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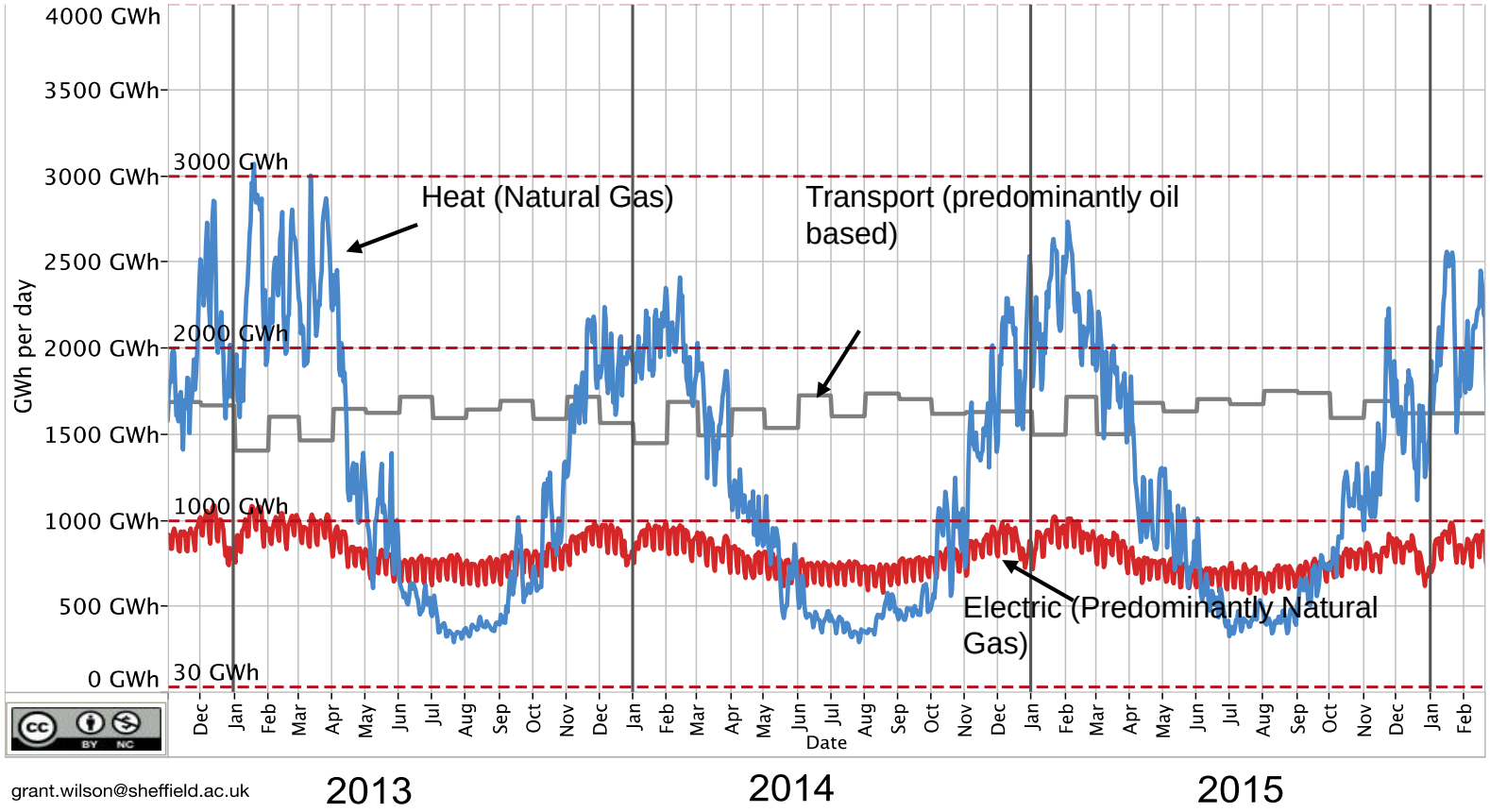
The Context: Current UK Energy Requirements



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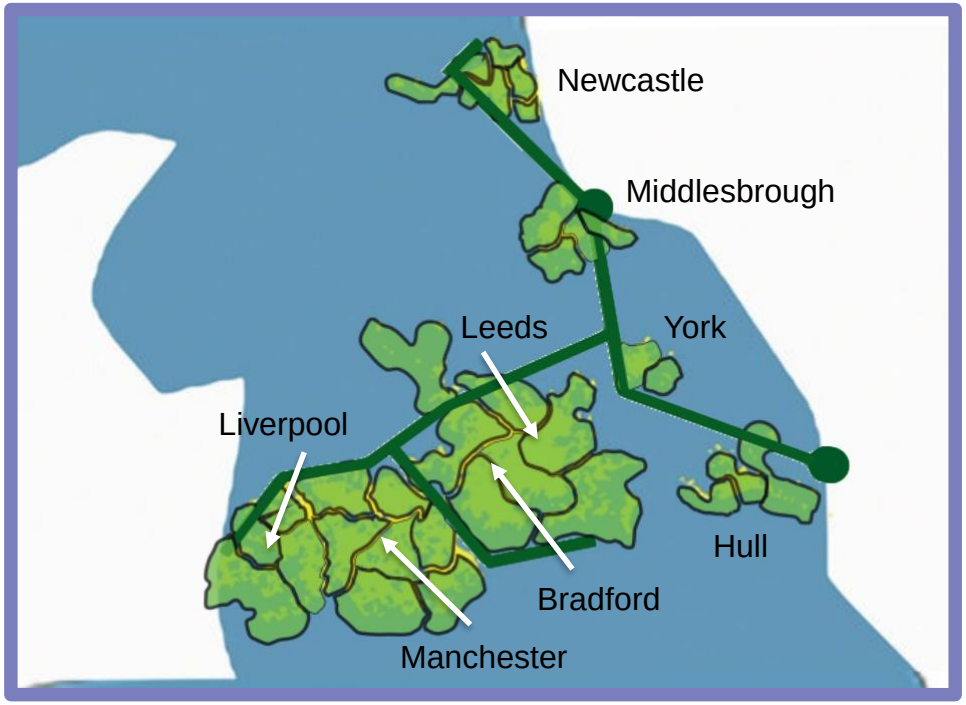
The challenge is to decarbonise all of the above!

H21 North of England Hydrogen Supply Concept

based on proven and referenced technology



Key Features

- Conversion between 2028 and 2035,12.5% of UK population covered by one project. Leeds, Bradford, Wakefield, Huddersfield, Manchester, Liverpool, Hull, York, Middlesbrough, Newcastle.
- Design capacity of 85 TWh, Decarbonising heat using existing infrastructure.
- Production in UK based on reforming of natural gas and CCS (17-18 million CO2 per year avoided)
- Equivalent security of supply during peak winter (the beast from the east).
- Offshore CO2 storage in either UK or Norway
- Supporting decarbonization of transport with hydrogen fueling stations
- Supporting decarbonisation of electric decentralized and centralized generation.
- Facilitating unlimited system coupling between gas and electricity.

What is the real scale of the energy problem.

H21 North of England requires 85TWh annual energy in a cold year:

- 85TWh = 85,000,000,000,000 Watt hours (85 million million watt hours), this requires:
- 9.7GW average annual production = 9,700,000,000 Watts

H21 North of England is based on 12.15GW production capacity

- 12.15GW = 12,150,000,000 Watts (12 thousand million watts), based on proven technology utilising an established supply chain
- 12.15GW is 1215 times larger than 10MW (10,000,000 watts, (10 million watts)),
- 12.15GW is 81 times bigger than 150MW (150,000,000 watts, (150 million watts))

H21 North of England requires circa 8TWh of inter-seasonal storage

This is 8,000,000,000,000 Watt hours, this is equivalent to 62,015 Australian 'mega batteries'

8TWh = 62,015 'Mega batteries'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