

Solar power

What is it and how does it work?

Solar power is one of the world's fastest growing sources of clean, reliable, and renewable sources of energy, through which photovoltaic panels convert light energy into electrical energy.

Daylight hits a silicon semiconductor layer, 'exciting' its electrons which escape their atoms, creating a flow of electrons with the silicon layer below. This is direct current (or DC) electricity.

Inverters convert the DC electricity into alternating current (AC) electricity and a transformer 'steps-up' the voltage of the electricity to match that of the electricity network. This AC electricity feeds into the national transmission network (we sometimes call it 'the grid') through a substation.

Why do we need solar power?

IT'S RENEWABLE, SUSTAINABLE AND QUICK TO DEPLOY

Solar panels produce electricity by transforming the continuous flow of light energy from the sun to electricity. They release no harmful emissions into the air when electricity is produced, and compared with nuclear or other energy infrastructure that can take decades to develop, solar projects are relatively quick to deploy with construction lasting months rather than years.

IT'S LOW IMPACT AND HIGH REWARD

Solar projects are non-invasive, reversible developments with few waste products and minimal long-term impacts on the local environment. In fact, there are many ways in which solar projects can bring additional value to local communities, through community benefits, business rates, farm diversification, and beyond.

What's more, the land on which solar projects are built can continue to be used for sheep grazing, which means that local agricultural practices can continue, so agricultural businesses are able to introduce a new revenue stream which supports their ongoing sustainability.

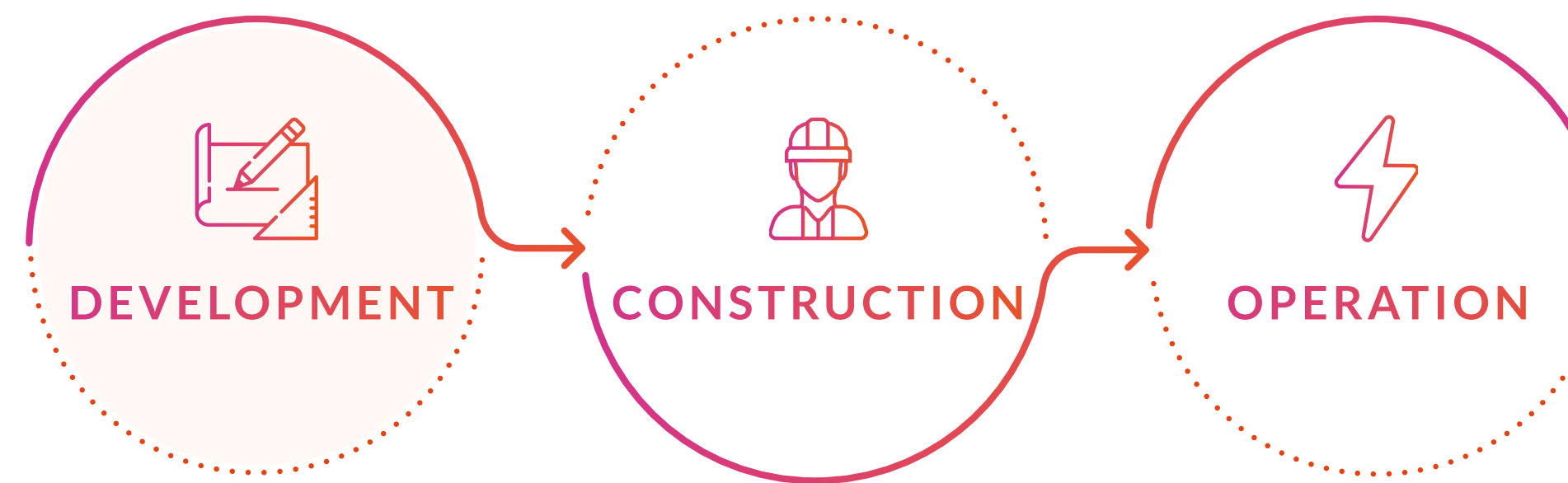
IT FIGHTS CLIMATE CHANGE ON MULTIPLE FRONTS

Developing more renewable energy is key to fighting the climate crisis. Solar projects provide low carbon energy-generating capacity quickly, and with far fewer carbon emissions, but they also help to address one of the biggest impacts of climate change: biodiversity, and the knock-on effect that losing biodiversity would have on food security.

All of our projects are designed to deliver net biodiversity gains, which in turn enhance the local environment and habitats for pollinators, boosting food production and contributing to food security.



Developing a solar and energy storage project



The development process of solar projects takes us from an initial appraisal of the site's suitability, through to detailed surveys and assessments, progressing the project plans through engagement with stakeholders, and consultation with the local community. The resulting proposals will then be put to the planning authority for a decision on whether it can be built.

SITE SELECTION

Solar projects are sited where grid connections are available, i.e., in areas where there's capacity for them to plug into the electricity network. Once we've established that there's space on the grid, we select a site for the project based on:

- ✓ accessibility for construction and maintenance;
- ✓ whether there is good screening to protect landscape and visual amenity;
- ✓ the acceptability of the site in terms of natural environmental considerations and sensitivities.



BIODIVERSITY AND LANDSCAPING

Wherever we develop a project, we aim to do so in a way that enhances local habitats, leaves a positive legacy for the local ecosystem and minimises the visual impact of the project.

Proposals for landscaping and biodiversity enhancements are informed by environmental surveys and assessments, and engagement with local stakeholders. We aim to enhance the existing habitats alongside creating new habitats using native species which attract pollinators and other wildlife.



SURVEYS AND ASSESSMENTS

Any infrastructure planning application requires surveying and assessments to understand possible impacts on people, wildlife, and the environment. This is sometimes referred to as environmental impact assessment.

The surveys are conducted by specialist consultants to nationally recognised standards, and may assess ground conditions, flood risk, archaeology, habitats and species, noise, and the presence of existing underground utilities.

The surveys and assessments will help us to understand the current conditions, and if or how these conditions would change with development.

This information will be:

- ✓ used to develop the proposals;
- ✓ shared and consulted on with the community and other stakeholders;
- ✓ submitted as part of the planning application.



ENGAGEMENT AND CONSULTATION

Good community engagement helps us to design a project which will maximise the benefits and minimise any impacts.

We engage with residents, groups, and public representatives throughout the duration of a project's development, in order to explain the need for it, demonstrate how the site will look, address questions or concerns, and to gain a better understanding of the site and the community.

In addition, we schedule a formal, set period of consultation, through which we will publish a fully developed set of proposals on which people can register their feedback, which will be taken into account before the proposals are submitted for planning approval.

To promote the community consultation, we will hold a community event, write to households and distribute copies of the proposals, and we will notify local media.

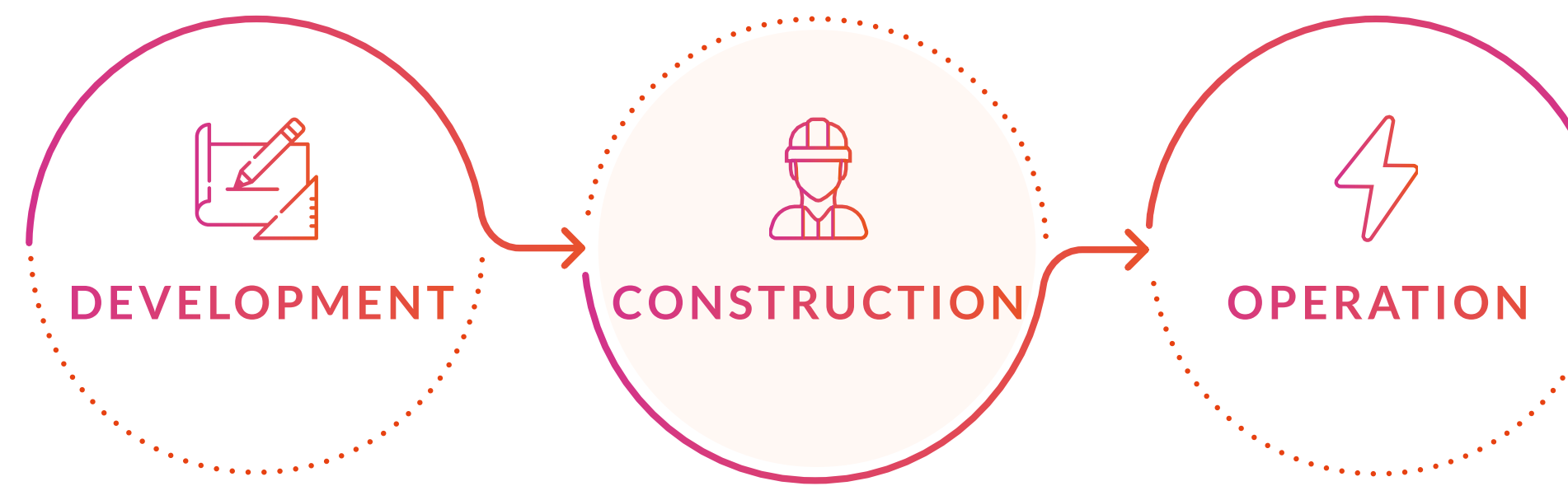


PLANNING APPLICATION

Once we have developed a set of proposals suitable for a planning application, we will submit them to the local authority's planning committee, in co-ordination with any applications necessary for environmental permits to the relevant environmental regulator. It is usually the case that these bodies will further consult with relevant stakeholders, or ask us for further information in their determination and decision-making processes.



Constructing a solar and energy storage project



The health and safety of our workforce, contractors, and neighbours, and the protection of the environment are our priorities. Safety is a mindset and we apply it to everyone, everywhere, every day.

Our construction planning prioritises safety and environmental protection, but also aims to minimise inconvenience and disruption to the community around our site. The timeframe will vary based on the size of the project, the constraints and characteristics of the site, and the required workforce. Security on any construction site is also important, and during construction, the site is monitored 24 hours a day by security staff.

We develop management plans to make sure that we follow best practice, construct a safe, clean, and high-quality site, and that we take into account and mitigate any potential impacts.



NOISE

We adhere to standard construction working hours and implement best practice measures to make sure that we minimise disruption throughout the construction process.



TRAFFIC

During construction, all site traffic is required to follow a construction traffic management plan, in consultation with local authorities and other agencies, to minimise disruption.



DUST & DIRT

Construction creates minimal amounts of dust due to the nature of the work, and we take measures to minimise the amount of dust, dirt and mud transferred outside the site boundaries by hosing down particularly dusty areas and washing vehicle wheels before leaving site.



WASTE

We keep a clean and tidy site, and we require our contractors to follow both good practice, and waste regulations in the way that they dispose of waste materials.



COMMUNICATION

We're committed to being good neighbours. We will communicate with people nearby in advance of, and as we begin construction to let them know how and when we plan to conduct the work and so that they know how to get in touch with us if they have any questions or concerns.

WORKING WITH LOCAL BUSINESSES

Most of the work that takes place on our projects is performed by one of our trusted supply chain contractors, working within our standards for safety, environmental protection, and consideration for the local community. These specialist construction companies often subcontract aspects of building a project to local contractors, which can include civil works, fencing, security, and landscaping.

Operating a solar and energy storage project



Once a solar project is commissioned, it will operate, largely quietly and unobtrusively, with very little impact in the local environment or local community. Landscaping and biodiversity enhancements will establish in the first few years and the local natural environment will benefit for the operational lifetime of the site and hopefully beyond.

BIODIVERSITY

Measures taken throughout the development and construction of our solar projects aim to:

- ✓ avoid or mitigate construction impacts;
- ✓ provide a place for local flora and fauna to thrive;
- ✓ support pollinators;
- ✓ enhance local habitats; and
- ✓ prioritise native species.

We expect that your local natural environment will benefit for the operational lifetime of the solar project.

COMMUNITY BENEFIT

We support communities neighbouring our solar projects by providing community benefit in the form of funding for projects or initiatives that leave a lasting positive contribution to the community.

We partner with community organisations, and parish or community councils to identify creative and wide-ranging opportunities, including playgrounds, defibrillators, and even batteries and solar panels for community buildings.

FOOTPATHS

We maintain any footpaths and public rights of way that cross our sites, upholding the general public's right to access the countryside.

ON-SITE MONITORING AND MAINTENANCE

During its operational lifetime, a solar project requires relatively little on-site intervention. The site will be visited every month or so for monitoring, and routine maintenance and land management will be carried out, all with little-to-no impact on the local community and environment.



OPERATIONAL SAFETY

Safety is a core value at Lightsource bp, it's at the heart of everything we do. We design our projects to include all necessary mitigation and safety measures. Once constructed, solar projects operate quietly and unobtrusively. The sites are secure, and are monitored remotely, 24/7.

DECOMMISSIONING ENERGY STORAGE SITE

As a modular site, solar projects are straightforward to decommission, and a decommissioning management plan will be in place as part of the work we do to achieve planning permission. At the end of a site's operational lifetime (up to 40 years), we will restore the site, and we care about sustainability, so we will reuse or recycle as much of the infrastructure as possible.

The technology is made up of mostly recyclable components, and as the industry continues to advance, the proportion of the equipment that is reused or recycled is expected to increase. The materials used to create batteries are valuable and finite resources, so this is a priority issue for the industry as a whole.

