



Market Development Advisory Group's  
Price Discovery Under 100% Renewable Electricity Supply  
Issues Paper Discussion

**Contact Energy Submission**

21 March 2022

## Introduction

1. Contact Energy (**Contact**) welcomes the opportunity to submit on the Market Development Advisory Group's (**MDAG**) *Price Discovery Under 100% Renewable Electricity Supply Issue Discussion Paper* (**the Paper**).
2. We are supportive of MDAG's efforts to coordinate industry thinking on market design to ensure that the transition of New Zealand's electricity system towards 100% renewables is orderly and well managed.
3. The Paper focuses on market issues under 100% renewable generation in 2035 and 2050. Contact considers this to be the correct approach for ensuring potential issues within the electricity system are identified and New Zealand can prepare for a 100% renewable electricity system, which should remain a long-term goal.
4. A 100% renewable electricity system is likely to significantly differ from the current market. Contact agrees that the transition toward 100% renewable electricity will likely include:
  - New Zealand's generation portfolio becoming more diverse and dispersed, including greater inclusion of wind, solar and batteries.
  - increased intermittency of generation, requiring the need for a more agile market to ensure system security.
  - increased electricity demand from:
    - i. the electrification of transport and process heating, and
    - ii. energy intensive industries such as data centres and hydrogen production through electrolysis.
  - increased distributed energy resources (**DER**), such as electric vehicles and rooftop solar.
5. Contact broadly agrees with the identification of issues in the Paper. This submission provides some general comments on the issues identified by MDAG, as well as providing some discussion surrounding wider risks for consideration.

## Contact questions whether 100% renewable generation is the relevant regulatory target for 2035

6. Modelling in the Paper assumes a hypothetical scenario where all fossil fuelled generation retires by 2035, leaving a 100% renewable electricity system. Contact believes that this is the correct approach for issue identification. However, Contact questions whether this is the appropriate regulatory target that will provide the best outcome for New Zealand.
7. It appears that modelling supporting the Paper is predicated on the assumption that one percent of demand in 2035 will be provided by bio-fuelled peaker generation at high cost. We question the appropriateness of a nascent technology forming part of the reference case where there are significant uncertainties surrounding the viability of the technology and whether there would be political appetite for the likely high prices required to attract such investment.
8. Contact advocates a least-cost approach to decarbonise the wider energy sector. The Climate Change Commission's (**the Commission**) draft advice report identifies the very high abatement cost of \$1,200 per tCO<sub>2</sub>e required to achieve 100% renewable generation by 2030, consistent with previous expert analysis by the Interim Climate Change Committee (**ICCC**) and the Productivity Commission.<sup>1</sup>
9. To be clear, Contact remains committed to decarbonising electricity generation, and 100% renewable generation should remain a long-term goal. However, we also recognise that decarbonising the final few percent would be prohibitively expensive in the medium term. Those costs would be borne by New Zealanders – either as higher retail energy costs or significant government expenditure.

## The levels of new generation will require labour markets and supply chains that are capable of delivery

10. The Paper suggests that an average of 400-500MW of new supply or demand response capability is required every year until 2050 to meet projected demand growth and replace fossil-fuelled generation. Contact welcomes the acknowledgement by MDAG that greater levels of investment is needed to achieve this aim.
11. This level of development is unprecedented, and the Paper does not mention the large scale of resources (materials and labour) required to undertake this transition.
12. The Paper claims that *“most new supply is expected to come from solar and wind generation and these technologies are very scalable, can be developed rapidly and have low technical entry barriers”*. Whilst we agree with the sentiment of this statement, we are wary that MDAG is understating the size of this challenge.
13. The market impacts of investment and construction delays can currently be softened by utilising system flexibility through potential postponement of retiring thermal generation. Under an expanding 100% renewable system, it is likely that there will be less flexible fuel options and new developments that greatly outnumber plant retirements. The MDAG may want to consider whether longer term price signals are

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<sup>1</sup> Interim Climate Change Committee Accelerated electrification evidence, analysis and recommendations, 30 April 2019, p. 97.

present to encourage investment with enough lead time to ensure supply is available when required.

**Contact is supportive of exploring how the spot market will operate under 100% renewable electricity**

14. Contact agrees that there is likely to be an increase in spot price volatility due to higher levels of intermittent generation, and that this volatility will be mitigated to some extent by New Zealand's hydro assets.
15. However, Contact is supportive of MDAG analysing how competition in the wholesale market is likely to be affected by a shift to 100% renewable electricity.

**Increased complexity of the New Zealand electricity system could hinder the transition to 100% renewable electricity**

16. Contact supports a wholesale market as the preferred mechanism to coordinate plans and actions among resource owners but encourages MDAG to consider the trade-off between low complexity and ensuring competitive outcomes are achieved through the wholesale market.
17. It is expected that there will be an increase in the number of market participants as New Zealand approaches 100% renewable generation – on both the supply side and demand side. New entrants will need to become familiar with the market, and lower complexity and real-time transparency will smooth these entries into the market.
18. In particular, complexity must be avoided to maximise the uptake and capability of demand-side flexibility.

**Contact agrees that the hedging market will be a crucial part of a 100% renewable electricity system**

19. The hedge market will play an important role in smoothing financial returns and managing risk in an increasingly volatile market. It will be important for contract markets to have sufficient liquidity and accessibility for all market participants. An astute understanding of the costs and benefits of different contract market designs is encouraged.
20. Contact is supportive of the preconditions identified in 3.38 (a) - (e) that need to be in place for an energy only approach to work. These preconditions will also encourage participants to utilise contract markets to hedge their exposure to spot price volatility.
21. The Paper correctly points out that the market will benefit from prices that reflect real supply and demand conditions, including very high prices in times of scarcity that signal to the market the need for additional investment. However, gaining general public and political acceptance that volatile and periodically high prices are in the long-term interest of consumers will be difficult to achieve if there are large amounts of consumers that are exposed to spot price risk which may be an attractive proposition when the market is oversupplied but can be detrimental during periods of scarcity.

22. Investment in assets that are needed for very few periods at very high prices would carry a higher risk profile and require a continued maturation of risk management practices to support these investments.
23. Contact supports exploring backstop measures that would introduce compulsory contracting obligations on purchasers to forward contract for their firm demand when periods of undersupply are identified.