy Statement on Electricity Governance (Government Policy Statement).

The Electricity Act 1992 requires me to report on the performance of the Commission against the objectives, outcomes, and performance standards set out in the Government Policy Statement. An auditor that I appoint audits the Commission's performance each year as part of the audit of the Commission's financial statements.

Although the Commission has completed many tasks that are important to the ongoing functioning and development of the electricity market, it has had difficulty measuring its achievements against the Government Policy Statement's objectives and outcomes. This concern was reflected in the appointed auditor's audit opinions for the 2004/05 to 2006/07 financial years. Establishing the effect of their work is a difficulty experienced by many public entities (see my 2008 report, *The Auditor-General's observations on the quality of performance reporting*). Therefore, I decided that a more in-depth review of the Commission's progress in reporting its performance against the Government Policy Statement's objectives, outcomes, and performance standards was warranted.

I am pleased to note that the Commission identified four objectives in its *Statement of Intent 2008–2011* that link its work to the principal objectives and specific outcomes in the Electricity Act 1992 and the objectives and outcomes in the Government Policy Statement. I am also pleased to note that the appointed auditor has noted in their 30 June 2008 opinion that the Commission's performance standards are appropriate, adequate, and accurate, and enabled an informed assessment to be made.

The Commission has aligned the electricity indicators and impact indicators with each of its objectives. The electricity indicators provide information on the state of the sector, and the impact indicators are intended to provide information on the difference that the Commission is making for the electricity sector. These are an improvement on the indicators that the Commission has used in the past.

The Commission included the electricity indicators in its *Statement of Intent 2008–2011* and has provided the Minister of Energy with a report against both the electricity indicators and impact indicators up to 31 December 2008. The Commission intends to report on these indicators twice a year.

The Commission is continuing to refine and improve on its performance measurement framework. The four objectives have been refined to three objectives in the *Statement of Intent 2009–2012*.

I expect that it will take a couple of years before meaningful trends and information provided by the impact indicators will enable the Commission to assess the outcomes of its work and whether this work is enough. The Commission considers that there is strong evidence of positive outcomes from its work, and its challenge is to develop the arrangements, voluntary and regulatory, that allow commercial entities to deliver the desired outcomes. My Office will be watching the Commission's progress in assessing the effectiveness of its work in influencing outcomes.

Because of the difficulty the Commission has had measuring its achievements against its identified objectives and outcomes, I am not yet in a position to comment on whether the work that the Commission has completed during its first five years is enough, or on the effect that its work has had on the electricity market.

I note that the Commerce Commission's review of the electricity market and the current Ministerial review of electricity market performance are looking at these issues.

I would like to thank the Commission's staff for the assistance that they have provided to my staff during this review.

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke.

K B Brady
Controller and Auditor-General

16 June 2009

Part 1

Introduction

- 1.1 In this Part, we describe:
- the purpose and structure of this report;
 - the Electricity Commission (the Commission); and
 - how we carried out our review of the Commission’s first five years.

Purpose of this report

- 1.2 In this report, we present a review of the Commission. Our audit work over a number of years and reports by the Parliamentary Commissioner for the Environment have identified concerns about how the Commission measures and reports its performance against high-level objectives and outcomes.
- 1.3 We are also aware that the Commission has been criticised in the media and by politicians for problems within the electricity sector, including problems with the security of the supply of electricity. A concern about the security of electricity supply was one of the reasons why the Government of the day established the Commission, replacing the self-regulating arrangements previously in place. We consider that a review of the Commission will provide a useful status report for all those with an interest in the electricity sector and the country’s energy needs.
- 1.4 We will continue to monitor the Commission’s progress, and intend to carry out a performance audit when there are data available to measure the Commission’s performance.

Structure of this report

- 1.5 Part 2 of this report describes the situation in the electricity sector before 2003. Part 3 describes the Commission’s objectives and accountabilities. Part 4 discusses monitoring of the Commission. Part 5 describes the Commission’s achievements, and Part 6 discusses the Commission’s new planning and reporting framework. The Appendix provides an overview of the electricity sector, describing the physical system and the various markets.

The Electricity Commission

- 1.6 The Commission was established in May 2003 and began operating in September 2003. The Commission has to achieve the objectives and outcomes set out by the Minister of Energy in the Government Policy Statement on Electricity Governance (the Government Policy Statement).¹

1 The Government Policy Statement on Electricity Governance is referred to as the “GPS” or the “Government Policy Statement” in the Electricity Act 1992, and in documents produced by the Electricity Commission, the Ministry of Economic Development, and other electricity industry participants. In this report, we use the term “Government Policy Statement”.

- 1.7 The Commission is a Crown entity. It oversees and regulates the electricity industry in New Zealand – the generation of electricity, its transmission through the national grid, its distribution through local electricity lines companies, and the markets in which electricity is bought and sold to consumers.

How we carried out our review

- 1.8 We interviewed staff from the Commission, staff from the Ministry of Economic Development, the appointed auditors who had conducted the statutory annual audits since 2003, and the Parliamentary Commissioner for the Environment.
- 1.9 We analysed the progress reported by the Commission in each of its annual reports against each Government Policy Statement requirement, to establish what work the Commission had done to address the requirements. We also reviewed the reports issued by the Parliamentary Commissioner for the Environment and the Ministry of Economic Development.
- 1.10 We obtained plans and reports on progress, and on important initiatives that the Commission has implemented.

Part 2

Reasons for establishing the Electricity Commission

- 2.1 In this Part, we summarise how the electricity sector operated before the Commission was established. We discuss:
- the electricity sector before September 2003;
 - the issues identified with this market structure by the Ministerial inquiry; and
 - the response to the recommendations of the Ministerial inquiry.
- 2.2 This historical context is necessary to understand the original purpose of the Government Policy Statement, the rationale for establishing the Commission, and its functions and objectives.

The electricity sector before September 2003

- 2.3 During the decade before the Commission was set up, consecutive governments had pursued a strategy of removing barriers to competition in the electricity sector:
- The Electricity Act 1992 (the Act) removed statutory barriers to competition in electricity retailing and line distribution.
 - The Electricity Industry Reform Act 1998 required ownership separation between lines companies and either electricity generation or retail companies by 1 January 2004. Most of the industry had achieved complete ownership separation by 1 April 1999. The Electricity Industry Reform Act 1998 also contained powers to regulate charges by lines companies for supply to domestic and rural customers. Price control could also be applied to all electricity distributors, to particular classes of distributor, or to individual electricity distributors.
 - The Electricity (Information Disclosure) Regulations 1999 required Transpower¹ and electricity lines businesses to disclose a greater amount of information, including annual financial statements, prescribed terms and conditions of contracts, various performance measures, asset management plans, line charges, and the methodology used to determine those charges.

Self-regulating arrangements

- 2.4 Within this legislative framework, the industry had developed three self-regulating arrangements to govern the operation of the wholesale electricity market – the New Zealand Electricity Market (NZEM), the Metering and Reconciliation Information Agreement (MARIA), and the Multilateral Agreement on Common Quality Standards (MACQS).

¹ Transpower is the State-owned enterprise that transmits electricity through the national grid. It is a monopoly provider. See the Appendix for more information.

New Zealand Electricity Market

- 2.5 The NZEM was where most electricity was bought and sold. The NZEM was launched in October 1996 and operated under a self-regulating structure, with mechanisms for selecting a governance board; setting, changing, and enforcing its rules; and resolving disputes. The rules set out how electricity generation companies offered electricity into the market, how generated electricity would be “dispatched” (see the Appendix), and how prices were established. There were also rules for clearing and settling transactions, and how market surveillance and enforcement was carried out. Participants in the NZEM and service providers (for example, Transpower as the dispatcher) had to sign up to, and agree to abide by, the rules.

Metering and Reconciliation Information Agreement

- 2.6 The MARIA was a set of rules about metering and reconciliation standards that allowed electricity flows to be matched against contracts. The MARIA provided mechanisms for trading outside the NZEM. It included processes for selecting a governance board, changing the rules, resolving disputes, and enforcing the rules. The MARIA also contained rules that allowed consumers to switch retailers.

Multilateral Agreement on Common Quality Standards

- 2.7 The MACQS provided a mechanism for the grid users (that is, the entities that are connected to the national electricity transmission system) to determine the common elements of quality of electricity supply across the national grid, such as frequency specifications. It established an industry committee, the Grid Security Committee (GSC), to contract with Transpower to meet agreed quality levels. The GSC had to consult with industry participants, and set performance and technical standards necessary to maintain quality for entities connected to the national grid.
- 2.8 Electricity generation companies competed to supply electricity to retailers and consumers across the national grid, which was the physical hub of the wholesale electricity market. They did this in two ways:
- contracting with retailers or end-user consumers to supply electricity directly; or
 - contracting with multiple parties – for example, through the NZEM. The NZEM provided the opportunity to buy and sell electricity through a spot market.²
- 2.9 About three-quarters of New Zealand’s total electricity volume was traded through the NZEM. This amounted to some \$1.2 billion of wholesale trading in 1999. The remainder was covered by bilateral contracts between electricity generation companies and consumers under the MARIA.

² The buying and selling of wholesale electricity is done through a “pool” where electricity generation companies offer electricity to the market, and retailers and major users bid to buy the electricity. This market is called the “spot”, or the “physical wholesale”, market.

Guiding principles of the New Zealand Electricity Market

2.10 The NZEM's guiding principles were based in part on the Government's objectives. In summary, these principles provided that the rules and structures had to foster markets for electricity that:

- supported the continuing availability of energy services at the lowest cost to the economy as a whole, consistent with sustainable development;
- encouraged an environment in which electricity prices were set through the competitive interaction of buyers and sellers;
- established prices that "cleared" the market, which meant that the amount of energy purchasers were willing to buy at the market price at any time equalled the amount of energy producers were willing to sell at that price at that time; and
- allowed market participants to identify and take responsibility for managing risk.

2.11 The rules had to enable new buyers and sellers to enter the market and, in particular, could not unfairly disadvantage new electricity technologies or make it difficult for consumers to manage their use or consumption patterns (demand-side management). The rules had to comply with the Commerce Act 1986 and other relevant laws, providing for and maintaining a supervisory body that had the power to monitor and enforce the rules.

2.12 Within the NZEM, the Market Surveillance Committee (MSC) was set up to enforce the rules, educate market participants on their responsibilities, and promote transparency. The MSC was an independent body elected by market participants and service providers, and chaired by a retired Court of Appeal Judge.

Issues identified with market structure by the 2000 Ministerial inquiry

2.13 By early 2000, concerns about the sector resulted in a Ministerial inquiry to examine whether the regulatory arrangements for the transmission, distribution, and wholesale and retail sectors were best suited to ensuring that electricity was delivered in an efficient, reliable, and environmentally sustainable manner to all consumers. In June 2000, the report of this inquiry found that the regulatory regime was not meeting the Government's objectives.

2.14 The wholesale market was dominated by a small number of electricity generation companies and retailers that also dominated the market's governance bodies (NZEM and MARIA).

- 2.15 Market rules had been developed and implemented in keeping with the interests of those dominant companies. There was limited representation from other market interests. For example, there was a lack of progress in introducing a real-time market, which had in turn hampered greater participation by electricity purchasers and users.
- 2.16 There were also limited incentives to ensure that governance structures, which essentially were self-regulating, gave full effect to the market's guiding principles. There were few sanctions to ensure compliance.
- 2.17 There was, and still is, a significant degree of vertical integration, where the few electricity generation companies were also the electricity retail companies. This integration reduced the natural competitive tension between the interests of retailers and generators that would otherwise have served to discipline market behaviour.
- 2.18 Four electricity generation companies accounted for 85% of New Zealand's electricity generating capacity. Three of the companies, which controlled 60% of the market by generation capacity, had the Government as their major shareholder.
- 2.19 Questions were asked about the effect that this aggregation of market power may have had on competition and also the privileged position and responsibility the Government had as the predominant owner in the generation market.
- 2.20 Transpower was, and still is, a monopoly provider with no competition. Many participants in the industry questioned how Transpower recovered its charges, and claimed that Transpower's approach to setting prices lacked transparency. A number of participants also opposed Transpower's "apparently unilateral approach to pricing and contractual dealings".³ Under self-regulation:
- there was no progress made on decisions on major capital investment;
 - there were significant unresolved issues around the Transmission Pricing Methodology; and
 - there was significant industry dissatisfaction with contracting arrangements — the Benchmark (Transmission) Agreements.
- 2.21 On the other hand, Transpower had no guarantee of recovering its charges because the threat of refusing to supply electricity to distribution companies lacked credibility. Some companies had refused to pay because they disagreed with Transpower's pricing methodology and some of the disputes had to be settled by the courts.

³ *Inquiry into the Electricity Industry: June 2000 Report to the Minister of Energy*, Ministry of Economic Development, Wellington, page 24 (available at www.med.govt.nz).

- 2.22 The distribution companies that made up the electricity network were also effectively monopoly operators in their areas.
- 2.23 Consumers and retailers in a given location were generally unable to choose an alternative company to transmit electricity to their homes or business premises. The lack of competition in the market meant that there were few incentives for any of the companies in the sector to minimise costs, and few constraints on the profits they earned.
- 2.24 In spite of regulations requiring market disclosure, the information available was poor and there was little meaningful or useful analysis of distribution companies' performance. The regulatory regime lacked credibility in the eyes of the market and many consumers. The process for exercising existing price control powers was considered too cumbersome and the powers of the Commerce Commission too limited and inflexible to be effective.
- 2.25 An important issue facing the sector at that time was whether the distribution part of the electricity sector should be further regulated – and if so, which entity should regulate it, and what powers the regulator should be given.
- 2.26 The June 2000 Ministerial inquiry report noted that, from April 1999, price differentials provided incentives for consumers to change retailers. However, in the next 12 months only 4.8% of consumers had switched to a different electricity retailer.
- 2.27 There was evidence of barriers to switching that were likely to have reduced consumers' willingness to change. These barriers included the unco-ordinated provision of services by distribution and retail companies, alleged anti-competitive practices, and unjustified disconnections.

Response to the Ministerial inquiry's recommendations

- 2.28 The inquiry's recommendations included strengthening and making mandatory the governance framework for the electricity industry, and replacing the existing governance bodies with a new single market structure.
- 2.29 The Government set up the Electricity Governance Establishment Committee (EGEC) to create a single governance structure. It replaced the three self-regulating arrangements – the NZEM, MARIA, and MACQS.
- 2.30 The task of the EGEC was to rationalise the industry's existing structures; to establish rules governing wholesale and retail prices, security of supply, and transmission and distribution; and to get the industry to agree to those rules.

- 2.31 In April 2003, the EGEC proposed a new set of rules as the framework for self-regulation. About this time, water levels in the hydro lakes were low⁴ and the country was dealing with a potential energy shortage for the second time in three years. This potential shortage prompted the “Target 10%” advertising campaign, which called for a voluntary reduction in power use. The continuity of electricity supply and the need for reserves of electricity in a dry year – when there is not enough rainfall to keep water levels high in the hydro lakes – were widely debated.
- 2.32 The first stage in implementing the proposed new rules was a referendum⁵ to gauge the level of support for them. Votes were allocated equally to each of three classes: consumers, traders (generators and retailers), and transporters (lines companies and Transpower). The referendum failed to achieve the support needed to allow the new rules to proceed.
- 2.33 On 20 May 2003, as part of a package of decisions on the security of electricity supply, the Government announced that it was establishing the Commission – moving away from a voluntary model based on industry contracts, to a statutory, regulation-based model.

4 Low water levels in the country’s hydro lakes are significant because hydroelectric power generates about 60-70% of our electricity.

5 The referendum was conducted in April and May 2003. For more information, see our July 2005 report *The Electricity Commission: Contracting with service providers*, page 7.

Part 3

About the Electricity Commission

- 3.1 In this Part, we describe:
- the Commission’s principal objectives and specific outcomes;
 - the accountability arrangements for the Commission;
 - what the Government Policy Statement sets out to do;
 - the current Government Policy Statement requirements of the Commission; and
 - the relationship between the Government Policy Statement and the Commission’s Statement of Intent (SOI).
- 3.2 The Commission has about 40 staff, and is responsible for a total budget of about \$96.5 million in 2009/10. It is governed by a Board with no fewer than five and no more than nine members.
- 3.3 Giving effect to the Government Policy Statement’s objectives and outcomes is one of the functions of the Commission. The Government Policy Statement is intended to be a tool to convey the Government’s objectives and outcomes for the governance of the electricity industry. However, it goes further than this in that it sets specific tasks and sometimes processes to be followed by the Commission.
- 3.4 During its first five years, the Commission has focused on completing the tasks set out in the Government Policy Statement. From this task-based perspective, the Commission considers that it has a strong record of achievement. However, it has not been able to establish the degree to which it is achieving the higher level objectives and outcomes in the Government Policy Statement.

Principal objectives and specific outcomes

- 3.5 The Commission began operating in September 2003. It regulates the operation of the electricity industry and electricity markets (wholesale and retail) in keeping with the Act, electricity governance regulations, the Electricity Governance Rules 2003, and the Government Policy Statement.
- 3.6 As set out in the Act, the Commission’s principal objectives are:
- to ensure that electricity is produced and delivered to all classes of consumers in an efficient, fair, reliable, and environmentally sustainable manner; and
 - to promote and facilitate the efficient use of electricity.
- 3.7 In line with the principal objectives, the Commission must seek the following specific outcomes:
- Energy and other resources are used efficiently.
 - Risks (including price risks) to the security of supply are properly and efficiently managed.

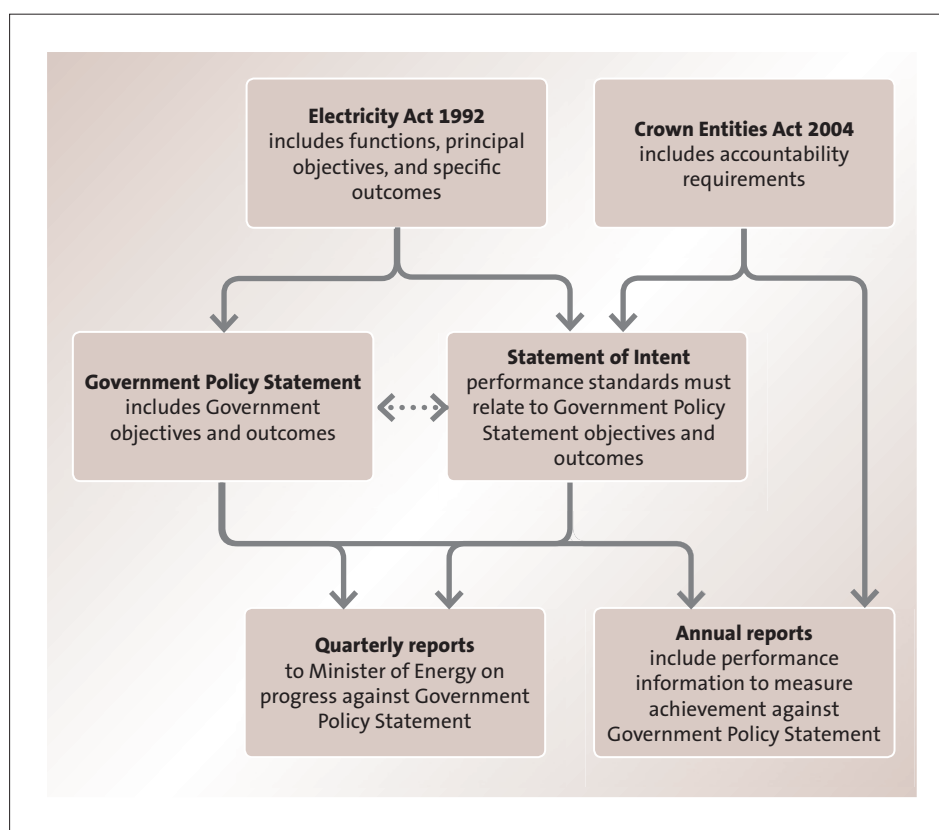
- Barriers to competition in the electricity industry are minimised for the long-term benefit of end-users.
- Incentives for investment in generation, transmission, lines, energy efficiency, and demand-side management are maintained or enhanced and do not discriminate between public and private investment.
- The full costs of producing and transporting each additional unit of electricity are signalled.
- Delivered electricity costs and prices are subject to sustained downward pressure.
- The electricity sector contributes to achieving the Government's climate change objectives by minimising hydro spill,¹ efficiently managing transmission and distribution losses and constraints, promoting demand-side management and energy efficiency, and removing barriers to investment in new generation technologies, renewable sources of energy, and distributed generation.

Accountability arrangements

- 3.8 The Commission is a Crown entity and must meet the accountability requirements of the Crown Entities Act 2004. These requirements include preparing an SOI and an annual report.
- 3.9 The Electricity Act 1992 sets additional accountability requirements. In particular, section 172ZL of the Act requires the Commission to include, in its SOI, performance standards for all Government Policy Statement objectives and outcomes, against which the Commission's performance may be judged. The Commission reports its achievements against these performance standards to the Minister of Energy every quarter, as well as in its annual report.
- 3.10 The Ministry of Economic Development monitors the Commission's performance. The Ministry of Economic Development is largely responsible for developing and implementing policy in the electricity sector, reviewing and developing legislation, monitoring the performance of the Commission, and monitoring electricity prices. The roles and responsibilities of the Commission and the Ministry of Economic Development are further explained in the Appendix.
- 3.11 The accountability requirements for the Commission are set out in Figure 1.

1 Hydro spill happens when water is released without going through the hydro plant and generating electricity.

Figure 1
Accountability requirements for the Electricity Commission



Government Policy Statement on Electricity Governance

- 3.12 The Act requires the Minister of Energy to set out objectives and outcomes for the Commission in a statement of government policy on electricity governance. This statement must be consistent with the Act.
- 3.13 The first Government Policy Statement was issued in December 2000, which was before the Commission was established. Its purpose was to explain the Government's policy on electricity governance to the self-regulating electricity industry. The Government Policy Statement replaced previous statements of government policy on electricity.
- 3.14 The Minister of Energy has powers to change the Government Policy Statement and did so in 2002, 2004, 2006, 2008, and 2009.

- 3.15 The Government Policy Statement sets out both general policies for the Commission's regulation of the industry and operational policies for doing this. It includes specific tasks and expectations. Some sections include descriptive or contextual background.
- 3.16 An example of task-oriented operational policy, under the heading "Consumer Protection", is "Arrangements in the event of retailer insolvency".² This section notes that the Commission should devise a transition process for consumers whose retail supplier becomes insolvent. Even more specific outcomes are detailed, such as "Arrangements for the benefit of low income and vulnerable domestic consumers". It includes instructions and options for dealing with non-paying consumers.
- 3.17 By contrast, under the "Electricity Efficiency" heading, the Government Policy Statement in 2006 set out high-level policy objectives for the Commission working closely with the Energy Efficiency and Conservation Authority (EECA) and other agencies towards the then Government's aim of efficient and environmentally sustainable use of electricity. The 2008 and 2009 Government Policy Statements have more detailed expectations.
- 3.18 The level of direction given and requirements of the Commission have differed between versions of the Government Policy Statement.

The Government Policy Statement before the Commission was established

- 3.19 The 2000 and 2002 Government Policy Statements set out the Government's expectations for industry action and its views on governance matters. At that stage, the Government wished to see further evolution of self-regulating arrangements and it used the Government Policy Statement to set guiding principles for the evolution of those arrangements.

The Government Policy Statement as it relates to the Commission

- 3.20 The 2004, 2006, 2008, and 2009 Government Policy Statements set out the Government's expectations of the Commission. Essentially, these Government Policy Statements have all covered:
- security of supply;
 - consumer protection;
 - electricity efficiency;
 - renewable energy (added in 2006);
 - system operation, and wholesale and related markets;
 - transmission;

² This example is found in the 2004 to 2009 Government Policy Statements.

- distribution;
- relationship with the Commerce Commission;
- distributed generation; and
- retail competition.

3.21 The focus and tasks of the Commission have changed between Government Policy Statements, as has the amount of direction given. For example, the 2004 Government Policy Statement set out a timetable for delivering new transmission arrangements and required the Commission to publish a detailed work plan for achieving the timetable.

3.22 In addition, the 2004 and 2006 Government Policy Statements set out the Government's priorities for work on the objectives and outcomes. They directed that priority be given to:

- managing security of supply and implementing the reserve energy mechanism (that is, contracting for reserve energy);
- working with Transpower and grid users to facilitate priority investment in the national grid;
- promoting efficient use of electricity; and
- improving hedge market transparency and liquidity, and demand-side participation.

Current Government Policy Statement requirements

3.23 From 2008, the Government Policy Statement requires the Commission to prepare a number of agreements and contracts between the Commission and different parts of the electricity sector, and between industry participants, including consumers.

3.24 These agreements and contracts include:

- model contracts (for example, domestic consumer contracts, contracts with reserve energy providers, contracts between lines companies and electricity generation companies, and contracts for reconciliation³ projects);
- memoranda of understanding between the Commission and EECA, and the Commission and the Commerce Commission;
- model agreements for distribution of systems and distributed generation; and
- benchmark agreements with Transpower.

³ "Reconciliation" means the process of matching the electricity supplied to consumers by individual retailers with actual demand at a national grid exit point.

- 3.25 The Government Policy Statements since 2008 require the Commission to have processes for consultation with the industry, including:
- consultation on development and subsequent publication of the Security of Supply policy;
 - systems to receive proposals for rule changes;
 - consultation on projects such as the Strategic and Tactical Wind Projects; and
 - consultation on reviews such as the Review of Reserve Energy Policy.
- 3.26 The Government Policy Statement also requires the Commission to consult the Ministry of Consumer Affairs when pursuing outcomes that might directly affect small consumers.
- 3.27 The Government Policy Statement also requires the Commission to monitor security of supply and to publish information about this on its website.
- 3.28 The Government Policy Statement gives the Commission primary responsibility for ensuring that the physical system and wholesale and retail markets operate efficiently. The Commission is expected to promote and facilitate vigorous competition in both markets, including making recommendations to the Minister of Energy.
- 3.29 The Commission is responsible for the regulatory framework for transmission services, and for approving (or not approving) major capital investments in the national grid. Transpower is responsible for planning, developing, and operating the national grid. The Government Policy Statement includes the objective that the Commission publish a Statement of Opportunities at least every two years. The purpose of the Statement of Opportunities is to identify potential opportunities for efficient management of the national grid, including investment in upgrades and investment in transmission alternatives.
- 3.30 In preparing the Statement of Opportunities, the Electricity Governance Rules 2003 require the Commission to aim to meet the reasonable requirements of Transpower, investors in generation, other participants, end-user consumers, and those interested in evaluating transmission alternatives, and to reflect good electricity practice.
- 3.31 Transpower is required to submit grid update proposals to the Commission. The Electricity Governance Rules provide a process by which investment proposals are evaluated and – if the criteria are met – approved by the Commission. The Statement of Opportunities is important for the Commission’s consideration of investment proposals submitted by Transpower. This is because the generation scenarios and demand forecasts in the Statement of Opportunities are the default “market development” scenarios used to analyse an investment proposal in a Grid Upgrade Plan.

Relationship between the Government Policy Statement and the Commission's Statement of Intent

- 3.32 The Government Policy Statement was originally prepared to communicate government policies and objectives to a self-regulating sector. However, the Commission is a Crown entity and as such produces an SOI.
- 3.33 The Electricity Act 1992 requires the Commission to align the content of its SOI with the Government Policy Statement.
- 3.34 The Commission, in its *Statement of Intent 2005–2008*, set out:
- performance targets and measures for 2005/06 that were aligned with the 2004 Government Policy Statement provisions;
 - a summary of the Government's requirements as set out in the Government Policy Statement; and
 - the activities that the Commission was carrying out to meet those requirements.
- 3.35 The 2004/05 and the 2005/06 annual reports included separate reports on the Commission's achievements against the performance targets and measures listed in its SOI and its progress with the requirements of the Government Policy Statement.
- 3.36 With support from both the Ministry of Economic Development and the appointed auditor, the Commission has further aligned the Government Policy Statement and the SOI. Part four of the *Statement of Intent 2009–2012* now sets out the work programme and performance standards in the same order as the Government Policy Statement.

Part 4

Monitoring and reporting on performance and progress

- 4.1 In this Part, we discuss how the Commission's progress and performance has been reported and monitored so far, by:
- quarterly reports from the Commission to the Minister of Energy and the Ministry of Economic Development;
 - annual reports published by the Commission; and
 - environmental reports produced by the Parliamentary Commissioner for the Environment.
- 4.2 The Commission's progress against the Government Policy Statement's requirements is monitored quarterly by the Ministry of Economic Development and annually by the appointed auditor. The Parliamentary Commissioner for the Environment also examines each year the extent to which the Commission has met environmental objectives and outcomes in the Government Policy Statement.
- 4.3 The appointed auditor and the Parliamentary Commissioner for the Environment have expressed concerns in the past that the reported performance focuses on tasks completed, rather than the extent to which the objectives and outcomes of the Government Policy Statement have been achieved. However, no monitoring agency has reported concerns about the Commission's progress with the tasks specified in the Government Policy Statement.

Quarterly reports to the Minister of Energy and the Ministry of Economic Development

- 4.4 As mentioned above, the Government Policy Statement requires the Commission to report at least quarterly to the Minister of Energy on progress against the Government's expectations in the Government Policy Statement.
- 4.5 The Commission has produced detailed quarterly reports to the Minister of Energy setting out its progress against the Government Policy Statement requirements and outputs from its SOI.
- 4.6 The reports cover the period from the release of the 2004 Government Policy Statement and include changes as a result of the updates in 2006 and 2008.
- 4.7 The quarterly reports provide a detailed summary of what the Commission has done during the quarter. They provide:
- an overview of the main issues and achievements for the quarter;
 - a list itemising consultation carried out and rule changes completed in the quarter;

- a year-to-date report against outputs in the SOI; and
 - a progress-to-date report on achievements against the Government Policy Statement.
- 4.8 A copy of the quarterly report is given to the Ministry of Economic Development, which is responsible for monitoring and evaluating the Commission's outputs and performance results. The Ministry of Economic Development's monitoring covers the Commission's:
- capability;
 - work outputs;
 - progress against the Government Policy Statement requirements;
 - performance measures;
 - financial management; and
 - relationships with external stakeholders.
- 4.9 The Ministry of Economic Development prepares quarterly¹ performance monitoring and evaluation reports, which it sends to the Minister of Energy.
- 4.10 The Ministry of Economic Development's quarterly reports to the Minister of Energy include a copy of the Commission's quarterly report as well as:
- commentary on the "key achievements" for the quarter under each output class;
 - the reasons why any tasks are not progressing according to the schedule, and whether the Ministry of Economic Development considers the Commission's explanation to be adequate;
 - commentary on the Commission's performance against its management and capability performance measures in its SOI; and
 - the Commission's financial performance against budget, including any reason for variances and whether the Ministry of Economic Development has any concerns about the statement of financial position.
- 4.11 The quarterly reports also contain a section on the Government Policy Statement. The Ministry of Economic Development's conclusion on this section for the 2008 reports was:
- The Ministry is satisfied that [Government Policy Statement] requirements are being progressed.*

1 The Ministry of Economic Development's plan for monitoring the Commission says that the Ministry will provide quarterly and annual performance monitoring and evaluation reports. In practice, the reports are produced quarterly.

Annual reports published by the Electricity Commission

- 4.12 The Commission includes in its annual reports:
- a statement of service performance report against its performance measures (as required by the Crown Entities Act 2004); and
 - a description of its achievement against the outcomes and objectives in the Government Policy Statement (as required by the Electricity Act 1992).
- 4.13 The annual reports for 2004/05 and 2005/06 included separate statement of service performance and Government Policy Statement reports. A combined statement of service performance and Government Policy Statement report was produced for the 2006/07 annual report. The Commission combined the reports because the targets and measures in its statement of service performance have to align with the objectives and outcomes in the Government Policy Statement.
- 4.14 However, in 2007/08, the Commission returned to providing separate statement of service performance and Government Policy Statement reports, largely as a result of feedback from the appointed auditor who expressed concern about meeting the specific reporting and audit requirements of section 172ZM and section 172ZO respectively of the Act. The appointed auditor considered that separate reporting in the annual report would meet the Act's requirements more clearly.

Comments in audit opinions about the Commission's annual reports

- 4.15 As required by section 172ZO of the Act, the Auditor-General must:
- (a) *examine the information included in the annual report, and provided to the Auditor-General, under section 172ZM; and*
 - (b) *either report on it –*
 - (i) *in the audit report provided to the Commission under section 156 of the Crown Entities Act 2004; or*
 - (ii) *despite that section, to the Minister and the House of Representatives as soon as practicable after receiving the information.*
- 4.16 The appointed auditor's report must provide assurance on:
- (a) *the appropriateness, adequacy, and accuracy of the information contained, or to be contained, in the annual report under section 172ZM; and*
 - (b) *whether the information included in the annual report under that section enables, or is likely to enable, an informed assessment to be made of the matters stated in that section.*

- 4.17 The appointed auditor audits the Commission's reported performance against the Government Policy Statement objectives and outcomes and the performance standards in its SOI. The audit opinions for 2004/05 and 2005/06 reported that the Commission had accurately reflected its achievements against the objectives and outcomes in the Government Policy Statement and against the performance standards in the SOI. However, they noted that the performance standards were largely task-oriented and short term in focus. The opinions went on to state:
- We expect the Electricity Commission to move towards more outcome based reporting in future periods to demonstrate achievement of [the Government Policy Statement's] objectives and outcomes.*
- 4.18 In the audit opinion for the year ended 30 June 2007, while commenting on the proposed performance standards in the statement of service performance,² the appointed auditor noted that the standards were heavily focused on transmission and security of supply. The appointed auditor expected that the Commission would move towards a similar degree of focus on the other Government Policy Statement objectives in future years. The appointed auditor also noted that:
- ... there was a need to enhance the provision of meaningful measures relating to outcomes to assist in assessing the performance of the Commission.*
- 4.19 The Commission has taken action to address the appointed auditor's comments by preparing its own objectives that link its work to the principal objectives and specific outcomes in the Act, and to the requirements of the Government Policy Statement. The Commission has also identified "impact indicators" for each objective, aimed at providing information on the difference that the Commission is making for the electricity sector. We discuss the objectives and impact indicators further in Part 6.
- 4.20 This additional reporting has resolved the issues noted by the appointed auditor. The audit opinion for the year ended 30 June 2008 noted that:
- ... the information on the performance of the Commission against the [Government Policy Statement] objectives and outcomes and the performance standards in the Statement of Intent ... is appropriate, adequate and accurate, and enables an informed assessment to be made of those matters.*

² Under section 172ZL of the Act, the Minister of Energy is required to consult the appointed auditor about the proposed performance standards included in the Commission's SOI.

Reports by the Parliamentary Commissioner for the Environment

- 4.21 The Act requires the Parliamentary Commissioner for the Environment to annually examine the extent to which the Commission has met the Government Policy Statement objectives and outcomes concerning the environment.
- 4.22 The Parliamentary Commissioner for the Environment has reported four times. The first two reports³ focused on the wider electricity sector's environmental performance, because not all the environmental outcomes in the electricity sector could be attributed to the Commission.
- 4.23 The third report focused on the Commission's contribution to improved environmental management in New Zealand. It noted that many of the objectives and outcomes contained in the Government Policy Statement that relate to environmental outcomes are defined at a high level and that measuring performance is difficult.
- 4.24 The Parliamentary Commissioner for the Environment also reported that, while the Commission had been able to show that it is making progress on a number of activities relating to the Government Policy Statement objectives and outcomes, it was unclear how much effect some of the activities had had. This was a result of:
- timing, in that it was too early to assess the effectiveness of the environmental programmes; and
 - lack of data or poor quality data in the electricity sector, especially about electricity consumption.
- 4.25 While the Parliamentary Commissioner for the Environment noted that much of this was outside the Commission's responsibility, the Commissioner also noted that if the Commission focused on demand-side information this would address, in part, the lack of data.
- 4.26 The most recent report looked at particular issues relevant to the year under review, rather than carrying out a systematic audit of the Commission's environmental performance.
- 4.27 The Commission was commended for having carried out a considerable amount of work developing programmes to improve the efficiency of electricity use by households, businesses, and industry.
- 4.28 The most recent report also raised questions about the scope of the Commission's role in improving electricity efficiency. The report raised the issue of evolving the Commission into an Energy Commission as well as increasing its statutory powers.

³ The first report covered the period 1 March to 30 June 2004. The second report covered the period 1 July 2004 to 30 June 2005.

- 4.29 The most recent report also noted that goals in the Government Policy Statement were in conflict. That is, the goal of economic efficiency was in conflict with the goal of reducing greenhouse gases. The report noted that the Government Policy Statement should be amended to include guidance on how to reconcile these conflicts.

Part 5

What the Electricity Commission has achieved

- 5.1 In this Part, we describe the Commission's achievements to date. They include:
- improving rules and regulations;
 - supporting investment decision-making;
 - preparing security of supply standards and policies;
 - delivering energy efficiency programmes; and
 - completing a review of the design of the electricity wholesale and retail markets.
- 5.2 The Commission's primary focus since September 2003 has been in:
- assuming responsibility for operating the electricity system and markets, including developing and implementing Rules for Operations, and resolving several long-standing issues (approving a transmission pricing methodology, strengthening the operation of the wholesale market, and completing a development plan for real-time electricity system operations);
 - making transmission investment easier, including resolving several long-standing issues (creating a grid reliability standard to measure and prioritise transmission investments against, and developing a transparent cost-benefit test to assess transmission investment proposals);
 - developing and implementing security of supply standards and policies; and
 - promoting electricity efficiency.
- 5.3 During its first five years, the Commission has completed many tasks required in the Government Policy Statement that are important to the ongoing functioning and development of the market. However, the Commission notes that its major challenge is to put in place voluntary and regulatory arrangements that allow commercial enterprises to deliver the desired outcomes.
- 5.4 The Commission has noted that it is difficult to measure in absolute terms the effect of its work on outcomes – that is, a measurable change to the electricity market. The Commission has a greater understanding of the effects of its work and has developed a measurement framework. However, it is a difficult area to measure and the Commission intends to continuously improve its outcome monitoring. We discuss this further in Part 6.
- 5.5 We consider that some of the Commission's significant achievements include:
- establishing a security of supply policy;
 - completing pricing and contracting arrangements for transmission services (the Transmission Pricing Methodology and Benchmark (Transmission) Agreement);

- establishing a regulatory framework and decision-making processes for grid investment, which enabled approval of \$2.7 billion in grid investment and significant savings on some proposals;
- working on wind capacity, resulting in wind generation being integrated into the system;
- improved reconciliation rules and a reconciliation system producing more accurate and reliable accounting for electricity bought and sold; and
- renegotiating the five market service provider contracts, resulting in lower contractual costs and improved services.

Improving rules and regulations

5.6 The Commission has carried out an ongoing programme to administer and improve rules and regulations. This programme of work has resulted in the Commission completing 70 maintenance and development rule changes up to April 2009. The Commission has also carried out a number of projects that have resulted or will result in rule changes. Examples include:

- investigations into options for integrating wind generation into the power system and electricity market;
- improving the transparency of hedge contracts¹ and contract markets, improving liquidity and the ability to manage electricity price risk;
- developing new reconciliation arrangements to improve the accuracy of allocation of electricity volumes to purchasers;
- adopting the Common Quality Development Plan to address long-standing issues to do with power system security and quality;
- writing guidelines to facilitate the introduction of advanced metering at minimal cost to consumers;
- writing guidelines to protect vulnerable consumers in consumer disconnections; and
- writing model contracts for retailers and their customers.

5.7 In line with the Government Policy Statement, where possible the Commission establishes voluntary arrangements and guidelines in preference to regulating, particularly in the retail area. The Commission monitors these voluntary arrangements to ensure they are effective, and to consider whether regulation might be necessary.

¹ A hedge contract is a contract for sale and purchase of electricity that protects against price risks associated with the spot price of electricity.

Supporting investment decision-making

- 5.8 The Commission has provided information to support investment decision-making. For example, the Commission has prepared and published several documents and data sets, including:
- the Statement of Opportunities, which provides a high-level analysis of the system to help identify investment opportunities; and
 - the Centralised Data Set, which includes detailed historical modelling data necessary for investment analysis.
- 5.9 The Commission has prepared reliability standards for assessing grid investment proposals. It has also resolved issues on service standards and who should pay.
- 5.10 The Commission has established a transmission framework, starting from the guidelines and processes set out in the Electricity Governance Rules 2003. The regime, which was consulted on widely with the industry and is similar to that used in other electricity systems, includes:
- Grid Reliability Standards to underpin investment proposals (no formal standards previously existed);
 - the Grid Investment Test, which is a cost-benefit test to assess transmission investment proposals against alternatives;
 - a Transmission Pricing Methodology (the issue of allocating the costs of transmission services had been unresolved for more than a decade); and
 - Benchmark (Transmission) Agreements for Transpower and its customers. These provide minimum enforceable and common contract standards for access to transmission services, and reflect a reasonable balance of interest between Transpower and its customers and electricity consumers.
- 5.11 Since the transmission framework was established, the Commission has approved over \$2.7 billion in new transmission investments up to May 2009, the most significant being the North Island grid upgrade (\$824 million), the upgrade of the high voltage transmission cable that transports electricity between the North and South Islands (\$672 million), the North Auckland and Northland upgrade (\$473m), and the Wairakei upgrade (\$141m).

Preparing security of supply standards and policies

- 5.12 The Commission has prepared security of supply standards and policies to ensure that electricity demand can be met when water-flows into the hydro lakes are low.
- 5.13 The Act requires the Commission to properly and efficiently manage risks to security of supply (section 172N of the Act). Since 2004, the Government Policy

Statements have required the Commission to have, and publish, a security of supply policy that would achieve targets set out in the statements. The Commission published the *Initial Security of Supply Policy* in June 2005.

- 5.14 The Commission has:
- developed a methodology, in consultation with industry stakeholders, for determining whether procuring reserve energy (additional generation or load reductions) is needed to achieve the agreed standards; and
 - carried out annual needs analyses to determine whether reserve energy is required.
- 5.15 If water-flows into the hydro lakes during a period are low, the Commission has limited authority to intervene in normal market operations. The interventions that are available to it are:
- to determine the point at which the Whirinaki reserve energy station is offered into the spot market;
 - to run a conservation campaign and/or seek to purchase load reductions, if the system enters what is termed the “emergency zone”; and
 - to initiate rolling power cuts as a last resort.
- 5.16 The period of low flows into the hydro lakes in 2008 has tested both the market design and security of supply arrangements. Although the winter saw high spot prices and a public conservation campaign lasting some weeks, there were no compulsory power cuts.
- 5.17 In late 2008, the Commission carried out a review of the 2008 winter period. The review team reported that they noted many positive aspects, including:
- a relatively high level of hedging by customers;
 - improved information availability; and
 - strong efforts to increase non-hydro supply and to conserve electricity.
- 5.18 The report also noted that:
- ... there were no forced power cuts, despite extremely dry conditions in major hydro storage catchments. In short, a relatively young market withstood considerable stress and maintained uninterrupted supply of electricity to consumers.²*
- 5.19 The review team made eight recommendations, including clarifying the roles of the Minister and the Commission in the security of supply area, and giving the Commission a greater degree of independence in the exercise of its regulatory functions. The report noted that a number of people who were interviewed felt

² *Review of 2008 Winter and the period leading into winter*, Electricity Commission, page 7 (available at www.electricitycommission.govt.nz).

that the interrelationships between the Act, Government Policy Statement, and the Commission's own policies made the boundaries between roles less clear. For example, the Government Policy Statement specifies some matters to a level of detail that would appear more appropriate in the Commission's policies. The review team thought that the 2008 Government Policy Statement was an improvement on the 2006 Government Policy Statement in this respect.

Delivering energy efficiency programmes

- 5.20 The Commission has delivered energy efficiency programmes aimed at reducing demand and carbon dioxide emissions through more efficient electricity use.
- 5.21 The 2004 and 2006 Government Policy Statements noted that the Commission “has as a key goal the efficient provision and use of electricity” and demand-side management to help reduce the demand for electricity, thereby reducing pressure on prices, scarce resources, and the environment. The Commission was required to give its full consideration to the contribution of both the demand side as well as the supply side in meeting the Government's electricity objectives. This requirement is also included in the 2009 Government Policy Statement.
- 5.22 In the 2004 and 2006 Government Policy Statements, the Commission was required to put in place arrangements and programmes to promote efficiency in the following parts of the electricity sector:
- generation;
 - wholesale market;
 - conveyance (that is, transmission and distribution); and
 - end-use.
- 5.23 The Commission has completed a “bottom-up” analysis of the potential opportunities and priorities for electricity efficiency in New Zealand. This analysis indicates that annual savings of 6400GWh³ can be achieved at less cost than supply-side alternatives and that the Commission could achieve 840GWh (about the annual usage of a city the size of Dunedin) of these savings by 2016 based on current funding levels.
- 5.24 The Commission has a savings target of 450GWh a year by the end of 2009/10. The Commission anticipates that it will meet its electricity savings target, with about 430GWh of savings to 31 March 2009, and expects to exceed the target by the end of 2009/10.
- 5.25 In conjunction with the Lighting Council New Zealand and EECA, the Commission has led the development of a three-year national strategy on efficient lighting. It

3 One gigawatt hour (GWh) is equal to one million kilowatt hours. New Zealand's annual demand is about 38,000GWh.

has also launched three major efficiency initiatives. These initiatives have achieved the following results:

- About five million efficient light bulbs have been sold through the Commission's programmes to March 2009, resulting in savings of around 403GWh a year – the equivalent of the annual usage of Rotorua.
- In the industrial sector, the Commission has established an accredited auditing programme for compressed air systems, and a "bounty scheme" to replace inefficient electric motors. More than 80 compressed air audits have been completed, and savings from both initiatives have delivered over 18GWh a year of savings to March 2009.
- In the commercial sector, a programme targeting inefficient refrigeration, heating, ventilation and air conditioning, lighting, and other technologies has now achieved savings of 16GWh a year (to March 2009). This figure is expected to increase to 100GWh a year by June 2010.

Completing a review of the design of the electricity wholesale and retail markets

- 5.26 The Commission had also carried out the Market Design Review to improve the operation of the wholesale and retail electricity markets in New Zealand.
- 5.27 In mid-2007, the Commission examined a range of indicators to gauge the performance of the current market arrangements. The Commission identified areas where performance was satisfactory, and areas where it had potential concerns. The work was summarised in an issues paper published by the Commission.⁴ After considering the submissions received, the Commission released a paper entitled *Market Design Review – Update*. It highlighted five areas for closer review:
- pricing and competition, especially in the retail market;
 - energy affordability issues;
 - the effectiveness of the energy-only spot market design;
 - demand-side participation; and
 - availability of market information.
- 5.28 Some of the issues identified in the *Market Design Review – Update* are not new, and projects have already been established to address the issues. The Market Development Programme brings these projects and issues identified in the review of the 2008 winter period (see paragraph 5.17) within the one programme. They are now being managed as part of a prioritised programme rather than as individual projects.

4 *Issues Paper – Survey of Market Performance*, available at www.electricitycommission.govt.nz.

- 5.29 The Commission notes that major investments taking place in all areas of the electricity system are putting pressure on prices. The Market Development Programme will seek to optimise how the markets operate, which is intended to improve security and help to keep prices down.
- 5.30 The Commission has identified the top 10 projects within the Market Development Programme. These include reviewing transmission pricing, introducing “locational” hedges,⁵ reviewing distribution pricing, and monitoring retail prices and competition. A number of initiatives that were identified as part of the review of the 2008 winter period are also included in the Market Development Programme.

5 “Locational” hedges protect against price risks associated with a particular site of power generation – for example, risks associated with a North Island or South Island site of power generation.

Part 6

New planning and reporting framework

- 6.1 In this Part, we describe the work the Commission has carried out to develop its planning and reporting framework. We discuss:
- the three objectives set out in the Commission’s *Statement of Intent 2009–2012*;
 - the electricity and impact indicators for each of the Commission’s objectives; and
 - the Commission’s plans for reviewing electricity and impact indicators.
- 6.2 We commend the Commission for the work that it has done in preparing the electricity and impact indicators.
- 6.3 Although it has taken three years to prepare the indicators, we consider that the Commission’s collaborative and staged approach has resulted in a reasonably robust set of indicators. They provide a sound basis to begin to measure how effective the Commission is. We, as well as the Commission, expect these indicators to evolve over time.

Background

- 6.4 In the past, the Commission has had difficulty in reporting meaningfully how the work that it has done in meeting the Government Policy Statement requirements and its SOI performance targets has contributed to meeting high-level government policy objectives and outcomes. The appointed auditor and the Parliamentary Commissioner for the Environment raised this difficulty in the past. However, the Commission resolved this issue (as noted in the June 2008 annual report) by linking its work to the principal objectives and outcomes in the Act (see paragraphs 4.18–4.20 for more information).
- 6.5 In the last three years, the Commission has prepared and put in place a planning and reporting framework.
- 6.6 When it was established, the Commission identified six core workstreams to achieve the Government’s desired outcomes. These workstreams, which were subsequently increased to eight, constituted the “building blocks” for the Commission’s day-to-day work during its set-up and development phases, and then continued to be the focus of its work programme.
- 6.7 The Commission devised outcomes for each workstream, but the activities underpinning the outcomes were largely task-oriented. During 2006/07, the Commission enhanced its understanding of the relationship between its activities and the desired outcomes. The *Statement of Intent 2006–2009* set out the relationships between the activities the Commission carried out and the

outcomes (or results) it sought. The SOI noted that the relationships are complex and are strongly influenced by a range of factors. The Commission has limited control over some of these factors, but others lie outside its control or direct influence.

- 6.8 During 2006/07, the Commission prepared a planning and reporting framework. The planning and reporting framework translated the principal objectives and specific outcomes in the Act and the Government Policy Statement into medium-term strategic priorities and a work programme.
- 6.9 During 2006/07, the Commission prepared and consulted on a set of draft principal objectives statements (including an explanatory statement, a usage statement, and a relationship statement). It published the finalised statements in its 2006/07 annual report.
- 6.10 The planning and reporting framework also included:
- “electricity indicators”, which are statistics or indicators that help to provide a high-level view of the status of the electricity sector; and
 - medium-term strategic priorities that translate the long-term principal objectives, specific outcomes, and Government Policy Statement requirements into a set of priorities to help the Commission prioritise its work programme.

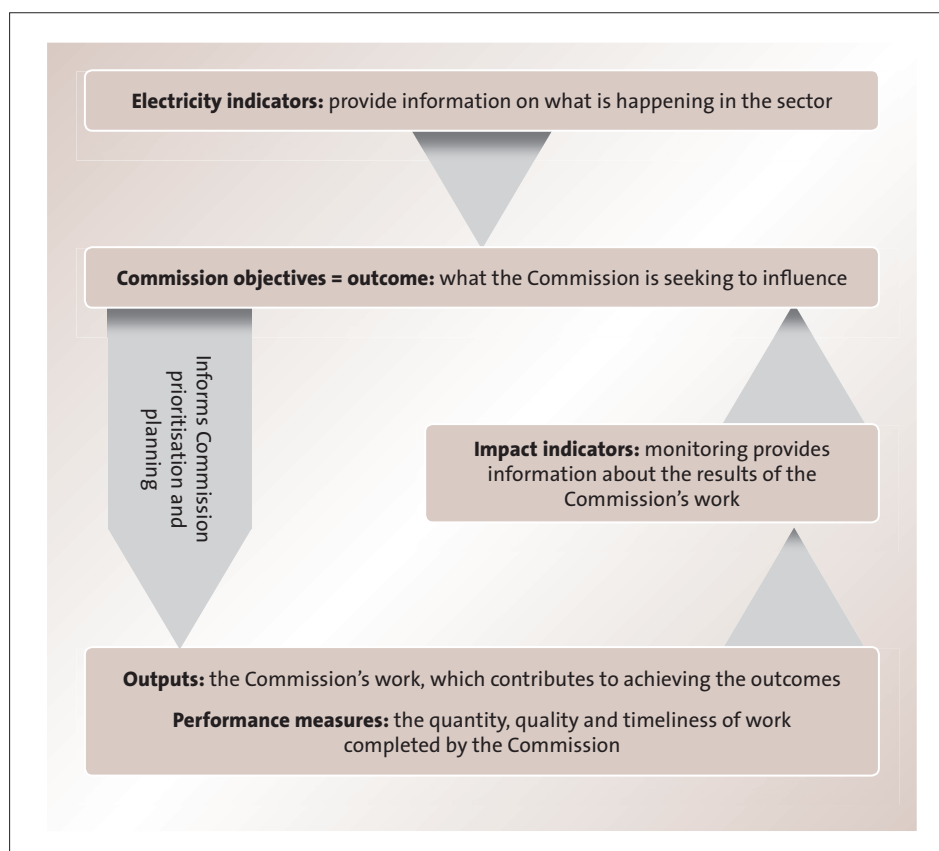
Electricity Commission objectives in its *Statement of Intent 2009–2012*

- 6.11 During 2007/08, the Commission agreed on four objectives that link its work to the principal objectives and specific outcomes in the Act and to the requirements of the Government Policy Statement. These were included for the first time in the Commission’s *Statement of Intent 2008–2011*. The four objectives were refined to three in the *Statement of Intent 2009–2012*.
- 6.12 The three objectives are:
- well-functioning markets;
 - sufficient, reliable supply; and
 - efficient use and environmental sustainability.
- 6.13 The Commission has also sought to address for each objective:
- why it is a priority – that is, the factors that the Commission has considered in developing each objective and its planned actions;
 - what the Commission will do to achieve the objective – that is, the main priorities or outputs that the Commission is carrying out to achieve the objective; and
 - how the Commission will demonstrate success (its impact indicators).

Electricity indicators and impact indicators for each objective

- 6.14 The Commission has identified a number of electricity indicators that provide a high-level picture of the state of aspects of the electricity sector over which the Commission has varying degrees of influence.
- 6.15 The electricity indicators are not directly within the Commission's control. It is not always possible to determine cause and effect for changes in these indicators because other external factors are important – for example, the changing balance of the use of electricity and other energy sources. Electricity indicators do, however, influence decisions about the Commission's objectives and work priorities (see Figure 2).

Figure 2
How the Electricity Commission will use indicator information



Source: Electricity Commission's *Statement of Intent 2009–2012*.

- 6.16 The Commission has also identified impact indicators for each objective. Although impact indicators are influenced by external factors and the actions of other parties, the Commission considers that it has more influence over these indicators and that they therefore provide information on the difference that the Commission is seeking to make for the electricity sector.
- 6.17 Figure 3 sets out the objectives, how the Commission seeks to contribute to achieving those objectives, the electricity indicators it will monitor, and how it is going to demonstrate success (its impact indicators).

Reviewing electricity and impact indicators

- 6.18 The Commission told us it will take a couple of years before it can assess meaningful trends and information provided by the impact indicators. Meanwhile, the Commission intends to keep the electricity and impact indicators under constant review. It will update indicators as significant pieces of work identify more appropriate indicators. For example, the market design issues paper¹ identified some of the current set of electricity indicators.
- 6.19 The Commission is using the new indicators in its reporting for 2008/09 and will include a report in the 2008/09 Annual Report. We will be watching the Commission's progress in assessing the effectiveness of its work.

1 *Issues Paper – Survey of Market Performance*, available at www.electricitycommission.govt.nz.

Figure 3
Links between the Electricity Commission’s objectives, its contributions to the objectives, and indicators

Well-functioning markets	Objective and what the Commission is seeking to achieve
	<p>Ensuring that the electricity system and markets operate fairly and efficiently to meet the needs of consumers involves:</p> <ul style="list-style-type: none"> • effective and efficient day-to-day management of the wholesale, retail and ancillary service markets • ensuring that the needs of consumers for reliable service and reasonable price are appropriately balanced • enabling innovation and investment that meets current and future energy demand • ensuring market mechanisms provide appropriate signals and incentives for investment • ensuring there are appropriate checks and controls in place, including those that protect consumers.
	The Commission seeks to contribute through:
	<p>Core systems – providing the core services, and monitoring and enforcing contracts needed for the operation of the electricity system and wholesale and retail markets.</p> <p>Market Development Programme – examining and, where efficient, improving pricing signals for the wholesale and retail markets. Enhancing the incentives for market participants to manage risks in a way that contributes positively to the performance of the markets.</p> <p>Consumer protection – developing, monitoring and enforcing appropriate consumer protection mechanisms.</p> <p>Information – ensuring robust information and analysis is available to assist in decision-making by policy-makers, market participants and consumers.</p> <p>Market governance – providing information to improve adherence with the regulations and rules that govern the electricity system and markets and monitoring and managing compliance.</p>
	Electricity and impact indicators
	<p>Electricity indicators</p> <ul style="list-style-type: none"> • Electricity company market share (generation and retail) • Consumer switching and market share of “incumbent” retailers • Electricity consumer prices <p>Impact indicators</p> <ul style="list-style-type: none"> • The number of rule breaches reduces • The number of advanced meters installed increases • Satisfaction with the hedge market increases – as measured by the two-yearly hedge market survey

Sufficient, reliable supply	Objective and what the Commission is seeking to achieve
	A sufficient, reliable supply is achieved when the electricity system can meet current demand and reasonably foreseeable demand. Ensuring sufficient, reliable electricity supply involves: <ul style="list-style-type: none"> • timely investment in generation capacity, transmission infrastructure, distribution services, and demand-side initiatives • regulation of monopoly elements of the system to ensure efficient operation and effective performance • management of supply risks such as low inflow years within the agreed policy for the cost/insurance trade-offs • secure and efficient management of the electricity system on a day-to-day basis, which develops in line with demand patterns, new technology, and the evolution of the wider electricity environment.
	The Commission seeks to contribute through:
	Core systems – providing the core services needed for operation of the electricity system, and undertaking work to improve the operation of the electricity system.
	Security development programme – development work to improve the operation of the electricity system and markets during dry years and other shortages, including: <ul style="list-style-type: none"> • monitoring and facilitating the management of generation supply risks, for example publishing the hydro risk information, thermal generation fuel stocks • advising the Government on security of supply policy • carrying out security of supply governance functions including monitoring, advice on security, and procurement of reserve energy, if necessary.
	Information – providing independent analysis of future demand, high-level generation scenarios and transmission options. Publishing a comprehensive centralised data set and other information to assist analysis and decision-making by investors.
Transmission investment decisions – facilitating timely processes and appropriate decisions for economic grid investment.	
Ensuring plans and arrangements are in place to manage shortage of supply emergencies, if needed.	
If necessary, taking action to ensure security of supply in line with the Government’s policy.	
Electricity and impact indicators	
Electricity indicators	
<ul style="list-style-type: none"> • New Zealand energy winter margin • Transmission system minutes interrupted (an internationally used indicator of system reliability) • Consumer interruption indicators (SAIDI, SAIFI, CAIDI)* 	
Impact indicators	
<ul style="list-style-type: none"> • Total value of grid investment approvals/declines** • The security margin is maintained or increased • The amount of contracted reserve energy required reduces • The operation of the electricity system meets quality and reliability standards – as indicated by breaches of Principal Performance Obligations • The operation of the electricity system meets frequency management standards – as indicated by the number of frequency excursions 	

Efficient use and environmental sustainability	<p>Objective and what the Commission is seeking to achieve</p> <p>There are world-wide developments in energy, including a drive for sustainability and efficiency, that impact on New Zealand and the future development of the electricity system. These include:</p> <ul style="list-style-type: none"> • new technologies for generation (including small and micro-scale), transmission, and electricity system management • new technologies for electricity end-use and demand-side management • changing patterns of fuel availability, use and cost • increasing awareness of the energy sector and its influence on economies and climate • developing understanding of the operation and impacts of emissions trading. <p>The Commission seeks to contribute to:</p> <ul style="list-style-type: none"> • improved efficiency of generation, transmission, distribution and electricity use • removal of barriers to renewable generation • improved environmental sustainability of the electricity sector by providing information, facilitation of voluntary arrangements, and development of regulation. <p>The Commission has several projects that will help improve electricity efficiency and environmental sustainability. However, many of the impacts of electricity production and delivery are addressed by regional and local authorities and the Environment Court through the Resource Management Act 1991 – the Commission has limited involvement in these processes.</p>
	<p>The Commission seeks to contribute through:</p> <p>Transmission investment decisions – ensuring that transmission investment decisions address transmission alternatives and potential future renewable generation.</p> <p>Market Development Programme – including:</p> <ul style="list-style-type: none"> • providing analysis of the implications of potential developments for the New Zealand electricity system • progressing the understanding of variable generation and its implications for the electricity system • completing work on improvements to facilitate integration of wind generation into the electricity system • identifying and advancing initiatives to improve efficiency and minimise losses in the electricity system • progressing work on improving load management • developing solutions to remove undue barriers to the development of renewables, small-scale generation and demand-response initiatives. <p>Electricity efficiency programmes – investing in end-use electricity efficiency initiatives where these are cost-effective.</p>
	<p>Electricity and impact indicators</p>
	<p>Electricity indicators</p> <ul style="list-style-type: none"> • Electricity generation by fuel type • Percentage of electricity generation from renewable resources • Thermal electricity generation gross CO₂ equivalent emissions
	<p>Impact indicators</p> <ul style="list-style-type: none"> • The number of GWh saved from electricity efficiency programmes increases • The amount of CO₂ saved from electricity efficiency programmes increases • Savings in [megawatt hours] peak demand from electricity efficiency programmes increase • Electricity efficiency programmes are cost-effective – delivered at below the cost of constructing equivalent new generation

- * SAIDI: indicates the total amount of time (in minutes) the average consumer is without supply over the course of a year. SAIFI indicates how often a consumer, on average, experiences an outage during the course of a year. CAIDI indicates the average duration of a single outage (in minutes).
- ** Noting that a declined transmission investment proposal is likely to result in a new application.

Source: Electricity Commission's *Statement of Intent 2009–2012*.

Appendix

The electricity sector

There are two aspects to the electricity sector – the physical system and the electricity market.

The physical system

The physical system comprises:

- **Generation:** There are five major electricity generating companies – three are State-owned enterprises and two are private companies. About 60% to 70% of New Zealand’s electricity is generated by hydro stations (the percentage depends on hydrology conditions such as rainfall and snow melt). The balance is generated from geothermal stations, gas, coal and oil-fired thermal stations, bio-mass plants, and wind farms.
- **Transmission:** Transpower (a State-owned enterprise) owns and operates the national electricity transmission system, which comprises switch gear (substations), high voltage cables, transformers, and overhead lines for transmitting high voltage electricity from generating stations to distribution (lines) companies.
- **Distribution:** There are about 28 lines companies that own distribution networks throughout New Zealand. The lines companies are connected to the national grid and usually sell their services to retailers who provide bundled “delivered electricity” services¹ to domestic and commercial consumers. Most consumers are connected to local networks, but a small number (such as the Comalco aluminium smelter) are directly connected to the national grid, and contract directly with distribution companies.
- **Retail:** Retailers purchase electricity at wholesale prices from the generating companies and transmission or distribution services from lines companies. Consumers are charged for the cost of the electricity as well as charges for transmission and distribution services.

The electricity market

The electricity market comprises wholesale and retail markets.

The wholesale market comprises multiple parties carrying out various functions including bidding (purchasers), offering (generators), scheduling and dispatch² (system operator), pricing (Pricing Manager), and clearing and settlement (Clearing Manager). Each of these functions is governed by the Electricity

1 This is where the transmission charges are bundled with the distribution charges and included in one tariff.

2 “Dispatch” is defined in the Electricity Governance Rules, 1 May 2008: “ ‘dispatch’ means the process of (a) pre-dispatch scheduling to match expected supply with expected demand, and to allocate ancillary service offers and transmission offers to match expected grid conditions; and (b) rescheduling to meet forecast demand; and (c) issuing instructions based on the pre-dispatch schedule and the real-time conditions to manage resources to meet the actual demand.”

Governance Rules 2003, which need to be maintained and changed to respond to changes in the market.

The retail market arrangements focus on operational tasks, including registering consumers, enabling consumers to switch easily between suppliers, and counting electricity purchases and sales. Around \$4.5 billion of electricity is purchased by consumers each year, and almost 10% of consumers switched suppliers in the year to 30 September 2008.

The regulatory framework

The electricity industry is covered by generic and specific legislation (including regulations). The main legislative and regulatory instruments include the:

- Electricity Act 1992;
- Electricity Industry Reform Act 1998;
- Commerce Act 1986;
- Government Policy Statement on Electricity Governance;
- electricity governance regulations; and
- the Electricity Governance Rules 2003.

Roles and responsibilities

Ministry of Economic Development

The Ministry of Economic Development's responsibilities in the electricity sector include:

- developing and implementing policies for the electricity sector, including the Government Policy Statement;
- reviewing and developing legislation to ensure that it reflects government policy;
- electricity governance regulations and the Electricity Governance Rules;
- monitoring electricity prices; and
- monitoring the performance of the Commission.

Electricity Commission

The Commission is responsible for giving effect to government policy. The Commission's responsibilities are:

- Governance: To give effect to the Government Policy Statement objectives and outcomes and to provide advice to the Minister of Energy on matters concerning the electricity industry. This includes formulating and making recommendations concerning electricity governance regulations and rules

in accordance with the Electricity Act 1992, and overseeing and enforcing compliance with electricity supply governance regulations and rules. This also includes developing best practice methodologies and other standards and model agreements for use by industry participants.

- Security of supply: To use reasonable endeavours to ensure security of supply, and the continuous normal operation of the market. This includes contracting for reserve energy, and not assuming any reduction in demand from emergency conservation campaigns. The Commission is also required to carry out forecasting and modelling of future electricity supply and demand, and promote conservation and the efficient use of electricity. This includes funding incentive programmes and managing emergency conservation campaigns to avoid supply shortages.
- Complaints: To approve one or more complaints resolution systems for the purpose of addressing complaints by any person about electricity retailers and/or distributors. This includes potential consumers, or owners and occupiers of land that may be used by electricity industry participants.

The Commission is responsible for establishing, operating, and facilitating the operation of markets for both industry participants and consumers. The Commission contracts and manages external service providers to operate the electricity system.

The Commission contracts a System Operator (currently Transpower) for the day-to-day operation of the electricity system.

The wholesale market involves bids to buy and offers to sell electricity. For that to happen, the Commission contracts the Pricing Manager to set final prices, the Reconciliation Manager to reconcile electricity volumes, and the Clearing Manager to carry out the process for settling accounts. The Commission contracts the Wholesale Information and Trading System to carry out information transfers, especially uploading bids and offers.

In the retail market, the Commission contracts the Registry to hold information on points-of-connection for consumers. The Registry enables consumers to switch retailers, and enables retailers to access the information they need to facilitate the switching process. The Commission appointed itself as Market Administrator in 2004.

Publications by the Auditor-General

Other publications issued by the Auditor-General recently have been:

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- How government departments monitor Crown entities
- Inquiry into immigration matters
- Central government: Results of the 2007/08 audits
- Annual Plan 2009/10
- Workforce planning in Crown Research Institutes
- Performance audits from 2007: Follow-up report
- Department of Corrections: Managing offenders on parole
- Housing New Zealand Corporation: Maintenance of state housing
- Annual Report 2007/08
- Ministry of Health: Monitoring the progress of the Primary Health Care Strategy
- Ministry of Education: Supporting professional development for teachers
- Inquiry into the West Coast Development Trust
- Maintaining and renewing the rail network
- Reporting the progress of defence acquisition projects
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