

Reviews of regulatory settings for official conservation campaigns (OCCs) and the security of supply forecasting and information policy (SOSFIP)

Decision

18 June 2019



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1 Decision

- 1.1 Following the consultation period that closed on 11 February 2019, the Authority has decided to amend Part 9 of the Electricity Industry Participation Code 2010 (Code). The amendment will:
- (a) keep the 10% hydro risk curve (HRC) as the start trigger for official conservation campaigns (OCCs), allowing for the HRCs now to include contingent storage
 - (b) keep the 8% HRC as the exit trigger for OCCs, also allowing for the HRCs now to include contingent storage
 - (c) add mechanisms to enable the triggering of access to contingent storage at all times of year (via adding floors and buffers to the HRCs)
 - (d) change the name of the Hydro Risk Curves to *Electricity Risk Curves*, to better reflect the information they contain.¹
- 1.2 These changes will together promote the efficiency and reliability limbs of the Authority's statutory objective by improving the robustness of the OCC mechanisms, improving the transparency and ease of understanding of HRC charts, and better representing the actual hydroelectricity situation.
- 1.3 The Authority has also decided to amend its standing reserve supply determination (RSD) made under section 136 of the Electricity Industry Act 2010. This will ensure contingent storage in Lakes Hāwea and Tekapo can continue to be accessed.
- 1.4 The Authority has also decided to replace the Security of Supply Forecasting and Information Policy (SOSFIP). That decision follows a system operator consultation and formal proposal to replace the SOSFIP. The main change within the new SOSFIP is amending the HRCs to be calculated inclusive of contingent storage, rather than exclusive as at present. The SOSFIP changes are discussed further in section 5.
- 1.5 We have considered the feedback on retaining the provision for South Island-only OCCs and are now considering options on whether, and how, to proceed. No changes will be made at this stage.
- 1.6 The changes described under 1.1, 1.3 and 1.4 will be co-ordinated to come into force simultaneously on 1 August 2019.

¹ For ease of consistency in this decision paper we will continue to refer to Hydro Risk Curves

2 Background

- 2.1 The Authority's statutory objective is to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.
- 2.2 Between December 2018 and February 2019, the Authority consulted on a proposal to change the regulatory settings for official conservation campaigns in the Code.²
- 2.3 The objectives of our proposal were:
- (a) to ensure the start and stop triggers for official conservation campaigns are still operable and efficient, given the change in the way HRCs are calculated
 - (b) to ensure hydro storage linked to the RSD can still be accessed
 - (c) to gather stakeholder views on the appropriateness of maintaining provisions for both national and sub-national OCCs.
- 2.4 After considering submissions we have decided to proceed with some of the changes we proposed, with some adjustments.
- 2.5 This decision paper sets out the Authority's decisions and reasons for them.

3 The OCC and Customer Compensation Scheme (CCS) encourage efficient use of resources

- 3.1 The OCC mechanism works in conjunction with the CCS to incentivise efficient use of resources to promote the reliability of the electricity system.
- 3.2 If an OCC was called, affected retailers would have to pay qualifying consumers \$10.50 per week for the duration of the OCC. However, retailers can instead obtain their customers' consent for alternative compensation schemes – these could be linked to individual customers' conservation efforts.
- 3.3 The CCS improves security of supply by counteracting the incentives retailers have to call for electricity conservation in order to reduce their exposure to high spot market prices.

4 Why the Authority made this decision

The amendment promotes efficiency and reliability but has no material effect on competition

- 4.1 The Authority believes the amendment to Part 9 of the Code will deliver long-term benefits to consumers by:
- (a) more efficiently managing risk relating to the starting and ending of OCCs by better representing the capabilities of the power system, and hence ensuring the right signals are sent for hydro storage management
 - (b) ending OCCs as soon as possible, but only when the risk of another OCC occurring soon after is acceptable
 - (c) maintaining access to contingent storage in a manner the resource consents were originally intended to allow such storage to be used in an electricity shortage

² <https://www.ea.govt.nz/development/work-programme/risk-management/review-of-regulatory-settings-for-official-conservation-campaigns-occs/consultations/>

(d) future proofing the arrangements for possible changes in resource consents.

The benefits of the amendment are greater than the costs

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

4.3 The key benefits are stated in paragraph 4.1 above. Costs arise from system operator implementation costs.

The amendment is consistent with regulatory requirements

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

4.5 The amendment is also consistent with the Authority's Code amendment principles. It is lawful and will improve the reliability and efficiency of the electricity industry for the long-term benefit of consumers.

5 The Authority considered issues raised in submissions

5.1 Ten participants sent written submissions though only seven submitted answers to all the questions we posed.³ The ten submissions were received from:

- | | |
|---|--------------------|
| (a) Bryan Leyland | (f) Contact Energy |
| (b) Flick Electric | (g) Genesis Energy |
| (c) Major Electricity Users' Group (MEUG) | (h) Mercury |
| (d) Meridian Energy | (i) Nova Energy |
| (e) Pioneer Energy | (j) Trustpower. |

5.2 During the consultation period we also held meetings with affected Regional Councils (Environment Canterbury and Otago Regional Council) and two general stakeholder engagement meetings.

5.3 Relevant issues raised by submitters fell into nine categories, each of which is discussed below.

Start trigger design

What the Authority proposed

5.4 Assuming the HRCs would include contingent storage, we proposed maintaining the 10% HRC as the predominant part of the start trigger for OCCs. This is because our modelling showed this provided a suitable period of time between an OCC starting and the possible need for rolling outages.

³ You can find copies of all submissions received on the Authority's website at <https://www.ea.govt.nz/development/work-programme/risk-management/review-of-regulatory-settings-for-official-conservation-campaigns-occs/consultations/#c17907>

Submitters' views

- 5.5 No parties disagreed with our proposal to use the 10% HRC inclusive of contingent storage as the trigger for an OCC. Flick and Mercury acknowledged or agreed with our assessment that the slightly higher risk of rolling outages was immaterial. Meridian noted the change will mean the HRCs will become more aligned with peoples' understanding of what they should represent.

The Authority's decision

- 5.6 We have decided to proceed with this aspect of our proposal. No change is needed to the Code to retain the 10% HRC as the predominant part of the start trigger.
- 5.7 However, the addition of floors and buffers, as discussed below, also has implications for starting an OCC which means changes to the Code are required.

Floors & buffers: background

- 5.8 If HRCs were to be recalculated to include contingent storage and no other change was made, an infeasibility would arise whereby access to contingent storage could not be triggered under certain conditions.
- 5.9 The infeasibility arises because under some conditions, the trigger for accessing contingent storage is below the level of contingent storage. Storage would have to fall to the trigger level to enable contingent storage to be used, but storage would not have been able to fall this far due to the presence of the inaccessible (un-triggered) contingent storage.
- 5.10 Adding a floor to the relevant trigger equivalent to the amount of contingent storage is sufficient to resolve this, but creates two new problems:
- (a) when actual storage is above and close to a floor, the power system is starved of hydro generation capacity. This would artificially create a pinch point in the power system and the wholesale market. This would be exacerbated if there was uneven draw down of lake levels
 - (b) the discovery of a measurement error could lead to the same infeasibility explained above.
- 5.11 Adding a buffer above each floor mitigates this problem.

Floors

What the Authority proposed

- 5.12 We proposed including a floor equivalent to the amount of contingent storage to the 10% HRC for the purposes of calculating the OCC start trigger, to ensure the infeasibility described in 5.9 is avoided.
- 5.13 Combining this with the buffer proposal described below, means we proposed to amend the Code to include a requirement for the system operator to start an OCC when storage in the hydro lakes is equal to or less than, and is expected to remain so for at least one week, the greater of:
- (a) the 10% HRC, or
 - (i) a floor of any contingent storage usable only in the event of an OCC, plus
 - (ii) any GWh buffer of hydro storage determined in accordance with the SOSFIP.

- 5.14 At the times of year when the 10% HRC exceeds the floor plus buffer, the 10% HRC will remain the start trigger for an OCC—effectively no change from now.
- 5.15 At other times of year, during summer, when the 10% HRC is less than the floor plus buffer, the floor plus buffer will act as the start trigger for an OCC.
- 5.16 Based on current resource consents, this floor would be zero because there is currently no contingent storage accessed by the triggering of an OCC.
- 5.17 The diagrams below show how the new start trigger would work for different levels of floor. Figure 1 shows a floor of zero, as would be the case if introduced now. Figure 2 shows a hypothetical floor of 100 GWh if resource consents for contingent storage were to change in future. Both diagrams use a buffer of 50 GWh.

Figure 1: OCC start trigger with zero GWh contingent storage accessible plus 50 GWh buffer

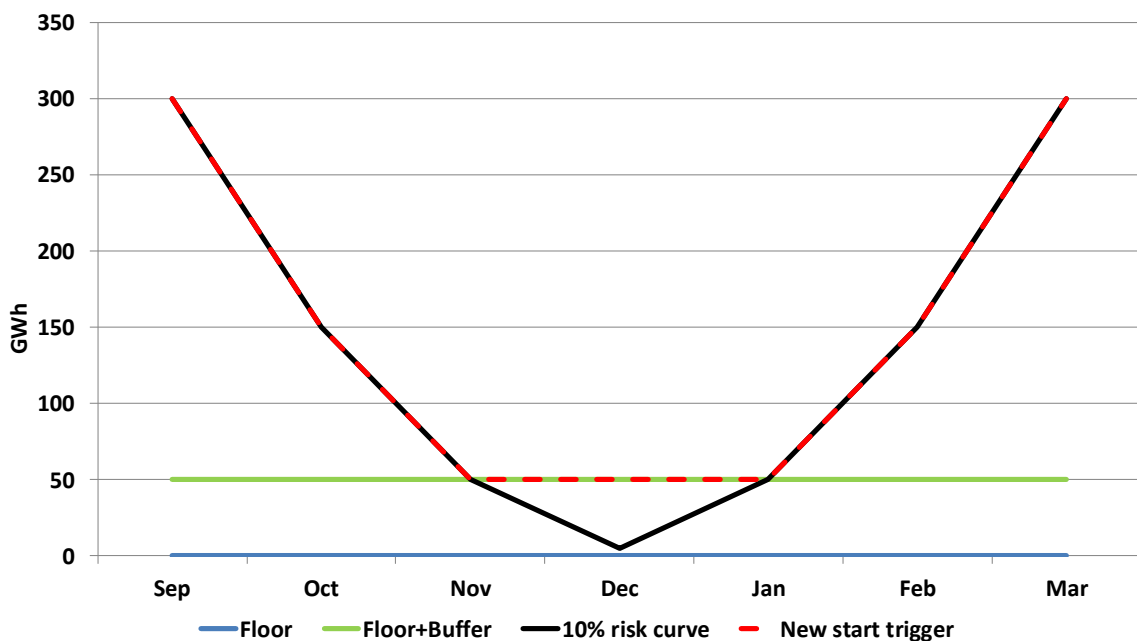
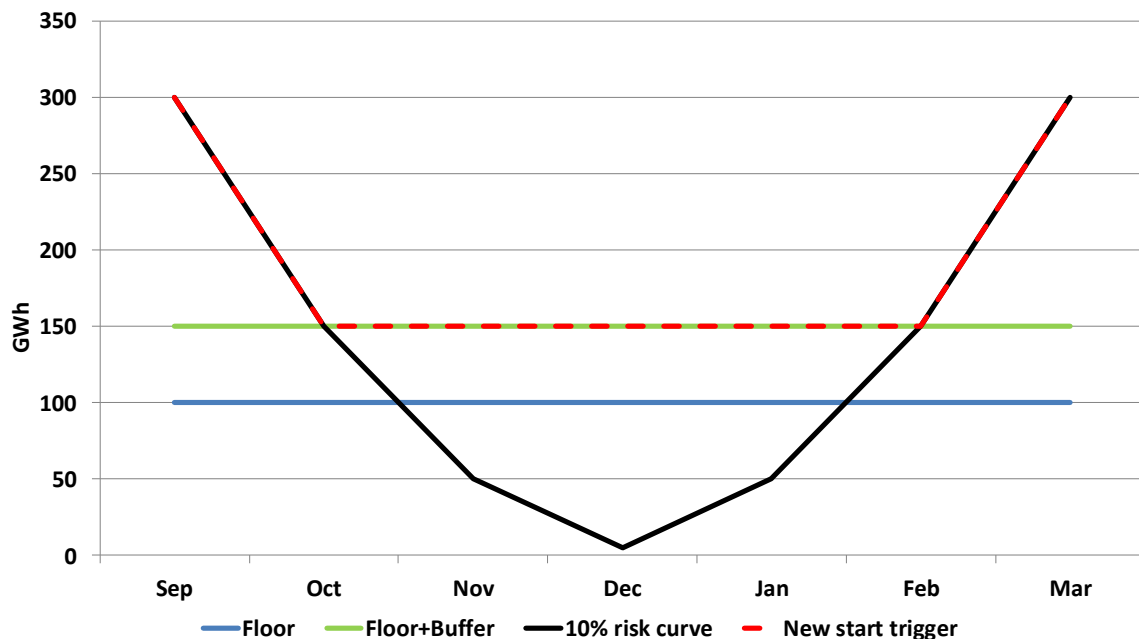


Figure 2: OCC start trigger with 100 GWh contingent storage accessible plus 50 GWh buffer



Submitters' views

- 5.18 Again there was almost unanimous agreement for our proposals for a floor. Four of the submitters qualified their view on this question. Flick and Meridian agreed a floor was necessary to avoid an unfeasible solution, and Contact and Mercury agreed a floor was necessary as it would provide certainty.

The Authority's decision

- 5.19 We have decided to introduce a floor for the purposes of starting an OCC as proposed.
- 5.20 We have rephrased the proposed Code drafting slightly compared to what was proposed in the consultation to reduce risk of uncertainty and inaccessibility of information. In determining the size of the floor, we have removed reference to relevant resource consents and instead refer to that amount as published by the system operator. They publish their view of the contingent storage that is physically accessible and accessible on the triggering of an OCC on their website.

Buffers

What the Authority proposed

- 5.21 We proposed that a buffer is needed on top of a floor to solve the issues described in paragraph 5.10. A buffer will allow access to pre-emergency contingent storage to be triggered, and an OCC to be called, in instances where market operation and conditions may prevent the trigger otherwise being reached.
- 5.22 The size of the buffer is to be determined within the SOSFIP.

Submitters' views

- 5.23 There was almost unanimous agreement for our proposals for a buffer. Flick and Mercury supported the argument that it would provide more certainty over when access

to contingent storage would be triggered, and Nova supported the argument due to the likelihood of uneven lake drawdown. Genesis thought the size of the buffer should be conservative, to minimise the risk of being found short.

- 5.24 Meridian supported the arguments the Authority laid out, and suggested a buffer of at least 100 GWh. They also noted the need for a buffer above the bottom of all available storage, effectively on the 10% HRC, to avoid not being able to trigger an OCC in the case of uneven lake drawdown.
- 5.25 However, Contact thought there was no need for a buffer above a floor as it would only be needed at low risk times of year.

The Authority's decision

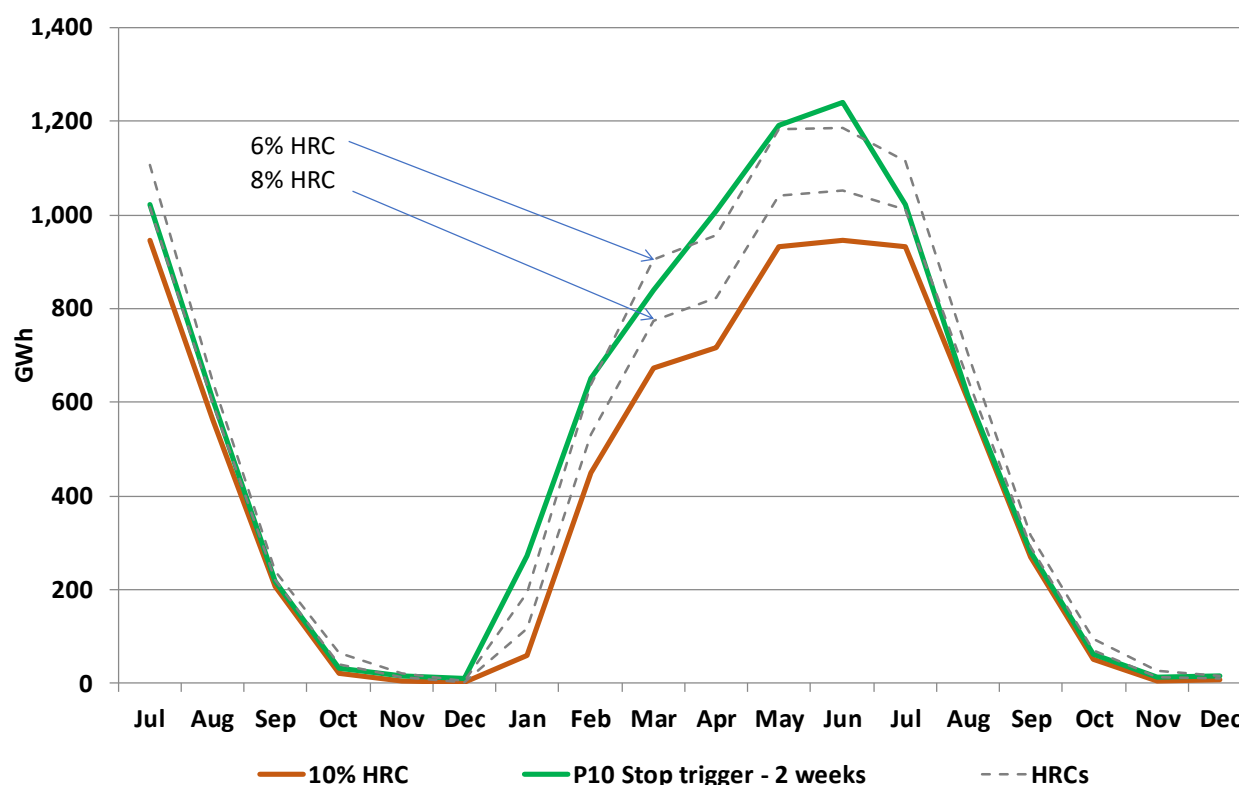
- 5.26 We have decided to proceed with our proposal to include a buffer in the calculation of the OCC start trigger and the pre-emergency contingent storage access boundary. Initially, the buffer has been set to 50 GWh (in the SOSFIP), though the system operator can use an alternative figure if it consults on the change and publishes the new buffer.
- 5.27 We agree with Contact that floors would be needed only at times when shortage would be very unlikely. However we consider that non-discretionary arrangements should be in place to enable the access to contingent storage and the starting of an OCC in such unlikely situations.
- 5.28 The buffer will be applied to:
- (a) an OCC start trigger floor regardless of whether the floor is zero or greater than zero
 - (b) the pre-emergency contingent storage release boundary (the 'Alert Release Boundary' in the SOSFIP).

Exit trigger design

What the Authority proposed

- 5.29 The current exit trigger for an OCC is the 8% HRC. The problem with this is that when the HRCs are close together, there is a risk of flipping quickly between the 8 and 10% HRCs (and hence entering, exiting and re-entering OCCs in quick succession). This could confuse consumers, undermine conservation efforts and erode trust in the industry.
- 5.30 Instead, we proposed the exit trigger be applied when the system operator expects there is less than 10% chance of having another OCC in the next fortnight. We proposed the system operator should publish and maintain a methodology for calculating this likelihood. They should calculate and publish this assessment daily when an OCC is in force and the actual storage has recovered above the start trigger.
- 5.31 The green line on Figure 3 shows what this new exit trigger could look like compared to the status quo (8% HRC). It is higher for most months of the year, meaning OCCs could be longer (storage needs to build to a higher level before an OCC can be exited).

Figure 3: HRCs compared with 2 weeks to repeat OCC at the P10 inflow sequence⁴



Submitters' views: case for change

- 5.32 There was broad agreement from submitters that there was a case for changing the exit trigger, but there was less agreement on what it should change to.
- 5.33 Flick, Mercury, Meridian, Nova and Trustpower all agreed the current regime for exit triggers presents a risk of stop-start OCCs which could undermine signals sent to consumers, and there was a need for change. Contact also agreed there were problems with the current regime, but noted that this would be unlikely to occur due to the convergence of the HRCs happening at the lowest risk period of the year, hence does not see a case for change.
- 5.34 Genesis disagreed, arguing the status quo was sufficient to exit an OCC.

Submitters' views: design of exit trigger

- 5.35 There were mixed opinions on the best design of an exit trigger and we received a number of alternative suggestions. Table 1 below provides a summary of the six exit trigger options we assessed.
- 5.36 Parties that supported our proposed exit trigger (B in Table 1) included Flick, Mercury, and Meridian. Mercury thought the option struck the right balance between providing certainty for market participants, maintaining goodwill towards conserving electricity and effective risk management. Meridian suggested incorporating into this methodology the front few days rainfall forecast, blended with historical inflows.

⁴ This figure shows possible exit triggers by month. This modelling is based on the 10th percentile lowest historical inflow sequence looking ahead two weeks.

- 5.37 As mentioned above, Contact is in favour of the status quo and the certainty that having a known boundary provides (option A).
- 5.38 Trustpower liked that the current regime is simple to explain and provides certainty, in comparison to the proposal which has increased uncertainty around when an OCC will end. They proposed revisiting a suggestion made in 2016 by Contact for a minimum time above the 8% HRC to provide more certainty (option D below).
- 5.39 Genesis thought the proposal would risk prolonging an OCC unnecessarily. Genesis favours setting a minimum quantity of hydro storage as the exit trigger, which in their opinion would be simple for people to understand and account for the actual savings achieved by the OCC (option E below).
- 5.40 Nova thought the proposal was too complex for people to understand, and suggested an alternative option (F) which is described below.
- 5.41 Since the publication of the consultation paper, the Authority has identified a disadvantage of the proposed approach, in that it relies on recent demand data. We assume that demand would be artificially low during a campaign and would increase somewhat when the OCC ends. Requiring the system operator to use demand from during an OCC to forecast demand after an OCC reduces accuracy and increases uncertainty.

Table 1 Description of exit trigger options

Option	Description	Further details	Proposed by (supported by)
A	Status quo	If an OCC is triggered and hydro storage then rises back above the 8% HRC, the OCC would be ended.	Genesis Contact
B	Preferred consultation option	If an OCC is triggered and hydro storage then rises above the 10% HRC, the system operator would end the OCC at the point where they determine there is no more than a 10% probability of there being another OCC in the next fortnight. This would be <i>calculated and published daily</i> , taking into account latest demand levels and other drivers of demand and supply.	Authority consultation
C	Alternative option	If an OCC is triggered and hydro storage then rises above the 10% HRC, the system operator would end the OCC at the point where they determine there is no more than a 10% probability of there being another OCC in the next fortnight. This would be <i>calculated ahead of time</i> and updated as part of each update to the HRCs provided by the system operator. Uses similar information and assumptions as for the status quo.	Authority consultation

D	Trustpower suggestion	If an OCC is triggered and hydro storage then rises back above the 8% HRC, the OCC would be ended after hydro storage had remained above the 8% HRC for a minimum amount time e.g. 1 week.	Trustpower (Contact)
E	Genesis suggestion	An OCC would end once hydro storage had reached a fixed quantity above the OCC start trigger. This fixed quantity would be the <i>same throughout the year</i> and published before the year began.	Genesis
F	Nova suggestion	An OCC would end once hydro storage had reached a fixed quantity above the OCC start trigger. This would be a <i>seasonally adjusted quantity</i> depending on average demand. It would be published before the year began.	Nova

The Authority's decision

- 5.42 We assessed all options in light of submitters' feedback.
- 5.43 A strong theme among submitters' feedback is that certainty and clarity is highly valued by the market. Consequently, in order to avoid further complicating the arrangements, we have decided to retain the status quo exit trigger: the 8% HRC, with one modification.
- 5.44 Since we have decided to amend the start trigger to include floors and buffers (refer 5.8-5.28), we will make the same change to the exit trigger. Without this, the new start trigger could rise above the exit trigger at some times of year. If that were allowed to happen, the system operator's obligations would create an infinite loop of starting and stopping OCCs – an impossible situation. Adding floors and buffers to the exit trigger that are equal to those used in the start trigger removes this infeasibility.

Summary of final start and exit trigger mechanisms

- 5.45 The system operator should start an OCC when hydro storage (controlled plus contingent storage) falls below, and the SO expects it to remain so for at least a week, the greater of:
- (a) the 10% HRC, and
 - (b) a floor of contingent storage accessible during an OCC (currently zero) plus a buffer (currently 50 GWh).
- 5.46 The system operator should exit an OCC when hydro storage (controlled plus contingent storage) rises above the greater of:
- (a) the 8% HRC, and
 - (b) a floor of contingent storage accessible during an OCC (currently zero) plus a buffer (currently 50 GWh).

Reserve supply determination

What the Authority proposed

- 5.47 We consider the reserve supply determination should allow the contingent storage in Lakes Hāwea and Tekapo to be used at the 4% HRC calculated inclusive of contingent storage, provided there is an appropriate buffer. This would retain the current risk differential between when the use of contingent storage in these lakes is permitted and when an OCC could start.

Submitters' views

- 5.48 There was almost unanimous agreement for our proposal to change the RSD. Mercury argued it was necessary to maintain the current risk differential between when the use of Hāwea and Tekapo contingent storage is permitted and when an OCC would start. Meridian argued access to contingent storage in all three lakes with contingent storage should occur at the same time.

The Authority's decision

- 5.49 We have decided to progress with our proposed change to the RSD. This will align the RSD with the system operator's Alert Release Boundary (see clause 6.1C in the new SOSFIP) and be implemented with the same effective date as the changes to Part 9 and the SOSFIP. The new RSD will be:
- (a) made when "the system operator reports that available hydro storage is less than or equal to the Alert Release Boundary for New Zealand or the South Island as described in clause 6.1C of the security of supply forecasting and information policy"
 - (b) rescinded when "the system operator reports that available hydro storage is greater than the Alert Release Boundaries for both New Zealand and the South Island as described in clause 6.1C of the security of supply forecasting and information policy".

Cost benefit analysis and preference to status quo

What the Authority proposed

- 5.50 We expected the proposal to have a net benefit. We expected the benefits of the Authority proposal to include:
- (a) reducing the risk of an overly short time between OCCs
 - (b) improving transparency and understanding, particularly for smaller parties, of what's meant by HRC graphs, by including all relevant storage in the calculation
 - (c) maintaining access to contingent storage in a manner the resource consents were originally intended
 - (d) future proofing the arrangements for possible changes in resource consenting arrangements.
- 5.51 We expected the costs of the proposal to include:
- (a) system operator implementation and operation costs
 - (b) confusion and unfamiliarity among stakeholders already familiar with the current arrangements.

- 5.52 We do not expect the proposal's benefits and costs to be significant because the changes are minor and because OCCs are unlikely to occur. We expected the potential reliability and durability benefits to exceed the system operator implementation costs because of the high value consumers place on reliability of supply.

Submitters' views

- 5.53 There was broad agreement with our assessment of costs and benefits. Contact agreed, with the exception that they think our proposed exit trigger would increase uncertainty, and hence costs. Genesis disagreed, because they thought our proposed exit trigger would risk prolonging an OCC unnecessarily, the costs of which would be greater than the proposed benefits.
- 5.54 In comparing the proposal with the status quo, Flick, Mercury and Meridian all agreed the proposal was preferable to the status quo and alternatives.
- 5.55 Nova agreed, with the exceptions of their proposals around the exit trigger and regional OCCs. Trustpower had mixed views, influenced by the increased uncertainty they thought our exit trigger proposal would bring. Genesis stated their preference for a different exit trigger.

The Authority's decision

- 5.56 The implementation of our decisions detailed in this paper will provide greater benefits than costs.
- 5.57 Concern was expressed by Contact, Genesis, Nova and Trustpower that costs could be increased through new exit trigger arrangements unnecessarily extending OCCs or by increasing uncertainty over when an OCC might end. Our decision on exit trigger arrangements is a change from our proposal. Our proposed approach has been modified to provide increased certainty and improved ease of understanding regarding the point at which an OCC may end.

Timing of implementation

What the Authority proposed

- 5.58 We requested stakeholder views on the appropriateness of the timing of implementation of changes. We could implement the proposed changes as soon as possible. This means the benefits set out in paragraph 4.1 can apply during the higher-risk winter period.
- 5.59 However, we are also cognisant that short-notice changes to regulatory settings can reduce confidence in markets by undermining trading decisions made in good faith. We want to ensure market participants are well informed of any changes to security of supply arrangements when making their trading decisions. This is of particular importance during winter periods when the risk to security of supply is greater.

Submitters' views

- 5.60 There were mixed views. Contact, Flick and Meridian would be happy for us to implement the changes as soon as possible. Meridian highlighted the frequency with which HRCs change due to updates from the system operator, implying participants should be used to dealing with changes in this metric of system risk. Genesis asked for a minimum of a month's notice, but preferred six months' notice to support medium-term planning.

- 5.61 Mercury preferred implementation to happen two months before winter, which would mean by the end of March 2019 for winter 2019. Unfortunately we were not able to achieve this given project timelines. We would therefore categorise this view into preferring a delay to October, to provide notice before winter 2020.
- 5.62 Trustpower favoured implementation occurring in October, as this is a month when inflows are typically higher and risk of shortage is lower.
- 5.63 Pioneer advised us they would require a minimum of 2 years' notice to ensure every participant would have full factual information (as opposed to speculation) about the regulatory regime that applies for hedging purposes.

The Authority's decision

- 5.64 We categorised submitters views as falling into two options:
- (a) implement as soon as possible, or
 - (b) in October 2019 (after around 6 months), to avoid disrupting arrangements made for winter 2019.
- 5.65 We considered Pioneer's suggestion that waiting for two years to implement the new arrangements for OCCs is excessive because:
- (a) wholesale traders have had the opportunity to know about the Authority's review since at least July 2017 and the underlying issues since 2014
 - (b) due to regular input updates by the system operator, the HRCs can already move, with no forewarning, by amounts greater than the change which will result from the adoption of these amendments
 - (c) there are never two years of HRC projections published and this is sometimes as short as 8 months
 - (d) we expect the changes we are making now to cause a downward movement in HRCs in the winter months. We do not expect this change to have a significant impact on the market. For example, the larger downward revisions to HRCs published on 26 February 2019 had no noticeable impact on ASX prices.
- 5.66 We have decided to implement the changes as soon as possible (effective from 1 August 2019). We have decided to do this because;
- (a) there was some support from participants, or not strong arguments to delay
 - (b) we want to help the market manage winter risk by implementing these more informative HRCs
 - (c) we have signalled the possibility of change in this area, through inclusion on the 2017/18 and 2018/19 work programmes, stakeholder briefings and the consultation paper. Arguably not progressing the signalled change now also creates uncertainty.

Regional and sub regional OCCs

What the Authority proposed

- 5.67 We asked for stakeholder views on whether it was still appropriate to retain provisions for both national and sub-national OCCs, and provided a number of arguments why South Island only OCCs may no longer be optimal. The arguments included that there is

better transfer of energy from the North to the South Island, a South Island OCC may cause confusion and resentment among consumers, normally there would be little difference in timing between the start of New Zealand-wide and South Island OCCs, and that a South Island only OCC may be too rigid in its geographic scope.

Submitters' views

- 5.68 There was support for removing the provision for South Island only OCCs from Mercury, Meridian, Pioneer and Trustpower, who all endorsed the arguments we provided.
- 5.69 Flick and Genesis both wanted to see more analysis in support of a recommendation from us, with Flick initially in favour of moving to NZ wide OCCs only and Genesis not seeing a need to change the status quo. MEUG noted the arguments we provided, and thought our time would be better spent analysing questions of higher value.
- 5.70 Nova questioned whether South Island only and NZ wide OCCs were still valid, given the timing between them could be very similar, and proposed a regional based provision whereby OCCs could be triggered for specific areas where force majeure events presented a risk to security of supply.
- 5.71 Contact preferred to keep the status quo of two sets of OCCs to give the system operator flexibility on how to manage security of supply events because they thought there are still issues with transferring energy from North to South under certain grid conditions.

The Authority's response

- 5.72 We are grateful for the responses received from stakeholders on this topic and will take them into account when considering next steps for this issue. We are still working through whether, and how, to proceed as there are a number of possible options. No changes will be made at this stage.
- 5.73 We will assess the potential benefits of doing further work on this topic against the other potential projects in the Authority's work programme. As MEUG suggests, if there are projects of higher value we will prioritise those.
- 5.74 In terms of Nova's suggestion for a regional based provision, we believe this is not ideal, as OCCs are not designed to represent issues within certain regions but rather work on a broad base whereby a large group of people contribute to savings for the good of the whole country. Regional arrangements could lead to a risk of lobbying of the system operator, and issues around what would classify as a force majeure event or size of region.

Comments on compliance with the Act, Code amendment principles and drafting

Submitters' views

- 5.75 Submitters generally agreed our proposal complies with section 32(1) of the Electricity Industry Act 2010. Contact agreed with the exception of their opinion on our proposed exit trigger which we have addressed above.
- 5.76 Submitters generally agreed with our assessment of the proposal against the Code amendment principles. Contact agreed, again with the exception of their opinion on our proposed exit trigger. Genesis disagreed, because they thought the costs outweighed the benefits.

- 5.77 There were a couple of specific comments on how we have drafted the code change. Contact noted their opinion on changing the exit trigger. Nova did the same, as well as noting their proposal on regional OCCs.
- 5.78 Meridian suggested the hydro risk curves should be re-named electricity risk curves, due to them showing the risk of electricity shortage across the whole system, rather than merely that portion of supply that is provided by hydro generation. Transpower also support this change on the basis it is technical and uncontroversial.

The Authority's decision

- 5.79 We agree with Transpower and Meridian's suggestion of renaming the hydro risk curves to electricity risk curves, and will amend the references in clause 9.23 accordingly.

6 We will also adopt a new SOSFIP

The system operator has proposed changes to the SOSFIP

- 6.1 The Code requires the system operator to prepare and publish a SOSFIP, which is incorporated by reference into the Code under section 32 of the Electricity Industry Act 2010.
- 6.2 In co-ordination with the Authority's proposed Code changes, the system operator consulted on changes to the SOSFIP. The system operator considered submissions to its consultation and made some adjustments before formally proposing a replacement and alternative replacement SOSFIP to us along with a decision paper describing its consideration.⁵
- 6.3 The system operator's key decisions are to:
- (a) include contingent storage in available hydro storage and in the derivation of the HRCs
 - (b) publish three separate charts all presented inclusive of contingent storage:
 - (i) electricity risk curves: to illustrate the risk of electricity shortage
 - (ii) Alert Release Boundaries: to trigger access to contingent hydro storage
 - (iii) Risk status meter: showing time to OCC, rate of decline estimates, and Watch, Alert and Emergency statuses
 - (c) the electricity risk curve and Alert Release Boundary charts will provide for a floor and buffer.

The correct process has been followed

- 6.4 The system operator has followed the relevant processes for amending the SOSFIP set out in clause 7.5(3)-(4) of the Code.
- 6.5 The system operator has consulted on the proposed changes. Submitters were broadly supportive of the changes proposed by the system operator.
- 6.6 Authority staff requested, and Transpower agreed to make, minor changes to the SOSFIP following consultation. These changes are aimed at clarifying the drafting of the policy statement and are non-controversial.

⁵ See <https://www.transpower.co.nz/system-operator/security-supply/security-supply-forecasting-and-information-policy>

- 6.7 The replacement SOSFIP meets the requirements for a SOSFIP set out in clause 7.3(1)(a) of the Code.

The amendment promotes efficiency and reliability but has no material effect on competition

- 6.8 The Code does not explicitly set out any matters that the Authority must consider in deciding whether to approve the revised draft SOSFIP. The Authority should therefore be guided by its statutory objective. The Authority has assessed the proposed replacements of the SOSFIP against the three limbs of the Authority's statutory objective (competition, reliability, efficiency).⁶
- 6.9 The Authority believes the proposed SOSFIP will deliver long-term benefits to consumers by:
- (a) aligning the system operator's obligations and practices in relation to OCCs with the Authority's Code amendment
 - (b) improving transparency and understanding, particularly for smaller parties, of what's meant by HRC graphs
 - (c) maintaining access to contingent storage in a manner the resource consents were originally intended to allow such storage to be used in an electricity shortage
 - (d) future proofing the arrangements for possible changes in resource consents.
- 6.10 The proposed changes are not expected to have a material effect on competition.

The system operator proposed a preferred and alternative version of the SOSFIP

- 6.11 The system operator provided alternative drafting for clause 7 of the SOSFIP. The difference between the two versions relates to the risk that the Watch and Alert curves are designed to represent:
- (a) The Watch and Alert curves could be designed to represent the 1% and 4% risk of running out of all hydro storage within 12 months. This is the same as the existing arrangements which use the 1% and 4% HRCs to set Watch and Alert respectively. The system operator preferred this version.
 - (b) Alternatively, the Watch and Alert curves could be designed to represent the risk of an OCC occurring in a shorter period of time than 12 months. The system operator's consultation illustrated a Watch curve based on an eight week 'time-to-OCC' and an Alert curve based on a three week 'time-to-OCC'.
- 6.12 The Watch and Alert curves will be used to determine the Watch and Alert statuses on the system operator's risk meters. Submitters were in favour of the system operator's preferred option, but offered no substantive supporting reasons.

The Authority has approved the alternative version of the SOSFIP

- 6.13 Under clause 7.5(5) of the Code, the Authority has decided to approve the alternative version of the SOSFIP.

⁶ Section 15 of the [Electricity Industry Act 2010](#).

- 6.14 We preferred the system operator's alternative SOSFIP because we think the Watch/Alert curves should represent the risk of an imminent OCC rather than the probability of exhausting all hydro storage over the following 12 months.
- 6.15 The risk of an imminent OCC is highly relevant and more meaningful to the public and the media because:
- (a) the declaration of an OCC has an impact on the public
 - (b) a risk that is more immediate is of more interest to the public and the media.
- 6.16 Providing information that is more relevant and meaningful to the widest audiences will lead to the following benefits. The Watch/Alert statuses will raise public/media concern when it is warranted, and dampen concern when it is not warranted. This should:
- (a) improve the integrity of OCCs, which lengthens the time over which associated benefits can accrue to consumers
 - (b) avoid unwarranted consumer fatigue and improve consumer understanding, which should lead to better electricity conservation. This would improve reliability as it reduces the risk of requiring higher-cost rolling outages.
- 6.17 The new SOSFIP will be effective from the same date that the Authority's Code amendments take effect.

Appendix A Code amendment

A.1 We have decided to amend Part 9 of the Code as set out below.⁷

Subpart 4—Customer compensation schemes

Official conservation campaign

9.23 System operator commences official conservation campaign

- (1) The **system operator** must commence an **official conservation campaign** for the South Island—
 - (a) when a comparison of storage in the South Island hydro lakes with the South Island ~~hydro~~electricity risk curves, as that term is defined in the **security of supply forecasting and information policy**,—
 - (i) shows a risk of shortage for the South Island of 10% or more; and
 - (ii) forecasts that the risk of shortage for the South Island will be 10% or more for 1 week or more; or
 - (ab) when hydro storage in the South Island hydro lakes is, and the **system operator** forecasts will remain for 1 week or more, equal to or less than—
 - (i) that part of available contingent hydro storage in the South Island hydro lakes that ~~in accordance with relevant resource consent conditions is usable, as published by the system operator under the security of supply forecasting and information policy, may~~ only ~~in the event of~~ be used during an **official conservation campaign**; plus
 - (ii) ~~any the buffer of hydro storage in the South Island hydro lakes determined in accordance with, as that term is defined in~~ the **security of supply forecasting and information policy**; or
 - (b) despite paragraphs (a) and (ab), if it has agreed a date with the **Authority** for an **official conservation campaign** to commence for the South Island, on that date.
- (2) The **system operator** must commence an **official conservation campaign** for New Zealand—
 - (a) when a comparison of storage in the New ~~Zealand's~~Zealand hydro lakes with the ~~hydro~~New Zealand electricity risk curves, as that term is defined in the **security of supply forecasting and information policy**,—
 - (i) shows a risk of shortage for New Zealand of 10% or more; and
 - (ii) forecasts that the risk of shortage for New Zealand will be 10% or more for 1 week or more; or
 - (ab) when hydro storage in the New ~~Zealand's~~Zealand hydro lakes is, and the **system operator** forecasts will remain for 1 week or more, equal to or less than—
 - (i) that part of available contingent hydro storage in New ~~Zealand's~~Zealand hydro lakes that ~~in accordance with relevant resource consent conditions is usable, as published by the system operator under the security of supply forecasting and information policy, may~~ only ~~in the event of~~ be used during an **official conservation campaign**; plus

⁷ Changes since the December 2018 – February 2019 consultation are tracked.

- (ii) ~~any~~ the ~~buffer of hydro storage in New Zealand's hydro lakes determined in accordance with, as that term is defined in~~ the **security of supply forecasting and information policy**; or
- (b) despite paragraphs (a) and (ab), if it has agreed a date with the **Authority** for an **official conservation campaign** to commence for the New Zealand, on that date.
- (3) The **system operator** must use reasonable endeavours to give each **participant** and the **Authority** at least 2 weeks' notice of an **official conservation campaign** commencing.
- (4) During the period of an **official conservation campaign**, the **system operator** must regularly review the steps that it must take, and encourage **participants** to take, under the **emergency management policy**.
- (5) If the **system operator** and the **Authority** agree under subclause (1)(b) or (2)(b) that an **official conservation campaign** will commence, the **system operator** must **publish** the reasons for agreeing that the **official conservation campaign** will commence.

9.23A System operator ends official conservation campaign

- (1) If the **system operator** has commenced an **official conservation campaign** under clause 9.23, it must end the **official conservation campaign**—
 - (a) ~~in respect of~~ for an **official conservation campaign** for the South Island, ~~—~~
 - (i) ~~when the system operator reasonably considers the likelihood of it not being required to start another official conservation campaign under clause 9.23 within a fortnight is 90% or more, when—~~
 - (i) ~~a comparison of~~ hydro storage in the South Island hydro lakes with the South Island ~~hydro~~electricity risk curves, as that term is defined in the **security of supply forecasting and information policy**, shows a risk of shortage for the South Island of less than ~~10%;8%;~~ and—
 - (ii) ~~the amount of hydro~~ storage in the South Island hydro lakes is greater than—
 - (A) ~~that part of available hydro storage in the South Island hydro lakes that in accordance with relevant resource consent conditions is usable only in the event of an official conservation campaign for the South Island; plus~~
 - (B) ~~any buffer of hydro storage in the South Island hydro lakes~~ the amount of hydro storage determined ~~in accordance with the security of supply forecasting under subparagraphs (i) and information policy;~~ under subparagraphs (i) and information policy; ~~(ii) of clause 9.23(1)(ab);~~ or
 - (b) ~~in respect of~~ for an **official conservation campaign** for New Zealand, ~~when the system operator reasonably considers the likelihood of it not being required to start another official conservation campaign under clause 9.23 within a fortnight is 90% or more, when—~~
 - (i) when a comparison of hydro storage in the New ~~Zealand's~~Zealand hydro lakes with the New Zealand ~~hydro~~electricity risk curves, as that term is defined in the **security of supply forecasting and information policy**, shows a risk of shortage for New Zealand of less than ~~10%;8%;~~ and
 - (ii) the amount of hydro storage in the New ~~Zealand's~~Zealand hydro lakes is greater than—

- (A) ~~that part of available hydro storage in New Zealand's hydro lakes that in accordance with the relevant resource consent conditions is usable only in the event of an **official conservation campaign** for New Zealand, plus~~
- (B) ~~any buffer of hydro storage in New Zealand's hydro lakes the amount of hydro storage determined in accordance with the **security of supply forecasting** under subparagraphs (i) and **information policy**;(ii) of clause 9.23(2)(ab); or~~
- (c) despite paragraphs (a) and (b), if it has agreed a date with the **Authority** for an **official conservation campaign** to end, on that date.
- (2) The **system operator** must, as soon as practicable after ending an **official conservation campaign**, give notice to each **participant** and the **Authority** of the date on which the **official conservation campaign** ended.

Appendix B Summary of submissions

B.1 The tables that follow contain submitters' comments and the Authority's responses to:

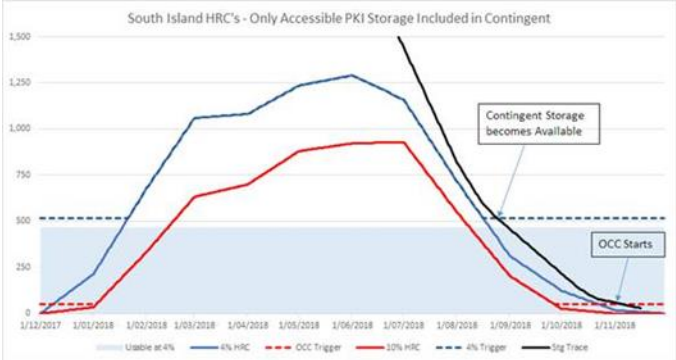
- (a) each of the 14 questions posed in the December 2018 consultation paper
- (b) general comments.

Q1: Do you agree the 10% HRC, calculated inclusive of contingent storage, should be used to trigger the start of an OCC? If you disagree, please provide reasons.

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Yes.	Noted
Flick Electric	Yes, we support the change in calculation approach to include contingent storage. We also support retaining the 10% trigger, we acknowledge the slight increase in risk of outage but agree that this is not material.	Noted
Genesis Energy	Yes.	Noted
Mercury	Yes. We agree with the assessment made by the Authority that using the 10% HRC inclusive of contingent storage to trigger an OCC would not materially increase the risk of rolling outages starting, should an OCC occur. Therefore there is no need to amend clause 9.23 of the Code.	Noted, but section 9.23 needs to be amended to allow the use of contingent storage at very low lake levels and additionally the application of buffers.
Meridian Energy	Yes. The key purpose of the HRCs is to be a simple and clear 'line-in-the-sand' to determine the start of an OCC. For many years, the start trigger for an OCC has been the 10% HRC. This has been presented, somewhat inaccurately, as a 10% risk of shortage. In reality, the HRCs are currently more conservative – representing the risk of calling on contingent storage. This makes the risk of shortage at the 10% HRC less than 10%. With the proposed inclusion of contingent storage in the HRCs, they will become an accurate representation of the risk of shortage, aligned with most people's understanding of what the HRCs ought to represent. As noted in the covering letter of this submission, the HRCs are already inherently conservative as a model and should not be made any more conservative.	Noted
MEUG	 Relevantly we support inclusion of contingent reserves in calculating HRCs. Accordingly, we support the Electricity Authority implementing changes to include contingent storage in calculating the 10% HRC and using that to trigger an OCC.	Noted
Nova Energy	Agree	Noted
Trustpower	Yes.	Noted

Q2: Do you agree a buffer should be added to any HRC floor? Please provide reasons.

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	No we don't consider there is a need for a buffer above an HRC floor A floor is only applied during periods when the risk of shortage is unlikely, and demand still needs to be met by dispatching least cost generation.	We agree that floors would be needed only at times when shortage would be very unlikely. However we consider that non-discretionary arrangements should be in place to enable the use of contingent storage in such unlikely situations.
Flick Electric	Yes, we support a predetermined 'buffer' above an HRC floor on for the reason that it provides certainty about the trigger point.	Noted
Genesis Energy	Yes. In our view, the buffer should be conservative so as to minimise the risk of being found short in the event that operational limitations prevent access to the storage; for example, environmental or engineering constraints.	Noted
Mercury	Yes for the reasons outlined in the consultation paper para 3.25 (a)-(d). We also agree with the points made in para 3.27 that leaving management to the SO's discretion would provide market participants with less certainty over when contingent storage would be triggered than with a pre-determined buffer. There would also be more incentive for inefficient lobbying of the SO by generators.	Noted
Meridian Energy	Yes, Meridian agrees that a buffer should be added to any HRC floor to avoid the risks identified by the Authority. Hydro lakes may be drawn down unevenly during a very low inflow sequence. Restrictions on draw down rates and transmission constraints could also mean that some hydro storage is not used to generate at the same rate as storage in other lakes. In addition, some generators may consider it prudent to retain minimum volumes of controlled storage to manage the operation of generation plant. There is also the potential for errors in measuring hydro storage. All of these factors may result in some hydro lakes having controlled storage while others do not. The absence of controlled storage in certain hydro lakes, coupled with an inability to access contingent storage (because not all lakes are empty) could have severe adverse consequences for the power system's capacity to meet demand. A buffer margin on top of the floor of total contingent storage available at the 4% HRC would (depending on the size of the buffer) go some way to mitigating the risk of adverse consequences when hydro storage is drawn down unevenly. The size of the buffer is important. We recommend a buffer of at least 100 GWh to account for measurement fluctuations in storage lakes. We suggest a buffer should also be applied above the bottom of all available storage to avoid the risk that an OCC is not called because the 10% HRC cannot be crossed due to uneven draw down of hydro storage. This 10% HRC floor could look like the dashed red line in the figure below:	Noted

Submitter	Submitter's Comment	Authority's Comment
	 Finally, as noted in our submission to the system operator, Meridian also considers a buffer to be necessary on the alternative contingent storage release trigger option – a release boundary determined exclusive of contingent storage and without the need for floors. For the same reasons noted above, the absence of a buffer could be an issue at certain times of the year when the 4% HRC trigger for release of contingent storage would be close to 0 GWh of storage. We share the Authority's concerns with the system operator's proposed alternative approach to buffers whereby the system operator exercises its discretion, as required, to determine whether overall hydro storage has fallen to the point where it equals contingent storage. A buffer is in our submission preferable to the reduced certainty, reduced transparency, and incentive to lobby that would result from the system operator's alternative.	
Nova Energy	Yes. The key issue is that there are many reasons why the different generators may use the water from their controlled hydro lakes at different rates. Because water used in generation at Tekapo flows to Pukaki, the equation there also becomes complex when lake levels are very low.	Noted
Trustpower	Yes.	Noted

Q3: Do you agree a Code amendment putting in place a floor on the 10% HRC is necessary and desirable to avoid the infeasible solution described in paragraphs 3.14 to 3.20? If you disagree please provide reasons.

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Yes. A floor would provide certainty on release triggers rather than using discretion at the time.	Noted
Flick Electric	Yes, we support putting in place a floor and agree that it is necessary to avoid an infeasible solution.	Noted
Genesis Energy	Yes.	Noted
Mercury	Yes. It is important that the Code provide for a non-discretionary means for using any contingent storage triggered by an OCC to avoid inefficient lobbying.	Noted
Meridian Energy	Yes, we agree that a floor on the 10% HRC might be necessary in future to address the infeasibility described. Meridian has been granted resource consent to access Pūkaki contingent storage down to 515m above mean sea level at the "Alert" level (the 4% HRC). Due to engineering constraints, Meridian can currently only access contingent storage from 518m down to 516.4m above mean sea level (equivalent to 178 GWh) – i.e. we cannot access contingent storage between 516.4m and 515m (the remaining consented storage available at the "Alert" level) let alone access the further contingent storage between 515m and 513m that becomes available in the event of an OCC.	Noted
Nova Energy	Yes	Noted
Trustpower	Yes.	Noted

Q4: Do you agree with our preferred potential change to the reserve supply determination? If you disagree, please provide reasons.

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Yes.	Noted
Flick Electric	Yes, we support the approach proposed of 4% HRC plus predetermined buffer.	Noted
Genesis Energy	Yes.	Noted
Mercury	Yes we support the reserve supply determination allowing the contingent storage in Lake Hawea and Lake Tekapo to be used at 4% HRC inclusive of contingent storage provided there is an appropriate buffer. This would retain the current risk differential between when the use of contingent storage in these lakes is permitted, and when an OCC could start.	Noted. We have decided not to make a substantial change to the points at which the RSD and Alert status are triggered, and at which an OCC is called. Consequently the amount of hydro storage (both controlled and contingent) between those two points – or the “risk differential” remains broadly the same – even though the contingent storage will be recognised in the derivation of the HRCs.
Meridian Energy	The reserve supply determination does not affect hydro storage managed by Meridian. However, the reserve supply determination should follow the same methodology for triggering the release of contingent storage in Lake Pūkaki, i.e. all currently available contingent storage should be triggered at the same time.	Noted
Nova Energy	Yes	Noted
Trustpower	Yes.	Noted

Q5: Do you agree there are adverse effects on reliability of supply and market efficiency from the current arrangements for ending an OCC?

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Yes, but the periods where this would occur (periods where the 8-10% HRCs are tightly converged) are unlikely.	Noted
Flick Electric	We agree that current arrangements could result in stop-start OCC's, this would be highly undesirable because it could cause mixed signals within a short period of time and this would be likely to reduce consumer conservation efforts which are relied on for security of supply.	Noted
Genesis Energy	No. The status quo is sufficient to end an OCC.	We agree that the status quo is sufficient to end an OCC, but we are trying to improve upon it.
Mercury	Yes. We agree with the Authority's analysis in the consultation which suggests the current OCC end trigger may cause an OCC to end too soon forcing a second one soon thereafter which would undermine conservation efforts, confuse participants and impose additional costs on the SO, the Authority and industry participants.	Noted
Meridian Energy	Yes, there is certainly the potential for adverse effects of the kind described in the paper.	Noted
Nova Energy	Yes	Noted
Trustpower	Yes. Industry need to ensure that OCC's do not send conflicting signals to consumers. Ending a campaign too soon, and therefore needing to restart a new campaign in rapid succession, would most likely confuse consumers, and weaken the signal received by consumers.	Noted

Q6: Do you agree with our proposed approach to addressing these adverse effects?

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	No. As per our Q5 response we consider the risk of this occurring is low and prefer the certainty that the current arrangement provides rather than replacing this certainty with a subjective assessment.	We have decided to modify our proposed arrangements to end an OCC. In order to respond to submissions calling for the retention of a high level of certainty in determining at what point an OCC, once called will be ended. We have decided that the system operator will, as a part of providing the HRC graphs, provide a curve for the exit of an OCC, rather than calculating such values daily during an OCC. This approach will retain certainty, in terms of the amount of hydro storage required, as to the conditions under which an OCC will be ended.
Flick Electric	Yes we support the proposal, we believe the forward fortnight view is an appropriate time horizon for determining whether to end an OCC or not.	Noted
Genesis Energy	No. In our view, the proposed approach would risk prolonging an OCC unnecessarily, which would be to the detriment of consumers and the wider economy.	Our decision on the setting of the level of probability used in the setting of the OCC stop curve will avoid unnecessarily prolonging OCCs. At the same time this is designed to avoid issues which are expected to occur if an OCC was ended too early, followed by the calling of another OCC within a few days.
Mercury	Yes specifying in the Code that there must be a minimum fortnight period between OCCs with a 10% chance of an OCC recurring within a fortnight strikes the right balance between providing certainty for market participants, maintaining goodwill towards conserving electricity and effective risk management. We note that the Authority proposes that the SO develop, publish and maintain a methodology for assessing the probability of needing another OCC within a fortnight.	Noted
Meridian Energy	Yes, Meridian agrees that an OCC should cease once there is 90% chance that no further OCC will occur within a fortnight. The methodology proposed for determining the chance of a subsequent OCC uses historical inflows and appears to ignore forecast rainfall. While using a full two-week forecast would be unreliable, the first few days at least could be used to give a more accurate estimate. The Authority and system operator could consider a methodology that blends the forecast with historical inflows.	A number of submitters called for greater certainty for the ending of an OCC than our proposal allowed for. We decided to provide that greater certainty by calculating the OCC stop curve ahead of time each time the HRC graphs are revised. This methodology will not therefore allow for the consideration of weather forecasts.
Nova Energy	Nova suggests that the proposed approach is too complex for the casual observer to understand; and because of that, the process may seem somewhat arbitrary to most people. That could result in some distrust about what authorities are attempting to achieve. Nova would prefer to see consumers given a	We agree that simplified communication is required and we have added this to our assessment criteria. We recognise that you have called for certainty as to under what conditions an OCC would be ended, and we have now modified our proposal to provide that.

Submitter	Submitter's Comment	Authority's Comment
	firm target to reach, such as achieving a buffer of [10%] of seasonal weekly demand above the 10% HRC. (The specific numbers can be calculated in advance.) Consumers could then directly relate that to aiming to reduce their electricity usage by 10% during the OCC. The link to seasonal electricity demand would ensure the size of buffer is appropriate for the time of year. While this simplified formula may be less 'technically correct', the messaging would be simple, direct, and measurable. It also eliminates confusion on the difference between 4%, 8% and 10% HRC levels.	
Trustpower	Yes.	Noted

Q7: Do you agree there should be two forms of OCC – a South Island-only OCC and a New Zealand-wide OCC? Please give reasons with your answer.

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Yes. Two forms of OCC provide the System Operator with more flexibility on how a security of supply situation is managed in respect to the location of the low storage situation. There are still issues with transferring energy from North to South under certain grid conditions.	Noted
Flick Electric	For the reasons described in the consultation paper the South Island OCC may no longer be appropriate. To determine whether a discretion to call an OCC for a geographic area is necessary or not it would be helpful for the Electricity Authority to present more analysis on the possible parameters for exercising this discretion, possible scenarios and implications.	Noted
Genesis Energy	Given the Authority has suggested it does not intend to make changes at this stage, we would prefer to refrain from commenting until there was more information on which to base our views. At this stage, we do not believe there has been a case made to move away from the status quo.	Noted
Mercury	No, we only need a NZ only OCC. As discussed in the consultation there is now better transfer of energy from the North Island to the South Island, a South Island-OCC may cause confusion and resentment amongst consumers. Normally there would be little difference in timing between the start of a NZ-wide and South Island only OCC and a South Island only OCC may be too rigid in its geographic scope.	Noted
Meridian Energy	No, for the reasons given by the Authority in the paper, a South Island-only OCC is no longer necessary or desirable. We agree that: there is now better transfer of energy from the North Island to the South Island; a South Island-OCC may cause confusion and resentment among consumers; normally there would be little difference in timing between the start of New Zealand-wide and South Island-only OCCs; and a South Island-only OCC may be too rigid in its geographic scope. Meridian therefore supports a New Zealand wide OCC only. Meridian agrees with the suggestion that the Authority could retain the discretion to initiate sub-national OCCs on the advice of the system operator.	Noted
MEUG	MEUG agrees that since the introduction of the regime allowing a New Zealand wide OCC and a South-Island only OCC there have been changes to the market structure and HDVC capability to justify a discussion on whether those 2-options for OCC are still relevant. ⁵ The paper sets out good reasons for removing the South-Island only OCC option. There may be value in considering OCC to be set for geographic regions determined by the EA on advice from the system operator. There is a cost of further exploring these options in terms of EA, system operator and market participant resources. At this stage MEUG does not see clear evidence the costs of furthering this discussion are warranted given uncertain benefits. We would characterise this as a case of it-not-being-broken so why consider change, or at least why use resources considering change when those resources could be better deployed on higher value work? An example of the latter, in relation to both improving security of supply and improving risk management in the sector, is the development by the system operator of a monthly reporting comparing changes month by month in HRCs set out in paragraph 4 of the attached submission to the system operator.	Noted
Nova Energy	Nova questions whether he expected differences in timing between the SI and NZ are significant enough to justify the differentiation, particularly as savings in consumption in Wellington also impact on southward power flows on the HVDC. Of more use would be provision in the Code for an OCC on a regional basis where there is potential for an energy shortage due to an FM event, e.g. arising from catastrophic failures to parts of the electricity supply system, e.g. fuel supply, generation failures, canal failures, or grid failure, which could	Noted

Submitter	Submitter's Comment	Authority's Comment
	create special needs for demand reduction in a specific region.	
Pioneer Energy	Pioneer supports amending the Code to have a New Zealand-only OCC. All the contingent storage is in the South Island. If New Zealand and South Island storage is tracking the same and the HRC are amended then all the contingent storage that is physically available will have been 'used' by the time a New Zealand-wide official conservation campaign is called. Therefore it seems like there is no difference between a New Zealand-wide and a South Island-only OCC.	Noted
Trustpower	No. We support the proposal that there should be only one set of New Zealand-wide HRC. As identified in the Authority's consultation paper, the current New Zealand-wide and South Island-only HRCs are very similar during the parts of the year where an OCC is more likely (i.e. winter). As such, an OCC being triggered through one set of curves would likely very closely coincide with the other set of curves being triggered – likely days apart, weeks at most. We agree that a South Island-only OCC: • may be too rigid in its geographic scope; and • could cause resentment from South Island consumers; and We consider it would send mixed signals to the market to have a staggered start to any campaign based on geographic regions.	Noted

Q8: Do you agree with the proposal's objective? If not, why not?

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Somewhat agree. As per our response to Q5 and Q6 we question whether changing the end trigger for OCCs from the status quo is efficient as it removes certainty.	Noted. We have modified our proposal to provide a greater degree of certainty
Flick Electric	Yes we agree with the proposal's objective.	Noted
Genesis Energy	No. Please refer our response to Q5 and Q6.	Noted. Please see our response to Q6.
Mercury	Yes the objective for the proposal for changing the start and end triggers for OCCs should be to promote reliability and efficiency. We agree that non-discretionary means should be used where possible to trigger the start and end of OCC's to minimise inefficient lobbying and reducing the possibility of the SO having to start an OCC within a fortnight of ending one is important.	Noted
Meridian Energy	Yes.	Noted
Nova Energy	Yes	Noted
Trustpower	Yes we agree with the proposed changes by the Authority, provided that the changes around the inclusion of contingent storage in the HRC's currently proposed by Transpower are adopted.	Noted

Q9: Do you agree the benefits of the proposed amendment outweigh its costs?

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Agree with the exception of the proposed changes to end an OCC. As per our response to Q8 and 5.2.1 we believe there would be additional costs associated with this added uncertainty.	Noted
Flick Electric	Yes. We agree that the proposal outlined is an improvement on the current arrangements.	Noted
Genesis Energy	No. We consider the cost of potentially prolonging an OCC to be greater than the benefits proposed.	We consider our chosen approach will provide a more efficient option.
Mercury	Yes.	Noted
Meridian Energy	Yes.	Noted
Nova Energy	Yes	Noted
Trustpower	Yes.	Noted

Q10: Do you agree the proposed amendment is preferable to the status quo and the alternatives? If you disagree, please explain your preferred option in terms consistent with the Authority's statutory objective in section 15 of the Electricity Act 2010.

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	No, with respect to ending an OCC we would prefer to retain the status quo as we believe having a known boundary increases certainty and is more consistent with the Authority's efficiency objective.	Although we have moved away from the status quo, we have modified our proposed method to provide a greater degree of certainty as to under what conditions an OCC will be ended.
Flick Electric	Yes we agree that it is preferable to the status quo and alternatives.	Noted
Genesis Energy	Genesis prefers setting a minimum quantity of hydro storage as the exit trigger. This method will be simpler for participants to understand and it accounts for the actual savings achieved by the OCC, which is a robust and efficient outcome.	We considered this option but decided that to use a modified version of our proposal. This modified version provides certainty and understandability whilst providing adequate storage in the winter and avoiding requiring more than is required in the summer.
Mercury	Yes.	Noted
Meridian Energy	Yes.	Noted
Nova Energy	Yes, with the variations as proposed above: Ending the OCC on the basis of reaching hydro reserves equivalent to 10% of one week's demand above the 10% HRC; and Applying an NZ-wide OCC only unless there is an FM situation requiring an OCC on an NZ or regional basis.	We considered this option but decided that to use a modified version of our proposal. This modified version provides certainty and understandability whilst providing adequate storage in the winter and avoiding requiring more than is required in the summer.
Trustpower	We have mixed views around whether the proposed amendment with respect to adjusting the triggers to start and finish an OCC is preferable to the status quo and the alternative. The current methodology is clear and simple to explain. In contrast, the proposed methodology will potentially create uncertainty and confusion, with any benefits attributable to a reduction in the likelihood of needing to start another campaign within 2 weeks of the OCC ending likely outweighed by the overall increase in uncertainty at the end of an OCC. We consider there is merit in further considering the alternative proposal put forward previously by Contact Energy – to end an OCC after storage has been above the 8% HRC for a defined period of time. This would ensure that there is transparency around the end triggers, and that there is a low likelihood of requiring a return to a conservation campaign within 2 weeks. We view this methodology as superior to the proposed methodology, and believe that there is much to be gained from having clearly defined triggers in an OCC. By having set triggers, we believe the benefits of not stopping the campaign too soon will be balanced with the certainty that is given to the	We considered the approach of staying above the 8% HRC for a set time was less efficient than our selected approach. We have decided to adopt a modified version of our proposed approach which provides understandability and certainty as to what would be required for an OCC to be ended. Our decision on this issue provides path to ending an OCC with certainty and understandability whilst avoiding an OCC that was either too short or too prolonged.

Submitter	Submitter's Comment	Authority's Comment
	market. Overall we view that this will improve the reliability of the market by removing any subjective triggers.	

Q11: How far in advance of the start of winter 2019 (ie 1 June 2019) would you need the proposed changes implemented to be of use in your operational decision-making for winter 2019?

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	The changes would need to be implemented as soon as practicably possible.	Noted
Flick Electric	It would be preferable to implement any changes as early as practically possible. That said the changes are likely to have limited impact on operational decision making.	Noted
Genesis Energy	In our view, a minimum of six months would be ideal to enable medium-long term planning; but a month would support short term planning at least.	Noted
Mercury	Market participants are forming their views on winter hedging well in advance of June. Two months at a minimum would be necessary to enable participants to effectively incorporate the changes into operational decision making. Therefore any changes would ideally need to be in place by the end of March 2019.	Noted The changes decided on will not be able to be implemented as early as March 2019.
Meridian Energy	Meridian does not need any particular notice period in advance of the proposed changes and we would be sceptical of any claims from others that significant notice periods might be required. The HRCs provide an estimate of electricity system risk and are constantly changing with revised supply and demand inputs or assumptions – the system operator has revised the HRCs over 60 times (often with little or no notice) since becoming responsible for the HRCs in 2011.	Noted
Nova Energy	n.a.	
Pioneer Energy	Participants attempt to manage the risks associated with uncertainty about the weather, management of hydro storage and levels of electricity demand on a daily basis using, what we consider to be, an illiquid hedge market. Imposing additional uncertainty in the form of 'betting' when the revised HRCs and rule changes will come into effect is a further unnecessary complication. Pioneer strongly submits that any change to the regulatory settings for OCCs be effective a minimum of two years after the decision about the change has been published. This means that every participant will have full factual information (as opposed to speculation) about the regulatory regime that applies for the period of any futures contract. Independent retailers, that is those without their own generation, will then not be materially impacted by this regulatory change.	We consider that waiting for two years to implement the changes the new arrangements for OCCs is excessive. This is because the inclusion of contingent storage in the assessment of HRCs will not impact the triggering of OCCs in a material manner at this time. Under both the existing and the new approaches we have decided on, all currently available contingent storage will be released well in advance of the OCC trigger being reached. The only immediate change to the shape of the OCC start trigger will be brought about by the seasonal nature of the contingent hydro storage in Lake Tekapo. Some recent projection changes to the HRCs by the system operator have brought about greater changes in the HRCs than the new arrangements will. When the system operator publishes HRC projections, these are never for as much as two years. The projections can be for as little as eight months. Shortly the system operator will add another 12 months taking us to about a 20 month projection.

Submitter	Submitter's Comment	Authority's Comment
Trustpower	We believe that the changes should not occur during winter. Our preference would be for any changes to be implemented during October, when inflows are typically arriving, and the risk of a shortage are the lowest. From the body of the submission.... The implications of incorporating contingent storage into the HRC part way through a winter needs to be further considered in the context of what signals the changes will provide around the risk to reliability of the system. We consider that incorporating contingent storage part way through the winter into the HRC's: will likely impact forward prices on the ASX, as the stated level of risk to the system of a supply shortage (as captured by the HRC's) will change, despite no real change in risk occurring; and could lead to a sudden change in the perceived risk of supply shortages. To avoid these unintended outcomes arising as a result of the timing of implementation of the proposed changes, we recommend aligning commencement with the traditional start of the inflows (i.e. 1 October).	Noted

Q12: Do you agree that the Authority's proposal complies with section 32(1) of the Electricity Industry Act 2010?

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Yes with the exception of the proposal to end an OCC.	Noted
Flick Electric	Yes.	Noted
Genesis Energy	No comment.	Noted
Mercury	Yes.	Noted
Meridian Energy	Yes.	Noted
Nova Energy	Yes	Noted
Trustpower	Yes.	Noted

Q13: Do you agree with the Authority's assessment of the proposal against the Code amendment principles? Please give reasons if you do not.

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	Yes with the exception of the proposal to end an OCC.	Noted
Flick Electric	Yes.	Noted
Genesis Energy	Please refer our response to Q9.	Noted
Mercury	Yes.	Noted
Meridian Energy	Yes.	Noted
Nova Energy	Yes	Noted
Trustpower	Yes.	Noted

Q14: Do you have any comments on the drafting of the proposed amendment?

Submitter	Submitter's Comment	Authority's Comment
Contact Energy	As per our responses above on the proposal to end an OCC the drafting of 9.23A would not be required.	Noted
Genesis Energy	No comment.	
Mercury	Yes.	Noted
Meridian Energy	Throughout the proposed drafting an assumption is made that separate New Zealand and South Island HRCs and OCCs will continue. As discussed in our response to Question 7, there are good reasons to consider having only New Zealand wide HRCs and OCCs in future. Under this option, there is no need for separate South Island provisions in the Code. Clause 9.32 of the Code also refers to "...the hydro risk curves, as that term is defined in the security of supply forecasting and information policy...". As noted in our submission to the system operator, Meridian recommends that the HRCs be renamed the 'Electricity Risk Curves'. The HRCs are the product of modelling the entire electricity system (including planned thermal generation availability, the mix of thermal and other generation supplying the system at any one time, and electricity demand) and actually show the risk of electricity shortage across the whole system, rather than merely that portion of supply that is provided by hydro generation. If the name "hydro risk curves" is changed in the SOSFIP, a consequential amendment to clause 9.32 of the Code will also be required.	Noted We have no plans at this stage to make any changes to the arrangements for South Island and New Zealand-wide OCCs. We agree that the Hydro Risk Curves would be better known as the Electricity Risk Curves, and will make this change.
Nova Energy	Amendments required as per suggestions above.	Noted
Trustpower	Yes.	Noted

General comments

Submitter	Submitter's Comment	Authority's Comment
Bryan Leyland	I have a number of comments. 1 – As far as I can see, no mention is made of the gas that is in storage or could be transferred from Methanex and used to boost supply. 2 – As far as I can see, no mention is made of the size of the coal stockpile at Huntly. A 750,000 tonne stockpile could keep two sets at Huntly running for four months and generate something like 1500 GWh. Much more than the relatively trivial contingent storages. 3 – Using experience from the early 2000s to determine the amount of savings is likely to be misleading. Since then ripple control systems have been run down so there is not much chance of achieving significant much by constraining water heating. Also the change to more efficient lighting means that switching lights off to save power will have a much smaller effect. 4 – As far as I can see, there is no discussion on the economic effect of the supply constraints that are being discussed. Inevitably, prices will skyrocket as we saw in October 2018 and are likely to go even further. If blackouts are imposed there will be a very large economic cost. There is virtually no business – or household – that can continue in anything like normal operation without a reliable supply of electricity. So an additional economic effect is likely to be the panic purchase of many emergency diesel generators. 5 – This paper really fiddled around the edges of a major problem facing New Zealand – a problem that the power planners of old were well aware of – how to provide a reserve supply in the event of a hydro shortage – or a coal or gas shortage – with the least economic and social damage. Any rational discussion of this is likely to lead to the conclusion that those who provide dry year reserves should be paid an annual sum to compensate them for the cost of holding the reserves. It is no more than a national insurance policy for the economy and people.	The material in items 1 and 2 are outside of the scope of this project, and as we consider it relates more to the responsibilities of the system operator, we have provided it with this submission for their information. We agree that the move to more efficient lighting can be expected to reduce savings rates in an OCC, but we have provided a range of savings scenarios from 0% through to 10%. We agree that these eventualities would indeed be expensive, and our efforts in this project are intended to assist with such issues. Consideration of a capacity market is outside of the scope of this project and is not currently being considered by the Authority.
Flick Electric	In this letter we have responded to the questions posed in the Consultation Paper regarding the regulatory framework for official conservation campaigns. In addition to reviewing the questions posed the Electricity Authority should also be reviewing the customer compensation scheme triggered by a campaign call. Flick believes the customer compensation scheme is an ineffective regulatory instrument that needs to be redesigned or revoked. Currently retailers are required to offer a default scheme that requires payment of \$10.50 to 'qualifying customers'. We believe this scheme merits reconsideration for the following reasons: The scheme was implemented to reduce incentives on retailers to call for public conservation campaigns. This 'incentive' is eliminated through the framework of objective risk assessment in place it is unnecessary to have a payment. It is unfair to place a 'disincentive'/ cost on retailers based on the misguided assumption that it is retailers alone who have the incentive to call for a campaign, in many instances it will be generators who are 'short' who have the greatest	The comments on the CCS are outside the scope of this consultation and it is noted that a review of the CCS was concluded as part of the Authority's 2017/18 work programme. However, the comments provided by the submitter will be helpful in informing any future review of the CCS carried out by the Authority.

Submitter	Submitter's Comment	Authority's Comment
	incentive. Payments are not targeted and benefit all qualifying consumers regardless of whether a customer actually reduces electricity consumption or not. If these payments are in anyway intended to compensate for 'savings'/ inconvenience from reduced consumption, then this blanket approach is suboptimal. Surely the increased penetration of smart metering since the policy was implemented merits reconsideration of this approach. It increases the costs for electricity retailers with no demonstrable increase in the security of supply. It burdens independent retailers more than gentailers. Gentailers are permitted to manage their 'position' so they can recoup the additional cost borne by their retail business by increasing wholesale market prices, unfortunately independent retailers don't have this lever. We encourage the Electricity Authority to consider a wider scheme review.	
Genesis Energy	We consider including contingent storage in the SoSFIP will mean that hydro risk curves (HRC) better reflect the actual, physical risk of a hydro shortfall. This provides market participants with greater transparency around the true level of available hydro storage, enabling them to make more efficient decisions. While there is some risk that these changes could encourage participants to more aggressively draw on their lakes, this is appropriately minimised if there is a sensible buffer imposed. In our view, Transpower and the Authority should take this opportunity to consider whether additional improvements can be made to HRC modelling. In a previous submission, Genesis said it sees the HRC as representing the risk of running out of stored energy, which also includes thermal fuels such as coal and gas. We appreciate Transpower has taken initial steps to reflect thermal fuel limitations in the HRC to-date, and look forward to this process being further embedded and optimised with time.	Noted We will pass your comments regarding making further improvements to the arrangements for providing HRCs on to Transpower, and will discuss these suggestions in our ongoing discussions with them.
Mercury	One area that remains an unresolved issue, even with the status quo arrangements, is that the proposals do not provide effective incentives on participants to manage hydro storage in the national interest. We would welcome further consideration of options to address this issue in future consultations.	This point is outside the scope of this project. We are setting out to improve managements of OCCs. If there were a series of OCCs or near OCCs, this matter would likely be considered at that time. If Mercury considers that such incentives should be introduced to better manage hydro storage, they may wish to make such a case.
Meridian Energy	Meridian supports the system operator's proposal to include contingent storage in the derivation of the hydro risk curves (HRCs). Failing to include contingent storage presents an inaccurate picture of the actual risk of shortages in electricity supply and is likely to result in sub-optimal decision-making. Meridian has for a long time considered the inclusion of contingent storage in the HRCs to be necessary to promote the reliability and efficiency of the electricity industry for the long-term benefit of consumers. This change should ensure that the HRCs better reflect the actual risk of a supply shortage rather than, as currently, inaccurately estimate that risk based only on a sub-set of the total available hydro storage. The current HRCs, for example, are likely to lead to an OCC being called at a less than 10% risk of shortage (i.e.	Noted

Submitter	Submitter's Comment	Authority's Comment
	at a time when there is still a greater than 90% chance that there will not be a shortage). Meridian supports the Authority's proposal to continue to use the 10% HRC as the trigger for beginning an OCC. With the proposed inclusion of contingent storage in the HRCs, the curves will become a better representation of the risk of shortage, aligned with most people's understanding of what the HRCs ought to represent. Any OCC start trigger more conservative than the 10% HRC could increase risk aversion, the likelihood of spill, and more use of thermal generation (and resulting emissions), and increased electricity cost for New Zealand consumers. It is also important to keep in mind that the HRCs are inherently conservative as a model and should not be made any more conservative.¹ Meridian supports the Authority's proposed buffer and consider buffers to be a prudent part of the HRCs and proposed contingent storage release boundary, regardless of which options are progressed. A buffer should be applied: above the floor of the contingent storage release boundary (if a release boundary determined inclusive of contingent storage is the preferred option); above the 0 GWh line of the contingent storage release boundary (if a release boundary determined exclusive of contingent storage is the preferred option); above the 0 GWh line of the HRCs because at certain times of the year the 10% HRC is at or close to 0 GWh of storage. Finally, Meridian supports the Authority's proposal that any OCC should only cease once there is 90% chance that no further OCC will occur within a fortnight. This proposal will avoid the potential adverse effects of an on-again-off-again OCC. ¹ The forward-looking model assumes that on any given day of the year, the inflows to hydro lakes from that point forward could follow any one of the historical inflow sequences for which records exist, stretching back to 1932. This creates over 80 scenarios of how the future may turn out, each with the same assumed probability of occurring. However, low hydro storage is reached after a period of low inflows. When the low historical inflow sequences are assumed to follow a recent run of low inflows, this can create a very long run of low inflows that is without precedent in the record of actually observed historical sequences. This inherent conservatism is increasingly marked as storage levels drop.	
MEUG	...An example of the latter, in relation to both improving security of supply and improving risk management in the sector, is the development by the system operator of a monthly reporting comparing changes month by month in HRCs set out in paragraph 4 of the attached submission to the system operator.	The arrangements for providing HRCs already allows for this. The system operator has published a special companion document to assist readers with in their understanding of recent events impacting the HRCs.
Nova Energy	Nova Energy is pleased the Authority is reviewing the regulatory settings for official conservation campaigns (OCCs). Recent experience has brought OCCs into focus, and it has always been fundamentally illogical for contingent hydro reserves to be regarded as only available once managed hydro storage reached very low levels.	Noted
Pioneer Energy	b) impact on the length of time of a conservation campaign and therefore on the level of compensation payable by	Issues relating to the CCS fall outside of the scope of

Submitter	Submitter's Comment	Authority's Comment
	retailer The Authority and Transpower claim the proposed change to the HRCs is expected to make any official conservation campaign more severe. This change clearly has consequences for the length of time and therefore customer compensation cost for all retailers. Pioneer takes this opportunity to reiterate our significant concerns about the mandatory requirement for retailers to compensate customers with \$10.50 per week during an OCC. Pioneer made a submission on the 2016/17 review¹ of the customer compensation scheme. Pioneer is also part of The Alliance of Independent Retailers (TAIR)² which made a comprehensive submission on the April 2018 consultation on two aspects of the scheme. We continue to believe that the overall customer compensation scheme (CCS) is inconsistent with the Authority's statutory objective to promote competition and ensure the efficient operation of the electricity market. TAIR described in detail how the risk of having to pay customer compensation cannot be mitigated. The scheme provides for payments to customers – not compensation – as no demand response is required and it is designed to penalise retailers irrespective of their contribution to the cause. Pioneer believes that the risk for retailers without their own generation associated with the CCS in the OCC regulatory regime is significant and justifies a comprehensive review (costs associated with the CCS in our view would substantially exceed any benefit from making the changes currently being proposed). We urge the Authority reread the TAIR's April 2018 submission and urgently place a review of the CCS on its work programme. ¹ https://www.ea.govt.nz/dmsdocument/21552-pioneer-energy 6 December 2016 ² https://www.ea.govt.nz/dmsdocument/23479-the-alliance-of-independent-retailers-tair-jointsubmission 10 April 2018	this project, and the Authority has no project to review this on our work programme.
Trustpower	However, we consider that a few matters need additional consideration at this time, namely the date for commencement of the proposed changes and interaction of future potential changes to information disclosure requirements in the gas industry.	Whilst issues relating to the gas industry are outside of the scope of this project, the matter has been raised at the Council of Energy Regulators. Additionally the Minister has sent a letter (in the public domain) to the GIC on the gas related issues raised here.