



**Level 3 Certificate  
MATHEMATICAL STUDIES**

**Paper 2A/2B/2C**

**June 2022**

**1350/2/PM**

**Preliminary Material**

**To be opened and issued to candidates on  
Tuesday 1 March 2022 or as soon as possible after that  
date.**

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## **INFORMATION**

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## **Electricity generation**

**The UK Government publishes statistics on how electricity is generated.**

**An article was published by the Department for Business, Energy & Industrial Strategy. An extract from the article is shown below.**

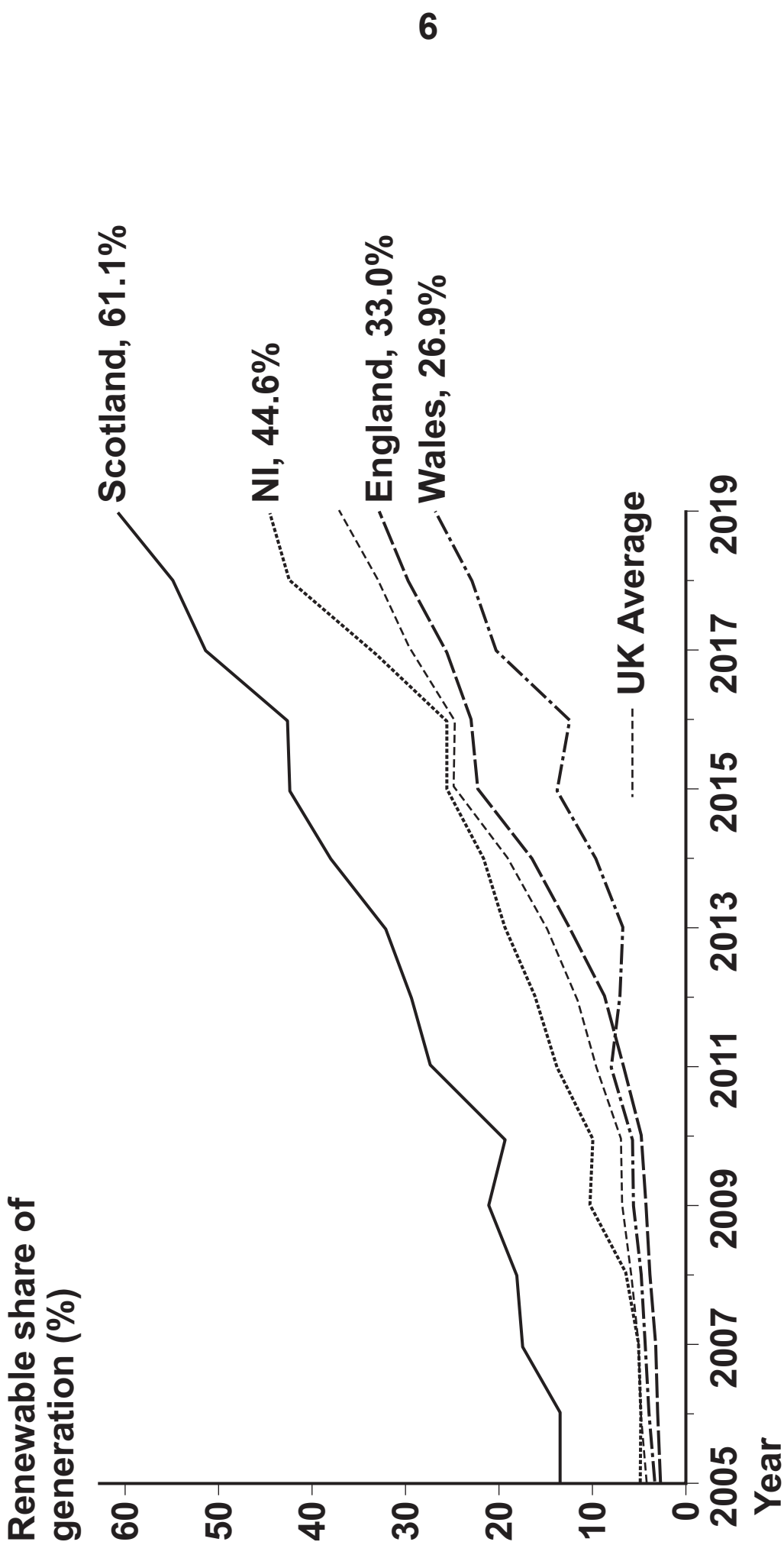
### **Electricity generation by fuel**

**In recent years, the closure of coal and gas fired power stations and an increase in the number of renewable generators shifted the UK's generation mix from fossil fuels towards renewables. As the fossil fuel share of generation fell across the UK, the renewable share rose from 24.5 per cent in 2016 to a record 37.1 per cent in 2019. This was driven by decreases in fossil fuel shares of generation in all UK nations since 2016. Notably, fossil fuel generation dropped by 45 per cent in Wales since 2016, with the winding down of operations at major Welsh coal plants, including Aberthaw B and Uskmouth resulting in coal generation falling 91 per cent from 2016 to 2019. Falls in fossil fuel generation were offset by a 45 per cent increase in UK renewable generation in the same period.**

**Renewable generators saw record levels of generation in 2019, accounting for 37.1 per cent of the UK's total (up 4.0 pp on 2018) as the UK expanded wind and bioenergy capacity, with generation up 13 per cent and 6.8 per cent respectively. In Scotland, 61.1 per cent of electricity was generated by renewable fuels in 2019, accounting for one quarter of the UK's renewable electricity. While Scotland remains the UK leader for renewable generation, all four nations saw record shares with renewable electricity accounting for 44.6 per cent, 33.0 per cent and 26.9 per cent of generation in Northern Ireland, England and Wales respectively. Chart 1 shows the renewable share of total electricity generation in each UK country from 2005 to 2019, in comparison to the UK average.**

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**CHART 1: Renewable share of electricity generation by country, 2005 to 2019**



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The article included some data tables showing energy production in the four nations of the United Kingdom.

An extract from the data tables is shown below.

**TABLE 1: Generation of electricity by fuel in England, 2019**

| <b>ELECTRICITY GENERATED (GWh)</b> |                                       | <b>England</b> |
|------------------------------------|---------------------------------------|----------------|
|                                    | <b>FOSSIL FUELS</b>                   | <b>110,221</b> |
| within which                       | Coal                                  | 5,319          |
|                                    | Oil                                   | 1,262          |
|                                    | Gas                                   | 103,640        |
|                                    | <b>NUCLEAR</b>                        | <b>43,958</b>  |
|                                    | <b>RENEWABLES</b>                     | <b>78,105</b>  |
| within which                       | Hydro natural flow                    | 129            |
|                                    | Wind                                  | 33,791         |
|                                    | Solar                                 | 11,228         |
|                                    | Shoreline wave and tidal              | 0              |
|                                    | Bioenergy                             | 32,957         |
|                                    | <b>OTHER FUELS</b>                    | <b>4,511</b>   |
|                                    | <b>PUMPED STORAGE</b>                 | <b>0</b>       |
|                                    | <b>TOTAL ALL GENERATING COMPANIES</b> | <b>236,794</b> |

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