

DERBYSHIRE COUNTY COUNCIL

IMPROVEMENT AND SCRUTINY - RESOURCES COMMITTEE

26 May 2016

Report of the Strategic Director of Economy, Transport and Communities

SUSTAINABLE ENERGY – GROUND MOUNTED SOLAR PHOTOVOLTAIC (PV) UPDATE

1. Purpose of Report

To provide an update to Resources Scrutiny Committee on the potential to develop large scale, ground mounted solar photovoltaic (PV) on council owned land and other sustainable energy opportunities currently being considered.

2. Information

2.1. Former Williamthorpe Colliery Land

The technical design and specification undertaken by the Building Research Establishment (BRE) National Solar Centre, indicated that with a potential installed capacity of 4.4MW, the largest potential of the 5 sites considered.

Initial discussions with Western Power Distribution (WPD) had indicated that any power generated at this proposed site would be fed in to Grassmoor Primary Sub-station, the same as any generation from the below proposed site at Mansfield Road. As such, WPD advised that only one of the two sites would be able to connect to the local grid network. Grid connection applications were submitted for both sites and in September, Interactive Connection Offers were made for each, placing them joint second in a queue. This meant that another party had the initial option to reserve the available capacity in the network. However, they did not accept that offer and as the proposed solar farm at the former Williamthorpe Colliery had the greater installed capacity, the formal grid offer was accepted for this site. To reserve the capacity for a period of 5 years, an upfront payment of £2,000 to cover WPD design fees has been paid. This offer was subject to a Statement of Works being approved by National Grid Electricity Transmission plc (NGET) which was submitted by WPD in September and NGET approved the works in March 2016. In addition to this, WPD have indicated a 5-6 month period for the completion of the works required at Grassmoor Primary along with a 9-10 week period for highway works required.

Planning consent was granted in December 2015.

2.2. Land at Mansfield Road, Temple Normanton

As mentioned above, WPD had previously indicated that only one, if any, of these two proposed schemes would be able to connect to the local grid network. To ascertain which of the 2 proposed sites would present the best scheme to progress, feasibility work continued on both sites simultaneously. The technical specification concluded that this site would be suitable to accommodate a 3.7MW solar farm and the planning application was subsequently submitted.

As mentioned in section 2.2, Interactive Connection Offers were received for both these sites. As the proposed site at the former Williamthorpe Colliery had a greater installed capacity, the offer was accepted for the above site. However, WPD have confirmed that should the proposed solar farm at the former Williamthorpe Colliery site not be progressed due to for example, planning constraints or reduced financial feasibility, the accepted grid connection offer can be transferred to the Mansfield Road site and this site could be developed instead.

Planning consent was granted in January 2016.

2.3. Westthorpe Hills (Westthorpe Colliery)

Whilst this proposed site was one of the smaller sites being considered, the technical specification provided by BRE National Solar Centre detailed that it was more limited than previously thought and actually had space to accommodate a 0.4MW solar farm. A grid connection application and a planning application were submitted based on this.

Following the submission of the grid application in April, WPD requested further technical information before they would accept the application, but gave a budget connection quotation cost of £39,000 at that time. A formal grid connection offer was received in September at a cost of £1.5M, significantly higher than the initial budget cost due to substantial reinforcement works required to the network at Whitwell Primary, which WPD also indicated would take 4 years to complete. The grid connection costs offered at this time make the proposed project financially unviable. As a result of this, the planning application was withdrawn as at the same time it was receiving significant objections through the planning consultation process due to its being in the green belt. It is proposed that dialogue with WPD remain open within this time and for the planning application to be resubmitted if WPD indicate that capacity may become available without the need for reinforcement works.

2.4. Former Swanwick Colliery Reclamation Land

Technical design work undertaken by the BRE National Solar Centre concluded that this site would be feasible of accommodating a 1.3MW solar farm and a planning application was submitted accordingly.

Following the submission of the grid connection application, WPD had given an early indication that a connection would be possible, but in July confirmed that all spare capacity had been taken and reinforcements to the network were required meaning any new generation projects wouldn't be connected for another 3-4 years.

Whilst the planning application is still to be determined, the Council will have 3 years in which to build a solar farm should planning consent be granted. It is therefore proposed that the grid capacity issue is revisited with WPD if planning consent is granted as there is potential for the reinforcement works to have been undertaken within the planning consent period therefore making the project feasible again.

2.5. Pye Bridge (former gas works)

Shortly after the grid connection application was submitted in April 2015, Western Power Distribution (WPD) confirmed that there was no capacity for a grid connection within the local distribution network. As WPD gave early indication that this site would not be viable due to no grid connection availability, development work ceased on this site and no further design work or planning application was progressed.

3. Subsidies

In July 2015, The Department for Energy and Climate Change released a consultation on changes to the financial support for solar PV through the controlled spending on solar PV projects of 5MW and below within the Renewables Obligation (ROCs). Essentially, the consultation proposed to close ROCs for sub 5MW solar PV projects a year early as of 31st March 2016 instead of 2017. The consultation also proposed to remove grandfathering rights, which had previously guaranteed that the level of financial support stayed the same for the lifetime of the project (subsidy duration of 20 years). Although DECC allowed a grace period for those projects that were in development but could not guarantee to be completed by the new ROC closure date, developers could only apply for that grace period if at the date of the consultation (22 July 2015) they had submitted their planning application and were in receipt of a formal grid connection offer. At this point, DCC's planning applications had not been validated nor in receipt of grid connection offers for any proposed schemes.

In August, DECC released a further consultation reviewing the Feed in Tariff (FiT) scheme. The consultation proposed substantial reductions to the FiT rate, which for the solar PV system size DCC were considering was proposed

to reduce from the then current rate of 5.73p/kWh to 1.03p/kWh with effect from January 2016.

On 17th December, DECC announced their responses to both consultations, which are summarised below;

ROCs – ROCs will close to sub 5MW solar schemes from 1 April 2016 and the grace period does apply from 22 July 2015. In addition, grandfathering has been removed, making any certainty over future income unclear. DECC are also currently reviewing the ROC bandings.

FiTs – The consultation response was to reduce the relevant FiT rate even further than what was proposed in the consultation to 0.87p/kWh. The rate will also be subject to a quarterly 10% degression as soon as 5MW of capacity is installed. Developments are placed in a queue if the deployment cap is missed, causing uncertainty for investors. The new rates came into effect on 8 February 2016, however the scheme was closed to new applications between 15 January and 8 February 2016.

The early closure of the ROCs and the substantial reduction in the FiT has significantly lengthened the payback period and the cost model indicates a negative Net Present Value of cash flow. The table in the Appendix show the cost model based on the former Williamthorpe Colliery site on the assumption that no subsidies will be received and based on current costs as they are currently known.

4. Next steps

In light of the uncertainty surrounding the subsidies, it is suggested that these projects are now considered over a medium term basis. This is because it is forecast that the cost of panels will significantly reduce over the next 12-18 months coupled with likely increases in PPA arrangements will negate the need for subsidies and the projects will again become financially viable. This longer term view will also keep an option open to revisit the sites where grid connection wasn't available to see whether capacity does become available and those schemes could be progressed at a later stage.

In addition, the use of on-site battery storage will also be considered to assess whether using it could present a preferential payback on investment. Electricity storage is important as renewable electricity is variable and peak generation doesn't correspond with times of peak demand. Storage allows electricity use to be shifted to when it is needed, which will help overcome grid constraint issues and can help raise further revenues, which are outlined below.

Behind the meter

In essence, this refers to the power being used on-site or through a private wire arrangement. The power is stored at times during the day when demand and prices are low and then used at times of peak demand when prices are higher and the renewable energy system may not be generating. Using storage to shift demand away from peak times will also reduce demand based charges, including Transmission Use of System (TNUoS) and Distribution Use of System (DUoS) charges.

Ancillary Services

There are various markets for the provision of ancillary services to the National Grid to enable them to balance supply and demand to ensure the security of supply. Storage can provide a route to this market through for example, Firm Frequency Response, the Capacity Market or the Short Term Operating Reserve (STOR), which all provide different mechanisms to enable National Grid to ensure demand and supply are balanced at all times at the least cost. Due to the complexity of market rules, industry regulations and charging arrangement in addition to the minimum scale requirements, it may be that aggregator is used to join up potential schemes with other projects to a scale that is able to participate in the market.

Storage costs are still in many cases high, but it is predicted that costs will fall in line with the forecasted fall in solar PV costs. In particular, the cost of lithium-ion batteries has fallen substantially and is predicted to be competitive in the next 3 years. However, as batteries have an efficiency of between 80-90% there will be less electricity exported to the grid, which will need to be factored in any cost models. These opportunities will be explored further in coming months.

5. Procurement

The Council have participated in the collaborative procurement of a framework for Engineering, Procurement and Construction (EPC) contractors and Operation and Maintenance (O&M) contractors, which has been led by Northumberland County Council. Following this process, 3 contractors have been appointed to the 4 year framework. A mini-competition will be run to then procure the EPC and O&M contractor for any future Derbyshire County Council solar farms.

6. Other sustainable energy opportunities

A wider Energy Strategy is currently being developed to provide a clear direction on sustainable energy priorities for the Council. This will include, but not be limited to its on-going work on energy efficiency and carbon reduction; supporting communities and SMEs in the low carbon economy; supporting the Derbyshire Healthy Home project and exploring opportunities for larger scale

sustainable energy projects. Such opportunities are to include looking at developing a biomass supply chain using waste wood from managed woodlands to establishing CHP district heat networks at key development sites in the county.

7. Considerations

This proposal directly supports the objectives set within the Council Plan and Climate Change Charter to invest in renewable energy technologies to help mitigate against climate change and provide local, green sources of energy. In addition, the relevance of the following factors has been considered; legal, prevention of crime and disorder, equality and diversity, health, human resources, property and transport considerations.

8. Officer's Recommendation

The Improvement and Scrutiny – Resources Committee note the report.

Mike Ashworth
Strategic Director of Economy, Transport and Communities