From: [redacted]
To: Gate Burton Solar Project
Subject: Alasdair Broadbent, Unique reference: GABE-IP103
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Good evening, I would like to raise my concerns with the application made for the Gate Burton Solar project.

For any project to be viable the benefits have to clearly outweigh the costs. To make that conclusion one must be in possession of all the key facts. But for this scheme that is very difficult because all of the benefits presented are theoretical and changeable to be decided at a later date, whereas the cost are all too real.

It's very difficult to have any faith in the developers plans when even the key benefit, the energy generation of the scheme, is a wildly inflated estimate being based on the technical capability of the panels, not their realistic expected output. That system is fine for conventional power stations that can run at their capability, but when used by solar is misleading.

Within their documentation figures are given without the calculations and assumptions made being presented. This means it is impossible to verify what they have stated.

According to a report from the department of Business, Energy and Industrial Strategy the load factor current being achieved by solar facilities in the UK, is only 10.2% [Department for Business, Energy and Industrial Strategy,2021]. Therefore, the actual capability of this 480MW plant is more likely to be an average of 49MW. But this is by no means a guaranteed value as the applicant has so many caveats such as not specifying the panels type (fixed or tracking) or even the panel technology they will use.

To make matters worse that generation is an average with the load factor being heavily weighted to summer months where it gets up to 15%, this reduces to less than 6% in winter months when the capacity is actually needed.

Compounding things even further is the fact that the power generated is all during the day when demand is low; and there is no energy produced when it is actually needed. This is a limitation understood by the developer. With battery storage of unspecified capacities being hailed as a solution to bridge the gap. Unfortunately, storing meaningful capacity in batteries isn't really feasible and certainly not achievable on a national scale. The way other stations improve this issue it to have pumped hydroelectric energy storage, which would be better idea than batteries other than that it would require hilly land something Lincolnshire isn't known for so potentially there are better locations for this sort of facility.

Without the developer being able to guarantee a minimum generation, I don't see how a fair decision can be made on this application.

Another area I would like to highlight is there is much conflicting information provided to

the public and there are several schemes in this areas, making understanding and keeping track of them though the application process impossible for most people. A sceptical person would wonder if that was an intentional ploy. This issue is highlighted by the difference in generation figures given by what should be very similar projects.

One of the main arguments for this and similar projects is, grid security. Which considering the likely generation, it won't have any significant effect on. But it most definitely will be at the expense of food security. In 2020, the UK imported 46% of the food it consumed [Department for Environment Food & Rural Affairs, 2021], so removing farmland from production will mean we are more dependent on imports. In a situation a where international relations deteriorate or there are shortages, I know I would much rather have to limit my energy usage than ration food.

The food that would have been grown on the land will still be required, which would need importing. Assuming wheat was grown on the same amount of land and using 8t/ha as the average wheat yield [Lincolnshire Pride, 2023], importing that wheat would produce carbon release from the burning of fossil fuels, assuming it was imported from Cannada and transported by a bulk carrier emitted 3.54 grams of CO_2e per metric ton of goods shipped per kilometre [Tiseo, 2023]. The distance between United Kingdom and Canada by cargo ship is 2,502 Nautical Miles (4,634 Kilometres / 2,880 Miles). This distance is measured by sea between Liverpool and Halifax. [Fluent Cargo, 2023]

Therefore, the carbon impact would be:

=8 x1050=84,000t x 3.4x 4634=135t of carbon per year.

There are many other less easily measured consequences. For example, a secondary product from grain production is straw, which has many uses such as bedding for livestock. So, with the tens of thousands of acres planned for solar, it could result in shortages or additional imports.

Conclusion

I have a background as an engineer on a power station and have found the figures given in the numerous reports conflicting and impossible to verify. The generation capacity of the scheme is often used rather than the predicted output (considering load factor) which is inappropriate and wildly inflates the perceived benefits of the scheme. As this is a scheme of national significance it is my opinion the figures must be verified by a specialist independent third party working on behalf of the inspectorate.

Solar panels are a good technology when installed in the right circumstances. In the USA there are areas that achieve a load factor of 29% [U.S. Energy Information Administration. (2019)] on land akin to desert which maybe a fair exchange. But unlike that situation we are talking about using valuable farmland to get a third of the benefit which I think is ludicrous.

We should only be considering technologies that that the minimum possible impact and that work alongside our way of life. An example of this is wind turbines which although divisive, they take a fraction of the footprint of solar and allow the land round them to still

be farmed.

Humans have been damaging our planet for centuries a fact we are now aware of, therefore it is our duty make sure we don't inadvertently cause more damage while trying to reduce our impact. The wrong action is worse than doing nothing. Which is what I believe this is… the wrong action.

Kind Regards
Alasdair Broadbent
Unique reference:GABE-IP103