

ELECTRICITY CONSUMPTION AND RENEWABLE GENERATION IN NORTHERN IRELAND: YEAR ENDING DECEMBER 2021

This publication presents information on Renewable Electricity Generation for Northern Ireland. It details information on the percentage of electricity consumption in Northern Ireland generated from renewable sources as well as information on the type of renewable generation. This publication aids reporting on performance against the commitments in the new Northern Ireland Energy Strategy ‘Path to Net Zero Energy’ which includes a target to meet 70% of electricity consumption from a diverse mix of renewable sources by 2030.

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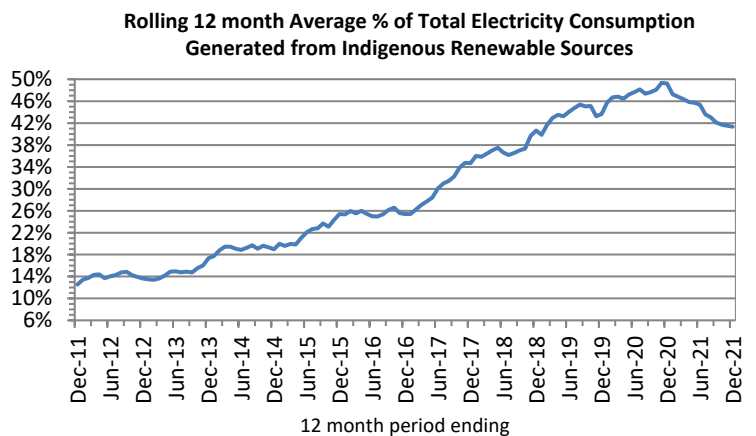
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[Electricity Consumption and Renewable Generation Statistics](#)

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Key Points

- For the 12 month period January 2021 to December 2021, 41.3% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This represents a decrease of 7.9 percentage points on the previous 12 month period (January 2020 to December 2020).



- Of all renewable electricity generated within Northern Ireland over the 12 month period January 2021 to December 2021, 82.1% was generated from wind, **the lowest wind proportion on record**. This compares to 84.9% for the previous 12 month period (January 2020 to December 2020).
- In December 2021, 47.9% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This is slightly higher than the corresponding figure for the previous month (45.8% in November 2021) but slightly lower than the corresponding figure for the same month one year ago (49.8% in December 2020).

Reader Information

Purpose	Report on renewable electricity generation as a percentage of electricity consumption in Northern Ireland.
Authors	Sean Donnelly
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Target audience	Department for the Economy (DfE), elected representatives, academics, the media and general public.
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Technical Notes

This statistics release is the twenty-second publication presenting information on renewable electricity generation in Northern Ireland. This publication aims to provide a consistent and regular means for disseminating information on renewable electricity generation in Northern Ireland.

Data Collection

The information presented in this bulletin is derived from data provided to DfE on a monthly basis by Northern Ireland Electricity Networks Ltd (NIE Networks). The monthly renewable electricity generation data is derived by aggregating output from renewable electricity generators who are connected to the transmission and distribution network using a combination of data held by NIE Networks and SONI. The renewable electricity generation data details the total amount of renewable electricity generated by such generators in Northern Ireland, by type of generation, for each month.

Electricity produced by those who generate their own electricity (mainly for their own use but some of which may 'spill' onto the distribution network) is excluded as information about such 'microgeneration' or consumption is not available to NIE Networks.

Taking into account that there are a growing number of microgenerators of renewable electricity, the data presented in this bulletin therefore represents the minimum amount of renewable electricity generation in Northern Ireland.

It is also worth noting that some imported electricity consumed in Northern Ireland is generated from renewable sources outside Northern Ireland. However, the full extent of this is unknown and therefore cannot be reported separately.

Electricity consumption data is calculated by NIE Networks by aggregating actual and estimated meter readings across both domestic and non-domestic sectors in Northern Ireland. The NIE Networks electricity consumption data includes all electricity consumed in Northern Ireland across both domestic and non-domestic sectors regardless of where the electricity was generated (i.e. it will also include consumption of any imported electricity). Transmission and distribution losses are not included in consumption calculations.

The new Energy Strategy for Northern Ireland, "Path to Net Zero Energy", commits to reviewing both the

level and the calculation methodologies for the renewable electricity target in 2025.

Rounding

Percentages are rounded and, consequently, some percentages may not sum to 100.

Data Quality

Information provided by NIE Networks presented in this bulletin has been validated and quality assured by NIE Networks prior to provision to DfE.

Following receipt, DfE perform checks to verify that information is consistent both within and across returns. Trend analyses are used to monitor annual variations and emerging trends. Any queries arising from these checks are presented to NIE Networks for clarification and if required, returns may be amended and/or re-submitted. Monthly data received from NIE Networks may be subject to revision with any revisions incorporated into future publications.

Data contained within this publication are not National Statistics.

Main Uses of Data

This publication aids reporting on performance against the commitments in the new Northern Ireland Energy Strategy 'Path to Net Zero Energy' which includes a target to meet 70% of electricity consumption from a diverse mix of renewable sources by 2030.

The data allow the Department, elected representatives and the general public to assess the current status and trends in renewable electricity generation in Northern Ireland. These data are useful to policy makers and provide the necessary information to assess the effectiveness of any programmes/policies in this area. Additionally, renewable electricity generation information is used to inform the media, special interest groups and academics, and by DfE to respond to Assembly questions and ad hoc queries from the public.

Feedback

As we want to engage with users of our statistics, we invite you to feedback your comments on this publication to:

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Renewable Electricity Generation

Headline Measure – Rolling 12 month average

For the 12 month period January 2021 to December 2021, 41.3% of total electricity consumption¹ in Northern Ireland was generated from renewable sources². This represents a decrease of 7.9 percentage points on the previous 12 month period (January 2020 to December 2020).

The decrease over this period in the proportion of electricity consumption generated from renewable sources was driven by the reduced volume of wind generation due to lower wind speeds experienced during 2021.

Figure 1: Rolling 12 month Average % Electricity Consumption from Renewable Sources

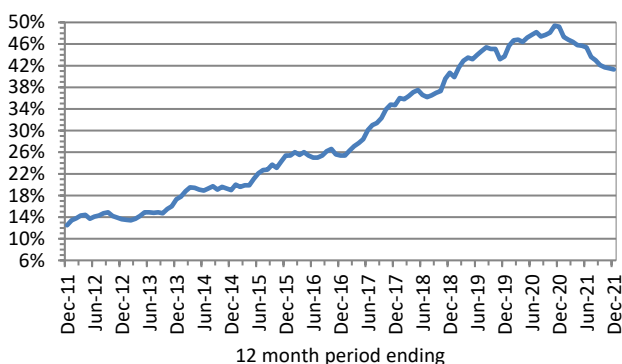


Figure 1 above shows that in the 12 month period ending December 2011, some 12.5% of total electricity consumption in Northern Ireland was generated from renewable sources. This proportion has grown considerably with the value for the 12 month period ending December 2021 (at 41.3%) being over three times higher.

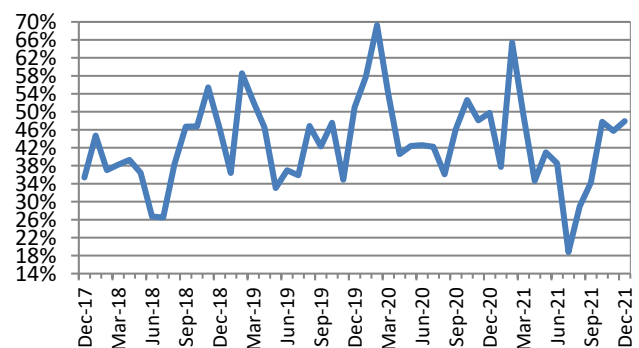
Headline Measure – monthly

In December 2021, 47.9% of total electricity consumption in Northern Ireland was generated from renewable sources located in Northern Ireland. This is slightly higher than the corresponding figure for the previous month (45.8% in November 2021) but slightly lower than the corresponding figure for the same month one year ago (49.8% in December 2020).

The monthly proportion exceeded 40% in six of the twelve individual months over the period January 2021 to December 2021 with a high in this 12 month period of 65.4% in February 2021 and a low of 18.8% in July 2021.

Renewable electricity generation can vary markedly from month to month, as shown in Figure 2. This variation is due to factors such as weather and also new renewable generation facilities coming on line at various points. The rolling 12 month average helps to take account of monthly variations to provide a better measure of the underlying trend.

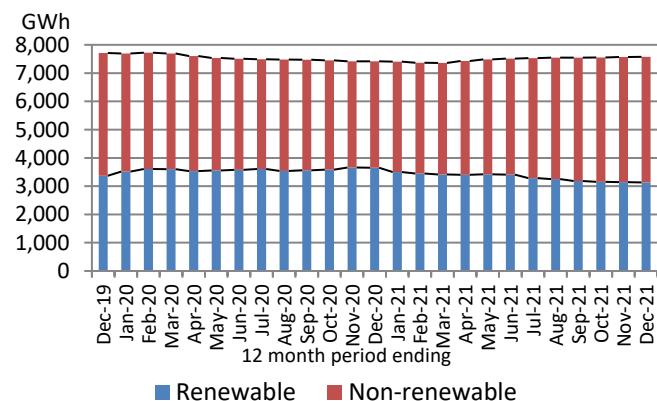
Figure 2: Monthly % of Electricity Consumption from Renewable Sources (Dec 2017 – Dec 2021)



Volume – Rolling 12 month period

For the 12 month period January 2021 to December 2021, some 7,574 Gigawatt hours (GWh) of total electricity was consumed in Northern Ireland. Over the same period, some 3,131 GWh was generated from renewable sources in Northern Ireland (Fig 3).

Figure 3: Rolling 12 month Volume of Electricity Consumed by Source (Dec 2019 – Dec 2021)



Volume – monthly

In December 2021, some 717 GWh of total electricity was consumed in Northern Ireland, with over 343 GWh generated from renewable sources within Northern Ireland in the same month. This is higher than the corresponding figure for renewable electricity generated in the previous month (316 GWh in November 2021) but lower than the corresponding figure for the same month one year ago (355 GWh in December 2020).

¹ This is the total amount of electricity consumption in Northern Ireland as recorded via metered data by NIE Networks.

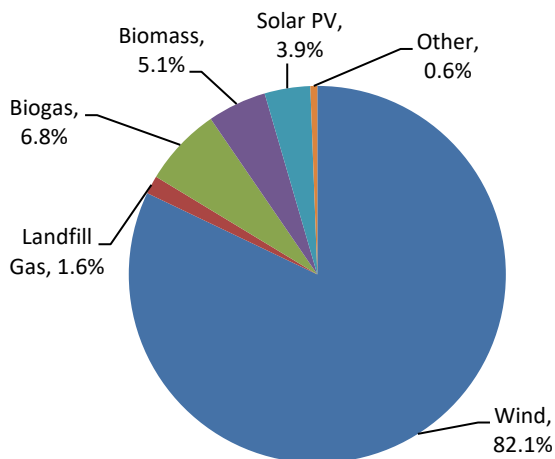
² Electricity generated from renewable sources is for those renewable generators physically located within Northern Ireland

and recorded by NIE Networks and SONI. It excludes micro-generation, non-export generating stations and any imported electricity derived from known or unknown renewable sources.

Renewable Generation by Type of Generation

The vast majority of renewable electricity generated within Northern Ireland comes from Wind sources (82.1% over the 12 month period January 2021 to December 2021). A number of other renewable sources contribute to the overall total as shown in Figure 4 below.

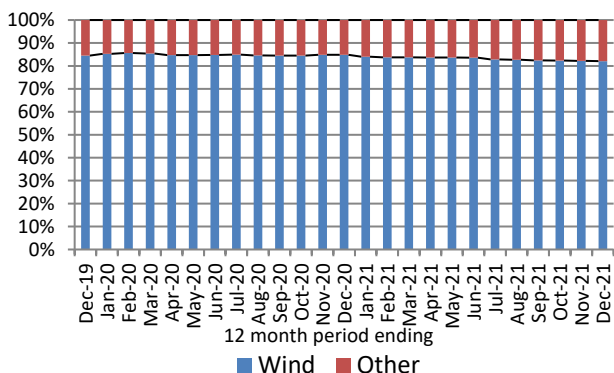
Figure 4: Renewable Electricity Generation by Type of Generation (January 2021 to December 2021)



Other includes Hydro and Combined Heat & Power (CHP)

Whilst renewable electricity generated from wind continues to be the predominant source of such generation in Northern Ireland, the proportion from other (non-wind) sources is also notable as Figure 5 below shows.

Figure 5: Rolling 12 month Percentage of Renewable Electricity Generation by Type of Generation (December 2019 – December 2021)



The proportion of renewable electricity generated from sources other than wind has been fairly steady at between 14.4% and 17.9% for each rolling 12 month period ending between December 2019 and December 2021.

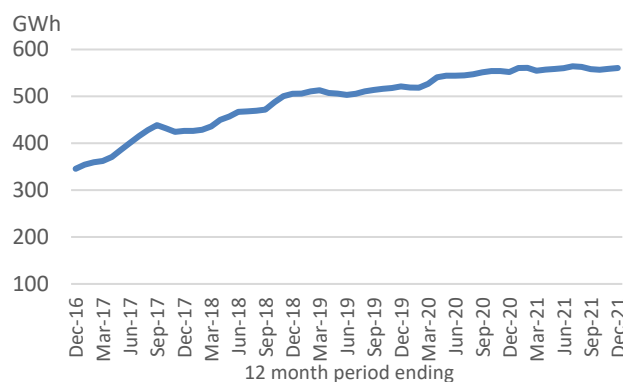
Whilst Figure 5 shows that the proportion of overall renewable electricity generation has not fluctuated much between wind and non-wind sources over the last two years, looking at the actual volumes for non-

wind generation over a longer period highlights change that is more significant.

Non-wind renewable generation volumes have seen a substantial increase in recent years (Figure 6). For the 12 month period ending December 2016, some 345.6 GWh of non-wind renewable electricity was generated in Northern Ireland. Five years later, for the 12 month period ending December 2021, non-wind renewable electricity generation volumes in Northern Ireland had increased by some 62% to 560.7 GWh.

The majority of this 5-year increase came in the period December 2016 to December 2018 (46% increase) with a much smaller increase in non-wind renewable volumes between December 2018 and December 2021 (11% increase).

Figure 6: Rolling 12 month Volume of Non-wind Renewable Electricity Generation (December 2016 – December 2021)



Background Notes

Data sources

1. The source of the data contained in this release is monthly electricity distribution figures compiled by Northern Ireland Networks Ltd (NIE Networks). Of this data, part is supplied by the System Operator for Northern Ireland (SONI). The data is calculated by NIE Networks using monthly generation data (some of which is provided to NIE Networks by SONI) and monthly demand data (by aggregating actual and estimated NIE Networks meter readings across both domestic and non-domestic sectors).

Measuring consumption

2. Figures for consumption of electricity used in this bulletin are calculated by NIE Networks from data on actual and estimated meter readings. Transmission and distribution losses are not included in consumption calculations.

Electricity generation and distribution in Northern Ireland

3. The electricity system consists of the following distinct businesses: generation, transmission, distribution and supply. Generation is provided by private sector companies who own the major power stations and by other generators, such as wind farms. Northern Ireland also has interconnectors between the Scottish and Republic of Ireland grids through which electricity can be imported and exported. Northern Ireland Networks Ltd (part of the ESB Group) owns the transmission and distribution network and operates the distribution network, which transports electricity to over 900,000 customer connections. The System Operator for Northern Ireland operates the transmission network. Electricity suppliers buy electricity and sell it to customers. Business and domestic consumers in Northern Ireland can choose from a number of private sector electricity suppliers to meet their individual electricity requirements.

Other Renewable Generation - Microgeneration and Non-Export Generating Stations

4. Some forms of renewable generation are not covered by the data contained in this report. Due to their particular circumstances, neither NIE Networks nor SONI have information on the electricity generated by some renewable generators. These include autogenerators³, microgenerators⁴ and a small number of generating stations that are unable to export electricity to the grid (non-export stations)⁵.

However, Ofgem has provided an estimate of the extent of renewable electricity generation in Northern Ireland from microgeneration and non-export generating stations from their Renewable Obligation Certificate (ROC) register. Assuming that the vast majority of these generators are accredited to the Northern Ireland Renewable Obligation (NIRO) and are therefore receiving ROCs for their renewable generation, this would represent a very good estimate of the volume of renewable electricity from microgeneration and non-export generation in Northern Ireland. However, the NIRO closed to all technologies on 31 March 2017, with exceptions in the form of grace periods that have now ended, and therefore some microgenerators and non-export generating stations may not be accredited to the NIRO and would not be included in the Ofgem figures.

The most recent 12 month period for which microgeneration data is available is for April 2020 to March 2021 and during that period an estimated 84.1 GWh of renewable electricity was produced by microgenerators in

³ Autogenerators are businesses who generate electricity primarily for their own use, and (possibly) sell any surplus to the Public Distribution System.

⁴ Microgeneration is defined here as all those generators with a Declared Net Capacity (DNC) of 50kW or less.

⁵ A small number of generating stations cannot export electricity to the grid and the renewable electricity they generate, therefore, is either consumed on-site or provided to a third party by a private wire network.

Northern Ireland⁶ with a further 44.1 GWh of renewable electricity produced by non-export generators⁷. Over the same period, renewable electricity generation as sourced from NIE and SONI was 3,412.9 GWh. Therefore, for the 12 month period April 2020 to March 2021, microgeneration and non-export generation as sourced from the ROC register was equivalent to 3.8% of the renewable generation volume total as sourced from NIE and SONI.

It is also worth noting that microgenerators will consume varying levels of the electricity they generate, with excess generation 'spilling' onto the grid. We have no data to indicate how much of the electricity generated by microgenerators is consumed on-site or the extent of any excess sent to the grid.

⁶ This is the total measured generation for April 2020 to March 2021 that Ofgem have issued ROCs for. Data for some microgenerators may still be undergoing processing or may not have been submitted and such returns are therefore not included in the figure.

⁷ Data is from accredited stations only and no generation from pending applications has been included, therefore actual generation from all stations unable to export renewable electricity to the grid may be higher than indicated.