

Climate. Politics. Technology

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Saddleworth
Moor

In February!

Cyclone Idai
Mozambique









Net Zero

The UK's contribution to stopping global warming

Committee on Climate Change
May 2019



**Net Zero – Energy System needs to be Zero given
agriculture, aviation etc.**



Germany's AfD turns on Greta Thunberg as it embraces climate denial

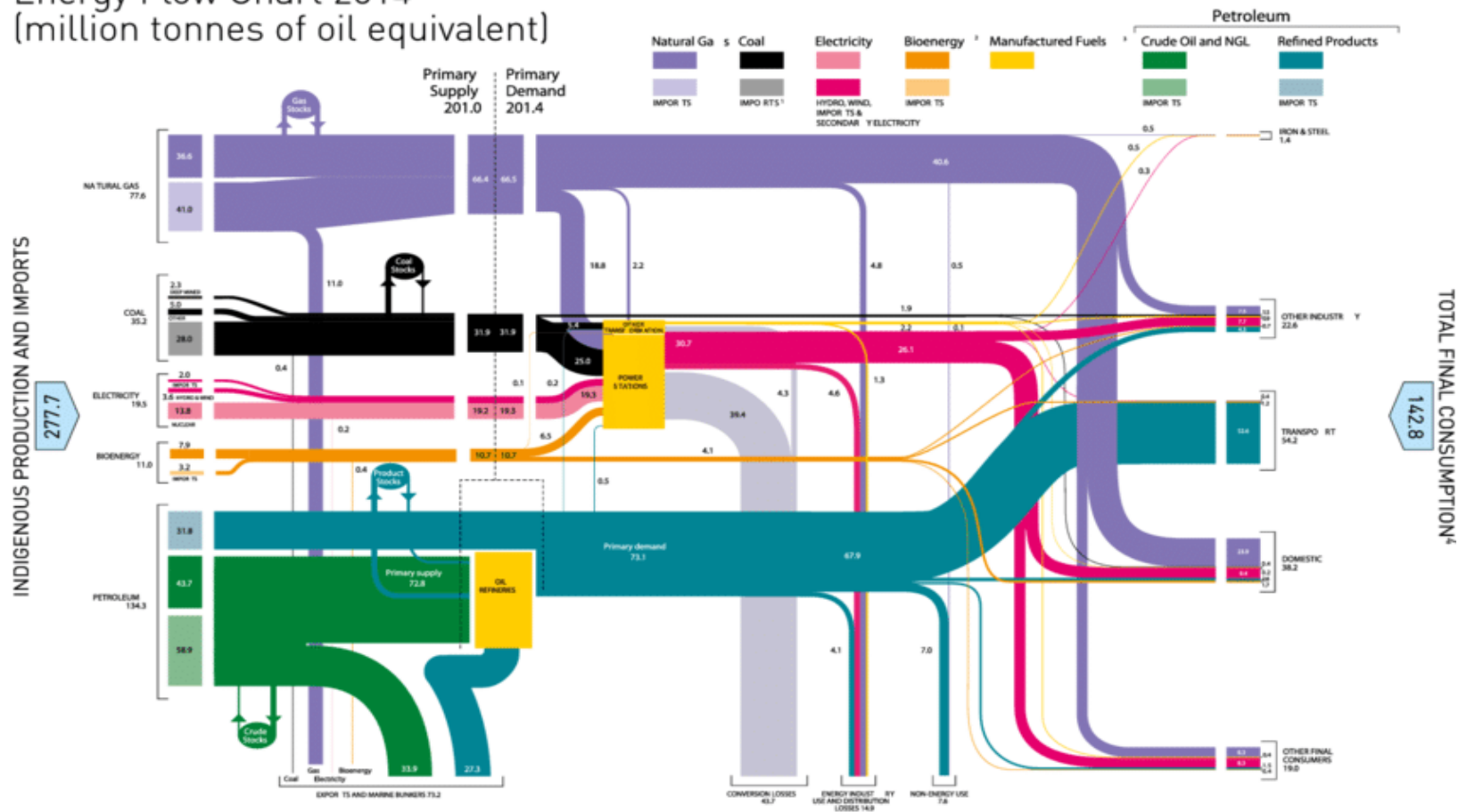
Rightwing populists to launch attack on climate science in vote drive before EU elections





How far can renewables go in delivering for our energy system?

Energy Flow Chart 2014
(million tonnes of oil equivalent)



Orkney Experiment



- Already over 100% Orkney power met by wind, solar, tidal
- Community owned wind farms, 10% households have microgeneration
- Exports and electric vehicle charging already happening
- How to further make most of low cost renewables?

PROJECT RE-FLEX

- Up to 500 domestic, 100 business and large-scale batteries
- Up to 600 new electrical vehicles (EVs), 200 Vehicle-to-Grid (V2G) chargers, community-powered electric bus
- Up to 100 flexible heating systems
- 500kW electrolyser which will supply hydrogen to island ferries

Gas storage

Fuel cell

Vehicles

Hydrogen transport

- Heat for pier buildings
- Electricity for ferry in port



Paul Wheelhouse MSP at the 'Surf n Turf' hydrogen fuel cell training compound, Kirkwall, Orkney. (Credit: Colin Keadie)

Wealth distribution?

How many people in Orkney benefit directly from generating energy?

300 people employed in the renewable sector

500 householders with micro wind turbines installed

400 homes with solar and heat pump technology installed

5 large scale community turbines operating covering some

800 households;

40 local investors in two locally owned schemes

210 electric cars running locally



Consequently there are likely to be ~700 'enterprises' and 2000 or **20% of households** that have a direct link with and benefit from renewables