

# Removal of frequency keeping constrained on and off compensation within the frequency keeping band

Decision paper

12 August 2015

---

## Decision

- 1 The Electricity Authority (Authority) has decided to amend the Electricity Industry Participation Code 2010 (Code) to remove in-band constrained on and off compensation payments to frequency keepers.

---

## Introduction

- 2 The system operator procures frequency keeping services separately for the North and South Islands. Currently, three companies compete to provide the services in the North Island, and two in the South Island. Each company submits an offer for the service in an island and the system operator selects the lowest priced combination of providers for each half hour.
- 3 Frequency keeping providers currently receive the following payments:
  - (a) the frequency keeping offer price, which is a fixed dollar amount for undertaking the service
  - (b) constrained on or off compensation, if required, to move the frequency keeper from its natural dispatch point so that its control maximum or control minimum operating points are not exceeded within the frequency keeping band
  - (c) constrained on or off compensation, if required, to compensate for any forgone energy market revenue. For example:
    - (i) if a generator reduces output to compensate for an increase in system frequency and the energy price was above its energy offer price, it receives a constrained off payment
    - (ii) if a generator increases output to compensate for a decline in system frequency and the energy price was below its energy offer price, it receives a constrained on payment.

- 4 In addition, frequency keeping providers are paid via the energy market for any generation produced, although this is not treated or reported as part of the frequency keeping costs.
  - 5 The total frequency keeping price paid to frequency keeping providers cannot be estimated accurately in advance because all of the constrained on or off compensation payments are not known ahead of real time. As a result, the system operator's frequency keeping selection tool is not able to reliably select the lowest priced providers. A selection methodology that always selects the lowest priced providers increases the probability of selecting the most efficient providers (i.e. those that can provide the service at the lowest economic cost). This Code amendment is intended to address that issue.
- 

## **The selection methodology has had previous refinements**

- 6 Prior to November 2011, the selection tool took no account of the constrained on or off compensation payments described in paragraph 3(c). Under certain market conditions, the selection tool became quite inefficient at selecting the lowest priced provider.
  - 7 In November 2011 the Authority directed the system operator to improve the selection tool by making certain assumptions about the payments described in paragraph 3(c).
  - 8 This interim solution significantly improved the efficiency of the selection tool and lowered the constrained on payments to frequency keepers from an average of \$3,000,000 per month to \$160,000 per month. Data from the past 12 months shows that constrained on payments have remained at or below that level.
  - 9 The interim solution was a relatively simple solution that the system operator was able to implemented quickly. However, it does not ensure the system operator selects the lowest priced provider under all circumstances.
  - 10 The permanent solution involves the removal of the constrained on and off payments to frequency keepers described in paragraph 3(c). This requires a change to NZX's clearing and settlement systems, and an amendment to the Code.
  - 11 The Code amendment will ensure that the system operator selects the lowest priced frequency keeping provider in all trading periods.
- 

## **Consultation on the amendment and issues raised**

- 12 The Authority consulted on the draft Code amendment in August-September 2013.
- 13 The project was subsequently lowered in priority and was shifted to the 2015/16 work programme to be completed.
- 14 In March 2014 the Authority published a summary of submissions together with the Authority's comments.<sup>1</sup>
- 15 Key points raised are noted in Table 1 below.

<sup>1</sup> Summary of submissions is available at <https://www.ea.govt.nz/development/work-programme/wholesale/fk-constrained-onoff/consultation/#c7597>

**Table 1: Summary of feedback and Authority's comments**

Feedback	Authority's comments
Four submissions related to the Authority not having completed a quantitative cost benefit analysis.	It is possible to assess the total reduction in payments to frequency keepers resulting from the amendment. However, frequency keeping offers are not priced on a marginal cost basis and therefore the economic gains resulting from the reduction in the payments cannot be assessed using available market data. The economic benefits were assessed qualitatively as being a more likely selection of the most efficient frequency keeping provider(s) in each trading period.
One submission related to the timing of the proposed amendment. The submitter thought that the amendment would conflict with the implementation of the multiple frequency keeping (MFK) project (implemented in the North Island in July 2013 and in the South Island in August 2014) in that the market wouldn't have had the time to measure the benefits of MFK before the Authority made another change to the procurement of frequency keeping.	There is no conflict between the amendment and the operation of MFK. Improvements in the efficiency of the selection of providers serves to increase the benefits derived from MFK.  Two years have lapsed since the North Island MFK implementation and there has been adequate time to measure the MFK benefits alone and to establish the separate benefits of pursuing the Code amendment.

---

## Rationale for amending the Code

- 16 The method used by the system operator to select frequency keepers does not always select the combination of lowest priced providers.
- 17 The Authority has decided to remove the constrained on and off compensation payments for frequency keepers described in paragraph 3(c) to ensure that:
  - (a) the system operator can always select the lowest priced providers
  - (b) all frequency keeping providers compete in the frequency keeping market on an equal basis.

- 18 The Code amendment promotes the efficiency limb of the Authority's statutory objective by increasing the probability that the most efficient providers of frequency keeping are selected in each trading period (by the system operator always selecting the lowest priced providers).
- 19 The Code amendment will come into force on 1 May 2016. We have set the commencement date to fit with the clearing manager's programme of work to implement the change.