NZWEA
2020 AGM

Welcome

WIND – NEW ZEALAND'S ENERGY

new zealand wind energy association

Chair's Report

2020 AGM

Blair Walter, Chair, NZ Wind Energy Association
October 2020

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- About NZWEA
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About NZWEA

- Established 1997
- An industry association
  - Promotes the development of wind as a reliable, sustainable, clean and commercially viable energy source
  - Policy & regulatory advocacy, public awareness and industry development
- Represents over 50 members:
  - Generators and developers
  - Turbine manufacturers, equipment suppliers, consultants
- Utility scale generation
  - Also supporting smaller scale and community wind initiatives

NZWEA Board

- Election for
  - Two members representing Corporates
  - Two representing Associates / Individuals
  - Nominations equalled vacancies so no election required
- Board composition
  - Dennis Radich (Mercury) – 2 year term
  - Peter McCafferty (Beca) – 2 year term
  - Mark Ashby (4Sight Consulting) – 2 year term
  - David Rubery (Higgins) – 2 year term
  - Blair Walter (Aurecon) – 1 year remaining
  - Chris More (Meridian Energy) – 1 year remaining
  - Philip Wong Too (Tilt Renewables) – 1 year remaining
  - Rose Divjak (DNV GL) – 1 year remaining
  - Paul Botha (Roaring40s Wind Power) - 1 year remaining
- Retiring
  - Tony Webster (Vestas), Adam Radich (NZ Windfarms) and Jared Wallace (Individual)

Strategic Focus

- 3 key strategies:
  - Leveraging NZ's emission reduction imperative to enable the energy transition to renewables, particularly wind energy
  - Optimising wind energy's position and ensure 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
- Significant progress across priority areas
  - Step change in Government focus on addressing climate change and consenting issues
  - Electricity sector key to lowering carbon emissions
  - Association active in engagement with positive results
  - Need to recognise and prepare for significant growth – 0.6 to 6.0 GW
- Ongoing focus on health and safety programme
  - New challenges with wind farm construction commencing

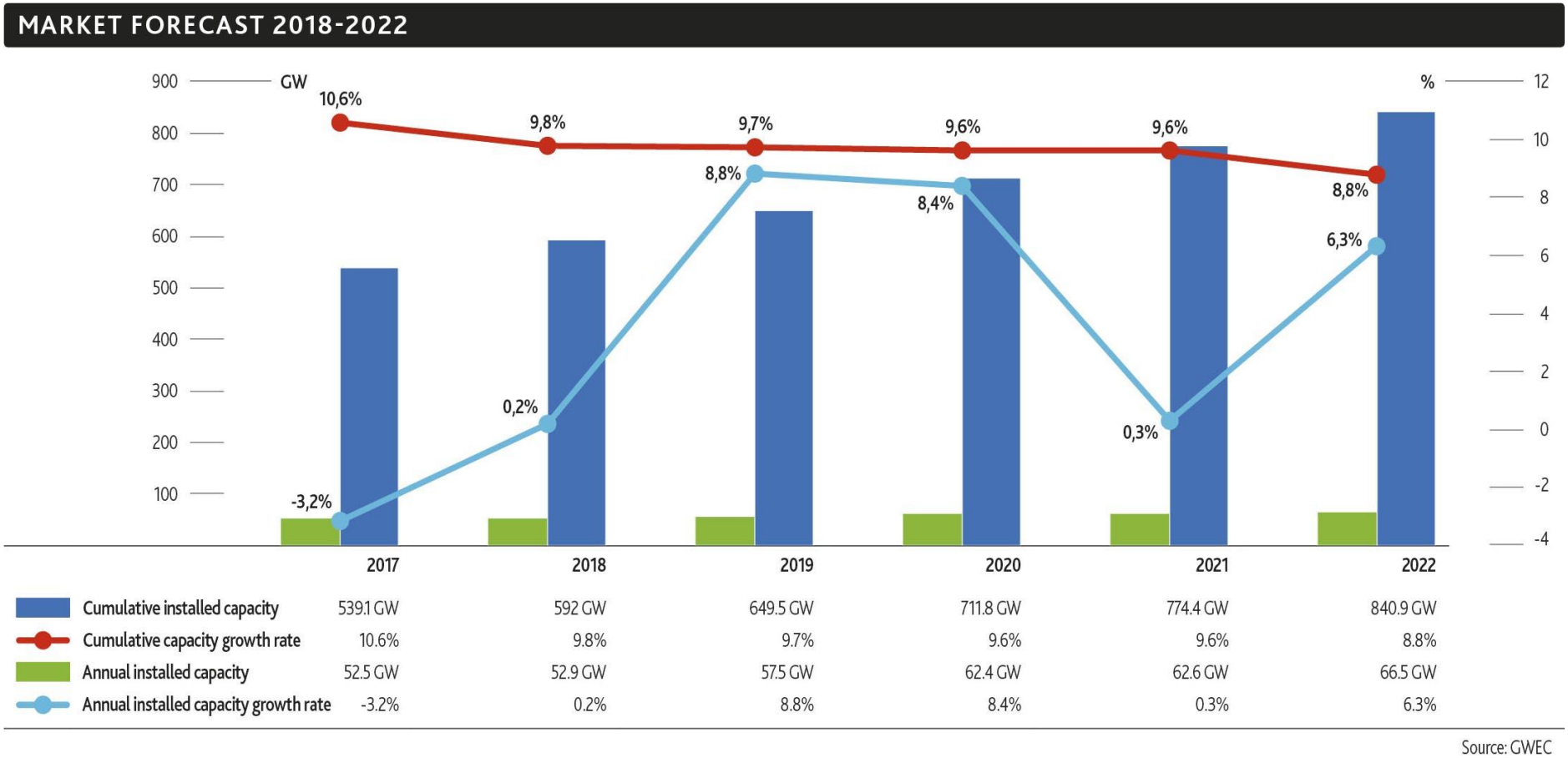
Financial Performance

- Association has faced challenging times
  - Major restructure to reduce costs in 2015
  - Surplus in 2016 but deficits in 2017 and 2018
  - Successful 2019 Conference a turning point with a surplus of $22k
- 2020 Result a deficit of $16k
  - Not possible to hold a Conference due to COVID-19
  - Positive growth in membership revenue from $105k to $122k
  - Accumulated funds $37k and bank deposits $131k at 30 June
- Outlook improved but remains challenging
  - Timing of next wind farm conference key to achieving a surplus
  - Some membership movement due to COVID-19 but overall numbers stable
  - Current financial strength limits ability to invest in enhancing the position and acceptance of wind

International Trends

- Outlook positive
  - Technology, price and need for emission reductions
  - Transforming from subsidies to a purely commercial model
  - Offshore wind price breakthrough
  - But… solar growth rate outstripping wind (115 GW in 2019)
- Cumulative wind capacity 651 GW
  - 60.4 GW new capacity in 2019 - a 17% increase on 2018 growth
  - Onshore growth 54.3 GW to total 622 GW
  - Offshore a record growth year at 6.1 GW to total 29 GW
  - Key markets US and China account for 60% of new capacity
- Key trends
  - Market based mechanisms dominate with auctions capacity of over 40 GW in 2019
  - Corporate PPA's increased by 30% to 9 GW
  - Pre COVID new capacity forecast 76 GW in 2020 and 355 GW over 5 years

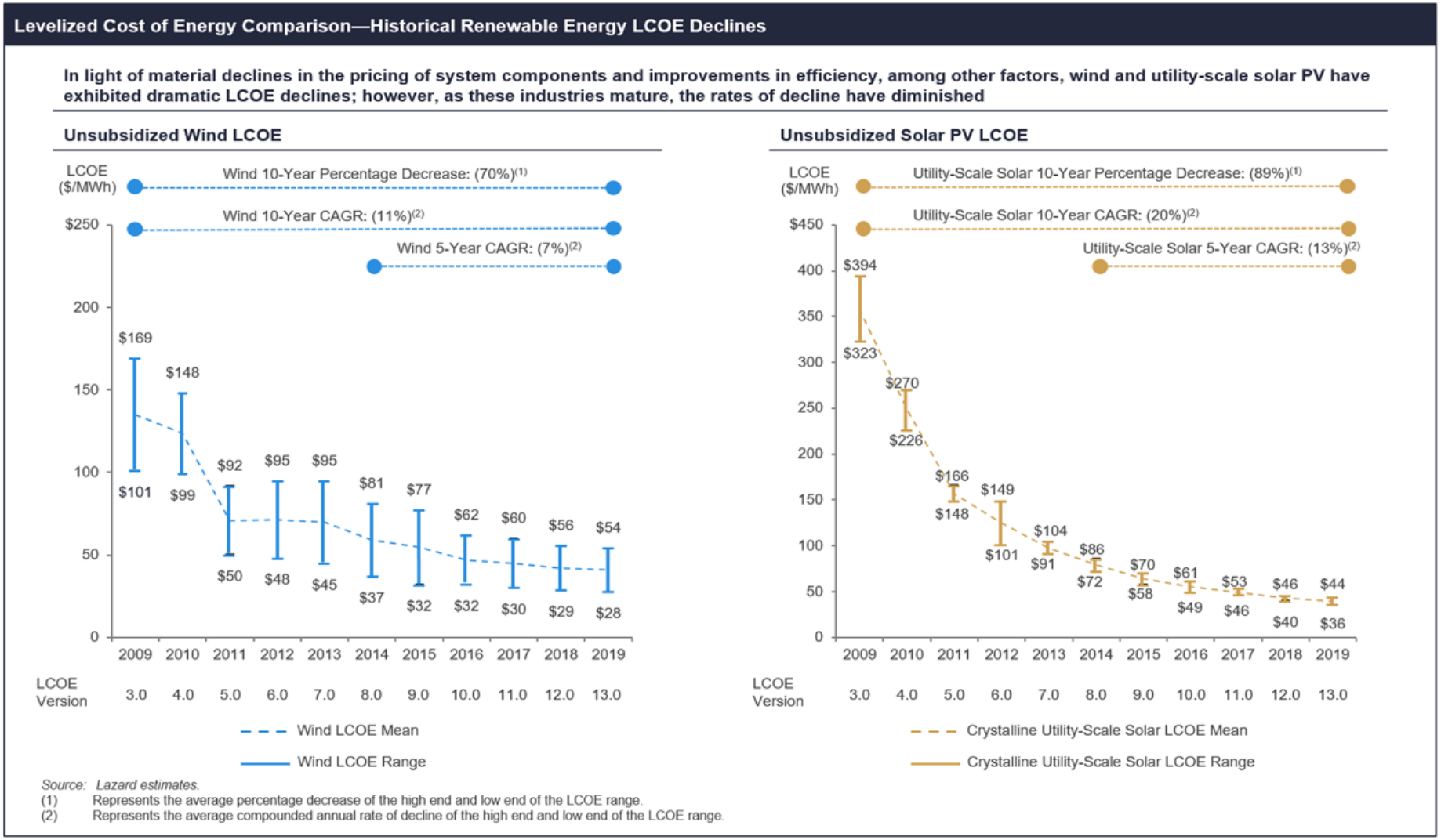
Positive Global Growth



Source: GWEC

- Installed capacity increasing from 525 GW to 841 GW
- Note: Forecast is updated on a semi-annual basis

The declining cost of renewables



Lazard LCOE version 13.0

Australian Update

- Renewable energy was 21% of generation in 2019
  - Wind 7.3% (more than NZ!), Solar 6.7%, Hydro 5.4%
  - Tasmania now 94% renewable, South Australia 50%
- Renewables development activity
  - 10.5 GW an investment of $19 billion, wind around 50%
- AEMO ISP: BAU 74% renewables by 2050, step-change 94%
- Significant momentum in market despite lack of federal policy but long-term investment threatened by current government
- Some delays in 2020 due to COVID-19
- Ongoing issues with grid connection process leading to some market exits eg John Laing:
  - Time and complexity of securing offer to connect
  - Delays in acceptance testing and ability to export
  - Big MLF swings
- Grid issues being addressed through strategic grid investments such as interconnectors and dedicated renewable energy zones

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CE Report

2020 AGM

Grenville Gaskell, Chief Executive, NZ Wind Energy Association
October 2020

Contents

- NZ Development Update
- Investment Environment
- Post Tiwai
- Regulatory landscape
- Highlights
- Areas of Focus
- Summary

NZ development update

- 19 Windfarms, 690MW of installed capacity, around 60% grid connected
- Last build 2014 – around 5% of total generation
- Over 2,000MW of consented sites, not all will be built
  - Restrictive consents and need for transmission
- Growth restarted in 2019
  - Turitea and Waipipi committed
  - $740m investment, 1,300 GWh output
  - 180k homes or 580k EV’s

- Future options - Mt Cass (93MW), Harapaki (160MW), Taumatatotara
- Consent applications - Kaimai (100MW), Kapuni Green Hydrogen Project (16MW) and repowering Tararua 1 (72 MW)
- MEUG members’ tender to support new renewables development
  - Potential for over 700 GWh, subject to negotiation

A challenging investment environment but…

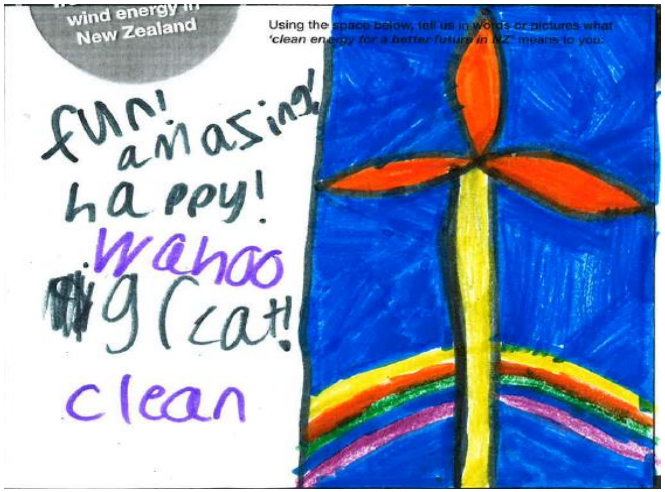
- Many uncertainties
  - Long term COVID-19 impacts
  - Demand - NZAS decision, NZ Refining, Norske Skog and NZ Steel reviews and slow demand growth
  - Transmission pricing effects – new builds and congestion charge
  - Changing generation / merit order dynamics
  - Ability of generators to gain consents and contract output
  - Industry transformation - digitalisation, decentralisation and decarbonisation
- Need to recognise the scale of new wind development required
  - Transpower forecasts a 10x increase in capacity - 0.6 to 6 GW by 2050
  - Finding and securing wind farm sites
  - Ensuring trained wind technicians available
  - Wind's alignment with Net Zero Grid Project
- But…an outstanding wind resource
  - Generation Stack update – 82 projects totalling 11,400 MW plus offshore potential

Investment post Tiwai

- Fast or slow Tiwai exit does not change the long term position for wind
- Phased Tiwai exit over 3-5 years now a possibility
- Clutha Upper Waitaki Lines upgrade completion date May 2022
- A longer Tiwai exit may see Contact's 250 MW Tauhara geothermal and Meridian's 160 MW Harapaki Wind Farm progressing
- MEUG's renewables project may support additional development including wind
- Interest in industrial / grid scale solar growing
- Green Party's Clean Energy Plan a major boost for solar
  - NZWEA supports a level playing field with all renewables treated equally
  - Government's investment priority should be energy efficiency and electrification
- NZ Battery Project positive for renewables
  - NZWEA supports developing dry year risk options
  - Supports renewables variability and creates additional demand
- Fundamentals of wind will drive growth
  - Declining cost curve and NZ wind resource with high capacity factors
  - Wind's flat seasonal generation profile – value versus LCOE

NZ Regulatory Landscape

- Zero Carbon Act live
  - Net Zero greenhouse gases by 2050
  - Except methane 24 - 47% below 2017
  - CCC's first 5 year budget submitted May 2021
- Multifaceted regulatory programme underway
  - Electricity Price Review ongoing
  - Accelerated Renewable Energy and Energy Efficiency Strategy
  - Electricity Authority work programme
  - RMA reform
  - NPS / NES Freshwater Management
  - Draft NPS Indigenous Biodiversity
  - ETS Reform Act and regulations
  - Transmission Pricing Methodology
  - Climate related financial disclosures



Some highlights…

- Passing of the Zero Carbon Act
  - Targets and budgets in legislation
- Commitment to strengthening NPS-REG
  - Hopefully extends to support for small scale developments
- Investment and new build activity
- Health and Safety - a shared priority
- ETS reform – a cap on emissions
- Establishment of a wind PPA market
  - Enabling new development
- NZ Battery Project (dry year options)
  - A solution essential to meeting the energy trilemma
- Development of the Certificate in Wind Farm Maintenance
  - Level 3 (maintenance) and level 4 (Repair) NZQA approved
- Transpower's new connection and net zero grid projects
- Engagement with Department of Conservation
  - Objective of a nationally consistent approach to wind farm consenting

Areas of Focus…

- Health and safety
- Development of an integrated decarbonisation strategy
  - Zero Carbon Act, ETS reform and accelerating electrification
- Strengthen national direction planning instruments
  - Recognising the national importance of renewables and transmission
  - More directive standards and support for small scale developments
- Finalise transmission and DG pricing
  - Provide investment certainty and unlock South Island development
- Wind positioning
  - Galvanising support for wind farm development
- Retail tariff reform
  - Effective peak price signals to improve sector efficiency
  - Encourages innovation - demand side management / load shifting
  - Enables investment to be optimised

Areas of Focus…

- Industry training - NZ certificate in wind farm maintenance
- Wholesale market depth, products and duration
  - Better support independent generators
- Positioning of off-shore wind
  - A longer term option
- On-going regulatory risk
  - Impact of NPS / NES Freshwater Management
  - Draft NPS for indigenous biodiversity
- Information availability for all fuel types
  - Replicate hydro storage for gas and wind
- Real time pricing
  - Supports innovation and participation (dispatch-lite)
- Opportunity for wind to support green hydrogen
  - Economies of scale

Summary

- Outlook - positive
  - Increased activity and investment
  - Zero Carbon Act
  - Wind recognised as essential to decarbonisation
  - Development of a wind PPA market
- But a number of risks to manage
  - Tiwai exit and timing of demand growth
  - RMA uncertainty – NPS Freshwater management, NPS indigenous biodiversity, strengthening NPS renewable electricity generation
  - Regulatory delays – transmission pricing
  - Sustaining health and safety performance
  - Ensuring technical skills to support growth
- International growth positive – NZ's second development wave underway
- Thank members for continued support



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Thank you