Noteworthy Country Trends in Europe
Renewables 2020 Global Status Report

3 KEY TAKEAWAYS ON RENEWABLE ENERGY IN EUROPE

- **Takeaway 1**: A great deal of progress across all sectors: European Green Deal proposal to create the first carbon neutral region by 2050; a regional initiative to support renewable hydrogen; the first ever emissions standards for trucks; new standards for buildings. Advancements in European countries too: Renewable power auctions were held in 11 countries; 3 countries introduced new incentives for renewable heating and cooling; 2 countries adopted targeted bans on fossil fuel vehicle sales.
- **Takeaway 2**: Variable renewable electricity continued to expand in the region
    - the EU adopted legislation that redesigned the region's electricity market rules to facilitate the integration of renewables into the grid, enable prosumers, establish common rules for storage, and allow for more cross-border electricity trade
    - the share of renewables in electricity generation reached 35% in 2019, share in some countries was much higher.
- **Takeaway 3**: Europe saw a lot of progress in the power sector: it is the second largest regional producer of bioelectricity, second for solar PV additions, and its wind power market expanded despite contraction in Germany and France.
    - Transport: saw the 2nd highest sales of new electric cars, but policy changes with increased competition from imports led to uncertainty for the ethanol industry.
    - Heat: Europe is the second largest regional market for solar thermal systems; the modern use of bio-heat in buildings remained concentrated in the region, and several countries had achieved more than 50% renewables in the district heat supply.

REN21 Secretariat • c/o UN Environment Programme • 1, rue Miollis • Building VII • 75015 Paris • France
Tel.: +33 1 44 37 42 63 • Fax: +33 1 44 37 14 74 • secretariat@ren21.net • **www.ren21.net**

HIGHLIGHTS FROM SELECT COUNTRIES IN EUROPE:

SWEDEN

- Biomethane for transport increased 20% in Europe - Sweden accounted for nearly 60% of this
- 3 Swedish companies announced an SEK 200 million (USD 21.4 million) investment in a storage facility for the world's first planned pilot-scale use of renewable hydrogen and electricity for steel production.
- Electric utility Vattenfall and the oil and fuel company Preem co-designed a 20 GW renewable hydrogen facility - Europe's largest water electrolysis facility.

DENMARK

- Wind energy met 47% of Denmark's electricity demand in 2019; accounted for 57% of total generation.
- Ørsted announced plans to use electricity from wind farms built off the Dutch coast to produce hydrogen for sale to industrial customers.
- Leader in the global solar district heating market (capacity topped 1 GWth) - 113 Danish villages, towns and cities were using solar energy for space heating.
- 13 large heat pumps at 11 combined heat and power plants (total capacity 29.7 MW) were installed, to increase renewable electricity in industrial heat consumption.

THE NETHERLANDS

- Offered EUR 5 million (USD 5.6 million) to support the production of renewable electricity, renewable gas, renewable heat, and combined heat and power for companies, institutions and non-profit organisations.
- 2nd largest investor (USD 5.5 billion) in renewable energy in Europe, due largely to investments in offshore wind projects.
- Solar PV installations were up 66% in 2019, led by the country's rooftop market.
- Biopower generation surged (up 49%) as bioelectricity projects financed under their SDE feed-in tariff scheme came online.
- SkyNRG announced plans to develop Europe's first dedicated sustainable aviation fuel plant, using regional waste and residue streams in the Netherlands.

FRANCE

- EUR 7-9 billion (USD 8-10 billion) announced in support for renewable natural gas under a mandatory target of 10% RNG in the country's gas grid by 2030.
- Notable expansion of local geothermal resources, mostly for district heating, in Paris and Alsace regions.
- 45% of green bonds were issued in Europe, led by France. ~31% of green bonds allocated to energy– down from 51% in 2018 – followed by buildings (30%) and transport (20%) sectors.

PORTUGAL

- 1.29 GW solar PV awarded with a world-record low bid of EUR 14.76 (USD 16.53) per MWh.
- Europe's largest PPA in 2019 was a 708 MW solar PV project portfolio in Spain and Portugal.

UKRAINE

- 10-fold increase in wind installations relative to 2018 (adding 0.6 GW), more than doubling capacity to 1.2 GW in advance of transitioning from FITs to auctions in 2020.
- Installed a record 3.5 GW solar PV in 2019 (surpassing 1 GW for the first time) The country now ranks 3rd in Europe and 9th globally for newly installed solar PV capacity.
- However, in 2019 Ukraine reduced the FIT for new wind and solar power projects commissioned after 2020.

POLAND

- Solar PV installations quadrupled in response to rising incentives for rooftop systems and the extension of net metering.
- Europe's largest onshore wind auction was held in Poland, (2.2 GW awarded)
- Only EU country that did not endorse the European Green Deal's target to make the EU the first climate-neutral region by 2050.

RUSSIAN FEDERATION

- Accounted for the region's largest increase in small hydro power capacity (0.5 GW). Hydropower accounted for 17.6% of electricity supply in 2019.
- Brought online its largest solar PV plant (75 MW) to date in 2019.

TARGETS & POLICIES:

- The European Commission (abstention of Poland) proposed a European Green Deal to create the first carbon neutral region by 2050. France and the United Kingdom committed to national targets for net zero emissions by 2050, and Spain's draft National Energy and Climate Plan would commit the country to a carbon-neutral economy by 2050.
- The EU announced a EUR 10 billion (USD 11 billion) Innovation Fund for demonstrations of "low-carbon" technologies – including renewable energy and energy storage – in energy-intensive industries.
- Energy ministers from 25 EU countries agreed to promote renewable hydrogen through the region's Hydrogen Initiative.
- Provisional agreement on the first ever CO2 emission standards for trucks.
- In 2019, legislation adopted that redesigns the region's electricity market rules to facilitate the integration of renewables into the grid - enable the active participation of consumers in energy markets, establish common rules for storage, and allow for more cross-border electricity trade.
- 3 countries introduced new financial or fiscal incentives for renewable heating and cooling (Lithuania, France, the Netherlands).
- Some countries introduced or updated enabling technology targets, such as targeted bans on the sale of internal combustion engine vehicles (Sweden, the United Kingdom).
- Auctions were held in 11 European countries (Denmark, France, Germany, Greece, Ireland, Italy, Lithuania, the Netherlands, Poland, Portugal, the United Kingdom).
- In 2019, the EU's Energy Performance in Buildings Directive mandated that new *public* buildings in the region be "nearly zero energy buildings", and the standard was set to apply to *all* new buildings starting from 2021.

REGIONAL CONTEXT:

Key RE developments in Europe

- The share of electricity met by renewables reached historic levels in Europe in early 2020 - due to changes in electricity markets driven by the COVID-19 pandemic.
    - In the EU and the United Kingdom, coal-based power generation fell 29% between 10 March and 10 April
    - Renewables delivered 46% of all power generation, up 8% compared to 2019.
- Over the past decade, strong growth in share of renewables in electricity, (19% in 2009 to 35% in 2019). In certain countries, the shift was even more dramatic, such as Denmark (from 39% to 77%), Germany (16% to 42%) and the United Kingdom (8% to 38%).
- Iceland, Norway, Sweden, Lithuania, Denmark and France have achieved more than 50% renewables in the district heat supply.
- Renewable energy investment was down 4% from 2018, with a sharp contrast across technologies. In capacity only, investment in wind energy was down 24%, but was up in solar PV by 25% -largely driven by low-cost projects in Spain.
- Several institutions committed to divesting either fully or partially from fossil fuels, including the European Investment Bank and Norway's sovereign wealth fund.

Technological developments in Europe

- Modern use of bio-heat in buildings concentrated in the EU (particularly in France, Italy, Germany and Sweden), which accounted for 47% of its total use in 2018. However, biogas provided only 4% of bio-heat in European buildings in 2018. Biomass and waste fuels provided around 25% of the energy used in cement making in the region.
- Changes to the new Renewable Energy Directive that limit the role of "food-based biofuels", along with increased price competition from imports, have led to uncertainties about future markets for the region's ethanol industry.
- Europe is the 2nd largest regional producer of bioelectricity, with generation up 5% and capacity up 4% in 2019, in order to meet national targets for 2020 under the new Renewable Energy Directive.
- Advancements in tidal stream and wave power largely concentrated in Europe, especially the United Kingdom, with generation from tidal stream devices up 50% in 2019.

- Moved ahead of the Americas to rank 2nd for solar PV additions, accounting for 17% of new installations in 2019. Spain, Germany and Ukraine among the top 10 markets for newly installed solar PV capacity (more than 3.1 GW each).
- Added nearly double the amount of grid-connected solar PV installed in 2018 - 26 of 28 countries added more capacity than the previous year. However, three-fourths of new capacity came online in only five countries: Spain (the top installer for the first time in 11 years), Germany, the Netherlands, France, and Poland.
- Most markets have moved beyond FITs and were driven by the competitiveness of solar generation and by governments looking to meet national targets through tenders.
- European wind power market expanded, despite market contraction in Germany and France. Wind energy provided 15% of the EU's annual electricity consumption, and above 20% in Ireland, Portugal, Germany and Spain.
    - 24% of the global share of added capacity for wind power.
    - The United Kingdom, Spain, Germany, Sweden and France among top 10 countries for new capacity (together accounted for 75% of net additions in the region).
- Europe had over three-quarters of the world's offshore capacity - 59% of new offshore wind installations in 2019, and 12 of the 18 countries with offshore wind capacity.
- For the heat pump market, 2019 was the 6th year in a row with growth above 10%, and by year's end heat pumps met nearly 10% of space heating demand in buildings.
- 2nd highest sales of new electric cars, and home to 25% of the global electric car stock by the end of 2019. Norway was leader in the share of electric cars in overall car sales, at 56%, followed by Iceland (25%), the Netherlands (15%) and Sweden (11%).
- Drop in sales of electric buses for the 4th year, but stock increased by 60% compared to 2018.
- Energy storage market (excluding pumped storage and TES) contracted due to a decline in front-of-meter installations, despite 5% growth in behind-the-meter (mostly residential).

Public support for RE in Europe

- In a 2019 survey, 90% respondents agreed that the EU should encourage greater investment in renewable energy; showed widespread support for all renewable technologies.
- The EU's Green Deal includes a Just Transition Fund aimed at guaranteeing a fair allocation of impacts and equitable distribution of benefits of its climate plans.

- Ireland and Germany have put measures to encourage community ownership of renewable energy to retain stakeholder diversity, wider public engagement and citizen support.