

# Object to Proposal

**Application number:** 14/3732/FUL

**Date and time:** 05-11-2014 12:11

**Comment type:** Object to Proposal

## **Comment:**

Dear Mr Tanner,

Where this letter discusses issues that are not usually regarded as planning matters it is only because the applicants themselves have raised these issues.

Unless otherwise stated all the figures quoted are from DECCs chief scientific adviser or from the application itself.

Power output equivalent to the carbon footprint of thirty people

Much is made by the applicants of "power for 600 homes". This sounds impressive but If you could supply every home in the country with renewable electricity you would reduce emissions by only 4%.

The applicants claim the total annual energy production will be from 1.5 to 1.9 million kilowatt hours. The mid point of this range is the same as a 200 kW generator running continuously for a year.

For comparison a commuter train pulling out of Teddington station draws 300kw.(fig from SW trains).

Using figures from DECCs chief scientific adviser, 200kW would meet the carbon footprint of only 30 (thirty) people. Calculation at the foot of this letter.

Many people seem surprised when they hear the power output explained in this way. Perhaps this shows how misleading describing power in terms of homes can be.

Does this matter? The amount is highly relevant to the question of whether the environmental gain is worth the environmental loss.

In any case you can hardly make a big song and dance about how much power will be produced and then when it is shown to be small, suggest it does not matter.

## **Cost of the electricity**

Electricity from Offshore wind is about twice the cost of onshore wind but this hydro scheme will be many times more expensive than even offshore wind.

A simple comparison with offshore wind at Kentish Flats.

Kentish Flats cost £105 million, output 26 megawatts (operating at 29% of design)

Cost per kW £4,038

Ham Hydro cost £4million, output 200kw

Cost per kW £20,000.

Figures from DECCs chief scientific adviser and the application.

Clearly this scheme will need a significant subsidy from the taxpayer by means of the feed in tariff and/or green levy. This subsidy will continue for many years.

Subsidising renewable energy can make sense where it is to stimulate its introduction by promoting advances in technology and/or driving down costs by mass production of components.

However the technology of this hydro scheme (screws/gearbox/generator) is capable of only minor incremental improvements or fine tuning. There is no possibility of a major technological advance that would transform either the performance or the economics. Nor is there any possibility of mass production of parts because of the limited number of weirs. This cannot therefore be regarded as a demonstration unit or stepping stone to something better. Any talk of driving down costs is wishful thinking.

## **Overtaken by developments in other technology**

In the five years or so since this scheme was first suggested there have been major advances in other renewable technologies, examples being photovoltaics and heat pumps which are now a much better investment for the taxpayer's limited resources. People at the Duke Street meeting will remember the minister, Greg Barker, talking of "turning skyscrapers into power stations". He was referring of course to thin film coatings of materials such as cadmium telluride.

Heat pumps with a performance coefficient of over 6 already exist. This means for every unit of electricity supplied they produce over 6 units of heat.

Using heat pumps to draw heat from the river the development at Kingston Heights will produce 10 times the energy of this hydro scheme.

DECCs chief scientific adviser does not think much of small head river schemes, see quotation below, and it is clear to any reader of his book "Sustainable energy without the hot air" that he much prefers heat pumps and other technologies to "run of the river" schemes as he calls them.

We will look back in 10 to 15 years time when this hydro scheme is still being subsidised and ask "why on earth did we spend our precious resources on this?"

## **Effect of climate change**

The more important and urgent you believe climate change to be, the more important it is to deploy our resources where they will be most effective. If this scheme has the effect of diverting resources that would be better invested elsewhere then it is reasonable to ask "is it really so green after all?"

Some may say we should do both. But as the Prime Minister has said there is no magic money tree. UK plc must deploy its resources where they will have the best effect. The scattergun approach is no good

Some claim that this scheme is in accord with government policy. This is not correct. If you ask the minister as I have done he will say that he cannot comment on specific projects. With regard to the generality of weir based hydro schemes here is what DECCs chief scientific adviser thinks of them

"we thus arrive at a firm conclusion about lowland water power. People may enjoy making run of the river and other small scale hydroelectric schemes but such lowland facilities can never deliver more than 1 kWhr per day per person."

The significance of this figure is that it is about a half of one per cent of what a person needs.

## **Noise**

Mr Robert Angus has told the applicants by letter of 15th November 2013 that this issue can be dealt with by means of a condition. Strangely at the time it was unclear whether the canopy intended for sound mitigation was still an essential part of the design. Indeed the executive summary of the Brett noise report still proposes a canopy for noise suppression though the latest drawings show it absent.

The noise study based on readings taken at Romney does not look convincing. There are too many differences between the Romney screws and those intended for Teddington. It is not safe to assume that screws identical in size from different manufacturers will have the same noise characteristics. Landustrie who made the Romney screws and the operator there claim to have know how in noise suppression not available to others.

The actual measurement work described in the report by Peter Brett looks unprofessional. They started in the dead of night to avoid background noise but had to open a gate in the weir close to where readings needed to be taken and thereafter had to improvise. No explanation is given of why they did not go back and do it properly. Subjecting readings obtained in this way to a mathematical manipulation to predict noise from 3 screws is hardly credible.

## **Flood risk**

Assessments of flood risk done several years ago are now clearly out of date.

It is now generally accepted that flood flows at Teddington will be increased not only by climate change but also by the Datchet flood relief scheme known as the river Thames scheme. A double whammy for Teddington but the EA have said that they have not yet done the study of how these increased flows will interact with the tidal Thames. Letter from David Murphy dated 21st July 2014 to all our Councillors and MP and to yourself.

To refresh your memory he says

"The river Thames scheme includes a project that will be using the latest science, river modelling, and data to look further at the interaction between high river flows and the tidal Thames before we design any part of the river Thames scheme."

Until we know what changes are necessary to the weir to accommodate the predicted increased flood flows it would be irresponsible to build a structure that will form an obstruction.

## Safety

Many people including the lifeboat men have pointed out the danger of a river user being trapped on the trash screen by the draw of the screws. Applicants comments on this subject are inadequate. They refer to booms being the responsibility of the E.A. Their attitude seems to be: we will build it in an unsafe state and leave it to the Environment Agency to sort out the problem. The scheme very probably needs a robust boom (more robust than the flimsy pieces of wood currently in place) located some distance upstream of the screws. The council are being asked to approve plans which are therefore incomplete and unsafe.

What is required is a complete description with drawings showing all the features necessary to build a safe installation. If a boom is necessary then the structure and location of the boom should be shown. The Council will then be able to consider what the effect the boom will have on third parties such as boat owners and whether for example their moorings would be obstructed.

Applicants have spoken at public meetings of designing the trash screen so that a person caught on it can climb out. They seem to regard this as a detail to be sorted out after planning permission is granted.

This highlights that our council are being asked to approve a design that is incomplete and unsafe in two respects.

## Environmental pros and cons

On the plus side is renewable electricity, though the amount is small and the supply intermittent with two dead periods every day. Applicants say their electricity will be fed into the grid. This will involve a transmission loss.

On the negative side is an increased flood risk, noise the volume of which is uncertain to say the least and a massive structure on the weir extending upstream along the Middlesex bank.

The size of the structure and the changes to the weir are out of all proportion to the small amount of electricity produced. Taken with the additional flood risk and uncertainty about noise it is remarkable that this scheme has got as far as it has.

## Summary

It can be seen from the above that the hydro scheme fails on every count.

It will produce an amount of electricity equivalent to the carbon footprint of only 30 people and this electricity will be very expensive, about 5 to 10 times the cost of onshore wind.

The technology is going nowhere and there is no scope for mass production of parts to reduce costs.

So far as it competes for subsidy with other better green investments it is debatable whether it is even green at all.

Though presented as a community project it is sadly turning out to be very divisive.

There is uncertainty about noise and the EA have not done the necessary studies regarding flood risk. As it stands the scheme is also unsafe and it would be reckless to build it in its present form.

Yours sincerely,

*Calculation of power output expressed as carbon footprint.*

*Applicants claim an output of from 1.5 to 1.9 million kW hrs per year.*

*Taking the midpoint of this range and dividing by 365 to obtain output per day we get 4657 kW hrs per day.*

*DECCs chief scientific adviser says the average person in the UK needs from 125 to 195 kW hrs per day. Taking the midpoint of this range and dividing it into the figure for power output per day we get 29 (twenty nine).*