**Planning application reference: 13/04055/FUL**

**Construction of 9.6mW solar PV park with transformer housing, security fencing & cameras, landscaping & other associated works. Land east of Manor Farm, Wadswick, Box, SN13 8JB**

1. **Costs and benefits**

1.1 The amount of EU subsidies (that I have found) received by Bartons of Manor Farm, Wadswick between 2000 and 2009 totals 840,233.82 euros (ref. [www.farmsubsidy.org](http://www.farmsubsidy.org)). At the current exchange rate (just for illustrative purposes) that’s £714,198.75. Not bad - £71,000 per annum from the taxpayer.

1.2 But we don’t want to stop there – we want to give Wadswick Energy Ltd green subsidies for their proposed solar park. Just this week, the nation has been up in arms about the proposed rise, by about 10%, in domestic energy prices. One reason given by the Government and the energy companies for the hike in prices is green subsidies. So having paid (and still paying) subsidies to Wadswick/Manor Farm through our taxes, we will pay Wadswick Energy through our domestic energy bills if this park is given the green light!

1.3 Two dozen documents are provided in support of the application amounting to scores of pages but there is one (at least) significant omission from this accumulation of testimonies – a cost-benefit analysis (CBA). The local communities and others are asked to comment on a £10million (estimated – see below) project which they, as energy consumers and bill payers, will fund, without being given a single word or number about the capital cost, the estimated energy to be generated over one year or over the life of the project or the estimated subsidy to be received (by Wadswick Energy and other principals) per mW/h over one year or the life of the project. All these calculations and projections must have been made so where are they? This project may be a major drain on the domestic and business energy consumer/bill payer. Without these figures, he or she cannot make a judgement.

1.4 In the absence of the above-mentioned CBA, I will do my own projections and assume that they are roughly correct. If they are wrong then perhaps Wadswick Energy will provide the correct figures. Here goes ... for clarity, I’ll put the calculations in italics and break into small paragraphs.

*Two numbers are given in the documents for the size of the ‘park’ – 9.6mW in the planning application and 7mW in the pre-application community consultation - let’s assume the figure given in the application.*

*No estimates are given for the average number of operating hours per day. There are about 16 hours of daylight in midsummer but only 8 hours in midwinter so I guess we can assume an average of 12.*

*No estimates are given for the (reduced) energy generated given that the solar panels will be fixed due south at an elevation of 20 or 25 degrees (again two different figures are given in the documents). To allow for this, let’s assume just 6 hours a day of useful (maximum) generation over the whole year (and this is probably on the high side given our climate).*

*No figures are given for the number of solar panels but the consultant, Pegasus, through the park’s constructor, Brilliant Harvest, has supplied a figure of 40,052. Panel size is also difficult, if not impossible, to glean from the documentation but it is 1,670mm x 1,000mm (also supplied by Brilliant Harvest). So the total panel square metres will be 40,052 (number of panels) x 1.67 (sq metres per panel) – that’s 66,887 sq metres.*

*The average amount of ‘raw power sunshine’ falling on a south-facing elevated panel in Britain is 110 W/m2 (ref.* <http://www.withouthotair.com/c6/page_38.shtml>). *Solar panels are between 10 and 20% efficient. If we calculate maximum power from our 66,887 sq metres of panels, that’s 66,887 x 110 (W/m2) – that’s just 7.35mW (if they were 100% efficient) but at 20% efficiency we arrive at a figure of only 1.47 mW for this park, not the 9.6mW quoted.*

*The figure arrived at in the last paragraph doesn’t seem right so let’s try to calculate it another way. From the Web we can find that the typical annual output of a 1.67 sq metre solar panel in southern England is 292kWh. Multiply that by our 40,052 panels and we arrive at 11.6mW, again not the 9.6mW quoted.*

*Clearly (or perhaps not!) something is amiss here so, for the following calculations, we’ll have to go with the 9.6mW given in the planning application. By phone, Brilliant Harvest has confirmed that 9.6mW is arrived at by the number of panels x the 240W rating for each panel. Simples.*

*The subsidy is, according to DECC, 1.4 Renewables Obligation Certificates (ROCs) for a 9.6 mW park and, at present, a ROC is worth £42.02 per mW/h so Wadswick will receive £42.02 x 1.4 per mW/h in subsidy for its electricity – that’s £58.82. Calculating the annual subsidy: that's 9.6 (mW/h) x 6 (hours) x £58.82 (per mW/h) per day - that's £3,388 per day or £1,236,799 per annum. This is the amount by which the domestic/commercial energy consumer will be funding this project. Apparently, Feed-in Tariffs with Contracts for Difference (CfD) will replace the Renewables Obligation Certificates but, I believe, established ROCs will continue.*

*There is, at present, a feed-in tariff for parks up to 5MW at 6.85p per kW/h.* ***If*** *Wadswick qualified, it would receive: 9.6 (mW/h) x 1,000 (mW to kW) x 6 (hours) x 6.85 (pence) per day feed-in tariff - that's £3,945 per day or £1,439,925 per annum. Surprising therefore that Wadswick hasn’t proposed to ‘do a Hinckley’ and split the project into Wadswick1 and Wadswick2, each at 5mW.*

*Anyway, without a feed-in tariff, the project will just have to rely on the ROC subsidy at the estimated £1,236,799 per annum.*

*Then there are the costs of building the solar park which is reckoned to be about £1 per watt, so that’s £9,600,000 for a 9.6MW installation. The cost of borrowing £10,000,000 over 25 years (the life of the project) at, say, 5% would be about £50,000 per month or £600,000 per year.*

*So, the income over expenditure, largely subsidised by the public, will be £1,236,799 less £600,000 – that’s £636,799 per annum for Wadswick Energy and other principals. This is £16,000,000 over the 25-year life of the project.*

1.5 I attempted to check these figures with Wadswick Energy Ltd. However, if you go to the website [www.wadswickenergy.co.uk](http://www.wadswickenergy.co.uk) the following message is received: ‘This Account has been suspended’.

1.6 Fully-functioning websites are a pre-requisite of any business these days, never mind a multi-million pound energy company. Even yours truly, a private individual, has an up-and-running website here: <http://www.rudloescene.co.uk/> (try it – there’s a news article about the solar park). Now try Wadswick Energy at the address above. How does this company expect the public to have any confidence in its operation when it can’t even operate a website?

1.7 In the absence of information from Wadswick, I contacted (by phone) Pegasus Group - the consultancy handling the project on Wadswick’s behalf, Brilliant Harvest - the constructor and DECC (the Department of Energy etc) where I managed to glean the figures used above.  
  
1.8 I also attempted to contact, by email, Brilliant Harvest, the construction company for the park. The email address given on their website: [office@brilliantharvest.co.uk](mailto:office@brilliantharvest.co.uk) always returns “delivery failed”. Again this does not augur well for a company handling multi-million pound construction projects.

1. **The green energy bandwagon**

2.1 The problem is global warming, climate change and CO2 emissions we are told. Remember – **global** warming. While Britain attempts to reduce its CO2 emissions by 20% by 2020, those of China and India are increasing massively. Our CO2 production rate is 6% of China's but China's rate is growing at 9% per annum (China plans 450 new coal-fired power stations which will be burning 1.2 billion extra tonnes of coal per annum). You may say that this doesn't matter and that we should do what we can to reduce our emissions - our carbon 'production' (indeed, this is enshrined in law) - **but what matters is not our 'production' but our 'consumption'.** It makes no sense to cut our carbon production (by closing down coal-fired power stations and building solar parks for example) whilst importing £billions of goods from China which increases our carbon consumption (goods produced using 'dirty' coal energy). According to Dieter Helm in *'The Carbon Crunch*', UK carbon production fell by 15% from 1990 to 2005 but carbon consumption went up by 19% and that situation continues today. An analogy (a poor one probably) would be that we’re in the lifeboat ‘*Global*’ which is taking in water; the Englishman, at the bow, is baling out with a cup while his Chinese shipmate is adding water with a saucepan at the stern.

2.2 Which brings us to Wadswick Energy and its solar park. There will be 40,052 solar panels in the 14 hectare park. China is the biggest and cheapest supplier of solar panels. The planning application does not state the source of the park equipment. If it’s China then what a difficulty (to say the least) this brings. Forty thousand solar panels produced using dirty coal energy thereby adding substantially to CO2 emissions and global warming. There's the direct use of energy in the factory involved in the production of the panels, along with energy involved in transportation of the panels and their components. Also, there’s the energy debt involved in acquiring raw materials and converting them into the parts in the first place. It’s reckoned that it takes 1 to 4 years of solar panel/park operation just to pay back this energy/emission debt (no matter what the origin of the panels).

2.3 The hyperbole of the Planning Statement associated with this development goes as follows: “The contribution to meeting energy targets and the effect that this would have in tackling the urgent challenge of climate change represents, on its own, a compelling argument in support of the proposed development.” My response to that? Our carbon consumption is increasing (e.g. by buying solar panels from China) and our commitment to reduce our CO2 emissions by 20% by 2020 is a meaningless drop in the ocean – it represents just 1% of China’s present, never mind future, emissions. Just to reinforce the point - we propose to reduce our CO2 emissions **over the next 7 years** by 1% of China’s current emissions. Really, what is the point? Whilst we will have reduced by 1% (of China’s emissions) in these 7 years, China will have increased its emissions by an estimated 63% thanks to western countries and others buying their products (including solar panels).

2.4 An argument for green energy is that it will reduce our vulnerability to potential future oil/gas price shocks (like the Russians upping the price of natural gas), however the argument rarely heard is that green energy increases our vulnerability. When solar, for example, is adding energy to the grid, traditional coal/gas power stations (will) have to be shut down (for the period of ‘green’ input) so planning for coal/gas requirements is made more difficult, more sporadic and more expensive. And, of course, base (coal/gas and nuclear) energy will always have to be available as standby because the wind doesn't always blow and the sun doesn't always shine. The fact that solar (or wind) is on the system means that costs and risks of building the necessary back-up supply rise. So, if ‘base’ (coal, gas, nuclear) supply always has to be there as standby and it’s made more expensive by the sporadic nature of its use, we may as well forget the heavily-subsidised green energy and just use a cleaned-up base supply.

2.5 Solar (and wind) energy are intermittent (as stated above, no sun at night and the wind doesn't always blow). In temperate zones, like England/Wiltshire/Wadswick at 51.5 degrees north, the effectiveness of solar panels is relatively low when compared with more southerly latitudes. Effectiveness is further reduced by having fixed (non-tracking) panels. In addition, when demand for electricity is at its highest, in the winter, the supply from solar parks is at its weakest. In midwinter, the park will only be capable of supplying electricity (and a small percentage of its max 9.6mW output at that) from around 9am to 4pm.

2.6 Para. 5.9 of the Agricultural Assessment by Kernon Countryside Consultants reads as follows: “Income and expenditure associated with agriculture can be volatile so the provision of a relatively stable income would further enhance the resilience and viability of the holding. The proposed solar park will accordingly add to the ‘development and diversification’ of the holding.” Let’s put it another way. “How can Manor Farm, Wadswick increase income from its 276 hectare (680 acre) agricultural unit, of which two thirds is owned and the rest let as business tenancies. It has an ‘equestrian outlet’ (Wadswick Country Store) with a sub-let cafe, holiday cottages, an airstrip, biofuel paraphernalia associated with the 65-hectare miscanthus crop and so on.” It seems that £71,000 per annum EU subsidy (plus others no doubt), freedom from local taxes and VAT and fuel duty, being able to write off purchases of new machinery and buildings against tax, being able to average out profits over five years for tax purposes and having Agricultural Property Relief to allow family farms to pass from one generation to the next free of inheritance tax is not enough! No, we must enhance the resilience and viability of the holding. Must we?

1. **Summary**

3.1 George Monbiot, the environmental campaigner, in his book ‘*Heat*’ says: “There are two facts you seldom see on the same page. Solar photovoltaic cells pay for themselves after 25 to 35 years. Solar photovoltaic cells have a life expectancy of 25 to 30 years”.

3.2 The big (**global**) picture with regard to carbon production/consumption makes UK solar parks pointless. They are expensive and don't pay for themselves over their lifetime (although this may change in the future); they are expensive for consumers who have to subsidise them through their energy bills; they are expensive when compared with all other types of energy whether base (coal/gas/nuclear) or green; they are intermittent (sun doesn't shine at night); they are relatively inefficient in temperate zones (like the UK); they always need a back-up system because of their intermittency; they produce less energy when demand is at its highest (winter); they industrialise the landscape and substantial amounts of farmland may be lost.

3.3 Solar parks have a working life of 25 years after which, as we are told in the documentation (and as confirmed by George Monbiot above), they are decommissioned. Where does this leave us with our energy infrastructure and so-called sustainability? Investment (about £16,000,000 according to the above calculations) that could have gone to long-term carbon capture and storage (CCS) projects or to our gas storage capability (of which the UK has just about the lowest in Europe) will instead have gone to private profit.

3.4 The 'green energy' story is all smoke and mirrors so I urge Wiltshire County Council to reject this planning application.

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