



IRELAND

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Wind energy deployment, to meet national targets, continued in 2020, albeit at a lower rate due to a changeover in support schemes.

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The implementation of the Climate Action Plan measures to achieve ambitious 2030 targets ramped up, including measures facilitating the

offshore wind sector. The new Government brought increased climate and renewable energy ambitions, particularly for offshore wind.

TABLE 1. KEY NATIONAL STATISTICS 2020: IRELAND

Total (net) installed wind power capacity*	4.3 GW
Total offshore capacity	0.025 GW
New wind power capacity installed	0.125 GW
Decommissioned capacity (in 2020)	0 GW
Total electrical energy output from wind	[11.55] TWh
Wind-generated electricity as percent of national electricity demand	[36.1]%
Average national capacity factor**	30%
Target	40% RES-E
National wind energy R&D budget	

*Installed wind power capacity: Use nameplate power ratings of the installed wind turbines.

**Average national capacity calculation. Only include turbines in operation the whole year: (MWh production/8,760 hrs) / MW installed capacity
MWh total electrical production from wind turbines operating January 1 through December 31 divided by 8,760 hrs divided by the total installed wind capacity (in MW) at the beginning of the year.

[You can also use an estimate based on the average installed capacity during the year: (installed 1 Jan + installed 31 Dec)/2. But in that case, state that it is how the estimate is calculated.]

Market development

Targets and policy

Ireland had a target of meeting 40% of electricity demand from renewable sources in 2020. The 2019 Climate Action Plan set a new 70% renewable electricity target for 2030, with the major contributions coming from onshore and offshore wind energy [3]. In June 2020, the new coalition government published its Programme for Government with enhanced 2030 climate change objectives, including increasing the 2030 offshore wind energy target from 3500 MW to 5000 MW [4].

A consultation on proposed new Wind Energy Development Guidelines closed in February 2020 [5] and the final guidance is awaited. A final decision on Stage 2 of the Enduring Connection Process (ECP-2) was published in June 2020, this proposed processing 3 batches of 115 generator connections each from 2020 to 2022 [6]. A consultation was also published on future arrangements for offshore grid connections [7].

The first auction of the new Renewable Electricity Support Scheme was held in 2020 with wind energy projects totalling 479 MW awarded contracts [8]. Further auctions are planned, with the first offshore wind auction scheduled for 2021. Government is also engaged in examining potential policy measures to facilitate the adoption of renewable electricity corporate power purchase agreements [9].

Progress and operational details

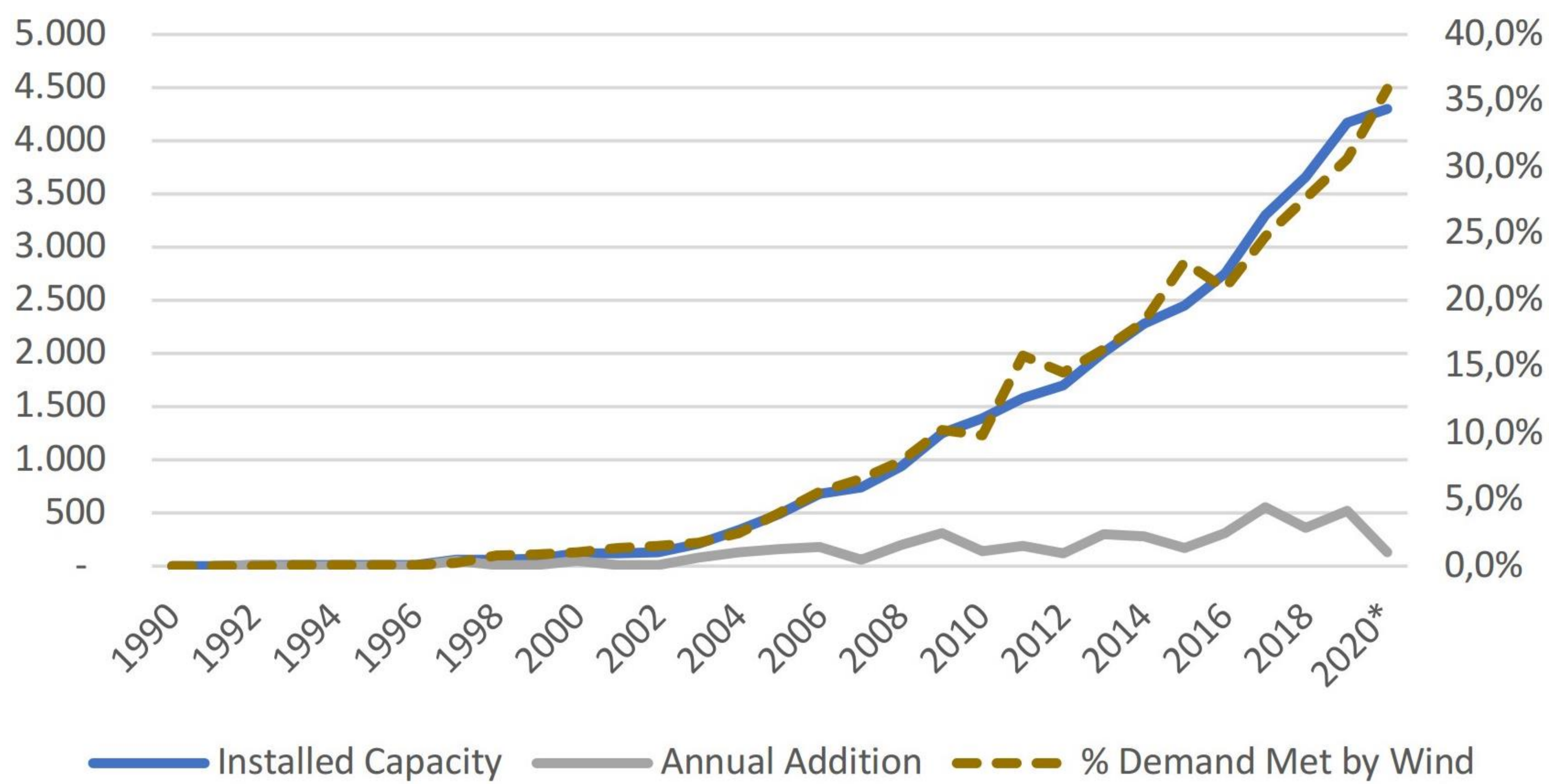
Deployment slowed in 2020, with 125MW of new wind farms being added to bring the total installed capacity to 4300MW [10]. This slowdown was expected as projects qualifying for support under the REFIT II scheme had a completion deadline of March 2020. No large projects were completed in 2020.

Wind energy met 36% of electricity demand and provided over 86% of renewable electricity supply. While 42% of electricity demand was met from renewable sources in 2020, after statistical normalization, 39% of the planned 40% renewable electricity contribution to the overall 16% EU 2020 renewable energy target for Ireland was achieved [2], [11].

Achieving the contribution cited above from wind energy was more notable given that “dispatch down”, or curtailment and constraint, of wind energy increased to 11.4% in 2020 [12]. The average capacity factor of wind farms in Ireland in 2020 was 30%, higher than in previous years [12]. High wind energy production and sporadic reductions in electricity demand due to COVID 19, primarily underlie the increase in ‘dispatch down’ in 2020.

The results of the first auction round of the Renewable Electricity Support Scheme (RESS) were announced in August 2020. Projects totalling 1275MW in generating capacity to yield 2236GWh/A output were successful. These comprised 479MW wind energy projects to

Wind Power and Energy Contribution



yield 1469GWh/A and 796 MW solar energy projects to yield 767GWh/A [8]. The auction included measures supporting community acceptance of renewable energy projects, including a mandatory 2EUR/MWh community benefit payment and a reserved auction category for community owned projects.

Average Prices were 74.08 EUR/MWh for the All Projects category which comprised both wind and solar projects, 72.92 EUR/MWh for the dedicated Solar category and 104.15 EUR/MWh for the Community category, which also comprised both wind and solar projects [8].

Matters affecting growth and work to remove barriers

New offshore wind projects continued to be announced throughout 2020. An Irish Wind Energy Association report identified an offshore pipeline of 23 projects [13]. That report also identified the measures required to allow the increased 5GW offshore wind target set out in the 2020 Programme for Government. Work proceeded within the government on the key-enabling legislation for a new offshore wind consenting regime, including the National Marine Planning Framework and the Marine Area Planning Bill [14] [15].

R,D&D activities

National R,D&D Priorities and Budget

National energy research priorities, including those for wind energy, as detailed in the 2016 Report of the Energy Research Strategy Group, were reported upon in the 2016 IEA Wind Annual report. High level Government national research priorities for 2018 to 2023 include mention of wind energy [16]. The 2019

Climate Action Plan includes Action 26: “Support the ocean energy research, development and demonstration pathway for emerging marine technologies (wave, tidal, floating wind) and associated test infrastructure.” [3]

There is no budget specifically allocated to wind energy research and this is funded from general energy and other research budgets.

SEAI operates the government Sustainable Energy R,D&D scheme, there was no call for proposals in 2020 but substantial funding was secured for a 2021 call [17].

National research initiatives and results

Projects that were successfully concluded in 2020 with SEAI R,D&D funding include:

Astoneco Management Ltd. Earning local support for energy projects in Ireland

Brightwind Development of a data management platform and open-source data analysis library for wind & solar resource data.

Construction Support Services Offshore Wind Farm Projects Community Acceptance and Stakeholder Engagement - Best Practice Handbook

University College Cork OPFLOW - Options on a Pilot Project for Floating Offshore Wind

University College Dublin Robust Real-Time Wind Power Prediction and Early, Accurate Estimation of Downtime for Irish Wind Farms in an Integrated Single Electricity Market (Wind-PEarIAED)

Further details of the above projects may be found at <https://www.seai.ie/grants/research-funding/research-development-and-demonstration-fund/>

Test facilities and demonstration projects

Scoping work proceeded on the design of the subsea electrical connection and Environmental Impact Assessment for offshore floating wind turbine test bays at the Atlantic Marine Energy Test Site, in Mayo in the north-west of Ireland.

A planning application was submitted for an onshore Airborne Wind Energy test site, also in north-west Mayo.

A feasibility study for an offshore airborne wind energy test site, funded under the SEAI R,D&D scheme, was also commenced in 2020 [17].

Collaborative research

Ireland participated in IEA Wind Tasks 25, 26, 28, 34, 36, 39, 41 and 43 in 2020. SEAI is the national contact point for IEA Technology Collaboration Programmes and since 2018, has an annual call for new participants. In the 2020 call SEAI received proposals for new participants in Tasks 26, 28, 30, 39, 43, 46 and proposed new Tasks on Wind Turbine Blade Recycling, Airborne Wind Energy and Integrated Design of Floating Wind Arrays.

The Irish participant in Task 43 on Wind Energy Digitalization, BrightWind, collaborated with the Task 43 Operating Agent to release a Digital Wind Resource Assessment Standard [18].

Impact of wind energy

Environmental impact

According to the 2020 Provisional Energy Balance for Ireland the CO₂ intensity of electricity fell by 8.8% from 2019 to a new low of 296 gCO₂/kWh in 2020 [2]. This is less than a third what it was in 1990, largely due to less use of coal, oil and peat, higher uptake of renewables, primarily wind energy, and high efficiency gas turbines.

An estimated 3.6 million tons of CO₂ emissions were avoided by wind energy in 2019. Estimated avoided emissions for 2020 are not yet available.

Economic benefits and industry development

A 2020 report commissioned by IWEA identified the economic benefits of government adopting particular measures on planning, grid and tax policy for onshore wind [19]. The report identified that while the current cost of onshore wind energy is circa EUR80/MWh, local tax increases, dispatch down and noise limits may increase this to EUR100/MWh. A set of measures are identified that have the potential to decrease the cost

of onshore wind energy to EUR40/MWh. The report cites that every EUR10/MWh decrease in auction prices saves electricity consumers EUR1.5bn.

Next term

The 2020 Programme for Government committed to reviewing the Climate Action Plan in 2021, taking account of increased renewable electricity targets. This should see additional actions allocated to relevant state bodies to deliver upon the ambition.

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