



COVERSHEET

Minister	Hon Dr Megan Woods	Portfolio	Energy and Resources
Name of package	Publication Of The Electricity Price Review Options Paper	Date of issue	18 April 2019

List of documents that have been proactively released

Date	Title	Author
13 February 2019	<i>Approval of funding for the Electricity Authority's real-time pricing project - Cabinet Economic Development committee paper</i>	<i>Office of the Minister of Energy and Resources</i>
13 February 2019	<i>Electricity Authority's Real-Time Pricing Project: Approval of Funding – Minute of Decision</i>	<i>Cabinet Economic Development Committee</i>

Information withheld

No information has been withheld

In confidence

Office of the Minister of Energy and Resources

The Chair, Cabinet Economic Development Committee

Approval of funding for the Electricity Authority's real-time pricing project

Proposal

- 1 I seek approval for funding of approximately \$3 million per year from 2021/22 to enable the Electricity Authority to proceed with implementation of a project to introduce real-time pricing in the wholesale electricity market. This proposal is fiscally neutral to the Crown, as the funding will be recovered from the existing levy on electricity industry participants.

Background

- 2 The Electricity Authority (the Authority) is an independent Crown entity responsible for overseeing and regulating the New Zealand electricity market.
- 3 The Authority regulates the electricity market by developing and setting market rules, enforcing and administering them, and monitoring the market's performance.
- 4 The market rules include requirements about how the wholesale price (or 'spot price') of electricity is set. The spot price is what retailers and large commercial or industrial users pay for the electricity they purchase from the wholesale market. Some households and small business also buy power at spot prices through their retailer.
- 5 Spot prices vary depending on supply and demand and the location of generation on the national grid¹. Spot prices are currently calculated the next day after electricity is used, and are not fully finalised until at least two days after that. Expectations about future spot prices are reflected in retail power prices, which make up about 30 per cent of an average residential consumer's electricity bill.
- 6 The wholesale spot market is operated by Transpower in its role as 'system operator' under a service provider contract with the Authority. The contract sets out how the costs of operating the wholesale spot market are charged by Transpower to the Authority, including compensation for investments in information technology (IT) systems.
- 7 As with all of the Authority's costs, the costs of the system operator are recovered through a levy on electricity industry participants. The Authority must consult with levy payers each year before seeking an appropriation from the Minister of Energy and Resources².

¹ Retailers and users that purchase electricity on the wholesale market also have the option of entering into financial contracts, often called hedges, which smooth out some or all of the volatility in spot prices.

² Under section 129 of the Electricity Industry Act 2010.

Comment

- 8 New Zealand has the only developed wholesale electricity market where spot prices are not finalised until two days later. As a result, consumers and participants can find that they made decisions based on prices that, when finalised two days later, can be significantly different to forecast prices. The Authority wants to implement real-time pricing (RTP) to calculate and publish spot prices in real-time, making them more timely and reliable, and ultimately enabling better electricity consumption and supply decisions by consumers and generators. Real-time pricing would mean spot prices would be produced and published by the same process that is used to run the power system, which will provide better price certainty.
- 9 The implementation of RTP will enable better demand response by end consumers. Timely and reliable prices known in real-time will allow end consumers to respond to high prices by reducing consumption. This will have the effect of reducing high spot prices and reducing emissions (as high spot prices generally correspond with times of peak demand and thermal electricity generation).
- 10 The introduction of RTP will also enable better integration of new technology into the electricity market. For example, RTP will provide battery owners with greater certainty about when to charge and discharge batteries in the electricity market. These will offer huge benefits to consumers and will assist New Zealand in reducing its energy emissions.
- 11 Real-time pricing would promote all three limbs of the Authority's statutory objective, which is to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers. Timely and reliable prices will enable all participants, including generators, consumers and technology innovators, to make better decisions.
- 12 I note that wholesale electricity prices spiked recently, due to short-term supply constraints in the natural gas market and lower-than-average hydro lake levels. The implementation of RTP will mean that wholesale electricity prices are known in real-time; in situations of supply constraint, this means that end consumers can more efficiently and effectively respond to high prices by reducing consumption.
- 13 The Authority expects RTP to produce net benefits to all electricity consumers of approximately \$53 million³ with upper and lower case estimates of \$114 million and \$19 million⁴ Although I anticipate that levy costs will be passed on to end consumers, the Authority advises that it does not expect RTP will significantly affect residential retail prices. Rather, RTP's efficiency benefits will help reduce residential prices over time. A summary of the cost benefit analysis is provided in Appendix One.
- 14 The cost of RTP primarily relates to the fees charged for system operator services⁵, which would increase to compensate Transpower for the IT system investments and operational capabilities it needs to implement and operate RTP. This would be recovered through the levy on electricity industry participants - specifically, the levy on

³ In the base case.

⁴ The impacts are assessed over a 15-year period, starting from the date RTP is implemented.

⁵ These costs are partially offset by a net decrease in other service provider fees, as some roles would no longer be required once RTP is implemented.

generators and consumers who purchase electricity directly on the wholesale market would be increased. These are the participants who will benefit directly from RTP.

- 15 Implementing RTP would be a major development for New Zealand's electricity market and the project is the result of a detailed programme of work over many years.
- 16 The overall operation of the wholesale electricity market is one of the areas that the Electricity Price Review (the Review) is looking at in the context of consumer prices. The Review, however, is not specifically looking at the detailed mechanics of market design, such as how wholesale prices are calculated. The Ministry of Business, Innovation and Employment has consulted with the Chair of the Review, who advises that this is a level of detail that Parliament has delegated to the Authority, but that measures to improve pricing and behavioural responses in the wholesale market would be generally supported by the Review

Financial Implications

- 17 The cost of RTP is expected to be \$3.221 million in 2021/22 and \$3.061 million in out-years. The Authority requires an increased appropriation in order to recover this cost from the levy on electricity industry participants. This initiative will therefore not require additional Crown revenue.

Vote Business, Science and Innovation Minister of Energy and Resources	\$m - increase/(decrease)				
	2018/19	2019/20	2020/21	2021/22	2022/23 and outyears
Non-Departmental Output Expenses: Energy and Resources: Electricity Industry Governance and Market Operations	-	-	-	3.221	3.061

- 18 The costs are not incurred until 2021/22 because, under the system operator service provider contract, Transpower only begins recovery of the cost of IT system changes once an asset is commissioned. Decisions need to be made soon to begin the first stages of RTP implementation as the necessary changes will take about three years to develop.
- 19 The Authority therefore requires certainty now to enable it to confidently make a final decision on whether to proceed with the project.

Consultation

- 20 The following departments have been consulted on this paper: the Electricity Authority, the Energy Efficiency and Conservation Authority, the Treasury, the Ministry for the Environment, and the Department of the Prime Minister and Cabinet (Policy Advisory Group). The Ministry of Business, Innovation and Employment has also consulted with the Chair of the Electricity Price Review.
- 21 There has been extensive consultation with industry participants and other stakeholders on the development of the RTP proposal. As part of that consultation, the Authority published a regulatory statement in August 2017 on the proposed amendments to the *Electricity Industry Participation Code 2010* (the Code) to implement RTP (including a draft of the proposed amendment). Feedback on the proposed Code

amendment was broadly supportive.

- 22 Under section 129 of the *Electricity Industry Act 2010* (the Act), the Authority must consult with affected parties on proposed appropriations for the coming year and report on the outcome to the Minister of Energy and Resources.
- 23 The Authority consulted with electricity industry participants on the financial impact of this initiative through the Authority's public consultation, '2017/18 Levy-funded Appropriations and Strategic Priorities' and the majority of feedback was supportive.

Human Rights

- 24 There are no human rights implications arising from these proposals.

Legislative Implications

- 25 The implementation of RTP and the associated increase in the levy do not require amendments to primary or secondary legislation. The requirements regarding how wholesale prices are set are in Part 13 of the Code. The Code is delegated legislation made under subpart 3 of the Act.
- 26 If the funding proposal is approved, the Authority will amend the relevant sections of the Code. The Authority can amend the Code by Gazette notice so long as it has met the requirements set out in section 39 of the Act. In summary, the Authority must: publicise a draft of the proposed amendment; prepare and publicise a regulatory statement; and consult on the proposed amendment and the regulatory statement. A regulatory statement was prepared, and consultation is set out above.
- 27 Regulations under the Act prescribe the method for calculating the annual levy rates. The Authority, as soon as practicable after calculating the annual levy rates, must notify these by publishing a notice in the Gazette.

Quality of the Impact Analysis

- 28 The proposal in this paper does not require regulatory impact analysis as it will be implemented through delegated legislation that is administered by the Authority.
- 29 Under section 39 of the Act, the Authority prepared a regulatory statement on the proposal, which included a statement of the objectives of the proposed amendment, an evaluation of its costs and benefits, and an evaluation of other options to achieve the stated objective. The Authority included the regulatory statement in its consultation with stakeholders.

Publicity

- 30 The Authority has been keeping industry participants and stakeholders updated on progress with the RTP project, so will provide an update regarding funding certainty.
- 31 This paper will be published on the Ministry of Business, Innovation and Employment's website, subject to any redactions consistent with the *Official Information Act 1982*.

Recommendations

It is recommended that the Committee:

- 1 **Note** that the Electricity Authority, an independent Crown entity, wants to implement real-time pricing so that wholesale electricity prices (or 'spot prices') are more timely and reliable;
- 2 **Note** that real-time pricing is expected to produce net benefits to all electricity consumers of approximately \$53 million, and will enable better demand response by end consumers and better integration of new technology into the electricity market;
- 3 **Note** that Transpower operates the wholesale electricity market under a service provider contract with the Electricity Authority, and that Transpower will implement and operate real-time pricing;
- 4 **Note** that Transpower will incur the significant portion of the costs of implementing and operating real-time pricing in the wholesale electricity market, and will recover this cost from the Electricity Authority under its service provider contract;
- 5 **Note** that the Electricity Authority requires certainty now to enable it to confidently make a final decision on whether to proceed with implementing real-time pricing;
- 6 **Approve** the following changes to the following appropriation to provide funding certainty, noting that the increase will be fiscally neutral to the Crown as the cost will be recovered from the existing levy on electricity industry participants;

Vote Business, Science and Innovation Minister of Energy and Resources	\$m - increase/(decrease)				
	2018/19	2019/20	2020/21	2021/22	2022/23 and outyears
Non-Departmental Output Expenses: Energy and Resources: Electricity Industry Governance and Market Operations	-	-	-	3.221	3.061

- 7 **Note** that, if approved, the changes to the appropriation will result in an increase of revenues of \$3.221 million in 2021/22 and \$3.061 million in out-years;
- 8 **Note** that industry participants (levy payers) and stakeholders have been consulted on the proposal to implement real-time pricing in the wholesale electricity market, and are broadly supportive; and
- 9 **Agree** that this paper be published on the website of the Ministry of Business, Innovation and Employment, subject to any redactions consistent with the *Official Information Act 1982*.

Authorised for lodgement

Hon Dr Megan Woods

Minister of Energy and Resources

Appendix One - Summary of the cost benefit analysis for adoption of real-time pricing in the wholesale electricity market

Return on Investment Summary Electricity Authority: Real-time pricing	Scenario*			Evidence Certainty**
	Lower case (sensitivity)	Base case (default)	Higher case (sensitivity)	
Initiative implementation costs - Government investment - this is recovered through a levy on electricity industry participants (A)	(10)	(8)	(6)	High
Government impacts (B)	0	0	0	N/A
Wider societal impacts - benefits (C)	36	77	157	High
Wider societal impacts - costs (C)	(7)	(16)	(37)	High
Total societal impacts (NPV) (A+B+C)	19	53	114	High
Un-monetised impacts high/medium/low+/. low+/medium+/high+	low+	medium+	high+	Low
Benefit Cost Ratio (BCR) (Positive B + C) / (A + negative B + C)	2	3	4	High
Return on Investment (ROI) - Societal Total (B + C) / A	3	8	20	High
Return on Investment (ROI) – Government B/A	-	-	-	N/A

* Values are estimated in 2017 dollars using a 6% real discount rate; sensitivity cases use real discount rates of 4% (higher) and 8% (lower). A range of other variable assumptions are also used in the calculation of these scenarios.

** Evidence ratings reflect degree of confidence that likely outcome for each measure (i.e. row) is captured within sensitivity range.