

November 2024

Ofgem Consultation on Innovation in the energy retail market

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Summary

Energy Systems Catapult welcomes the opportunity to this Ofgem Consultation on [Innovation in the energy retail market](#).

The Catapult was set up to accelerate the transformation of the UK's energy system and ensure UK businesses and consumers capture the opportunities of clean growth. The Catapult is an independent, not-for-profit centre of excellence that bridges the gap between industry, Government, academia, and research. We take a whole systems view of the energy sector, including in policy design and implementation, helping us to identify and address innovation priorities and market barriers, to decarbonise the energy system at the lowest cost.

Our main points in response to this consultation are:

Innovation through flexibility: Energy Systems Catapult supports reforms that introduce more flexible licensing regimes (e.g., derogations or restricted licences) to enable faster market entry for innovators while maintaining consumer protection.

Multi-track regulation can unlock innovation: to unlock diverse propositions to meet diverse consumer needs, we need to allow different regulatory regimes for different types of energy – e.g. primary vs secondary electricity supply.

Understanding and empowering consumers: Innovations like dynamic tariffs, demand-side response, and local energy markets can reduce costs and emissions, but consumer engagement – e.g. testing products and regulations before full-scale rollout to gauge effectiveness and refine - and trust are critical for adoption.

Addressing wider barriers to innovation: Major barriers include regulatory rigidity and limited access to smart meter data. Important to focus on enabling data sharing and simplifying regulatory processes for propositions like Energy-as-a-Service models.

Enhancing consumer protection and inclusivity: New products and services must remain accessible to all, ensuring that vulnerable or digitally disconnected consumers are not left behind, with guardrails to protect from risks.

Accelerating pathways to market: Expanding sandbox trials and simplifying the Licence Lite regime can create clearer pathways for new energy propositions to scale, driving innovation in the retail energy market. Consumer engagement will be crucial for this – and tools like Living Lab can support effective regulatory development.

Addressing lack of innovation in non-domestic retail market: there is a lack of new energy supply products and service offerings for non-domestic customers compared to domestic customers and lack of consumer protection that hinders innovation.

We provide a response to the detailed consultation questions in the annex. We would be happy to further discuss this topic with you.

Sincerely,

Tom Luff

Response to detailed consultation questions

Questions relating to Chapter 3 – Innovation in the retail market

Q1: What innovation is currently happening in the domestic and non-domestic retail markets? What is the scale of this innovation?

There has been lots of innovation in domestic and non-domestic retail markets, as market players start to recognise the huge opportunities from helping consumers save money and carbon and have a better energy experience.

Energy Systems Catapult has been at the forefront of this movement, supporting energy innovators to develop and commercialise new products and services. In 2023 we worked with Ovo Energy to explore new customer propositions under different future energy market and policy scenarios.¹ We have also supported many companies to develop new energy business models such as Equiwatt (focusing on flexibility solutions), E.On and Heatio through our the Green Home Finance Accelerator project, focusing on Energy-as-a-Service (EaaS) solutions, and aiming to bring heat pumps, solar, and battery systems into homes without requiring any up-front costs. Additionally, we're working with Open Power to help non-domestic customers achieve better returns on their energy exports.

In the domestic energy retail market, significant innovation is happening across several areas:

- **Smart energy management solutions** are gaining traction, with companies like *Hive* (British Gas) and *Nest* (Google) offering AI-driven smart thermostats that adapt to user behaviour, optimising heating schedules and integrating with smart meters. Similarly, smart EV chargers like those from *Ohme* automatically adjust charging based on grid conditions and user preferences, enabling more efficient energy use within households.
- **Time-of-Use (ToU) and dynamic tariffs** also play a critical role in domestic innovation, with *Octopus Energy's Agile tariff* offering real-time, half-hourly pricing linked to wholesale rates. This tariff empowers customers to monitor and respond to price fluctuations, optimizing energy use when it's cheapest and typically greener. *Ovo Energy* provides similar smart tariffs that encourage consumers to shift their demand according to grid needs.
- **Type-of-use tariffs**, whereby the pricing structure varies the cost of electricity or energy services based on the specific use or purpose of the energy. These could reflect the differing costs of supplying energy for different applications or services and could incentivize particular behaviours or technology adoption. They may become more popular with the projected uptake in high energy use assets, like EVs and heatpumps.
- **Low carbon tech installation.** Companies like *Nusku* and *Luthmore* are developing solutions that directly replace combi boilers. *Furbnow* is working on the customer retrofit journey and bringing in green finance and trusted supply chain partners.
- **Aggregation and flexible service offerings** are another area of growth, allowing distributed energy resources in homes to contribute to grid stability. For instance, *Moixa's* Grid Share platform allows residential customers to pool solar and battery storage, using AI to optimize home energy use while providing grid services, working with DNOs and aggregators to enable VPPs that are accessible to residential customers.

¹ <https://es.catapult.org.uk/report/alternative-energy-markets-innovation-portfolio-report/>

- **Enhanced consumer engagement platforms** such as *Loop* and *n3rgy* further contribute to domestic innovation by providing real-time energy insights based on smart meter data, helping users track consumption and receive tailored energy-saving recommendations.
- **Peer-to-peer (P2P) trading**, like *Piclo Flex*, enable small producers with solar panels or battery storage to trade surplus energy locally, while *Power Ledger* has tested P2P platforms where consumers can trade energy within their communities.

In the non-domestic market, innovations are transforming how businesses manage and consume energy. Energy-as-a-Service (EaaS) models provided by companies like *ENGIE* and *Centrica Business Solutions* are becoming popular, where businesses contract for managed energy services such as on-site generation, energy efficiency, and real-time analytics, all bundled under a single service agreement. Flexible demand response programs tailored for small and medium-sized enterprises (SMEs) are also expanding. Companies like *KiWi Power* aggregate SME demand flexibility, enabling these businesses to participate in demand response markets that have traditionally been dominated by larger energy consumers. Carbon tracking and reporting tools are another emerging area, with platforms like *PlanZero* (by Mitie) and *Carbon Trust's Route Zero* helping businesses monitor and manage their carbon emissions in real time as they work towards net-zero goals.

While we believe it is important to celebrate and share learnings from these developments, it is clear that there is much greater potential that is still untapped and much needed. National Energy System Operator (NESO) projects that levels of demand flexibility (excluding storage heaters) needs to increase by four-to-five times to 2030: "demand flexibility in our pathways reaches 10-12 GW through smart charging of electric vehicles, time-shifting household demand and enabling more responsive industrial demand, with a further 4 GW from storage heating".²

Q2: What innovation should happen to meet consumers' needs and meet net zero?

We believe there is massive scope for more innovation in this area, and have written about it in previous reports.³ Some of the priorities we have identified include:

1. **Consumer-centric flexible tariff models.** To meet consumer needs and accelerate Net Zero progress, there should be more innovative tariff options that offer dynamic, personalised pricing. These tariffs could better reflect the value of consumer flexibility in response to grid demands, encouraging consumers to shift consumption during peak times or charge EVs and appliances during off-peak, low-carbon periods. Expanding on models already in the market (e.g. Octopus Agile's real-time tariffs), new tariff structures should be designed to work with flexible assets like EVs, heat pumps, and batteries in a way that's automated and tailored to individual consumer behaviours.
2. **Integration of smart appliances and automated flexibility.** Innovation should minimise consumer effort and maximise their benefits. Improving market access to and scaling the deployment and integration of smart energy appliances (including EV chargers, heat pumps, and smart water heaters) could enable households and businesses to participate in demand response with minimal effort. Innovation should focus improving market access, interoperability standards and open APIs to allow these devices to respond automatically to

² NESO (2024), Clean Power 2030

³ E.g. Innovating Beyond Retail (<https://es.catapult.org.uk/report/innovating-beyond-retail-reaching-net-zero-consumer-energy/>); Clean Energy Retail (<https://es.catapult.org.uk/report/clean-energy-retail-the-role-of-energy-retailers-in-the-net-zero-transition/>)

grid signals or dynamic pricing, providing consumers with a seamless and optimized energy experience.

3. **Digital platforms and data access for consumer empowerment.** Innovative digital platforms that provide consumers with easy access to their energy data, combined with clear insights and recommendations, are essential to foster engagement and informed decision-making. An open-data platform could allow third-party innovators to provide new services that help consumers reduce carbon footprints, manage costs, and participate in flexibility markets.
4. **Enhanced local energy markets.** Local energy markets (including peer-to-peer trading) have significant potential to engage consumers as active participants in the energy transition, promoting the self-consumption of renewables and local energy sharing. Innovations should focus on regulatory and technical frameworks that support secure, reliable trading of energy at the community level. Creating P2P energy trading platforms that integrate seamlessly with the existing grid infrastructure and are backed by blockchain or similar secure technologies could allow consumers to share surplus renewable energy within local communities, supporting grid resilience and decarbonisation.
5. **Inclusive innovation for vulnerable consumers.** Innovative retail offerings should be designed with inclusivity in front of mind, ensuring that all consumers, including vulnerable households, can benefit from the energy transition. Energy Systems Catapult is currently leading an “Inclusive Smart Solutions” project to identify innovations to support vulnerable groups to get the benefits of smart tariffs and products.⁴ We also developed Warm Homes Prescription, whereby health professionals help to identify people in need of energy support.⁵ New programs should focus on affordability, easy-to-use technology, and targeted support services for vulnerable groups. Creating simplified, subsidised access to smart thermostats and flexible tariffs for vulnerable households would allow these consumers to benefit from reduced bills and increased comfort without significant upfront costs or technical barriers.
6. **Business model innovation, including “X as a service” offerings.** Adopting Energy-as-a-Service (EaaS) models can provide an integrated way to achieve energy savings and carbon reductions. New business models should focus on flexible, performance-based contracts that deliver optimized energy use without requiring significant upfront investment. Expanding EaaS models to small and medium enterprises could enable a wider range of businesses to implement renewable energy solutions, onsite generation, and energy efficiency measures, helping meet net-zero targets. A major challenge is financing, i.e. how can we get all this relatively expensive kit into buildings, especially when big up front capex costs are a real challenge for many (both domestic and non-domestic). The Green Home Finance Accelerator work, for example, is trying to help solve those challenges.
7. **Policy and regulatory innovation and flexibility.** Regulatory innovation is needed to allow non-traditional players, including Third Party Intermediaries (TPIs) and community energy groups, to enter the market and offer consumer-centric energy solutions. These changes could include flexible licensing, easier market entry, and updated compliance standards, enabling innovation while protecting consumers. Ofgem’s tools, such as the “regulatory sandbox”, allow TPIs to pilot consumer-centric solutions without traditional supplier restrictions. But to really make a difference, a new mindset is needed to move away

⁴ <https://es.catapult.org.uk/project/inclusive-smart-solutions/>

⁵ <https://es.catapult.org.uk/project/warm-home-prescription/>

from a “one sized fits all” policy / regulatory framework, and create more tailored and flexible regulatory approaches.

Q3: What will be the impact on consumers of new, innovative products and services? How can we maximise the benefits and minimise the risks?

The shift toward a more innovative, consumer-centric energy market promises to deliver a range of benefits, from cost savings to carbon reductions. Taking a consumer-centred approach, encouraging transparency, and embedding protections, can help ensure that innovation supports all consumers and contributes meaningfully to the net-zero transition.

The introduction of new, innovative products and services in the energy retail market stands to improve consumer experiences and improve outcomes across various dimensions:

- **Cost savings.** Dynamic pricing, time-of-use tariffs, and automated demand response can allow consumers to lower their energy bills by shifting consumption to off-peak times. This flexibility can be especially valuable as energy prices fluctuate. Consumers with smart appliances or electric vehicles can benefit from these offerings, potentially saving substantial amounts over time while supporting the grid.
- **Overcoming upfront costs.** The ability for consumers to get low carbon technologies without prohibitive up-front capex costs.
- **Empowerment and choice.** As digital platforms and data-driven insights become more available, consumers can make informed choices tailored to their specific needs, from selecting tariffs that match their usage to choosing low-carbon options. Access to real-time energy and carbon data empowers consumers to manage their consumption in line with environmental goals, aligning their energy choices with personal or household values.
- **Enhanced comfort and control.** Automated smart appliances and home energy management systems provide consumers with more control over their energy use without the need for constant oversight, making homes more comfortable and convenient. For example, with automated heat pumps and EV chargers responding to grid conditions, consumers can maintain comfort while optimising energy efficiency.
- **Participation in the energy transition.** Self-consumption (e.g. of home owned solar energy), automated demand management, peer-to-peer energy trading, local energy markets, and community renewable projects allow consumers to actively participate in and benefit from the energy transition.
- **Resilience and security.** Virtual power plants (VPPs) and decentralized energy resources increase local energy resilience, providing households and communities with backup power in case of outages and enhancing grid stability.

To maximise these benefits for consumers, strategic actions and supportive policies are essential. Particular enablers / enhancers of this include:

- **Clear and accessible consumer information.** To fully engage with these new offerings, consumers need clear, accessible information about products and services, including potential savings, associated risks, and setup requirements. Transparent comparisons between tariffs, technologies, and providers can simplify decision-making, empowering consumers to make informed choices. Comparison sites need to keep up with the times and allow effective comparisons of new types of tariffs – including time of use and “as a service” tariffs. There’s a role for Ofgem’s regulation of comparison sites to facilitate this.

- **Getting the digital infrastructure in place.** Roll out of smart meters is too slow and many smart meters in place don't work.⁶ The implementation of Market Wide Half Hourly Settlement is also delayed. Both these programmes are a vital – necessary but not sufficient – platform for a retail market that supports flexible tariffs to a mainstream customer base. When finally implemented, there will be a stronger incentive to innovate (and risk of not innovating – e.g. customers who have high peak usage will seek out tariffs that lower their costs). Regulators should bear that in mind – this is the time to establish the right regulatory framework...wait too long and things could get very messy.
- **Incentivising low-carbon choices.** To align consumer behaviour with decarbonisation goals, it is essential to provide incentives that encourage low-carbon choices. A central focus here is electricity market reform, particularly through more granular pricing signals based on location and time. Collaborating with local authorities to link low-carbon incentives with community programmes or energy efficiency funding could also broaden the reach and impact of these initiatives.
- **Open data and interoperability standards.** Open data standards are vital for allowing third-party innovators to enter the market while ensuring consumer data privacy and security. Interoperability across devices, suppliers, and platforms would allow seamless integration, enabling consumers to switch providers or upgrade devices without facing technical barriers. Standardising open APIs would maximise flexibility, making it easier for consumers to incorporate various smart devices and services into their energy management systems.
- **Energy data access.** Uncertainties around Data Communications Company (DCC) data access inhibit innovation by players other than energy retailers. Energy retailers currently pay for all DCC WAN usage. Data throughput was estimated based on predictions by energy retailers for obtaining billing data only, which was much lower than actual current data volumes, much of which is from "Other Users" such as DCC Adapter platforms used by energy apps and flexibility service providers (e.g. n3rgy). There is a risk that innovators are currently getting a "free ride", but risks around future charging models are inhibiting innovation. Also, smart tariffs often bypass the smart metering infrastructure, where tariffs aren't sent to the home meter. This results in inaccurate costs on in-home displays, confusing customers and eroding trust in smart meters. It also creates barriers for third-party innovation, such as energy insights apps, which would rely on meter data and calculate costs incorrectly, leading to an uneven playing field. While some innovators, like Flatpeak⁷, address these gaps, their services add extra costs instead of enabling free access to essential data.
- **Support for vulnerable consumers.** Vulnerable households could benefit significantly from innovations such as time-of-use tariffs and automated controls. However, affordability and ease of use are crucial. Energy suppliers and TPIs should be encouraged to design products that work for vulnerable groups. Public and private funding sources, such as government grants or partnerships with local councils, could help subsidise essential technologies (like smart thermostats or EV chargers) – through a "blended finance" approach – enabling these consumers to better manage bills and reduce costs without high upfront expenses.

⁶[BBC \(2024\)](#)

⁷ <https://flatpeak.com/>

Questions relating to Chapter 4 – Enablers and barriers to innovation

Q4: Are there any additional enablers or barriers to innovation?

Key enablers and barriers impact innovation in the retail energy market:

- **Restrictive market entry conditions:** Barriers to market entry for new players reduce competition and slow down the introduction of novel services that could enhance the retail market.
- **Access to finance:** Limited access to finance affects both end consumers, who may struggle to afford new energy solutions, and innovators, who face challenges in scaling and commercializing new technologies.
- **Lack of interoperability:** Interoperability issues across platforms and devices inhibit the seamless integration of new technologies, constraining consumer choice and slowing market adoption of flexible energy services.
- **Static consumer archetypes and tariff limitations:** Rigid consumer segmentation and tariff structures prevent tailored offerings, making it harder to meet diverse consumer needs and limiting the uptake of innovative products.
- **Complexities in accessing flexible revenue streams:** Innovators often struggle to access revenue streams linked to flexibility, which constrains the development of business models that rely on demand response and other grid-supporting services.
- **Data privacy and security concerns:** Consumer concerns about data privacy and security hinder engagement with new digital services and limit the collection of valuable data that could enable innovation.

Q5: What is the most significant barrier to innovation? Why?

The most significant barrier to innovation in the retail energy market is the one-size-fits-all approach to regulation, as highlighted in Energy Systems Catapult's *Innovating Beyond Retail* report.⁸ This regulatory rigidity limits the ability to adapt to emerging business models and diverse consumer needs, stifling flexibility and creativity. Without a more adaptable regulatory framework, innovators struggle to deliver tailored solutions, such as dynamic pricing, Energy-as-a-Service, and peer-to-peer trading. A shift toward more flexible, responsive regulation is essential to unlock the full potential of a consumer-centred, innovative energy market.

Q6: What innovation is not happening because of regulatory barriers?

Several innovations are currently limited by regulatory barriers within the retail energy market.

- **Dynamic and Flexible Pricing Models:** Restrictions prevent retailers from offering real-time, flexible pricing that reflects changes in demand and supply, limiting consumers' ability to benefit from cost-saving and environmentally friendly usage patterns.
- **Energy as a Service (EaaS) Models:** Regulatory frameworks focus heavily on traditional supply contracts, hindering the growth of EaaS models that bundle services like heat pumps, solar, and battery storage without up-front costs.

⁸⁸ <https://es.catapult.org.uk/report/innovating-beyond-retail-reaching-net-zero-consumer-energy/>

- **Third-Party Intermediary (TPI) Innovation:** TPIs face limitations in accessing necessary data and market mechanisms, which restricts their ability to offer innovative services that enhance consumer engagement and optimize energy usage.
- **Peer-to-Peer (P2P) Energy Trading:** Regulatory constraints on trading between prosumers inhibit the growth of P2P energy trading, which could empower consumers to directly share locally generated energy, increasing overall system resilience.
- **Aggregated Demand Response Services / Virtual Power Plants (VPPs):** Barriers in the current market structure restrict aggregation and demand response services, preventing the full realization of Virtual Power Plants, which could provide crucial flexibility and reliability to the grid.

Addressing these regulatory barriers could unlock significant consumer and system benefits, advancing the market toward a more dynamic, responsive, and consumer-centric energy system.

Q7: Should we do further work to improve routes to market?

Yes. We have set out thoughts on this below.

Questions relating to Chapter 5 – Options to improve routes to market for products or services that involve selling energy

Q8: What is the most attractive route to market? Why?

Q9: If you think that we need to improve routes to market, which option do you think should be our top priority and why?

Q10: What are your views on the options presented for amending routes to market? What would be the risks and benefits of each option?

Q8 – Q10 are answered together.

We see the development of new routes to market as a positive move. Innovators should have access to a range of different routes to market for new propositions – and a one-size-fits-all approach won't be appropriate. Different routes should be available to support the various different needs, risk profiles and circumstances of different innovations.

Rather than trying to prioritise the tools for improving market entry, we see a more useful focus could be "why aren't these routes being taken advantage of?" For example, we believe that "Licence Lite" has not been successful as it doesn't go far enough: companies are relieved from complying with some but not all of the codes, but you still have to comply with everything else. Companies would generally rather rely on a class exemption than go through the burden of Licence Lite. A genuinely "lite" licence – i.e. dramatically scaled back - would be a great for businesses doing a few, small-scale projects.

Q11: To facilitate innovation, which licence conditions would most benefit from being reformed?

We think licence reform will be important. Some priorities for reform are as follows:

- **Simplification and Accessibility:** Many SLCs are dense and complex, making them difficult to navigate. Simplifying definitions and consolidating related provisions could improve accessibility.
- **Principles-Based Regulation:** Emphasise the need for principles-based regulation to allow flexibility and innovation while ensuring consumer protection and market functioning.
- **Market Power and Universal Service:** Reconsider the one-size-fits-all approach and explore differentiated regulation based on market power, allowing smaller suppliers to innovate without the same obligations as dominant players.
- **Consumer Protection:** Maintain prescriptive rules where necessary for consumer protection, such as in areas of payment methods, prepayment meters, and support for vulnerable customers.
- **Innovation and Flexibility:** Encourage innovation by allowing more flexibility in compliance with principles-based regulation, focusing on consumer outcomes rather than prescriptive processes.

We believe it would be useful to regularly review and refine the licence conditions to ensure they are fit for purpose and innovation friendly.

Q12: Are there any other improvements to routes to market which should be considered as part of enabling significant innovation in the retail market?

A key priority is gathering real world consumer information about how new products and services really work and how they are received. This is equally true for new policy and regulation. The suite of routes to market should include a strong focus on testing with consumers.

The Energy Systems Catapult's Living Lab and Whole Energy System Accelerator are tools to support such testing and should be part of the suite of routes to market offered by Ofgem.