



Clean energy in development projects: rooftop solar, district heating and energy storage

Clean energy technologies continue to become more reliable and less expensive meaning that considering the inclusion of on-site generation and use of clean energy has become an increasingly attractive prospect for developers. The dual benefits of a supplemental income source and reduced energy costs for occupiers mean that we are seeing more developers considering renewable energy schemes as integral elements of their developments. Local, small scale renewable energy generation is a clear policy focus for government and at the smaller scale current government incentives can still create attractive returns. There are also corporate social responsibility and marketing benefits for developers being able to claim that they are offsetting the carbon used in development and building 'greener' developments by installing renewable energy generation to supply those developments.

There are a number of clean energy technologies that can be used in developments but we focus here on three which we consider could be of particular relevance to developers seeking to maximise the returns on their development investments, namely: rooftop solar, district heating and energy storage.

Rooftop Solar

Rooftop solar projects are becoming more popular given that we have seen smaller reductions in government incentives for smaller solar projects such as roof mounted installations. The electricity generated by the panels is primarily used on site with any excess being sold to a licenced electricity supplier and exported to the electricity distribution network. The double benefit of selling electricity onsite is that the price paid for such electricity by ultimate property owners will be lower than they would otherwise pay a licenced electricity supplier but higher than would be achieved by the owner of the installation if it was only exporting electricity. Rooftop solar installations are eligible for the Feed-in Tariff which is the primary incentive scheme for smaller scale solar installations at generation tariffs of up to 4.59 p/kWh.

There are issues that developers would need to consider including ongoing operation, access for maintenance, grid connection requirements, supply licence exemption issues and arrangements for the sale of excess electricity. However, with falling costs and more reliable providers we are seeing more developers looking to installing solar installations on their developments.

District Heating

A district heating system involves a decentralised heat source supplying two or more buildings with heat energy. At its simplest, this involves an energy services company (ESCO) running an energy centre which generates heat (usually from biomass) heating water that is then distributed through a network of pipes to a number of properties, rather than each of those properties having its own gas boiler. On a larger scale, a district heating network could involve any number of heat sources, including surplus heat captured from power generation, industrial processes and transport systems. The ability of district heating to re-use heat energy from any number of sources where it would otherwise be lost means that it will likely become an important part of the future of heating urban areas. A district heating system can improve reliability, continuity of supply and can also significantly reduce the cost of heating. Government incentives come in the form of the Renewable Heat Incentive which is paid when heat is used for 'eligible purposes'.

There are a number of aspects which will require consideration before setting up a district heating system. Contractual arrangements will need to be put in place with the ESCO as well as heat supply agreements with the individual users. Biomass boilers consume solid fuels so robust fuel supply and operation arrangements will be required.

Energy Storage

There is huge potential for the use of energy storage systems in association with energy generation installations. The key example is battery systems connected to electricity generation units allowing electricity to be stored during periods of peak generation and then used later. One of the main benefits of energy storage is that storage systems can be used alongside intermittent generators of clean energy, such as solar and wind, to ensure continuity of supply. On-site electricity consumption can be increased as, using solar as an example, the period in which the solar-generated energy can be used is extended. Electricity can also be stored for use during periods of peak demand both to reduce energy costs for occupiers and increase revenues for the owner of the generation and storage system.

Cost and operation of the battery system will be key issues together with ensuring that backup arrangements are available in periods of outage. Whilst the technologies are improving

and more battery storage system providers are entering the market, electricity storage capacity and the reliability of the technologies need to be considered carefully. However, the potential is significant and we are starting to see energy storage used on a large scale by distribution network operators which indicates the confidence in the power sector in the potential for this technology.

Burges Salmon has acted on numerous development projects which have included on-site clean energy installations as an integral part of the development and we consider that this will become the rule rather than the exception. However, there are a number of issues that need to be considered carefully in order to maximise the return on investment of these projects and to ensure that problems do not arise in their installation, accreditation (for renewable energy incentives) and operation.

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