

The year in review

Membership year – April 2020 to March 2021



1. Introduction

The outlook for wind energy can only be regarded as exceptional with the recent investment of over \$1.3 billion and the Climate Change Commission (CCC) forecasting wind meeting 24% of total electricity demand by 2035 ¹.

A key challenge in meeting such a large growth forecast will be ensuring policies across the energy sector, climate change and environmental areas align to support new build activity.

The wind industry itself also needs to position the sector to support the projected growth with a sustained pipeline of projects ready to be built as demand increases.

Decarbonisation of the energy sector beckons, and it is clear that the wind industry is at the forefront of an exciting future contributing towards New Zealand meeting its climate change goals.

2. The Outlook for New Wind Activity in NZ

The significant contribution wind energy has to make to New Zealand's energy future was first recognised in the 1980's. After a consenting boom period post 2000 and an initial growth phase it took until 2019 for the next new wind farm to be consented with Mercury announcing it would commence construction of the Turitea Wind Farm, New Zealand's largest at 222 MW.

Since then Tilt has built and commissioned Waipipi (133 MW), Meridian has announced its intention to build Harapaki (176 MW) and MainPower expecting to reach financial close on Mt Cass (93 MW). Clearly the decision of Tiwai Aluminium Smelter to contract through to December 2024 has provided some certainty and encouraged new investment including Contact's Tauhara geothermal power station and their intention to build a pipeline of large wind projects with a capacity of over 150 MW.

A number of exciting but potentially redefining smaller scale wind projects are also on offer. This includes Hiringa Energy and Balance Agri-Nutrients 24 MW Kapuni Wind Farm to produce green hydrogen and a community wind farm at Paekakariki.

Turitea, Waipipi, Harapaki and Mt Cass on average will produce enough electricity to power around 300,000 homes or nearly 1 million EV's. Of note is the establishment of a wind power purchase agreement (PPA) market with Genesis contracting the output of the Waipipi Wind Farm. Genesis is also seeking additional projects and the Major Electricity User Group's project to support new renewables are important further steps in developing the corporate PPA market.

The CCC is forecasting a significant investment in new wind with a 540% lift in current generation to 13.3 TWh by 2035. Transpower in their recent energy futures report ² is also forecasting a significant

¹ Climate Change Commission, 2021 Draft Advice, January 2021.

² Transpower, Whakamana I Te Mauri Hiko Report, March 2020.

increase in wind growth to comprise 28% of generation by 2050 at 19.6 TWh with capacity increasing from 0.6 GW to 6.5 GW

As noted in last year's review the electricity market has undergone a big adjustment with a shift from one of oversupply to signalling the need for new investment. Further compounding volatility is the current tight gas supply situation and low lake levels.

The NZ Battery project has created a level of market uncertainty and it will be important for the Association to keep a close watch on the project's development. The Association supports the development of options to address the dry year issue and, depending on the recommended option and operating guidelines, the project may also support short term wind and solar variability.

Wind energy, when coupled with an upward trend in the price of carbon, is widely recognised as having the lowest long run marginal cost. Importantly wind generation's ability to support New Zealand's peak winter demand is often underestimated. Over the past 3 years the quarterly generation profile of wind was 24% quarter 1, 24% quarter 2, 25% quarter 3 and 27% quarter 4.

An increase in the geographical diversity of wind farms will reduce short term variability and, when combined with a flat seasonal generation profile, enables winds value in the wholesale market to exceed that of other variable renewable generation. As the Ministry of Business Innovation and Employment (MBIE) advised in its Wind Generation Stack Update Report New Zealand has a large number of economic wind projects:

<https://www.windenergy.org.nz/store/doc/wind-generation-stack-update2020.pdf>

The role of renewable electricity generation, and wind energy in particular, in enabling the decarbonisation of the energy sector is unquestioned. That New Zealand has access to a high-quality wind resource presents a significant opportunity for sector growth in support of future economic prosperity. Key will be the timing of Government initiatives to reduce emissions which will stimulate electricity demand growth.

3. Global Trends

New wind installations worldwide increased by 93 GW in 2020 (61 GW in 2019) with China and the USA comprising 74% of new installations. Onshore wind growth was 87 GW with offshore totalling 6 GW.

Cumulative wind capacity now totals 743 GW with onshore comprising 708 GW and offshore 35 GW.

The Global Wind Energy Council forecast of the market outlook for the global wind industry remains positive. The CAGR for the next five years is 4.0%, even though the installed capacity for 2020 marked a new high and expects that over 469 GW of new capacity will be added in the next five years. That is nearly 94 GW of new installations each year until 2025.

The CAGR for offshore wind is expected to exceed onshore with the level of annual installations likely to quadruple by 2025 from 6.1 GW in 2020, bringing offshore's market share in global new installations from today's 6.5% to 21% by 2025. In total, more than 70 GW offshore is expected to be added worldwide in 2021-2025.

4. NZWEA Strategic Direction

At its February 2020 meeting the board reviewed the Association's strategy. Factors influencing the review included:

- Ensuring the health and safety standards of wind industry are maintained particularly given new developments and growth projections.
- Draft CCC budgets and the recommended level of ambition in reducing emissions.
- The scale of new renewables development required to achieve net zero and how to ensure this is best enabled
- Whether the level of site investigations and consenting activity is sufficient to provide a pool of available options to fully take advantage of demand growth projections.
- Timing of the Tiwai exit and viability of other large industrial users such as NZ Steel, Refining NZ etc).
- Resource management systems reform including related national direction instruments such as the National Policy Statement-Indigenous Biodiversity and the implications for consenting renewables.
- Sustaining the energy trilemma including understanding the implications of the NZ Battery Project for a competitive wholesale market and renewables development.

The Association's strategy is to focus on three key areas:

- Leveraging New Zealand's emissions reduction imperative to enable the energy transition to renewables, particularly wind energy.
- Optimising wind energy's position and ensuring the regulatory environment supports wind farm development.
- Expanding the opportunity for wind energy development to enable community and industrial projects including wind's integration with other technologies.

The Association's vision of wind energy providing 20% of NZ's electricity requirements by 2035 is unchanged.

5. NZWEA Activities

The Association's activities have been targeted at achieving the three key areas of strategic focus and included:

- **Health and Safety.** The Health and Safety Group has met regularly throughout the year in July, November and March 2021. Agenda topics included presentations on GWO training standards, incident reporting, heavy lift procedures, benchmarking health and safety, the wind farm technician programme and an update from WorkSafe. A key feature of meetings was the sharing H&S near misses and incidents. It's great to see such a high-level of focus on health and safety and support from members as we collaboratively work to ensure our people get to go home safely.
- **COVID 19 Recovery / Government Communications.** The Association wrote to the Minister of Energy and Resources in May 2020 to share NZWEA's perspective on the opportunity to progress renewable electricity generation and decarbonisation of the energy sector as a key contributor to the Government's recovery plan:
<https://www.windenergy.org.nz/store/doc/Minister-of-Energy-and-Resources-NZWEA-letter--200527.pdf>

The Association also wrote to the Minister in November highlighting NZWEA's priorities for advancing electrification which were to increase demand for electricity by displacing the use of fossil fuels in the energy sector, resource management system reform to support consenting renewables and progressing the NZ Battery Project to assess dry year options: <https://www.windenergy.org.nz/store/doc/Minister-of-Energy-and-Resources-NZWEA-letter201117.pdf>

- **Climate Change Commission 2021 Draft Advice.** The CCC has delivered its first package of advice for consultation on 1 February 2021. The package includes NZ's first three emissions budgets for the period up to 2035 and the preparation of the first emissions reduction plan.

The advice is largely consistent with previous reports from the Productivity Commission and Interim Climate Change Commission (ICCC) but is very explicit that current government policies do not put NZ on track to meet the CCC's recommended emissions budgets and the 2050 targets contained in the Zero Carbon Act.

The Association has submitted in support of the draft advice in relation to the energy sector and electricity and focused on two key areas which the Association considers presents a significant risk to the achievement of carbon reduction budgets. These are the lack of integration of government policy making across climate change and other domains (in particular the proposed resource management system reforms) and sustaining the energy trilemma in the transition of the electricity sector to a higher level of renewables particularly in a dry year situation.

NZWEA's submission can be viewed here:

<https://www.windenergy.org.nz/climate-change-commission-2021-draft-advice-for-consultation>

- **Resource Management System Reform.** The Government has recognised the significant deficiencies in National Policy Statement for Renewable Electricity Generation (NPS-REG) and allocated \$3 million of funding for a review.

Any NPS-REG improvements will however be dependent on proposed wider resource management system reforms. The Association has joined major generators in writing to Minister Parker highlighting significant concerns with the draft purpose and principles of the Natural and Built Environments Act (NBEA) recommended by the Randerson review.

The key issue relates to section 8 outcomes which prioritise environmental bottom lines without countervailing consideration such as mitigations, offsetting and compensation programmes widely used in wind farm consenting. Industry consensus is that it will become significantly more difficult to develop wind farms under the proposed NBEA.

Key enhancements the industry is seeking include recognition of climate change limits and targets in the legislation and specific provision for electricity infrastructure and renewable electricity generation.

- **National Policy Statement - Indigenous Biodiversity.** The Ministry for the Environment released a draft NPS-IB in November 2019 for consultation.

The Association, in its submission, acknowledged the imperative to improve indigenous biodiversity but noted the latest draft would result in most indigenous features being recognised as “significant”. In addition, the list of effects of activities which must be avoided in a significant natural area would result in most if not all new wind farms needing to avoid all indigenous features without the ability to consider a mitigation / offset hierarchy.

A final NPS-IB has been delayed due to the wider resource management system reform and the Association remains hopeful that provisions will be amended to allow reasonable use and specifically cater for renewable electricity generation.

- **National Policy Statement - Freshwater Management.** The Ministry for the Environment issued a new National Policy Statement for Freshwater Management (NPS-FM) effective September 2020. NZWEA in its submission highlighted the importance of ensuring the ongoing availability of hydro generation to support the variability of wind and solar and the final NPS-FM did contain specific provision for large hydro generation schemes.

A new National Environmental Standard for Freshwater has now also been released. The Standard prohibits any earthworks or taking, use, damming, diversion or discharge of water within a natural wetland. The section is problematic for the wind industry as the definition of a wetland is likely to be interpreted extremely broadly as a prohibited activity. It is understood the Government has acknowledged the issue and instructed officials to consider options.

- **Accelerating Renewable Energy and Energy Efficiency.** MBIE has released a summary of submissions in response to the Government’s strategy consultation document ³. While several initiatives have been announced the Government’s overall energy strategy has yet to be released.
- **Emissions Trading Scheme.** The Association continues to monitor developments with the first auction being held in March 2021. NZWEA notes ongoing improvements including market governance are progressing forestry changes are planned. The CCC has also made several recommendations notably aligning emission reduction targets with their budgets and lifting the auction reserve and cost containment reserve prices higher.
- **Electricity Price Review.** The Electricity Price Review (EPR) focused on efficient fair and equitable prices, market and regulatory framework and emerging technologies.

The Association submitted on both the EPR’s First Report and Options Paper and the Government has initiated a programme to implement the Review’s recommendations. MBIE and the Electricity Authority (EA) are leading the programme of work. Key areas the Association is monitoring include the improved regulation of distributors, the phasing out of low fixed charge tariff regulations, improvements to wholesale market information, code amendments for batteries and hedge market enhancements.

³ Ministry of Business Innovation and Employment, Discussion Document Accelerating renewable energy and energy efficiency, December 2019.

- **Hedge Market Enhancements.** The EA issued a consultation paper in June 2020. The Association submitted in support of a commercial option for market making.
<https://www.windenergy.org.nz/store/doc/NZWEA-Submission-on-HME.pdf>

The EA has decided to transition to an incentivised market making arrangement. A follow up consultation paper Hedge Market Enhancements was issued in November 2020 and the EA has decided to amend the Electricity Industry Participation Code to include provision for a permanent mandatory market making backstop.

- **Transmission Pricing Methodology (TPM).** The EA has given Transpower until 30 June 2021 to develop and propose a new TPM. Recent Transpower consultations include exploring a transitional congestion charge and first mover disadvantage.

NZWEA lodged a submission on the transitional congestion charge and a cross submission on first mover disadvantage (FMD) to manage the risk of new wind connections being expected to fund additional capacity to meet future growth requirements and to position grid expansion as a growth opportunity that should not be attributed to current participants. A copy of the Association's submissions can be viewed here:

[https://www.windenergy.org.nz/transmission-pricing-development-\(transpower\)](https://www.windenergy.org.nz/transmission-pricing-development-(transpower))

- **Clutha Upper Waitaki Lines Project.** Transpower issued an invitation to comment on a proposal to progress the remaining projects to complete the Clutha Upper Waitaki Lines Project and enable surplus electricity transmission out of Southland should the Tiwai Smelter close.

NZWEA in its submission supported proceeding with the project and noted that there were two consented wind farms with a total capacity of 400 MW in the Otago / Southland regions that would benefit from the transmission upgrade. MBIE in their May 2020 Wind generation Stack Update also noted there was over 2,125 MW of new generation in the region.

<https://www.windenergy.org.nz/store/doc/NZWEA-Submission-on-the-CUWLP.pdf>

- **Department of Conservation.** The Association has been meeting with DoC to discuss the Departments climate change work programme and to progress a shared approach to engagement on wind farm development which would include improving consistency and co-ordination in the assessment of wind farm consents. The next stage is a meeting with the environmental managers of generation companies.
- **Major Electricity Users Fast-tracking Renewable Development.** A number of NZ's largest electricity users are collectively seeking to stimulate the early development of renewable energy projects to access low-cost renewables and reduce carbon emissions. The project, facilitated by the Major Electricity User Group, aims to bring forward renewable electricity generation by entering into power purchase agreements to support new investment. Several potential projects have been shortlisted with the potential for over 700 GWh of new generation, a positive development for the wind industry.
- **Wind Farm Consents.** Tilt Renewables has confirmed it will be seeking a consent for its proposed 73 MW Omamari Wind Farm located in Northland and Hiringa Energy and Balance Agri-Nutrients will shortly also be seeking consent for their 24 MW Kapuni Wind Farm.

The Association is seeing an increased level of industry activity which includes Contact

Energy's announcement of its plan for large wind farms and that it has identified a site in Southland for a potential project.

- **Ara Ake Shareholding.** The Association has accepted Ara Ake's invitation to become a custodial shareholder. The shareholding agreement provides a great opportunity to influence Ara Ake's future direction in supporting energy innovation towards a low-emissions future and contains specific provisions to remove any financial exposure or legal obligations.
- **Community Wind.** The Association continues to support small scale wind development including community developments. MBIE's Accelerating Renewable Energy Discussion Document highlights some of the opportunities and challenges for local and community renewable energy development. The Association has promoted the need for Government support with planning and process advice and the need to simplify the resource management consenting process to reduce complexity and cost for small scale wind projects.

The Association has positioned the proposed Paekakariki community wind farm project as an opportunity to pilot small scale development with the Minister of Energy and Resources and obtained her support to progress resolution of a land access challenge within Government.

- **Offshore Wind.** Interest in offshore wind, particularly off the Taranaki coast, has increased after the government's ban of offshore gas and oil exploration as an opportunity to leverage existing skillsets. Venture Taranaki hosted an offshore wind forum in December 2020 which was well attended.

The Association attended the Forum and, in support of future offshore wind development, undertook to promote the importance of the Government committing resources to progress the legislative framework to provide development rights for offshore wind development.

- **Wind Positioning.** The Association continues to promote renewable energy and wind as a key enabler of a low carbon economy. The focus is on providing educational content to teachers and students by way of student fact sheets and teacher lesson plans which are available on the Association's website:
www.windenergy.org.nz/resources/for-teachers
- **Wind Energy Conference.** The Association's 2020 Conference planned for May 2020 was postponed due to the Covid-19 pandemic. A 2021 Conference is planned for 12 May 2021 with the theme being Rising to the Challenge.
- **Training.** In conjunction with several members, NZWEA has been progressing development of a new industry wide training programme for wind farm technicians. Three new courses have been developed a level 2 NZ Certificate Electricity Supply with a strand in understanding wind turbines and systems used, and a NZ Certificate in Wind Farm Maintenance levels 3 and 4. The level 3 and 4 courses cover electrical, mechanical and hydraulic components of wind farm maintenance and has been registered under the NZQA framework. All unit standards have been completed and the focus is now on developing the learning and assessment resources.

The training programme is an exciting initiative for the industry to position for the significant growth in wind farms and need for qualified technicians.

- **Clean Car Standard and Discount Scheme.** The Association submitted in response to the Ministry of Transport consultation on moving the vehicle fleet to low emissions. At the time the initiative was not progressed and NZWEA continues to support the introduction of an incentive to accelerate the uptake of EV's.
- **Board.** The Board met six times during 2020. Activities included reviewing the Association's strategy and submissions. The Board also continued its programme of meeting with industry participants and key stakeholders to develop relationships and share information including with Connexis, Transpower and PEPANZ. In addition the Chair and CE held a number of political/stakeholder engagement meetings.
- **Annual General Meeting.** The Association's AGM was held on 28 October 2020. Suzanne Toulmin, MBIE's Team leader Energy Transitions presented on accelerating renewable energy and energy efficiency.
The Association's Chair and CE provided an update on international developments, strategy and NZWEA activities which can be viewed here:

<https://www.windenergy.org.nz/store/doc/AGM2020-Chair-and-CE-presentation.pdf>

6. Summary

Climate change and reducing carbon emissions is now centre stage. The importance of electricity and new renewable generation to enable decarbonisation of the wider energy sector is unquestioned as is the need to act with urgency.

The imperative to strengthen the resource management system to recognise the national importance of renewable electricity generation and enable transmission remains urgent. Other important areas to progress include:

- **Energy trilemma.** Sustaining the energy trilemma in the transition to a higher level of renewables particularly for winter peaks and in dry years.
- **Renewable Variability.** Ensuring the electricity industry is able to support the variability of renewables most efficiently by encouraging demand response (DR) and distributed energy resources (DER). Retail and distribution pricing reform are key to valuing DR and DER and reducing peak demand to avoid inefficient investment in generation and transmission.
- **Transmission and distribution pricing.** Finalising the transmission pricing methodology to reduce uncertainty for generators.

With the right policy settings, including actions to reduce emissions, the abundance of economic renewable resources in New Zealand can be developed to support a sustained growth in electricity demand.

The Association would not exist without member support so above all thank you for your continued membership of NZWEA and sustaining our work programme. We hope you find value in all we do to promote wind energy in New Zealand.

Kind regards

Grenville Gaskell