# 2016/17 Levy-funded appropriations, Electricity Authority work programme, and EECA work programme

## Consultation paper

Published on: 13 October 2015

Submissions close: 5 pm 24 November 2015

# Executive summary

The Electricity Authority (Authority) and the Energy Efficiency and Conservation Authority (EECA) are funded by the Crown through appropriations of public money. The Crown recovers the cost of this funding through a levy on electricity industry participants.

This paper sets out the proposed annual appropriations for the Authority, and the appropriation relating to the electricity efficiency activities of EECA, for the 2016/17 financial year.

The total appropriations requested by the Authority for 2016/17 are lower than the previous year, as set out in Table 1.

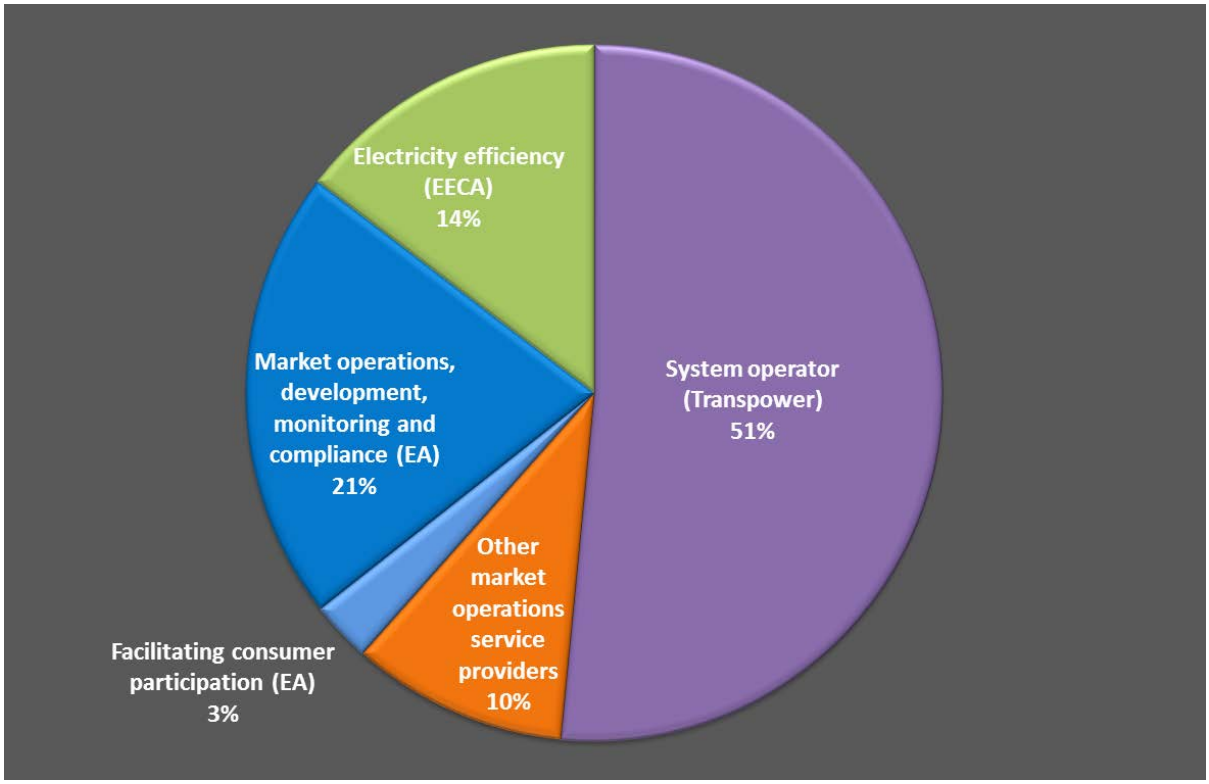
**Table 1: Summary of proposed appropriations**

| Electricity Authority | $ million | |
|---|---|---|
| | Appropriation 2015/16 | Proposed appropriation 2016/17 |
| ***Operational appropriation*** | | |
| Electricity industry governance and market operations | 76.700 | 76.037 |
| | | |
| ***Contingent appropriations*** | | |
| Security management (2012/13 to 2016/17) | 6.000 over five years | |
| Electricity litigation fund | 0.444 | 0.444 |

| Energy Efficiency and Conservation Authority | $ million | |
|---|---|---|
| | Appropriation 2015/16 | Proposed appropriation 2016/17 |
| ***Operational appropriation*** | | |
| Electricity efficiency | 13.000 | 13.000 |

The following figure illustrates how the funding provided by the operational appropriations is used.

**Figure 1: Use of operational appropriations**




This paper also provides information on the Authority and EECA's proposed work programmes.

Feedback is sought on both the appropriations and the proposed work programmes.

Once consultation is complete the Authority and EECA will provide separate reports to the responsible Minister recommending appropriations for 2016/17.
The recommendations feed in to the Government's Budget process.

The appropriations will be announced in the Government's Budget, which usually occurs in mid-May. Further detail will be published in the Authority's and EECA's statements of performance expectations (SPE).

# Glossary of abbreviations and terms

| | |
|---|---|
| **Act** | Electricity Industry Act 2010 |
| **AOPO** | Asset owner performance obligations |
| **ASX** | Australian Securities Exchange |
| **Authority** | Electricity Authority |
| **Code** | Electricity Industry Participation Code 2010 |
| **CPI** | Consumer price index |
| **CRE** | Competition, reliability and efficiency (components of the Authority's statutory objective) |
| **EECA** | Energy Efficiency and Conservation Authority |
| **EMI** | Electricity Market Information software |
| **FCP** | Facilitating consumer participation |
| **FTR** | Financial transmission right |
| **HVDC** | High voltage direct current |
| **Levy Regulations** | Electricity Industry (Levy of Industry Participants) Regulations 2010 |
| **MBIE** | Ministry of Business, Innovation and Employment |
| **Minister** | Minister of Energy and Resources |
| **MOSP** | Market operations service provider |
| **RAG** | Retail Advisory Group |
| **SO** | System operator |
| **SOI** | Statement of intent |
| **SOSPA** | System operator service provider agreement |
| **SPE** | Statement of performance expectations |
| **TPM** | Transmission pricing methodology |
| **UTS** | Undesirable trading situation |
| **WAG** | Wholesale Advisory Group |
| **WITS** | Wholesale information and trading system |

# Contents

# 1. Introduction and purpose

1.1.1 Submissions are sought on the proposed 2016/17 annual appropriations for the Electricity Authority (Authority), and those activities of the Energy Efficiency and Conservation Authority (EECA) that are funded by the levy on industry participants. The appropriations cover the period 1 July 2016 to 30 June 2017.

1.1.2 The appropriation consultation period commences on 13 October 2015 and submissions are due by 5 pm on 24 November 2015.

1.1.3 Your input is requested as part of the Authority's and EECA's processes to request funding from the respective Ministers in early 2016. Please refer to Appendix A for the legal context for this consultation.

1.1.4 Your submission(s) on respective appropriation proposals and work programmes should be sent individually to each of the Authority or EECA. Please refer to Appendix B for information about making submissions and the timetable.

1.1.5 In addition to appropriations information, this consultation paper also includes:

- Appendix C: The proposed Authority work programme
- Appendix D: The proposed EECA levy-funded electricity efficiency priorities
- Appendix E: The EECA *2014/15 annual report on the levy-funded electricity efficiency appropriation*.

1.1.6 In addition, the system operator has provided an information paper on its revenue arrangements and the draft capital plan and roadmap. The paper provides context for the Authority's *electricity industry governance and market operations* appropriation proposal for the 2016/17 year. This is an information paper only and the Authority is not seeking feedback on its content. The paper is available on the Authority website at www.ea.govt.nz/about-us/corporate-projects/201617-planning-and-reporting/consultation/#c15604

1.1.7 The Authority's activities are all funded by Crown appropriations. The Crown is reimbursed via the levy on industry participants. The Authority's annual report details all levy-funded appropriations and outputs. The annual report is available at www.ea.govt.nz/about-us/strategic-planning-and-reporting/annual-report/

1.1.8 It should be noted that:

- The Authority and EECA will use input from this consultation to develop their own reports on proposed appropriations to the responsible Minister (by February 2016).

- The results will be reflected in the Authority's and EECA's statements of performance expectations (SPE) to be published after the Government's Budget is tabled in Parliament in 2016.
- The Authority will publish its work programme, outlining its programmes and projects in more detail, in July 2016.

# 2. Electricity Authority appropriations

## 2.1 Electricity industry governance and market operations

2.1.1 The Electricity industry governance and market operations appropriation is the Authority's main operational appropriation. It funds the costs for the oversight, operation and governance of New Zealand's electricity market under the Electricity Industry Act 2010 (the Act), Code, and regulations. It is the main appropriation used to progress our statutory objective: to promote competition in, reliable supply by, and the efficient operation of the electricity industry for the long-term benefit of consumers.

### Strategic focus

2.1.2 We remain committed to the strategic objectives set-out in our 2015/16 SPE[1] as we continue on the strategic journey we have pursued since our establishment in 2010. The strategic focus on retail competition and efficient operation of the electricity industry is expected to continue in 2016/17.

**Our strategic journey – see our 2015/16 SPE**

**PHASE 1: NOV 2010–NOV 2011**

- Section 42
- Security of supply
- Retail – *What's My Number*

**PHASE 2: NOV 2011–JUN 2013**

- Ongoing retail focus – *What's My Number*
- Wholesale – hedge & reducing barriers and risk

**PHASE 3: JUNE 2013–2015**

- Reducing barriers – residential focus
- Wholesale market initiatives to enhance retail competition
- Ongoing retail focus, including *What's My Number*

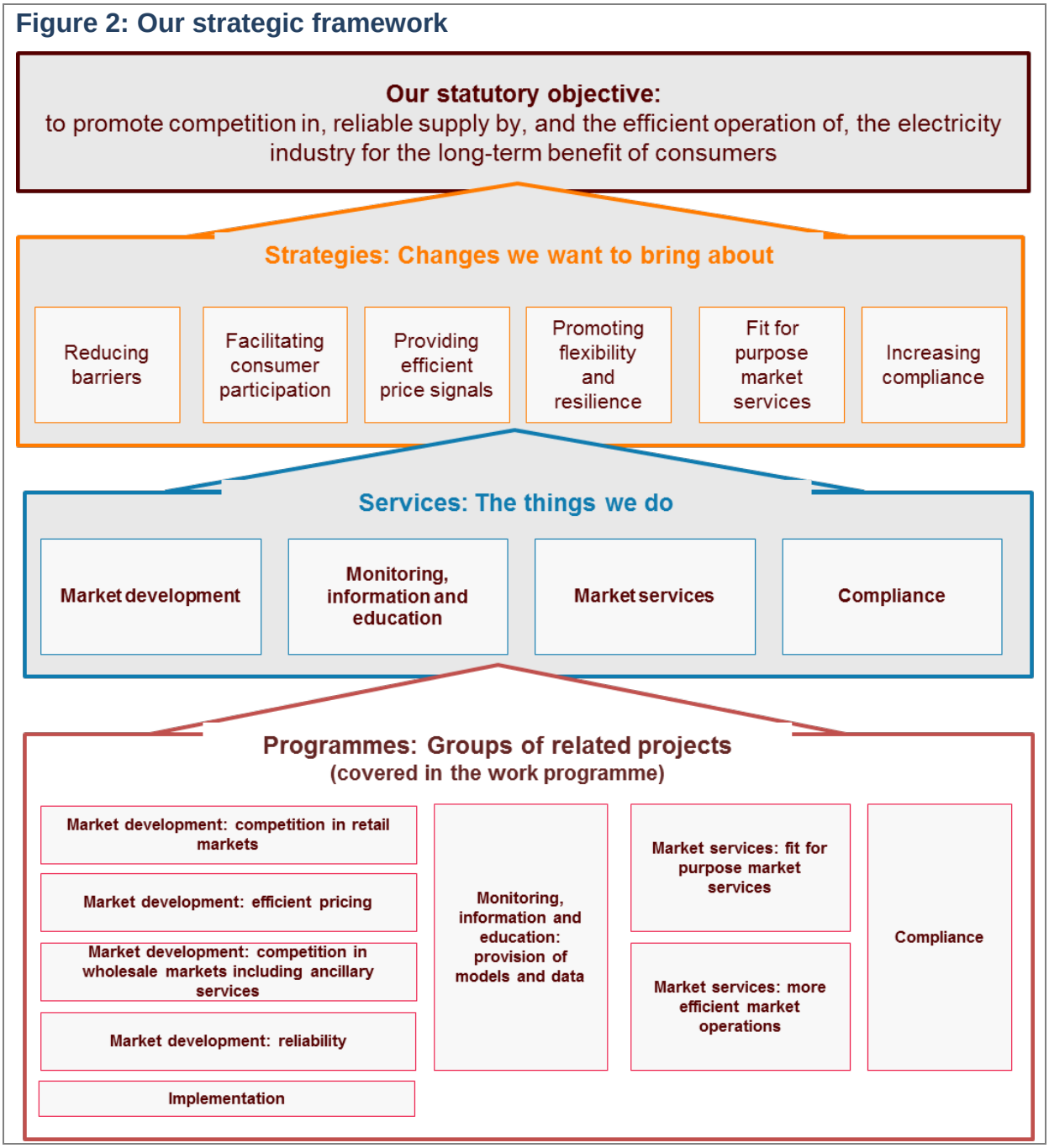
**PHASE 4: 2015 AND BEYOND**

- Ongoing focus on competition, especially retail
- Initiatives to enhance competition and efficiency in ancillary services
- Increasing emphasis on efficient pricing and operation.

[1] Refer to page 7 of the SPE, available from www.ea.govt.nz/about-us/strategic-planning-and-reporting/statement-of-performance-expectations/

2.1.3 Our strategic framework, shown in Figure 2, shows the linkages between our programmes, the services we provide, our strategies and how all these contribute to our statutory objective.

**Figure 2: Our strategic framework**




2.1.4 Details of the proposed programmes and key projects for 2016/17, and their alignment to our strategic objectives, are set out in Appendix C of this paper.

2.1.5 More detail on planned projects will be provided in the 2016/17 work programme, which will be published in July 2016. The work programme will also include specification of the projects, their timetables and deliverables.

### Appropriation sought

2.1.6 To deliver our statutory functions and progress our statutory objective, we propose funding of $76.037 million for this appropriation in 2016/17. This is a reduction from the 2015/16 appropriation level. Key components of this appropriation are described below.

### System operator services

2.1.7 The system operator, Transpower NZ Limited, is responsible for co-ordinating electricity supply and demand in real time in a manner that avoids fluctuations in frequency or disruption of supply. Performing this role effectively and reliably requires ongoing investment in the maintenance and enhancement of the extensive infrastructure that supports the delivery of the services.

2.1.8 The Authority has been working closely with Transpower to review the system operator service provider agreement (SOSPA) to ensure it aligns with the Authority's statutory objective, adopts stronger commercial disciplines on system operator costs, encourages the delivery of fit-for-purpose services, and provides greater transparency on expenditure. The new SOSPA is expected to come into operation from 1 July 2016. Under the revised SOSPA, the costs of performing this role are expected to be lower in subsequent years.

2.1.9 System operator expenses of $45.890 million have been provided for within the 2016/17 appropriation. This is an increase of $4.372 million from 2015/16. The increase is due to a consumer price index (CPI) based adjustment on operating expenses (as provided for under the existing SOSPA) and the system operator's recovery on the investments made in the assets that underpin the services delivered. To provide context for submitters when considering the requested appropriations, the system operator has provided a separate information paper. This provides information on the recovery approach for the system operator's capital expenditure, details the key assets underpinning the recovery of historic capital expenditure, and provides a draft capital plan and roadmap in relation to future capital expenditure.

### Market operations services

2.1.10 We contract for a range of market operations service provider roles. Our focus is on creating fit-for-purpose market services that increase market efficiency, ensure effective market operation and facilitate market development. The existing contracts for the clearing manager, wholesale information and trading system (WITS), pricing manager, and reconciliation manager roles expire on 30 April 2016. We have recently undertaken a tender for these services beyond this date. The tender is expected to result in improved services to the market, at a lower cost. We are currently negotiating with a preferred supplier for these roles.

2.1.11 The costs of the roles that underpin the day-to-day operation of the electricity market are forecast to reduce to $8.918 million in 2016/17. This is a decrease of $4.535 million from 2015/16 appropriation levels. The decrease is primarily due to lower depreciation costs. As a result of the tender, the existing IT systems that support these roles will be maintained and utilised for a further eight years. This means that the remaining value of the investment in these assets will be amortised over a longer period of time; resulting in a lower annual amortisation expense. The systems also will see a range of operational efficiency and user-experience enhancements delivered over the coming years, all completed within the existing appropriation level.

2.1.12 We intend to seek an adjustment to our current appropriation levels to reflect the change in the amortisation expense profile. This adjustment will reduce the existing appropriation level in 2015/16 by approximately $4.000 million, and transfer this across the following eight–nine years' appropriations, by way of a $0.500 million increase for each year. The effect of this is that the Crown's remaining investment in the assets will be recovered from levy payers over a longer period of time.

2.1.13 For the portion of the expense transfer that relates to 2016/17, we consider that, taking into account its current expectations of system operator costs, the increase of $0.500 million can be managed within existing appropriation levels. Therefore no increase to the previously approved 2016/17 appropriation levels will be requested.

2.1.14 The 2016/17 year will see the commencement of the new extended reserve manager service provider. The budget includes the costs associated with the first two months of its operation. This new role plays an important part in the operation of the new extended reserve regime, which is being implemented to improve the way in which the power system responds to major outages and other events.

### Facilitating consumer participation

2.1.15 In Budget 2014 the Government approved funding specifically targeted at initiatives that increase consumer awareness, understanding, and motivation to participate in the electricity market. These initiatives include the *What's My Number* campaign and the retail data project, both of which focus on making it easier for consumers to make more informed, and therefore better, decisions about their retailer and retail offers.

2.1.16 Facilitating consumer participation in the retail market is expected to enable more consumers to make better electricity-related decisions, thereby putting greater pressure on retailers to offer innovative services and better deals. We also expect entry into the retail market from third party service providers offering assistance to consumers to make electricity-related decisions.

2.1.17 We are also investigating enhancements to the spot market to improve retail and hedge market competition and make spot prices more efficient.

Changes to the way spot prices are calculated are expected to increase consumer participation and lower average spot and hedge prices.

2.1.18 The budgeted cost of these targeted initiatives is $3.000 million in 2015/16, decreasing to $2.500 million in 2016/17. 2016/17 is the final year of the three year funding approved in Budget 2014.

### Market operations, development, monitoring and compliance

2.1.19 The services the Authority provides include:

(a) market development

(b) overseeing the operation of the electricity system and markets

(c) monitoring, providing information and education

(d) compliance.

2.1.20 Our market development work focuses four key strategies:

(a) reducing barriers to entry, expansion and exit of parties in electricity markets

(b) facilitating consumer participation – making it easier for consumers to exercise choice of supplier and products

(c) providing efficient price signals – to inform better investment and consumption decisions

(d) promoting flexibility and resilience – ensuring the sector is able to respond efficiently to changes and unexpected events.

2.1.21 Our monitoring, information and education work focuses on improving the availability of data, information and tools and improving awareness and understanding of how electricity markets function. Our education work focuses on both participants and consumers.

2.1.22 Our compliance function includes monitoring, investigating and enforcing compliance with the law: Act, Code and various regulations. This includes educating participants to improve their understanding and compliance with applicable law.

2.1.23 To deliver on our statutory objective in 2016/17, a number of programmes and key projects will be undertaken. These are outlined in Appendix C.

2.1.24 The Authority's own operating expenses for 2016/17 will be held at $18.729 million (no change from 2015/16). This reflects the commitment we made at our establishment to managing our funding prudently, and to restraining our own spending while not delaying important work and maintaining our outputs and service quality.

2.1.25 This commitment to achieving efficiency improvements has included making savings in our operating expenses of more than $1 million per annum to fund the bulk of the financial transmission right (FTR) implementation and operating cost. We have also made an ongoing commitment to keep operating expenses flat in nominal terms (net of the savings described above), and declining in real terms, after adjusting for inflation. The CPI has increased by 9 per cent over the four years since this commitment, resulting in delivered savings in real terms of around $5 million over this period.

2.1.26 We will continue to pursue efficiencies in our operations, through initiatives including shared service arrangements, leveraging all-of-government procurement opportunities, and reducing reliance on external consultants. Our focus on efficiency allows us to maximise investment in the work that delivers greatest long-term benefits to consumers.

### Breakdown of costs within the electricity industry governance and market operations appropriation

2.1.27 Table 2 sets out the main items of expenditure within the electricity industry governance and market operations appropriation, as discussed above.

**Table 2: Breakdown of proposed electricity governance and market operations appropriation**

| Operational appropriation - Electricity Authority | $ million | |
|---|---|---|
| | Appropriation 2015/16 | Proposed appropriation 2016/17 |
| System operator - operating expenses | 24.633 | 25.125 |
| System operator - capital-related expenses | 16.885 | 20.765 |
| **System operator expenses** | **41.518** | **45.890** |
| | | |
| Service provider - clearing manager | 2.141 | 2.201 |
| Service provider - wholesale information and trading system (WITS) | 1.460 | 1.573 |
| Service provider - pricing manager | 1.621 | 0.727 |
| Service provider - reconciliation manager | 1.233 | 0.865 |
| Service provider - registry | 0.547 | 0.551 |
| Service provider - FTR manager | 0.812 | 0.896 |
| Service provider - depreciation and amortisation | 5.512 | 1.963 |
| Service provider - IT costs | 0.127 | 0.117 |
| Service provider - Extended reserves manager* | - | 0.025 |
| **Other service provider expenses** | **13.453** | **8.918** |
| | | |
| **Facilitating consumer participation expenses** | **3.000** | **2.500** |
| | | |
| **Authority operating expenses** | **18.729** | **18.729** |
| | | |
| **Total appropriation** | **76.700** | **76.037** |

* This is a new service provider role expected to become operational in the 4th quarter of 2016/17

### Forecasts are based on assumptions and are subject to change

2.1.28 The forecasts for individual expense items within the electricity industry governance and market operations appropriation are subject to variable factors that will influence the actual costs incurred. Examples include the impact of future CPI increases, the timing and cost of investments in both the Authority's and the system operator's assets, and the outcome of final contractual negotiations in relation to the extended reserve manager. In addition, the current contract for the registry service provider expires on 30 April 2017, with costs beyond this date yet to be determined.

## 2.2 Contingent appropriations

2.2.1 Table 3 summarises the two Authority appropriations that are contingent in nature. We will not incur expenditure against these as part of our normal operations. These appropriations are in place to allow us to respond quickly and effectively should certain events or situations arise. As with the other appropriations set out in this paper, levy payers only fund costs to the extent they are actually incurred - if no expenditure is incurred, there is no resulting cost to levy payers.

### Security management appropriation

2.2.2 The security management appropriation is a multi-year appropriation for the period 2012/13 to 2016/17. The appropriation is limited to the management of emergency events by the system operator, if required. It includes increased system operator monitoring and management responsibilities in the event of an emerging security situation, and planning and running an official conservation campaign, if needed.

2.2.3 No expenditure has been incurred against this appropriation to date. In the normal course of events it is not expected that this appropriation would incur costs.

2.2.4 No change is sought to this appropriation for the 2016/17 year.

### Electricity litigation fund

2.2.5 The electricity litigation fund appropriation provides the Authority funding to ensure that it is able to participate in litigation effectively and without delay.

2.2.6 No change is sought to this appropriation for the 2016/17 year.

**Table 3: Electricity Authority contingent appropriations**

| Contingent appropriations - Electricity Authority | $ million | |
|---|---|---|
| | Appropriation 2015/16 | Proposed appropriation 2016/17 |
| Security management (2012/13 to 2016/17) | 6.000 over five years | |
| | | |
| Electricity litigation fund | 0.444 | 0.444 |

# 3. EECA appropriations

## 3.1 Electricity efficiency

3.1.1 Section 128(3)c) of the Electricity Industry Act 2010 provides that EECA can use the levy to fund "a portion of [its] costs in performing its functions and exercising its powers and duties under the Energy Efficiency and Conservation Act 2000 in relation to the encouragement, promotion, and support of electricity efficiency". The size of the portion of EECA's costs to be met by the levy is determined by the Minister.

3.1.2 EECA proposes to request funding of $13 million for electricity efficiency programmes aimed at unlocking a range of benefits for businesses and households – including helping consumers to reduce their energy bills, and improving business productivity. More detail on EECA's priorities, targeted outcomes and their estimated economic value can be found in Appendix D of this paper.

**Table 4: EECA appropriation**

| Operational appropriation - EECA | $ million | |
|---|---|---|
| | Appropriation 2015/16 | Proposed appropriation 2016/17 |
| Electricity efficiency | 13.000 | 13.000 |

3.1.3 At $13 million, the EECA electricity efficiency appropriation proposal remains at the same level as 2015/16.

3.1.4 EECA works to improve the electricity efficiency of businesses and households where there is a net national benefit in doing so, and where they will not otherwise take action.

3.1.5 EECA activities to reduce electricity use include assisting businesses to develop energy management plans, developing standards and labels on the energy performance of electrical machinery and appliances, and demonstrating/promoting new and under-used energy-saving technologies.

3.1.6 EECA also provide information to guide consumer choice and behaviours, and develop advertising campaigns to encourage uptake of more efficient technologies (such as efficient forms of lighting).

# 4. Indicative levy rates

4.1.1 All Electricity Authority functions, and EECA's electricity efficiency activities, are funded by specific Crown appropriations. This consultation seeks feedback on the proposed level of these appropriations for 2016/17.

4.1.2 The Crown funds the appropriations by a levy on electricity industry participants, in accordance with the Electricity Industry (Levy of Industry Participants) Regulations 2010 (the Levy Regulations). The levy is collected by the Authority on behalf of the Crown.

4.1.3 The actual invoiced rates to be used for recovering the levy in the year beginning 1 July 2016 will be calculated after the Government has confirmed appropriations through the release of Budget 2016, and following the Authority finalising its internal budget. It is anticipated that the finalised rates will be available in June 2016.

4.1.4 Where the actual expenditure incurred against the appropriations in a particular year is less than the levy collected, the over-recovery is refunded to industry participants. This is done as part of the annual reconciliation following the end of each financial year.

4.1.5 Table 5 shows indicative levy rates based on the appropriations proposed in this paper. We have provided these indicative levy rates solely for the purposes of this consultation - they assist participants to understand how the proposed appropriations could relate to the levies they may be asked to pay. The indicative levy rates should not be relied upon for any other purpose. The Authority will not be liable to any party who uses this information for any other purpose.

## Table 5: Levy rates

### 2016/17 Indicative levy rates

| Participant Class / Activity | Generators | Purchasers | Retailers | Distributors including Transpower | Distributors excluding Transpower | Transpower |
|---|---|---|---|---|---|---|
| Common quality operations | $0.208/MWh | $0.2066/MWh | | $0.1142/MWh | | |
| Market operations | $0.4404/MWh | $0.4374/MWh | | | | |
| Registry & consumer operations | | | $0.6909/ICP | | $0.691/ICP | |
| Supply reliability operations | | $0.0073/MWh | | | | |
| Transmission operations | | | | | | $0.0464/MWh |
| Electricity efficiency operations | | $0.3166/MWh | | | | |
| Consumer participation operations | | | $1.2286/ICP | | | |
| Other activities | $0.0593/MWh | $0.0589/MWh | | $0.0326/MWh | | |

### 2015/16 Invoiced levy rates

| Participant Class / Activity | Generators | Purchasers | Retailers | Distributors including Transpower | Distributors excluding Transpower | Transpower |
|---|---|---|---|---|---|---|
| Common quality operations | $0.1889/MWh | $0.1876/MWh | | $0.1036/MWh | | |
| Market operations | $0.4749/MWh | $0.4713/MWh | | | | |
| Registry & consumer operations | | | $0.6492/ICP | | $0.6494/ICP | |
| Supply reliability operations | | $0.0095/MWh | | | | |
| Transmission operations | | | | | | $0.0463/MWh |
| Electricity efficiency operations | | $0.317/MWh | | | | |
| Consumer participation operations | | | $1.4691/ICP | | | |
| Other activities | $0.0586/MWh | $0.0581/MWh | | $0.0321/MWh | | |

### Movement

| Participant Class / Activity | Generators | Purchasers | Retailers | Distributors including Transpower | Distributors excluding Transpower | Transpower |
|---|---|---|---|---|---|---|
| Common quality operations | $0.0191/MWh | $0.019/MWh | | $0.0106/MWh | | |
| Market operations | ($0.0345)/MWh | ($0.0339)/MWh | | | | |
| Registry & consumer operations | | | $0.0417/ICP | | $0.0416/ICP | |
| Supply reliability operations | | ($0.0022)/MWh | | | | |
| Transmission operations | | | | | | $0.0001/MWh |
| Electricity efficiency operations | | ($0.0004)/MWh | | | | |
| Consumer participation operations | | | ($0.2405)/ICP | | | |
| Other activities | $0.0007/MWh | $0.0008/MWh | | $0.0005/MWh | | |

# Appendix A Legal context for this consultation

A.1 Section 129 of the Electricity Industry Act 2010 (Act) requires the Authority and EECA to consult on proposed appropriations for the coming year. Section 129 states:

> **129 Consultation about request for appropriation**
>
> (1) The Authority and the Energy Efficiency and Conservation Authority must, before submitting a request to the Minister seeking an appropriation of public money for the following year, or any change to an appropriation for the current year, that relates to costs that are intended to be recovered by way of levies under section 128, consult about that request with—
>
> (a) those industry participants who are liable to pay a levy under that section; and
>
> (b) any other representatives of persons whom the Authority believes to be significantly affected by a levy.
>
> (2) Each Authority must, at the time when the request is submitted, report to the Minister on the outcome of that consultation.
>
> (3) The Ministry must consult in a like manner in respect of a levy to recover costs referred to in section 128(3)(g).
>
> (4) This section applies to requests in respect of the financial year beginning 1 July 2011 and later financial years.

A.2 This consultation paper sets out appropriation proposals and the proposed work programme for the 2016/17 financial year (from 1 July 2016 to 30 June 2017). It covers:

- the Authority's proposed appropriations and work programme
- EECA's proposal for levy-funded electricity efficiency programmes.

# Appendix B Making submissions

B.1 Submissions should be made separately to the Electricity Authority or EECA relating to the appropriations each agency administers, and the more detailed information provided about proposed work programmes.

## *Making submissions to the Authority*

B.2 Submissions about Authority appropriations and the proposed work programme should be emailed to submissions@ea.govt.nz with 'Consultation paper—2016/17 appropriations' in the subject line.

B.3 The preferred format of submissions is electronic, in Microsoft Word if possible. It is not necessary to send hard copies of submissions sent electronically.

B.4 Submissions should be received by 5pm on 24 November 2015. Late submissions will not be considered.

B.5 If you do not wish to send your submission electronically, you should send one hard copy of the submission to the address below.

| By post: | By courier: | By fax: |
|---|---|---|
| Submissions<br>Electricity Authority<br>PO Box 10041<br>Wellington 6143 | Submissions<br>Electricity Authority<br>Level 7, ASB Bank Tower<br>2 Hunter Street<br>Wellington | 04 460 8879 |

B.6 It is our normal practice to publish submissions on our website. Submitters should detail, in a covering letter, any documents attached to the submission and clearly indicate any information that is provided to the Authority on a confidential basis. However, submitters should note that all information provided to the Authority is subject to the Official Information Act 1982.

B.7 Information about the Authority and its current projects is available on the Authority's website at www.ea.govt.nz

B.8 If you have questions about this consultation paper, please contact Androula Dometakis, General Manager Corporate Services, on (04) 460 8869 or androula.dometakis@ea.govt.nz

# Making submissions to EECA

B.9 Submissions should be made to EECA on the electricity efficiency appropriation and the proposed electricity efficiency work programme (Appendix D).

B.10 Written submissions should be sent to levyconsultation@eeca.govt.nz

B.11 Short form submissions can also be made via survey @ https://www.surveymonkey.com/r/EECA-levy-consultation2016-17

B.12 Submissions should be received by 5pm on 24 November 2015. Late submissions will not be considered.

B.13 If you do not wish to send your submission electronically, you should send one hard copy of the submission to the address below.

| By post: | By courier: | By fax: |
|---|---|---|
| EECA | EECA | 04 499 5330 |
| PO Box 388 | Level 8, 44 The Terrace | |
| Wellington 6140 | Wellington | |

B.14 Your submission will be published on EECA's website. Submitters should indicate any information that is provided to EECA on a confidential basis. However, all information provided to EECA is subject to the Official Information Act 1982.

B.15 Information about EECA and current projects may be found on EECA's website at www.eeca.govt.nz

B.16 If you have questions about the EECA component of this consultation paper, please contact Brian Fitzgerald, Senior Adviser Strategy and Programmes, (04) 470 2541 or brian.fitzgerald@eeca.govt.nz

# Appendix C Proposed Authority work programme

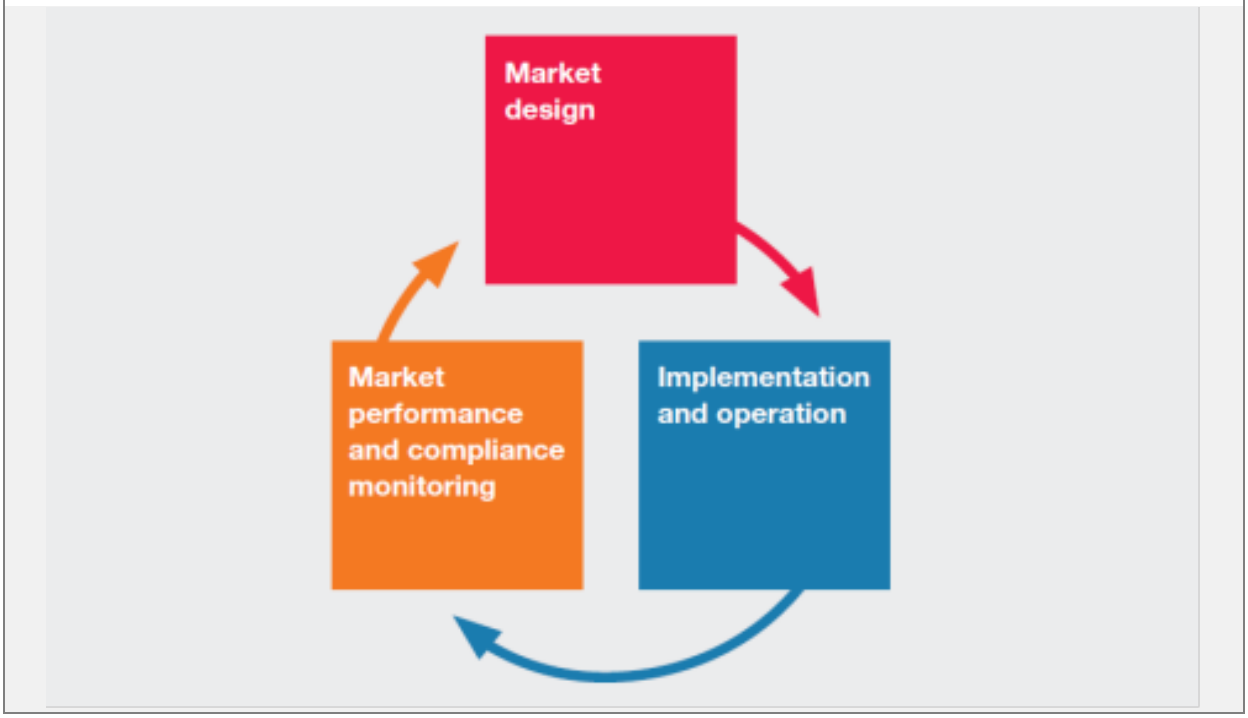
C.1 This appendix sets out the Authority's proposals for the 2016/17 work programme. It includes programmes and key projects. It does not include all potential projects under each programme.

C.2 The project tables starting on page 23 indicate where projects continue from 2015/16 or where they are a new project for 2016/17.

C.3 The proposed work programme includes a significant commitment to market development, in particular in the retail market, and a continued emphasis on the ongoing efficient pricing and operation of the electricity system and markets.

C.4 The market performance and compliance monitoring roles assist with identification of issues requiring further attention in the market development work programme (see Figure 3).

**Figure 3: Electricity Authority market performance cycle**




## Market development focus

### *Retail competition and efficient pricing continue to be top priority*

C.5 The proposed Authority 2016/17 work programme focuses on promoting retail competition and on promoting efficiency by ensuring efficient price signals.

C.6 The *What's My Number* campaign and retail data project will promote consumer participation by improving consumer's motivation to make decisions and by making it easier for them to make more informed decisions.

C.7 We will also be looking closely at efficient pricing. For a homogenous product like electricity, prices are particularly important in influencing consumer and participants' decisions. Price signals that do not reflect the efficient costs of consumption and supply decisions will result in inefficient outcomes. The impacts are potentially substantial given the long life of many electricity assets and the often high costs of electricity infrastructure. There are other areas where the efficiency of prices, or payments, in the electricity system need to be investigated and potentially changes made. These are outlined in the proposed work programme in Appendix C.

C.8 We are also investigating enhancements to the spot market to improve retail and hedge market competition and make spot prices more efficient. Changes to the way spot prices are calculated is expected to increase consumer participation, improve demand response, and lead to greater levels of competition in the retail and generation areas of the market.

C.9 The hedge market development project will further enhance the trading of hedge products to improve retail competition and efficiency. We expect to release a consultation paper with detailed analysis of approaches for enhancements to the trading of hedge products on the Australian Securities Exchange (ASX) early in 2016/17.

### *Improving reliability*

C.10 Significant effort by the Authority and other parties went into improving reliability during the early years of the Authority from 2010 to 2011. As a result there have been strong improvements made to the reliability of the electricity markets and their ability to cope with adverse events, such as dry years.

C.11 With the recent announcements of the closure of thermal generation plants, we are reviewing security of supply arrangements to ensure they are providing the information and incentives participants need to make efficient decisions. Further projects may be added to our 2016/17 work programme to address security of supply issues.

C.12 Also, many of the projects intended to be undertaken in 2016/17 that are principally targeted to improve competition and efficiency will also have significant positive effects on system reliability. For example, some of the projects that improve pricing efficiency will reduce barriers to entry in the market for demand response. The various initiatives to improve the ancillary services market also have flow-on reliability benefits.

### *Enabling new technologies and innovation*

C.13 New technologies, including smart meters and smart devices, offer great opportunities for considerable change in how consumers make decisions by allowing development of innovative products and services and business models.

C.14 New technologies will also change how consumers obtain and use electricity. Consumers are beginning to invest in home energy management systems and household batteries to influence how much electricity they use and when they

use it. Household electrical goods increasingly have sensors and internet connectivity, which provides opportunities for other parties to provide load management services to consumers. Consumers are also increasingly able to generate their own electricity using solar panels. These changes have implications for the types of distribution services provided and for the pricing of distribution services. We will continue to focus on encouraging distributors to adopt efficient distribution pricing structures because inefficient and misleading prices are not to the long-term benefit of consumers.

C.15 We are also seeing the emergence of new and innovative services to assist consumers to shop across multiple retailers, much as AirBnB and Wotif facilitate consumers choosing among hotels. Other platforms facilitate residential consumers skipping retailers altogether and buying direct from manufacturers, and it is possible similar developments could occur in electricity. 'Micro grids' are often discussed in this vein, but direct access to the wholesale electricity market for residential consumers is another possibility.

C.16 Future-proofing our market design to enable new means of participation is strategically important, as timely innovations can deliver large benefits for consumers. With this in mind we are about to commence a scoping exercise to take a broad look at new technologies and business models, consider the potential implications for our market systems and the Code, and assess what this may mean for our work programme in 2016/17 and beyond.

C.17 In the upstream segment of the market, innovations and technological developments can provide opportunities for improved competition and efficiency. We have an ongoing focus on ensuring the market design enables, and does not unnecessarily restrict, these opportunities. For example, new control technology recently made available on the high voltage direct current link supports more competitive national markets for instantaneous reserve and frequency keeping. Transfer of these services between islands was not previously possible.

## Monitoring, information and education focus

C.18 Increased emphasis is being placed on monitoring the result of the initiatives to date, investigating market events, and on general monitoring of market performance. Monitoring work will be actively used to consider further Code or market facilitation initiatives, where warranted.

C.19 The Market Performance team generally reviews market events or initiatives after these have had time to reveal their effects. For the 2016/17 year, the Market Performance team will add a proactive focus to its work programme, by investigating scenarios, in order to reveal any potential deficiencies in the current market arrangements.

C.20 A new project for 2016/17 will consider whether current market arrangements are inefficiently disadvantaging providers of risk products, or causing artificially low demand for risk products.

C.21 We have an ongoing commitment to consumer and participant education. A consumer education programme is currently being developed and will commence implementation in 2015/16. 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.

## Market services focus

C.22 The last few years have seen some significant changes to market services activities:

(a) commencement of the financial transmission rights (FTR) manager market operations service provider (MOSP) role in 2013

(b) significant enhancements to the clearing, pricing, registry and WITS systems to implement market design initiatives

(c) implementation of the extended reserve manager MOSP role, that is expected to commence operation in late-2016/17

(d) renegotiation of the SOSPA with Transpower, including aligning the system operator's activities with the achievement of the Authority's statutory objective, with the new SOSPA effective from 1 July 2016

(e) the tendering of the pricing, reconciliation, clearing and WITS manager roles, with resulting service enhancements and changes to the Authority's contract governance, with the new contracts effective from 1 May 2016.

C.23 Given the extent of these changes to the MOSP services, systems and contract arrangements, the main focus for the Market Services team for 2016/17 will be on ensuring that the services are delivered to the high standard expected by the Authority and the users of the services. This will include continuing to work closely with the extended reserve manager, system operator and industry to progress the implementation of the extended reserve manager, and with Transpower and NZX to operationalise the new service provider agreements.

C.24 In 2015/16 we will be tendering for the supply of the registry services, with a new agreement expected to be in place from 1 May 2017. At this stage we are assuming there will be no significant budget impact in 2016/17 or out-years as the registry services represent a relatively small component of our service provider expenses. Any substantive variations to the registry costs will be addressed in the 2017/18 appropriations consultation process in late 2016.

C.25 We will also continue to progress the initiatives we have underway to improve some of the more operational aspects of the Code – the metering arrangements in Part 10 and the participant audit regime – and continue our regular programme of minor Code amendments.

## Coordination with MOSPs

C.26 Coordination is required with the MOSPs, including the system operator, to manage progress across a range of projects. MOSP input is required for both the development and implementation of the majority of market facilitation measures and Code amendments. The coordination effort spans a range of matters including the level of detail required for the MOSPs to undertake implementation planning, capacity, and timing.

C.27 Our staff work closely with MOSPs to develop an agreed timetable and process for managing these initiatives (joint development programme). The ongoing process of coordinating affected projects may impact the prioritisation and timing of Authority projects.

C.28 Where possible, indicative dates are provided for projects involving MOSP input. However, it should be noted that detailed planning is required by the Authority and MOSPs before more definitive timetables are completed. These will be advised in relation to specific projects, once available.

## Notes to the programme information that follows

C.29 These notes apply to all programmes outlined below.

- **Desired impacts**: the tables below indicate the contributions expected from programmes to the key strategies and impact measures in our Statement of Intent (SOI).
- **Initial assessment of programme size**: this provides indicative information only on the estimated Authority resource requirements for 2016/17. The assessment gives an indication of the quantum of overall levy cost and does not include costs to others. More detailed planning will take place to develop more accurate cost information.
- **Initial assessment of net public benefit**: this provides indicative information only on the perceived net public benefit for the project. High level cost-benefit assessment is carried out as part of project initiation. More detailed cost-benefit assessments are developed during appropriate project stages.
- **Project numbers**: these are in the first column of the following tables (for example, 1.1) and refer to the project numbers in the published 2015/16 work programme.[2] Where a proposed project is new for 2016/17 this is also indicated in the first column.
- **Project stages**: the tables that follow include high level indicative information about the stages we expect the project to follow and the general timetable anticipated. These are estimates only at this stage and more detailed assessment and planning will take place as part of development of the work programme. Development of the work programme will include addressing feedback from this consultation.

[2] The 2015/16 work programme is available at www.ea.govt.nz/about-us/strategic-planning-and-reporting/our-work-programme/

# Market design

## Programme: Competition in retail markets

We're working to enhance competition for buying and selling electricity. Our main strategic focus is on enhancing retail market competition. We are focusing on facilitating consumer participation and reducing barriers to competition in the retail markets for electricity. This includes taking into account long-term opportunities and incentives for the efficient entry, exit, investment and innovation in this market.

This programme includes initiatives to promote retail competition by reducing barriers to entry and expansion of retailers (the supply side) and by facilitating consumer participation (the demand side). Many of the supply side initiatives are in the spot, hedge and distribution segments of the market. To reduce barriers we focus on ensuring regulatory frameworks support: market entry, exit and innovation; the uptake of technology; investment; and making data and information available to assist informed investment decisions.

The demand side initiatives are primarily about providing consumers with better access to information and tools to make choices between retailers. Part of the work in this area is supported by new funding approved in the 2014 Budget for facilitating consumer participation (FCP). This funding runs from 1 July 2014 to 30 June 2017.

The scope of the FCP work includes:

- Raising consumer awareness about the benefits of switching using promotional activities such as the *What's My Number* campaign.
- Improving consumer understanding, motivation and action by enhancing the information and tools available to consumers to compare retailers' offerings, and switch retailers, in particular through the retail data project.
- Considering refinements to the spot market including the potential to introduce real time pricing and an hours-ahead market.

## Desired impacts

| Strategies | 2014–2018 impact measures |
|---|---|
| **Reducing barriers** | • A more level playing field for all retailers.<br>• Reduced set-up costs for new retailers.<br>• Improved spot market risk and risk management. |
| **Facilitating consumer participation** | • Increased consumer awareness, understanding and motivation to participate in markets.<br>• Increased consumer participation in both wholesale and retail markets. |
| **Providing efficient price signals** | • Increased range of products or services with prices.<br>• Increased accuracy of price forecasts.<br>• Reduced instances of inefficient prices, including during scarcity events.<br>• More efficient price signals for residential and SME consumers. |

**Initial assessment of size: High** **Initial assessment of net public benefit: High**

## Key projects proposed for 2016/17

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 1.1 | **1** | ***What's My Number* programme** | This campaign - promotes the benefits of comparing and switching retailers. | We are seeking increased retail competition through increased consumer awareness of savings to be made by shopping around for electricity, and that it is easy to switch. | Successful programme delivery as indicated by the annual monitoring survey for the 2015 calendar year. | Successful programme delivery.<br>Assess costs and benefits of continuing the programme. | ✓ | - | - |

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 1.2 | 1 | **Retail data project** | Consider options to promote retail competition by improving access to retail data. | We are seeking to increase consumer engagement by making it easier for consumers to access and share data and information. Improving access to retail data will enhance price comparison, product and service innovation, and retail market analysis and monitoring. | Implement Code amendment to allow consumers, or their agents, access to consumption data to come into effect in 2016.<br>Decide on a direction for the provision of tariff and connection data to consumers and their agents, and commence implementation. | Subject to feedback from consultation, complete implementation of provision of tariff and connection data to consumers and their agents.<br>Progress various arrangements for better access to retail monitoring data eg market pricing data. | ✓ | - | ✓ |
| 1.3 | 1 | **Hedge market development** | Investigating and making ongoing enhancements to the hedge market to ensure that it continues its upward momentum. | We are seeking to improve retail competition by providing market participants with greater certainty about forward price expectations, thereby enhancing decision-making and promoting greater reliability and efficiency. | Progress enhancements for the hedge market, specifically:<br>- consider enhanced market making arrangements for Australian Securities Exchange (ASX) products<br>- evaluate if ASX positions can offset energy market prudential security requirements. | Complete the detailed design of any new arrangements designed to enhance market making.<br>If assessed to be of a net benefit, progress the development of arrangements to enable ASX positions to offset energy market prudential security requirements.<br>Assess and prioritise recommendations made by the Wholesale Advisory Group. | ✓ | ✓ | ✓ |

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 1.4 | 1 | **Spot market refinements** | Further develop specific initiatives identified in the 2014/15 review of the spot market. | We want to reduce any barriers to retail competition arising from current spot market arrangements.<br>Refinements to the spot market have the potential to enhance competition in both the hedge and retail markets. | Following from the high-level assessment of options completed in 2014/15:<br>- identify spot market refinements for further evaluation<br>- complete a detailed cost benefit assessment for all refinements being evaluated. | Subject to a positive cost benefit assessment, complete the detailed design for any new arrangements.<br>Begin development of any Code amendments. | ✓ | ✓ | ✓ |
| 1.5 | 2 | **Default distribution agreement** (previously called more standardisation of UoSA) | Look at making the model use of system agreement (MUoSA) a default agreement.<br>The objective of the project is to promote retail competition and efficiency in the electricity industry. | The current wide range of use of system agreements (UoSAs) inhibits retailer entry and expansion. Some terms within UoSAs also inhibit retailer entry and expansion within particular networks. | Initial consultation on the draft default distribution agreement by September 2015. | Further consultation on draft default distribution agreement, if necessary.<br>Make decision on next steps.<br>There is potential for this project to be completed in 2016/17 unless significant issues arise. | ✓ | - | ✓ |

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.5 | 2 | **Information about spot price risk** | Providing information about spot price risk to consumers, especially residential consumers exposed to the spot market. | The need for this project was highlighted through last year's appropriations consultation.<br>There needs to be an investigation of whether consumers (particularly residential consumers) on spot pricing are fully aware of the risks. | Issues paper published. | Complete investigation and, if there are problems, develop proposals. | ✓ | ✓ | - |
| 2.6 | 2 | **Review of secondary networks** | Retail Advisory Group (RAG) project considering the competition, reliability and efficiency effects of secondary networks. | We want to remove unnecessary barriers to retail competition in secondary networks and promote efficient operation of the industry. | RAG discussion paper and recommendation paper completed. | Respond to RAG recommendations. | ✓ | - | ✓ |

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.7 | **3** | **Review of data requirements to enhance retail competition and efficiency** | Review of the data and data exchanges between participants (including service providers) to ensure that the right information is being provided at the right time, and at an appropriate level of accuracy, to ensure that retail competition is being facilitated and the market operates as efficiently as possible. | In recent years the retail market has seen increased levels of competition, the increased penetration of 'data-rich' smart meters, new retail product initiatives, an increase and diversification in customer service expectations and new market initiatives such as the retail data project.<br>Some stakeholders have indicated that efficient data exchange is a key issue for them and that improvements in this area could greatly reduce transaction costs. | Scoping of problem definition and issues prior to developing consultation paper. | Confirm if regulatory intervention is required and develop proposals, if necessary. | ✓ | - | ✓ |

## *Programme: Efficient pricing*

This programme focuses on improving the efficiency of prices throughout the electricity sector. Price efficiency is important to ensure that signalling for investment is correct so that the right investments occur at the right time and in the right place. The electricity sector is the most capital intensive sector in New Zealand so inefficient investment decisions that result from incorrect price signals can have long term adverse effects on consumers.

The programme includes work on improving the efficiency of pricing in the wholesale market, and developing appropriate arrangements for allocating the costs of transmission and distribution services. The work on spot market refinements will also improve pricing efficiency (as covered in the retail market programme above).

### Desired impacts

| Strategies | 2014–2018 impact measures |
|---|---|
| **Providing efficient price signals** | • Increased range of products or services with prices.<br>• Increased accuracy of price forecasts.<br>• Reduced instances of inefficient prices, including during scarcity events.<br>• More efficient price signals for residential and small and medium enterprise (SME) consumers. |

**Initial assessment of size: High** **Initial assessment of net public benefit: High**

## Key projects proposed for 2016/17

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 1.6 | 1 | **Transmission pricing investigation** | Review of the transmission pricing methodology (TPM) to promote overall efficiency of the electricity industry. | We are reviewing the current arrangements in order to better promote operational and investment efficiency in the transmission sector and the broader electricity market. | Complete consultation on options and issues relating to transmission pricing.<br>Develop a decisions and reasons paper. | Finalise Code amendment, if any, and begin implementation (Transpower to develop TPM). | - | - | ✓ |
| 1.7 | 1 | **Distribution pricing review** | A review to investigate efficient distribution pricing arrangements. | We are reviewing the current arrangements in order to achieve better operational and investment efficiency in the distribution sector and the broader electricity market. | Develop options and consult on a recommended approach for identified issues relating to distribution pricing. | Develop Code amendment or market facilitation measures, if any. | ✓ | ✓ | ✓ |
| 1.9 | 2 | **Part 6 (distributed generation pricing principles)** | A review of Part 6 of the Code pricing principles, to ensure consistency and alignment with distribution pricing principles. | We will review the pricing principles to ensure that they are not preventing distributors from pricing and charging on a cost-reflective basis. | Release consultation paper by December 2015.<br>Complete consultation paper on options. | Finalise Code amendment, if any, and have it come into force in 2016/17. | ✓ | ✓ | ✓ |
| 2.16 | 2 | **Instantaneous reserve event charge and cost allocation review** | Improve the efficiency in allocation of instantaneous reserve costs and the event charge. Includes consideration of the costs of commissioning new generation. | To provide efficient price signals and encourage efficient use and supply of instantaneous reserve. | Develop options for instantaneous reserve event charge and cost allocation. | Finalise consultation on any Code amendment.<br>Likely implementation during 2017/18. | - | ✓ | ✓ |

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.19 | **3** | **Wholesale market information** | Review of wholesale market information disclosure exclusions in Part 13 of the Code.<br>Improved public access to fuel quantity information via market facilitation measures.<br>Builds on initiatives recommended by the Wholesale Advisory Group (WAG) in 2012/13. | This project is to facilitate an active hedge market by enhancing the disclosure of information that influences the forward price curve.<br>A more active hedge market assists with enhancing retail market competition. | Initiate work on information disclosure provisions.<br>Progress an information paper on options for fuel information (for publication in 2016/17). | Finalise consultation on Code amendment, if any.<br>Likely implementation during 2017/18.<br>Publish information paper on generation fuel information. | ✓ | - | ✓ |

## *Programme: Competition in wholesale markets including ancillary services*

In the wholesale market, including the ancillary services markets, we are focusing on facilitating greater participation and reducing barriers to competition.

This programme includes projects to improve competition and efficiency in instantaneous reserve, frequency keeping, extended reserves and potentially other ancillary service markets. New technologies have made it possible to create more competitive national markets for instantaneous reserve and frequency keeping, which have previously been purchased in island-based markets.

As technologies improve, the specification of the reserve and frequency keeping ancillary services needs to be updated. The Authority will review the instantaneous reserve products to enhance efficiency and reduce barriers to entry for new evolving technologies. The focus will be on expanding markets so more providers can compete and the same service can be offered with lower input costs.

Improvements to the ancillary services markets are expected to results primarily in efficiency and competition gains, but will also contribute to improved security.

### Desired impacts

| Strategies | 2014–2018 impact measures |
|---|---|
| **Reducing barriers** | • Improved participation in ancillary services markets. |
| **Promoting flexibility and resilience** | • Improving the cost and effectiveness of the frequency management regime. |

**Initial assessment of size: Medium** **Initial assessment of net public benefit: High**

## Key projects proposed for 2016/17

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.9 | 2 | **Review of frequency keeping services** | Review future frequency keeping service requirements with use of HVDC frequency keeping controls.<br>This project combines what was referred to as national market for frequency keeping and normal frequency asset owner performance obligations (AOPOs) in the 2014/15 programme. | The technical requirements for frequency keeping have changed with the introduction of frequency keeping controls.<br>The current review will include fresh consideration of any potential enhancements in the new environment. | Publish strategy/information paper and consider submissions. | 2016/17 actions depend on the results of the current review.<br>There is potential for one or more projects at this stage. | ✓ | ✓ | ✓ |
| 2.10 | 2 | **Review of instantaneous reserve markets** | Undertake a fundamental review of the instantaneous reserve markets to reduce barriers and enhance performance. This was a WAG project in 2014/15 that resulted in recommendations to the Board in March 2015. The Authority is now progressing this work. | Current arrangements may create barriers for some and emerging types of instantaneous reserve.<br>We will consider options to reduce unnecessary barriers to increase competition and efficiency. | Complete engineering market and compliance analysis | Report from the system operator to test findings with stakeholders (Nov-16).<br>Dependent on the results indicating net benefits, develop and publish a consultation paper on high level options.<br><br>Detailed design and commence Implementation (all going to plan). | ✓ | ✓ | ✓ |

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.13 | 2 | **Dispatchable demand-constrained on/off payments** | Amend the Code to ensure dispatchable demand constrained-on/off payments provide the correct incentives. | We are seeking to encourage the efficient use of dispatchable demand. | Complete Code amendment for late-bid changes by March 2016.<br>Price infeasibility: solution developed and consulted on by June 2016. | Price infeasibility: solution finalised, Code amended and implemented. | ✓ | ✓ | ✓ |
| 2.15 | 3 | **Transpower demand response protocol management** | Incorporate Transpower's demand-side response into spot market and facilitate the completion of other elements of the Transpower demand response protocol. | We are seeking to increase the efficiency of Transpower's demand-side response. | Develop options on incorporating Transpower's demand-side response into the spot market. | Code amendment made, if necessary.<br>Complete implementation. | ✓ | ✓ | ✓ |

## *Programme: Reliability*

This programme includes initiatives to improve the resilience (quality and reliability) of the electricity system.

Our work in the reliability area is about ensuring that the market conditions and incentives are correct to ensure that participants efficiently develop and operate the electricity system to manage security and reliability in ways that minimise total costs while being robust to adverse events.

Most importantly for consumers, this work is about making sure market arrangements are in place to keep the lights on, even in dry years and during foreseeable short-term emergencies.

Significant effort went into improving reliability during the early years of the Authority from 2010 to 2011. As a result there have been strong results demonstrated in our monitoring of the reliability limb of our statutory objective (see the 2014/15 Annual Report and annual electricity market performance reviews).

### Desired impacts

| Strategies | 2014–2018 impact measures |
|---|---|
| **Reducing barriers** | • Improved information availability. |
| **Providing efficient price signals** | • More efficient price signals. |

**Initial assessment of size: Low** **Initial assessment of net public benefit: Medium**

## Key projects proposed for 2016/17

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| New for 2016/17 | | **Review risk management incentives** | A project led by the Market Performance team to review whether current market arrangements (including but not limited to the stress test, scarcity pricing, customer compensation scheme) are appropriately calibrated to provide efficient risk management incentives. | We want to ensure that market arrangements are not inefficiently disadvantaging providers of risk products, or causing artificially low demand for risk products. Findings from this project will inform the hedge market development project. | This is a pending project for the 2015/16 period. However, it is possible that the project will commence in late 2015. | Complete the review. | - | ✓ | ✓ |
| NA | **2** | **Offer and dispatch: wind generation offers** | Efficiency of offer and dispatch arrangements for wind generation.<br>Project initiated in 2015/16. | We want to review the existing arrangements that require wind generators to offer their output at $0.01/MWh to ensure that reliability and efficiency are being promoted. | WAG discussion paper completed. | WAG recommendations to the Board.<br>Consultation on Code amendment, if any. | ✓ | ✓ | ✓ |

## *Programme: Implementation projects*

This programme covers the effective and efficient implementation of market development initiatives.

The implementation programme may also include project reviews (against deliverables) where these are considered desirable.

Post-implementation reviews (against impacts sought) of completed major projects are covered in the Provision of education, models and data programme on page 40.

### Desired impacts

Impact measures are primarily covered in the contributing programmes, primarily the retail and wholesale market programmes.

| Strategies | 2014–2018 impact measures |
|---|---|
| **Ensuring fit for purpose market services** | • Effective implementation of market development initiatives, as measured by case-by-case analysis, including participant feedback.<br>• Cost of significant system changes/enhancements independently reviewed for value for money. |

**Note re assessment of size & benefit**

Size and benefit assessments are covered in the contributing programmes and are not duplicated here.

## Key projects proposed for 2016/17

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.1 | **1** | **National market for instantaneous reserve implementation** | Implement a national market for instantaneous reserves to enhance wholesale market competition. | We are seeking to enable parties in the North Island to compete in the South Island and vice versa. We also expect efficiency gains as national markets are expected to reduce total procurement requirements. | Development of the national market system changes completed. | Complete implementation. | ✓ | ✓ | ✓ |
| 2.2 | **1** | **Extended reserve arrangements implementation** | Implementation of the arrangements for the efficient procurement of load for extended reserve. Includes establishment of the extended reserve manager market operations service providers (MOSPs). | We are seeking more efficient provision and use of extended reserves. | Complete implementation of relevant milestones for extended reserve arrangements including for the extended reserve manager, system operator and clearing manager.<br>It is anticipated that the development of the extended reserve selection optimisation model will be completed within the year, and consultation on the selection methodology and technical requirements schedule will have commenced. | Implementation activities and commencement of operations are expected in 2016/17. | ✓ | ✓ | ✓ |

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.11 | 2 | **Shortened gate closure and revised bid and offer revisions provisions implementation** | Implementation of a shortened gate closure and the revised provisions for bids and offers revisions. | Shortened gate closure will lead to more efficient use of resources and increased levels of wholesale market competition. Better bid and offer revision provisions will simplify the existing Code and clarify dispatch obligations. | Code amendment completed by March 2016. | Complete implementation and market system changes. | ✓ | - | ✓ |

# Monitoring, information and education

## Programme: Provision of education, models and data

The Authority has an ongoing commitment to consumer and participant education.

Provision of information and a consumer education programme is expected to result in stronger competition through increased consumer understanding, awareness and motivation to participate in markets. A consumer education programme is being developed and will commence implementation in 2015/16.

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. Education is a feature of our business-as-usual market services and compliance outputs as well as well as our project work. This work is expected to contribute to improved efficiency, in particular through better compliance and more accurate and consistent application of the Code, and this will in turn contribute to reliability and competition.

In addition to the business as usual monitoring, investigations and reports, this programme includes work we are carrying out to improve the transparency of industry processes. This includes provision of data and models that enable replication of pricing calculation, counterfactual analysis, and rapid assessment of structure, conduct, and performance of the various markets that make up the electricity industry.

Provision of information and models will build confidence and reduce concentration of technical expertise and intellectual property that works against competition in the electricity markets, including markets for technical services.

This programme also includes post-implementation reviews (against impacts sought) of completed major projects. These are carried out once the changes have been in place sufficient time to bed-in and for the desired impacts to be able to be appropriately assessed. It is too early at this stage to identify what post-implementation reviews will be carried out in 2016/17, however, we would expect to carry out one or two during the year.

### Desired impacts

| Strategies | 2014–2018 impact measures |
|---|---|
| **Reducing barriers** | • Improved information availability. |

**Initial assessment of size: Medium** **Initial assessment of net public benefit: High**

## Key projects proposed for 2016/17

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.4 | **2** | **Consumer education programme** | Public education about the performance of the electricity market and benefits that are delivered through a competitive market. | Improved information availability is expected to increase consumer awareness, understanding and motivation to participate in both the wholesale and retail markets. | Complete development of programme design and launch. | Ongoing programme. | ✓ | - | - |
| 2.34 | **2** | **Participant education** | Educate participants on the operation of the Code, the market, and market systems and processes. | We need to ensure that participants can obtain the information necessary to enter and participate in the market. The information must be accurate, and presented in a form that is accessible and easy-to-interpret. | A pilot of web-based tool for presenting the material currently included in guidelines is expected to be completed in the first half of 2015/16. If successful, further development of that tool will be pursued.<br>Ongoing participant education including training sessions and workshops on specific topics continue to be delivered. | Complete web-based tool for presenting the material currently included in guidelines, subject to satisfactory review of the pilot.<br>Ongoing participant education including training sessions and workshops on specific topics. | ✓ | ✓ | ✓ |

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| | 1 | **Post implementation reviews** | Post-implementation reviews (against impacts sought) of completed major projects. | Assessment of the impacts of major projects. These are carried out once the changes have been in place sufficient time to bed-in and for the desired impacts to be able to be appropriately assessed. | Complete post implementation review of the demand-side bidding and forecasting Code amendments that went live on 28 June 2012. | 2016/17 reviews are yet to be identified. | ✓ | ✓ | ✓ |

# Market services

## Programme: Fit for purpose market services

This programme includes the development and enhancement of the market operations service provider (MOSP) and system operator-provided systems and services to ensure effective market operation, increase the efficiency of market operations and the delivery of the services themselves, and facilitate market development.

In addition to the business-as-usual work in relation to operation of the electricity system and markets, we are carrying out projects to ensure the services meet market and participant needs, both now and into the future and improve operational efficiency.

### Desired impacts

| Strategies | 2014–2018 impact measures |
|---|---|
| **Ensuring fit for purpose market services** | • Market services are resilient to adverse events, as measured by case-by-case analysis. |

**Initial assessment of size: Medium** **Initial assessment of net public benefit: Medium**

## Key projects proposed for 2016/17

| 2015/16 # | 2015/16 Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.23 | 1 | **Tender for registry MOSP** | Tender for registry MOSP role and system. | We want to ensure that services and systems remain suitable for evolving market requirements, can be developed in a timely and cost-effective manner and are suitably resilient to potential systems failures and outages. | Tender process on target for new service provider arrangements to be in place by September/October 2016. | New service provider arrangements in place by September/October 2016 with the new contract commencing on 1 May 2017. | - | ✓ | ✓ |

## *Programme: More efficient market operations*

This programme involves increasing the efficiency of electricity market operations through refining processes set out in the Code.

We also focus on continuous improvement of our business-as-usual systems and processes.

**Initial assessment of size: Low** **Initial assessment of net public benefit: Medium**

## Key projects proposed for 2016/17

| 2015/16 # | Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.29 | 3 | **Part 10 operational review** | Review of the operational elements of the new Part 10 of the Code (and relevant, related sections of other Parts of the Code) to ensure that the operation of the registry and its functions is efficient. | The new Part 10 introduced a number of new obligations and processes. The operation of the market has continued to evolve since this time, so we'd like to make sure these processes are as efficient as possible. | Complete analysis of issues and options, and commence Code amendment consultation process for relevant issues. | Finalise Code amendment, if any, to come into force in 2016/17. | ✓ | - | ✓ |
| 2.31 | 3 | **Review of participant audit arrangements** | The review of participant audit requirements in the Code to improve efficiency and align with good practice. Does not include MOSP audits. | We're reviewing audit requirements to improve efficiency and align with good risk management practice. | Complete consultation on recommended changes to audit regime, and commence any necessary implementation. | Conclude any necessary implementation of changes to the audit regime, if any, to come into force in 2016/17. | - | - | ✓ |

| 2015/16 # | Priority | Project | Description | Why we are doing this project | Scheduled timeframe 2015/16 | Scheduled timeframe 2016/17 and out-years | Contribution to statutory objective | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Competition | Reliability | Efficiency |
| 2.33 | **3** | **2016 Code amendment omnibus** | Minor Code amendments to address operational or other market efficiency issues that arise during the year. | We need to ensure that the operational aspects of the Code are achieving the most efficient outcomes. | Specific Code amendment proposals were identified during 2014/15 and are now under investigation. Consultation and a final Code amendment are expected to be completed in 2015/16. | Further suite of minor Code amendments for consideration in 2016/17. | - | - | ✓ |

# Compliance

## Programme: Compliance

Compliance plays an integral role in ensuring the integrity of the electricity market by enabling compliance by the industry with the Act, regulations and the Code.

We take a risk-based and proportionate approach to compliance, recognising that most industry participants want to comply with their regulatory obligations voluntarily or can be encouraged or induced to do so. Our focus is on facilitating voluntary compliance by providing information, education, encouragement, and assistance. However, serious compliance matters are formally investigated and may be subject to enforcement action.

No key development projects have been identified for compliance in 2016/17. Our focus will be on continuous improvement of our business-as-usual systems and processes, including our ongoing focus on communication with participants.

### Desired impacts

| Strategies | 2014–2018 impact measures |
|---|---|
| **Increasing compliance** | • Downward trend in frequency of non-compliance (same type of event, same participant).<br>• Downward trend in the number of serious breaches.<br>• Increased awareness of the Act, regulations and Code among participants. |

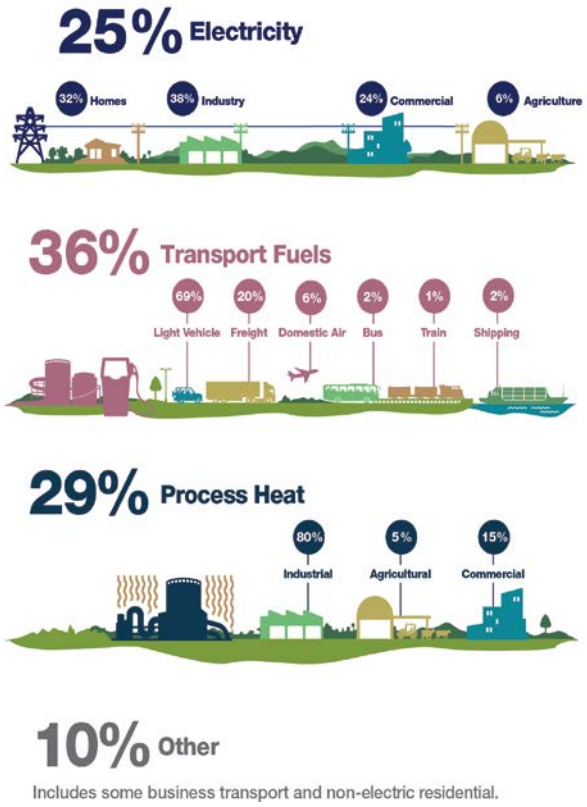
**Initial assessment of size: Low** **Initial assessment of net public benefit: Medium**

# Appendix D Proposed EECA priorities

## Summary

- EECA is seeking $13 million to support its electricity efficiency programmes in the business and residential sectors in 2016/17.
- The proposed programmes will save an estimated 340GWh of electricity at an average cost of 0.6c/kWh. The programmes will reduce peak demand by about 95 MW in 2016/17. The expected lifetime savings from the 2016/17 programmes is estimated at $200 million.[3]
- Since 2006, EECA's levy-funded programmes have delivered electricity savings of around 1800 GWh per annum, peak demand reduction of more than 600 MW, with the present value of savings estimated to be over $1 billion.

## Electricity in New Zealand




Electricity use accounts for about 25% of New Zealand's total energy use.[4] About a third of this is used in households, a third in industry, and a quarter in commercial buildings (with the remainder in the agriculture, forestry and fishing sectors).

National electricity consumption in 2014 increased for the first time since 2010, due mainly to greater demand from agriculture. Electricity use in households also increased slightly in 2014 (+0.4%), reversing the declining trend experienced in recent years.[5]

There is significant untapped potential to improve the electricity efficiency of NZ businesses and households. EECA estimates that of the estimated $7.4 billion[6] that consumers spend on electricity each year, more than $600 million a year could readily be saved by further electricity efficiency measures.

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[3] Using the 'net national benefits' approach adopted by the Electricity Commission. Latest modelling results (Attachment 1) suggest that this approach results in conservative estimates.

[4] See *Energy in New Zealand 2014*, published by MBIE, August 2015 http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/publications/energy-in-new-zealand

[5] See *Energy in New Zealand 2014*, published by MBIE, August 2015.

[6] See *Energy in New Zealand 2014*, published by MBIE, August 2015.

Recent announcements around the future closure of carbon intensive electricity generation plants signals a real challenge for New Zealand to embrace electricity efficiency and help avoid the need to build expensive new infrastructure.

Energy efficiency remains New Zealand's most cost-effective way of reducing business and household costs, and improving our carbon footprint.

**Why electricity efficiency matters**

Security of supply, affordability and making the best use of renewable resources are fundamental to New Zealand's electricity system. By promoting and achieving electricity efficiency, we can obtain greater service from our resources, and make better use of our electricity system over the long term.

Electricity efficiency can be achieved by using less electricity to deliver the same services (e.g. through use of variable speed drives or lighting control systems), or by changing behaviours to reduce electricity wastage.

Promoting electricity efficiency is important because it delivers a range of benefits to business, households, and New Zealand as a whole. For example, improving electricity use in business can lead to other benefits, such as lower costs of production and improved competitiveness.

**There are three types of benefits from electricity efficiency work**

The benefits and costs[7] of electricity efficiency work (such as that funded by the levy) can be classified as three different types,[8] depending on who receives these benefits or pays the costs:

a) Benefits shared by all levy payers (club benefits)

b) Benefits received directly by private companies or individuals (private benefits)

c) Benefits shared by all New Zealanders (public benefits)

**a) Benefits shared by all levy payers (club benefits) - $149 million**

EECA's electricity efficiency work puts downward pressure on wholesale electricity prices which is a direct benefit to all electricity consumers, because they pay less for the electricity than they otherwise would have.

Detailed simulation models[9] of the electricity market show that on average wholesale prices can be expected to fall (compared to business as usual) by 3.5% as a result of the

7 Only key results are presented in this consultation. A detailed explanation of the cost and benefit breakdown and calculations is available on request.

8 Economists use 'private', 'public', 'club' and 'pool' to describe different kinds of costs and benefits, according to who pays them and receives them.

forecast 340 GWh demand reduction expected from levy–funded electricity efficiency programmes in 2016/17. This translates to approximately $137 million of benefit to levy payers per year.

Levy–funded electricity efficiency programmes are also expected to reduce costs arising from peak demand.[10] Reducing peak demand across the electricity network results in:

- Deferred investment in new (peak) generation plant which can be very expensive
- Reduced costs of new distribution and transmission network infrastructure.

An additional $12 million of benefits is shared by all levy payers from peak demand reduction to bring the total to $149 million.

### b) Benefits received directly by private companies or individuals (private benefits) - $70 million

When businesses and households use electricity more efficiently, they pay less for the same or higher, level of service. This benefit is a private one – not shared with others.

Private benefits are often created alongside public and club benefits. Activities that reduce energy consumption reduce private costs as well as reducing wholesale price and peak electricity demand.

The appeal of these private benefits is often used to ‘unlock’ investment in energy efficiency and subsequently unlock the significant shared benefits to all levy payers and/or the public.

While private benefits can be a strong incentive to act, barriers may still exist, such as the capacity, capability and financial investment required to achieve the benefits. Levy–funded programmes act to reduce these barriers by providing information, regulation or financial assistance.

EECA estimates that its levy-funded programmes result in $66 million of investment by private companies or individuals, leading to $70 million of benefits annually.

### c) Benefits shared by all New Zealanders (public benefits) - $4.5 million

Electricity efficiency reduces greenhouse gas emissions, which is of benefit to all New Zealanders. Even with our highly renewable electricity system, around 20% of our electricity is generated using fossil fuels. Detailed modelling of the electricity system shows that of the 340 GWh of electricity expected to be saved through levy-funded programmes in 2016/17, around 95% of this would otherwise be generated using fossil fuels. This

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9 Energy Link modelling completed September 2015. See Attachment 1. Further details available on request.

10 2016/17 peak demand savings attributable to levy programmes are estimated at 95MW. Cumulatively 721 MW since 2006.

equates to reductions in greenhouse gas emissions of 180,000 tonnes per year.[11] This reduction helps us meet our international climate change obligations. Assuming an international cost of NZD$25 per tonne, the calculated reduction equates to $4.5 million per year.

### Benefits summary

The table below summarises the estimated[12] 2016/17 costs and benefits under these three categories:

| Category | Annual Cost | Estimated (midpoint) Annual benefit | Annual Benefit to Cost ratio |
|---|---|---|---|
| Shared by all levy payers | $13 m | $149 m | 11.5 |
| Direct to private | $66 m | $70 m | 1.07 |
| Shared by all New Zealanders | $2.5 m[13] | $4.5 m | 1.7 |

### EECA's role

EECA is a Crown agent, established under the Energy Efficiency and Conservation Act 2000. EECA's role is to implement the Government's priorities in the areas of energy efficiency, energy conservation and renewable energy.

Activities delivered via the electricity levy-funded efficiency programmes support the Government priorities for the energy sector set out in the New Zealand Energy Strategy:

- Diverse resource development (including embracing new energy technologies)
- Environmental responsibility (including reducing energy-related greenhouse gas emissions)
- Efficient use of energy (including warm, dry, energy efficient homes; an energy efficient transport system; enhanced business competitiveness through energy efficiency; better consumer information to inform energy choices)
- Secure and affordable energy (including reliable electricity supply).

[11] Energy Link modelling completed September 2015. Details available on request. See Attachment 1 for further detail.

[12] Some of these estimates have a range of likely values. Where this is the case, for clarity we have taken a single value, usually a midpoint estimate.

[13] A conservative estimate of public cost, calculation consistent with established economic principles.

## EECA's role in electricity efficiency

EECA works to improve energy use across the economy in three delivery areas - residential, transport and business; and across all fuels - electricity, liquid transport fuels and direct heat applications.

Section 128 (3) c) of the Electricity Industry Act 2010 provides that EECA can use the levy to fund 'a portion of [its] costs in performing its functions and exercising its powers and duties under the Energy Efficiency and Conservation Act 2000 in relation to the encouragement, promotion, and support of electricity efficiency'. The size of the portion of EECA's investment to be met by the levy is determined by the Minister of Energy and Resources. In recent years, the Minister has authorised EECA to call on the levy to fund $13 million of the costs of its electricity efficiency activities.

EECA works to improve the electricity efficiency of business and households where there is a net national benefit in doing so, and where they will not otherwise take action. Most of our electricity efficiency activities are funded through the levy.

Our activities to reduce electricity use include assisting businesses to develop energy management plans, developing standards and labels on the energy performance of electrical machinery and appliances, demonstrating and promoting new and under-used energy-saving technologies, providing information to guide consumer choice and behaviours, and advertising campaigns to encourage uptake of more efficient technologies (such as efficient forms of lighting).

## The benefits of EECA's levy-funded activities to June 2015

We estimate that, since 2006, our levy-funded activities have delivered approximately:

- cumulative electricity savings of 1800 GWh per annum
- peak demand reduction of more than 600 MW[14]
- present value of savings estimated to be over $1 billion.[15]

All of EECA's levy funded programmes deliver national benefits at a total cost less than the marginal cost of new generation[16], and are delivered at about 0.6c per kWh saved.[17]

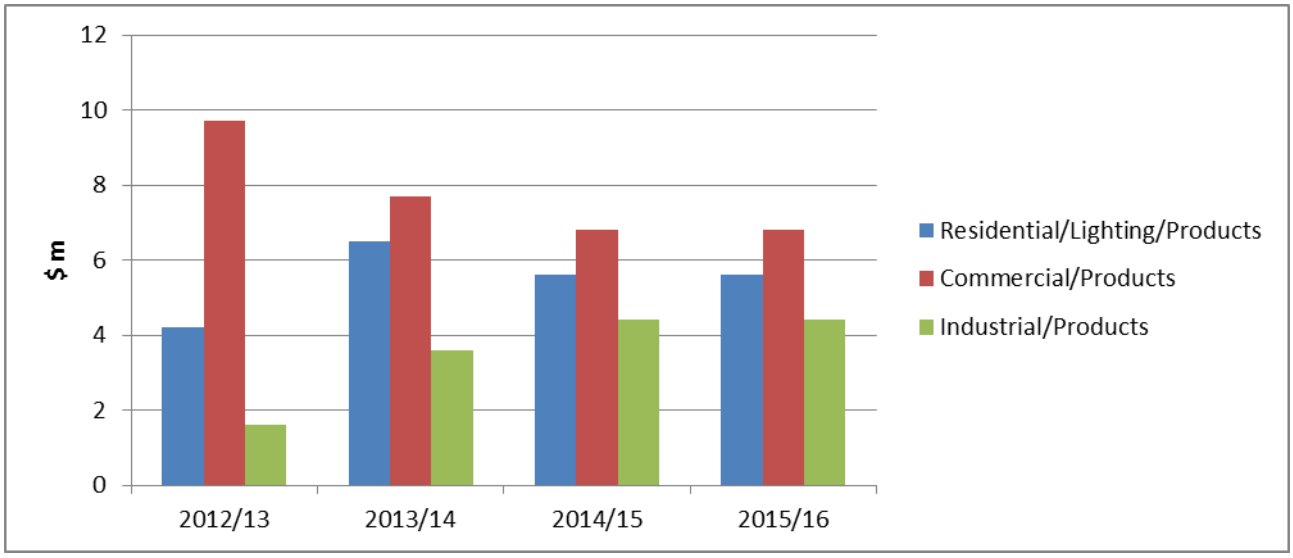
The following table summarises EECA's levy-funded activities over time.

[14] EECA applies the KEMA calculation across nearly 500 technologies in thirty industrial, commercial and residential sub-sectors proportioned across winter and summers peaks and off peak periods. This number changes over time.

[15] For further details refer to EECA 2014/15 Annual Report https://www.eeca.govt.nz/about-eeca/our-goals-and-progress/#documents

[16] EECA uses the (MBIE provided) long-run marginal cost of generation (8.79c per kWh) as the proxy for the industrial electricity price.

[17] For continuity, EECA has maintained the reporting convention used by the former Electricity Commission. The value of energy savings is the present value of the incremental and cumulative energy savings discounted over 10 years.




Electricity Efficiency Appropriation results from 2014/15 are available in Appendix E.

### What we're proposing for 2016/17

In 2016/17, as in recent years, EECA proposes to spend $13 million on levy-funded activities. At this level, levy funds will comprise 43.1% of EECA's total budget for the year. The table below shows how this compares to previous years.

| | 2014/15 $000 | % of funding | 2015/16 $000 | % of funding | 2016/17 $000 | % of funding |
|---|---|---|---|---|---|---|
| **Non departmental output expenses** | | | | | | |
| Energy Efficiency and Conservation | 16,584 | 23.5% | 16,584 | 29.9% | 16,584 | 54.9% |
| Implementation of the Home Insulation Programme (WUNZ:HH) | 2,500 | 3.5% | 2,500 | 4.5% | | |
| **Electricity Efficiency Levy** | **13,000** | **18.4%** | **13,000** | **23.5%** | **13,000** | **43.1%** |
| **Non departmental other expenses - multi year appropriations** | | | | | | |
| Home Insulation (WUNZ:HH) | 37,388 | 53.0% | 22,538 | 40.7% | | |
| **Total operational appropriations** | **69,472** | | **54,622** | | **29,584** | |
| **Other income** | **1,150** | 1.6% | **800** | 1.4% | **600** | 2.0% |
| **Total operational funding for the year** | **70,622** | 100% | **55,422** | 100% | **30,184** | 100% |

### *Electricity efficiency programmes for businesses*

Electricity makes up 31% of business energy use.[18] The main areas where businesses use electricity are commercial buildings, motor systems and metal production.[19]

[18] MBIE 2014 Energy Balance Report http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/statistics/resolveuid/cf28910bfc724c82a9ec8a82db2e0ef0

[19] EECA's Energy End Use Database https://www.eeca.govt.nz/assets/Resources-EECA/REEUDB_Summary_2012_0.xlsx

EECA helps the business sector to reduce electricity use by helping them to measure, monitor and therefore identify the best opportunities to do so, by helping fund innovative or under-used technology, providing information and inspiration through sharing case study examples of other businesses' successes, using regulations to improve the energy performance of the products and appliances used by businesses, and by supporting programmes like NABERSNZ that benchmark and compare energy use in commercial buildings.

EECA's strategy in the business sector is to target the top 200 energy-using businesses that use 70% of all business energy, and encourage them to commit to long term energy management plans. These direct engagement energy management plans span all the company's activities, and provide a holistic solution to energy management and culture.

This approach, begun in 2014/15, has led to 38[20] long-term energy management partnerships which once implemented would result in ongoing annual energy savings potential of $14 million (including $11m electricity), and annual reduction of around 30,000 tonnes of $CO_2$.

EECA engages indirectly with businesses outside the top 200, using our partnerships with energy management specialists to reach the next 1000 large energy users. Programme portfolio activities include support for innovative and emerging technology where there is a large potential for replication and where the technology faces clear barriers to adoption.

EECA also uses levy funding in support of energy management information and training programmes delivered by industry associations and our industry partners to the market (to the remaining 200,000+ businesses). This includes information and financial support of training providers, energy management consultants and service delivery companies that provide services to all energy using businesses.

The following activities are ongoing, and will continue to be funded or part-funded through the levy:

- Energy performance standards (MEPS) and labels for business products such as electric motors, refrigerated display cabinets and industrial fans
- NABERSNZ commercial buildings scheme
- 'Continuous commissioning'[21] of installed heating, ventilation and air conditioning (HVAC) systems in commercial buildings
- Group-wide energy management agreements targeting refrigeration and compressed air users
- Targeted information provided on our ENERGYWISE and EECA Business websites, and through information campaigns

[20] Agreements in place represent nearly a third of the energy used in all New Zealand business. Business partners include Waterfront Auckland, IAG Insurance, Orora Packaging, Fonterra and Alliance Meats.

[21] Continuous commissioning is a long term process of ensuring that a building performs according to its design intent and the needs of its owners and occupants, overcoming the natural degradation of building performance that arises when the original building management systems are not updated and successive occupants make un-coordinated changes to the use of space and appliances within the building.

- Technology demonstration grants, to prove the feasibility of new or under-used, yet cost-effective technologies.

The following are emerging opportunities which will be investigated in coming months. If there is a valid business case with demonstrable benefits, they may be funded or part-funded through the levy:

- Support/incentivise the wider use of energy management standard ISO50001
- Develop new approaches to overcome financial barriers for businesses through means other than traditional capital grants
- Irrigation systems throughout New Zealand consume large and increasing amounts of electricity. EECA is continuing to investigate options for more efficient use of large-scale irrigation infrastructure, and significant efficiency gains are likely to be realisable in this activity.[22]

***Electricity efficiency programmes for households***

Electricity is the primary fuel used by the residential sector in New Zealand (excluding transport).

EECA assists households to reduce electricity consumption through information campaigns, industry partnerships (for example, to ensure energy ratings are successfully displayed on products in stores), regulations that improve the energy performance of household products and appliances, and by funding insulation retrofits (through the Government-funded insulation programmes, which have insulated approximately 300,000 homes since 2009).[23]

The following activities are already underway, and will continue to be funded or part-funded through the levy:

- Administering the Efficient Products programme, which comprises mandatory energy performance labels, voluntary endorsement labelling and voluntary codes to encourage the purchase of energy efficient appliances – and minimum energy performance standards to remove the worst performing appliances from the market
- Information and marketing campaigns to improve consumer lighting choices, particularly around LEDs.

The following are emerging opportunities which will be investigated in coming months. If there is a valid business case with demonstrable benefits, they may be funded or part-funded through the levy:

- Options to drive household and grid efficiency and maximise the ability for households to control their electricity use with new technologies

[22] See *Energy in New Zealand 2014*, published by MBIE, August 2015.

[23] Insulation programmes are not levy-funded.

- Infrastructure and systems in place to ensure electric vehicles can play an important role in New Zealand's future energy efficiency, and can maximise use of electricity network capacity
- Tailored advice for households to identify the next best cost-effective investment for their property to improve energy use, along with directing homeowners to finance options to overcome barriers to uptake.

The following table outlines EECA's proposed levy-funded programmes for 2016/17:

| Sector | 2016/17 est. levy spend ($m) | EECA Intervention | Potential programme mix/delivery mode | Est. savings (GWh) | Est. cost to the levy (c/kWh) |
|---|---|---|---|---|---|
| Business | $3.8m<br><br>$2.0m<br><br>$0.8m<br><br>$1.2m | Direct engagement/Account management, partnership agreements.<br><br>Indirect engagement.<br><br>Remote engagement – Information support service through web based platform.<br><br>Regulated engagement – Business Products. | **Top 200 Energy Users**<br>• Energy audits.<br>• Monitoring and performance targeting of critical systems.<br><br>**Other Large Energy Users**<br>• Co-investment in technology demonstration projects.<br>• Industrial systems design advice.<br>• Commercial building design advice.<br><br>**Industry Associations and Industry Partners**<br>• Providing information to support industry capability.<br>• Training to improve electricity management and efficiency in industry focusing on systems components and new technologies.<br><br>**Commercial/Industrial**<br>• Product energy efficiency regulations (MEPS and MEPL). | 140 | 0.92 |
| Residential | $2.8m<br><br>$2.4m | Regulated engagement – Residential Products.<br><br>Remote engagement – Information support service through web based platform. | **Residential**<br>• Product energy efficiency regulations (MEPS and MEPL).<br>• Provide consumer information, advice and guidance on electricity efficiency opportunities including hot water heating, space heating, lighting, and appliances. | 200 | 0.35 |
| | **$13m**[24] | | | **340 GWh**[25] | **0.6 c/kWh**[26] |

[24] Emerging opportunity funding is included in Business and Residential estimates. Funding prioritisation occurs as new opportunities are identified.

[25] Estimated savings are based on planned activities and historical indicators. Actual savings will depend on the uptake rate and programme mix of activities across each sector.

[26] 6c/kWh is an average based on reporting convention. See footnote 17.

### Criteria for programme design and performance

In refining the design of our electricity efficiency programme for 2016/17, we will apply the following tests on new initiatives:

- **The opportunity is understood** – we can identify the sectors, technologies and practices across New Zealand where there is realisable potential for electricity efficiency improvements that will deliver public benefits
- **The barriers are understood** – we examine the barriers to investment by households and businesses to realise this potential. We intervene only where they will not otherwise act and where there is a role for EECA in doing so
- **The programmes will be effective** – we develop cost-effective electricity efficiency programmes that achieve measurable and sustainable electricity savings to address the opportunities and barriers
- **The programmes will deliver long term benefits** – we 'lock in' savings through use of performance-based contracting and improved product standards and labelling on electrical products.

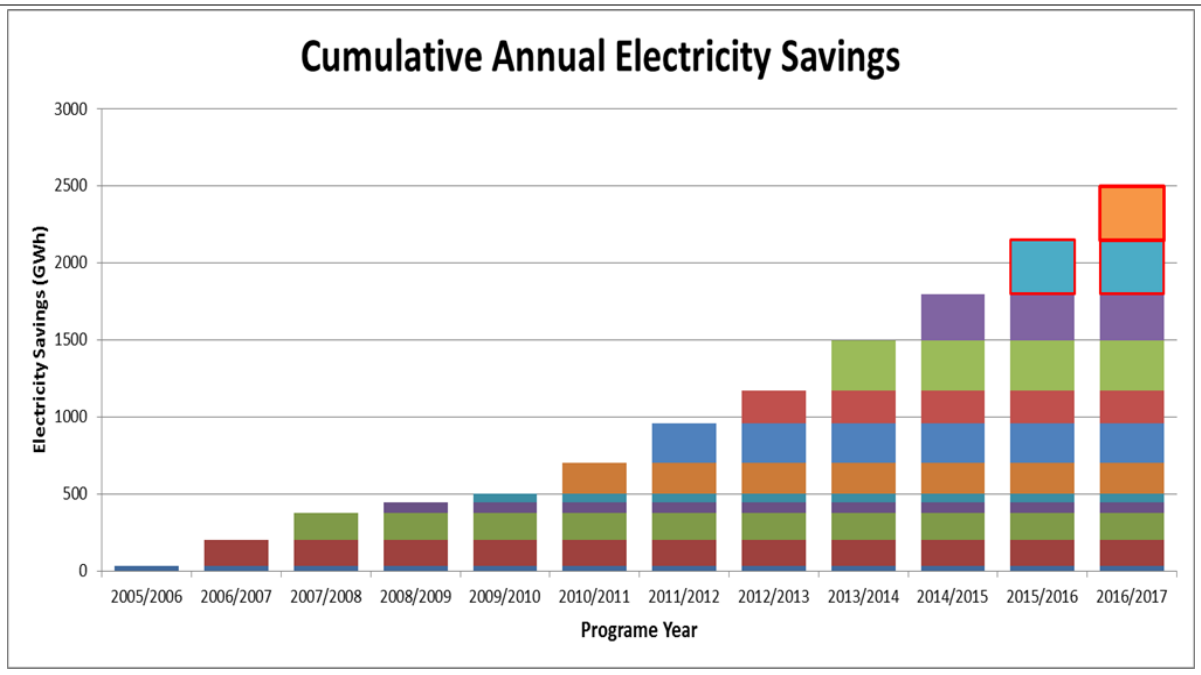
### Forecast performance from levy funded measures

EECA is forecasting that, by the end of 2016/17, EECA's levy-funded activities will have delivered approximately:

- cumulative annual savings of 2500 GWh
- 800 MW reduction in peak demand
- present value of savings of around $1500 million

at a cost to the levy of about 0.6 c per kWh saved.

The cumulative impact of our levy-funded activities are summarised in the diagram below.




Note: each coloured band represents a year, to indicate the impacts of savings on a cumulative basis.

**Attachment 1**

## Energy Link Modelling September 2015

We have commissioned modelling from Energy Link, a respected independent energy markets advisor, to estimate future outcomes. Energy Link uses a detailed market simulation to develop price path forecasts and other market advice. In September 2015, EECA requested Energy Link to run an additional scenario to investigate the impact of reducing demand by 340 GWh in 2016/17.

The results of this modelling showed that wholesale prices can be expected to be approximately 3.5% lower than business as usual as a result of the forecast 340 GWh demand reduction expected from levy–funded electricity efficiency programmes in 2016/17.

This reduction in price represents a benefit to all consumers, as the cost of the electricity they use, and subsequently (over a slightly longer term) the price they pay is lower.

As such, the impact of lower wholesale prices can be multiplied by the total consumer demand, which translates to approximately $137 million of benefit to levy payers per year.

Such a large modelled benefit requires a careful examination of the assumptions and caveats that accompany it.

### Modelled price impacts are estimated midpoint figures, actual results may be higher or lower

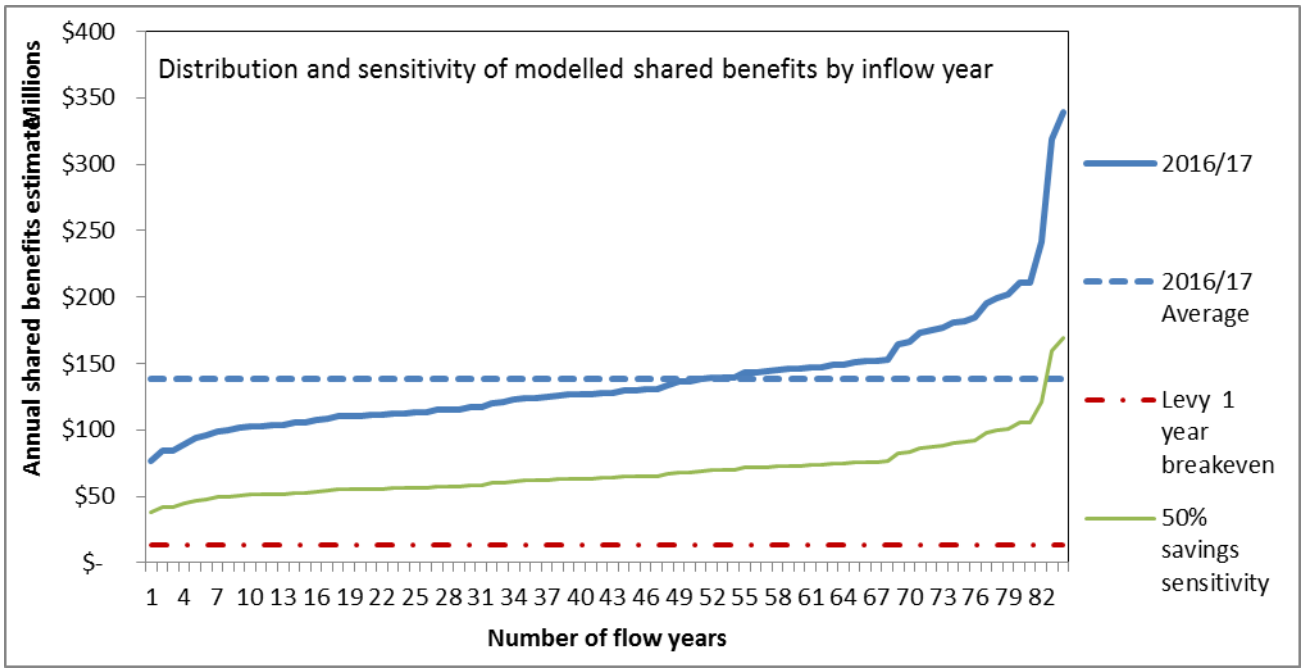
The modelling results given above are estimated midpoint annual values for price impact. Given that these figures are modelled, and are midpoint outcomes, actual outcomes could be higher or lower for a number of reasons.

- First, if the expected savings value is not delivered, then the impact on the wholesale price will be smaller (and vice versa for higher energy savings effects). We can estimate this impact by applying a reduced savings multiplier to the expected returns.
- Secondly, if the average underlying spot price is lower, then the dollar value impact will be smaller, and conversely if the underlying price is higher, then the dollar value impact will be higher.
- Thirdly, if the price impact of reduced demand is at a lower rate (in technical terms, the price elasticity) such as during a wet year, then the price will not fall as much, and the value will be lower.

We can account for the second and third impacts by looking at the variation in benefit figures arising from the underlying model results. The Energy Link model uses 84 years of inflows to simulate hydrological variability. This results in a wide range of price outcomes, and substantial changes in the underlying supply curve against which the market is cleared.

### Benefits are still large at the lower end of the range

The chart below shows the range of modelled benefit outcomes, including a reduced savings level sensitivity. You can see from this chart that all modelled flow years exceed (by a substantial margin) the required level to achieve a 1 year payback on the levy spend.




### Breakeven analysis provides a useful check

No models of the future are perfect. In the face of this uncertainty, a useful tool is a 'breakeven analysis' which looks at the level that particular variables need to reach in order to ensure a positive return from levied funds.

In this case a breakeven point is reached within one year if spot price reduced by $0.31 per MWh which compares favourably to the average spot price reduction from the modelling work of $2.71 per MWh.

This breakeven spot price change implies a breakeven elasticity of 0.55 for the projected savings level, or alternatively, a required savings level of 185 GWh if elasticity is assumed to be unity (1.0).

Note that in this case a 1 year breakeven analysis is highly conservative as the vast majority of savings delivered have expected life of greater than 1 year (nominally ten years in aggregate).

### Converting lower wholesale prices into consumer benefit requires a competitive market

Consumers will benefit directly from reductions in the wholesale price if they buy directly from the spot market. This constitutes only a small fraction of consumer load.

The majority of large consumers effectively pay a fixed price for wholesale electricity via multi-year hedge agreements. The price of these in general reflect wholesale spot price expectations, which are heavily influenced by historical spot prices, but also by forecasts

such as the Energy Link price path, and by exchange traded contracts on the ASX futures exchange. In general we understand the hedge market to be workably competitive, and therefore it is reasonable to expect that a fall in spot price will translate to a fall in hedge prices, although a lag of 1-3 years is likely given the length of hedge agreements.

The majority of small consumers pay a fixed retail price. This is made up of service costs, wholesale energy costs, distribution charges and retailer profit margins. In the absence of a workably competitive retail market, a fall in wholesale prices could simply translate to a rise in retailer profits. This is particularly true given a highly vertically integrated market (where generators are also retailers) in that companies will offset falls in generation revenue (from lower wholesale prices) with increases in retail margin. Establishing and ensuring the competitiveness of the retail market is a primary objective of the Electricity Authority's work programme, and their analysis supports the assumption that the retail market is also workably competitive.

# Appendix E EECA 2014/15 annual report on the levy-funded electricity efficiency appropriation

## The Electricity Efficiency Appropriation

## ANNUAL REPORT

## 2014/15 Financial Year

Energy Efficiency and Conservation Authority
Te Tari Tiaki Pūngao

## From the Chief Executive

I am pleased to report to you on the outcomes of EECA's levy-funded activities for the 2014/15 year.

Our electricity efficiency initiatives are designed to deliver value for money – we aim to achieve the greatest national benefits for every dollar spent. This year we have delivered a total of 321 GWh in electricity savings through initiatives to improve the efficiency of lighting and products, commercial buildings, industrial motors, and motorised systems. Since 2006, the electricity efficiency programme has delivered cumulative annual savings of 1,818 GWh.

Additionally, these energy savings will reduce peak demands on generation and transmission lines and systems by approximately 85 MW. This has helped avoid the need for investment in new generation capacity, and maintained downward pressure on electricity prices for all consumers.

EECA will continue to apply rigorous standards to the delivery of all of our programmes.

I would like to acknowledge the importance of the levy to the overall operation and performance of EECA. I would also like to thank electricity consumers for the constructive manner in which consultation was carried out last year, with submissions from a range of commercial, residential and transport related customer groups.

We look forward to your continued interest in our programme.

Mike Underhill

Chief Executive

## Introduction

Every year, electricity users pay a levy that helps fund some of the activities of the Energy Efficiency and Conservation Authority (EECA). This report describes what was funded and delivered in the 2014/15 financial year.

Section 128 (3) c) of the Electricity Industry Act 2010 provides that EECA can use the levy to fund "a portion of [its] costs in performing its functions and exercising its powers and duties under the Energy Efficiency and Conservation Act 2000 in relation to the encouragement, promotion, and support of electricity efficiency". The size of the portion of EECA's costs to be met by the levy each year is determined by the Minister of Energy & Resources.

In late 2013, EECA consulted with electricity users on a proposed electricity efficiency delivery programme for the 2014/15 year. This resulted in the Minister approving $13 million to fund EECA's electricity efficiency programmes in 2014/15, which has remained at this level since 2011.

## Expenditure on levy-funded activities in 2014/15

As described in the table below, a total of $13.1 million in levy funds was spent in the 2014/15 year, which included $3.7 million of contracted commitments from the previous year. A further $3.8 million of commitments were contracted in 2014/15 and carried over to the 2015/16 year.

In the time between consultation (in late 2013) and budget setting, small changes were made to the distribution of funds across EECA's electricity efficiency programme for 2014/15.

These changes are summarised in the table below:

| Delivery area | Funding Available | | | Expenditure | |
|---|---|---|---|---|---|
| | Funding commitments at 30/06/14 | 2014/15 Funding | | Work completed | Work committed[27] |
| | | Requested | Allocated | | |
| Business (commercial and Industrial sectors) | $3.8 m | $8.3 m | $8.4 m | $8.5 m | $3.7 m |
| Residential (consumer products and lighting) | - | $4.7 m | $4.6 m | $4.6 m | – |
| **Total** | **$3.8 m** | **$13.0 m** | **$13.0 m** | **$13.1 m** | **$3.7 m** |

## EECA's electricity efficiency programme

EECA designs its programmes to focus on economic and achievable savings across all sectors of the New Zealand economy.

In 2014/15, key commercial/industrial and residential programmes focused on:

- Reducing the barriers to electricity efficiency improvements in commercial buildings and industrial processing by:

[27] Work committed represents contracted expenditure for eligible electricity efficiency programmes where completion and payment milestones fall after 30th June 2014.

  - building the capacity of energy specialist technical service provider industries to identify and implement efficiency improvements
  - providing businesses with information and training to pursue management policy and system improvements
  - providing information and financial co-investment to large energy-using businesses to uptake economic opportunities (HVAC, lighting, refrigeration, motor systems etc).

- Improving the energy efficiency of business and residential products and appliances through:
  - setting minimum energy performance standards to remove the most inefficient products from the market
  - providing information on product energy efficiency through the use of Energy Rating Label and the ENERGY STAR Mark.

- Reducing the barriers to the installation of efficient residential lighting by providing information through the ENERGYWISE Rightlight lighting campaign.

**Programme outcomes in 2014/15**

EECA's levy-funded activities in 2014/15 have resulted in the following benefits to electricity users and generators:

- annual electricity savings 321 GWh
- annual reduction in peak demand of 85 MW
- $189 million worth of savings at present value in 2014/15 (based on incremental energy savings)

achieved at a cost to levy payers of about 0.6 cents/kWh.

Since 2006, EECA's levy funded programmes are estimated to have provided the following benefits:

- electricity savings of 1,818 GWh
- peak demand reduction of 626 MW
- $1,072 million worth of savings at present value (based on cumulative energy savings since 2006).[28]

Programme benefits accrue not only to those who are using electricity more efficiently (via direct cost savings), but to all consumers of electricity. This is because reduced demand maintains downward pressure on wholesale electricity prices and reduces the need to build new generation capacity.

**Key achievements from EECA's 2014/15 electricity efficiency programme**

The following tables detail the key achievements of EECA programmes in the 2014/15 year using the levy appropriation.

[28] For continuity, EECA has maintained the reporting convention used by the former Electricity Commission. The value of energy savings is the present value of the incremental and cumulative energy savings discounted over 10 years.

| *Programme* | Description | Key achievements for 2014/15 |
|---|---|---|
| *Estimated energy savings*<br>*for 2014/15*<br><br>*Business (Commercial and Industrial)*<br><br>*71.3 GWh* | Reducing the barriers to energy efficiency improvements in commercial buildings and industrial processing by:<br>• building the capacity of energy specialist technical service provider industries to identify and implement efficiency improvements<br>• providing businesses with information and training to pursue management policy and system improvements<br>• providing information and financial co-investment to large energy-using businesses to uptake economic opportunities (HVAC, lighting, refrigeration, motor systems etc). | *Partnering to improve information and capability*<br><br>In 2014/15, a new business-wide engagement model was introduced to tailor EECA's approach to three broad business groups: large users (the top 200 – which represent 70% of total business energy use and 60% of energy expenditure); medium users (next 1,000); and smaller users (largely small and medium enterprises).<br><br>EECA uses different methods and programmes to increase awareness in each business group. We work directly with the large and medium energy-user groups, making use of our partnership with industry associations and energy management service providers to reach smaller energy users. Websites and other information provide additional support to all the groups.<br><br>In 2014/15, we partnered with 38 large energy-using businesses across a range of sectors. The partnerships involve direct engagement with senior decision-makers and operational staff to lock-in energy management over the long term. Businesses leading the charge with new agreements this year include Waterfront Auckland, insurance company IAG, Orora Packaging, Fonterra and Alliance Meats.<br><br>Capability building and training of service providers and industry stakeholders provided training to 300 individuals in 2014/15 including commercial building energy specialists and facilities managers, who will go on to identify, advise on, and implement improvements in commercial buildings. In conjunction with the New Zealand Green Building Council, we promoted NABERSNZ, an energy rating scheme for buildings. 14 certified ratings were completed or begun, and over 255 self-assessments were completed using an on-line tool. This scheme is based on the highly successful scheme which has been running in Australia for some years.<br><br>We also influence large and medium energy-using businesses, known as the next 1,000, indirectly through our partnership with industry groups and energy management consultants, to increase energy awareness and inspire change. |
| *Business (Products)*<br><br>*73.7 GWh* | Improve the energy efficiency of business products through:<br>• setting minimum energy performance standards to remove the most inefficient products from the market<br>• providing information on product energy efficiency through the use of Energy Rating Label and the ENERGY STAR Mark. | *Financial incentives to overcome cost barriers*<br><br>In 2014/15 we provided co-investment to support projects ranging from lighting and heating ventilation and air conditioning (HVAC) upgrades to the installation of monitoring and targeting equipment through to information and systems-based initiatives like establishing energy management plans.<br><br>The Efficient products programme uses voluntary and mandatory labelling, and energy efficiency regulation, to improve the efficiency of appliances used in New Zealand businesses. Air conditioners, linear fluorescent lamps, electric motors, refrigerated display cabinets and distribution transformers are currently regulated. In 2014/15 EECA consulted on commercial lighting and reviewed 5 product categories for ENERGY STAR (commercial luminaires, gas boilers, data servers, milk chillers and building chillers). |

| ***Funding Available*** | | | **Expenditure** | |
|---|---|---|---|---|
| *Funding commitments at 30/06/14* | *Requested levy funding* | Funding allocated in 2014/15 | Work completed in 2014/15 | Work committed to in future years |
| *$3.8 m* | *$8.3 m* | $8.4 m | $8.5 m | $3.7 m |

| *Programme* | *Description* | *Key achievements for 2014/15* |
|---|---|---|
| *Estimated energy savings for 2014/15*<br><br>*Residential (including lighting)*<br>*52.1 GWh*<br><br>*Residential (Products)*<br>*124.1 GWh* | Reducing the barriers to the installation of efficient lighting by providing information through the ENERGYWISE RightLight lighting campaign.<br><br>Improve the energy efficiency of residential products through:<br>• setting minimum energy performance standards to remove the most inefficient products from the market<br>• providing information on product energy efficiency through use of Energy Rating labelling and the ENERGY STAR mark. | The RightLight marketing campaign targeted householders and retail sales staff to reinforce the message that compact fluorescent lamps (CFLs) and LED lamps and fittings use less electricity than their equivalent incandescent bulbs, and are a more cost-effective choice in most situations.<br><br>The efficient products programme uses voluntary and mandatory labelling, and energy efficiency regulation, to improve the efficiency of appliances used in New Zealand homes. Heat pumps, white ware and televisions must meet minimum standards and display Energy Rating Labels, to enable customers to choose an efficient product. Electric water heaters and compact fluorescent lamps are also regulated. In 2014/15 EECA consulted on solar water heaters and residential lighting. The voluntary ENERGY STAR label can be found on high efficiency heat pumps, whiteware, televisions and lamps. ENERGY STAR partners promote the brand on their most efficient products, and retailer training is provided in store. |

| ***Funding Available*** | | | ***Expenditure*** | |
|---|---|---|---|---|
| Funding commitments at 30/06/14 | Requested levy funding | Funding allocated in 2014/15 | Work completed in 2014/15 | Work committed for future years |
| Nil | $4.7 m | $4.6 m | $4.6 m | Nil |

## 2014/15 Summary

| **Funding Available** | | | **Expenditure** | |
|---|---|---|---|---|
| **Funding commitments at 30/06/14** | **Requested levy funding** | **Funding allocated in 2014/15** | **Work completed in 2014/15** | **Work committed for future years** |
| **$3.8 m** | **$13.0 m** | **$13.0 m** | **$13.1 m** | **$3.7 m** |

### Funding for the 2014/15 Year

In late 2013 EECA consulted with levy payers on the 2014/15 levy programme. It was subsequently agreed with the Minister to retain a $13 million programme focussed on commercial and industrial opportunities, lighting opportunities, and the Products programme.

## Case Studies

EECA produces case studies to illustrate how our programmes benefit different sectors of the economy. Summaries of selected case studies to be included below. Further summaries are available on the EECA Business website **http://www.eecabusiness.govt.nz/case-studies**

Auckland Airport - https://www.eecabusiness.govt.nz/assets/Resources-Business/Auckland-International-Airport-finds-opportunities-everywhere.pdf

Anzco – https://www.eecabusiness.govt.nz/assets/Resources-Business/ANZCO-Foods-saves-3million-in-energy-efficiencies.pdf

Provisional Coldstores - https://www.eecabusiness.govt.nz/assets/Resources-Business/Provincial-Coldstores-saves-95-of-energy-used-for-lighting-by-switching-to-LED.pdf

TM Consulting - https://www.eecabusiness.govt.nz/assets/Resources-Business/TM-Consulting-uses-energy-efficiency-to-save-on-build-cost-and-construction-time.pdf