Case Studies

Domestic

Mr Hopper, Penryn

Mr Hopper installed a **Wattstor® 5/6** at his home in March 2015. The customer monitored his consumption and generation for 40 days and found that the **Wattstor®** could meet the demand of his 5kW load, which means he does not have to import electricity through the night. On 35% of the days he reported **importing less than 1kWh, costing just 15p** for the days electricity from the grid.

Mr Hopper compared his imported consumption from the 40 day period in 2015 to the same period from the previous years and reported a **62% average reduction** in imported electricity since installing the **Wattstor®** system.

Mr Cunningham, Carlyon Bay

Mr Cunningham installed a **Wattstor®** 5/9 system at his large 4 bedroom home in April 2013 to accompany his 6kW PV system. For the 42 days between April-May 2015, Mr Cunningham reports to have imported **a total of just 161kWh** (3.6kWh per day), **costing a total of 48p per day** in imported electricity.

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Commercial

Carley's Food Factory – Chacewater, Cornwall

Carley's organic food factory moved to a new eco factory in 2014 which has a 30kW array of Solar P.V, thick wall and roof insulation, triple glazed windows, heating provided by a bio-mass boiler and rainwater harvesting.

Carley's food factory wanted to reduce their carbon footprint as much as possible and maximise the use of their existing Solar PV generation. They installed a **Wattstor®** to utilise their generation from evenings and weekends when they are not operational, but still generating. By storing and using the energy when they need they are able to realise their goals of becoming self-sufficient.

Wattstor designed and installed a bespoke 3-Phase system, installing a 10kW inverter charger on each phase, linked to a central 18kWh battery bank. The customer has remote monitoring, so they can see the performance of the PV generation and the **Wattstor®** storage while also measuring any export. The customer has since experienced reductions in their energy bills.

FAQ's

Can the system work off-grid?

Yes, in the event of a power-cut, the system allows the renewable generation system to continue working, giving off-grid capability.

How long does it take to install?

A typical domestic installation should take one day using two people (including a qualified Part P electrician).

What is the advantage of having an AC system?

The **Wattstor®** is able to power a property during power-cuts, it does not effect FiT payments and there is no need to replace any inverters from your current PV system.

Where can I put my Wattstor®?

A **Wattstor®** system can be installed in a garage, utility room or externally in appropriate containment. It is not recommended for a system to be installed in loft spaces or spaces that are used communally.

Is the system G59/G83 compliant?

G59/G83 only applies to systems that operate in parallel with the grid. This does not apply to the standard **Wattstor®** system.

How should my system be sized?

The inverter/charger should have a higher rating than the peak generation of the renewable system (e.g. 4kW PV systems requires a 5kW inverter/charger). The battery storage should be sized depending on your surplus generation and required load. Your installer will be able to size your system when they conduct a survey.

Do I need a hot water diversion switch?

Properties with a hot water tank and immersion heater would benefit from a hot water diversion switch in addition to the batteries. This enables any additional surplus generation to be diverted into hot water once the batteries are fully charged and further minimises export to the grid.

How much generated energy is needed to totally charge the batteries?

This depends on the rating of the batteries. On a standard 4kW Solar PV system and using lead acid gel batteries with 6kWh of storage, the amount of energy required is 7.5kWh of generation.

If the battery efficiency declines, when does your warranty take effect?

Once the batteries degrade to a total capacity of 60% of their usable storage Wattstor will replace them, subject to the terms of our warranty.

How easy would the replacement of the battery be?

The battery can be replaced very easily (less than 2 hours) by a Part P qualified electrician.

WATTSTOR

RENEWABLE ENERGY STORAGE
AND MANAGEMENT SYSTEMS

Tremough Innovation Centre, Penryn, Cornwall, TR10 9TA

Tel: 0845 524 0221 • Email: info@wattstor.com

www.wattstor.com

WATTSTOR

AWARD WINNING RENEWABLE ENERGY STORAGE AND MANAGEMENT SYSTEMS

- Reduce grid consumption in the evening
- Reduce energy bills
- Off-grid resilience and protection during power cuts
- No changes to FiT tariff or existing PV system
- Can be installed with any existing PV system
- Flexible design sized for your property
- Wi-Fi monitoring

AN AFFORDABLE ALTERNATIVE TO THE GRID

The Wattstor® System

The **Wattstor®** is an energy storage and energy management system which 'banks' surplus renewable energy into batteries for use when it is needed, instead of feeding it back to the grid. Once the batteries are fully charged, any remaining surplus power can then be diverted to the immersion heater of a hot water tank to additionally provide free hot water.

About Wattstor

Based in Penryn, Cornwall, Wattstor Ltd has been designing and supplying domestic and commercial renewable energy storage systems since January 2013. Wattstor are one of the pioneering British companies in energy storage, and are dedicated to the optimisation of renewable energy generation and energy management. They work with accredited installers across the UK to design and supply bespoke energy storage systems tailored to your needs..

Independent Testing

The Environmental Sciences Institute of the University of Exeter monitored the performance of a prototype **Wattstor®** during the Summer of 2013. Their published report is available in full by visiting **www.wattstor.com**.

Cost

Wattstor is one of the most affordable energy storage systems available. For a full price list please contact your local Wattstor installer.

A Wattstor System™ comprises:

- A suitably sized inverter/charger
- Battery storage from 3-30kWh
- Prefabricated switch gear box
- All necessary ancillaries
- Optional remote monitoring device

Key Features & Benefits

- **Renewable Energy System Optimisation:** A Wattstor® ensures maximum self-consumption of clean, free renewable energy generated on site, rather than wasting it by feeding back to the grid. Generate power locally, store it locally, use it locally – don't send it anywhere!
- **Flexibility of Consumption:** A Wattstor® allows renewable energy to be used at the times you need it most, not just when it is being generated.
- **Reduce Costs:** A Wattstor® minimises the consumption of increasingly expensive utility company energy.
- **Uninterrupted Power:** The energy stored by a Wattstor® is seamlessly accessed during power cuts. This is even more significant with the ever increasing threat of grid supply shortages. The system allows your renewable generation to continue generating even in during a power cut.
- **Tailor Made:** The Wattstor® can be customised to fit individual needs and building requirements – domestic, commercial, industrial or agricultural – and can be installed with new, or incorporated into, existing renewable systems/installations. All Wattstor® systems are designed by experts in the industry and come with technical support.

Battery Technology

With a Wattstor® system various battery chemistries are available depending on your energy storage needs, space available, usage and budget. Wattstor currently supplies Lithium Iron, Aqueos Hybrid Ion, Tubular or Valve Regulated Lead Acid. Each battery chemistry is scaleable to suit the storage size required.

Battery	Flat Plate Lead Acid (Sealed)	Tubular Lead Acid (Sealed)	Aqeuos Hybrid Ion	Lithium Iron
Cycles	1100 cycles @ 50% D.O.D.	3000 cycles @ 50% D.O.D.	3000 cycles @ 100% D.O.D.	2500 cycles @ 80% D.O.D.
Nominal Voltage	12V	24V	48V	12V
Capacity (25°C, 10 HR rate)	250AH	240AH	40.6AH	200AH (C1 discharge)
	1.5kWh (useable)	2.88kWh (usable)	1.9kWh (usable)	1.92kWh (usable)
Dimension (L x W x H)	520mm x 269mm x 220mm	774mm x 430mm x 680mm	935mm x 330mm x 310mm	295mm x 425mm x 274mm
Approx. weight	74 Kg	154 Kg	118 Kg	42 Kg

Inverter/Charger Data				
Model	Wattstor® 3/3	Wattstor® 5/6	Wattstor® 8/9	Wattstor® 10/12
Output	Output Voltage: 230 V AC ± 2% Frequency: 50 Hz ±			
Weight (Kg)	19	30	45	45
Dimensions (h × w × d in mm)	362×258×218	444×328×240	470 x 350 x 280	470 x 350 x 280

Also comes with: Programmable switch gear box for automatic grid/Wattstor changeover, remote monitoring availability and is fully compliant with relevant safety standards.