Cover note

This document provides information on modelling undertaken by Energy Link LTD for He Pou a Rangi Climate Change Commission exploring the timing of renewable generation build on electricity generation emissions and wholesale market prices. The results from this modelling are part of the evidence considered for [our advice on the direction of policy on the second emissions reduction plan](https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/advice-for-preparation-of-emissions-reduction-plans/2023-draft-advice-to-inform-the-strategic-direction-of-the-governments-second-emissions-reduction-plan-april-2023/).

This modelling is an update to modelling undertaken by Energy Link for the Commission in May 2022 in support of our advice on the NZ ETS unit limits and price control settings for 2023-2027[[1]](#endnote-2). In this update we have undertaken sensitivity analysis by varying the timing of the generation build from a central scenario. We have used the Demonstration path (update) demand profile and the cost containment reserve (CCR) trigger price path settings from May 2022 as the central scenario. In the main draft advice report and the supporting spreadsheet this is referred to as the demonstration path.

The build of generation for the demonstration path is a simulation of how market participants decide to build new generation, with future price expectations and earnings as key decision variables. This build has then been delayed by 6 or 12 months and brought forward by 6 months. The revised builds have then been run through the wholesale market simulation model E-Market to determine emissions and wholesale market prices.

Market conditions have changed somewhat since May 2022, particularly with further escalation of coal price. We have not updated our fuel price and other assumptions as the focus of this work is longer term and it is not clear if these market conditions will persist.

Generation development and decommissioning schedules have also changed since May 2022. However, the modelling directly explores the impact of build timing through sensitivity analysis.

Wholesale prices and emissions vary considerably depending on hydrological inflows. Although this variation is simulated in the E-Market model, the figures and values in the main report are the average across the simulated weather years.

1. Climate Change Commission, ‘Technical Annex 3: Electricity market modelling and retail price estimates’, 2022 <https://www.climatecommission.govt.nz/public/ETS-advice-July-22/Technical-annexes-and-supplementary-documents/Technical-Annex-3-Electricity-modelling.pdf> [↑](#endnote-ref-2)