GWEC | GLOBAL WIND REPORT 2021

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Morten Dyrholm
Chairman, Global Wind Energy Council

Word from the Chairman

At this point last year, the global disruption of COVID-19 was only just beginning to take shape. I sincerely hope that 2021 will see the world overcoming the pandemic. Until then however, to paraphrase Albert Einstein, ''In the middle of difficulty lies opportunity.'' Right now, we are in the midst of a rare period of opportunity: to build back better, to create more resilient societies, and to get serious about combating climate change.

The indications look promising. Recovery and stimulus measures are getting greener. The number of countries, cities and companies striving for net zero is on the rise. COP26 could become the climate summit that will yield tangible action, leaving the work of persuasion and promises firmly in the past.

I venture a bet here: 2021 will mark our entry into the decade of renewables. The stage is set for global commitment to the Sustainable Energy Transition, the only road that can lead us to net zero by 2050.

We have an important task ahead of us. As renewable energy grows, wind energy will become the backbone of energy systems in many parts of the world, requiring us to move beyond the focus on simply increasing wind energy capacity to instead instigating new collaborations with stakeholders across the global energy system to uncover more powerful policies and unlock greater investments to fuel the Sustainable Energy Transition. This entails expanding our reach to cover key issues such as grid build-out, storage, market redesign and accelerating the deployment of renewable energy to new sectors.

Succeeding in our task entails shifting the focus of both policy makers and the private sector from cost to value. Adopting a system value lens means looking beyond the size of recovery packages, investment needs or the cost of energy. It requires a holistic view, whereby we build robust frameworks that support solutions that maximise positive impacts while discouraging negative impacts. Renewables will be part of the solutions as plenty of data proves that renewables drive a higher system value than fossil fuel-based options time and again. They are cleaner, safer, cheaper, more labor-intensive and use less water.

Experience also shows that the benefits of historic green recovery measures have exceeded the level of investment by far. Analysis from IRENA shows that every dollar spent on Sustainable Energy Transformation will deliver a payoff between $3-7. It's now up to us to take this evidence forward to drive change.

The system value approach also requires us to look inwards and evaluate our own sustainability ambitions. Are we doing enough to decarbonise our own operations, to promote diversity and inclusion, to improve health and safety, or to nurture circularity? Many of us have the power and autonomy to drive progress in our own organisations.

GWEC will continue to support our industry with every step of this transformational journey. 2021 will be a pivotal year for our planet's future. I'm looking forward to it.

Source of the return on investment: IRENA, Transforming the energy system, 2019, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Sep/IRENA_Transforming_the_energy_system_2019.pdf

Welcome to the Global Wind Report 2021

Ben Backwell
CEO, Global Wind Energy Council

When we look back, in years to come, at this 2021 edition of the Global Wind Report, we hope we will see it as marking a true inflection point.

If we are successful as a society, we will remember 2021 as the year when the world finally turned the corner in confronting the climate crisis by adopting a decisive path of collective action at the COP26 meeting in Glasgow.

We will also remember 2021 as the year when we started to heal the scars left by the novel Coronavirus pandemic, and started to rebuild our economies and communities in a more sustainable and humane way.

And for the wind industry, we will remember this year as not only marking the biggest year ever in terms of new installation, but also the year when a real breakthrough was made in the energy transition, and a new, accelerated path of growth was established as countries and regions started to implement their plans to reach net zero CO_2 emissions in earnest.

That, then, is the hope. And that's why the Global Wind Energy Council has produced this special report in the run up to COP26, which will focus on the role of renewable energy and wind power in particular in the world's net zero objectives, as well as the rapid transition to renewable energy that oil and gas companies will need to make to in order to survive and play their role in the transition.

> We need to be installing around 180 GW per year to get to where we need to be. Every year we fall short, the mountain to climb gets higher.

The report pulls no punches. For while the world's sense of urgency has increased, particularly driven by the growing concern, anger and activism of young people, progress on the ground is still far from the level needed to get the world on a trajectory that will restrict global average temperature increases to no more than 1.5°C.

As an example, global annual installations of renewable energy are probably below half the level needed to get to an IPCC-compatible scenario. For wind energy, this means that while we installed a record 82 GW of new wind capacity in 2020, we need to be installing around 180 GW per year to get to where we need to be. Every year we fall short, the mountain to climb gets higher.

The danger is that governments increase their long-term ambitions around reaching net zero in 2050 (or 2060 in the case of China), while shorter term targets are left vague or missed: in effect, kicking the problem into the ''long grass'' for future administrations and, eventually, creating a situation where it really is too late.

For this reason, GWEC has been strongly advocating for a re-set in our everyday approach to the energy transition.

Firstly, we need to create a sense of urgency by being honest about where we are right now and the gap between aspirations and progress on the ground. We need to explain to policymakers and regulators that reaching net zero depends on the actions that we take now.

Secondly, we need to propose immediate and practical solutions. In contrast to a decade ago, there is plenty of investment looking to flow into wind and renewables projects, but red tape and antiquated planning and permitting systems are slowing down the Energy Transition all over the world. So GWEC is advocating for policy makers to take a true ''Climate Emergency'' approach to administrative procedures and institutions.

Thirdly, we are calling on governments to move to rapidly ensure that the social costs of emitting carbon are paid, and that polluting energy use is pushed off the system. The experience of the last decade shows that once governments make clear signals, the investment community will take the decisions which are necessary.

Red tape and antiquated planning and permitting systems are slowing down the Energy Transition all over the world. So GWEC is advocating for policy makers to take a true "Climate Emergency" approach to administrative procedures and institutions.

And fourthly, we are going to have to find new allies, partners and customers, as the challenge of transitioning to renewable energy becomes more about helping harder-to-transform sectors such as heavy industry, chemicals, transport and agriculture to decarbonise. The terms ''Power-to-X'' and ''Sector Coupling'' will move rapidly from being buzz-phrases to new sectors, industries and technological advances.

And this brings me to my final point. To achieve this re-set, and the wider dream which I have described, we are all going to have to work together.

This means governments, communities and industry getting together and finding rapid solutions to planning and permitting bottlenecks. It means technologies such as wind, solar, storage and next-gen transmission and distribution working together to ensure that the transition can be made as seamlessly and efficiently as possible. It means renewables working together with completely different technologies which have their own unique challenges and trajectories.

It also means working together to evolve the highly skilled and diverse workforce that will carry out a true paradigm shift in how society organises its energy economy.

This, then, is our challenge and invitation to you all.

INTRODUCTION

Feng Zhao
Head of Strategy and
Market Intelligence, GWEC

2020 - A record year for the wind industry

2020 was the best year in history for the global wind industry showing year-over-year (YoY) growth of 53%. Installing more than 93 GW wind power in a challenging year with disruption to both the global supply chain and project construction has demonstrated the incredible resilience of the wind industry.

Market status

The 93 GW of new installations brings global cumulative wind power capacity up to 743 GW. In the onshore market, 86.9 GW was installed, an increase of 59% compared to 2019. China and the US remained the world's largest markets for new onshore additions, and the world's two major economies together increased their market share by 15% to 76%, driven by the Feed-in Tariff (FiT) cut-off in China and the scheduled phase-out of the full-rate Production Tax Credit (PTC) in the US, respectively.

On the regional level, 2020 was also record year for onshore installations in Asia Pacific, North America and Latin America. The three regions combined installed a total of 74 GW of new onshore wind capacity last year, or 76% more than the previous year. Due to the slow recovery of onshore installations in Germany last year, Europe saw only a 0.6% YoY growth in new onshore wind installations. Developing markets in Africa and the Middle East reported 8.2 GW onshore installations last year, almost the same as in 2019.

In the offshore market, 6.1 GW was commissioned worldwide last year, making 2020 the second-best year ever. China installed half of all new global offshore wind capacity in a record year. Steady growth was recorded in Europe with the Netherlands taking the lead followed by Belgium, the UK, Germany and Portugal. The remaining new offshore wind installations in 2020 were shared by the US and South Korea. Total offshore wind capacity has now passed 35 GW, representing 4.8% of total global cumulative wind capacity.

Market dynamics

While the first half of 2020 saw auctions being postponed or cancelled due to COVID-19, the sector bounced back with vigour in the second half of the year as key mature and emerging wind markets began to overcome the impacts of the pandemic. According to GWEC Market Intelligence, nearly 30 GW of new wind power capacity was awarded globally through auctions in the second half of 2020, which is a slight increase compared to the 28 GW awarded during H2 2019. Although only 1 GW offshore wind capacity was awarded through auctions worldwide, more than 7 GW of offshore wind auctions/ tenders were launched in 2020. This surge in new capacity to be auctioned is a clear signal that the industry is back on track and that the global pipeline of wind power projects continues to grow.

Through technology innovations and economies of scale, 2020 saw wind power continue to build its competitive advantage throughout the world. Last summer, a consortium of Shell and Eneco won the third zero-subsidy offshore wind tender in the Netherlands. In Latin America, as wind power already had very competitive

prices, private auctions or bilateral PPAs have already emerged as an alternative mechanism to government auctions to drive growth. According to BloombergNEF, 6.5 GW wind power was signed through corporate PPAs globally last year, 29% lower than the previous year. Considering the fact that COVID-19 disruptions across the world have caused revenues to plummet for many corporates, the level of commitment to sustainable green energy remains impressive.

Last year also witnessed governments of countries such as China, Japan and South Korea making net zero/carbon neutrality commitments, and similar commitments were also made by major corporates including oil and gas companies. To reach the net zero targets, completing a systematic and radical energy transition from fossil fuels to renewable energy and low-carbon solutions is imperative. The current crisis offers a unique window of opportunity to put the world on a sustainable trajectory and meet our international climate goals, but we must act now - or miss the opportunity. Although reaching net zero will require bold actions by a large number of sectors and actors, wind power is placed to be one of the cornerstones of green recovery and to play an important role in accelerating the global energy transition.

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Market Outlook

After an unusual 2020, global wind market growth is likely to slow down in the near-term primarily due to an expected drop in onshore installations in China and the US following the expiry of incentive schemes. Nevertheless, the market outlook for our forecast period remains positive. GWEC Market Intelligence expects that over 469 GW of new onshore and offshore wind capacity will be added in the next five years - that is nearly 94 GW of new installations annually until 2025, based on present policies and pipelines. We hope and expect that governments will significantly increase their ambitions and targets following COP26, and for that reason we are upwardly revising our forecasts for the GWR2022.

The CAGR for onshore wind in the next five years is 0.3% and GWEC expects annual installation of 79.8 GW. In total, 399 GW is likely to be built in 2021-2025. The CAGR for offshore wind in the next five years is 31.5%. The level of annual installations is 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.

WIND ENERGY'S ROLE ON THE ROAD TO NET ZERO