

# **The ALBA Party**

## **124 BILLION REASONS FOR INDEPENDENCE**

### **Energy Rich Scotland**

Scotland is energy-rich and yet too many Scots are fuel-poor. As energy costs rise the hardship for many, perversely often those living closest to the energy wealth, is worsening.

The fact that Scotland is energy-rich is well established but the wealth from oil and gas, enriching Norway on the other side of the North Sea, has largely passed Scotland by. The wealth has been used instead by the UK Government to smash the unions to wage illegal wars. Despite past assertions that it's all but gone, the UK now sees it as a vital lifeline. Pushing for new exploration, without even consideration for Scotland's needs or climate change.

Yet the wealth from renewables is far less well known, yet it will dwarf that from oil and gas. Hydropower and onshore wind are long-standing and well-known, even if their potential scale may not be. Already, Scotland's domestic electricity supply is largely provided by renewable energy, often amounting to 100% in the north and as of 2020 it met 97% of Scotland's electricity demand in the country as a whole<sup>1</sup>.

But now offshore wind is coming on stream, and its importance and wealth remain largely unknown. How much energy does Scotland produce and how much is it worth?

### **Energy Language**

Firstly, let's explain how energy is defined and then provide some examples of how much is used in common appliances and by households, as well as Scotland as a whole.

Energy is stored in Kilowatts (kW), Megawatts (MW), Gigawatts (GW) and Terawatts (TW). Let's explain what they are.

<b>1000 Kilowatts</b>	<b>= 1 Megawatt</b>
<b>1,000 Megawatts</b>	<b>= 1 Gigawatt</b>
<b>1,000 Gigawatts</b>	<b>= 1 Terawatt</b>

**1 Terawatt is therefore 1,000,000,000 (1 billion) Kilowatts.**

### **Domestic Energy Use**

Gigawatts and kilowatts are measures of nominal capacity/storage whereas a Gigawatt hour or Kilowatt hour are measures of energy flow/usage. Whereas a GW is the measure of

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<sup>1</sup> [Renewables met 97% of Scotland's electricity demand in 2020 - BBC News](#)

electricity equal to 1 billion watts, a **GWh is a measure of electricity generation of 1 GW produced over one hour<sup>2</sup>.**

For the purposes of domestic consumption, business or domestic energy usage is always recorded in kWh. To provide some context, here's the energy consumption of some standard domestic appliances<sup>3</sup>.

Kettle – 24 kWh per month

Tumble Dryer - 48 kWh per month

Washing Machine - 36 kWh a week

Microwave – 4 kWh per month

What does that equate to on an annual basis?

The average household electricity consumption in Scotland in 2021 was **3736 kWh**. Consumption varies between regions and throughout the year and with the recent increase in the cost of energy for consumers, consumption is likely to have slightly reduced but will remain in the region of **3700/4000 kWh** for the average household<sup>4</sup>. **In 2020, Scotland exported 20.4 TWh, equivalent to power every single household in Scotland for 26 months<sup>5</sup>.**

### Scottish Energy Production

Scotland is producing more energy than it requires, and indeed more than the national grid can currently cope with. Explaining the absurdity of wind farm operators being paid to turn off their wind turbines. As on and offshore wind farms increase that capacity issue is worsened yet energy production is increasing.

The national grid is being upgraded but additional steps are being taken to transfer this huge surplus of resources south. Cables to England are being laid from Peterhead and Torness to Drax and Redcar to transfer renewable energy from Scotland. Those links will transmit **5 TWh** of energy from north to south in their first year (See Below).

To ask the Secretary of State for Business, [Energy](#) and Industrial Strategy, what estimate he has made of the annual amount of energy that will be to be transmitted by the electricity superhighways from Torness and Peterhead in Scotland to Hawthorn Pit and Drax in England. (120157)

**Answer:**

**Graham Stuart:**

Ofgem, as the independent energy regulator, uses the price control process to determine the amount of funding allocated for network infrastructure projects, including the Torness and Peterhead projects. This includes regulating the cost of their build, ownership, [operation](#) and maintenance. The Government welcomes such strategic network projects and their acceleration to support the 2030 offshore wind ambition, as set out in Ofgem's Accelerated Strategic Transmission Investment framework. National Grid ESO estimates that these links will facilitate the transmission of an additional 5 TWh of energy from north to south in their first year.

The answer was submitted on 18 Jan 2023 at 14:27.

<sup>2</sup> <https://www.naturalgasintel.com/reshuffling-the-deck-high-stakes-for-natural-gas/?v=GlossaryPopUp>

<sup>3</sup> <https://www.confused.com/gas-electricity/guides/appliances-how-much-do-yours-cost-to-run>

<sup>4</sup> [Average Household Gas and Electricity Usage | UKPower](#)

<sup>5</sup> Letter from Finance Secretary, Kate Forbes MSP

Berwick Bank offshore wind farm will produce **4.1 GW** with a cable going directly from its site in the Firth of Forth taking **40% of its energy directly south**<sup>6</sup>.

It is right that surplus energy should be exported but as with oil and gas, where is the benefit for Scotland? There's now a European energy market and as well as supplying south of the border this can be exported beyond. Where is the payment, let alone businesses and jobs being created through the energy boom?

BEIS estimates that 35 TWh of electricity was sent South in 2021 with this expected to increase to 124 TWh by 2030 (See Below).

**Question:**

To ask the Secretary of State for Business, Energy and Industrial Strategy, pursuant to the Answer of 3 November 2022 to Question 120157 on Electricity Generation: Infrastructure, how much energy is being transmitted from north to south through existing infrastructure. (127911)

Tabled on: 19 January 2023

**Answer:**

**Graham Stuart:**

As set out in the National Grid ESO Future Energy Scenario publication, approximately 35TWh of electricity was expected to flow from Scotland to the rest of Great Britain in 2021, which compares to an expectation of 124TWh in 2030.

The answer was submitted on 24 Jan 2023 at 12:47.

The UK Government estimates the price for **35 TWh to be £600 Billion**<sup>7</sup>. In 2030, the UK Government expects the number of TWh of energy flowing from Scotland to GB will rise to **124 TWh**. At today's prices, that amount of energy is worth an estimated **£2.12 Trillion**<sup>8</sup>.

The **35 TWh** of energy that flowed from Scotland to GB in 2021 is enough to power Scotland **3.5 times over**. The expected growth is even more staggering, with the 124 TWh of energy expected by 2030 being enough electricity to power all of Scotland's 2.5 million homes more than **12 times over**<sup>9</sup>.

## Energy Rich Yet Fuel Poor

As Scots struggle to heat and power their homes, energy from on and off our shores is going south. Yet there is neither cheap electricity here with payment for the resource being sent south and into the UK and European energy market, nor is Scotland seeing an adequate number of supply chain jobs.

124 TWh is 124 billion kWh and it's 124 billion reasons for independence. Every kWh should be providing affordable energy and enriching the entire country. Instead, Scots are freezing in their homes whilst corporations are making massive profits. We cannot allow our natural bounty of renewable energy to be lost like our oil and gas wealth. It's time to control our energy system and that requires Independence.

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<sup>6</sup> [Berwick Bank Wind Farm, UK \(power-technology.com\)](https://power-technology.com/news/berwick-bank-wind-farm-uk/)

<sup>7</sup> House of Common's Library (See Notes 1)

<sup>8</sup> See Notes 2

<sup>9</sup> See Notes 3

## Notes

1. Email response from the House of Commons Library

Restricted: Members Services

Dear [REDACTED]

You have asked for an estimate of the value of (a) 35 Terawatt Hours (TWh) of energy as of 7 February 2023 and (b) [REDACTED]

**a. 35 Terawatt Hours (TWh) of energy as of 7 February 2023**

On the 7 February 2023, the average Megawatt hour (MWh) of electricity was £171.23. This is equivalent to £17.1 billion terawatt hours (TWh). For 35 terawatt hours, the estimated price of electricity is £599.3 billion.

1 Megawatt hour (MWh) = 0.000 001 Terawatt hour (TWh)

**[Redacted]**

I hope this is of help. Please let me know if you require any further information.

Kind regards,

[REDACTED]

[REDACTED]

Statistical Researcher

Social and General Statistics, House of Commons Library

2. 35 TWh = £600 billion

1 TWh = £17.1 billion

124 TWh = 2.12 trillion

3. Average household Usage = 4000 kWh per annum

Number of households in Scotland circa 2.5 million

Total kWh usage = 2.5 million \* 4000 kWh = 10,000,000,000 kWh

= 10,000,000 GWh

= 10,000 MWh

= 10 TWh

124 TWh / 10 TWh = 12.4