



Industry decarbonisation: Widening the conversation

Economic & Environmental Benefits of
On-Site Solar PV



emtec
energy

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Introduction

Corporate Structure



Part of the Emtec Group, Emtec Energy is an award-winning and industry leading provider of solar PV and battery storage solutions within the Renewables Sector.



Established in 2003, Emtec group offers a turnkey service in the building sector and has grown steadily year-on-year. Expected Turnover for 2023 is £75 million.



In 2021 Sauter Controls, a leading provider in the building automation sector took a controlling interest in Emtec Group. Sauter Group employs 3,300 people and has an annual turnover of €600m.



Our Clients

Your Partner of Choice

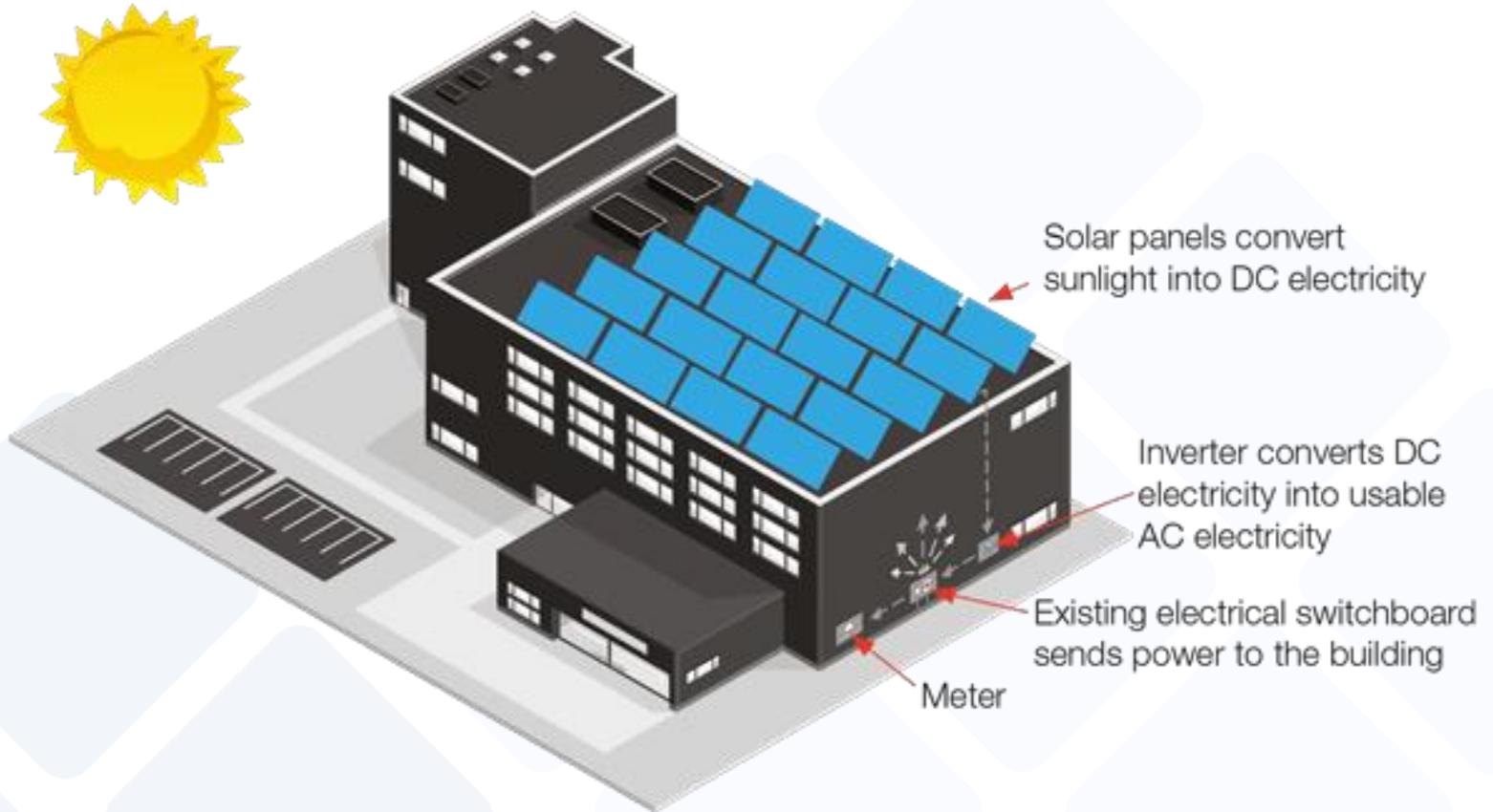
At Emtec Energy, we support our clients on their path to net-zero energy, working efficiently together to achieve great results.



Solar PV Overview

What is it and how does it work?

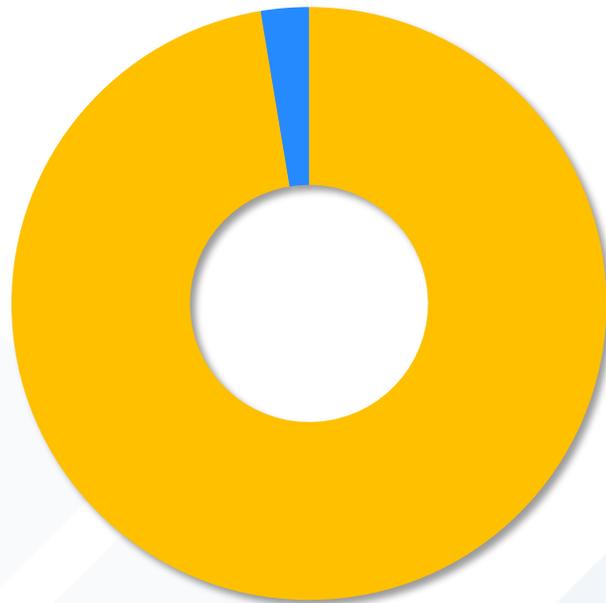
- Solar Photovoltaic (PV) modules absorb irradiance and create an electrical charge which in turn generates a Direct Current (DC) electrical flow to a Solar Inverter.
- This inverter then converts the electrical flow to Alternating Current (AC) which then enters the site electrical network and reduces the need for electricity to enter site via the electricity meter.



Solar PV Overview

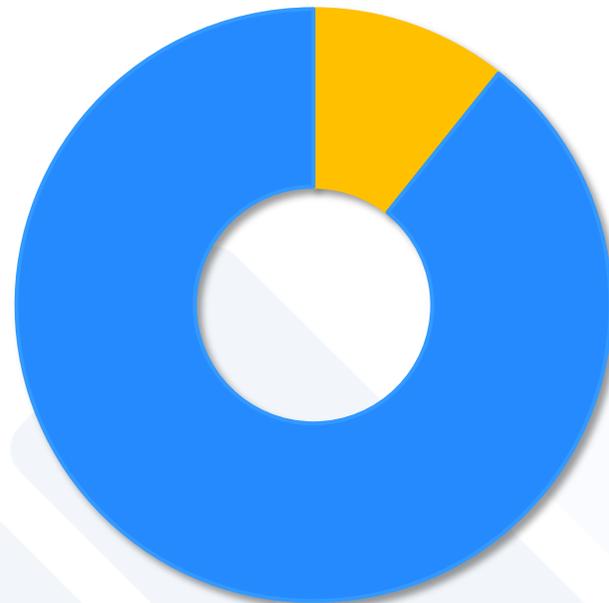
What is it and how does it work?

PV Generator Energy (AC Grid)



■ Own Consumption ■ Grid Feed-in

Total Consumption



■ Covered by PV Power ■ Covered by Grid

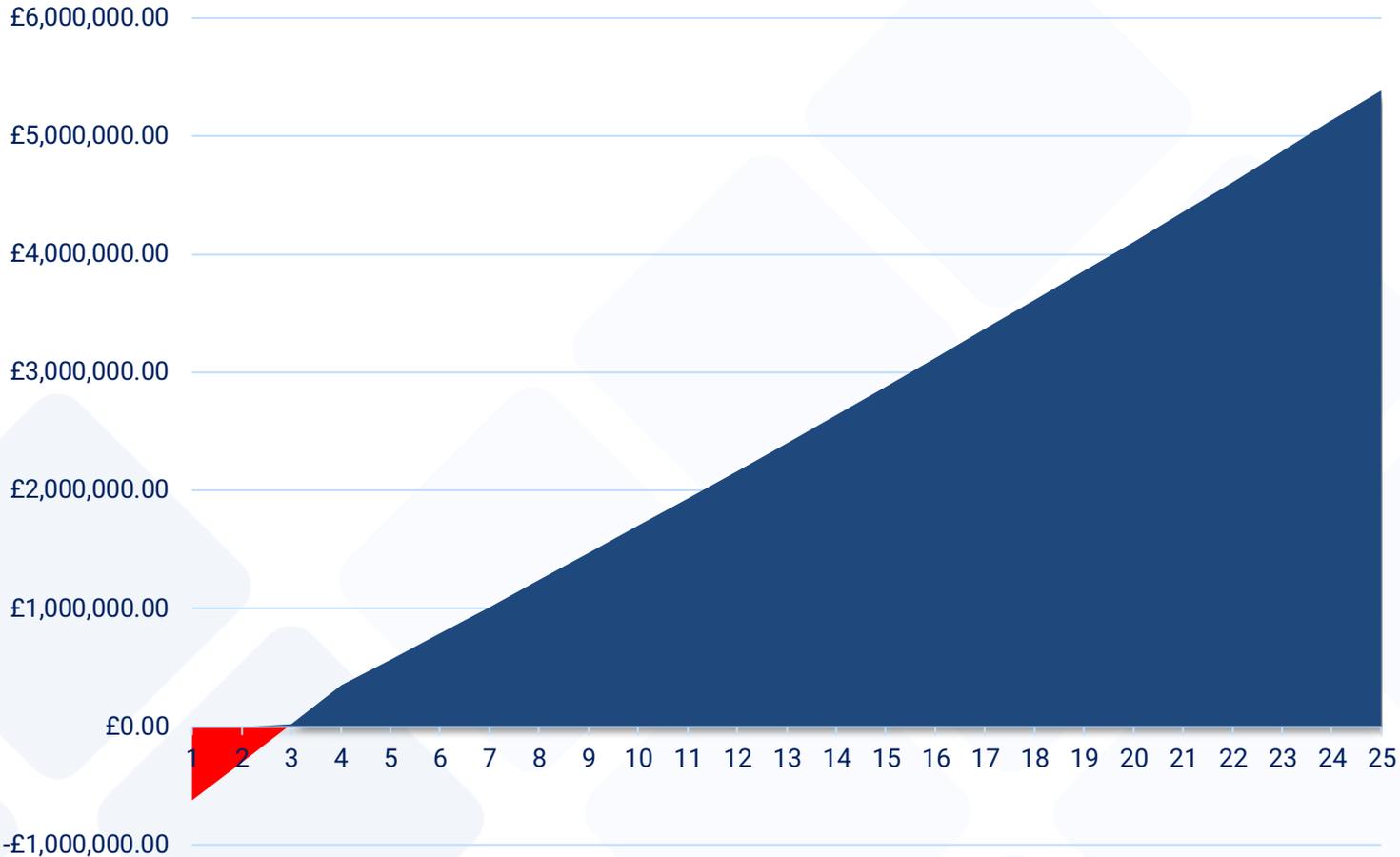
Production Forecast



Financial Benefits of Solar PV

How does it make my business money?

- Its is best to think of the financial benefit of Behind-the-Meter Solar PV in terms of Saving money, rather than making it.
- By having an on-site generator you are reducing the amount of kWh you need to buy. If you generate more than you can use at any one time, it may be possible to sell the excess via the grid.



Environmental Benefits of Solar PV

How does it help with my Net Zero targets?

- The clearest and most tangible environmental benefit of a Solar PV system is that the electricity produced by it is 'Zero Emission' at Point of Use and every kWh has a carbon offset value:

Kilowatt Hour of Electricity carbon value:	182 gCO2/kWh *
Annual generation:	831,165 kWh **
Solar PV Carbon Offset Value PA:	151,272kg
Carbon / Energy Payback of Solar PV System:	3.3 Years ***
Assumed Minimum Useful Life of System:	35 Years
Gross Lifetime Carbon Benefit:	4,795,322kg

*NGESO Average 2022 UK Grid Carbon Intensity

**948kWp System in Glasgow

*** "Environmental Aspects of PV Power Systems"

Environmental Benefits of Solar PV

How does it help with my Net Zero targets?

This Gross Lifetime Carbon Benefit of 4,795,322kg is equivalent to:

35,000	342,500,000	15,984,406,000
Glasgow – London Passenger Flight Journeys	Boiling Kettles	Emails Sent
		

Environmental Benefits of Solar PV

Cont.

Solar PV systems bring added ecological benefits, especially with ground mounds vs. roof mounting.

These can include:

- ❖ Shelter & shading for wildlife
- ❖ Creates 'set aside' areas between rows for wildflowers
- ❖ Reduction in land tillage increasing carbon capture capacity

PV arrays have a positive ecological impact at end-of-life:

- ❖ PV modules are 99% recyclable, rapidly expanding industry
- ❖ All of the cabling and mounting system is fully recyclable
- ❖ The Inverter system is fully recyclable



Diageo Leven

Case Study

Scope of Works:

Diageo's Global Supply Chain division is working with Emtec Energy and a dedicated funding partner to develop Scotland's largest private wire, behind-the-meter solar PV system.

Emtec Energy manages all design, analysis, procurement, installation, and commissioning for Diageo's dedicated funding partner. Despite significant constraints on the local network, we secured a Grid Connection for the system.

**The system is currently under construction and is scheduled for completion by Spring 2023.*

Summary of System

Total System Size	4,211.76kWp
Annual Generation	3,898,775kWh
PV Modules	7,728no. Longi 545w modules
Inverter	33 SolarEdge Inverters
Carbon Offset Value (Annual)	869,426kg



Agrico

Case Study

Scope of Works:

Emtec Energy was commissioned by Agrico UK to design and install a Solar PV system on their site in Castleton of Eassie. The trapezoidal roof at the Farm's store is now fitted with a 200.9 kWp solar PV system.

The solar array is expected to generate 186,148kWh while reducing carbon dioxide emissions by 40,390 kg per year, significantly reducing their annual operating costs and their reliance on the grid.

Summary of System

Total System Size	200.9kWp
Annual Generation	186,148kWh
PV Modules	410 Longi 450w Modules
Inverter	2 Solis Inverters
Carbon Offset Value (Annual)	40,390kg



Glenmorangie

Case Study

Scope of Works:

Emtec Energy were chosen by Glenmorangie to develop a significant Solar PV system on various roofs at their bottling facility near Livingston. This followed a competitive tender process with Emtec being successful largely due to our commitment to Health & Safety and significant experience of designing high quality systems.

Following consultation with Emtec, Glenmorangie chose to revise their specification to include SolarEdge inverters to take advantage of the enhanced safety features and superior monitoring platform.

Summary of System

Total System Size	590.4kWp
Annual Generation	482,263kWh
PV Modules	1,476 Trina 400w Modules
Inverter	4 SolarEdge Inverters
Carbon Offset Value (Annual)	96,452kg





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