

# MAYOR OF LONDON

## LOCAL ENERGY ACCELERATOR

# SOLAR AT SCALE

Supporting a sustainable estate for NHS England – London region

## WHAT IS LEA?

The Mayor of London's Local Energy Accelerator (LEA) supports the development of clean and flexible local energy projects throughout the capital. These include renewable technologies such as solar PV, which transform the way energy is generated, supplied, and used in buildings.

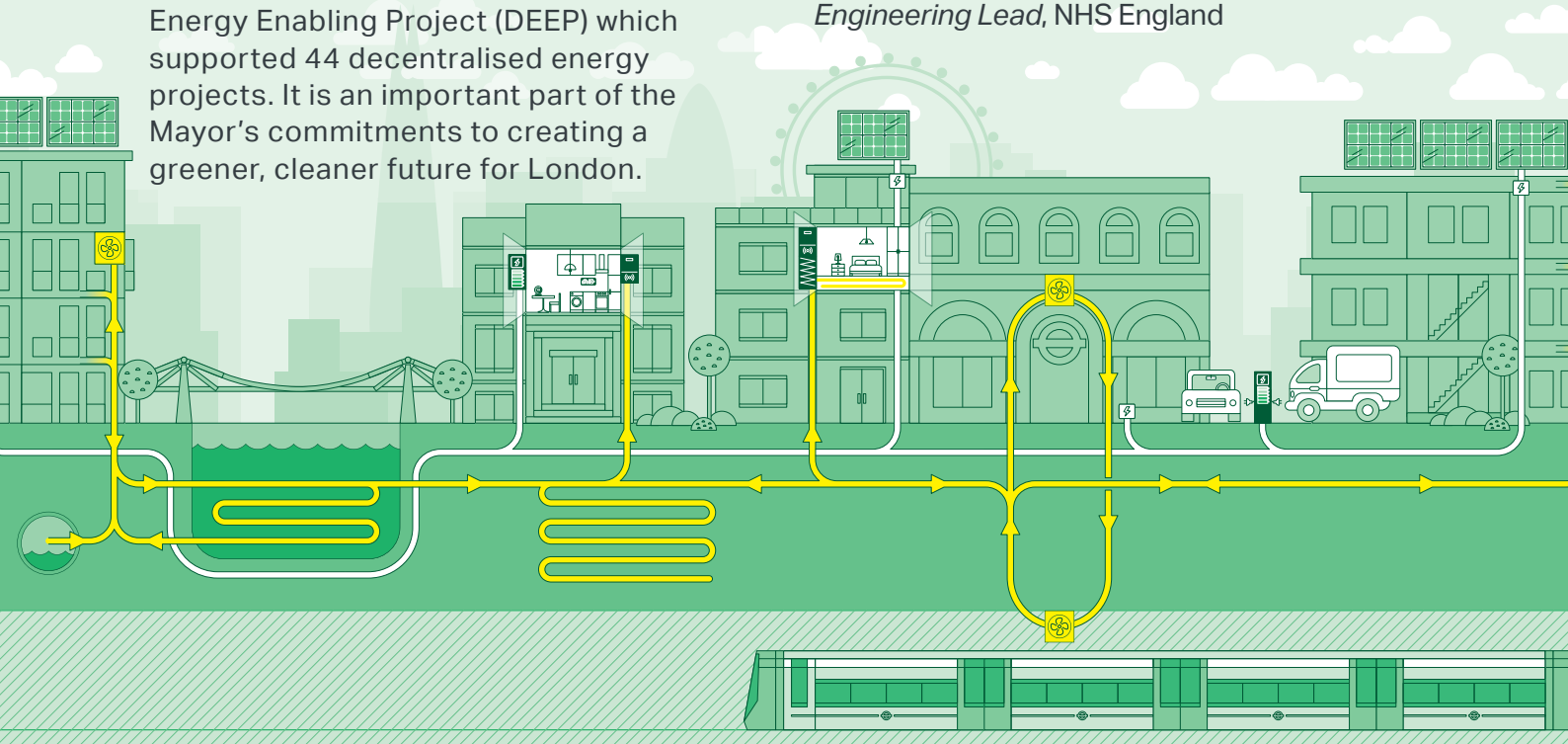
An initial £6m programme was co-funded by the Mayor of London and the European Regional Development Fund (ERDF) with a further £3m funding provided for the programme by the Mayor as part of the project's extension.

LEA is a continuation of the Decentralised Energy Enabling Project (DEEP) which supported 44 decentralised energy projects. It is an important part of the Mayor's commitments to creating a greener, cleaner future for London.

*"The NHS is the nation's biggest employer and is one of the largest owners of land and buildings in the capital. We are on a journey to decarbonise our estate – this will play an important part in supporting London's transition to net zero, and the size of the estate provides a huge opportunity to decarbonise at scale.*

*The support from the Mayor of London's Local Energy Accelerator has been pivotal in enabling us to understand how we could deliver renewable energy for use at these London NHS Trusts. The outputs will be used to work towards PV installation at these sites – something which could be replicated in trusts across the country."*

**Mary Aladegbola,**  
Specialist Net Zero Carbon Technical  
Engineering Lead, NHS England

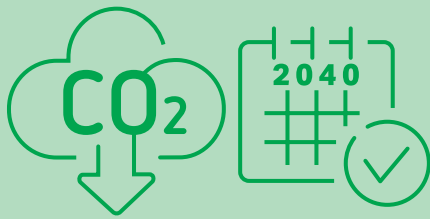


# THE NHS' GREEN AMBITIONS

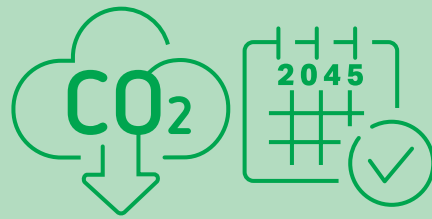
In October 2020, the NHS became the first healthcare system in the world to commit to delivering a net zero national health system.

The NHS is responsible for around four per cent of the UK's carbon emissions, so its role in our journey to net zero is key. The NHS has laid out two clear targets:

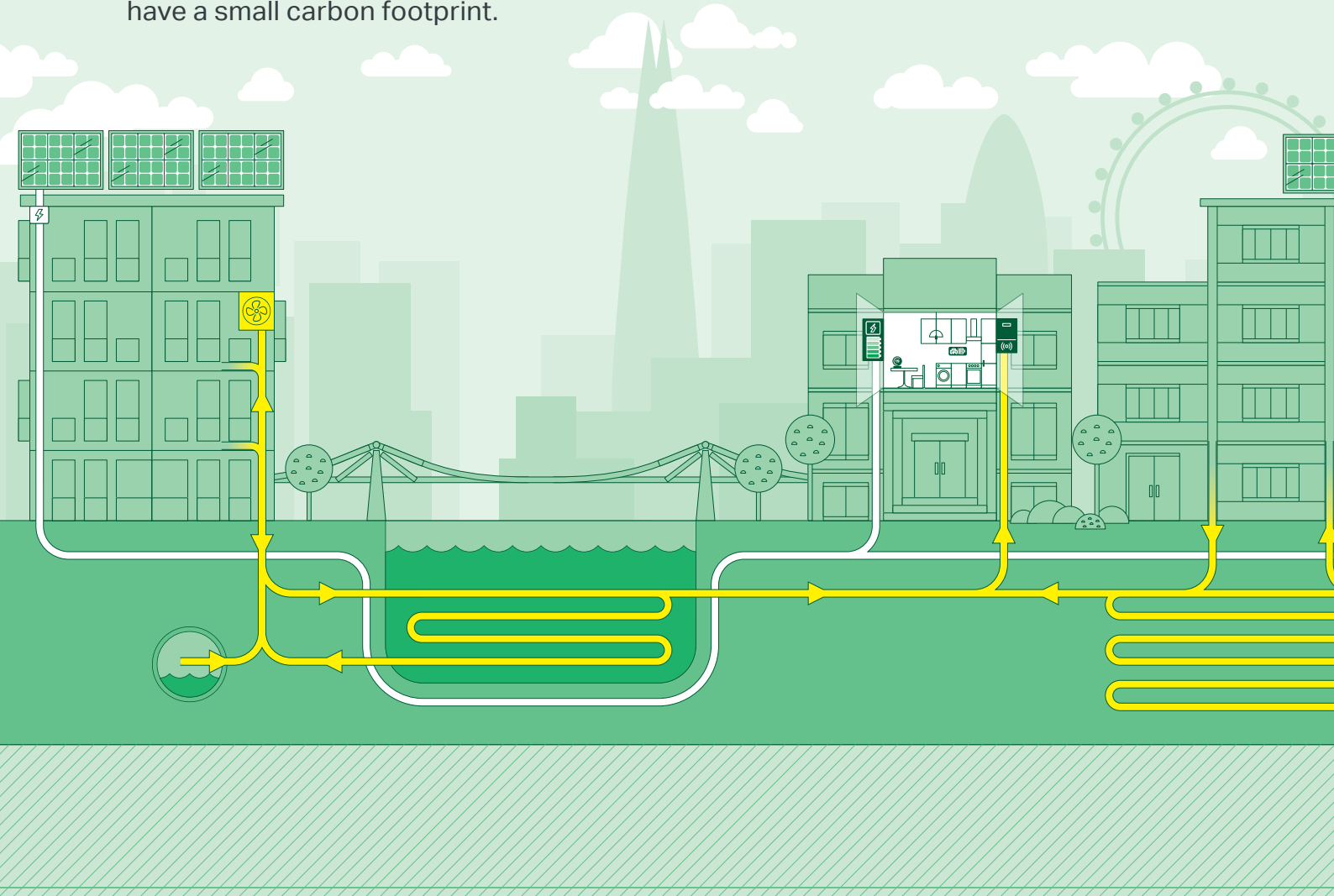
**For the emissions it directly controls, it will be net zero by 2040**



**For the emissions it can influence, it will be net zero by 2045**



Given the size of the NHS estate and the amount of unused space across it, using energy sources such as solar PV panels is key to this process. Solar panels have a long life span – over 25 years – and many of their materials can be recycled, so they have a small carbon footprint.



# HOW HAS LEA SUPPORTED NHS ENGLAND – LONDON REGION?

**The foundations of the LEA support was a pre-feasibility study delivered by the PDU, of 17 major NHS Trust estates in London.**

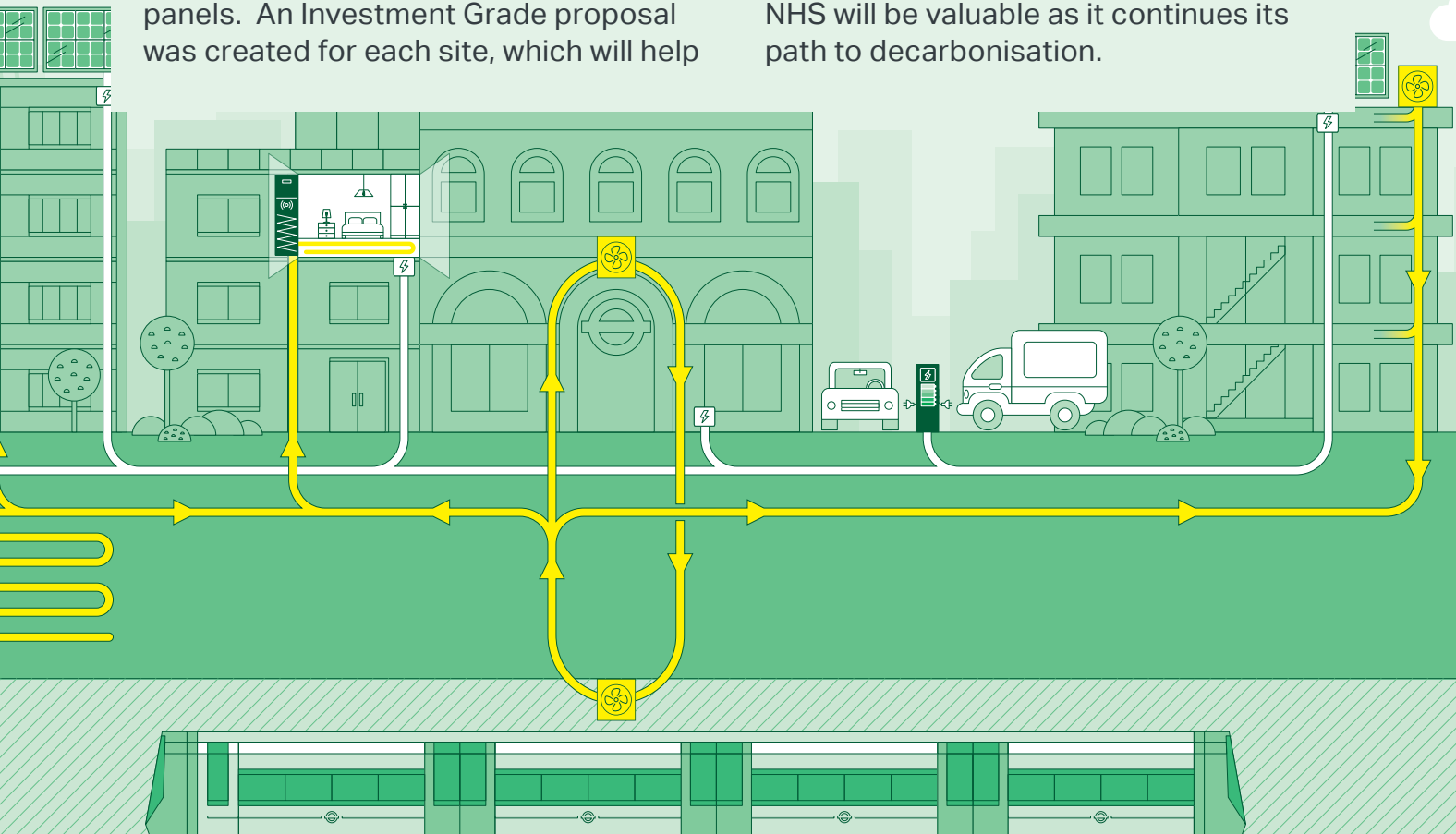
The first aim of the feasibility study was to assess how much solar radiation hits the rooftop of each building. This was assessed using Light Detection and Ranging (LIDAR) data. LIDAR is a remote sensing method that uses pulsing lasers to measure variable distances. The LIDAR data was run through a solar radiation model, which showed the kWh/m<sup>2</sup>/yr of solar irradiance, which the team could then use to establish which buildings would be able to generate the largest amounts of energy from solar panels across London NHS Trusts.

This initial screening for PV suitability was then taken forward by five NHS Trust sites for support from LEA to explore the detailed technical feasibility and delivery models for installing PV panels. An Investment Grade proposal was created for each site, which will help

with business cases to support capital funding to deliver the solar installations.

Support included a review of the implementation of PV at the **University College London hospital** to take lessons learned forward to other Trust sites. This site has now installed PV panels and is saving 60 tonnes of CO<sub>2</sub> emissions each year through their use – the **equivalent emissions of what would be made by combusting 6,751 gallons of petrol in that same time frame.**

The CO<sub>2</sub> saved is expected to grow into the future as the other Trusts look towards solar installation. If all five of the trusts move ahead with installation, the **predicted carbon savings for full build out will be 1,301 tonnes of CO<sub>2</sub> each year, which is equivalent to preventing the emissions from over 661,000 kilograms of coal being burned.** This roadmap for decarbonisation within the NHS will be valuable as it continues its path to decarbonisation.



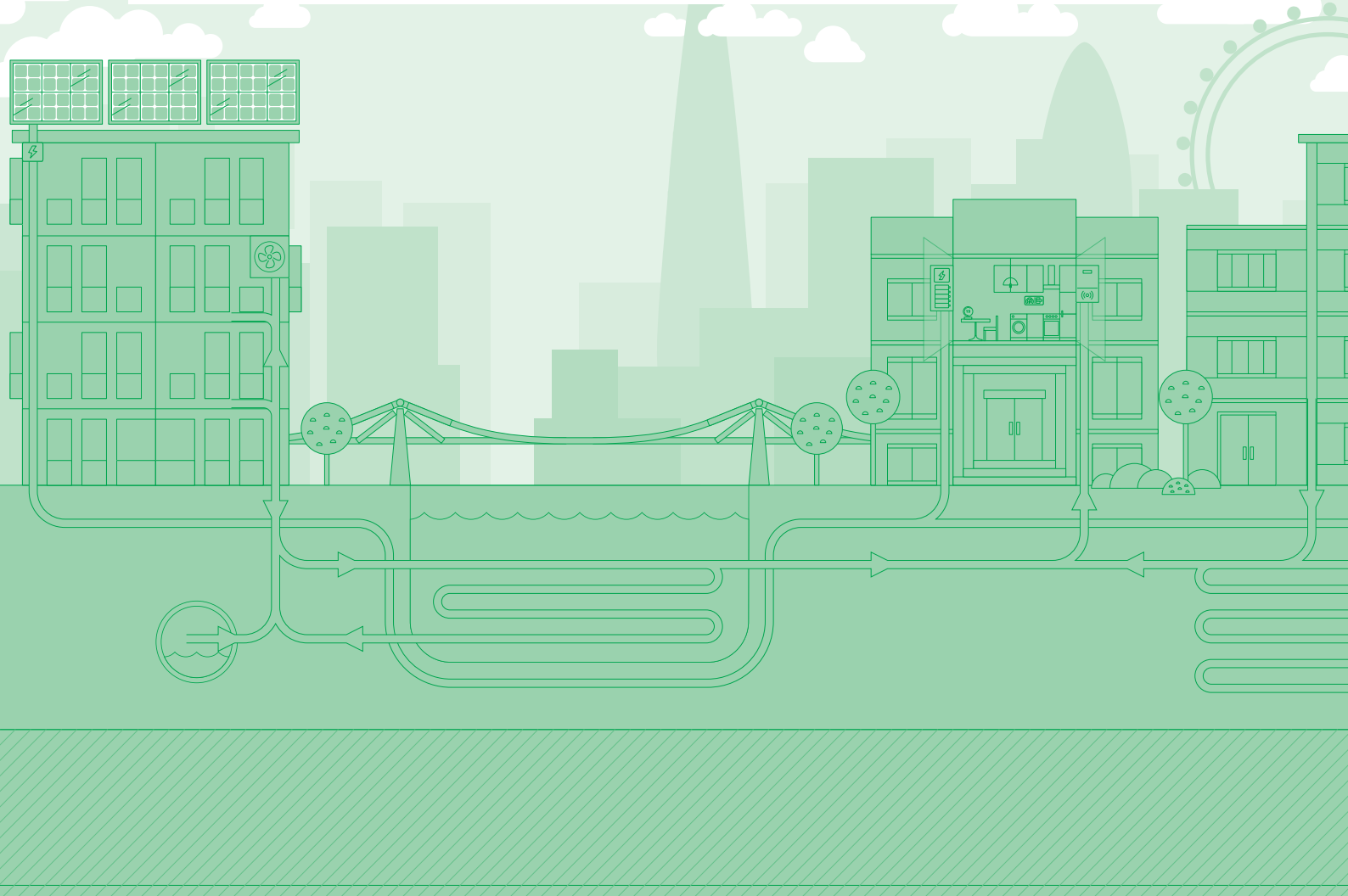
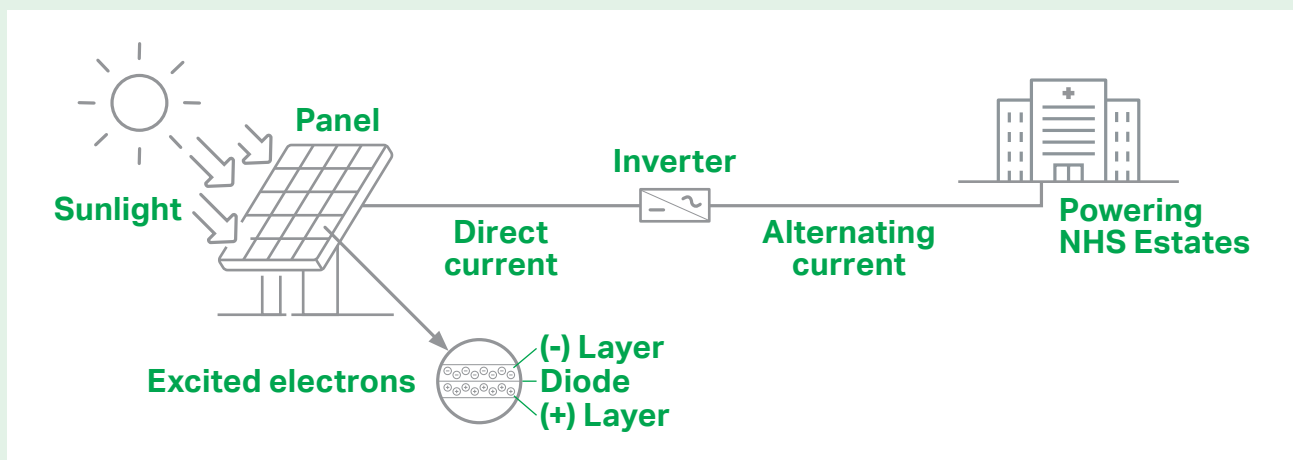
# HOW DO SOLAR PANELS WORK?

**Solar panels are made of a semiconductor material, most commonly silicon, inside a metal and glass frame.**

When the semiconductor is exposed to the sun's photons – tiny waves of electromagnetic radiation that are the basic chemical unit of light –

it produces an electric charge through the release of electrons.

These electric charges create a direct current, which is converted to alternating current – the type we use in wall sockets and for our appliances – which then runs to the fuse box and into the hospitals' energy supply.



With help from LEA, NHS England – London region is becoming more sustainable and prepared for the future.



## 1,150 tonnes of carbon

will be saved every year at the University College London hospital



The production of solar panels is relatively low emission, and by their third year of installation, **most solar panels are carbon neutral**, having prevented more emissions from being released than were released to create them

## Investment Grade proposals

were created for five sites



The Local Energy Accelerator supports zero-carbon decentralised energy in London, with eligible organisations able to benefit from revenue funding as well as free technical, commercial, strategic and project management services. Find out more by contacting [lea@london.gov.uk](mailto:lea@london.gov.uk)

