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25<sup>th</sup> October 2019

NDF Team  
Planning Policy Branch  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

**Objection to Draft National Development Framework 2020 – 2040**  
**Energy Plans**

I am a retired, professionally qualified (Chartered) engineer / manager power plant man. I have 44 years' experience of operating and managing power plants on (and off) the Grid System. As such, I wish to avail you of my strong objection to the potential wanton destruction of our countryside by the proposed inappropriate generation plan. I include constructive criticism and what I consider to be "the way ahead".

The following basics are included for your information, as the various government officials and planners seem to be completely oblivious of these facts.

The integrated HV Grid System (now Supergrid 400kV) connects directly or indirectly to all generators (The System – Infinite Busbar Theory).

System frequency is set by statute at 50 c/s.

Electricity must be supplied instantaneously to meet demand. If it is not, then the system frequency falls / increases accordingly.

Plant output (via National Control – Regional Centres and Power Stations) must be increased / decreased to maintain 50c/s.

With steam plant on the system, "inertia" is provided to the system – plant will automatically tend to increase load in response to frequency drop, or reduce load in the event of frequency increase, until the desired corrective action can be undertaken by Grid Control. This response to small frequency movements means steam plant gives CONTROL.

Frequency is the whole driving factor on the System, holding this at 50c/s is indicative of balanced power i.e. generation = demand.

Until the National Grid has built in sufficient electrical storage capacity, then these basic principles of control will apply

### Alternative Forms of Generation

- First priority should be to encourage power storage plants in Powys. A couple of these new and rapidly expanding technology GW scale plants would alleviate totally the need to besmirch the countryside with unwanted, unnecessary, unsightly and unreliable windfarms. Because these power storage plants site and feed directly onto the Grid System there are no additional unsightly power lines required all over Powys – a key fact that the Government's plan conveniently ignores with its thrust for windpower and solar systems. (See appended article from The Daily Telegraph).
- Secondly, pursue the Wylfa Nuclear plant again with vigour. This must then remain on base load as, due to reactor physics considerations, it is non-flexible generation. The plant should be operated at maximum capacity to reduce lifetime operating costs / high financial costs. However, nuclear generation remains the only viable option for the provision of bulk power generation for the medium and long term future of the nation.
- Thirdly, Hydro / Pumped Storage – new plant sites should be sought (although costly), or existing plants should be investigated for Plant Life Extension, or increased dam volumes to give more output, or longer run time capacity. This is extremely useful for short term use only and in the past few years have been a boon to National Grid Control, having (with the demise of fossil fuel plants) virtually controlled the Nation's frequency on their own.
- CHP (Combined Heat & Power) Plants. Good principles of heat and power and useful where large populations exist. The larger the steam plant generation side, the better the utilisation for Grid Control purposes. If CHP could be coupled with incineration, then this would be highly recommended as it has a twofold benefit – steam plant for Grid Control whilst assisting the Welsh Assembly Government's problem re removal of local rubbish. N.B. Extremely tight environmental controls on emissions are achievable, e.g. clinical waste burning.
- Solar Energy Schemes – complete waste of our natural landscape. Also necessitates swathes of pylons over yet more countryside, valleys and villages.
- Off Shore Windpower – Allegedly cost effective, remains an eyesore to the Nation. If we have to have it, place it far out at sea. (Technical control limitations as per On Shore windfarms.)

### On Shore Windpower

With all its despoiling of landscape, high cost, intrusion, non-green elements, unreliability and lack of control, should not be considered.

Wind power can only produce electricity when the wind blows. It is useless on cold, calm, winter days which occur frequently. When the wind does blow, they can only generate to their rated output and cannot carry any overload, or they will “trip out” to protect themselves. They are therefore not available in an emergency to maintain the Grid inertia.

This form of generation requires copious HV networks and hub systems over the landscape, hills, valleys and villages.

In addition:

- Wind generation is not green - for every MW of wind power the equivalent reliable (conventional) generation (nuclear, fossil, biomass, etc) must be provided as backup.
- The best utilisation of any wind turbine is just over 20% in the Hebrides, so to get 1 MW of generation, 5MW must be provided, and if the wind doesn't blow you will get nothing !

- Insufficient information on soil composition / water course and drinking water effects due to removal / replacement by concrete structures, that latter, of course, being left permanently in the ground.
- Insufficient information on how any developer is intending to dispose of not only the metal turbines, but more particularly the copious amount of carbon fibre composite blades which cannot be recycled or easily re-used. Landfill and incineration are only via stringent EU Directives.
- Ecology - insufficient thought to effects on local habitats of birds, bats, mammals and other wildlife.
- Impact on local culture / history - long distance trails, footpaths and public access would be devastated.
- On Health & Safety grounds, it is apparent that because these sites are remote, in the event of a turbine fire, no Fire & Rescue team could get anywhere near and forestry devastation with consequential damage to properties / threat to livelihood would be compounded. Turbine fires also produce noxious, carcinogenic fumes putting Fire & Rescue personnel at risk.
- Additionally, at the end of the wind turbine's life, the blades would have to be landfilled as entire units, since the carcinogenic nature of the material does not allow for recycling, combustion or cutting.

### Conclusion

- Welsh Assembly Government should immediately pursue Power Storage facilities, Nuclear, Hydro Pumped Storage plants (including plant life extension and increased water storage capacity) and large CHP plants (with/without incineration). These would eliminate completely the need to pursue the vastly inferior power installations proposed by the Welsh Assembly Government.
- Government must liaise with National Grid Control regarding System Control operations e.g. "what do they need to control the System now?" and, critically, "what will they need in five years' time, when we lose about five nuclear stations off the Grid?". Will they be able to control the System with little (or no) fossil fuel derived power?! At present, they cannot. (See supporting letters from like minded, knowledgeable individuals from the local press.)

I would make the following final general comments:

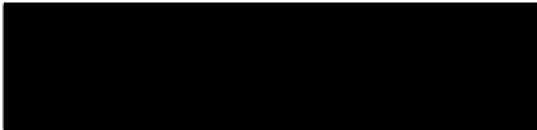
- The Mid Wales landscapes should be protected and the landscape change that is deemed acceptable in the National Development Framework is actually totally unacceptable
- Our rural economy supports thousands of businesses and jobs that are dependent upon the scenic Mid Wales landscapes
- Wind Energy applications in England are determined by local councils and such applications must have the backing of local communities to be approved. Determination of such applications in Wales by Welsh Government Ministers and not local authorities is unacceptable.
- The NDF document gives insufficient information about how energy produced by the proposed large scale wind and solar installations would be connected to the National Grid.
- The road and highway network in North Powys is not able to facilitate large scale wind development and associated infrastructure.

I support CUP and CPRW in their efforts to try to protect us from these threats, but this personal response will be one of many objections you will no doubt receive.

I should appreciate an acknowledgement of this objection and I reserve the right to make further comments at a later date.



Mike Catley



# Energy cost to fall as UK start-up unveils biggest power store site

22 Oct, 19 Telegraph Bus. News.

By Ambrose Evans-Pritchard

A BRITISH start-up is to launch Europe's biggest energy storage plant, cutting costs to once unthinkable levels in a watershed moment in the quest for cheap renewable electricity around the clock.

Highview Power has secured the go-ahead for a 50-megawatt (MW) liquid air plant in the North of England capable of offering fast back-up power for the grid when needed for far longer periods than a lithium battery.

It is the first of five of Highview plants to be built around the country on a commercial scale that can step in with zero-carbon power in long hulls in output from North Sea wind farms. It can also absorb surges of excess energy that would otherwise be wasted, or curtailed, at times of low demand.

Javier Cavada, chief executive, said the company's steel storage towers can be scaled up exponentially to deliver power for much longer periods than normal battery systems, and at diminishing extra cost. "Days or even weeks

are a piece of cake for us," he said, speaking on the margins of the Bloomberg New Energy Finance (BNEF) summit in London.

Mr Cavada said his technology is analogous to hydro-power storage in mountain rivers and lakes but can be done anywhere - in this case on the site of an old thermal power station - and with a much smaller footprint. "We're like a hydro plant in a box," he said.

The "cryogenic" technology relies on a beautifully simple idea explored in academic papers as far back as the Seventies. What has made it relevant is the renewable revolution of the last decade, which is fast transforming wind and solar from niche plays to a dominant source of power. This has made the need for dispatchable back-up power an urgent global issue.

The Highview system works by cooling air to -196C, relying on the standard process used in the chemical industry. As the air turns into liquid, the volume is compressed 700-fold and stored in insulated tanks at low pressure with a very low loss rate. When the liquid is

warmed again it re-expands with a blast of force and drives a turbine.

The model is proven and producing power for the grid at a small pioneer plant near Manchester. The company is now moving into the next phase of global expansion extremely fast.

The technology could help plug the intermittency gap as the UK doubles down on its new role as world leader in offshore wind power, with a target of 30 gigawatts (GW) by 2030 and 75GW by the middle of the century.

Kwasi Kwarteng, the energy minister, told the BNEF forum the Government is determined to press ahead with its "net-zero" emissions target by 2050, regardless of what happens over Brexit.

Mr Kwarteng said the record-low strike price of £39.65 per MWh in the latest offshore auctions for the Dogger Bank - below the wholesale market cost - shows the North Sea expansion is a roaring success and added it was time to stop pitting green energy and economic growth against each other.

Highview is building four much larger "gigawatt-scale" plants in Texas.

## So 'renewables' get subsidised, and fossil fuel get subsidised...

NEW Fossil fuel subsidies: So-called 'renewable energy' receives huge subsidies; they are the *raison d'être* for the companies installing it.

It has now come to light that the governments of the UK, Germany, Greece, Poland and Slovenia all plan to increase subsidies to fossil fuel power plants as well, over the next 10 years.

So 'renewables' get subsidised, and fossil fuel get subsidised. Guess who the money comes from, and where it goes?

The Welsh Government plans vast increases in land-based windfarms and gigantic solar panel arrays. Is there a connection?

You bet your life there is.

Every additional windmill, and every additional solar panel renders the national grid more fragile, and less controllable. This means that as a nation, and as individual consumers, we are forcibly made more, not less, reliant on the few remaining fossil fuel plants there are, be they gas or coal.

We need them increasingly, not reducingly, because the extra so-called "renewables" (which aren't of course) do nothing whatever to reduce the severe effects of their own intermittency, and pathetically low capacity factors. Indeed those effects are heightened – the situation is being made progressively worse.

The planned extra subsidies which raise our electricity prices ever further, are needed because we simply cannot afford to let the few remaining plants go out of business: if we do, long-period black outs will be inevitable.

Wind and solar farms don't hack it.

On a calm dark night – the kind you get in winter – without the fossil plants you are back in the middle ages, wrapped in a shawl.

The latest guff from Cardiff, from consultancy firm ARUP addresses (and ignores) severe environmental damage, planning requirements, suitable geographical plateaus etc. but completely ignores the stupidity of

the whole venture, and the wishes of huge numbers of voters.

The planned burgeoning of wind and solar are based on entirely false premises.

But if you attempt to discuss this with the government representatives currently touring the country what you will find is that it is outside of their remit.

Surprise, surprise.

**BOB TRUEMAN**  
Llanfair Caereinion

OCT. 25th '19

[www.countytimes.co](http://www.countytimes.co)

**CHARLES LAW**  
Hay on Wye

## We need a secure power system

AT 6.40pm on September 16 the demand on the National Grid was 36.58GW of which wind contributed only 4.52 GW (high pressure system over the UK and little wind) with solar, not surprisingly contributing zero energy.

Therefore perhaps our 'Green Friends' can kindly explain to readers where our power will be coming from when their beloved wind and solar farms dominate the countryside?

Hopefully some good will arise from the 'Black Friday', August 8, 2019, electricity outage and concentrate minds to the dire state of the National Grid System. The complete idiosyncrasy of our current Grid System can be traced back to Ed Miliband and his EU driven Climate Change Act in 2008 – committing Britain to cutting carbon dioxide (CO2) emissions by 80 per cent within 35 years.

Unfortunately for us all successive Governments have pursued this ridiculous target and recent estimates made by the EU and the International Agency suggest the cost could reach an eye watering £1.3 trillion.

The UK blackouts on Friday, August 8, should be a timely warning of what is awaiting us if we do not take the necessary action – a 21st Century National Grid System should be of such design and structure to offer a high degree of security – it should have sophisticated, secure fail-safe computer control and monitoring, plus a sufficient margin of backup generation to cover all circumstances as perceived by wise and knowledgeable power engineers, and not that conceived and driven by less informed people and our not-fit-for-purpose politicians.

**DAVE HASKELL**  
Brithdir  
Cardigan

27th Sept. '19  
County Times

# LETTERS TO PRESS

OCT. 25<sup>th</sup> '19  
COUNTY TIMES

## 'Widespread acceptance' or total uproar? - Welsh Government plans for wind farms

'WIDESPREAD acceptance' or total uproar? - Welsh Government plans for wind farms:

In 2014 the people of Powys won a popular victory through a Public Inquiry against yet more wind farms, plus pylons to link them to the grid, in hills worthy of AONB (Area of Outstanding Natural Beauty) status.

Now the Welsh Government intends to smother huge areas of upland Powys with these inefficient intrusions and assumes 'widespread acceptance' only five years after a resounding 'No!'

The more we care about global warming, the more we need genuinely efficient sources of renewable energy! Wind farm promoters use persuasive propaganda to achieve their aims, yet light winds are normal inland and turbines need constant 40-50mph winds to fulfil promises.

At 10mph, wind power is 1.56 per cent that of a 40mph wind. Nobel Prize winner Jack Steinberger, who studies renewables, stated that wind energy is a mere cul-de-sac; a waste of resources. Who can fault the knowledge of a Nobel Laureate?

In a region worthy of AONB (Area of Outstanding Natural Beauty) status, one in four inhabitants earns a living through tourism.

Although some folk don't object to slim towers, the scale of modern developments dominates the hills on which they stand, industrialising their surroundings. They can't be erected without trashing the approaches, destroying vast numbers of mature trees and hedgerows.

This is vital wildlife habitat; since the 1960s the bird population of Britain has dropped by 40 million! When disturbed, peat bogs where turbines are erected release long-stored CO<sub>2</sub>, and hard standing around headwaters of rivers ensures flooding downstream.

There are no plans to link these turbines to the grid - yet - ensuring ongoing destruction.

The Welsh government's plans include solar developments, but why not explore tidal power? It doesn't have to consist of estuary barrages. If onshore wind farms are worthwhile, then why has England stopped building them?

If we must have them, why not site them offshore, attracting far more wind and far less opposition!

We have until November 15 to respond to these plans. They are online at <https://protect-eu.mimecast.com/s/WR7FCGvkkFYlopMHK-yKN>, (email [ndf@gov.wales](mailto:ndf@gov.wales)) with more information at <https://protect-eu.mimecast.com/s/sXkHCJynnSrZPmYFGIzg9>

Otherwise the Welsh Government will assume 'widespread acceptance' and global warming will scarcely improve.

ROSEMARY RACHAEL HART  
Montgomery

## Have your say on the National Development Framework

THE National Development Framework: Please write to the Welsh Assembly before November 1. You do not need to fill in the form. Just email at [ndf@gov.wales](mailto:ndf@gov.wales) and tell them not to take away our voice. Not to take away our local democracy.

If they succeed here in Mid Wales we will live among the turbines. And we will have no say, no chance to object however many they build.

Our lovely countryside, our tourist industry, our well being and that of our wild animals and birds will be destroyed.

The National Development Framework, I advise reading the Young People's Summery, wishes to take away our right to object if there are three or more turbines in a development, 10 MW. All applications of this size or over will be decided by the Minister in Cardiff.

The Welsh Government will have usurped our right to speak. Our democratic right to object. Please write to them and tell them to keep their hands off what is rightfully

ours. Object now before it is too late to object anymore.

CAROLINE MARTIN  
New Radnor