



Annual Energy Statement & Quarterly Statistics Bulletin

December 2021

Published: 23rd December 2021



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Cabinet Secretary for
Net Zero, Energy
and Transport

Ministerial Foreword

Scotland is leading the way internationally with our commitment to be net zero by 2045. This statement shows we are continuing to make good progress with the equivalent of 98.6% of gross electricity consumption being from renewable sources in 2020, which is up from 89.8% in 2019. Whilst we do have many challenges ahead of us if we are going to meet our ambitious targets, we have laid the groundwork in 2021 for Scotland to take important leaps forward towards net zero.

In March, we published our Energy Strategy Position Statement setting out our key priorities for the short to medium term. In September, we published our response to the Just Transition Commission recommendations, setting out our proposals for a national just transition planning framework. In October we published both the Heat in Buildings Strategy, and a consultative draft of the Onshore Wind Policy Statement. The Heat in Buildings Strategy sets out our vision for the future of heat in buildings, and the actions we are taking in the buildings sector to deliver our climate change commitments; and the Onshore Wind Policy Statement seeks views on our ambition to secure an additional 8-12 GW of installed onshore wind capacity by 2030.

During COP 26, we published the draft Hydrogen Action Plan, articulating the actions that will be taken over the next five years to support the development of a hydrogen economy to further our efforts to reduce greenhouse gas emissions from Scotland's energy system while ensuring a just transition.

All of these documents pave the way for our draft Energy Strategy and Just Transition Plan which we will be publishing next year. This will take a whole systems view of how the energy sector must evolve to drive our transition to net zero, along with the actions that need to be taken in the decade ahead. The document will include a detailed route map showing what needs to happen across the energy sector in order to help deliver our net zero pathway, including the 2030 interim target of a 75% reduction in Green House Gas Emissions. The document will also set out what is needed to deliver a just transition for the sector, in line with the principles laid out in our National Transition Planning Framework published in September 2021.

I am proud of the progress Scotland has made over the past year and, whilst the statistics show how far we have come, we still have a long road ahead of us if we are going to be a net zero nation by 2045. I believe the Energy Strategy and Just Transition Plan will be key to paving the road, ensuring the economic and social impacts of the rapid structural changes to our energy system are managed throughout our net zero transition.



Energy Statistics for Scotland

Q3 2021 Figures

December 2021

Published: 23rd December 2021
Update Expected: 31st March 2022
Contact: energystatistics@gov.scot

The Scottish energy statistics hub is a 'one-stop shop' for all Scottish energy data. It will be updated as new data is available.

Scottish Energy Statistics Hub:

<https://scotland.shinyapps.io/sg-energy>

Scottish Energy Strategy.

<https://www.gov.scot/publications/scottish-energy-strategy-future-energy-scotland-9781788515276/>

Key Points:

- **Final** figures for **2020** show that the equivalent of **98.6%** of all **electricity used in Scotland** (total generation minus net exports) came from **renewable** sources. This **falls short** of the **target** for **100%** by **2020**.
- In **2020**, provisional figures indicate that **25.4%** of total Scottish **energy consumption** came from **renewable** sources, up from **24.0%** in **2019**.
- **61.8%** of all **electricity generated** in **2020** in **Scotland** was from **renewable sources** and **88.1%** was from **low carbon** sources. Both **increased** since **2019**, and are significantly higher than **England and Wales** (**39.2%** renewables and **53.9%** low carbon).
- **Renewable electricity capacity** has **increased** over the past year to **12.2 GW** in **September 2021**, up **0.5 GW** since **September 2020**.
- **Renewable electricity generation** in **quarter 3 2021** was **35% lower** than the same quarter in **2020**. Over the **first nine months of 2021**, generation is **down 22.3%** compared to the same period in 2020. This is mainly due to continued mild weather over the year adversely affecting hydro and wind generation.
- Scotland's **electricity consumption** **dropped** in **2020**, **down 5.7%** on **2019**. However, **gas consumption** **rose slightly**, **up 2.4%** on 2019. Overall, this means provisional **overall energy consumption** was **14.4% lower** than **2005-2007**, and that the **2020 target** of a reduction of 12% below the baseline has been **achieved**.
- **Energy productivity** has **fallen** in **2020** to **5.9% below** the **2015 benchmark** for the energy productivity target. This is down from **4.0% above** the benchmark in **2019**. This is mainly due to the impact of COVID on the economy in 2020.

Revisions:

Renewable electricity target was revised to **98.6%** from 95.9%, after gross electricity consumption was revised down.

Energy Targets:

	Latest	Target
Overall renewable energy target Total Scottish energy consumption from renewables	Provisional* 25.4% in 2020	50% by 2030
Renewable electricity target Gross electricity consumption from renewables	Final 98.6% in 2020	100% by 2020
Renewable heat target Non-electrical heat demand from renewables	Provisional* 6.3% in 2020	11% by 2020
Energy consumption target Reduction in total energy consumption from 2005-07	Provisional* ↓ 14.4% in 2020	↓ 12% by 2020
Energy productivity target % change in gross value added achieved from the input of one gigawatt hour of energy from 2015.	Provisional* ↓ 5.9% in 2020	↑ 30% in 2030

*Final figures will be published in **September 2022**

Sources

Renewable energy target: <https://scotland.shinyapps.io/Energy/?Section=WholeSystem&Chart=RenEnTgt>
Renewable electricity target: <https://scotland.shinyapps.io/Energy/?Section=RenLowCarbon&Subsection=RenElec&Chart=RenElecTarget>
Renewable heat target: <https://scotland.shinyapps.io/Energy/?Section=RenLowCarbon&Subsection=RenHeat&Chart=RenHeat>
Energy Consumption target: <https://scotland.shinyapps.io/Energy/?Section=EnergyEfficiency&Subsection=DemandReduction&Chart=EnConsumptionTgt>
Energy productivity target: <https://scotland.shinyapps.io/Energy/?Section=WholeSystem&Chart=EnProd>

In 2020, **25.4%** of total Scottish energy consumption came from renewable sources, 1.5 percentage points higher than 2019, according to provisional figures.

Much of this increase is due to increasing renewable electricity generation; there was a 1.9 TWh increase in renewable electricity generated in 2020 compared to 2019, mainly from wind and hydro.

This falls short of Scotland's target to deliver the equivalent of **50%** of total energy consumption from renewable sources by **2030**.

In 2020, provisional figures show that useful renewable heat generated in Scotland was equivalent to **6.3%** of fuels (besides electricity) consumed for heat, the same as in 2019.

Scotland has not reached the target to deliver the equivalent of **11%** of heat demand from renewable sources by **2020**.

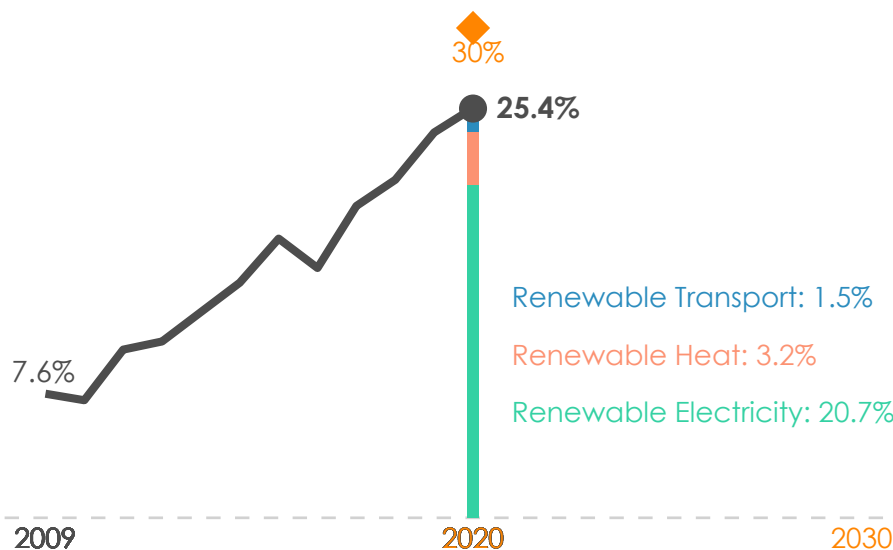
Overall renewable energy target

2009-2020

↑ **17.8 percentage points** from 2009 to 2020

↑ **1.5 percentage points** from 2019 to 2020

50%



* 2019 figure revised from 23.8% to 24.0%

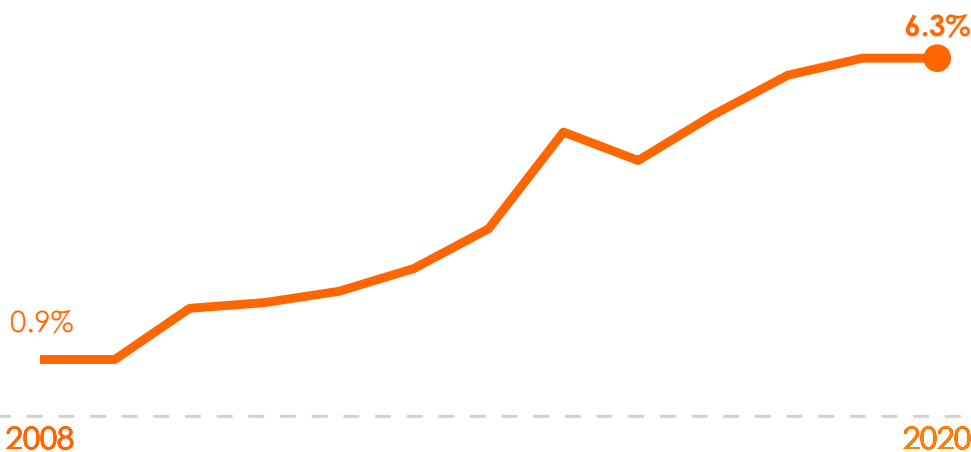
Renewable heat target

2008 - 2020

↑ **5.4 percentage points** from 2008 to 2020

↔ **0.0 percentage points** from 2019 to 2020

11%



* 2019 figure revised from 6.6% to 6.3%

Over **60%** of the electricity that **Scotland** generated in **2020** came from **renewable** sources, in comparison to **39%** in **England and Wales**

To calculate the progress towards **Scotland's renewable target**, we take the renewable electricity generated and divide by the equivalent of electricity used in Scotland (all electricity generated minus net electricity exports)

In 2020, **98.6%** of gross electricity consumption came from renewable sources, up **8.8 percentage points** from 2019.

Scotland has fallen short of the target to deliver the equivalent of **100%** of gross electricity consumption from renewables by **2020**.

Electricity Generation Fuel Mix

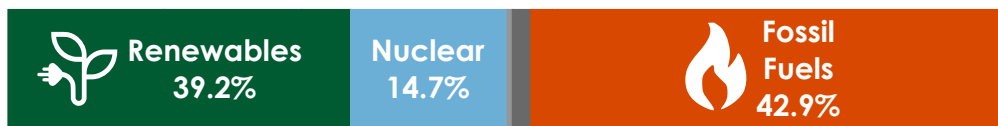
2020

Scotland



Low Carbon: 88.1%

England and Wales



Low Carbon: 53.9%

Renewable electricity target calculation

2020

Electricity generation fuel mix

61.8% of Scotland's electricity generation fuel mix coming from renewable sources



Net Exports:

-19,347 GWh

Gross Consumption

32,518 GWh

The denominator is gross consumption: generation minus net exports

98.6%

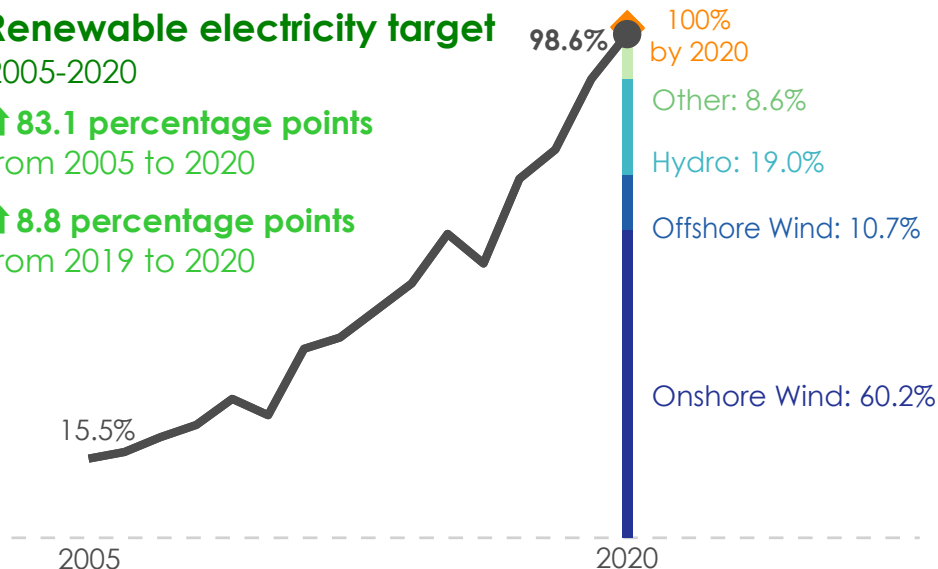
equivalent of Scotland's own electricity demand from renewable sources

Renewable electricity target

2005-2020

↑ **83.1 percentage points** from 2005 to 2020

↑ **8.8 percentage points** from 2019 to 2020



* 2020 figure revised from 95.9% to 98.6% and 2019 figure revised from 88.4% to 89.8%, after gross electricity consumption was revised down.

In the last twelve months renewable electricity capacity has risen slightly, now at **12.2 GW** in September 2021.

There are **15.2 GW** of renewable electricity projects in the pipeline in Scotland, with **2.8 GW** currently under construction.

Scotland generated **4,089 GWh** of renewable electricity in **2021 Q3**, down **35.0%**. Compared to the first three quarters of 2020, generation is **down 22.3%**.

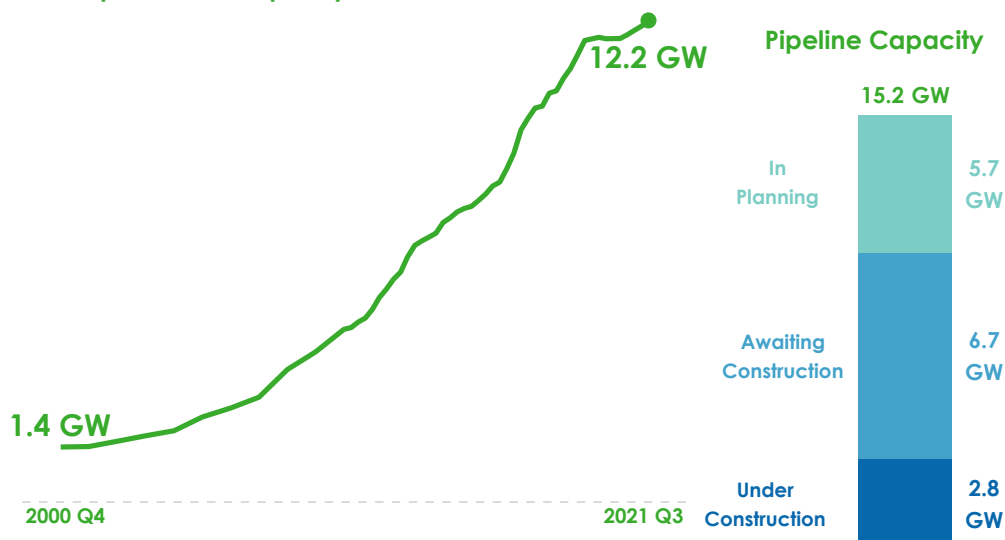
This follows continued mild weather over the year, with **wind** generation **down 37.1%** in **2021 Q3** compared to 2020 Q3, and **hydro** generation down **45.6%**.

This means that in the first three quarters of **2021**, Scotland generated **13,378 GWh** of renewable electricity from **wind**, down **22.4%** on the same period in 2020.

For hydro generation, this was **2,877 GWh**, down **32.4%** compared to the first three quarters of 2020

Renewable electricity capacity, September 2021

Operational Capacity



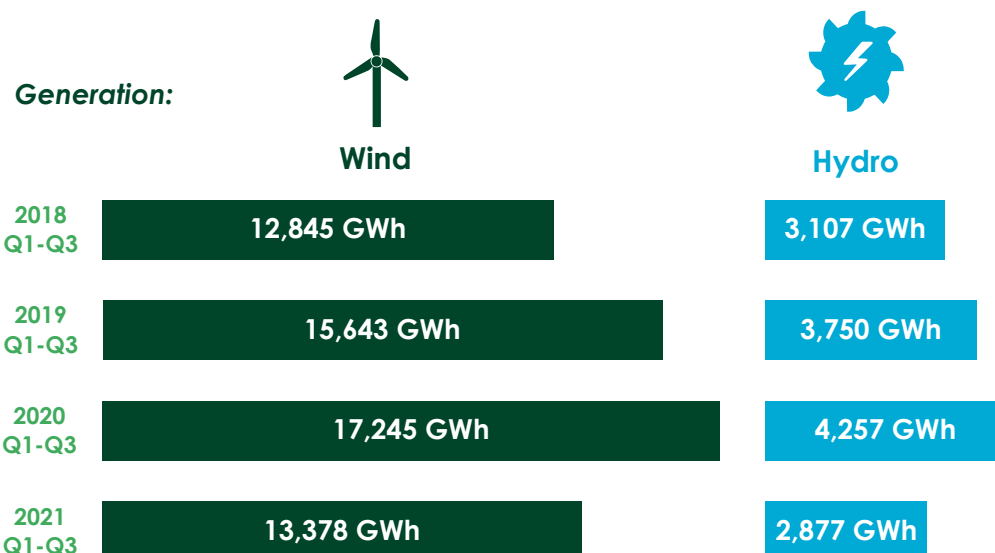
Renewable electricity generation 2018 - 2021

2018 - 2021

Year	Quarterly Generation (GWh)			Total Generation Q1 - Q3 (GWh)
	Q1	Q2	Q3	
2018	7,837	5,026	5,004	17,866
2019	8,988	5,811	6,763	21,561
2020	11,471	5,893	6,287	23,651
2021	8,865	5,416	4,089	18,370

Wind and Hydro generation

First three quarters, 2018 to 2021



Sources

Renewable electricity generation: <https://scotland.shinyapps.io/sg-energy/?Section=RenLowCarbon&Subsection=RenElec&Chart=RenElecGen>
 Renewable electricity capacity: <https://scotland.shinyapps.io/sg-energy/?Section=RenLowCarbon&Subsection=RenElec&Chart=RenElecCapacity>
 Renewable electricity pipeline: <https://scotland.shinyapps.io/sg-energy/?Section=RenLowCarbon&Subsection=RenElec&Chart=RenElecPipeline>

Consumption of electricity between 2020 and 2019 **decreased overall** by **5.7%** driven by the non-domestic sector, which fell **12.2%**. The domestic sector however **increased** by **4.2%**

Gas consumption **rose 2.4%** in the same time period, with increases in both sectors.

Decreases in electricity consumption mean that Scotland's provisional total energy consumption in 2020 has reached the lowest level over the target period.

Provisional 2020 data shows that consumption **remains below 12%** and is now **14.4%** lower than the baseline, meeting Scotland's energy consumption target.

Despite the drop in consumption, in 2020 Energy Productivity has **fallen** to **5.9% below** the 2015 baseline, following a 9.7% fall in gross value added (GVA) between 2019 and 2020.

Energy productivity is GVA from the input of one gigawatt hour consumed. Higher energy productivity means "squeezing" more out of every unit of energy consumed.

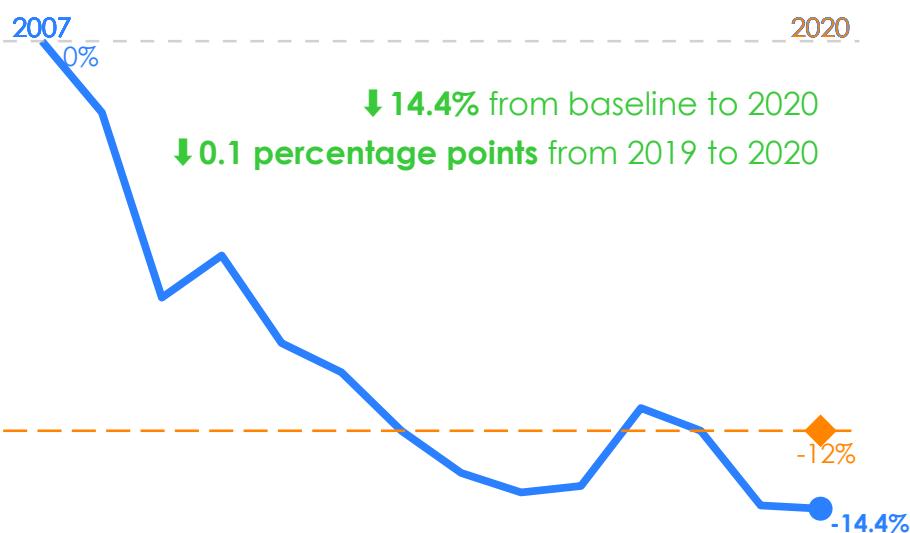
Energy Consumption - 2020 (GWh)

(Change from 2019)



Total energy consumption

2007 - 2020

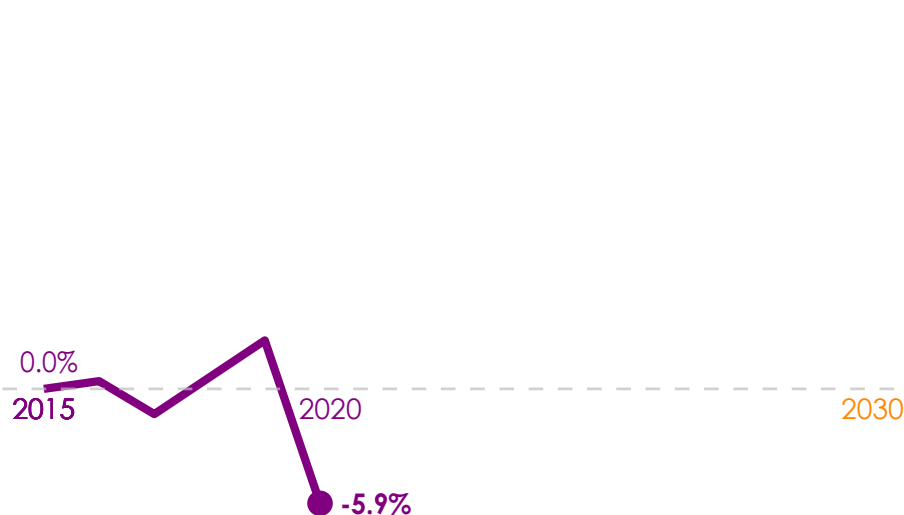


* 2019 figure revised from 14.1% to 14.3% below the 2005-07 baseline

Energy Productivity

2015 - 2020

↓ 5.9% from 2015 to 2020
↓ 9.9 percentage points from 2019 to 2020



* 2019 figure revised from 4.3% to 4.0% above the 2015 baseline