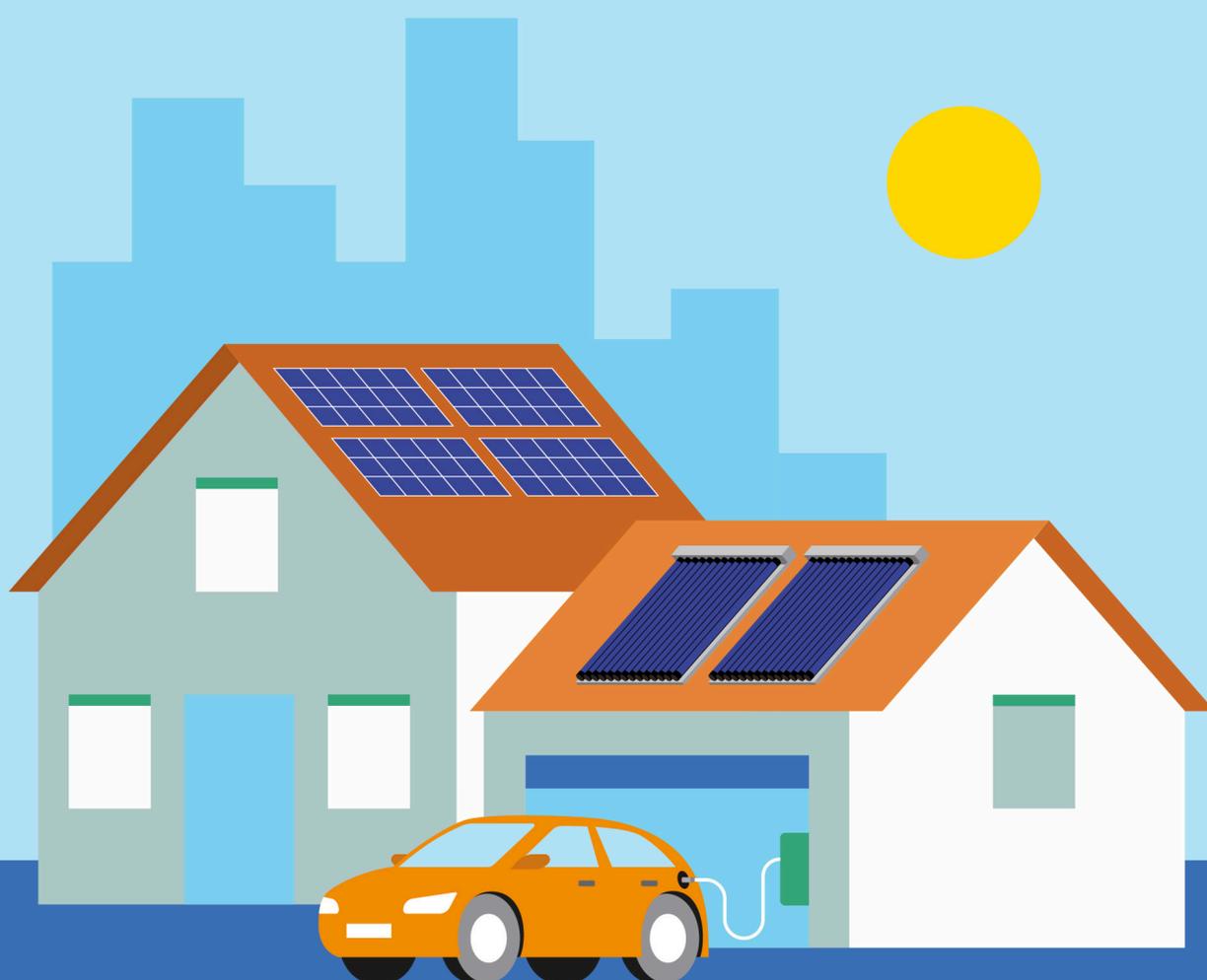


Case Study

Smart Solar & Storage



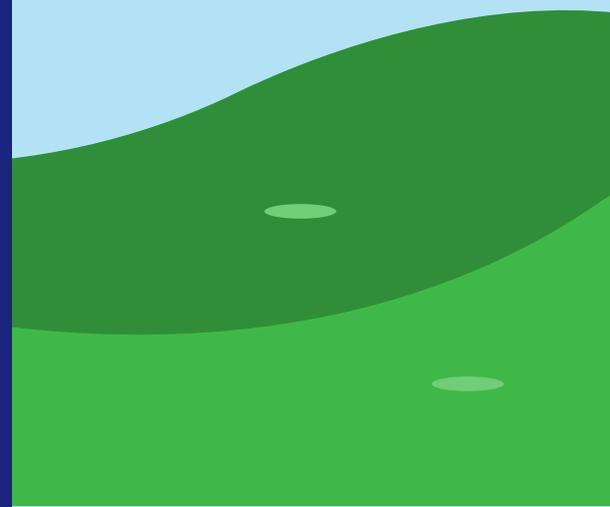
Summary

- **Location:** Aberdeenshire, Scotland
- **Capacity:** 1.6MW
- **Type:** Solar PV rooftop + batteries
- **Developer:** Emtec Energy
- **Owner:** Aberdeenshire Council
- **Panel type:** JA Solar 325W units
- **Completion date:** 2022



Emtec Energy was founded in 2011 as part of the Emtec Group, originally delivering bespoke Design & Build services to the new-build constructions sector and large frameworks for local authorities.

Since then they have grown to employ over 40 Solar PV specialists with a client base varying across Scottish Whisky Distilling, Petrochemical Retail, Food Production, Furniture Manufacturing, Agriculture and many others.



Overview

Following a public tender process, Emtec Energy were selected to deliver this, first-of-its-kind framework in the UK. The key aims of the project are to overcome grid restraints on the local networks, make best use of Solar PV generation for tenants, reduce fuel poverty in these areas, improve the EPC rating of the council's social housing stock and to generate income and savings to expand the scheme across the authority.

Aberdeenshire Council selected Emtec Energy in 2019 for an innovative Smart Solar & Storage framework that aimed to install Solar PV and Battery Storage retrofits. The programme identified 500 properties in the Inverurie and MacDuff areas to receive solar and storage systems with the intention of alleviating grid constraints in the area. Each property has 3.25kW of solar PV with a 7.2kWh battery and the systems provide grid services to the local network. These modules are JA Solar 325W units with hybrid inverters and storage units that are externally mounted.



As a result of significant grid constraints in the region, the Grid Connection phase was a truly unique element of this project. Installing the systems under a flexible connection allows them to be aggregated to deliver Firm Frequency Response to the local distribution network. Rather than the introduction of this significant amount of Solar PV and Battery Storage being seen as an issue for the DNO, it will now support them in their efforts to improve the condition of the network, with the Council also gaining access to more lucrative income streams from the generated and stored energy.

There is not a model like this currently operating in the UK, and Aberdeenshire's Smart Solar & Storage project will no doubt serve as a blueprint for the future.

Project Summary

This framework was the first of its kind in the UK to implement a project that aimed to overcome grid constraints on local networks, make best use of solar PV generation by tenants, reduce fuel poverty in these areas, enhance the EPC rating of the council's social housing stock, generate income, and save money in order to expand the scheme throughout the district.

In order to keep the project manageable and minimize disruption to residents, the installation was phased. Rooftop Solar PV was installed first, with a scaffold installation with a 3-day duration and PV installed in a single day. Following this, the inverter, battery, and internal components were installed, tested, and commissioned in a second visit, again in a single day. In total, this meant only four periods of disruption for the client (including the internal survey), with the internal works being the only significant impact.

Outcomes/Solution

As one of the key aims of this project is to reduce fuel poverty and improve the quality of life in Macduff & Inverurie we were eager to ensure that residents and the local community received the biggest benefit from our work. When planning of the works began stakeholder events were held in each area which gave interested residents the opportunity to find out more about the technology and the financial and environmental benefits the project would deliver. Our tender proposed to offer work experience placements, apprenticeships, and training opportunities within the local community to ensure a long-term social and economic benefit for Macduff & Inverurie.

Community Benefit

As installations progressed, residents were able to follow up with our engineers, who are active and becoming well-known in the area, to answer any questions about their installations, which allows residents to fully understand the technology and how to take full advantage of it.

By delivering a first-of-its-kind project, we were able to assist the council in educating its tenants. Our team is on-site explaining the battery storage system to tenants, demonstrating how to monitor energy consumption and how to make the best use of solar generation. These additional services allow this community to understand what energy they consume in real-time and become more energy efficient. Through this project, each household is able to save money, which can help to improve the quality of life for each household.

Most Aberdeenshire Council tenants have experienced dramatic reductions in their weekly and monthly energy costs, and decreased dependency on the grid as more than 50% of their energy consumed is from solar power and battery storage. This then benefits the grid with any remaining energy being fed back.



Local Benefit

It is an excellent example of how modern-day households, particularly those where tenants need as much help with costs as possible, are benefitting from combined solar and storage, with the additional benefit of educating them on how to effectively reduce their household load and preserve their energy conservation.

The significance of this project, from such a simple concept, should not be understated, having a knock-on effect beyond the individual household into the wider community. It is essential that local authorities such as Aberdeenshire Council act as a critical communication instrument between non-governmental organisations and communities, which promotes bottom-up approaches to meeting net zero in climate change partnerships.

Our team was able to recruit a local workforce that found itself in an emerging industry, and by providing the training needed we were able to create a highly skilled team in a deprived area. We were able to reduce travel and overall emissions for this project by keeping our workforce and suppliers local.

Additionally, the council, as a key stakeholder in the community, gains not only an increase in revenue but also the opportunity to reinvest in its future.



Learn more about what's happening at Emtec Energy at www.emtecenenergy.co.uk



Published in the United Kingdom by Solar Energy UK
6 Langley St, London WC2H 9JA, The Conduit
© Solar Trade Association 2024

www.solarenergyuk.org