3 March 2022

Reliability Panel
c/- Australian Energy Market Commission
GPO Box 2603
Sydney NSW 2000

Electronic submission

2022 Reliability Standard and Settings Review Issues Paper

Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the 2022 Reliability Standard and Settings Review Issues Paper issued by the Reliability Paper ("Issues Paper").

NEM Structure and the role of Reliability Settings

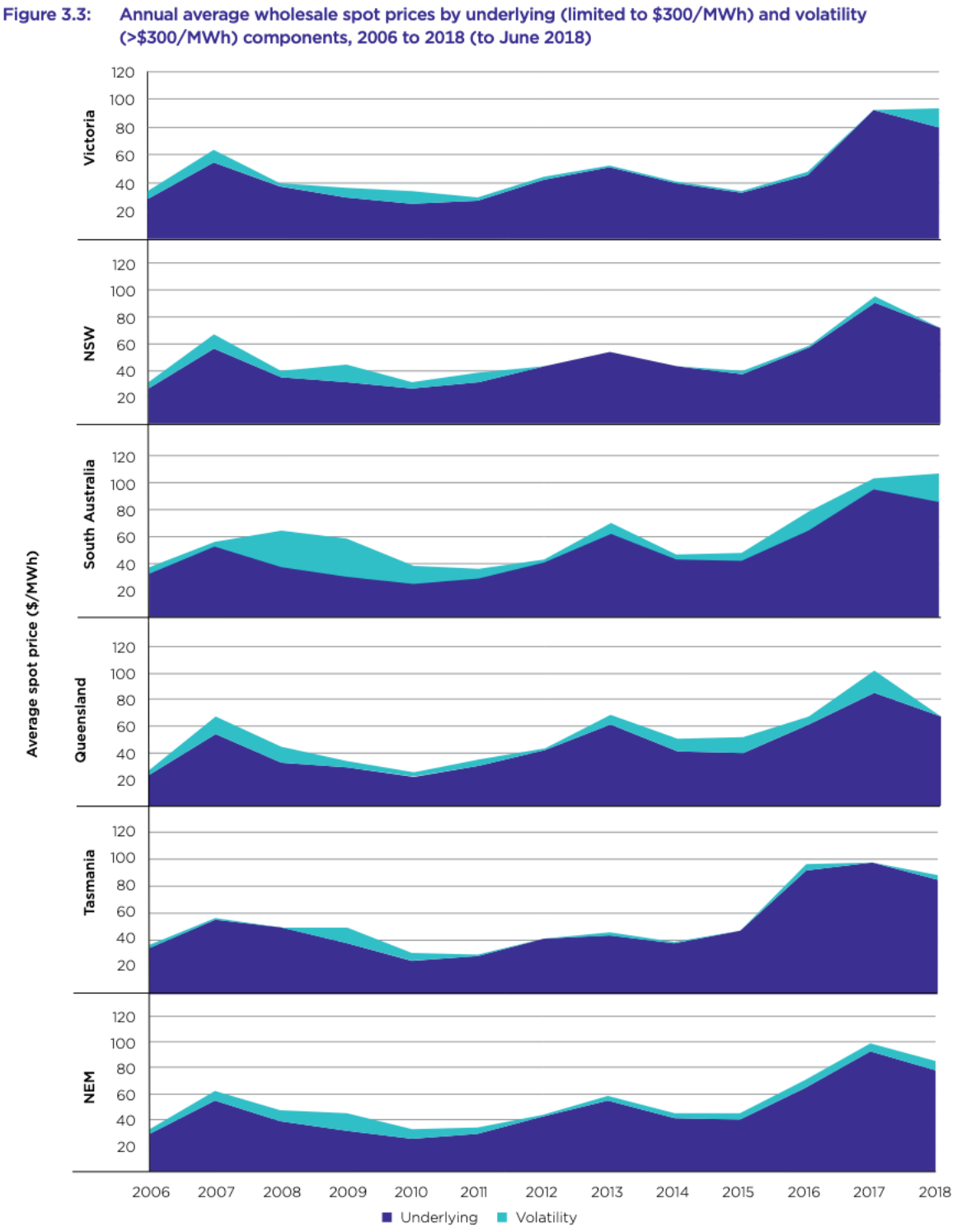
The NEM is an energy-only market. Generation is dispatched on the basis of short run marginal cost. Scarcity pricing, occasional periods when high prices are needed to clear the market, allows generators to recover their fixed costs and signals the need for investment in new capacity. Reliability settings are, therefore, inextricably linked to the effectiveness of an energy-only market. That is because these settings, in particular the Market Price Cap (MPC) and the Cumulative Price Threshold (CPT), constrain scarcity pricing, which in turn is the primary signal for investment. It is axiomatic that adjusting reliability settings will influence resource adequacy in the NEM.

As discussed below, given the serious and widespread concerns about resource adequacy, consideration of reliability settings should be the first and primary mechanism by which those concerns are addressed. It makes no sense to consider secondary solutions, such as a capacity mechanism, unless it can be shown that adjusting reliability settings will not be an effective solution. Snowy Hydro is not aware of any evidence suggesting that a capacity mechanism would produce cheaper energy prices for consumers.

In assessing the cost and benefits of changing reliability settings it is noteworthy that the cost of capacity delivered under the current energy-only market is relatively cheap, despite occasional uninformed criticism that the current level of the MPC is too high and/or encourages profiteering. In 2018, the Australian Competition and Consumer Commission found that the cost of capacity represented 2% of wholesale electricity costs in NSW.[1] Furthermore, the current MPC is some 3-4 times below current estimates of the value of customer reliability and well under AEMO's RERT, consumer-funded dispatch costs, which have reached as high $60,000/MWh.

[1] ACCC, Retail Electricity Pricing Inquiry—Final Report, 2018, p59

Figure 1: Contribution of Capacity to Wholesale Pricing Outcomes[2]



Increasing System Security and Reliability Concerns in the NEM

There is broad evidence that system security and reliability in the NEM is under strain. As the Issues Paper highlights, reliability concerns are forcing AEMO to intervene in the

[2] ACCC, Retail Electricity Pricing Inquiry—Final Report, 2018, p59

market at historically unprecedented levels. This has manifested through increased issuance of lack of reserve notices, directions and the use of RERT. This intervention is costly for consumers. The incidence of high price events is also increasing. This has occurred despite mild Summer conditions in 2020/21 and 2021/22. These trends reflect the physical reality that dispatchable generation, principally coal-fired generation, is retiring and a higher premium is placed on flexible, on-demand capacity.

All of these trends have been seized upon by the Energy Security Board (ESB) as justifying the introduction of a capacity mechanism. The ESB has acknowledged that adjusting reliability settings could improve resource adequacy, but has proffered its view that this approach is unfeasible because, it believes, reliance on scarcity pricing, would be politically unacceptable. Snowy Hydro believes that that is not a valid or correct justification for the adoption of a capacity mechanism. Capacity mechanisms are not an economic imperative and have serious drawbacks which have not been adequately acknowledged by the ESB. The experience of every jurisdiction that has adopted them has been that they are more expensive, result in over-procurement and transfer investment risk from shareholders to consumers.

Given that the ESB will not examine the efficacy of adjusting market settings in improving resource adequacy, it is critical that the Reliability Panel do so. Adjusting market settings will allow the NEM to retain the dynamism and efficiency benefits associated with current market structure. It also avoids the imposition of an expensive regulatory bureaucracy which would be required to manage and regulate a capacity mechanism.

Proposed Approach to Modelling

The Reliability Panel has proposed an unnecessary two-step approach to its assessment of changing reliability settings. According to the Issues Paper, it will only consider a change in reliability settings if a 'qualitative assessment' determines that there is 'sufficient evidence and clear rationale' that a change would result in a material benefit. Then, only if there is sufficient evidence and clear rationale, will it undertake a quantitative study to understand the impact of a change from the status quo.

Snowy Hydro considers the first proposed step - ie. a qualitative assessment - to be a an unnecessary impediment to modelling the impact of a change in reliability settings. For the reasons discussed above, there is no question that an increase in reliability settings will influence resource adequacy in the NEM and will therefore result in a material benefit.

Modelling changes to the MPC

Generally speaking, Market Customers looking to hedge their exposure to volatility in the NEM have two choices: purchase contract (cap) cover or self-insure by building dispatchable capacity.

The rational strategy for a Market Customer is to purchase cap coverage up to the cost of self-building their own capacity (the 'new entrant price', or NEP). Unless the market is oversupplied, cap prices should converge at or near the NEP, which is generally accepted to be around $13.50/MWh in $2021. Arguably, there was previously an oversupply in the NEM, but this is no longer the case as thermal assets retire.

This was observed in recent years in NSW, where cap prices were trading at below $9/MWh, but have now increased to $13.50/MWh or higher from FY23, (ie. close to NEP). This increase in NSW cap prices has occurred as Liddell approaches retirement. However, it is as yet unclear whether this rally in NSW cap prices will be sustained for long enough, or if sufficient volumes of cap contracts are priced at this level, to stimulate adequate levels of investment.

In Victoria, Snowy Hydro's analysis of the current demand/supply balance for firm contracts suggests that cap prices should also be at or near NEP - ie. there is no oversupply of firm capacity. However, the current traded cap prices for Vic in FY23 is below $9/MWh. This indicates the existence of an alternative factor accounting for the discrepancy between cap prices and the NEP.

The most likely explanation is that Market Customers in Victoria are relying on the protection afforded by the reliability settings, in particular the MPC and CPT. These settings protect load-facing participants from high price events, allowing them to purchase a sub-optimal level of contract coverage, smear the costs of their under-contracting onto other participants and, effectively, free-ride on the investments of generators. The result is that cap prices are depressed below NEP, leading to under-investment in dispatchable capacity and a weakening of system security. The most effective solution to this problem is, therefore, to increase the level of reliability settings. This will reduce the incentive for under-contracting, increasing cap prices and stimulating new investment.

The current MPC (approx. $15,000/MWh) has depressed cap prices to below $9/MWh in Vic, which is below their long-run efficient level of $13.50/MWh (NEP). Lifting the MPC by the same ratio (ie. $13.5/MWh/$9/MWh) gives an MPC of $22,500/MWh, which suggests that this is an optimal level of the MPC. This would both incentivise new capacity build in VIC and protect NSW from drops in cap prices and underinvestment in new (firm) capacity.[3]

The Reliability Panel should, therefore, model increasing the MPC in a range from $20,000/Mwh to $30,000/MWh, and then assess the extent to which this influences the price of $300/MWh caps. We note that the RERT has been dispatched at well above the MPC, as high as $60,000/MWh in 2018, and $27,000/MWh as recently as February 2022. Consumers are, in effect, already exposed to a quasi-MPC well above the MPC. Snowy Hydro's analysis suggests that resource adequacy could be improved by a modest increase in the MPC, which would ultimately save customers money as it avoids usage of more expensive AEMO-procured RERT capacity.

Administered Pricing and the CPT

The CPT has a specific influence in incentivising an efficient level of contracting and should be modelled separately and in addition to changes in the MPC. Administered Pricing, that is, a price cap of $300/MWh, is triggered when spot prices over a seven day period reaches the Cumulative Price Threshold (CPT). The current CPT is $1,359,100, which represents 7.5 hours of spot market pricing at the MPC. Once the CPT is reached,

[3] We note that the ESB, in Part B of their Final Advice to Energy Ministers (2021), suggested that investors would discount the revenue stream associated with an increased MPC due to increased investment uncertainty, with the apparent implication that this reform should not be pursued (p37). No evidence was provided for this claim and we know of no basis on which it could be sustained.

Market Customers are protected against scarcity pricing and dispatchable generators, and long-duration storage in particular, are prejudiced insofar as they are denied access to capacity revenues; their earning potential during administered pricing falls from $15,100/MWh to $300/MWh.

A CPT which is too low poses a major problem for peaking assets . They typically have low capacity factors and only generate and earn spot revenues during periods of occasional scarcity. A low CPT (and MPC) restricts their ability to recover their fixed costs. It is also a form of moral hazard, because it encourages Market Customers to take on risk - that is, unhedged exposure to the spot market - safe in the knowledge that, once administered pricing is triggered, those risks will be borne by generators. There is strong evidence that the current level of CPT is encouraging such behaviour.

Snowy Hydro has analysed the cost of Q1 $300/MWh traded caps in Victoria in recent years, together with a payout for a CPT event based on 7.5 hours of pricing at the MPC, which equates to approximately $52/MWh on a quarterly basis. It is rational for Market Customers to buy cap coverage up to this level, which represents the implied protection of the CPT, and then rely on administered pricing to protect them against further volatility. Any increase in cap prices above this level would likely be modest and reflect the risk preference of some participants who prefer contract coverage rather than reliance on the CPT. In fact, this is exactly what the data show, as shown by Figures 2-4 below.

Figure 2: Q1 2021 Vic Cap Price vs 7.5 MPC Cap Payout

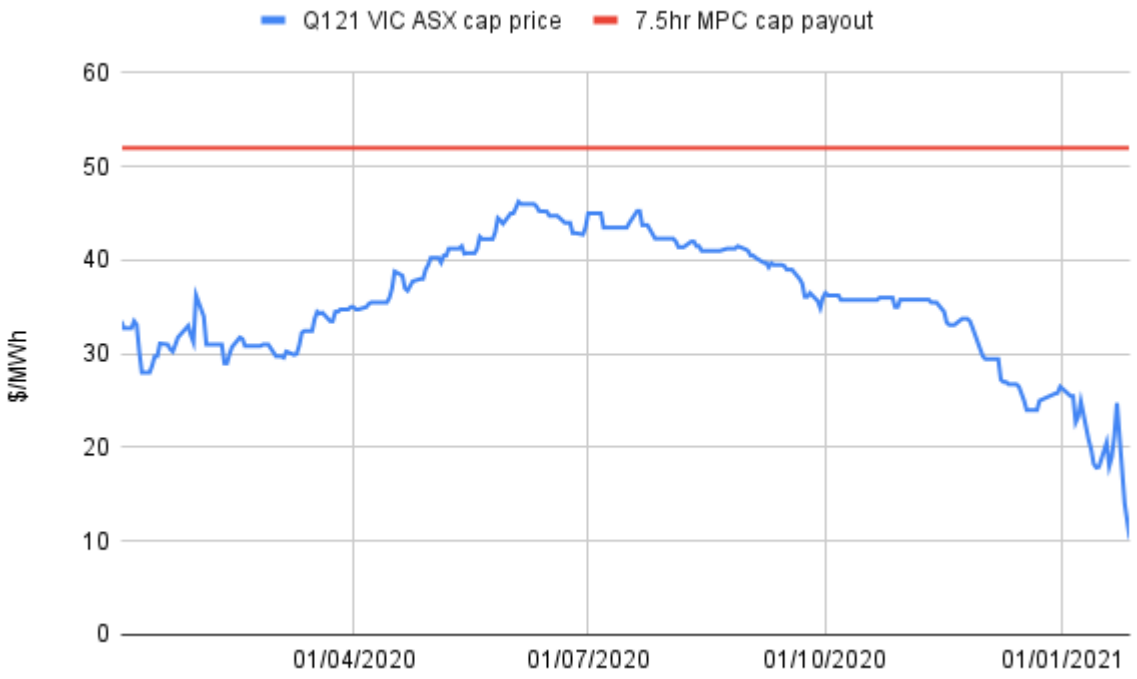


Figure 3: Q1 2020 Vic Cap Price vs 7.5 MPC Cap Payout

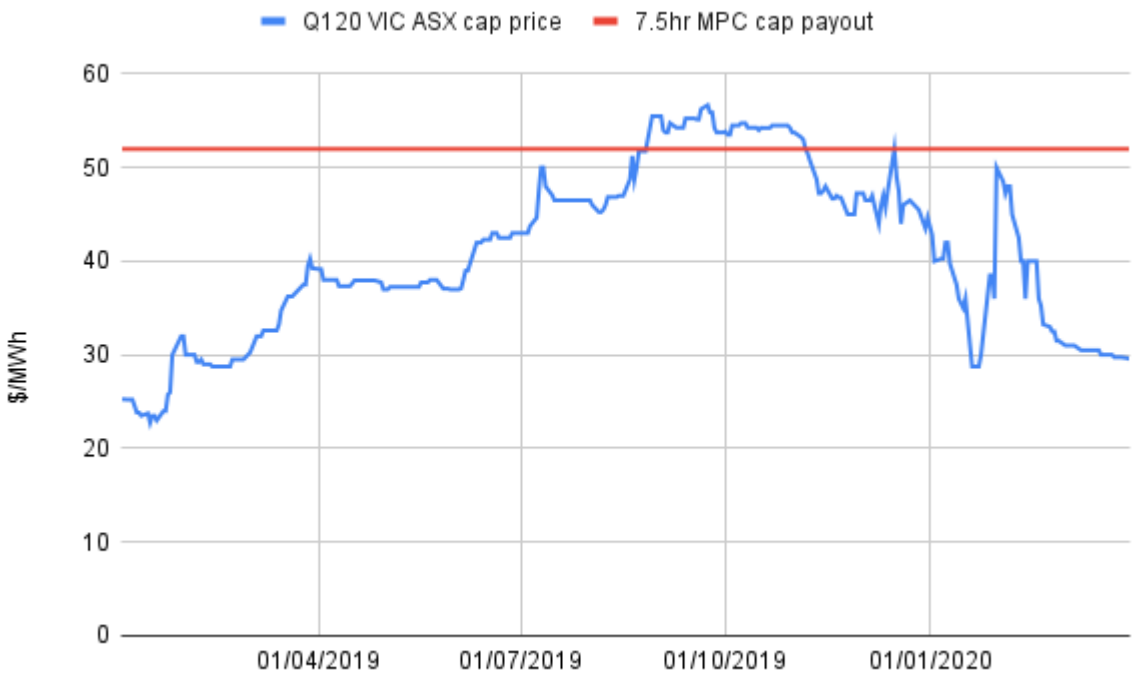
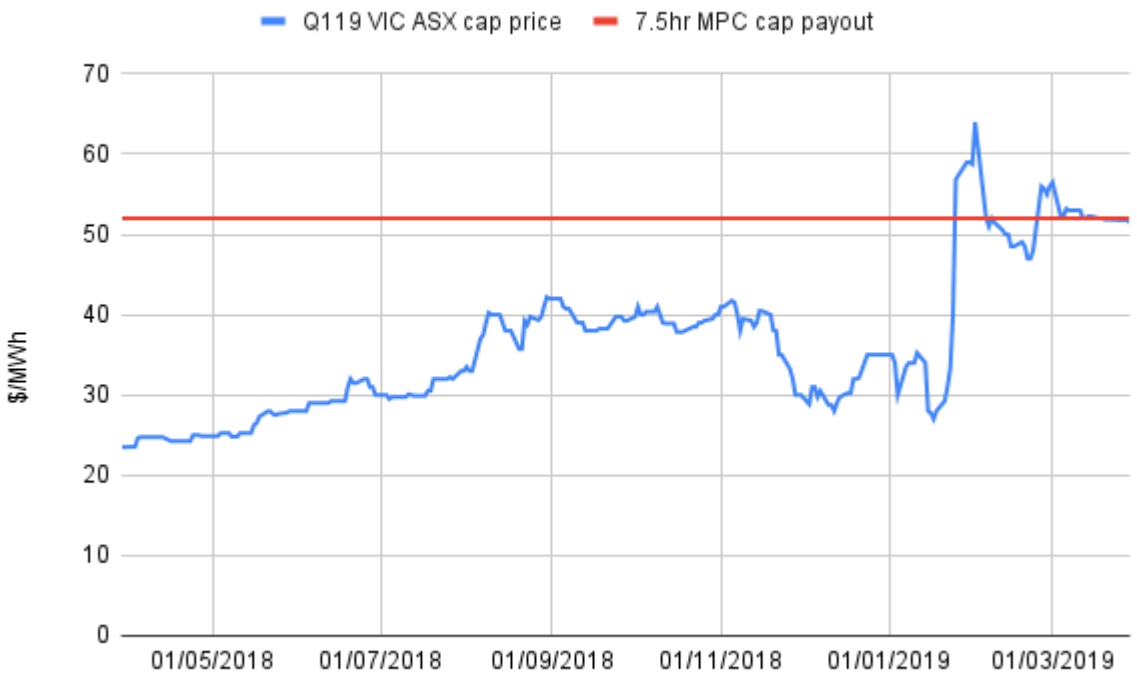


Figure 4: Q1 2019 Vic Cap Price vs 7.5 MPC Cap Payout



The above charts highlight the linkage between CPT and traded cap prices. In effect, the CPT acts as a ceiling on cap prices. Any increase above the CPT tends to be brief and relatively minor. This is damaging for system reliability because, as mentioned, it contributes to depressing the cost of $300/MWh caps below NEP, ie. the price needed to incentivise new investment. It is particularly harmful to the economics of long-duration storage because, by their nature, such assets are able to generate on-demand for sustained periods. Short duration storage will have exhausted its energy reserves before administered pricing is triggered, and the cost of supplying the market will be transferred primarily to long duration storage and any available firming capacity. This forced cross-subsidy is likely to depress investment in these types of assets. This is dangerous because, as identified in the draft 2022 ISP, deep storage will be vital in managing seasonal variations in renewable resource availability.[4]

Scenario Modelling

In modelling reliability outcomes it is critical that the Reliability Panel takes adequate account of the risk of extreme events, which are increasing in magnitude as weather-dependent generation replaces coal assets. The growing risk of extreme events in the NEM supports the need for an increase in reliability settings, particularly the MPC, as well as increased interconnection. To be clear, these risks do not imply a need for greater deployment of RERT. Previous expansion of the RERT mechanism continues to act as a disincentive to investment in in-market resources.

Currently, in forecasting USE outcomes in connection with the Electricity Statement of Opportunities (ESOO), AEMO models expected annual USE using different levels of maximum demand outcomes, reflecting different underlying weather conditions that can drive extreme peak consumption. Generator outages are simulated based on a 10% probability of exceedance (POE) of maximum demand forecasts only. The capability of dispatchable generation capacity is modelled using temperatures consistent with a 10% POE demand outcome in each region. AEMO's approach, and in particular the use of POE10, underestimates the risk of extreme events, which is likely to increase given declining reliability of ageing coal assets and climate change related weather events.

Given these limitations, modelling undertaken by the Reliability Panel should incorporate coincident extreme weather events as well as multiple credible and non-credible contingencies. The incidence of extreme weather is increasing due to climate change. During hot weather, coal assets deratings (and indeed solar asset deratings) are highly correlated, and forced and unforced outages of coal assets are rising given a slow down in investment as power stations approach end of life. It is important that these risks are captured in the Reliability Panel's modelling.

Market Floor Price (MFP)

As stated in the Issues Paper, the MFP plays an important role by allowing the market to assign a clearing value to excess generation. By setting the MFP as a negative value, generators are able to signal their willingness to incur a cost to avoid curtailment. Generators with different cycling costs signal those costs by bidding below $0/MWh. An MFP which is too high leads to inefficient curtailment. However, unlike the MPC, the MFP is not indexed, and this has created distortions. Under current arrangements, the MFP increases every year in real terms, and has increased a cumulative 38% since 2000.

[4] AEMO, Draft 2022 ISP, p51

Increasing volatility of supply associated with growth of wind and solar energy means that dispatchable assets need to cycle more frequently than in the past. However, the falling MFP, in real terms, has weakened the ability of dispatchable assets to signal their cycling costs. As generators become less able to differentiate their cycling costs, the bid stack becomes less reflective of generators' costs. This leads to inefficient dispatch, and in particular, lower NEM reliability given the impact on firm generation.

At present, the non-indexation of the MFP means that it is increasing every year. If the Reliability Panel decides to leave the existing level of the MFP unchanged it is, in effect, deciding to increase it. Snowy Hydro believes, for the reasons expressed above, that the MFP should be indexed, just as the MPC is also indexed. Such a decision would not represent a change from the existing MFP but rather would preserve the status quo.

Dual Floor Price Rule Change

In December 2021, Snowy Hydro submitted a rule change request to the Australian Energy Market Commission (AEMC) proposing the introduction of a dual floor price for scheduled and unscheduled assets. While Snowy Hydro believes the request would be an effective means to improve resource adequacy in the NEM, given the nature of the request we believe it is appropriate, and it is our preference, for it to be subject to the rule making process under Division 3, Part 7 of the National Electricity Law.

About Snowy Hydro

Snowy Hydro Limited is a producer, supplier, trader and retailer of energy in the National Electricity Market ('NEM') and a leading provider of risk management financial hedge contracts. We are an integrated energy company with more than 5,500 megawatts (MW) of generating capacity. We are one of Australia's largest renewable generators, the third largest generator by capacity and the fourth largest retailer in the NEM through our award-winning retail energy companies - Red Energy and Lumo Energy.