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9th September, 2015

Dear Anita

Addendum to Planning Application WA/7/15/PL

As detailed in 4.1 and 4.6 of the Planning and Design and Access Statement, the planning application is for a temporary period either of the operational life of the solar farm, or 30 years.

The purpose of this addendum is to set out the reasons for applying for at least 30 years of operation for the proposed solar farm.

Background to Solar Farm Permission Terms

The Feed in Tariff scheme came into effect in the UK in April 2010, it was designed to promote the uptake of a range of renewable and low carbon electricity generation technologies – including solar farms up to 5MW in size. The Feed in Tariff was initially set at 25 years, with this later dropping to 20 years in 2012 as the price of photovoltaic panels reduced, thereby requiring lower subsidy support.

When the first planning applications for large scale solar farms were submitted to Local Planning Authorities in mid-2010, it was common for these early solar farm applications to be sought for a temporary period of 25 years in order to match the Feed in Tariff period, as well as the standard warranty period provided by panel manufacturers.

A number of planning applications were also sought and granted for the operational life of the solar farms to allow for the greatest benefit from renewable energy generation in the event that the solar farms continued to operate efficiently beyond the Feed in Tariff period.

It should be noted that the Feed in Tariff is not the only subsidy regime used to support solar farms, though it was the first. Other support frameworks include Renewable Obligation Certificates which provide a market price for certificates awarded for electricity generated from renewables for a period of 20 years, and Contracts for Difference, for which the first auction was held in 2014, which provide a set price for the electricity generated from renewable and low carbon sources for 15 years. Support mechanisms like these are based on achieving suitable payback periods for the large investment required upfront to construct a solar farm, rather than the expected working life of a solar farm.

Whilst subsidy regimes have moved on from the initial set support period of 25 years, some developers have continued to seek planning permissions for this term, and some Local Planning Authorities have been reluctant to grant planning permission beyond 25 years.

Since 2013 Lightsource has applied for planning permissions for the life of the solar farm, or 30 years operation as a minimum if the Council prefers a time bounded condition, the reasons and for this are set out below.

Technical Case for 30 year Permission Term

Whilst solar PV is a relatively new technology in the UK, it is more established throughout mainland Europe where the first grid-connected systems were installed around 30 years ago and are still generating renewable electricity. Sweden's first grid-connected solar PV system began generating electricity in 1984 and is still operational today without a significant degradation in the modules' average annual power generation¹. France's first grid-connected solar PV system began generating electricity in 1992. Twenty years after installation, the panels were subjected to laboratory testing and were shown to still be operating at 91.7% efficiency², far in excess of their predicted 20 year efficiency at the time of installation. Since these arrays were installed, in 1984 and 1992 respectively, solar PV technology has greatly improved.

Lightsource only use Tier 1 panels on their solar farms, these are the top performing panels and therefore the panels installed at Land East of Lower Farm, Yapton Lane should be expected to perform to at least an equivalent standard as the above examples.

Rather than relying on anecdotal examples to support a modelling assumption of a 30 year operational life, Lightsource commissioned independent Technical Advisory Sgurr Energy³ to assess the expected operational life of a solar PV farm. The 'end' of the operational life was taken to mean the point at which it became uneconomic to operate the plant, rather than the point at which it ceased to generate any electricity, and this was calculated as being the point where panel efficiency degradation reached more than 70% of the original generation capacity.

Most manufacturers today provide a peak power warranty guaranteeing at least 80% of the nominal peak power by year 25. It is noted that some manufacturers already offer peak power warranties up to 30 years and more will follow to remain competitive.

The assessment by Sgurr included a thorough analysis of each of the component parts that make up a solar farm, potential failure or degradation issues with each, and mitigation measures that can be implemented to reduce risk and extend plant operation.

The report concluded that with a robust Operations and Maintenance regime of preventative maintenance, including detailed performance monitoring to identify and resolve any durability or reliability issues at an early stage, a 30 year operational life time is comfortably achievable.

Lightsource has in house Asset Management and Operations and Maintenance teams who monitor and undertake regular maintenance of operational solar farms, therefore we are confident in our ability to effectively manage these assets and ensure an economically viable operational life of at least 30 years.

Financial Requirement for 30 year Timeframe

As noted above, subsidies was introduced to support solar farms as it was recognised that the high development and construction costs would otherwise make them financially unviable.

¹ http://global.kyocera.com/news/2011/1202_tako.html (accessed 29th August, 2014)

² http://global.kyocera.com/news/2012/0903_skok.html (accessed 29th August, 2014)

³ Sgurr Energy is a leading renewable energy consultancy, providing engineering and technical advisory services in wind, solar, wave and tidal hydro projects.

Since government support mechanisms for solar PV farms were initiated in 2010 there has been a continual decrease in the amount of support (or subsidy) provided as development costs have been driven down due to reduced manufacturing and installation costs and economies of scale.

However we are now reaching a point where the reductions in costs are now less significant yet the subsidies are still decreasing at the same, if not a greater rate, thus constraining the economic viability of solar farm developments. To counter this, Lightsource apply for a minimum of 30 years of operation to Local Planning Authorities, and agree leases with landlords on the same basis. The additional five years of revenue streams above a 25 year operational life, enhances the overall viability of the investment case to develop and construct a solar farm.

Therefore, in the current financial policy climate it is critical to be able to present a solar farm to an investor with at least a 30 year planning permission at the outset to ensure that the economics of proceeding with development stack up.

Furthermore it should be noted that solar farms produce power during the daytime when the cost of electricity, and demand for it, is at its highest. By providing for power generation up to at least 30 years an exponential and significant financial benefit to the consumer is created in comparison to constraining operation to 25 years. A plant decommissioned at year 25 would have 5 years of power generation which is free of support from subsidies, by operating the plant to year 30 – 10 years beyond the subsidy – the length of time that unsubsidised power is generated increases by 100%. This additional 5 years of power generation, being very low cost, will thus reduce consumer bills.

Policy Imperative for 30 year Timeframe

The United Kingdom is legally bound to reduce its carbon dioxide emissions to 80% below the 1990 baseline by 2050, requiring a cut in CO₂ emissions from 1990's level by at least 34% in 2020 and by at least 50% in 2027, as set out in the Third and Fourth Carbon Budgets respectively. The Committee on Climate Change's 2012 progress report to Parliament highlighted that current progress in CO₂ reduction is only a quarter of that required to meet future carbon budgets⁴.

The Government published its renewable energy roadmap in July 2011 setting out how the UK would meet its renewable energy targets. An update to this was published in November 2013, confirming that the UK is currently not on track to meet its legally-binding 2020 target of obtaining 15% of energy from renewable sources.

The NPPF sets out a clear presumption in favour of sustainable development in Paragraph 14, and at paragraph 187 make clear that decision takers at every level should look to approve planning applications for sustainable development where possible. The general thrust of the NPPF is a highly positive one towards promoting and encouraging renewable energy projects where impacts are, or can be made, acceptable.

Given the focus on sustainability, and the support for renewable energy in national level policy, it makes sense that if the solar farm is deemed acceptable, that planning permission be granted to allow for its full operational life, in order to get the greatest benefit from renewable energy generation. This is why we have specifically applied for planning permission for the life of the solar farm. We understand that some Local Planning Authorities prefer specific time bounded conditions, and therefore, based on the technical assessment by Sgurr Energy, we consider 30 years to be the most appropriate term, as the solar farm will still be operating at an economic level to at least this point.

⁴ http://www.thccc.org.uk/wp-content/uploads/2012/06/CCC_Progress-Rep-2012_ExecSumm_2.pdf (accessed 8th January, 2015)

Setting the period at less than 30 years would result in the requirement for early decommissioning of a solar farm that is still operating efficiently, and the resulting loss of the subsidy free renewable energy that would have continued to have been generated.

Existing Precedent

The grant of planning permission for solar farms either for the life of the solar farm, or for 30 or more years is not unusual. Lightsource alone currently has over 30 operational solar farms with planning permission terms granted for the life of the solar farm, and more than 40 that have been granted planning permission for terms of between 30 and 40 years. In all instances, the solar farms are still required to be dismantled and the site reinstated following the either the cessation of operation, or the end of the planning permission term.

I note that Arun District Council has already approved planning applications for solar farms of 30 years or more, including the following sites:

- Manor Farm, Shripney Lane: BE/63/14/PL: granted for a term of 30 years

Kind regards,

Brendan Clarke

Senior Planner

Lightsource Renewable Energy Ltd

