



1 JULY 2017 – 30 JUNE 2021

STATEMENT OF INTENT



WE WANT TO SEE A COMPETITIVE, RELIABLE AND EFFICIENT ELECTRICITY INDUSTRY FOR THE LONG-TERM BENEFIT OF CONSUMERS AND NEW ZEALAND

OUR STRATEGIC JOURNEY

- Completed section 42 initiatives
- Focused on improving security of supply and retail competition
- Launched What's My Number campaign

- Focused on efficiency, particularly in regards to barriers to new technology
- Focused on efficient pricing of distribution services
- Continued work on transmission pricing reform
- Reverted to a focus on security of supply
- Enhanced competition in retail and ancillary services



THE ELECTRICITY INDUSTRY IS MOVING AWAY FROM THE LINEAR SUPPLY MODEL THAT HAS CHARACTERISED ITS OPERATION FOR THE PAST 100 YEARS OR SO...

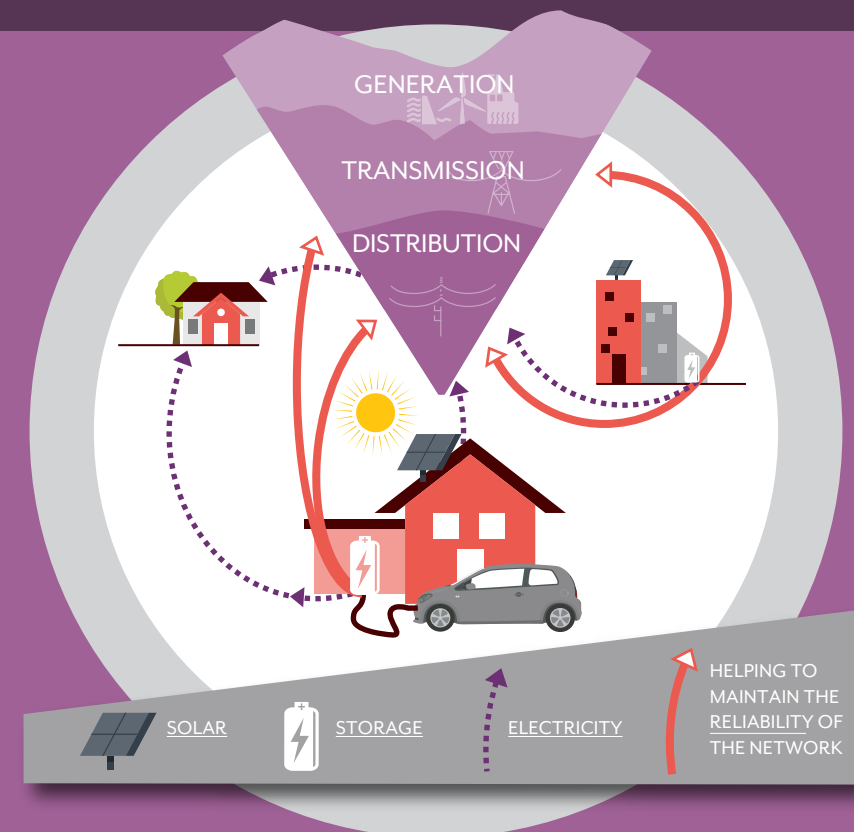


WHOLESALE MARKET
Electricity is purchased and sold on the wholesale market.



RETAIL MARKET
Retailers (power companies) sell electricity to consumers.

... TO A MORE DISPERSED MODEL WHERE TECHNOLOGY AND NEW BUSINESS MODELS ENABLE SMALLER-SCALE CONSUMERS AND OTHER PARTIES TO PARTICIPATE IN THE MARKET.



This Statement of Intent is a public accountability document required under sections 139 and 141 of the Crown Entities Act 2004. It outlines our long-term strategic intentions for the period 1 July 2017 to 30 June 2021. The Statement of Intent may be updated at any time, but no later than 1 July 2020.

For detailed financial and non-financial performance information, please see our *Statement of Performance Expectations*, which is published annually and is available on our website.

For further information about our work, visit www.ea.govt.nz

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Glossary and abbreviations

There are many technical terms used in the electricity sector and some of these occur in this document. To assist readers, a glossary and list of abbreviations are provided at the end of the document. In addition, we have a glossary of common electricity industry terms on our website at www.ea.govt.nz/glossary



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FOREWORD

We want to ensure there are no inefficient barriers to adopting new technologies

New and evolving technologies and business models create new opportunities for generating and using electricity, giving consumers far greater choice and control than ever before. They could also have significant implications for market participants, with the potential for new players to enter and grow market share. We expect to see significant changes in the electricity industry as more people embrace new technologies. To further support this development of competition and choice, we are continuing the award-winning What's My Number marketing campaign.

We want to ensure, as far as practicable, that decision-makers and consumers face efficient prices

As new and evolving technologies and business models empower consumers, we are increasingly focused on how various components in the electricity supply chain are priced. We want to make sure electricity pricing encourages people to use technology in a way that brings long-term benefits to consumers and New Zealand. For this reason, we are reviewing the guidelines for transmission pricing, and we are encouraging distributors to adopt more service-based and cost-reflective pricing for their services and consider refinements to spot market pricing.

We want to ensure robust market and regulatory incentives are in place to encourage efficient levels of security of supply

New Zealand has a high proportion of hydro-electric generation, but relatively low storage capacity in its hydro lakes. This means our electricity supply can be vulnerable in 'dry years'. Government and Electricity Authority market reforms have introduced a series of interventions to improve market incentives to address security of supply issues, but we cannot be complacent. We continue to focus on this area to ensure settings such as the stress testing and customer compensation regimes deliver the right outcomes, and market participants have the right information to make investment decisions. We are also working to introduce financial cap products for more robust, transparent and regular pricing of supply risks.



Brent Layton
Chair
8 June 2017



Lana Stockman
Member
8 June 2017



PART ONE

ELECTRICITY SECTOR CONTEXT



ELECTRICITY SECTOR CONTEXT

The New Zealand energy context

Electricity is one of the most capital-intensive industries in New Zealand, and one that is vital to all New Zealanders.

There are approximately:

- 1.7 million residential consumers
- 170,000 commercial consumers
- 77,000 agriculture, forestry and fishing consumers
- 41,000 industrial consumers.

Almost **\$7 billion** a year is spent on electricity.¹

The vital role of the electricity sector and the context of the Authority's work are summarised in the publication *Electricity in New Zealand*.²

Key challenges facing the electricity sector

Rapidly developing technology

The combination of smart metering, new energy management applications and sensors, small-scale solar power, batteries, smart water-heating-control systems, electric vehicles and other technologies is changing the way consumers engage with electricity markets.

Changing consumer expectations

Consumers' expectations about the reliability of their electricity supply, and about the services they want to buy, are changing rapidly.

Uncertainty

The electricity sector faces uncertainty about the prospects for the supply-demand balance, particularly with the ongoing uncertainty about the Tiwai aluminium smelter and the Huntly coal-fired generation units. Relatively static levels of electricity consumption and peak demand in recent years have seen the sector respond by revising investment plans and retiring assets.

¹ New Zealand electricity statistics are available on the Ministry of Business, Innovation and Employment website at: www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/statistics/electricity

² *Electricity in New Zealand* is available at: www.ea.govt.nz/about-us/media-and-publications/electricity-nz

Contributing to Government priorities and the business growth agenda

The Electricity Authority (Authority) contributes to the Government's priorities and the business growth agenda. The Government's four priorities are to:

- responsibly manage the Government's finances
- build a more competitive and productive economy
- deliver better public services
- rebuild Christchurch.

Supporting businesses to become more productive and competitive requires coordinated action across government. We work with the Ministry of Business, Innovation and Employment (MBIE) and other agencies to deliver functions that are central to strong economic performance.

Electricity regulation in New Zealand

We provide independent regulation and governance of the electricity industry and oversee the operation of the electricity system and markets.

A key focus of our work on setting the rules is to ensure a 'level playing field' for all electricity market participants, including new and potential entrants.

We are a third-tier legislator, as displayed below.

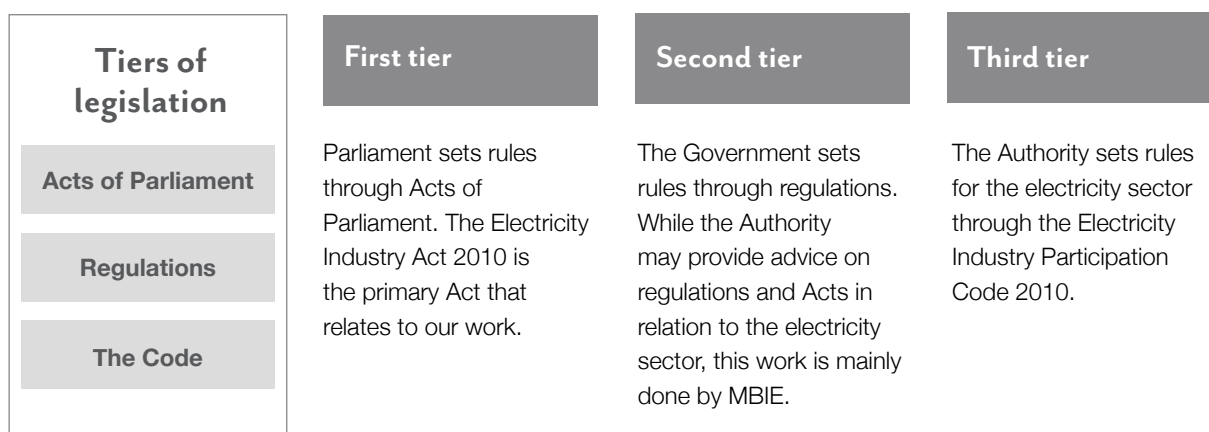
Our work needs to meet the requirements of legislation and best-practice guidance provided by central agencies³, the Office of the Controller and Auditor-General (OAG) and Audit New Zealand. The three key pieces of legislation applicable to our work are:

- the Electricity Industry Act 2010, which established the Authority on 1 November 2010 and sets out our statutory objective, roles and functions. The Act also provides for making and amending the Electricity Industry Participation Code 2010 (the Code)
- the Public Finance Act 1989, which defines the key accountability requirements for the state sector
- the Crown Entities Act 2004, which provides for the specific planning and reporting requirements for Crown entities, including statements of intent, statements of performance expectations and *annual reports*.

Our functions under the Act

Sections 16 and 18 of the Act set out our functions, which are to:

- maintain a register of industry participants
- develop and monitor market facilitation measures (such as providing education, guidelines, information and model arrangements)
- make and administer the Code
- monitor and enforce compliance with the Act, the regulations and the Code
- undertake industry and market monitoring, including reviews, studies and inquiries
- contract for market operation services and system operator services
- promote to consumers the benefits of comparing and switching retailers
- carry out reviews at the written request of the Minister of Energy and Resources (the Minister) on any matter relating to the electricity industry.



3 The central agencies are: the Treasury, the State Services Commission and the Department of the Prime Minister and Cabinet.

CLARIFYING OUR ROLE

Electricity Authority

We are an independent crown entity.

We regulate the electricity industry and oversee the operation of the electricity system and markets.

A key focus for our work on setting the rules is to ensure a 'level playing field' for all electricity market participants, including for new and potential entrants.

Outcomes we seek for consumers and New Zealand

We interpret our statutory objective as requiring us to exercise our functions in ways that, for the long-term benefit of consumers and New Zealand:

- facilitate or encourage increased **competition** in the markets for electricity and electricity-related services
- encourage industry participants to develop and operate the electricity system efficiently to manage security and **reliability**
- increase the **efficiency** of the electricity industry.

Pages 16—27 describe in more detail why these elements are central to our work.



Do we set electricity prices?

We promote competition so that electricity prices are reasonable. We don't set the prices paid by consumers, or regulate how much money power companies earn.

Do we set lines charges?

Distribution and transmission charges are sometimes shown separately on power bills. The Commerce Commission regulates the overall level of charges levied by 17 of 29 distribution companies and by Transpower New Zealand Limited (Transpower). The Authority approves the method Transpower uses to allocate its revenue requirements to its customers, and the Authority sets voluntary pricing principles for all distributors to use in deciding how to allocate their revenue requirements to their customers.



Do we give advice to consumers?

We run the What's My Number website to help consumers decide which power company is best for their circumstances. We don't give advice about which power company they should choose.



Do we resolve consumer complaints?

Utilities Disputes Limited is responsible for resolving consumer complaints. We provide some consumer-focused information on our website.



Do we decide when or where to build new infrastructure?

We work to ensure market participants can make well-informed investment decisions. The companies that own infrastructure, such as power stations and power lines, are the ones that decide when and where to build new infrastructure.



Do we favour specific types of generation?

The Government's *New Zealand Energy Strategy 2011-2021* aims for 90 per cent renewable generation by 2025. However, our work is neutral in relation to promoting, discouraging, subsidising or taxing one type of generation source, such as hydro or wind, over another.

The Energy Efficiency and Conservation Authority (EECA) encourages the use of efficient and renewable energy options, for example, electric vehicles, LED lighting and home insulation.



Do we favour different types of technology?

We work to reduce operational costs, and barriers to new technologies and business models entering the market. We don't favour any specific type of technology, such as solar panels or batteries, over others.

Other agencies in the electricity sector

MBIE is the policy adviser to the Government. MBIE's role also includes advising on Acts and regulations, and monitoring the Electricity Authority. See www.mbie.govt.nz

The Commerce Commission regulates monopoly suppliers of electricity lines services under the Commerce Act 1986. All electricity businesses serving residential consumers are subject to the Fair Trading Act 1986. See www.comcom.govt.nz

Transpower (a state-owned enterprise) provides the national transmission system. The Authority also

contracts Transpower as the system operator to provide the real-time coordination of generated electricity across the grid to meet demand. See www.transpower.co.nz

EECA works to improve the energy efficiency of New Zealand's homes and businesses, and encourage renewable energy uptake. See www.eeca.govt.nz

Utilities Disputes Limited offers a free and independent dispute resolution service to consumers. It is funded by a levy on providers that belong to the scheme. See www.utilitiesdisputes.co.nz





PART TWO

STRATEGIC INTENTIONS



STRATEGIC INTENTIONS

Our strategic framework

Our strategic framework, set out in Figure 1, shows our focus on ensuring the work we do achieves measurable results.

OUR STRATEGIC FRAMEWORK HELPS US TO ENSURE
EVERYTHING WE DO IS FOR THE LONG-TERM
BENEFIT OF CONSUMERS AND NEW ZEALAND

Figure 1: Our strategic framework

THE OUTCOMES WE SEEK

A competitive, reliable and efficient electricity industry for the long-term benefit of consumers and New Zealand

OUR STRATEGIES - HOW WE PURSUE OUR OUTCOMES

Reduce barriers

Improve consumer participation

Improve price signals

Increase flexibility and resilience

Maintain compliance

OUR FUNCTIONS - THE THINGS WE DO

1 Promote market development

2 Monitor, inform and educate

3 Operate the electricity system and markets

4 Enforce compliance

OUR VISION

To be a world-class electricity regulator, delivering long-term benefits to consumers and contributing to the New Zealand economy

HOW WE WORK

Our Stakeholders

Our People

Our Processes

HOW WE MEASURE RESULTS

Outcome measures:

see pages 16 – 27 of this document

Impact measures:

see pages 28 – 30 of this document

Output performance

measures: see pages 11 – 24 of the 2017/18 Statement of Performance Expectations (SPE)

Note: These functions are those covered by the *Electricity industry governance and market operations* appropriation (page 11 of the 2017/18 SPE). We have two other appropriations that are not used in the normal course of events:

Managing the security of New Zealand's electricity supply appropriation (page 22 of the 2017/18 SPE) funds actions by the system operator to address emerging or actual security events. Our function in relation to this appropriation is limited to reviewing any funding requests.

Electricity litigation fund (page 25 of the 2017/18 SPE) provides for costs and expenses for litigation. We do not deliver services or functions under this appropriation.

Performance

improvement goals: see page 37 of this document

COMPETITION

We focus on workable competition for buying and selling electricity.

We encourage competition in all electricity-related markets, including the retail electricity market, the spot market, hedge markets, the metering market and all ancillary service markets (instantaneous reserves, frequency keeping, voltage support and black start). Where possible, we also encourage competition in transmission and distribution services.

We facilitate or encourage increased competition in the markets for electricity and electricity-related services, taking into account long term opportunities and incentives for efficient entry, expansion, exit, investment and innovation in those markets.

Why is competition important?

Competition can lead to large value gains for consumers in the long-term, by driving firms to continually look for new and better ways to serve customers and to adapt quickly to technological innovations. Competition also assures consumers they are paying reasonable prices.

New retailers entering the market and existing retailers creating new and innovative offerings are signs of healthy competition, which benefits consumers. New retailers can help raise consumer awareness about options, and act as an incentive for existing retailers to offer competitive prices and improve their services or risk losing customers. Innovative retailers seek to better understand their customers and invest in new technologies and new partnerships to provide more value to their customers.



WE WANT CONSUMERS TO HAVE CHOICE

Retailers are offering innovative pricing plans, pre-pay electricity options and bundled product offerings to their customers.

Consumers have more choice than ever, and retailers are focused on providing greater flexibility to their customers.

We focus on improving competition because we want to make sure New Zealand consumers continue to have plenty of choices about how they get electricity, and how they use electricity.



To assess our progress towards achieving a more competitive electricity industry we have chosen the following measures of competition.

Table 1: Competition measures

High-level results sought	How we track results	Target	Results to date (2016/17 Annual Report)*
Widespread confidence among consumers in the competitiveness of electricity markets	Perception surveys: Percentage of survey respondents with an opinion on the matter who rate the electricity industry as neutral or better against the statements:	Overall improvement in survey results since Authority intervention began in 2011	Overall improving trend
	“The current level of competition among electricity generators ensures they build the most efficient power stations and generate electricity as cheaply as possible”		2011 result: 45% 2014 result: 51% 2017 result: 54%
	“The current level of competition between electricity retailers ensures that prices consumers pay only rise in line with costs to the electricity companies”		2011 result: 44% 2014 result: 45% 2017 result: 50%
Overall improvement across a suite of statistics on electricity market competition**	Measures covering residential, spot, hedge and ancillary service markets. Statistics will also address entry and exit data, dynamic efficiency and information about investment and innovation	Overall improvement in suite of competition statistics	There is an improvement in the suite of competition statistics

Notes

* Full results for each survey are available on our website at www.ea.govt.nz/about-us/corporate-projects

** The following suite of statistics will be reported in our *Annual Reports*:⁴

1. Retail market concentration (HHI statistic)	Improving trend
2. Retail market share (CR4 statistic)	Improving trend
3. Net pivotal analysis	Too early to confirm a trend
4. Hedge market concentration (HHI statistic)	Improving trend
5. Concentration in the ancillary services market (HHI of reserves statistic)	Improving trend in 2016/17
6. Number of retailers' approaches to consumers with offers to induce switching (measured by survey)	Steady

⁴ See the glossary for explanations of these statistics.

Our contributions and intentions

At the end of March 2017 there were 28 independent retailers operating in New Zealand. The market share for small and medium-sized retailers has increased substantially since 2009 and continues to grow. In comparison, the total market size of the largest five retailers has been steady in recent years, although each has lost considerable market share in the regions in which it had been the largest supplier.

We continue to run the award-winning What's My Number marketing campaign, which aims to provide consumers with information about their ability to switch power companies, the ease of switching and the potential savings that can be made on their power bills. New Zealand has one of the highest switching rates in the world.

We expect new and evolving technologies and business models to facilitate greater participation in electricity markets, and offer consumers far greater choices about when and how they use electricity, whether to produce and store their own electricity (eg, with solar panels and batteries) and whether to buy their electricity from other consumers in the same area (called peer-to-peer retailing) rather than from mainstream retailers that buy from the national wholesale electricity market. A growing number of consumers are installing smart appliances that can be programmed remotely, and there is a range of low-cost apps and digital devices for managing and monitoring electricity usage.

We want to understand if changes need to be made to the Code and our market systems and processes to allow new types of business—such as demand-response aggregators, distributed energy resources and energy services companies—to enter the market and expand. In addition, we are reviewing whether there are other barriers to competition,

such as the contractual arrangements that distributors have for using their monopoly networks or for providing support services to them.

We also expect to see further rapid advances in battery and smart hot-water-control-systems technology, and rapid reductions in the prices of these technologies, creating opportunities for consumers, retailers and energy services companies to compete to provide new services to electricity distributors. Traditionally, a network of 'poles and wires' connects homes and businesses to the local electricity network. But in the past couple of years battery technology and prices have changed greatly, such that there is now an exciting opportunity for electricity distributors to use batteries to defer or permanently avoid building more 'poles and wires'.

We are seeing more innovation, as retailers are increasingly using a variety of media and marketing techniques to target specific audiences. Likewise, business models are changing to offer more value to groups of consumers.

We are also working on refinements to the hedge market.⁵ The development of the hedge market has been led by participants with strong encouragement and support from the Authority and has encompassed a wide range of initiatives. To foster greater competition, we have been encouraging the hedge market to make some types of hedge contract readily available every business day to help with providing a 'level playing field' for all electricity market participants. Similarly, we have been encouraging the hedge market to offer cap contracts regularly to provide market participants with better information about security of supply and better incentives to make decisions consistent with promoting efficient levels of security of supply.

⁵ A hedge market is a market in which hedge contracts are bought and sold. Hedge contracts specify how much money a party must be paid when the spot price of electricity deviates from the price specified in the hedge contract. Like insurance contracts, hedge contracts are a mechanism for parties buying/selling electricity from/to the spot market to reduce (or 'hedge') their exposure to movements in spot prices.

RELIABILITY

We seek efficient levels of supply reliability for consumers.

Reliable supply refers to both the reliability of supply (in terms of the physical continuity and quality of supply) and the security of supply (ie, the risk of supply shortages, placing upward pressure on electricity prices).

We facilitate and encourage industry participants to develop and operate the electricity system efficiently to manage security and reliability in ways that minimise total costs while being robust to adverse events, such as a severe drought, major storms, an earthquake or a cyber-attack. Being resilient to adverse events includes having a good business continuity plan to ensure Code obligations are still met.

One of our appropriations is about *Managing the security of New Zealand's electricity supply*, which is intended to achieve enhanced security of supply during periods of emerging or actual security situations. These events are expected to be rare, so we don't draw on this appropriation in the normal course of events. The appropriation allows us to address requests from the system operator to use funds to provide its security monitoring and emergency management duties.

Why is reliability important?

Reliability is important because homes and businesses are highly dependent on having a continuous supply of electricity to operate computers, phones, lights, heating, cooling, and other appliances and equipment. The home of the future will use electricity very differently (as discussed on page 19). For example, consumers can use smart phones to set the temperatures of their heat pumps remotely, no matter where they are. As consumers increasingly embrace new and evolving technologies, they need—and expect—a reliable electricity supply. In 2013 we published survey results that indicated an eight-hour power outage would cost the average residential consumer hundreds of dollars.⁶

New Zealand has a high proportion of hydro-electric generation, but a relatively low level of storage capacity in its hydro lakes. This means that we must manage our electricity supply carefully in 'dry years'.

New Zealand has experienced significant dry years in the past decade—seasons when there was low rainfall in parts of the country that led to low levels of water flowing into our hydro lakes. Understandably, dry years are a concern for consumers and the electricity industry.

The threat of a dry year is not taken lightly, so we have measures in place to provide the information and incentives generators and other parties need to manage New Zealand's hydro lakes prudently in the lead-up to and during dry-year episodes.

⁶ This compares with electricity charges in the order of tens of dollars if the power had remained on. The survey results are available on our website at: www.ea.govt.nz/about-us/what-we-do/our-history/archive/dev-archive/work-programmes/transmission-work/investigation-of-the-value-of-lost-load

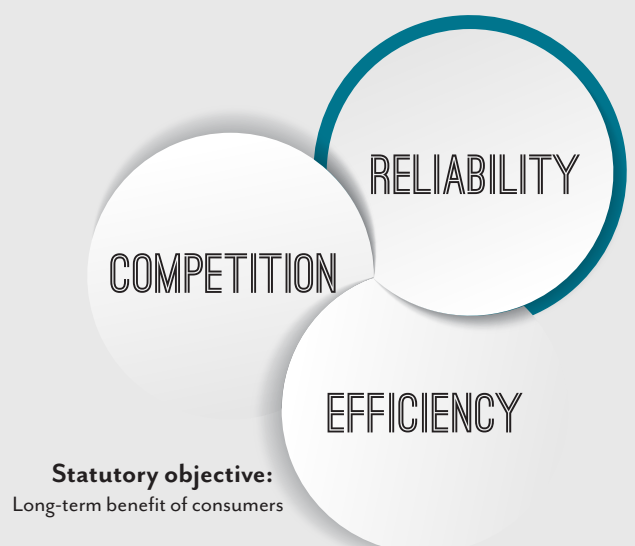


WE WANT THE LIGHTS TO STAY ON

The national grid has almost 100 per cent average service availability.

On average, New Zealand consumers experience a power cut for less than three hours per year. Of course, some consumers experience much longer outages in some years and other consumers experience no outages for many years.

We focus on encouraging efficient levels of reliability because we know that electricity is a critical service for New Zealand consumers.



To assess our progress towards achieving a more efficient level of reliability we have chosen the following measures of reliability.

Table 2: Reliability measures

High-level results sought	How we track results	Target	Results to date (2016/17 Annual Report)*
Widespread acceptance among consumers of efficient levels of supply reliability	Perception surveys: Percentage of survey respondents with an opinion on the matter who rate the electricity industry as neutral or better against the statements:	Overall improvement in survey results since Authority intervention began in 2011	Overall improving trend
	“There is a reliable supply of electricity each day, that is, a good balance is achieved between the cost of power cuts versus the cost of maintaining electricity supply”		2011 result: 60% 2014 result: 74% 2017 result: 75%
	“There is enough electricity to meet ongoing needs, that is, a good balance is achieved between the cost of having some power stations sitting idle most of the time against the cost and risk of power shortages when there is a long drought that limits hydro-generation”		2011 result: 51% 2014 result: 62% 2017 result: 61%
Overall improvement across a suite of statistics on efficient levels of reliable electricity supply**	Measures of security and reliability, covering short-term service interruptions on the distribution network, transmission system reliability, resilience to emergency events (including dry years) and assessment of efficient investment in reliability	Overall improvement in suite of statistics on the efficiency of security and reliability levels	There is an improvement in the suite of reliability statistics

Notes

* Full results for each year are available on our website at: www.ea.govt.nz/about-us/corporate-projects

** The following suite of statistics will be reported in our *Annual Reports*:⁷

1. Pricing in scarcity events reflects opportunity cost, as measured by case-by-case analysis	One event in 2014/15, in which the market performed as expected
2. Effective management of dry years or emergency events, as measured by case-by-case analysis	Early 2015 storage reviewed, and the market performed as expected
3. Capacity and energy margins are within efficient bounds or are moving towards those bounds, as measured by the annual security assessment	Standards set by the Authority are being exceeded
4. Investigation of reliability events does not identify systemic issues, as measured by case-by-case analysis	One review completed and results being addressed

⁷ See the glossary for explanations of these statistics. Detailed explanations, statistical information and analysis are contained in the annual electricity market performance reviews, available at www.ea.govt.nz/monitoring/year-in-review

Our contributions and intentions

Electricity consumers benefit from having a reliable supply of electricity provided at efficient costs. We are focused on ensuring the electricity market has the right incentives, signals and information flows to provide an efficient level of reliability to consumers.

Currently, two mechanisms contribute to security of supply: the customer compensation scheme (CCS) and the stress testing regime. The CCS requires electricity retailers to pay their customers \$10.50 per week for every week that an official conservation campaign occurs.⁸ The stress testing regime requires parties purchasing from the spot electricity market—electricity retailers and several industrial consumers—to calculate their exposure to high spot prices in scenarios defined by the Authority for each forthcoming quarter. In 2015/16 we decided it was prudent to review both mechanisms because of recent and potential future closures of thermal generation plans.

We are also working closely with the Australian Securities Exchange (ASX) to introduce financial cap products. Cap products allow buyers on the spot electricity market, eg, electricity retailers, to pay spot market prices generally but protect themselves against large, unexpected increases in spot prices. Introducing cap products should result in more robust, transparent and regular pricing of supply risks. In addition, it is likely to provide greater transparency about the market's view of future supply conditions and the cost of using 'back-up' generation and demand-response services to reduce the risk of future supply shortages.

As discussed on page 27, we are working on improvements to automatic under-frequency load shedding (AUFLS). While the key focus of this project is on improving efficiency, it is worth noting that AUFLS is also a key mechanism to promote system reliability.

⁸ To qualify for the default CCS, a customer must have had a minimum level of consumption in the previous year of 3,000 kWh.

EFFICIENCY

We are continuously focused on efficiency improvements in the electricity industry.

We are seeking wholesale and retail electricity markets, and transmission and distribution arrangements, that are efficient mechanisms for coordinating electricity production and consumption, and for facilitating timely and innovative investment in the electricity system.

Efficiency measures apply in particular to parts of the market without workable competition (as a good level of efficiency is expected to follow in the other parts of the market where there is workable competition).

We take into account the transaction costs of market arrangements, the administration and compliance costs of regulation and the Commerce Act (1986) implications for the non-competitive parts of the electricity industry.

Why is efficiency important?

Ongoing innovation and efficiency improvements deliver large value gains to consumers in the long term. This requires consumers to face prices for the various types of service they receive, and for those prices to reflect the costs of the services they've used, so that they get the benefits of the efficiency gains and so that their own choices can be more efficient.

In an innovative and transparent marketplace, consumers should be able to make informed choices and play a part in deciding the future of existing and competing services and technology. This is particularly important if the competing assets are more efficient than the existing assets.

From an operational point of view, efficiency is important because it means that existing resources and investments aren't unnecessarily wasted, and better outcomes are more likely to be achieved.



WE WANT PRICES TO REFLECT SERVICES AND COSTS

Efficient pricing means that consumers should see electricity prices that reflect the capacity of the electricity system serving them, and the costs of supplying the electricity they've used.

We're looking forward to further engagement with participants and expect it to be a fascinating and thought-provoking time of change for the industry.

We focus on improving efficiency because it leads to lower costs for New Zealand consumers.

Statutory objective:
Long-term benefit of consumers

COMPETITION

RELIABILITY

EFFICIENCY

To assess our progress towards achieving a more efficient electricity industry we have chosen the following measures of efficiency.

Table 3: Efficiency measures

High-level results sought	How we track results	Target	Results to date (2016/17 Annual Report)*
Widespread recognition by consumers that electricity markets and transmission and distribution arrangements are efficient	Perception surveys: Percentage of survey respondents with an opinion on the matter who rate the electricity industry as neutral or better against the statements:	Overall improvement in survey results since Authority intervention began in 2011	Overall improving trend
	“The New Zealand electricity market ensures that the right mix of power stations is built in time to meet growing demand for power”		2011 result: 43% 2014 result: 54% 2017 result: 56%
	“The New Zealand electricity market ensures electricity is generated and supplied efficiently”		2011 result: 66% 2014 result: 72% 2017 result: 77%
Overall improvement across a suite of statistics on electricity system and market efficiency**	Measures relate to monitoring whether prices relate to costs at all times Measures will include the costs and benefits of operating the electricity system and markets	Overall improvement in suite of statistics on operational efficiency	There is an improvement in the suite of efficiency statistics

Notes

* Full results for each year are available on our website at: www.ea.govt.nz/about-us/corporate-projects

** The following suite of statistics will be reported in our *Annual Reports*:⁹

1. Robust futures prices	Market performing as expected
2. Dry-year prices reflect storage levels, as assessed by case-by-case analysis	Market performing as expected
3. Exceptional prices are justified by underlying fundamentals, as assessed by case-by-case analysis	Market performing as expected
4. Reducing constrained-on compensation	Overall ancillary service costs have fallen since 2012
5. Increased occurrence of demand bids setting spot prices	Not yet measured

⁹ See the glossary for explanations of these statistics. Detailed explanations, statistical information and analysis are contained in the annual electricity market performance reviews, available at www.ea.govt.nz/monitoring/year-in-review

Our contributions and intentions

We are considering ways to achieve better investment and operational efficiency in the electricity industry, particularly in the monopoly parts of the sector.

The current method to calculate transmission pricing is complex and sends the wrong price signals, resulting in wasteful investment. The current transmission pricing methodology isn't sustainable in the face of the rapidly falling cost of evolving technologies, such as batteries, and also because the charges are unrelated to the services delivered to customers. We propose to alter the way transmission charges are shared among transmission customers so that charges are linked to the transmission services delivered and the costs involved.

The need for efficient distribution pricing is also pressing, as new technology gives people more choice and control over electricity. The pricing of electricity distribution needs to encourage consumers to invest in technology in ways that have long-term benefits for all consumers. Distribution charges could rise by up to

30 per cent in the next 10 years if the current structure of distribution prices remains. This would result in a 10 per cent increase in residential electricity bills. We are urging distributors to take action and discuss future options with retailers and their communities.

From an operational perspective, we are working with the extended reserve manager (see page 47) and system operator (see page 47) to implement a new extended reserve regime. Although AUFLS is currently the only type of extended reserve product, we have adopted the more generic term (extended reserve) so as to not limit the introduction of other products and services in the future. The new extended reserve regime will provide a more efficient method for restoring the balance between supply and demand when sudden and unexpected events occur that disturb the electricity system. The changes will increase power system security and reduce the likelihood of the North Island ever experiencing a total blackout.¹⁰

10 The current focus is on the North Island as Transpower manages the AUFLS system in the South Island.

OUR STRATEGIES – HOW WE PURSUE OUR OUTCOMES

Our strategic framework outlines the five key strategies that we focus on as we pursue our outcomes for the long-term benefit of consumers and the New Zealand economy.

1. Reduce barriers

We want to facilitate the entry, expansion and exit of parties in electricity markets, especially for new and potential entrants. By focusing on reducing barriers we provide the conditions for innovation in business models, whether by retailer or non-traditional businesses wanting to supply electricity-related products or services. This will lead to more options available to electricity consumers to do what they want to do.

To achieve this we will continue our work towards reducing inefficient barriers to parties wanting to generate, store, transport and purchase electricity. This also includes removing any inefficient barriers to residential consumers purchasing directly from the wholesale electricity market, or directly from their neighbour or a local generator.

2. Improve consumer participation

Consumer participation is important because consumers who are actively participating in markets put pressure on suppliers to compete more vigorously and to innovate. Enhancing competitive markets can then make it easier for consumers to choose the electricity suppliers and prices that are right for them.

We aim to improve consumer participation by improving consumers' access to markets, and to make it easier for consumers to make choices.

3. Improve price signals

We believe it is important that the prices for distribution and transmission services be service-based and cost-reflective. Achieving this will assist consumers to base their decisions on better information about the true cost of their decisions, and encourage consumers to invest in technology in ways that have long-term benefits.

Also, to improve price signals we will consider introducing more advanced spot market pricing arrangements, bringing new products onto the hedge market, establishing new markets (where efficient and practicable) and publicising price data and information.

4. Increase flexibility and resilience

We are focused on increasing the flexibility and resilience of the electricity market and electricity systems so they are able to respond efficiently to changing circumstances and unexpected events. More flexible market arrangements will be better able to respond to changes in market circumstances, such as an increase in the number of industry participants from the current 130 to a possible 1,300. This is a plausible scenario given the adoption of technologies and innovation in business practices. More resilient market arrangements will be better able to respond to unexpected events, such as the sudden exit of a large retailer.

We aim to improve flexibility and resilience by putting measures in place that allow electricity industry participants to respond more efficiently to changing market circumstances, and to make sure systems and practices can respond to the unexpected.

5. Maintain compliance

Compliance plays a key role in promoting the integrity of the electricity markets.

The technological environment and the way consumers engage with electricity markets are changing, such that in the near future we may see the number of market participants increase from the current 130 to thousands. As such, it's important to maintain compliance in this ever-changing environment. A key risk of non-compliance is that innovation is stifled, but heavy-handed compliance can also stifle innovation and new competitors.

We seek to encourage continuous improvement among industry participants so they are 'learning' when things go wrong, including taking action to avoid any recurrence.

We seek always to follow a good compliance process so that we can:

- encourage settlement agreements between parties
- deal with breaches in the appropriate manner in regard to their level of severity.

Measuring progress with our strategies

Table 4 shows our five broad strategies for promoting competition, reliability and efficiency in the electricity industry. It also includes the impact measures we will use to track progress.

Reporting on impact measures includes a mix of statistical analysis and qualitative assessments. This includes drawing on the results of post-implementation and post-event reviews where relevant. We use post-implementation reviews to assess the medium- to long-term impacts of our work. We also use these reviews to focus on key market development initiatives where the greatest benefits and impacts are expected.

Many factors outside our work influence the results, often making it difficult to identify the impact of our work robustly. Where relevant, we provide commentary on these external influences in our *Annual Reports*.

Table 4: Strategies and impact measures

Contribution to objective			Strategies	2017 – 2021 impact measures
Competition	Reliability	Efficiency		
✓			Reduce barriers	<ul style="list-style-type: none"> Improved information availability, eg, on the Electricity Authority's website and EMI More and varied participants providing new services to consumers, eg, new retailers entering the market, and new products being offered Improved risk management, eg, increased hedge market participation* Improved participation in a range of electricity markets, eg, demand-side participation in a range of markets**
		✓	Improve consumer participation	<ul style="list-style-type: none"> Increased consumer awareness and understanding Improved consumer participation in markets beyond simply consuming electricity
		✓	Improve price signals	<ul style="list-style-type: none"> Increased range of products or services that provide price signals, eg, exchange-traded products*** Reduced instances of inefficient prices, including during scarcity events Increased accuracy of price forecasts**** More cost-reflective price signals for residential and SME consumers
	✓		Increase flexibility and resilience	<ul style="list-style-type: none"> The customer transfer process works effectively in the event of retailer default Improving the cost and effectiveness of the frequency management regime***** Market services are resilient to adverse events, as measured on a case-by-case analysis Increased diversity of suppliers, supporting efficient power system resilience
✓	✓	✓	Compliance	<ul style="list-style-type: none"> Downward trend in frequency of non-compliance (same type of event, same participant) Downward trend in the number of serious breaches Increased awareness of the Act, regulations and Code among participants

Notes

* The buying and selling of wholesale electricity is done via a 'pool' for each half-hour for each grid point of connection, where electricity generators offer electricity to the market and retailers and direct-connects bid to buy electricity. This market is called the spot market. This can expose buyers to very high (or very low) prices at times. Risk management is used to manage the risk of high and low prices, eg, through futures/hedge contracts.

** Demand-side participants: participants who modify their usage in a way that reduces consumption in a specific time period or shifts consumption from one time period to another. Ancillary services: The system operator contracts individual participants to provide five ancillary services essential to maintaining the common quality of electricity supply. These services are black start, over-frequency reserve, frequency-keeping reserve, instantaneous reserve and voltage support. Improving the ability and willingness of participants to compete in these markets will improve reliability and efficiency.

*** For example, the ASX New Zealand electricity futures market has a quarterly hedge product with prices listed for every quarter for 3.5–4 years in the future, which are traded and settled daily. The Authority encourages the development of new products to meet consumer risk management needs, such as new hedge products on the futures market.

**** The wholesale electricity market produces forecast electricity prices ahead of and during each half-hour trading period. Prices are typically finalised two days after the trading period. The Authority seeks to ensure that the design and operation of the wholesale electricity market encourages accurate forecast prices.

***** Frequency management services are ancillary services contracted by the system operator.



OUR FUNCTIONS = THE THINGS WE DO

Our four main functions, or outputs, are summarised below and further details are provided in our annual *Statement of Performance Expectations (SPE)*.

1. Promote market development

Our promote market development function supports all of our strategies.

We have two key tools at our disposal to develop the market: amending the Code; and introducing market facilitation measures.¹¹ As new technology and a greater diversity of business models enter the market we are likely to find that market facilitation measures will be better instruments for pursuing desired outcomes than Code amendments.

We will continue to place emphasis on monitoring the results of our initiatives, investigating market events and assessing market performance. Monitoring work will continue to be used to inform further Code or market facilitation initiatives, where warranted. Post implementation reviews of our initiatives are conducted after initiatives have had time to bed-in.

We expect that technological advances and new business models will continue to proceed. These have the potential to be transformative, creating new opportunities and potentially significant change. We will need to move quickly to address potential barriers to evolving technology.

¹¹ Market facilitation measures include non-Code initiatives such as guidelines and model arrangements, and working directly with participants to develop desired results.

These developments require a significant commitment to market development, particularly in the retail and distribution markets, and a continued emphasis on the ongoing efficient pricing and operation of the electricity system and markets.

Our five market development work programmes are:

- (a) Evolving technologies and business models.** This programme covers initiatives to reduce barriers to the development and use of evolving technologies and new business models across the supply chain. This includes barriers that secondary networks and generators experience when dealing with distributors.
- (b) Consumer choice and competition.** This programme covers initiatives to promote competition and empower consumer choice in the retail market.
- (c) Pricing and cost allocation.** This programme covers initiatives to promote the efficient pricing in markets and for monopoly services.
- (d) Risk and risk management.** This programme covers initiatives to promote efficient management of capacity and energy risks through the physical electricity and hedge markets.
- (e) Operational efficiencies.** This programme covers initiatives to improve the operation of the electricity markets that are not covered in the above work programmes.

2. Monitor, inform and educate

Our *monitor, inform and educate* function supports all of our strategies.

Transparency and understanding are vital to ensure the competitive, reliable and efficient operation of the electricity market. Our market monitoring, information and education work focuses on making data, information and tools available and improving awareness and understanding of how electricity markets function.

Making data available is also a key means of supporting innovation. We monitor market behaviour and performance with respect to innovation, including new technologies and business models. We also monitor market behaviour and performance with respect to security and reliability.

Our market analysis function improves understanding by identifying behaviours that are potentially inconsistent with our statutory objective. It also provides appropriate feedback to the market development work.

We may also undertake reviews of any matters relating to the electricity industry that are requested by the Minister under section 18 of the Act.

We have an ongoing commitment to consumer and participant education. We commenced a consumer education programme in 2015/16 and continue to make relevant information available to consumers. We also have an ongoing commitment to participant education, including providing information on the operation of the Code, the market and market systems and processes, through workshops, training, publications and the web.

3. Operate the electricity system and markets

Our *operate the electricity system and markets* function indirectly supports all of our strategies.

We are responsible for the day-to-day (real-time) efficient and reliable operation of the electricity system and markets. To achieve this, we contract out some services, as listed on page 47. Efficient and reliable day-to-day operations are fundamental to ensuring effective competition.

We work closely with industry stakeholders and service providers to ensure services are delivered to the expected high standards.

4. Enforce compliance

Our *enforce compliance* function indirectly supports all of our strategies.

We focus on ensuring the Act, the regulations made under the Act, and the Code are accurately and consistently applied. We have a proportionate, risk-focused compliance framework. While participants are obliged to report breaches, we also investigate issues and trends to identify breaches and their causes. What we learn from our compliance function also feeds into participant education, and the identification and resolution of ongoing and systemic issues.

Our *Electricity litigation fund* appropriation ensures we can participate in litigation effectively and without delay. It allows us to defend cases against the Authority and take enforcement action under our *enforce compliance* function.

Measuring our functions

Our annual SPE details our intended operations for the financial year and the performance measures we intend to achieve for each of our functions. We publish results in the *Annual Report*.

THE WAY WE APPROACH OUR WORK

We are principles based

We have published Code amendment principles in the *Consultation charter* to promote certainty on the development of the market and the Code, and to help parties make investment decisions.¹²

Wherever feasible, we estimate costs and benefits for Code amendment proposals, and we apply 'tie-breaker' principles when this quantitative approach isn't feasible or decisive. We adopt small-scale trial and error approaches if possible, and we favour greater competition, market solutions, and flexibility to allow innovation and non-prescriptive solutions.

¹² Available at www.ea.govt.nz/about-us/strategic-planning-and-reporting/foundation-documents

When we make robust and durable decisions it creates a more predictable environment for investors to make decisions about developing electricity infrastructure that may have a 30- to 50-year life. This behaviour ensures ongoing reliability and efficiency for the long-term benefit of consumers and New Zealand.

We consult stakeholders

We continually consult consumers, industry participants and other stakeholders. As such, the rules we develop must be practical, robust and enduring, and that the industry is well prepared to implement.

We use advisory and technical groups extensively in developing our work programme and on specific projects. Our advisory groups, as discussed on page 46, include independent consumer and industry representatives, have independent Chairs and provide advice to the Authority Board. Our *Charter about advisory groups* further explains their role.¹³

We have a robust practice of consultation on our proposals, usually allowing a minimum of six weeks for consultation processes. We may consult more than once, particularly if an initial consultation identifies new issues or risks.

Our *Consultation charter* explains how we consult on and finalise market development initiatives, including amendments to the Code.

We are strategically focused

Our strategic focus enables the development of a robust, durable electricity sector that meets the needs of today's and future generations of consumers.

Our market development initiatives can take several years to deliver the expected benefits and as such we must have a longer-term view.

We apply our strategic focus to a detailed work programme, setting out key programmes for market development as well as ongoing functions in providing market services, compliance, monitoring, information provision and education.

We are transparent

We are highly transparent in our work. Our website provides information about our plans, our reports to Parliament and our work programme and the various projects we are working on. The Consumers section of our website provides clear, plain English information on the electricity market and our work.¹⁴

Advisory and technical groups provide input from relevant experts and interest groups, including consumer representatives and electricity industry participants. We also consult extensively during our development work, including holding public workshops and forums. While our work is often technical, we work to present it in plain English for a general audience whenever possible.

We also make electricity sector information transparent. For example, we collect and make freely available a wide range of data to help make the sector more competitive and innovative. Our dedicated Electricity Market Information (EMI) website includes extensive sets of market data. We investigate and report on unusual events, which could lead to compliance action or recommendations for market development work.

We focus on results

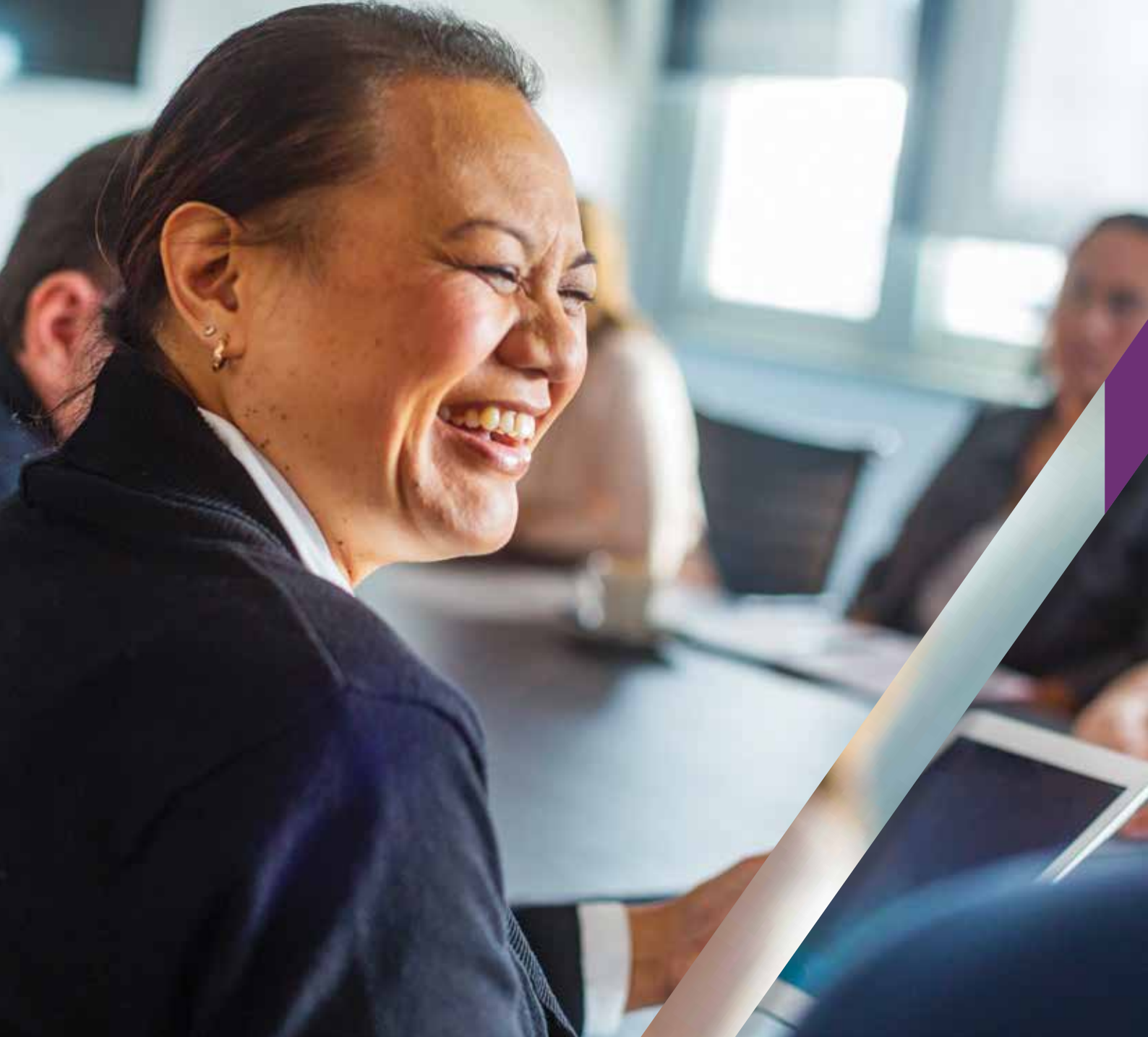
We have an ongoing focus on monitoring the results of our initiatives. If our monitoring indicates issues in any areas covered by earlier strategic phases, we investigate and carry out further work if required. The electricity sector is complex and iterative refinement can be expected as a matter of course, particularly for major changes affecting participants.

We use a combination of survey tools and statistical analysis to measure results. Our impact measures are a mix of quantitative analyses and qualitative assessments. Multiple factors can influence results, and the cause-and-effect relationship between our work and measurable change may take several years to become clear. As expected, factors outside our control can, and do, influence results.

We work hard to ensure high-quality business-as-usual services for market services, compliance, monitoring, information and education.

¹³ Available at www.ea.govt.nz/about-us/strategic-planning-and-reporting/foundation-documents

¹⁴ The Authority's website is available at www.ea.govt.nz



PART THREE

ORGANISATIONAL CAPABILITY

ORGANISATIONAL CAPABILITY

We constantly work towards achieving our vision of being a world-class electricity regulator, delivered through our organisational capability focus areas of our stakeholders, our people and our processes. This is illustrated in Figure 2.

To guide this work, we conducted an organisational Performance Improvement Framework self-review in 2014/15.¹⁵ This helped us to define the areas of focus for our organisational development programme. We have identified eight performance improvement goals that we aspire to. These are illustrated in Table 5.

Figure 2: Our Path to world-class



¹⁵ State Services Commission organisational improvement model; see www.ssc.govt.nz/pif

Table 5: Our performance improvement goals

Contribution to capability			Performance improvement goal
Our stakeholders	Our people	Our processes	
	✓		1. We have capable leaders at all levels who communicate consistent messages to all staff, reinforced by leaders' actions.
	✓		2. We're a values-based organisation with leadership that inspires staff to achieve high performance while maintaining healthy, sustainable workloads.
		✓	3. Our focus on excellence supports and encourages our people to work together to consistently and boldly 'find a better way'.
✓			4. Our organisation effectively measures and reports its progress towards achieving world-class.
		✓	5. We strategically use information and communications technology and knowledge management to integrate and enable our business to deliver excellent and sustainable outcomes.
	✓		6. Our leaders work to achieve a balance across strategic, operational, financial, market and staff outcomes.
		✓	7. We use fit-for-purpose project management practices, business cases, cost-benefit analyses and budget management to ensure we deliver accurately on identified project deliverables, on time and within budget.
✓			8. We are focused on meeting the current and future needs of our various stakeholders.

Our stakeholders

Effective engagement with stakeholders is an essential ingredient to being a world-class electricity regulator. Sound, professional, ongoing relationships with consumer representatives, industry participants and other government agencies assist us to develop effective improvements for the New Zealand electricity market.

We have published our foundation documents to provide stakeholders with information on how we interpret our statutory objective, consult, develop Code and market facilitation measures, and work with advisory groups.¹⁶

We continue to evolve both the range of stakeholders we work with and the methods we use to engage with them, so we can ensure high standards are continually met.

We are increasingly focused on ways to communicate and engage with New Zealand consumers. We look for opportunities to explain how the electricity market works and how it is performing. We use online and media channels to help us explain our work and, in particular, the long-term benefits we are seeking for consumers and New Zealand.

¹⁶ The foundation documents are available at www.ea.govt.nz/about-us/strategic-planning-and-reporting/foundation-documents

Our people

We value our people and strive to provide an open and supportive workplace and culture that enable a high level of contribution. Our work standards are high—in keeping with the magnitude of the issues we address.

We have a talented, multicultural team with diverse backgrounds, skill sets and knowledge. These qualities are invaluable in completing our challenging work programme.

Our staff contribute to a range of policies and processes to ensure that we are a good employer. We invite staff to participate in and comment on draft documents, formal working groups, regular staff meetings and forums.

Recruitment and development

We seek to recruit and retain the best person for each role. We provide a comprehensive induction programme and offer ongoing development to ensure staff are challenged and equipped for future roles. The recruitment process ensures roles are open to both internal and external applicants, and is transparent, fair and mindful of equal employment opportunity principles and processes. These principles are supported and demonstrated by the human resources team and senior staff.

All staff have agreed development plans. These can include training courses, development opportunities in cross-team project groups, and opportunities to act in more senior roles. In-house training is implemented as appropriate. Development opportunities are available to all.

We expect employees to meet high professional standards in both work ethic and workplace behaviour, which reflect our values.

Recognising the importance of a healthy work-life balance, we also provide a staff support package encouraging an awareness of health and wellbeing. Regular reviews ensure ongoing relevance.

Recognition and involvement

We take time to recognise achievements and celebrate successes. Staff members are supportive of each other and seek to work in a collaborative manner.

Where possible, non-standard work arrangements are considered and are implemented if reasonable and practical. Staff dealing with exceptional circumstances and those returning from parental leave, injury or serious illness are supported in their integration back into the workforce.

We run annual salary reviews for all staff. The process is moderated to ensure it is fair, consistent, objective and mindful of the wider financial climate. Independent job evaluation and market information contributes to this process.

We are mindful of our position as an independent Crown entity and seek a balance between providing conditions of employment to attract, retain and develop staff and avoiding excessive spending.

Safe and healthy environment

We provide a safe and healthy work environment.

We have a health and safety committee, comprising staff and managers, which develops and implements emergency plans, training and ongoing staff support programmes. Committee members are also responsible for identifying and recording hazards and ensuring that they are eliminated. The Senior Leadership Team and Board both receive regular risk reports.

We provide a comprehensive health and safety briefing to new staff, and we encourage and support an active and healthy lifestyle. All staff have access to an employee assistance scheme, occupational health professionals for workstation set-up as required, and support material on the intranet.

All staff receive code of conduct and harassment and bullying information at induction. This information outlines acceptable standards of behaviour, processes to address issues and the consequences of unacceptable behaviour. Appropriate processes are in place to deal promptly and fairly with any potential harassment or bullying.

Our processes

We strive to ensure that our systems, tools and processes support international best practice. This will lead to improved efficiency, productivity and quality.

Whole-of-government initiatives

We contribute to and address whole-of-government initiatives such as those led by the Government Chief Information Officer and Government Chief Privacy Officer, and procurement guidance provided by MBIE.

Capital and asset management

The Authority's assets have a combined acquisition cost of approximately \$29 million (as at 30 June 2016). Assets comprise property, plant, equipment and intangible assets. Of these assets, the Authority directly manages capital assets with a combined acquisition cost of less than \$4 million.

The most significant assets, in both value and criticality to the Authority's functions, are the software, perpetual software licences and systems used by service providers to facilitate the operation of the electricity markets: the wholesale information trading system (WITS), reconciliation manager, pricing manager, clearing

manager, registry manager, financial transmission right (FTR) manager and extended reserve manager. These market services are provided under contract by NZX¹⁷, Jade¹⁸ and Energy Market Services.¹⁹

An important feature of the contracts is that the service providers ensure the systems, on a continuing basis, function, operate and perform so that the services are delivered in accordance with performance standards. This includes providing the hardware and other supporting infrastructure.

The real-time coordination of the electricity system is also a critical function for the Authority, carried out under contract by the system operator, Transpower. Unlike the market services, the Authority does not own the system operator assets. The Authority does, however, work closely with the system operator in the development of its capital plan. The Authority completed negotiations with Transpower in February 2016 for a new system operator contract that came into effect in July 2016. The new contract introduces stronger commercial disciplines to encourage operational and investment efficiencies, and requirements for more engagement with stakeholders when the system operator is seeking to enhance its services through investment in existing or new systems.

Value for money

We manage our funding prudently. We carefully balance efforts to restrain our spending with the need to continue to progress important work. The Board continues to commit to holding the Authority's own operating costs constant, and reports transparently on this. We also continue to work hard with our service providers to ensure value for money for the services provided.

Improving effectiveness and efficiency crosses all functional areas.

The cost effectiveness of our work is assured through:

- Appropriation consultation: planned work priorities and appropriations are scrutinised through public consultation in accordance with section 129 of the Act.
- Robust use of planning, project management and procurement disciplines.

- Review of cost drivers: work priorities, costs and benefits for major projects and business-as-usual activities are closely scrutinised as part of the development of the work programme and project planning.
- Assessment of proposed Code amendments and market facilitation measures: benefits and costs of proposed Code amendments are scrutinised through public consultation in accordance with our *Consultation charter*.
- Joint procurement: where practical and cost-effective, we work with other agencies on joint procurement and shared services.
- Taking up all-of-government procurement offerings, where applicable.
- Sharing IT support services with the Commerce Commission.
- Exploring other shared service opportunities as these arise.

Resource allocation focuses on ensuring that core outputs are delivered to a high standard. The key factors that influence the Authority's overall funding requirements are:

- **Service providers:** a significant proportion of our budget is required to fund the essential services that run the electricity system and market services (see page 47 for a description). The Authority uses a contestable tender process for the selection of market service providers (with the exception of the system operator) to ensure they are fit for purpose and value for money is delivered.
- **Authority operations:** we continue to commit to maintaining our own expenditure at a constant level. Cost increases will be absorbed through efficiency savings and reprioritisation. Our workforce strategy includes ensuring we have in-house capability where appropriate to minimise the need for external advice and support.

Authority planning and reporting

The Crown Entities Act 2004 sets out our major planning and reporting requirements, including preparing and publishing the *Statement of Intent*, *SPE* and *Annual Report*.

¹⁷ NZX Limited is the operator of the New Zealand stock exchange.

¹⁸ Jade Software Corporation Limited is a specialist technology research and development organisation.

¹⁹ Energy Market Services is a commercial business group within Transpower.

Each year we seek input from our stakeholders to assist with developing our statutory plans and our work programme.²⁰

Under section 129 of the Act, we consult levy payers on our proposed appropriations. This takes place over the October to December period. Feedback received is used to develop annual appropriation recommendations to the Minister, our statutory plans and our work programme.

In addition, we publish an annual work programme of our key market development projects, and four-monthly reports on progress.

Information systems

We pursue a programme of continuous development to increase the effectiveness of our information systems. This, combined with ongoing releases of information and data, supports improved Authority and stakeholder decision-making. The ongoing releases of data and information to stakeholders supports both the Open

Government Information and Data Programme and our market development approach.

Our dedicated EMI website includes extensive sets of data, market performance metrics and analytical tools.²¹

It is also possible for more parties to access information about their electricity meters and connection arrangements through the Consumers section of our website.²² As such, we pay careful attention to privacy matters.

Risk management

We have a proactive risk management framework. The Board maintains an overview of the policy and reviews the risk register regularly.

The Board's Audit and Finance Committee advises on the quality and integrity of our financial control environment, including managing the relationship with the external auditor. It also considers whether appropriate governance, policies and operating processes are in place to identify and manage risk, and oversees and assesses the internal audit process.

²⁰ Available at www.ea.govt.nz/about-us/corporate-projects

Our planning and reporting process is explained at www.ea.govt.nz/about-us/strategic-planning-and-reporting

²¹ The market data website is available at www.emi.ea.govt.nz

²² Available at www.ea.govt.nz/consumers/your-power-data-in-your-hands



PART FOUR

FINANCIAL TRENDS

FINANCIAL TRENDS

The three appropriations available to the Authority are outlined in Table 6.

The cost components within the *Electricity industry governance and market operations* appropriation can be seen in Figures 3 and 4.

Table 6: Appropriations

Contribution to objective			Appropriations	\$million					
Competition	Reliability	Efficiency		2015/16 actual	2016/17 budget	2017/18 budget	2018/19 forecast	2019/20 forecast	2020/21 forecast
✓	✓	✓	Electricity industry governance and market operations*	72.520	76.037	73.937	74.270	74.936	74.936
	✓		Managing the security of New Zealand's electricity supply**	–	1.200	1.200	1.200	1.200	1.200
			Electricity litigation fund***	0.007	0.444	1.000	0.444	0.444	0.444
			Total appropriations	72.527	77.681	76.137	75.914	76.580	76.580

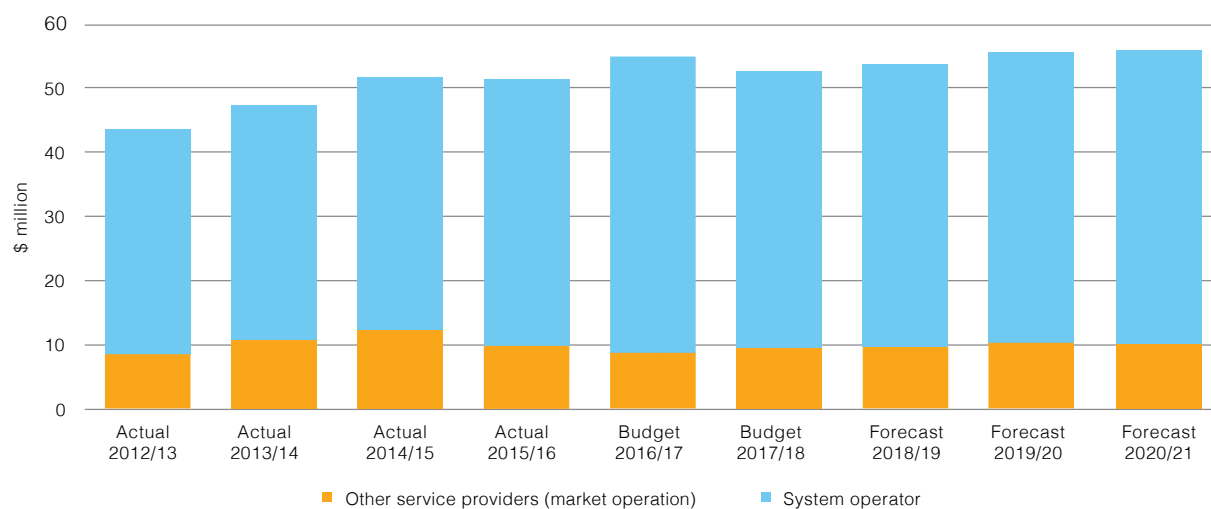
Notes

* The cost components of this appropriation are illustrated in the following charts.

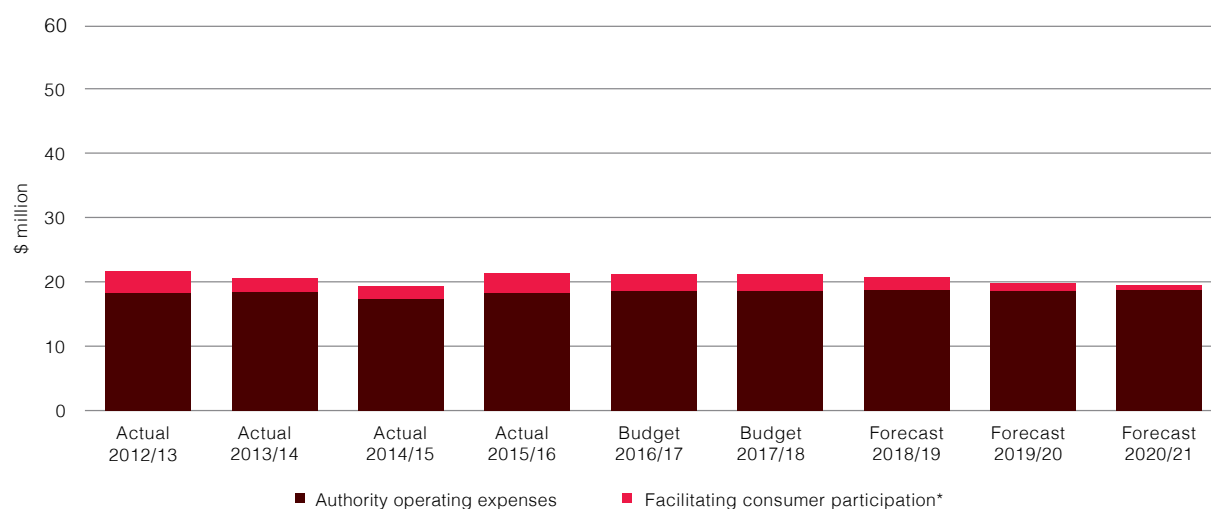
** This is a multi-year appropriation of \$6 million over five years. Following the expiry of the previous *Security management* appropriation, a new appropriation has been established, commencing 1 July 2017 and expiring 30 June 2022. This appropriation is contingent in nature and is not routinely used. To provide consistency with the appropriations contained in the Government's Estimates documents for Vote Business, Science and Innovation, annual amounts have been included in the above appropriation table.

*** The *Electricity litigation fund* appropriation is contingent in nature, and is only utilised to the extent required for the Authority to participate in litigation effectively and without delay.

**Figure 3: Electricity industry governance and market operations appropriation—
Market operation service provider expenses**



**Figure 4: Electricity industry governance and market operations appropriation—
Authority operating and facilitating consumer participation expenses**



Notes

* Facilitating consumer participation costs in 2012/13 and 2013/14 were included within a separate *Promoting and facilitating customer switching* appropriation. These costs have been included in the above chart for comparison purposes.





PART FIVE

ADDITIONAL INFORMATION

ADDITIONAL INFORMATION

Authority members, Rulings Panel, Security and Reliability Council and advisory groups

Details about membership of the Authority Board, Chief Executive and management team are available on our website at www.ea.govt.nz/about-us/who-we-are

Information about the Rulings Panel is available at www.ea.govt.nz/code-and-compliance/rulings-panel

Information about the Security and Reliability Council (SRC), advisory groups and technical groups is available on our website at www.ea.govt.nz/development/advisory-technical-groups

Authority members

Electricity Authority Board members are electricity consumers and represent the interests of consumers. They are appointed by the Governor-General on the recommendation of the Minister, following a public call for nominations.

There are between five and seven members on the Authority Board. Members hold office for a term of up to five years and may be reappointed. Information about current Board members is available at www.ea.govt.nz/about-us/who-we-are/board.

Board committees

There are three Board committees: the Audit and Finance Committee, the Compliance Committee and the System Operations Committee.

The Audit and Finance Committee advises on the quality and integrity of the Authority's financial reporting, including managing the relationship with the external auditor. It also considers whether appropriate governance, policies and operating processes are in place to identify and manage risk, and oversees and assesses the internal audit process.

The Compliance Committee makes decisions on alleged breaches of the Act, various regulations and the Code. It determines appropriate enforcement responses and whether settlements should be approved or further investigation undertaken, and makes recommendations to the Board regarding the laying of formal complaints with the Rulings Panel and instigating prosecutions.

The System Operations Committee oversees the performance monitoring of the system operator, identifies any emerging system security risks and addresses any other matters relating to the system operator's obligations under the Code.

Rulings Panel

The Rulings Panel is an industry dispute resolution and disciplinary body established under the Electricity Governance Regulations 2003. The Act continues the Rulings Panel, and sets out its membership, functions and funding arrangements. The Governor-General appoints panel members.

The Rulings Panel's functions include assisting with enforcing the Code by dealing with complaints about Code breaches, hearing appeals against certain decisions made under the Code, and resolving certain disputes relating to the Code. If a complaint about a Code breach is upheld, the Rulings Panel can make a range of orders including imposing penalties, awarding costs or compensation, issuing suspension or termination orders, and recommending Code changes.

SRC and advisory groups

The Act sets requirements to establish the Security and Reliability Council and other advisory groups.

The Act also requires the Authority to publish a *Charter on advisory groups*. We published a revised charter on 17 January 2017.

The Security and Reliability Council was established in March 2011. It provides independent advice to the Authority on the performance of the electricity system and the system operator, and on reliability-of-supply issues.

In December 2016 we decided to replace our two existing advisory groups with two new advisory groups: the Innovation and Participation Advisory Group (IPAG) and the Market Development Advisory Group (MDAG). The IPAG was established to focus on issues specifically related to new technologies and business models, and consumer participation. The MDAG was established to focus on further evolving the 'machinery' of the electricity market.

From time to time, other advisory and technical groups have been established. Information about these groups is available in the *Annual Report* and on our website.

Service providers

The system operator is responsible for the real-time operation of the power system, including scheduling and dispatching electricity, in a manner that avoids undue fluctuations in frequency and voltage on the transmission grid.²³

The wholesale information and trading system is used to transfer information between participants, especially the uploading of bids and offers.

The reconciliation manager allocates volumes of electricity to generators and purchasers. It uses metering information supplied by participants and calculates unaccounted-for electricity.

The pricing manager calculates and publishes final prices, which are used by the clearing manager to calculate invoices.

The clearing manager invoices and settles physical electricity sales and purchases identified by the reconciliation manager, ancillary service payments and any financial hedges required to be taken into account in the prudential calculation. It also maintains prudential security requirements.

The registry is a database that identifies every customer point of electricity connection to a local or embedded network. It enables customer switching between traders and contains key information for the reconciliation process.

The FTR manager is a newly established market operation service provider charged with running regular auctions of FTRs, which are a new locational hedge product.²⁴

The Authority currently carries out the role of market administrator, providing several operational and administrative services to the market under the Code. We are in the process of devolving some of the responsibilities to service providers.

The extended reserve manager is being set up as a new service provider. In early 2017 the Authority selected NZX Limited as the extended reserve manager. The extended reserve manager is responsible for developing and running the process of selecting the blocks of load that are to be used as extended reserve. We are working with the extended reserve manager and the system operator to develop and deliver the new extended reserve regime by the second quarter of 2019.

Publications and resources

- Electricity Authority website: www.ea.govt.nz
- EMI website: www.emi.ea.govt.nz
- Interpretation of the Authority's statutory objective: www.ea.govt.nz/about-us/strategic-planning-and-reporting/foundation-documents
- Statement of Intent: www.ea.govt.nz/about-us/strategic-planning-and-reporting/statement-of-intent
- *Statement of Performance Expectations*: www.ea.govt.nz/about-us/strategic-planning-and-reporting/statement-of-performance-expectations
- *Annual Report*: www.ea.govt.nz/about-us/strategic-planning-and-reporting/annual-report
- Consultation charter: www.ea.govt.nz/about-us/strategic-planning-and-reporting/foundation-documents
- Charter about advisory groups: www.ea.govt.nz/about-us/strategic-planning-and-reporting/foundation-documents
- Electricity in New Zealand: www.ea.govt.nz/about-us/media-and-publications/electricity-nz

²³ System operator responsibilities include giving instructions as to when and how much electricity to generate (ie, it dispatches generation) so that injections of electricity into the system match uptake by electricity consumers at each moment in time. The system operator also publishes the generator dispatch schedules and is responsible for the operation of security-of-supply forecasting, monitoring and emergency management functions.

²⁴ For more information on service provider contracts, which include detailed performance specifications, and reports, see the Operations section of our website at www.ea.govt.nz/operations

Glossary and abbreviations

A detailed glossary is available at www.ea.govt.nz/glossary

Act	The Electricity Industry Act 2010.
Ancillary services	The system operator contracts individual participants to provide five services essential to maintaining the common quality of electricity supply. These ancillary services are black start, over-frequency reserve, frequency-keeping reserve, instantaneous reserve and voltage support.
Authority	The Electricity Authority.
Black start	Some generators have the ability to black start, meaning they can restart their generation plant with no electrical input if the system has blacked out. Generators without this capability require power from the grid to restart their generating plant.
Capability	What an organisation needs in terms of access to leadership, people, culture, relationships, processes and technology, physical assets, and structures to efficiently deliver the goods and services required to achieve the results sought by the Crown entity, whether those results are set by reference to government policy or by statute.
Code	Electricity Industry Participation Code 2010.
Common quality	Those processes and technical requirements placed on asset owners and the system operator that affect power system quality, such as the Code requirements for system frequency management, system event management and system voltage management.
Consumer	Any person who is supplied with electricity other than for resupply.
CR4	<p>The concentration ratio (CR) of the top four generation-retailer companies (gentailers). The CR measures the sum of the market shares for the largest retailers—a higher number indicates a more concentrated market.</p> <p>We chose CR4, the sum of the market shares for the top four parent retail companies, because the market started with four large gentailers and CR4 will help identify how the structure has changed. It should be noted that these four gentailers are not the dominant players in every region.</p>
EECA	Energy Efficiency and Conservation Authority.
Frequency keeping	<p>The frequency of the New Zealand grid is normally maintained at 50 Hertz frequency and is the number of cycles per second.</p> <p>Frequency keeping refers to the process used to keep the frequency of the grid within its normal band. Frequency-keeping power stations are used to increase or decrease generation within a set band to ensure that supply equals demand on a second-by-second basis.</p>
FTR	Financial transmission right.

HHI	<p>Herfindahl-Hirschman Index.</p> <p>HHI is a measure of market concentration, and the relationship with competition occurs because less concentrated markets are likely to be more competitive. It is calculated as the sum of the squares of the market share of all participants.</p>
Instantaneous reserve	<p>Generation capacity and interruptible load that is made available to be used in the event of a sudden failure of a generating or transmission facility in order to maintain system frequency at 50 Hertz. Fast instantaneous reserve is available within six seconds and must be able to operate for one minute. Sustained instantaneous reserve is available within 60 seconds and must be available for 15 minutes.</p>
Market facilitation measures	<p>Actions that the Authority can take short of amending the Code or recommending changes to regulations. This can include discussions with participants, education programmes, publication of guidelines and publication of model agreements.</p>
MBIE	<p>Ministry of Business, Innovation and Employment.</p> <p>MBIE is the policy adviser to Ministers on energy matters. MBIE also acts as the monitor for the Minister of Energy and Resources regarding the Electricity Authority.</p>
Outcome, impact and output	<p>Accountability terms used in the state sector that link the work we do with the results we are contributing to.</p> <ul style="list-style-type: none"> ■ Outcome: a state or condition of society, the economy or the environment and includes a change in that state or condition. ■ Impact: the contribution made to an outcome by a specified set of outputs, or actions, or both. ■ Output: the goods or services that we supply. These are our functions as set out in the annual SPE.
Participant	<p>A person, or a person belonging to a class of persons, identified in section 7 of the Act as being a participant in the electricity industry. Participants include generators, Transpower, distributors, retailers, other lines owners, consumers directly connected to the national grid, buyers of electricity from the clearing manager and service providers.</p>
Service providers	<p>Parties contracted by the Authority to manage the electricity system (system operator) and market services, as described in Part 3 of the Code.</p>
SOI	<p>Statement of Intent.</p>
SPE	<p><i>Statement of Performance Expectations.</i></p>
SRC	<p>Security and Reliability Council.</p>
TPM	<p>Transmission pricing methodology.</p>
Voltage support	<p>The ancillary service that injects reactive power into the system to boost voltage at the point of injection. Specific generation plant is contracted by the system operator to provide this service, when needed.</p>



OUR STRATEGY
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