

A Homeowner's Energy Guide



To electricity tariffs, energy optimisation and lower bills.

Table of Contents

Introduction	3
Part 1 What is Energy Optimisation?	4
Part 2 Introducing Sentinel	6
Part 3 The Main Types of Energy Tariffs in the UK	8
Standard Tariffs	8
Time-of-Use Tariffs	9
Solar & Battery Smart Tariffs	10
Dynamic Pricing Tariffs	11
Part 4 Handy Tips to Cut Your Energy Bills Today	12
Part 5 What Household Appliances Use the Most Energy	14
High Energy Use Appliances	15
Medium Energy Use Appliances	16
Lower Energy Use Appliances	17
Energy Terms Explained (Glossary)	18
Final Thoughts: Making Energy Simpler	20

Introduction

Why Energy Tariffs and Optimisation Matter More than Ever

Energy prices have changed significantly in recent years. At the same time, more homeowners are installing solar panels, home batteries, EV chargers and heat pumps.

These technologies create huge opportunities to reduce bills and, in some cases, earn money from your energy. But only if they are used in the right way.

The challenge is that energy tariffs are confusing, and most homes are not set up to take full advantage of them.

THIS GUIDE IS DESIGNED TO HELP YOU UNDERSTAND:



The main types of energy tariffs available in the UK



How different tariffs affect homes with and without solar and batteries



What energy optimisation means in simple terms



Practical steps you can take today to reduce energy costs



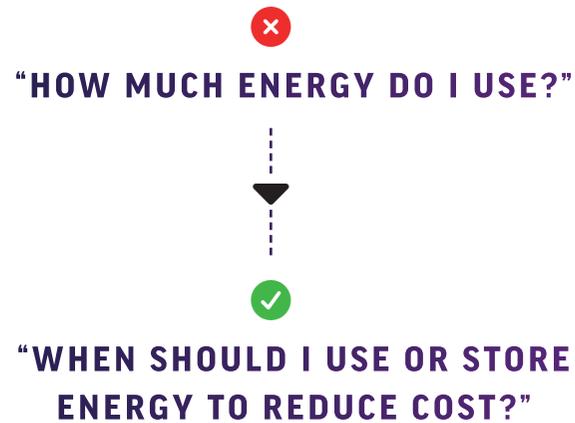
How technology like Sentinel can simplify everything

**There is no need for technical knowledge.
This guide is written for homeowners.**

Part 1

What is Energy Optimisation, in Simple Terms

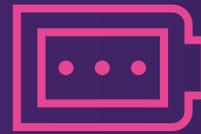
Energy optimisation means using electricity at the best possible time and in the best possible way.



FOR EXAMPLE:



Using solar energy directly instead of exporting it cheaply



Storing cheap electricity for later use



Avoiding buying electricity during peak pricing



Keeping batteries healthy so they last longer

Optimisation happens quietly in the background.
The goal is not complexity. The goal is simplicity and better outcomes.

Part 2

Introducing Sentinel

Energy optimisation means using electricity at the best possible time and in the best possible way.

What Sentinel is

Sentinel is an energy intelligence platform that helps manage solar, batteries and energy usage more effectively.

It does not replace your energy supplier or your equipment. It helps everything work together more intelligently.

The aim is to remove complexity for homeowners.

What Sentinel does

Depending on your setup and tariff, Sentinel can:



Monitor system performance



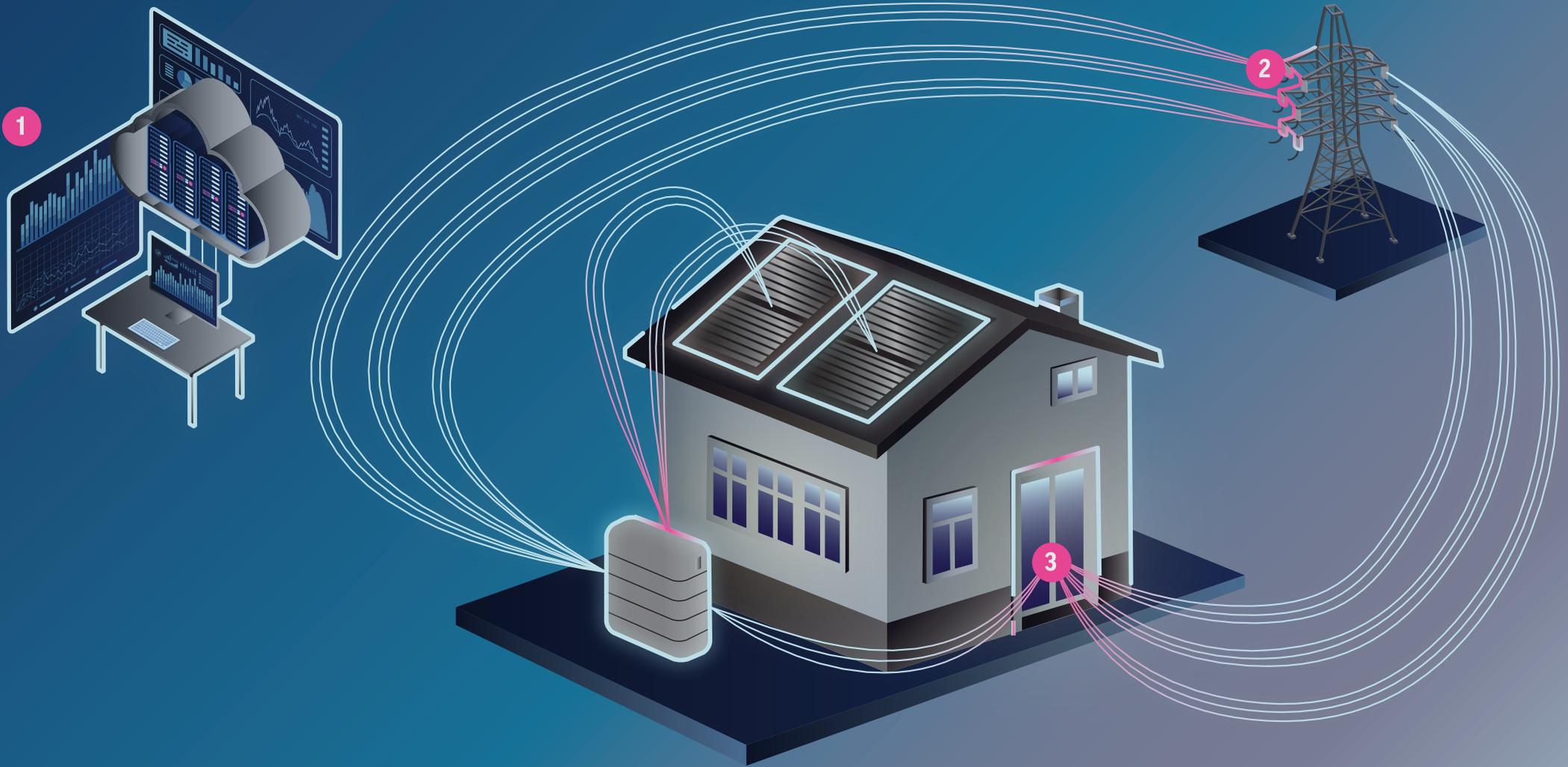
Optimise how energy is stored and used



Automate decisions based on pricing and demand



Alert engineers if issues arise



1 WE'VE GOT THIS.

Your home's energy is professionally monitored, quietly optimised, and actively protected—without you lifting a finger.

2 BUY LOW. SELL HIGH.

Sentinel quietly exploits price swings and forecasts, turning volatility into savings while you get on with life.

3 SET IT, FORGET IT.

AI optimisation backed by humans removes complexity, reduces anxiety, and makes modern energy effortlessly manageable.

Part 3

The Main Types of Energy Tariffs in the UK

Most UK households fall into one of the following tariff types. Understanding which one you are on is the first step to reducing your bills.



1. Standard Tariffs

What this means

You pay the same unit rate for electricity no matter when you use it. Morning, afternoon, evening, it makes no difference. This is the most common tariff type in the UK.

Who this suits

- > Homes without solar or batteries
- > Households that prefer simplicity
- > People who do not want to manage their electricity use

Limitations

- > No reward for using energy at cheaper times
- > Limited opportunity to reduce costs

How Sentinel can help

Sentinel can help by:



Prioritising self-use of solar energy



Preventing batteries from emptying too early



Reducing unnecessary grid imports



Monitoring system health and performance

This means lower bills and smoother system behaviour, without changing tariff.



2. Time-Of-Use Tariffs

What this means

The day is split into different price periods, usually:

- > A cheaper overnight rate
- > A higher daytime or evening rate

Who this suits

- > Homes with batteries or EV chargers
- > Households that can shift usage to cheaper periods

Benefits

- > Charge batteries overnight at low cost
- > Use stored energy during expensive periods
- > Reduce peak-time grid usage

How Sentinel can help

Sentinel simplifies Time-of-Use tariffs by:



Automatically charging during low-cost windows



Using stored energy during high-cost periods



Avoiding manual scheduling mistakes



Protecting battery health through smart cycling

**This removes guesswork
and ensures you never
miss a cheaper period.**

3. Solar and Battery Smart Tariffs

What this means

These are designed for homes with solar panels and batteries.

They typically include cheaper electricity overnight and standard daytime rates with higher export payments at certain peak times

Who this suits

- > Homes with solar and batteries
- > Households looking to maximise savings and export value

Benefits

- > Buy electricity cheaply when needed
- > Use your own stored solar at high-price times
- > Export energy when it is most valuable

How Sentinel can help

Sentinel can help by:



Ensuring battery space is available for solar generation



Timing exports for the highest value periods



Stops batteries from charging or discharging at the wrong time



Monitoring performance so export opportunities are not missed

**This helps homeowners
get the most value without
constantly checking prices.**

4. Dynamic Pricing Tariffs

What this means

Electricity prices follow the wholesale market and change throughout the day. Prices can be very low, very high, or occasionally the wholesale market will even pay households as they consume energy.

Who this suits

- > Homes with batteries
- > People comfortable with automation
- > Households looking for maximum optimisation

Opportunities and risks

- > Very high potential savings
- > Greater complexity without automation

How Sentinel can help

On dynamic tariffs, Sentinel can:



Respond automatically to price changes in the energy market



Charge batteries when prices fall for future use



Use or export energy when prices rise, generating savings



Avoid high-risk periods where prices rise

This removes the need for constant monitoring and manual control.

Part 4

Handy Tips to Cut your Energy Bills Today

You do not need solar, batteries or energy optimisation platforms to start saving money.

Here are practical steps anyone can take.

SIMPLE ACTIONS THAT MAKE A DIFFERENCE



**Run washing machines
in the evening**



**Turn off standby
appliances at the plug**



**Ensure blinds are
closed correctly**



**Use LED lighting
throughout the home**



**Check insulation and
draught proofing**



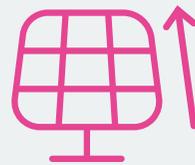
**Lower boiler thermostat
settings slightly**



IF YOU HAVE SOLAR OR A BATTERY



Use energy-hungry appliances during daylight hours



Avoid exporting solar unnecessarily



Ensure batteries are not manually overridden incorrectly

Sentinel helps automate many of these behaviours without lifestyle changes.

Part 5

What Household Appliances Use the Most Energy

Understanding which appliances use the most electricity helps you focus on where savings really matter.

Energy use is usually measured in **kilowatt-hours (kWh)**. One kWh is the amount of energy used by a 1,000-watt appliance running for one hour.

Below are typical average figures. Actual usage will vary depending on appliance size, efficiency and how often it is used.



HIGH ENERGY USE APPLIANCES

These appliances have the biggest impact on your electricity use and are well suited to optimisation or time-shifting to cheaper periods.

Appliance	Typical Power Rating	Typical Use	Energy Use
Electric shower	8.5 to 10.5 kW	Around 10 minutes	1.4 to 1.8 kWh per shower
Tumble dryer	2 to 4 kW	1 to 2 hours	2 to 4 kWh per cycle
Electric oven	2 to 3 kW	Around 1 hour	2 to 3 kWh per hour
Heat pump	Varies by size	Daily space heating	Typically 3 to 5 kWh per day in mild weather (higher in winter)
EV charger (home)	7 kW	Several hours	20 to 60 kWh per full charge (vehicle dependent)

MEDIUM ENERGY USE APPLIANCES

These appliances run regularly. Individually they are moderate users, but over time they contribute significantly to overall demand.

Appliance	Typical Power Rating	Typical Use	Energy Use
Washing machine	2 to 2.5 kW	Per wash cycle	0.5 to 1.5 kWh per cycle
Dishwasher	1.5 to 2 kW	Per wash cycle	1 to 1.5 kWh per cycle
Fridge freezer	100 to 300 W	Runs continuously	1 to 2 kWh per day (300 to 500 kWh per year)
Kettle	2.5 to 3 kW	3 to 5 minutes	0.1 to 0.2 kWh per boil

These appliances benefit from steady, well-timed energy use rather than short bursts.

LOWER ENERGY USE APPLIANCES

These appliances use less electricity individually, but long operating times or large numbers of devices can still add up.

Appliance	Typical Power Rating	Typical Use	Energy Use
Television	50 to 150 W	Per hour of viewing	0.05 to 0.15 kWh per hour
Laptop	50 to 100 W	Per hour of use	0.05 to 0.1 kWh per hour
LED lighting	5 to 10 W per bulb	Per hour	0.005 to 0.01 kWh per bulb per hour
Phone charger	5 to 20 W	Per full charge	Less than 0.05 kWh

While low impact individually, multiple small devices left on continuously can still increase overall consumption.

ENERGY TERMS EXPLAINED

Term	What it means	Example or explanation
Watt (W)	A measure of power – how fast electricity is being used.	A 1,000-watt appliance uses electricity faster than a 100-watt appliance. Think of watts as speed.
Kilowatt (kW)	1,000 watts. Used to describe larger electrical loads.	A 7 kW EV charger uses seven times more power than a 1 kW appliance.
Kilowatt-hour (kWh)	A measure of energy used over time. This is what you are billed for.	A 1 kW appliance running for 1 hour uses 1 kWh. A 2 kW appliance running for 30 minutes also uses 1 kWh. Think of kWh as distance travelled, not speed.
Unit of electricity	The term “unit” on your bill usually means one kWh.	If electricity costs 30 pence per unit, using 10 kWh costs £3.
Import	Electricity you buy from the grid.	Using less imported electricity reduces your bill.

Term	What it means	Example or explanation
Export	Electricity you send back to the grid, usually from solar.	Export may be paid at a fixed or variable rate depending on your tariff.
Peak period	Times when electricity demand is high and prices are usually higher.	Often early evening.
Off-peak period	Times when electricity demand is lower and prices are typically cheaper.	Often overnight or early morning.
Time-of-Use tariff	A tariff where electricity prices change depending on the time of day.	Prices are higher at peak times and lower during off-peak periods.
Energy optimisation	Using electricity at the most beneficial time to reduce cost or increase value.	This can include storing energy, consuming at cheaper periods, exporting at higher-value times.
Battery cycling	The process of charging and discharging a battery.	Reducing unnecessary cycling helps extend battery lifespan.
Negative pricing	A situation where suppliers pay buyers to take excess goods or energy.	Rather than charging to consume energy, the customer is paid.

Final thoughts.

Making Energy Simpler

Energy tariffs and technology do not need to be complicated.

The right tariff combined with sensible energy habits can reduce costs immediately. For homes with solar and batteries, energy optimisation can unlock even greater value.

Sentinel exists to make this easier, quieter and more reliable. It helps homeowners benefit from smarter energy use without needing to become energy experts themselves.

The future of home energy is not about using less.

It is about using energy more intelligently.





