

SPIRIT ENERGY

Powering change



“The traditional model of centralised energy generation is gradually being replaced by a nimble, highly responsive and localised model of micro-generation and storage.”

Erica Charles, CEO



Welcome to Spirit Energy.

It's an incredibly exciting time for the UK energy sector. Older fossil fuel and nuclear plants are being decommissioned. At the same time, electrification of the transport system is proceeding at a steady pace. It is hardly surprising that the 'capacity margin', the buffer between electricity supply and demand, has been tightening.

Furthermore, with the advent of renewables, the problem of balancing supply and demand within the National Grid is becoming ever more challenging. Historically coal has played a pivotal role in matching supply and demand, but with coal almost phased out in the UK, new tools are needed for grid balancing.

Battery storage offers one such grid management tool. The demand for battery storage is growing and more brands are coming to market. Meanwhile the unsubsidised lifetime cost of small scale solar electricity is typically in the range of 6-10p per kWh, well below the cost of grid electricity. It has become clear that local energy generation and battery storage are set to play an important role in closing the 'capacity gap' and keeping the lights on.

A quiet revolution is under way

Thus the traditional model of centralised energy generation is gradually being replaced by a nimble, highly responsive and localised model of micro-generation and storage. A model in which local batteries, including electric vehicle batteries, store excess generation from wind and solar and feed back into the grid at times of peak demand. A model in which smart meters record the ebb and flow of electricity, allowing all of us to be the owners of our own mini power station. A model in which our electricity is generated by solar applied to windows, facades, car ports and bus shelters...

Join over 3,000 clients on the path to sustainability, grid independence, and bill reduction

Spirit can help you to join this energy revolution. We design and specify solar PV systems, battery systems and EV chargers. We provide integrated solutions, combining technologies so that they work together with optimum efficiency.

Clients include homeowners, corporates, councils, consultants, M&E contractors, housebuilders and architects, as well as facilities managers, schools, colleges and universities. We are committed to technical excellence and fanatical about customer service. Every project is managed in-house using our own project managers and installers.

Our technologies are all supported by financing solutions so that you can transform your energy use at no upfront cost

Our network extends to structured finance. We work in partnership with energy efficiency financiers, offering lease finance, Power Purchase Agreements and funded LED lighting upgrades.

The aim of all of our finance partners is to ensure that the systems we install are cash positive, or at least cash neutral, from the outset.

Can you afford not to?

The lifetime cost of 'doing nothing' about your energy bills will almost certainly outweigh the cost of implementing an energy efficiency plan.

Erica Charles, CEO

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Our clients

Spirit first started installing renewable energy systems in January 2010. Since then we have built up a client base of over 3,000 domestic and commercial clients.

In the commercial sector, we work with corporates, both large and small, with new build contractors and house builders, and with schools, universities, councils and other public sector organisations.

Our client list includes Morgan Sindall, Beard Construction, Hill Partnership, Portakabin, Taylor Wimpey, Pye Homes, Berkeley Homes, Hackney Council, Oxford City Council, Portsmouth Council, Kingston Council, many corporates, and several universities and further education colleges including Sparsholt College, Oxford University, Warwick University, Goldsmith College. We have also worked with over 50 state and independent schools.

“Everybody was extremely professional, from the first meeting through to the site survey and installation.”

System design, installation and maintenance

For every system that we install we follow a similar process of design, pre-contract support, installation and commissioning. We provide on-going monitoring and maintenance as required, along with funding support when requested.

Design and pre-contract support

- Optimised system sizing and specification.
- Design drawings.
- Performance analysis.
- Site visits as required.
- Technical liaison as required.
- Compliance (Building Regulations, CDM, planning permission, network operator permission, legislative compliance).

Funding support

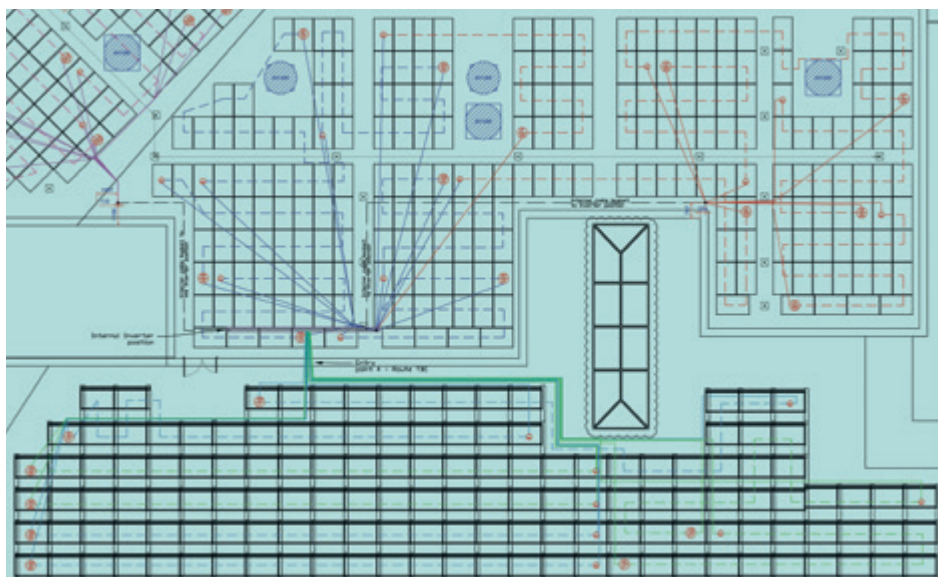
- Funding advice and support.

Installation and commissioning

- Risk assessment, method statement, health and safety compliance.
- In-house engineers and installers carry out every installation to ensure quality is maintained.
- Liaison with other contractors as required. Principal contractor and/or designer role under CDM when required.
- Testing and commissioning, and provision of certification.
- Performance guarantees and warranties.
- Paperwork for subsidies and finance, as required.

O&M services

- 24 hour monitoring, as required.
- Reactive maintenance: flexible response levels.
- Pro-active maintenance: electrical servicing and cleaning.



Consultancy

Feasibility studies

We have a wealth of expertise across solar PV, energy storage, energy monitoring, electric vehicle charging, LED lighting and controls, emergency lighting, and financing.

Not only do we have practical and up-to-date technical knowledge about all of the technologies that we install, we are also independent of any particular manufacturer and therefore well placed to provide unbiased and reliable advice.

Within each technology class that we install, there are several choices to be made in the design process, including product selection, system sizing, and choice of funding strategy.

As a starting point to advising clients, we are often asked to conduct feasibility studies and to carry out cost/benefit analysis across one or more technologies.

Bespoke design

We have assisted many architects in the design of bespoke systems and fixings to suit all sorts of situations.

Portfolio optimisation

Councils, universities, secondary schools, large corporates and other campus-based organisations typically own several buildings. In general they wish to develop a programme for renewables that prioritises the buildings offering the highest returns. We are often asked to undertake portfolio analysis.

CPD training

We run certified training courses for architects, consultants and contractors, covering solar PV, battery storage and electric vehicle charging.



Energy efficiency finance

We adopt a lifetime value approach to every system that we design and install.

While some of our customers are driven by planning requirements, and some are driven by a commitment to the environment, for the majority, the financial return is all-important. In simple terms that means that the lifetime cost per kWh produced, saved or stored by one of our systems must be less than the cost of grid electricity.

Furthermore, we are aware that many of our systems require a significant upfront investment: investing in solar and storage is effectively like paying for 5-8 years of electricity upfront with a view to obtaining a further 15-20 years of free electricity after that. And most businesses have many projects competing for that scarce resource called cash...

Luckily we work in an industry which is a leader not only in technological innovation, but also in financial innovation. Over the years we have developed relationships with many finance partners providing different forms of energy efficiency finance. All have one aim: to help client organisations implement sustainable business strategies that deliver a competitive advantage at no upfront cost.

Cash neutral or cash positive from the start

Given that the payback time of most energy generation and reduction projects is much lower than the expected system life, projects can be financed such that the overall cash flow

profile is positive, or at least neutral, in the early years.

We aim not only to help you find the right technical solution, but also to find the right financial solution. When requested, we will help you to find the right finance partner providing finance at the right price, and with the most advantageous tax treatment.

The main options are as follows:

Lease funding

A term of 15 years is possible, although 5 to 10 years is more typical. The interest rate will vary with market rates and with the credit rating of the purchaser. Spirit is an accredited installer for a number of schemes.

Solar PPA (Power Purchase Agreement)

Under a Power Purchase Agreement for solar PV, an investor leases the roofs required for solar from the site owner and then funds the cost of the solar panels. The investor sells the electricity generated to the site owner at a below market rate. The investor also benefits from the subsidy income. A similar scheme is available for large battery investments, with the site owner benefitting from time-of-use savings and the investor benefitting from the income from the grid for providing balancing services.

Green funding

Various government and other initiatives have been set up over the years to encourage investment in energy efficiency.

Free solar: solar PPA

Solar PPAs in a nutshell

A Solar PPA or Power Purchase Agreement is a long-term (20 years plus) contract between

- an investor who pays for the installation and maintenance of a solar PV system at a site; and
- the site owner / operator who agrees to purchase electricity generated by the solar PV system.

The purchase price of solar electricity is set at a discount to the grid cost of electricity.

The benefits of installing solar under a Power Purchase Agreement are as follows:

- **Free solar PV: site owner / operator obtains the benefit of solar at no cost.** The investor handles the upfront costs of installing and maintaining the solar PV system.

- **Energy savings.** The site owner is able to benefit from solar energy priced below the cost of grid electricity, saving money as soon as the system becomes operational.
- **Limited risk, no maintenance costs.** The investor is responsible for all installation and operating permissions, system performance and operating risk.
- **Reduced energy price variability.** Solar PPAs provide a fixed, predictable cost of solar electricity for the duration of the agreement. The fixed cost per kWh paid for solar energy typically inflates either at a known fixed rate, or at the rate of RPI. Both inflation rates are below expected electricity price inflation.
- **Zero cost 'green'.** Improved sustainability, positive CSR benefit, contribution to renewable energy target.

Ideal for any organisation

- owning their own premises or with a long-term lease (15 years plus);
- with spare land or at least 600m² of roof space that can accommodate a system sized at 100kWp or more;
- with a reasonable (80,000 kWh a year plus) electricity usage and half-hourly metering in place;
- with a good credit rating and sustainable long term outlook.

Hedge against rising electricity costs and save 20-25% on your electricity bill.

"We have installed hundreds of solar systems, ranging in size from two or three panels on individual housing development properties to thousands of panels across commercial sites."

Vishal Giga
Operations Director



Solar PV

Commercial and industrial

“We chose Spirit for their reputation and excellent service.”

Solar makes seriously good sense for any business or campus with a decent roof (or plot of land) and a long-term (10 years plus) intention to stay in their premises. Ideally the business should own the freehold of their premises, or should have a long-lease over the property.

We provide a full turnkey design and build solution, overcoming regulatory, financial and practical hurdles prior to installation, and offering a comprehensive warranty and maintenance programme after installation.

634kWp

**Installed February 2016
Sparsholt College, Winchester**





**Installed June 2021
Old Thorns Hotel, Liphook**

The unsubsidised lifetime cost per kWh of locally generated solar electricity is now in the range of 6-10p per kWh. This compares to 10-16p for electricity purchased from the grid.

In the right business, the system will more than pay for itself, should be financeable if necessary and will provide the following benefits:

- on-going electricity bill savings;
- grid independence – depending on space and load, solar will typically provide anywhere between 10% and 60% of the annual electricity requirement, increasing by around 20% with battery storage;
- protection against rising electricity prices;
- improvement in Energy Performance Certificate (EPC) rating;
- reduced carbon footprint;
- Building Regulations compliance for new builds;
- reliable, low maintenance technology;
- a positive response from employees, visitors, customers, suppliers and shareholders.

Solar PV

Solar PV for contractors

We install solar PV and storage on new developments and during refurbishments.

We typically work for the main contractor on the project, or for the electrical contractor.

Providing pre-contract support allows us to ensure that the specification is optimised for the client. We work with architects, consultants and contractors to ensure all design considerations are covered prior to installation.

Custom GB-Sol panels at Marwell Zoo



Bespoke systems

If your project is a little challenging, so much the better. Whether you are looking to clad a high rise tower in the centre of Oxford, energise the new Rhino house at Marwell Zoo with triangular panels, or install a brise soleil on a new centre of innovation in Southampton, we relish a challenge and hope you will ask us to get involved.

Solar PV

Solar PV for housebuilders



In roof system installed for
Millgate Homes

We are trusted by some of the biggest names in housebuilding

We have installed solar PV on residential developments of all sizes for respected housebuilders such as Taylor Wimpey, Pye Homes and Millgate Homes, to name a few. We provide free consultation at the design stage, and offer flexibility in labour provision to fit around the plot build schedule.

**“Spirit is a rare
company that not
only meets but
exceeds your
expectations.”**

Solar PV

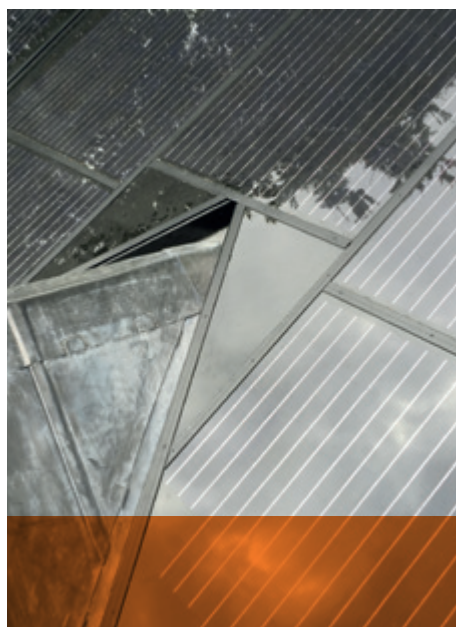
Building-integrated solar PV (BIPV)



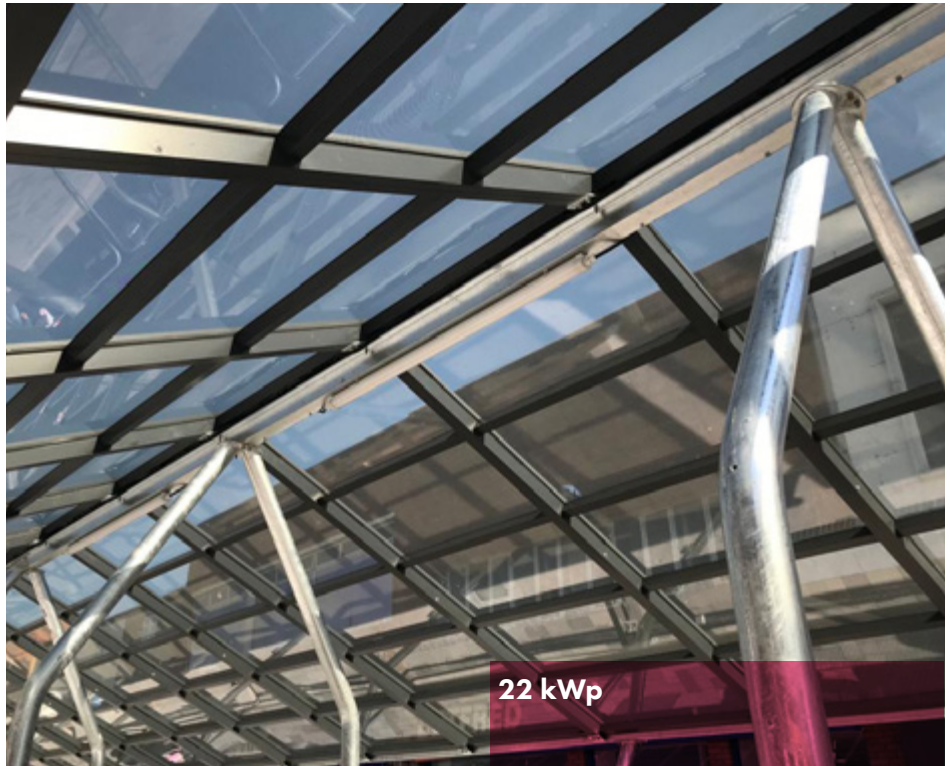
Complete solar roof installed for
Arnold Gilpin Associates



GB-Sol complete
solar roof



Customised flashings
and panels



22 kWp

**Polysolar canopy and PS-CT
Transparent series panels
West Bromwich High Street
Market Stalls**

**“Superb service
and personnel from
first contact to final
handover, I’m very
pleased.”**

Solar glazing can be used in many BIPV applications:

- translucent or semi-transparent solar windows;
- rain screens, curtain walling, rear-ventilated facades;
- solar protection fins and louvres;
- atriums, skylights;
- privacy protection panels;
- balustrades and fencing;
- greenhouses;
- bus shelters;
- barns with transparent solar roofs.

"The revolution in energy storage is exciting to witness. We regularly install systems to provide backup, peak charge avoidance and storage of excess solar."

Justin Parsons
Head of Installations



Battery storage

Cost effective battery storage has arrived, both in the commercial arena and in the residential arena. Our clients are installing battery storage to:

- store excess electricity from solar panels;
- reduce peak electricity costs (buy cheap, use peak): individuals can benefit from time-of-use tariffs, while commercial users can reduce time-of-use charges;
- provide a seamless emergency power supply or backup, replacing environmentally unfriendly diesel generators;
- earn income by providing grid balancing and capacity services to the National Grid;
- avoid the need for costly grid upgrades to support EV charger rollout;
- reduce their carbon footprint by eliminating the need for further investment in fossil fuel generation.



Residential installation of Tesla Powerwall 2



Tesla Powerpack

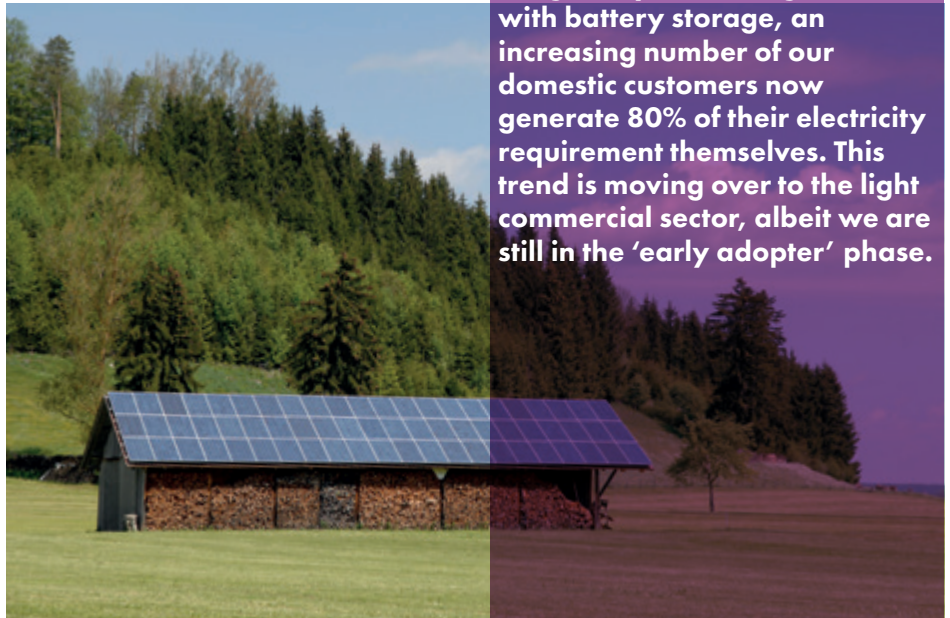
Off-grid, micro-grid

For some people in remote locations, a grid connection is prohibitively expensive, or not available. Off-grid may be the answer, combining a renewable energy source (solar, wind, or both), a battery system, and, realistically, a backup generator.

We can size the system by modelling expected loads, along with the expected output of the renewable energy system.

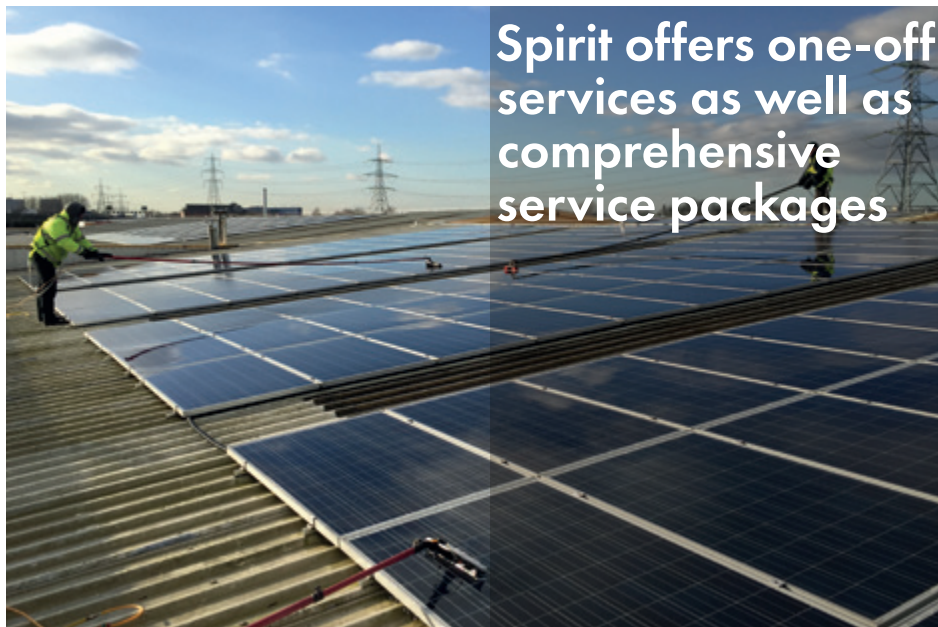
What about a micro-grid? A micro-grid is a private system combining renewable energy generation and

privately owned wires to distribute electricity to a collection of users, residential or commercial. In general, micro-grids are conceived during the planning stages of a new housing or industrial estate. There are various regulatory hurdles to overcome, not least because supplying electricity requires a licence unless an exemption can be obtained, and all properties will need to be metered. We can assist with pricing and designing the renewable energy portion of this process.



We receive several calls a week requesting help with going off-grid. By combining solar PV with battery storage, an increasing number of our domestic customers now generate 80% of their electricity requirement themselves. This trend is moving over to the light commercial sector, albeit we are still in the 'early adopter' phase.

Servicing and maintenance



Spirit offers one-off services as well as comprehensive service packages

Helping you to maintain your investment

Solar PV and battery storage are both reliable investments; a well-maintained solar system should last for 20 to 30 years with a small investment in replacement parts. A battery storage system will last from 10 to 20 years, depending on usage and technology. To ensure systems continue to operate at peak efficiency and achieve the anticipated financial return, we recommend the following:

Performance monitoring with optional alarm response

Monitoring options range from a portable handheld monitor to a full online remote portal. Fault notifications are sent to the system manager and to Spirit.

Inspection and testing

As a minimum we recommend testing and inspection should be undertaken once every two years by qualified electricians.

Workmanship warranty extension

All systems are supplied with a workmanship warranty. This can be extended as required.

Periodic cleaning of solar panels using filtered or de-ionised water

Solar panels should be manually cleaned every year or every two years, depending on location and tilt.

Installing the infrastructure to support low emission vehicles

Electric and hybrid vehicles are fast becoming commonplace on our roads, thus increasing demand for chargepoints.

Grants are available

The rollout of EV chargepoints is supported by government grants for domestic and commercial purposes.

Spirit is an OZEV (Office for Zero Emission Vehicles) approved installer.

Charger selection

Key considerations in choosing an EV chargepoint are as follows:

- charging rate (kW);
- electrical load: is the electrical connection large enough?
- how will users access the chargers (smartphone, RFID card etc?);
- billing: will this be online, offline, using a credit / debit card or on account?
- SMS messaging to users and to the operator;
- tax issues (employee benefits);
- managing multiple chargepoints.

By 2030, sales of new petrol and diesel cars will be banned. Many companies are electrifying their fleets and increasing numbers of employees are driving electric.



“With zero tailpipe emissions, electric vehicles have an exciting role to play in the bid for cleaner air. Businesses need to ensure they invest to give their customers, staff and fleet the infrastructure to charge electric vehicles. Any parking location has a fantastic opportunity to boost their image and attract new revenue streams with EV charging stations.”

Mark Golding
Head of Sales



LED lighting and lighting controls



LEDs offer a brighter, safer, more productive working environment.

NCR Bodyshops LED warehouse lighting upgrade

We can help you make big savings on your lighting bill

Commercial lighting accounts for around 20% of the electricity consumed in commercial and industrial buildings. Failing to manage lighting, especially when it comes to control, or rather lack of it, can dramatically increase a building's operational costs.

You can reduce your lighting bill by switching to LED lights and by installing lighting controls.

Switch to LED

By switching from inefficient fluorescent tubes and halogen lights to LEDs our clients typically save around 50% of running costs.

Install controls

Well designed lighting controls typically reduce running costs by a further 20-30%.

Many existing lighting systems operate using simple on/off switches, with large circuits negating the possibility of local controls. Lights usually operate at full power, often across empty desks or work stations.

Local lighting controls include occupancy detection, daylight harvesting, user dimming and timers. Central lighting control systems allow the facilities manager to view the whole building and operate lights remotely when required.

LED lighting as a service

What is lighting as a service?

By partnering with ECI Energy, we can offer LED lighting as a service:

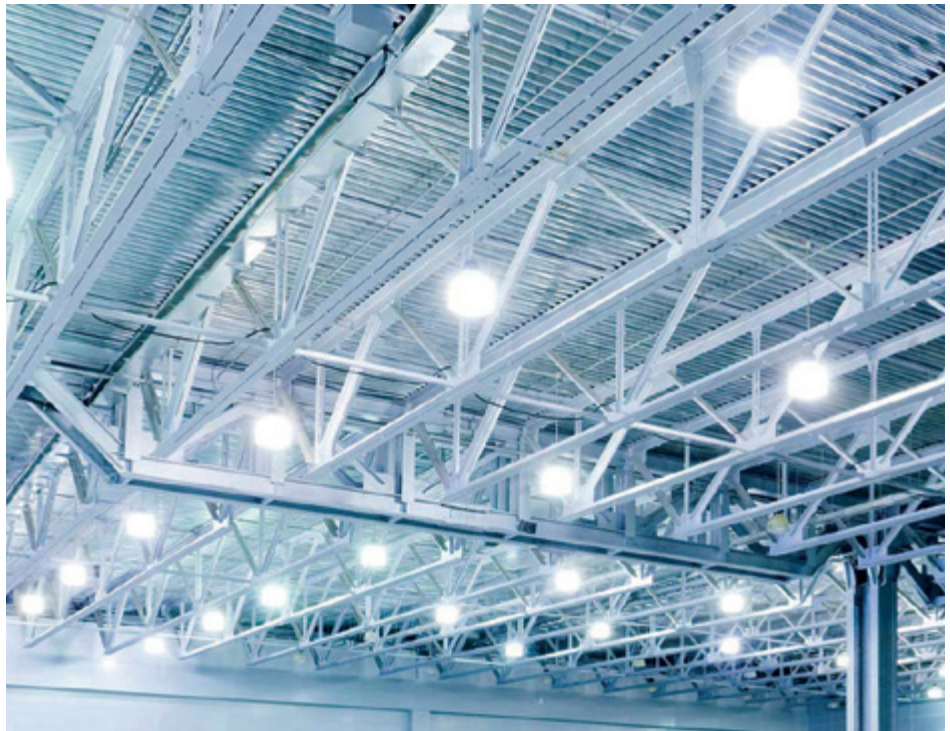
- all your lights are replaced with LEDs at no upfront cost;
- the upgrade is paid for by a monthly LaaS fee payable for five years (see below), the cost of which is more than covered by your bill savings;
- comprehensive on site 5 year warranty;
- after those 5 years, all the savings are yours.

For the service to be economical, you need a minimum of 100 lights to be replaced.

Do the costs and savings vary?

The lighting as a service (LaaS) fee varies depending only on the cost of the project, irrespective of the savings.

Generally speaking, the monthly LaaS fee works out at around 50% of the monthly savings. However, in some cases, the savings can be so significant that the fee represents a much lower proportion of the savings. An example would be the upgrade of an underground carpark where the old and very inefficient lighting was operating 24/7. By contrast, schools have low operating hours and thus an LED upgrade for a school would not provide as high value savings as the upgrade for an underground carpark. For a school, the monthly LaaS fee may cost slightly in excess of 50% of the monthly savings.





94kWp

Installed for Hackney Light and Power at West Reservoir Centre

The UK has committed to reaching net zero emissions by 2050.

Businesses have the opportunity to lead the way in reducing their carbon emissions and having a more positive impact on the environment. As consumers become more sustainably minded, publicly demonstrating a commitment to climate action can win you customer loyalty.

Spirit can help you reduce demand, generate clean energy and store it to increase the proportion of your operations powered by renewable sources. We work with you to choose the most appropriate systems to help you reach carbon reduction targets and become a more sustainable business.

**Call us on 0118 951 4490
to request a free quotation,
or visit www.spiritenergy.co.uk
for further information.**

**Email us at
info@spiritenergy.co.uk**



Powering change

Spirit Energy
44 Portman Road
Reading
RG30 1EA

0118 951 4490
www.spiritenergy.co.uk
info@spiritenergy.co.uk