

Smart energy market review

Summary of webinar two

Introduction to the review

Improving information across the smart energy market

A key finding from CSE's Smart and Fair programme to date has been a lack of clear and consistent information across the smart energy market - both for and about the consumers to whom smart energy products, services and tariffs ('offers') are being marketed. This risks: i) consumers not participating in the market, ii) consumers taking up unsuitable offers, and iii) some consumer groups being left behind by innovation.

CSE's biannual webinar series aims to mitigate these risks through providing a regular heartbeat of key consumer fairness developments across the smart energy market. We will use the four elements below to track trends in relation to consumer access and outcomes and advocate for better marketing, design and regulation of smart offers.



Market overview

Summary of new market offers and tracking of key quantitative metrics.



Key themes

Deep dive into recent emerging themes or issues facing smart energy consumers.



Data analytics

Analysis from the Smart & Fair data team on consumer outcomes.



Horizon scan

Key insights and other relevant work in the Smart & Fair space.

This report give a summary of key findings from our second webinar using these four elements. Watch out for the next webinar and report, due in Autumn 2025.

Market overview

Key market developments

We regularly search the smart energy market to track new products, tariffs, services and bundles. **Individual branded offers** are grouped by **offer type** based on common characteristics and **capabilities** they require of consumers to use. Since our last webinar in September:

- We've added **102 new individual branded offers**, taking total now to 173 (left chart).
- This includes more demand shifting schemes that enable low-barrier participation in flexibility all-year round.
- There are also new types of credit scheme

providing discounts or savings for those investing in Low Carbon Technologies (LCTs).

We've also profiled **three new offer types** (right chart):

- **Heat pump and battery** – a new type of heat pump that doubles as a heat battery and has built-in flexibility software.
- **Time of use solar tariff** – cheap overnight rates for consumers installing solar PV.
- **Type of use battery tariff** – provides a cheap rate for battery charging.

Persona 1

Small young family in council housing, with storage heaters and Economy 7 meter.

Offer types: **6**

Persona 2

Older single renter with limited digital skills. Gas central heating and prepayment meter (PPM).

Offer types: **1**

Persona 3

Owner-occupier couple with a heat pump, solar PV, EV charger and smart meter.

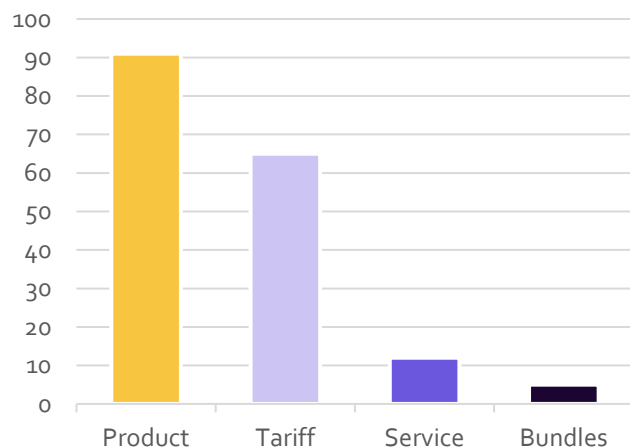
Offer types: **29**  **+3**

Persona 4

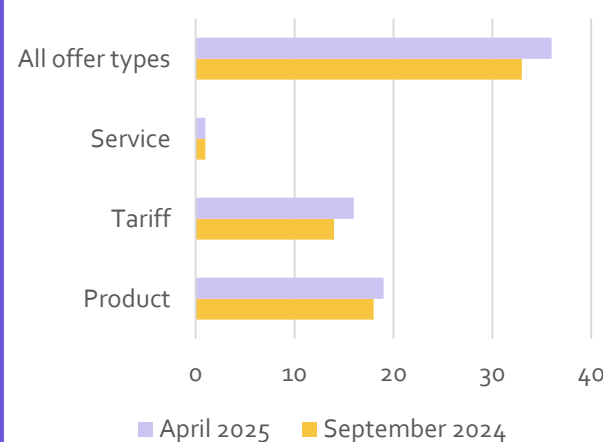
Large family owner-occupiers with gas central heating, hot water cylinder and a smart meter.

Offer types: **13**  **+1**

Individual branded smart offers



Smart offer types profiled



Disparities in market access

We use smart energy capabilities to build personas to understand market access for different consumers. Disparities have widened slightly since September 2024. Access continues to be impacted by some key capabilities:

- **Technology:** New offer types – as well as other benefits like credit schemes – are focussed on those with existing assets like solar PV.
- **PPM:** Persona 2 is excluded from smart tariffs as they prepay for their energy.
- **Tenure:** Personas 3 and 4 are able to invest in more smart products due to their ability to make structural changes.

Key themes

Interoperability

Interoperability is key to smart energy success: different products, tariffs and services need to work well together to manage demand. As the market grows, we are seeing more evidence of challenges to be aware of:

- **Products** – Using different branded products (e.g. EV chargers and EVs,

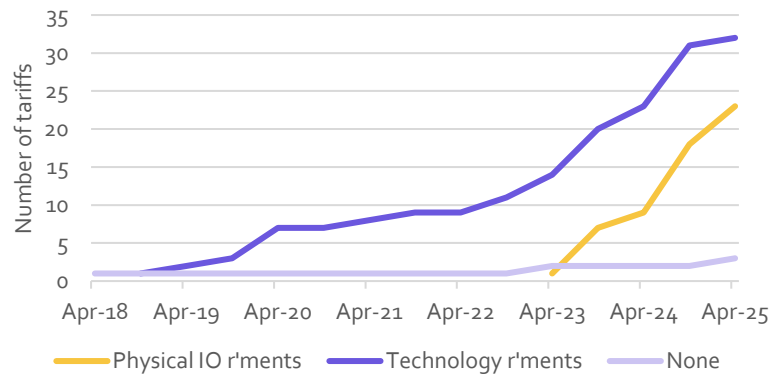
heat pumps and smart thermostats) can lead to issues with synchronisation or functionality.

- **Tariffs** – Most smart tariffs are linked to technologies (like an EV), but there has been a recent trend of more specific requirements based on brands, installers or combinations of technologies (see

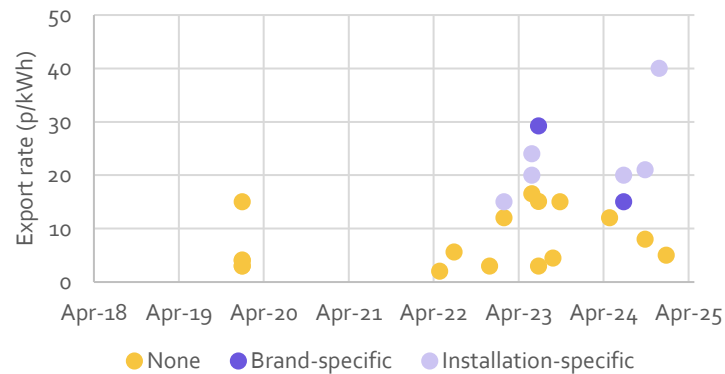
left chart). This is also linked to challenges when combining or comparing branded tariffs.

- **Services** – Our recent DFS evaluation highlighted problems for consumers taking part in demand shifting schemes whilst using some other smart products and services.

Smart tariffs with technology and physical interoperability requirements



Export rates against physical interoperability requirements



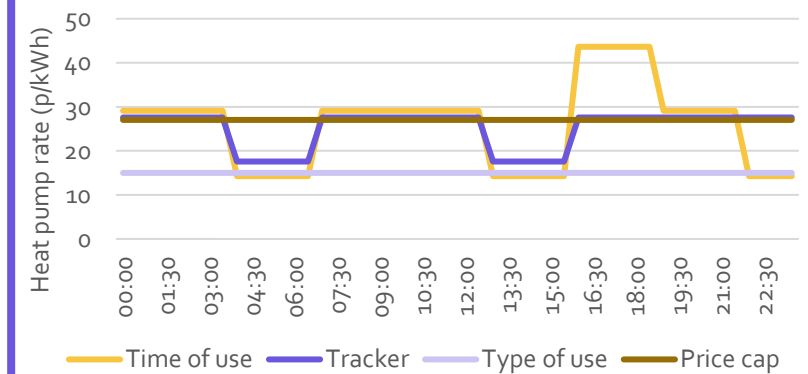
Tariff financial structures

New smart tariff structures are providing different options for some consumers to manage their bills:

- **Time of use**: set cheap periods throughout the day but usually accompanied by more expensive peak(s).
- **Time of use 'trackers'**: cheaper periods, but no peaks.
- **Type of use**: separate cheap rate for a particular asset.

The chart below visualises these for heat pumps tariffs.

Half-hourly unit rates for using heat pump across different heat pump tariff options



What does it mean for consumers?

- ✓ Better deals for those investing in tech like solar PV (middle chart), better options for those seeking simplicity: for example, the optimum tariff for your specific technology/installation is clear.
- ✗ Increased complexity for those wanting to shop around; risk of 'lock-in' (making switching tariffs harder) and 'lock out' (best deals only available to some); undermining trust if different flex sources can't work together.

What does it mean for consumers?

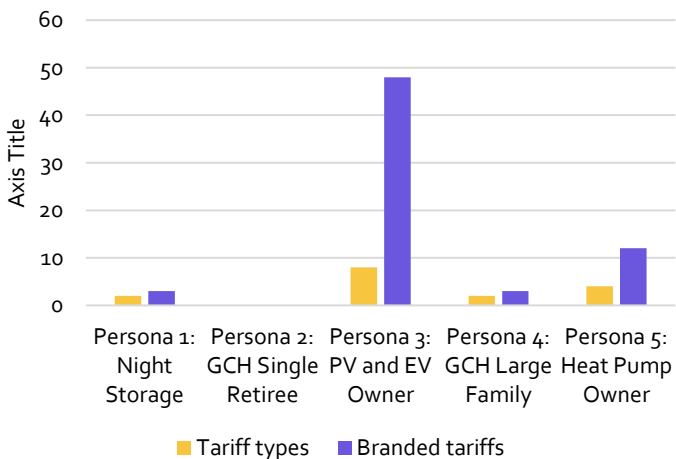
- ✓ Consumers with assets like heat pumps have options to insulate themselves from financial uncertainty.
- ✗ Time of use tariffs have greater risk; options limited by technology and interoperability requirements.

Data analysis

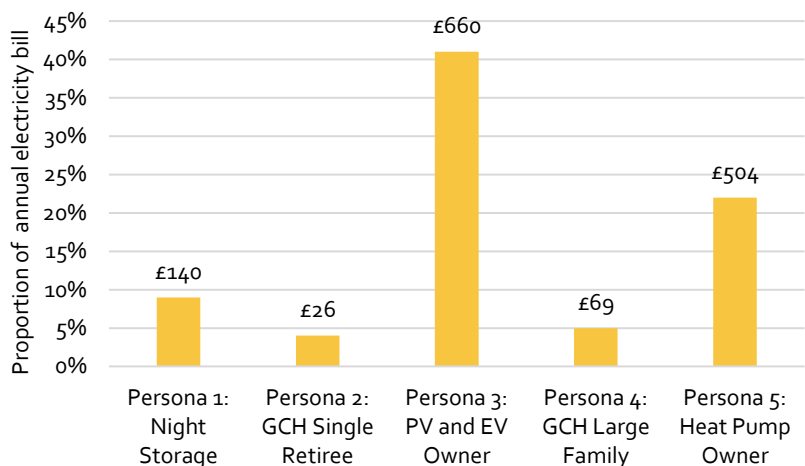
Tariff finances persona analysis

What benefits can the different smart tariffs coming onto the market deliver for different consumer types? By using some consumer archetypes we made for NESO, we can assume an import (and export profile) for each persona.¹ We can use this to model the number and type of smart tariffs available to each persona, as well as their potential savings.

Tariff availability



Savings on optimal tariffs



Persona	Time of use	Time of use (tracker)	Type of use
1 : Night Storage	X		
2 : GCH Single Retiree			
3 : PV and EV Owner	X		X
4 : GCH Large Family	X		
5 : Heat Pump Owner	X	X	X

Tariff access

- Personas 3 and 5 can access the largest range of smart tariffs via their PV/EV and heat pump.
- Fewer options for storage heater users.
- Small changes influence access: Persona 2 is prepay, so can't access tariffs of Persona 4.

Potential savings

- PV/EV/heat pump owners also can access most potential savings, although still significant for storage heater users.
- For all three of these personas (1, 3, 5), highest savings via tariffs with interoperability requirements.
- Persona 2 and 4 savings based on demand shifting schemes due to lack of tariff availability/data.

Bill uncertainty

- Personas 3 and 5 can insulate from financial risk via 'tracker' or type of use tariffs that make it easier for households to predict and manage bills.
- Personas 1, and 4 can only access time of use tariffs which make it harder to predict and manage bills.
- Persona 2 prepay so can't access any smart tariffs.

¹ Note for this analysis we have split Persona 3 into two (Persona 3 and 5 here), for ease of modelling.

Horizon scan

Key insights

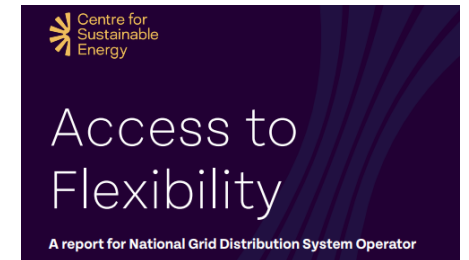
- 1) Innovation is providing further smart energy options for users with large electrical assets – especially solar PV and heat pumps - but still few for others e.g. PPM or GCH users.
- 2) These options are providing opportunities for significant savings and simplicity for both current and (increasingly) prospective asset owners...
- 3) ...but may lead to new interoperability challenges for existing customers or put off new ones.
- 4) Smart tariffs are exposing consumers to greater bill uncertainty but are also providing some consumers new ways of managing these risks through tariff structures.
- 5) Evidence that some groups previously excluded from innovation are beginning to benefit more, especially storage heater users, but also wider groups through shifting schemes.

Policy asks

- 1) Ensure new standards around 'smart-ready' appliances are supported by those around interoperable tariff information (including type of use tariffs) to maximise consumer freedoms.
- 2) Improve information about individual branded offers to enable easier comparison and interchangeability. Key focus here should be on tariff combinations and how flexibility services work together.
- 3) Target more future offer design on groups without EVs, PV or heat pumps (e.g. storage heater users) and who are prepay so they are also provided similar options in terms of tariff numbers, risk profiles.
- 4) Explore the potential ramifications of interoperability challenges through further research.

Other relevant work

- Our [Access to Flexibility report](#) for National Grid DSO found low-income households are delivering much less flexibility than other households in LV flexibility markets.
- Our recent [evaluation of the Passiv Smart Thermostat](#) produced some recommendations to ensure this smart heating control for heat pumps can work effectively for as many consumers as possible.



Next steps

- The next review webinar will take place in Autumn 2025.
- This is a summary output. If you would like to know more detail about any of our analysis, or the Smart and Fair programme, please get in touch at nick.stromberg@cse.org.uk.
- Find out about the next review webinar, and CSE's other work, by [signing up our newsletter](#).

