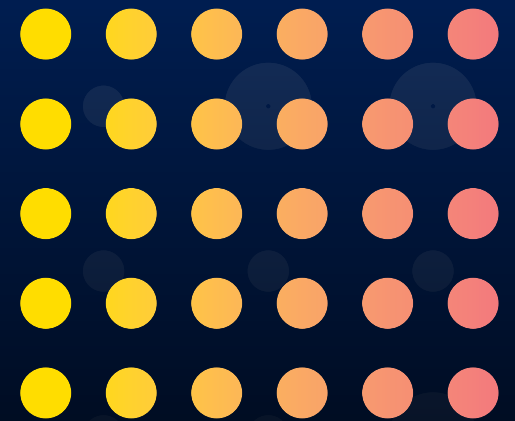


# THINK OUTSIDE THE GRID

Achieve net zero and reduce your electricity bill with an onsite renewable energy system.



## Wattstor: your partner for renewable onsite energy systems

We design, build, pay for, operate and optimise renewable onsite energy systems, and sell you the electricity they generate at a lower cost per kWh than electricity from the grid.



## Introduction

Efforts to power our world without fossil fuels have intensified over the last few years, breathing new hope into the possibility of reaching a net zero economy. Global renewable capacity is expected to increase by a staggering 75% between 2022 and 2027, with the European Union establishing itself as the second-largest growth market<sup>1</sup>.

And while government-led initiatives have massively contributed to this growth, there is another protagonist to the expansion of renewables: **businesses**.

Pushed by **high electricity costs**, the necessity to **decarbonise operations and supply chains**, and the desire to **accelerate the move to electrification** (EV fleets and heat pumps), more and more industrial and commercial (I&C) organisations have started to generate renewable electricity on their premises. For instance, in the UK the number of businesses generating their own power has more than doubled in just four years<sup>2</sup>.

While this is good news, several **barriers** are still preventing many from taking advantage of onsite renewable energy:



**Lack of guidance:** There is an information overload about the different aspects of renewable energy systems, but no one-stop shop to guide organisations through all the necessary steps.



**Lack of CapEx:** Organisations might not have the capital to fund a renewable energy project, or might prefer to spend it on their core operations.



**Lack of expertise:** To be efficient, onsite energy systems must be correctly sized. For I&C organisations, this normally involves a bespoke project based on their specific electricity needs.

<sup>1</sup> <https://www.iea.org/reports/renewables-2022/renewable-electricity>

<sup>2</sup> <https://www.iema.net/articles/business-onsite-renewable-generation-booms>



**Grid constraints:** Limited grid capacity can restrict the amount of renewable generation organisations can connect to the national grid. In other words, you might have the space to install solar PV and generate a high amount of green electricity, but the grid might not allow you to connect it. This can kill renewable projects unless mitigated.



**Lack of optimisation:** For maximum profitability, onsite energy systems should be run taking into account the price volatility and resulting arbitrage opportunities of the wholesale electricity market – adjusting the production, storage and consumption of electricity accordingly.

To solve these challenges and make onsite energy systems viable, efficient and profitable, **the first step is knowing who to talk to.**



The goal of this guide is to help you navigate these barriers and give you an overview of the necessary steps to take your onsite renewable energy project from idea to reality.

## How does it work?

Wattstor will **design, build, pay for, operate** and **optimise** a complete energy system on your premises.

We will help you overcome the barriers to onsite renewable generation, and will allow you to run your operations on up to 100% renewable electricity, at a lower cost per kWh than electricity from the grid.

## 1. Design

**Each I&C organisation has unique electricity needs, which makes them ill-suited for standardised system set ups. We get this, which is why our engineers will design a fully bespoke energy system that responds to your current and future electricity needs and makes the most of your available space.**

Crucially, at this stage we will also plan how to help you **overcome any grid constraints**, ensuring we maximise storage capacity so you can harness as much renewable electricity as possible from your available space.

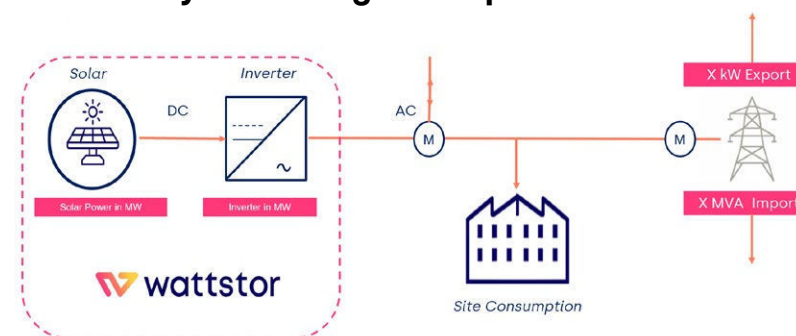
In this phase, we will:

- Gather key data from your site (e.g. electricity usage, space availability, import/export grid connection sizes etc)
- Assess grid constraints – that is how much new generation (from solar or wind) your distribution network operator will allow you to connect to the national grid

- Use modelling software to create a virtual model of your site
- Establish the potential cost of all the energy system components
- Establish the optimal energy system size based on whole-site economics, while taking market trading opportunities into account

Present to you the proposed optimal sizing and resulting business case.

### Schematic system design example





## Meet our experts

*from left to right*

**Ope Gureje**, Design Engineer

**Jiří Pitron**, Chief Technical Officer

**Kevin Ball**, Chief Commercial Officer

**Leo Spiliopolous**, Head of Product

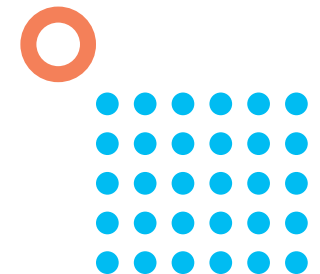
**Adam Ayed**, Project Manager

Designing and sizing a bespoke energy system is no easy feat. There are many variables to consider, which is why it's important that this crucial step is handled by design engineers with proven expertise in renewables.

Wattstor's team includes renowned international academics at the forefront of renewables research, as well as design engineers with decades of hands-on experience. Together, they can design a system that is perfectly tailored to your organisation's needs.

Our core skills include:

- Holistic site analysis
- PV/Wind/Battery/EVCP Modelling
- Techno-Economic analysis
- Design engineering
- Asset integration (AC and DC side)



## 2. Build

**With Wattstor, there's no need to manage multiple vendors and consultants.**

Thanks to its expert technical team and its reliable networks of suppliers and installers, Wattstor will take care of each stage of the building process.

We remove the headache of having to source and integrate the necessary components, and provide you with a ready-to-go energy system that could include the following components:



Solar PV



Wind turbines



Battery storage



EV charging facilities

(or enough capacity to build them in the future)



Heat pumps



Site-wide asset integration

through our industry-leading, AI-based Energy Management System (EMS) with predictive capabilities: Podium

Our solution is **modular** and can be retrofitted to existing systems or used for greenfield sites. You can expand on your existing generation assets, make the most of them by adding battery storage, future-proof your premises with EV charging, and optimise your entire system with Podium.

### Achieving net zero and overcoming grid constraints

Wattstor helped Mawdsleys, the UK's largest independent pharmaceutical distributor, to maximise the installed capacity of solar PV for a new temperature-controlled warehouse.

To generate the forecasted electricity demand of the warehouse, **Mawdsleys needed 1700 kW** of solar array on the roof, but their **DNO only allowed them to connect 750 kW** to the grid – only 40% of what they required.

By connecting its solar assets to a **2500 kWh direct current (DC) coupled battery**, we allowed Mawdsleys to power its warehouse on 100% onsite-generated energy, plus have a 25% surplus that is now exported, and might be used in the future to power EV trucks.

**Capacity needed:** 1700 kW

**Grid allowance:** 750 kW (40%)

**Our solution:** 2500 kWh direct current (DC) coupled battery

**Results:** 125% of capacity achieved (100% for operations, 25% for export/future-proofing)





### 3. Pay for

**Lack of cash can prevent even the most ambitious organisations from going ahead with their renewable energy project. Even when cash is available, companies might rightfully prefer to spend it on their core operations rather than on a renewable energy project, or might not want this kind of investment to be on their balance sheet.**

That's where Wattstor steps in. We are so confident in the profitability of our onsite energy systems that we are willing to take all associated risks, put our money where our mouth is, and share the benefits with you.

It works like this:

- **We pay for your system in full:** design, construction, operation and optimisation are all part of the deal
- **We sell you the renewable energy it generates,** at a lower cost per kWh than electricity from the grid

The supply of electricity to your site will be regulated by a Power Purchase Agreement (PPA) which typically lasts between 10 and 15 years. At the end of our agreement, **the assets are yours**. This means you will enjoy 100% free renewable energy long after the PPA ends.

For the whole duration of the PPA, the agreed rate per kWh will not increase with inflation: it will stay flat and predictable, giving you complete peace of mind that you won't exceed your energy budget.

The result? You will run your operations on up to 100% renewable energy produced on your premises, without spending a penny of your cash; slash your energy bill; and protect your business against the volatility of the wholesale electricity market.

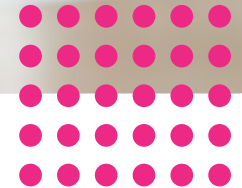


## How our PPAs work

We offer two types of PPA:

**Fixed:** you will pay a fixed monthly fee, which includes the operation and maintenance of the assets. Think of this as a subscription service, such as your WiFi or streaming services. This is ideal for those who prefer paying a fixed monthly fee for easy budgeting and cost certainty.

**Pay-as-you-go:** you will only pay for the kWh you generate – at a constant, agreed rate that is lower than that of electricity from the grid.



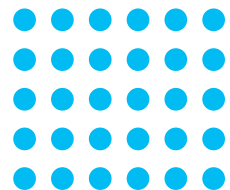
## 4. Operate

**It is in our best interest – as well as yours – that your onsite energy system operates as efficiently as possible, generating the highest possible amount of renewable electricity.**

That's why you can rest assured that we will fully take care of it to guarantee uptime and profitability. We won't just be there when something breaks: we will do our best to proactively prevent issues and minimise downtime.

Our offer includes:

- Preventative maintenance
- 24/7 condition monitoring
- Repairs



## 5. Optimise

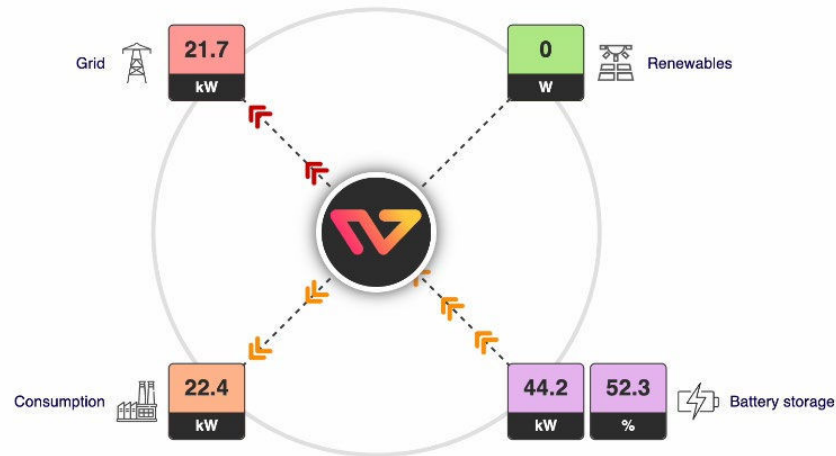
**All onsite energy assets will be connected and managed through our powerful, site-wide, AI-based Energy Management System (EMS): Podium.**

Podium leverages the power of AI to analyse electricity market data, your electricity usage patterns, your onsite generation and storage capacity, and more. Based on this wealth of data, Podium will automatically forecast your site's electricity generation and consumption, choose the best way to use your storage assets, and holistically manage the onsite energy system to minimise costs.

Podium allows you to:

- Stay within grid limits
- Make the most of the electricity market's fluctuations
- Store grid electricity when prices are low or negative
- Use onsite generated and stored electricity – or sell the excess back to the grid – at peak prices
- ...and more!

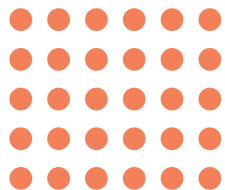




## Podium AI

Podium's AI can help to **not only monitor real-time events, but also forecast** what's going to happen over the next few hours and days, both on your site and in the wholesale electricity market. This gives you a great competitive advantage over companies that are using traditional EMSs – as well as a higher economic return.

And that's not all. Podium's algorithms, which are fully owned and managed by Wattstor's in-house software team, are continuously improving – allowing you to always stay abreast of the latest market changes.



## Frequently asked questions

### **Is a fully funded energy system for me?**

You could benefit greatly from a fully funded energy system if your site has a high rooftop to load ratio, meaning you have a large rooftop (or ground space availability) and moderate electricity consumption. This is usually the case with logistics companies, supermarkets, leisure centres, warehouses, manufacturing plants, retail shops and many more I&C organisations.

If your building is very compact and you have a high electricity consumption, installing an energy system might be more complex, but our engineers will be able to advise on a system design that works for you.

### **How profitable will the onsite energy system be?**

The business case for an onsite energy system ultimately depends on your electricity usage and how much space you have for solar PV or wind turbines. That's why our technical team will make sure to size the system correctly, so that it offers the highest possible value.

Our systems are not "one-size-fits all": your electricity needs will be considered at every stage of the process to allow you to minimise costs and generate and store as much renewable electricity as possible.

### **Where will I put the battery?**

For most customers, the battery will be the size of a 20ft shipping container. It can be placed either inside or outside, and produces no noise, vibration or emissions.

For your peace of mind, the battery containers are also fitted with a fire suppression system.

### **Does my current electricity contract or supplier matter?**

No, we can install an onsite energy system regardless of who your current energy supplier is, or what kind of contract you have. We will also take care of getting permission from the network operator to connect the system to the grid.

### **Will I need planning permission from my local authorities?**

In the UK, as well as in most European countries, solar and battery installations do not require planning permission. Where this isn't the case, our technical team will be able to advise on the necessary permissions, and to liaise with local authorities on your behalf.

## About Wattstor

Wattstor provides complete onsite renewable electricity solutions. Our fully funded energy systems help make the clean energy transition a reality, with no CapEx and lower than grid electricity costs. From industry-leading consultancy, to renewable assets, state-of-the-art battery storage and a powerful EMS, Wattstor is the one-stop specialist for organisations eager to fast forward their net zero ambitions.

**Would you like to find out more about our fully funded onsite energy systems?**

[Book a free 30-min discovery call](#)

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At Wattstor, we believe that renewable electricity is a business essential. We're committed to eliminating all obstacles to the clean energy transition – from removing CapEx costs, to securing lower than grid electricity prices on your renewable projects and overcoming grid constraints.

From fully financed energy systems to industry-leading expertise, we provide everything you need to bring your organisation's clean energy ambitions to life. We want to make your renewable generation assets go further, maximising generation capacity and overcoming grid constraints with advanced battery storage. Our fully automated energy management system - Podium - plans ahead, oversees all generation assets and makes smart load shifting decisions without human intervention or impact to your operation, removing all guesswork from commercial energy management.

With energy management taken care of, you'll be able to stop worrying about electricity bills and start focusing on what you do best: running your business.

