Removing constrained on payments for ramp-rate constrained generation

Decision

18 June 2019

Prepared by: Electricity Authority

Market Design

Contents

1 Decision

1.1 The Electricity Authority (Authority) has decided to amend Part 13 of the Electricity Industry Participation Code (Code). The amendment will remove constrained on payments to generation ramping-down at its maximum ramp rate.

2 Why the Authority made this decision

The amendment promotes the statutory objective by ensuring that offers by slow ramping generation reflect their costs

2.1 After considering all submissions on the Code amendment proposal, the Authority considers that the final Code amendment will deliver long-term benefits to consumers by:

(a) promoting efficient dispatch, and use of, electricity as the costs of ramp-constrained generation would be reflected in nodal prices

(b) promoting efficient investment, as parties considering investing in ramp-constrained generation would need to consider the relative competitiveness of such generation if it is no longer supported by constrained on payments when it is ramping down

(c) promoting efficient risk management, since it is possible to hedge against prices arising from higher offers for ramp-constrained generation but difficult to hedge against high constrained on payments as they are not transparent until month-end settlement and are paid for by all load, not just load purchasing at the relevant node.

2.2 The Authority does not expect the Code amendment to have a material effect on security, as ramp constrained generation would continue to operate, to the extent that it is competitive, because the costs of operating ramp-constrained generation can still be recovered through nodal spot prices.

The proposal's benefits are greater than its costs

2.3 The Authority has assessed the economic benefits and costs of the amendment and expects it to deliver a net economic benefit.

2.4 The base case shows present value benefits of $9.1 million over 15 years at a discount rate of 6%. The lower case (8%) is $4.5 million and upper case (4%) is $12.2 million.

2.5 The costs and benefits of the proposal are described in more detail in Appendix C of the *Removing constrained on payments for generation ramping down consultation paper, 26 March 2019*.

The amendment is consistent with regulatory requirements

2.6 The Code amendment is consistent with the Authority's statutory objective and with the requirements of section 32(1) of the Electricity Industry Act 2010.

2.7 The amendment is also consistent with the Authority's Code amendment principles; it is lawful and it will improve the reliability and efficiency of the electricity industry of the long-term benefit of consumers. The Authority has used a scenario based quantitative cost-benefit analysis to assess the expected costs and benefits.

3 Background

Excessive constrained on payments for ramp-constrained generation has been an ongoing problem

3.1 In late 2018 the Authority identified that excessive constrained on payments were being made to a ramp-constrained generator, resulting in monthly constrained on payments exceeding $1.0m, compared to a monthly average of $76,000 for the 12 months ending 30 June 2018. While the generator altered its offering behaviour after the Authority highlighted the issue, this was the latest instance of a problem that has occurred several times in recent years when other generators engaged in similar behaviour.

3.2 In response, in early 2019 the Authority decided to:

(a) add a project to remove constrained on payments for ramp-constrained generation to the Authority's 2018/19 work programme

(b) develop a consultation paper proposing a Code amendment to remove constrained on payments for ramp-constrained generation.

The Authority consulted on an amendment to the constrained on Code provisions

3.3 The Authority consulted on the proposed Code amendment for a period of 5 weeks between 26 March and 30 April 2019.

3.4 Six submissions were received and are published on the Authority's web site[1] and are summarised in section 4 of this document.

3.5 Overall, participants were supportive of the proposed change to the Code. The matters raised by submitters are discussed below.

4 Matters the Authority considered in making this decision

4.1 Parties that made submissions are listed in **Table 1**.

Table 1 List of submitters

Generator-retailers	Demand-side participants	Other
Mercury Energy Meridian Energy Trustpower Nova energy	Major Electricity Users Group (MEUG)	Transpower NZ

Submitters supported removing constrained on payments for ramping down generation

4.2 All submissions expressed support for removing constrained on payments for ramp-rate constrained generation. All submitters agreed with the Authority's assessment that current arrangements:

[1] Consultation submissions: https://www.ea.govt.nz/development/work-programme/pricing-cost-allocation/removing-constrained on-payments-for-generation-ramping-down/consultation/?show=17983

(a) promote scheduling and dispatch of ramp constrained generation, even when it is higher cost than other generation

(b) undermine allocative efficiency, risk management, and market confidence because constrained on costs are not reflected in nodal prices, which makes hedging for the costs of ramp-constrained generation more difficult.

Submitters questioned the impact on investment decisions of the current constrained on payments

4.3 While the majority of participants supported the view that constrained on payments encourage investment in ramp constrained generation, Trustpower challenged the Authority's assertion that constrained on payments to ramp-constrained generation when ramping down may distort investment decisions.

4.4 Trustpower submitted that "*…Specifically with respect to hydro-generation, restrictions on ramp-rates tend to arise as a result of Resource Management Act 1991 (the RMA) and local authority decisions, rather than physical limitations of the generating plant.*"[2]

4.5 Trustpower further submitted "*There is more to be gained in investing in fast-ramping generation than in slow-ramping generation, particularly as we move towards having a large number of intermittent renewable generation sources on the system which will further enhance the value of fast-ramping flexible generation.*"[3]

4.6 Trustpower does however, support the proposed Code amendment. It proposes that this effect on investment decision making should be considered when the Authority undertakes its post implementation review of this amendment to the Code.

4.7 The Authority accepts that in the case of hydro generation restrictions on ramp rates may be because of resource management and related considerations rather than physical limitations. We also agree there is likely to be an economic advantage in investing in fast-ramping plant with increasing amounts of intermittent generation. However, the concern about investment distortion applies to both new plant and refurbishment of existing plant.

4.8 Constrained on payments to any ramp-constrained plant ramping down, whether the plant is ramp-constrained because of physical or regulatory reasons, improves the economics of this plant relative to plant that is not ramp constrained. Accordingly, the concern about the investment distortion applies to all plant that is ramp-constrained.

4.9 Further, as Meridian noted in its submission,[4] given the anticipated electrification and decarbonisation of the New Zealand economy, and the level of generation investment needed to support that transition, it is critical that investment signals are efficient and do not perversely incentivise slow ramping plant.

Submitters raised an issue regarding disclosure arrangements for market node constraints

4.10 One further issue was raised by submitters regarding disclosure arrangements for market node constraints.

---

2 Trustpower, Submission on removing constrained on payments for generation ramping down, Page 1

3 Ibid., Page 1

4 Meridian, Removal of constrained on payments for ramp-constrained generation, Page 1

4.11 Market node constraints are applied where a transmission outage requires a minimum level of generation to be available to support voltages at a particular bus or area. There is currently no automated SFT[5] (simultaneous feasibility test) solution or economic function in the SPD (scheduling, pricing and dispatch) model to constrain on the least cost generator to support grid voltages. Instead, a bilateral agreement between the generator and Transpower is obtained so that the capacity to generate is agreed in advance. This agreement is realised in the market system in the form of a market node constraint applied to the generator for the duration of the outage.

4.12 While the presence of a market node constraint is highlighted in the forward looking and real time schedules, the constraint forces the dispatch of generation without revealing the price at which the constrained generation has offered. Instead of the cost of generation being reflected in the nodal spot price at that generator, the generator is compensated through constrained on payments at the end of the month. As with other constrained on payments, these costs are paid by all purchasers (and, ultimately, end consumers). Since these costs are not reflected in the nodal price consumers are prevented from being able to effectively manage their exposure to the price they will have to pay through constrained on charges. Accordingly we agree that there appears to be a similar transparency problem with market node constraints as the problem addressed by the Code amendment that is the subject of this paper. This is an issue the Authority may consider further, either as a part of project currently on our work program or as a future addition.

[5] SFT (simultaneous feasibility test) performs a network sensitivity analysis of the market model and develops transmission constraints to ensure secure power systems dispatch.

Appendix A Proposed amendment

A.1 After clause 13.212A, insert:

No payment of constrained on compensation for generators at maximum ramp down rate

13.212B No payment of constrained on compensation for generators at maximum ramp down rate

(1) Despite clause 13.202 to clause 13.212, **generators** do not receive **constrained on compensation** in respect of any **constrained on situation**.

(2) Subclause (1) applies in respect of any **reconciled quantity** of **electricity** the **generator's generating unit** produces in a **trading period**, if:

(a) the **generating unit** is reducing generation as a result of the **generator** having received a **dispatch instruction** for the **trading period** or part of the **trading period**; and

(b) the **dispatch instruction** requires the **generating unit** to reduce generation at the **generating unit's** maximum ramp down rate.