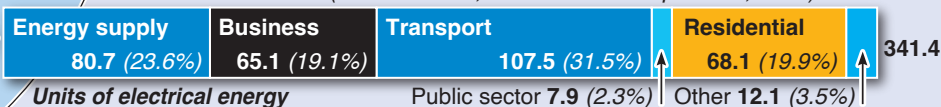


# Hydrogen hope and hype

A seaside town in northeastern England will become the UK's first "hydrogen village," converting from natural gas to low-carbon hydrogen as part of a plan to hit net zero emissions by 2050

UK EMISSIONS (million tonnes, carbon dioxide equivalent, 2021)



## Units of electrical energy

Kilowatt (kW)	One thousand watts
Megawatt (MW)	One million watts
Gigawatt (GW)	One billion watts
Terawatt (TW)	One trillion watts

3 STORAGE

4 DISTRIBUTION

## GREEN HOME HYDROGEN

1 NORTH SEA

2 ELECTROLYSIS

3 STORAGE

4 DISTRIBUTION

1 NORTH SEA:

12 wind farms run by Ørsted generate 5.6GW of electricity, enough to power 7 million UK homes

5.6 GW

2 ELECTROLYSIS:

Green electricity separates hydrogen and oxygen from water. It requires around 50kW of electricity to create each kilogram of hydrogen

50 kW

3 STORAGE:

Ultra-light hydrogen gas requires high-pressure tanks at 700 bar – 700 times normal atmospheric pressure – or storage as liquid

Hydrogen becomes liquid when it is cooled below -252.87°C

Prefabricated, modular water electrolyzers

4 DISTRIBUTION: Northern Gas Networks aims to use its existing pipe network to supply about 2,000 homes and businesses in Redcar with 100% hydrogen from 2025

Each kilogram of hydrogen produces 33.3kW of energy when burnt – one-third less energy than used for electrolysis

33 kW

## IS HOME HYDROGEN SAFE?

Hy4Heat quantified risk assessment

(QRA undertaken by Arup and hydrogen certification body Kiwa, May 2021)

