Biomethane's role in supporting the delivery of Labour's 2030 Clean Power Mission

A simplified analysis, for discussion

James Earl, CEO, Future Energy Networks (FEN)

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Labour's 2030 Clean Power Mission

*"I am proud that Keir's 2030 mission is for the greatest investment in homegrown energy in British history. We'll **double onshore wind**. We'll **treble solar**. We'll **quadruple offshore wind**. We'll invest in nuclear and hydrogen and carbon capture and tidal power."*

The role of natural gas in power generation

'Great achievement': Blustery weather blows Britain's turbines to new wind power record

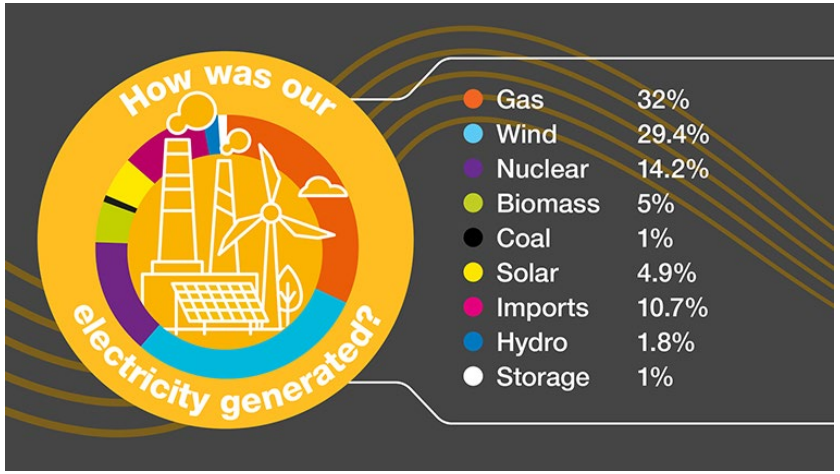
Source: Business Green

Wind overtakes fossil fuels for UK electricity generation

Source: Reuters

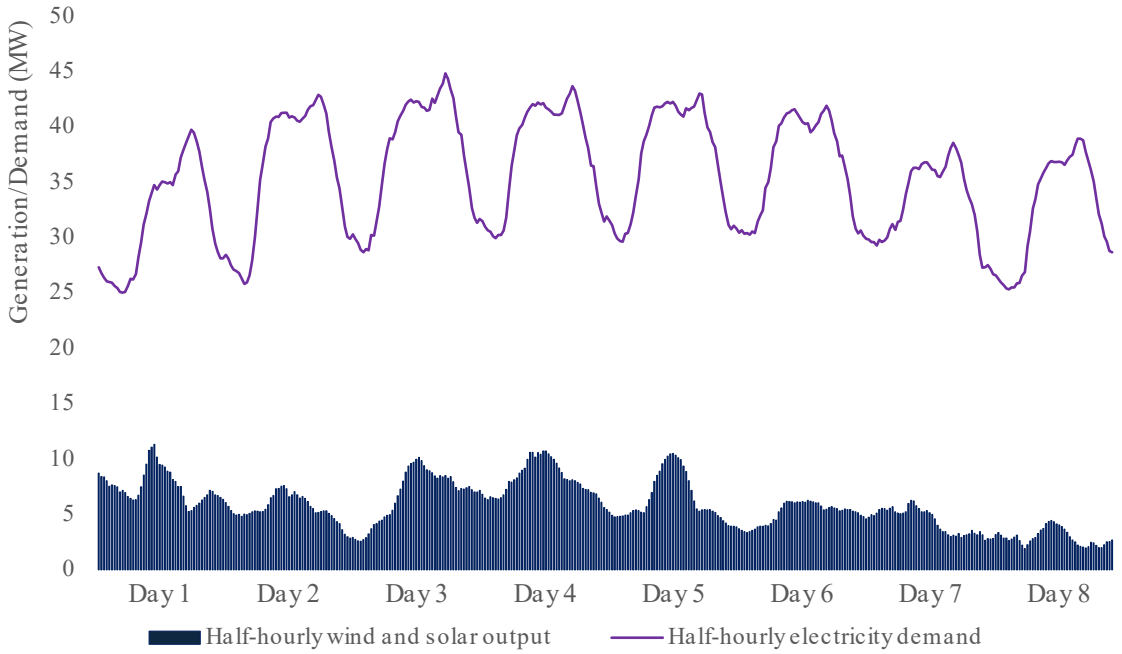
UK solar power output hits record high amid gas decline

Source: Energy Live News



Source: National Grid ESO

Difference between half-hourly electricity demand and half-hourly generation
Period: 26th February to 5th March 2023



Source: National Grid ESO

Can this natural gas be replaced by hydrogen and CCS?

Department for Energy Security & Net Zero

Notice

Hydrogen Production Business Model / Net Zero Hydrogen Fund: HAR1 successful projects (published December 2023)

Updated 14 December 2023

Applies to England, Scotland and Wales

Following the launch of the first hydrogen allocation round (HAR1) in July 2022, we have selected the successful projects to be offered contracts. We are pleased to announce 11 successful projects, totalling 125MW capacity.

Source: DESNZ

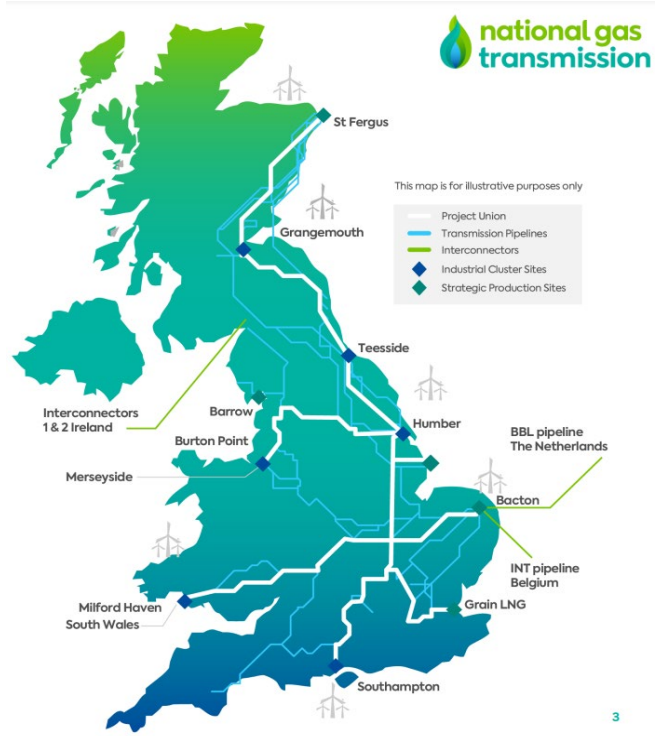
GOV.UK

Home > Environment > Energy infrastructure > Low carbon technologies

Notice

Hydrogen Allocation Round 2

The second Hydrogen Allocation Round (HAR2), which will allocate Hydrogen Production Business Model support, is now open to applications.



Source: National Gas

Source: SSE

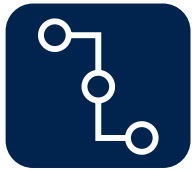
The proposed **Aldbrough Hydrogen Storage** facility could be in operation by the early 2030's, with an initial expected capacity up to 420 million cubic metres capacity across up to nine storage caverns.

What role can biomethane play in meeting the 2030 target?

Concept

7TWh injected annually (roughly the same amount of biogas for CHPs)

124 biomethane plants in GB, with 29 more in the connection process



10.1TWh currently connected capacity (4.4TWh more in connection process)

Proven technology, uses existing infrastructure and exists at scale

The questions we are seeking to answer are:

What proportion of gas required for power generation in Labour's 2030 system could be met by biomethane?

How much would biomethane production need to increase by from today's volumes in order to make a significant contribution to meeting the 2030 target?

Is the required increase reasonable and achievable?

What role can biomethane play in meeting the 2030 target?

Findings

TWh of gas needed in 2030

~ 50 TWh

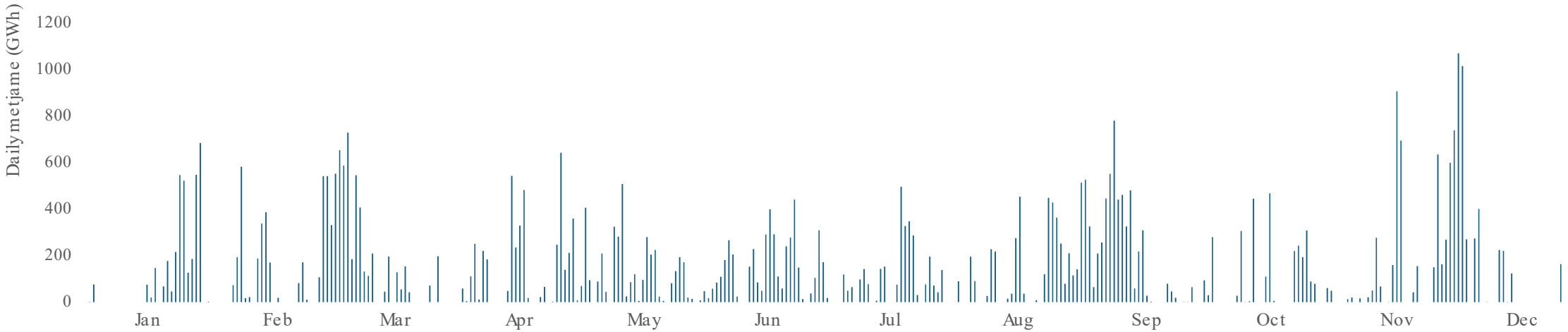
Proportion of half-hour periods where gas is needed to meet demand

~ 55%

Proportion of days in the year where gas is needed to meet demand

~2/3

Daily methane requirements of the imagined 2030 power system (GWh)



Conclusions

Questions the analysis sought to answer:

What proportion of gas required for power generation in Labour's 2030 system could be met by biomethane?

How much would biomethane production need to increase by from today's volumes in order to make a significant contribution to meeting the 2030 target?

Is the required increase reasonable and achievable?

Key Conclusions

- 50TWh is a long way from today's injected biomethane volumes of circa 7TWh annually.
- Biomethane cannot meet this production increase by 2030, BUT could make a material contribution.
- There is enough biomethane in the energy system currently to meet over ¼ of gas requirements in 2030 – could this increase to ½ ?

Caveat!

This analysis is deliberately simplified and based on a number of big assumptions.

Further, more in-depth analysis needed to fully rely on the numbers set out.

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future energy networks

Thank You