THE CHEAP ENERGY CAMPAIGN

WIND VARIABILITY IN THE UK

The primary reason we pay high electricity prices in the UK us that in effect we are paying twice, once for wind and solar and also for the backup from gas when the wind does not blow and the sun does not shine.

Although there is plenty of wind in winter there are long periods when it fails and gas power stations have to increase their output. At times the supply situation is critical. At 07.00 on 22 January 2025 **wind** only supplied **105 MW** out of a total **supply of 38,508** MW or **0.27 % [1]of grid demand.**

For more than one third of the year wind fails provide 20% of electricity demand. At other times the wind farms are paid to switch off. The National Grid Operator NESO has warned that this bill is poised to rise to £3bn per annum[2] or £107 per household.

The table below shows the number of hours in each year for the past 6 years that wind failed to provide 20% of grid demand.

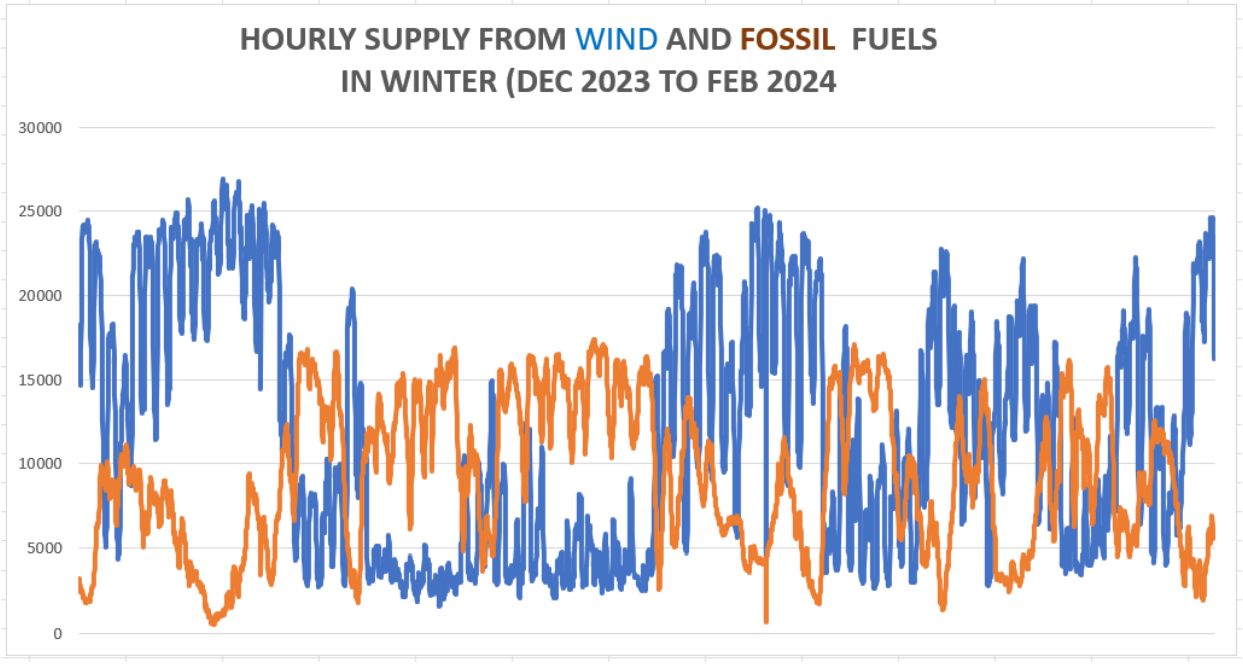
HOURS IN THE YEAR WHEN WIND FAILED TO PROVIDE 20% OF DEMAND

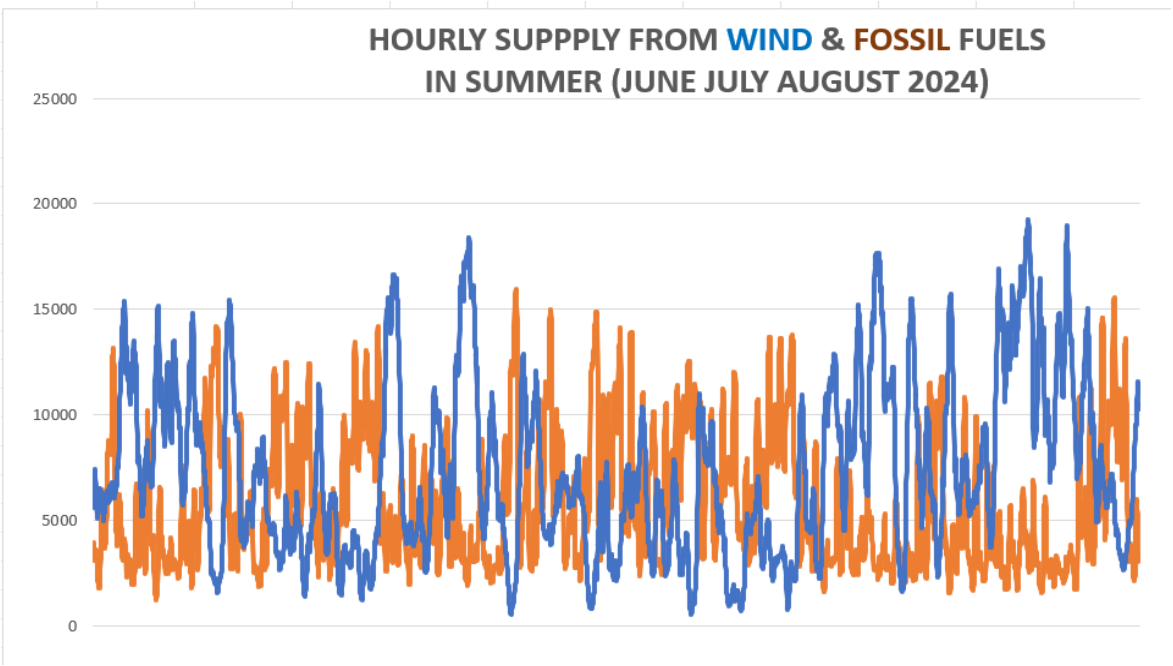
YEAR	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
HOURS	4,625	3,621	4,605	3,576	3,219	2,879
OCCASIONS WHEN WIND SCARCITY LASTED 72+ HOURS	14	10	18	10	9	6
MAXIMUM LENGTH OF WIND SCARCITY HOURS)	273	225	289	228	119	178

[1] https://bmrs.elexon.co.uk/generation-by-fuel-type

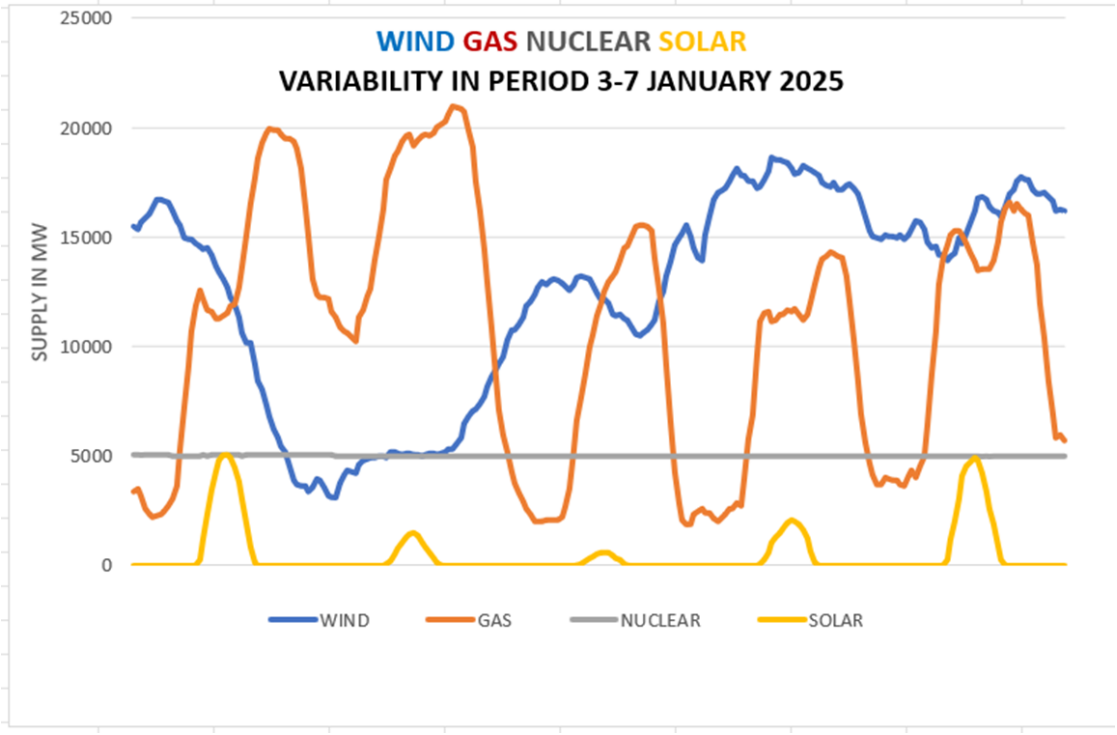
[2] https://www.telegraph.co.uk/business/2025/01/25/households-face-3bn-bill-switch-off-turbines-high-winds/

The two charts below show in graphic form the hourly variation in supply from wind and fossil fuels in winter and summer.





The need to supply back-up from gas when electricity from wind is in short supply becomes clearer when we look at shorter periods of time.



BATTERIES

Batteries cannot cost effectively with the frequency and length of wind scarcity. Using National Grid figures for expected wind supply in 2050 and the latest costs for grid scale batteries we can estimate the cost for battery back-up as follows

CAPITAL COST PER HOUSEHOLD TO COVER:

72 HOURS DEFICIENCY:	**£17,462**
289 HOURS DEFICIENCY:	**£70,000**