2023: THE NEAR FUTURE OF RENEWABLES

INTRODUCTION

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The future of energy is looking greener.

By 2024, almost 33 percent of the world's electricity is forecast to come from renewables, with solar photovoltaic (PV) accounting for almost 60 percent (or at least 697 gigawatts) of expected growth, according to **Renewables 2019**, a report from the International Energy Agency published in November 2019. Onshore wind (309 GW), hydropower (121 GW), offshore wind (43 GW) and bioenergy follow (41 GW).

Drastically lower production costs, growing concern around climate change, evolving global energy policies and increased pressure from investors on companies to adopt environmental social governance (ESG) polices are pushing renewables into the mainstream.

This year alone, more than 12 large U.S. coal companies had filed for bankruptcy as of October 2019, in a signal of the shifting landscape. In Australia, the National Electricity Market showed that on Nov. 6, renewables reached a milestone—powering 50 percent of the country's main electricity grid. Rooftop solar provided nearly 24 percent, followed by wind (about 16 percent), large-scale solar (about 9 percent) and hydro (about 2 percent).

In Germany, a Norwegian company is running one of Europe's largest power generation facilities—and doing it virtually, in an innovative example of how the sector could overcome challenges that arise when there's little wind or sun to generate power. The plant, which according to *CNN Business* could power 5 million homes, uses a cloud-based artificial intelligence program to link more than 1,500 wind, solar and hydropower plants across the continent with electricity generation and storage facilities like batteries.

Renewables used to just be the more sustainable—if more expensive—option. By 2023, they will actually make good business sense.

In ***2023: The Near Future of Renewables***, we present our predictions for how the sector will reimagine itself by capitalising on this scalable green wave, based on research and collective input from BDO's Natural Resources leaders around the world. In addition, we highlight a top prediction from each of the practice leaders in nine countries: Australia, Canada, France, Malaysia, New Zealand, Portugal, South Africa, the United Kingdom and the United States.

TOP PREDICTIONS

FOR THE GLOBAL RENEWABLES MARKET BY 2023

The future of solar is **bright**

Although slowed slightly by geopolitical tension and trade uncertainty, solar capacity will continue to grow over the next several years—surpassing a terawatt of global solar power generation by 2023.

Storage takes **centre stage**

Storage will take its rightful place as a key grid asset by 2023, helping to increase the reliability and resilience of increasingly decentralised power systems. The adoption of diverse energy storage solutions, including long-duration batteries for utility-scale renewable integration, will grow by at least 30 percent year-over-year leading up to 2023.

No headwinds for **wind power**

Wind power will continue to grow, with increased storage capabilities developed specifically for on and offshore wind, helping to improve the economics and productivity of such projects. Half of the 2023 global investments in wind will go towards offshore technology and projects.

The **energy convergence** continues

Natural resources companies, from mining to oil and gas, will continue to invest in clean or renewable energy technology, including carbon capture, utilisation and sequestration—both to diversify their portfolios and reduce their corporate carbon footprints. By 2023, 20 oil and gas majors will have joined the Oil and Gas Climate Initiative, up from 13.

Cleantech **investments** soar

Following a cycle of disappointing returns, private equity and venture capital will return to the cleantech space in full force. Whether called cleantech or climate-tech, the regulatory, economic and scientific impetus for these technologies will see $600 billion dollars in global private investment by 2023.

COUNTRY SPOTLIGHTS

TOP PREDICTIONS

CANADA

Renewable Electricity: Riding the momentum of the Pan-Canadian Framework, by 2023, 85% of Canada's electricity will be produced by non-emitting sources—giving most Canadians the ability to power their lives with the clean energy of their choice. The Framework aims to support a transition to a clean electricity future by increasing the amount of electricity generated by renewable and non-emitting sources, connecting clean power with places that need it, modernizing electricity systems, and reducing northern and remote communities' reliance on diesel. Its goal is to have 90% of the country's electricity coming from non-emitting sources by 2030.

PORTUGAL

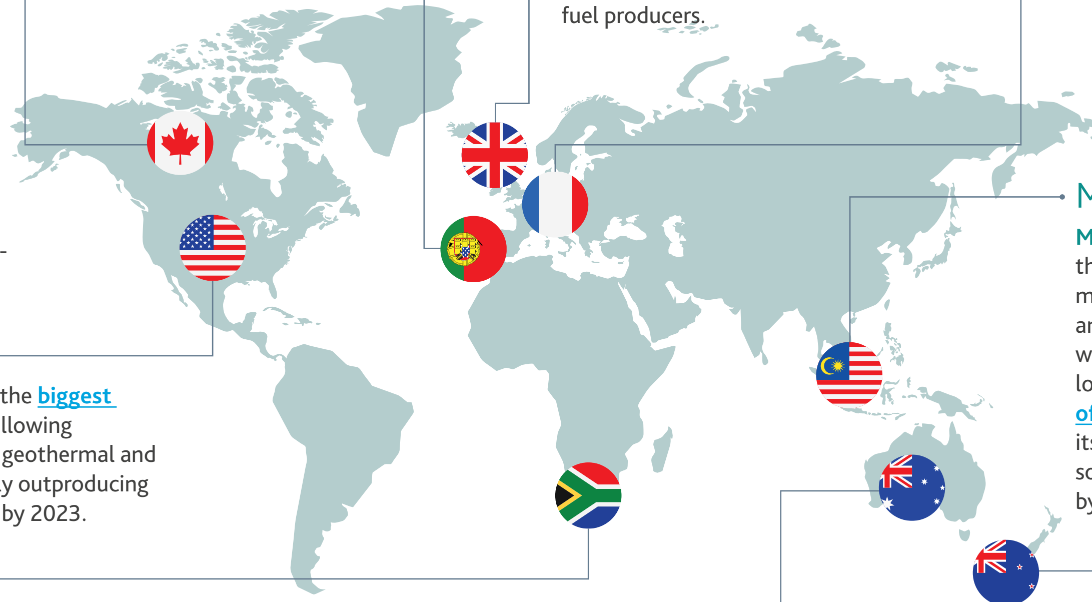
Biomass Blueprint: Portugal's 15-year biomass energy installations scheme, boosted by a recent €320 million received from the European Commission, will serve as the new blueprint for how Europe produces biomass energy as a way to reduce dependence on coal and mitigate natural disaster risk.

UNITED KINGDOM

Diversified Backers: Consolidation between the large listed and private funds will quicken in the specialist asset ownership market. However, ownership of renewable assets will remain largely diverse because of the emergence of new entrants—like pension funds investing directly into renewable assets—and increased investment in asset ownership by utilities and conventional fossil fuel producers.

FRANCE

Above Expectations: As production costs continue to decline, and the country's offshore wind projects continue to attract interest from investors abroad, France will exceed its current forecast of producing 2.4 GW of offshore wind capacity by 2023 and reach at least 5 GW by then.



MALAYSIA

Maximising Solar Potential: On the heels of the country's expanding manufacturing capacity for renewables and declining production costs, Malaysia will begin maximising its strategic location for solar generation ahead of schedule: The country will increase its energy generation from renewable sources from 2% in 2018 to 25% by 2023.

UNITED STATES

All Natural: Natural gas will become the biggest source of electricity on the US grid, allowing renewables (solar, wind, hydropower, geothermal and biomass) to rise along with it, regularly outproducing coal in U.S. electric power generation by 2023.

SOUTH AFRICA

Keeping the Lights On: With intermittent power outages the norm and the country's power crisis growing on the heels of a struggles at Eskom, the country's main electricity supplier, the Department of Energy will accelerate its alternative energy program. The department will do it by encouraging private investment into solar plants for consumption by Eskom. As a result, coal will be responsible for 60% of the national power sector's electricity generation, down from more than 85% today.

AUSTRALIA

(Stifled) Growth: Though they will continue to grow—especially as older coal plants are retired—renewables are unlikely to replace the country's baseload by 2023. This is in large part due to a low appetite for accelerated growth, as set by the current government.

NEW ZEALAND

Pushing to 2050: Amid the country's strategy to transition to being carbon neutral by 2050 and to create "a productive, sustainable and inclusive economy," mining companies will up their investment in renewables. As a result, geothermal energy will provide more than a quarter of the country's total primary energy supply.

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