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Energy Advice Drop In
The Wellbeing Centre
Church Stretton
Thursday's 10.00 – 12.00

StrettonClimateCare
Solutions for a Sustainable Future

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Smart Energy Systems.

For many years, we have relied on a relatively straightforward 'National Grid' model to meet our electricity needs. It consists of a few large-scale power stations - typically fuelled by fossil fuels or sometimes nuclear energy - that transmit power over extended distances to homes, commercial and retail buildings, factories, hospitals, schools, etc.

In the Net Zero Carbon future we will require much more electricity to heat our buildings and fuel vehicles. Most generation will be by renewables such as wind, solar and hydro, which must be integrated with storage systems and a nuclear "base load". This requires a 'Smart Energy Grid' model to ensure that we are all using electricity as efficiently as possible. It involves two-way communication between suppliers and customers through smart meters, and enables us to use our own solar panels to best advantage, and buy electricity from the grid at the times when it is cheapest. Smart Meters giving real time consumption to energy suppliers have been available for several years, (see our Info sheet No. 23).
A smart electricity grid brings a lot of advantages over traditional power systems, making energy distribution more efficient, resilient, and sustainable. Here are some key benefits:

- *Better Energy Efficiency:* Smart grids optimize energy use by adjusting supply based on real-time demand, reducing waste and lowering costs.

- *Improved Reliability & Resilience:* With advanced sensors and automation, smart grids quickly detect and respond to outages, minimizing downtime and making the grid more resistant to disruptions.

- *Integration of Renewables:* They accommodate solar, wind, and other renewable energy sources more effectively, balancing fluctuations in generation to ensure stability.

- *Lower Costs for Consumers:* Through demand response programs and real-time pricing, consumers can adjust their electricity use to save money, especially during peak hours.

- *Reduced Environmental Impact:* By enhancing efficiency and supporting clean energy adoption, smart grids contribute to lower carbon emissions and a more sustainable future.

- *Enhanced Grid Monitoring:* Real-time data collection allows utilities to anticipate problems, optimize operations, and improve maintenance planning to ensure there are

not over demands of the grid locally. In time it will be possible to remotely control the energy demands of “smart controlled” equipment.

Demand on our electricity grid is growing fast, especially as fossil fuels are phased out and smart controls allow the user greater opportunities to take advantage of price fluctuations. There are increasingly a wide variety of different tariffs.

- - *Fixed Tariff* – The unit price of electricity remains constant for a set period, usually 12 months or more. This provides price stability but may not benefit from price drops.
- - *Variable Tariff* – The price fluctuates based on market conditions or regulatory changes. This can be beneficial when prices fall but risky when they rise.
- - *Tracker Tariff* – The price follows wholesale energy costs, meaning it can change frequently. This offers potential savings when prices drop but lacks protection against price hikes.
- - *Time-of-Use Tariff* – Prices vary depending on the time of day. For example, Economy 7 or Economy 10 tariffs offer cheaper rates during off-peak hours, making them ideal for users who can shift their energy consumption.
- - *Green Tariff* – These tariffs support renewable energy sources, either by directly supplying green energy or offsetting usage with renewable investments.
- - *Dual Fuel Tariff* – A combined gas and electricity tariff from the same supplier, often offering discounts for bundling both services.
- - *Prepayment Tariff* – Users pay for electricity in advance using a meter. This helps with budgeting but can be more expensive than standard tariffs.
- *No Standing Charge tariffs*. There is no standing charge BUT unit costs may be higher.
- An *unlimited energy tariff* is a type of energy plan where you pay a fixed price for unlimited gas and electricity usage, similar to an unlimited mobile phone contract. This means your bill stays the same regardless of how much energy you consume during the contract period.
  Pros:
- - Predictable costs – No surprises on your bill, making budgeting easier.
- - Protection from price hikes – Your rate won’t change even if energy prices rise.
- - Convenience – No need to monitor usage or worry about exceeding limits.
  Cons:
- - Potential overpayment – If you reduce your energy consumption, you might end up paying more than necessary.
- - Usage caps – Some plans have hidden limits, meaning excessive usage could result in being moved to a standard tariff
- (developed from Copilot Ai)

However the increasingly complicated electricity market has its disadvantages. It is more technical, and certain households might find themselves excluded.

- It is getting more difficult to compare different tariffs

- To take best advantage requires a greater level of understanding and the ability to finance the equipment
- It requires a working smart meter
- Pre-payment meter users are often excluded
- Smart systems discriminate against the poor
- Energy tariffs with no standing charge are becoming more available in the UK.
- *Ofgem has proposed that all energy suppliers must offer a no standing charge tariff by next winter (2025/2026). This means customers will have the option to pay for energy solely through unit rates, rather than a fixed daily fee. The idea is to help low-energy users avoid paying unnecessary costs, though it may result in higher unit rates*.
- Rented properties might be excluded from no standing charge tariffs for several reasons:

❖ - Landlord Control – Many landlords manage energy contracts for their properties, meaning tenants cannot switch suppliers freely. If the landlord has chosen a tariff with a standing charge, tenants may be stuck with it.

❖ - Prepayment Meters – Some rented properties have prepayment meters, which often come with higher unit rates and standing charges. Switching to a no-standing-charge tariff may require landlord approval.

❖ - Higher Unit Costs – No-standing-charge tariffs typically have higher per-unit energy costs. Landlords may prefer standard tariffs to avoid unpredictable bills, especially in properties with low energy usage.

❖ - Commercial Rentals – Business energy tariffs often do not allow switching to no-standing-charge options. Tenants in commercial properties may have limited control over their energy supplier.

- *The UK government has introduced new regulations requiring heat pumps to be smart-ready, meaning they must have built-in smart functionality that consumers can activate to access cheaper energy tariffs*.
- Key Points:
- Heat pumps with Smart Functionality will be able to respond to price signals, allowing them to operate when electricity is cheapest, such as during off-peak hours and agile tariffs.
- - Savings Potential: Households using smart heat pumps could save around £100 per year compared to gas boilers.
- - Interoperability: Smart appliances, including heat pumps, must be able to function across different energy suppliers, ensuring consumers are not locked into a single provider.
- - Cybersecurity Standards: New security measures will be introduced to protect smart appliances from cyber threats.
- - Part of a Larger Plan: These regulations are part of the Clean Power Action Plan, which aims to lower energy bills and improve energy efficiency.
- Domestic storage batteries, thermal heat stores and electric car chargers can also have this smart functionality.

developed from Copilot Ai and Centre for Sustainable Energy (CSE) report on Smart Energy.

May 2025.

Caution - Please Read this:

Our Advice Note has been carefully prepared and is, as far as we know, accurate at the date of publication. However, things change very fast in the world of technology and in government schemes. Sometimes parts of Advice Notes become outdated and may not offer best advice very soon after publication. We do our best to keep them up to date with the limited resources we have. Furthermore, our advice may not be appropriate for your particular circumstances. We advise that you get advice from a relevant expert before making changes. We may be able to offer further advice or make suggestions on who to contact if you get in touch with us. We are not technical experts but have many years of offering common sense advice and we recommend you should not rely on our Advice Note alone for making decisions. The national advice centre Energy Savings Trust is a good source of information.