(https://electricmiles.com)

Why demand-side response (DSR) and grid flexibility are the UK’s secret weapon for a renewables future and how Electric Miles is helping

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The UK’s electricity system is changing fast. Wind and solar output are expanding, electric vehicles (EVs) and heat pumps are driving up demand, and at the same time network upgrades take years and billions to build. The result? We need smarter ways to balance supply and demand in real time not just more wires and power stations. That’s where demand-side response (DSR) and other flexibility services come in: they let the system bend and flex by adjusting when and how electricity

is used, turning everyday devices (EV chargers, heat pumps, batteries, industrial loads) into assets that stabilise the grid and soak up renewable energy when it's abundant. POST+1 (https://post.parliament.uk/research-briefings/post-pn-0715/?utm_source=chatgpt.com)

What is DSR / grid flexibility (in plain English)

Demand-side response means shifting, reducing or increasing electricity consumption in response to signals from the grid (price signals, instructions from system operators or local distribution constraints). Flexibility more broadly includes storage, controlled generation, interconnectors and software platforms that coordinate them. The practical effect is simple: instead of always matching generation to demand (which becomes harder with variable wind and sun), we also match demand to generation and that keeps the lights on with fewer fossil-fired peaker plants and less network reinforcement. GridBeyond+1 (https://gridbeyond.com/demand-side-response-a-guide-for-2025/?utm_source=chatgpt.com)

Why DSR is essential for the renewables transition

1. **Helps absorb variable renewables.** When wind or solar spikes, flexible demand (like smart EV charging or heating) can increase to use that low-carbon electricity rather than curtail it. When generation drops, DSR can reduce load quickly. This smoothing reduces the need for expensive fast-ramping gas plants or huge amounts of storage. Climate Change Committee (https://www.theccc.org.uk/wp-content/uploads/2019/04/Technical-Annex-Integrating-variable-renewables-into-the-UK-electricity-system.pdf?utm_source=chatgpt.com)
2. **Saves money and cuts investment needs.** Analysts and government briefings estimate DSR and smart flexibility could reduce system costs by billions over coming decades and reduce the amount of new network capacity required. That's cheaper for consumers than building out every new upgrade immediately. POST+1 (https://post.parliament.uk/research-briefings/post-pn-0715/?utm_source=chatgpt.com)
3. **Speeds decarbonisation of heating and transport.** Smart control of EV chargers and heat pumps means these electrified loads can be flexed to fit renewables, making their emissions much lower than if they draw power at peak times. Climate Change Committee (https://www.theccc.org.uk/wp-content/uploads/2019/04/Technical-Annex-Integrating-variable-renewables-into-the-UK-electricity-system.pdf?utm_source=chatgpt.com)
4. **Provides operational security today.** New services and market routes are being stood up (and fast-tracked) so DSR can participate in balancing and reserve markets meaning flexible demand is not just theoretical, it's actively helping operators manage the grid now. National Energy System Operator (NESO)+1 (https://www.neso.energy/industry-information/balancing-services/demand-flexibility-service-dfs?utm_source=chatgpt.com)

The scale is already growing, EVs are key

Distribution system operators and the National Grid are seeing rapid growth in flexible assets. For example, a recent market-insights update reported that the number of registered flexible assets more than doubled in a year and that EV charge points now make up a very large share of connected flexible devices with registered flexible capacity growing into the gigawatt range. That's not hypothetical: EVs and chargers are quickly becoming a major source of usable flexibility. Distribution System Operator (DSO) (https://dso.nationalgrid.co.uk/downloads/15073/nged-dso-market-insights-report-landscape-29540-artwork-digital-interactive-june-2025-0107.pdf?utm_source=chatgpt.com)

How companies make DSR happen, the case of Electric Miles

Electric Miles is one of several UK companies turning EVs and chargers into grid flexibility assets. Their platform uses smart charging, aggregation and AI to combine many vehicles and chargers into a Virtual Power Plant (VPP) that can offer flexibility services to DSOs and system operators. Electric Miles says they've secured multi-megawatt DSR contracts with distribution operators and have used their driver-facing apps and control systems to deliver meaningful, measurable flexibility (their materials reference about 20–23 MW across DSO contracts). That's the sort of practical, real-world capacity the system needs as EV uptake rises. electricmiles.com+1 (https://electricmiles.com/?utm_source=chatgpt.com)

What Electric Miles does well (short list)

- Aggregates many EVs and chargers so small, distributed batteries behave like one large controllable resource. electricmiles.com (https://electricmiles.com/?utm_source=chatgpt.com)
- Uses driver apps and scheduling to ensure flexibility is non-disruptive to vehicle users while still delivering value to the grid. electricmiles.com (https://electricmiles.com/building-energy-flexibility-future/?utm_source=chatgpt.com)
- Integrates with DSOs and participates in formal DSR/DSF contracts rather than only opportunistic balancing. electricmiles.com (https://electricmiles.com/electric-miles-signs-partnership-with-pozitive-to-help-fleet-operators-reach-net-zero-carbon-more-quickly/?utm_source=chatgpt.com)

Challenges and what still needs to be solved

- **Scale & participation:** to unlock the full benefits we'll need tens of GW of flexible resource participation across homes, businesses and transport. Policy and market design must keep improving to bring more assets into the market. Voltalis+1 (https://voltalis.co.uk/wp-

content/uploads/2025/02/voltalis-a-new-era-for-energy-report-single.pdf?utm_source=chatgpt.com)

- **Standards & interoperability:** EV chargers, energy management systems and supplier platforms need common standards so any charger or car can safely provide flexibility regardless of vendor. Electric Miles and others are active in this space. electricmiles.com+1 (https://electricmiles.com/the-future-of-ev-smart-charging-in-standards/?utm_source=chatgpt.com)
- **Consumer trust and fair value:** customers must see clear, transparent rewards (bill savings, incentives) and assurance that their mobility isn't compromised. Good UI/UX and regulation that protects consumers are essential. POST (https://post.parliament.uk/research-briefings/post-pn-0715/?utm_source=chatgpt.com)

Quick policy snapshot (where the UK is heading)

The National Energy System Operator and regulators have been creating routes to market and integrating demand flexibility into routine operations (e.g., new Demand Flexibility Service workstreams and market reviews). Ofgem has also accelerated grid investments to reduce bottlenecks, so while network upgrades continue, flexibility is being built in as a parallel solution to reduce costs and speed the transition. National Energy System Operator (NESO)+1 (https://www.neso.energy/industry-information/balancing-services/demand-flexibility-service-dfs?utm_source=chatgpt.com)

What this means for readers / businesses / local authorities

- If you're a business with flexible loads (HVAC, refrigeration, EV fleets): explore participating in DSR it can become a revenue stream and reduce energy bills. GridBeyond (https://gridbeyond.com/demand-side-response-a-guide-for-2025/?utm_source=chatgpt.com)
- If you manage EV fleets or charge points: smart charging & aggregation (like Electric Miles offers) turns your assets into both a lower-cost charging solution and an income source. electricmiles.com+1 (https://electricmiles.com/building-energy-flexibility-future/?utm_source=chatgpt.com)
- If you're a policymaker: continue to lower barriers to market entry for demand flexibility, support standards for interoperability, and protect consumers while incentivising participation. National Energy System Operator (NESO)+1 (https://www.neso.energy/publications/markets-roadmap/demand-side-flexibility-routes-market-review?utm_source=chatgpt.com)

Final thought, flexibility is a multiplier, not a substitute

Grid upgrades and new transmission will still be needed, but DSR and flexible assets are a force multiplier: they lower system costs, reduce the need to oversize infrastructure, and make the whole renewables transition more resilient and quicker. Firms like Electric Miles are an example of how technology, thoughtful consumer engagement, and smart market participation can turn everyday devices into the balancing tools the UK grid urgently needs. If we scale participation, nail the standards, and fairly reward consumers, flexibility will be the invisible backbone of a zero-carbon electricity system. Distribution System Operator (DSO)+1
(https://dso.nationalgrid.co.uk/downloads/15073/nged-dso-market-insights-report-landscape-29540-artwork-digital-interactive-june-2025-0107.pdf?utm_source=chatgpt.com)

Product Guides

Electric Miles Guide(https://electricmiles.com/wp-content/uploads/2025/07/Normal-EM-Guide.pdf)

Installer Miles Guide(https://electricmiles.com/wp-content/uploads/2025/07/Normal-IM-Guide-.pdf)

Solution for Business(https://electricmiles.com/wp-content/uploads/2025/07/Solution-for-Business.pdf)

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