Notes on Local Power Provision

Coal

Reliable but potentially dirty, probably unsightly, and would imply fuel provision by trains or lorries with attendant costs and impacts on traffic.

And nobody wants to work down the mines any more.

Oh, and its politically demonised.

Oil

Reliable and cleaner than coal, could be supplied by pipelines so less impact on traffic. Could still be thought intrusive within an AONB.

North sea and elsewhere could be tapped, in time, to provide supplies.

Also suffers from political demonisation.

Gas

Clean and reliable. Quick to spool up to meet changing circumstances.

Could still be thought intrusive within an AONB.

North sea and elsewhere could be tapped, in time, to provide supplies.

Also suffers from political demonisation.

Nuclear

Clean (?) and reliable. Thought dangerous (but is it?).

Vast projects as favoured by government would certainly be too intrusive in an AONB, would take for ever, and be cost prohibitive (and hopefully not local!).

Small modular reactors would be the way to go. Too small to be seriously intrusive, RR have been building them for the Navy for years.

Reliable base-load supply but maybe not quite as flexible as gas.

If CO_2 is thought to be the problem, then nuclear is a contender.

Renewables

Unpredictable intermittency that requires power backup from elsewhere at the drop of a hat.

Intensive and unsightly land usage. Clean (but hugely polluting on decommissioning) and too intrusive in an AONB.

Hugely disadvantageous for power provision purposes compared to other alternatives.

Poor productive lifetime and high pollution from unrecyclable turbine and solar panel materials.

Requires a vast national but preferably an international / global grid capable of shifting power from generating to non-generating locations depending on where the wind is blowing or the sun is shining, and requiring the total installed generating capacity to be an as yet unspecified multiple of actual active generating capacity.

Reduced Power Demand

Difficult - modern technology requires more power rather than less.

Crypto mining and AI all on their own will almost certainly negate any feasible savings. Electric vehicles, and moving from gas to electric cooking & heating, will account for any savings left over.

Unless you don't mind power outages just as you need to cook dinner / bathe kids / etc.

Short of moving England south into warmer African climes, we are where we are!

The Grid

The grid was never built to manage intermittency on the scale required to make a success of redistributing inherently intermittent power. It will need to be redesigned and rebuilt from the ground up.

Like all engineering projects, the limits within which it must work must be defined before planning can commence, let alone construction. I am not aware that any work has been done to quantify the limits of the intermittency of supply that the national/international grid must be designed to work within. Yes, inter-connectors by default make the grid international.

Until this is done, net zero is doomed on engineering grounds alone.

"*… it'd take many decades to build the electricity grid we'd need under net zero. And that grid wasn't and isn't being built, even today. That's a difficult fact to ignore*"

(https://fortuneandfreedom.com/the-city/how-far-will-the-overton-window-go-on-net-zero-and-renewables/)

"*We now have eye-watering queues for energy projects to connect to a grid that doesn't yet exist*"

"*Nor did we see the ramp up in mining operations needed for net zero. It would require a mind-boggling amount of copper and other metals*"

"*We've shut down vast amounts of fossil fuel energy in the presumption that a renewable energy system would replace it. But we didn't build one*"

Jim Makin   8th May 2024
www.freecitizen.uk