

Harnessing The Power Of Solar For Your Business

A practical approach to reducing electricity costs and improving long-term energy resilience.

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Executive Summary

Understanding the evolving role of Solar PV in SME energy strategy

For many Irish businesses, solar PV is no longer a sustainability project first. It is a practical way to reduce grid reliance, improve cost certainty and make energy costs easier to manage over time.

Over the past decade, solar photovoltaic (PV) technology has become more efficient, more durable, and easier to monitor. At the same time, Irish businesses are dealing with wholesale volatility, rising regulatory charges, and growing pressure to reduce emissions.

That combination matters. A well-designed solar PV system can reduce exposure to imported electricity costs, support carbon targets, and strengthen long-term energy resilience. The commercial outcome depends on getting the design, sizing, procurement, and assumptions right.

This paper is for:

- Business owners and MDs considering solar PV
- Finance leaders assessing payback and risk
- Facilities and Sustainability teams planning site improvements
- Procurement teams comparing options and suppliers

This paper explains:

- How solar technology has evolved
- What performance businesses can expect
- How to approach sizing and investment decisions
- Where Solar fits in your energy strategy



Introduction

Solar is becoming a core part of energy strategy

Electricity costs are no longer driven by energy prices alone. For many SMEs, the combination of wholesale volatility and steadily increasing regulatory charges has made cost forecasting more complex and long-term planning more important.

In this environment, solar PV offers something fundamentally valuable: control. By generating electricity on-site, businesses can reduce their reliance on grid imports and improve cost predictability over time.

Solar is not a complete solution to energy costs. It does not eliminate grid reliance on its own. But when designed correctly, it can materially reduce exposure to rising unit costs and improve the overall resilience of an energy strategy.

Panel Efficiency

One of the most significant advances has been the steady improvements in solar panel efficiency. Commercially available modules have moved from typical efficiencies of around 16% a decade ago, with some high-performing modules now approaching 24%.

That means more energy can be generated from the same roof or ground area. An important consideration for commercial sites where space is often constrained. Performance in low light and diffuse conditions has also improved, which is particularly relevant in Ireland's climate.

Panel durability has strengthened too, with lower degradation rates and stronger manufacturing standards. Many leading manufacturers now offer long-term performance warranties, with some guaranteeing close to 88% output after 80 years. Higher efficiency and longer life both improve the investment case.

Panels now generate more energy from the same surface area and perform better in the low light conditions common in Ireland.

Bifacial Cells

Capture sunlight from both sides

~24%

Some commercially available modules now approach this efficiency.

~88%

Output after 30 years under some manufacturer warranties

Inverters and Battery Storage

Inverter Technology

Inverter technology has played a critical role in improving system performance and reliability. Conversion efficiencies now typically exceed 98%, meaning a greater proportion of generated energy is usable on-site.

Modern inverter systems also provide monitoring, fault detection, and optimisation that gives businesses better visibility of system performance and helps issues to be identified and resolved more quickly.

Battery Storage

Battery storage has advanced rapidly, changing solar from a passive generation asset into a more flexible energy management solution.

Commercial battery systems can support peak shaving, load shifting, and higher onsite use of solar power. They are not essential for every project. Their value depends on tariff structure, site demand profile, and operating pattern.

For Irish businesses facing high daytime tariffs and capacity-related charges, batteries offer an additional lever to manage demand profiles and reduce exposure to grid costs.

The Cost of Energy

As outlined in Exemplar's paper, the real impact of regulatory charges on SME electricity bills, a growing portion of electricity costs in Ireland is driven by regulatory and network charges, not wholesale energy prices.

These charges are non-negotiable and expected to remain under pressure as grid investment and decarbonisation continue. That has a direct implication for solar. Heat turned generated on site avoids not just the wholesale energy costs but a significant portion of the charges stacked on top of it.

Energy efficiency still matters. The strongest energy strategies reduce demand first, then offset the remaining requirement with on-site generation where it makes commercial sense. Solar sits alongside efficiency measures; it does not replace them

Every unit generated on-site avoids not just the wholesale price but the regulatory charges stacked on top of it.

What does solar typically offset? Depending on the scale of the installation and the organisation's load profile, a well-designed rooftop solar PV system can typically offset between **20%-30%** of a business's grid electricity consumption.

The Benefits

Economic

Solar can help protect a business against future electricity price increases by delivering more predictable savings over a long asset life. With support such as SEAI's non-domestic microgen grant, and accelerated capital allowance, paybacks can improve materially where the site is well suited.

Environmental

Solar enables immediate and measurable reductions in carbon emissions, supporting sustainability targets, regulatory reporting, and practical decarbonization plans.

Reputational

Visible investment in renewable energy can demonstrate progress to customers, investors, employees, stakeholders, particularly in sectors where environmental performance is increasingly scrutinised.

The Risk of Getting It Wrong

The case for solar has strengthened, but it is not risk-free. The financial return depends heavily on correct system sizing, robust technical design, appropriate procurement, and effective oversight during installation. Poorly specified systems, inadequate tender processes, or optimistic financial assumptions can materially undermine expected outcomes. This is particularly relevant in a fast-growing market where the quality of providers and solutions can vary significantly.

For decision makers overseeing capital investment, independent and expert advice is essential protection. Exemplar supports clients from early feasibility through the project delivery, helping them assess the numbers, the technical design and the procurement route before capital is committed.

Through this work, Exemplar has helped organisations reduce energy consumption by more than 12 GWh annually, while ensuring renewable investments are grounded in practical site reality.

€162,600

Max NDMG grant available for qualifying installations

12.5%

Tax liability reduction on investment in energy-efficient equipment

Looking Ahead

Solar is now a proven, reliable, financially attractive option for many Irish businesses. What has changed is not just the performance of the technology, but the energy cost context around it.

The opportunity is not simply to install panels. It's to make the right investment on the right site for the right commercial reason. Businesses that approach solar in a structured and informed way will be better placed to manage cost, reduce exposure, and show practical leadership in the transition to a lower carbon economy.



Talk to Exemplar before you invest in solar PV

Whether you are at the earliest stage of curiosity or ready to move, our team will give you a clear, independent view of what Solar can deliver and can manage the journey from feasibility through to commissioning.

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