Your views on the opportunities and challenges of a digitalised electricity system

User:

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Summary of information submitted

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Yes

Who are you submitting as? *

Individual

First name *

Graeme

Last name *

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Email *

[redacted]

1. What could stop or slow digitalisation of the electricity system? What would make it successful? How far should digitalisation go?

Key Barriers:
Restricted access to smart meter data controlled by MEPs limits orchestration and consumer participation.
Existing retail market structures discourage direct peer-to-peer trading models and flexibility platforms.
Lack of regulatory pathways for throughput-based pricing and dynamic distribution revenue models.
No integration pathway for V2G as a fully orchestrated grid asset.
Key Success Factors:
Mandated real-time consumer and third-party access to smart meter data.
Open APIs and interoperability protocols for digital orchestration and data exchange.
Permissioned digital platforms enabling peer-to-peer transactions and local flexibility markets.
Recognition of V2G as a key flexibility resource to replace peaker plants and imported fuels.
Transition toward energy tracing and locational pricing to accurately reflect delivery costs.

2. Do you agree with how we have defined 'data' and 'information', especially in the context of making data more visible?

Broadly agree. Definitions should explicitly include:
Substation and feeder-level network performance data (voltage, flow, congestion).
V2G dispatch signals and DER response data.
Geospatial energy tracing records to enable locational delivery pricing.
Real-time access to near-live consumption and export data.

3. What data do you think needs to be more visible?

Smart meter half-hourly (or finer) data accessible in real-time.
Voltage, frequency, and feeder stress indicators from local substations.
Hosting capacity data for low voltage networks.
Locational tracing of kWh for accurate distribution charging.
V2G state-of-charge data for real-time orchestration.
Real-time flexibility market pricing and dispatch instructions.

4. What challenges do you think we might face in trying to increase visibility? What considerations need to be given to data privacy or cybersecurity? How could increasing visibility create more opportunities for consumers, participants and innovators?

Challenges:
Commercial control over data by MEPs and retailers.
Privacy management for highly granular household data.
Potential resistance from incumbents whose revenue models rely on data opacity.

Cybersecurity considerations for decentralised data exchange.
Opportunities:
Full consumer participation in flexibility markets.
Accurate load shaping, peak avoidance, and grid stability.
Cost-reflective pricing to support equity and economic development.
Enabling renters to actively participate via portable V2G assets.
Government energy sovereignty and fossil fuel import displacement.

5. What work are you planning or doing to increase visibility within the electricity system? Are you aware of any work that contributes to this goal?

Yes. We are developing the Marae Energy Project, a distributed system architecture incorporating:
Peer-to-peer trading within ~5km community zones.
Integration of V2G-enabled EVs to absorb and discharge flexibility.
Local energy tracing to drive throughput-based distribution pricing.
Partnership discussions with Counties Energy on real-time meter visibility and orchestration.
Community-led ownership and control of digital trading platforms.

6. What challenges do you think we might face in increasing interoperability? What other opportunities do you think greater interoperability will bring?

Challenges:
Proprietary platform lock-in.
Retail market structures hindering third-party orchestration.
MEP control of core data layers.
Benefits:
Open orchestration APIs will enable broad participation.
Faster innovation through plug-and-play service models.
Simplification of billing, load control, and flexibility management.
Efficient allocation of system resources and capital.

7. What work are you planning or doing to increase interoperability within the electricity system? Are you aware of any work that contributes to this goal?

Yes. We are designing:
Open architecture trading and orchestration layers for marae communities.
Shared V2G and DER aggregation protocols.
Transparent data exchange frameworks with platform-neutral standards.
Engagement with Counties Energy on smart meter API access models.

8. What challenges do you think we might face in simplification? How could simplifying create more opportunities?

Challenges:
Retailer-centric code frameworks deeply embedded in market design.
Commercial resistance to unbundling energy and delivery roles.
Need for coordinated regulatory and institutional reform.
Benefits:
Simplifies billing structures for consumers.
Allows local flexibility to be orchestrated independently.
Reduces cost-to-serve for EDBs.
Creates clear, transparent, and replicable digital participation pathways for renters, landlords, and communities.

9. What work are you planning or doing to increase simplification within the electricity system? Are you aware of any work that contributes to this goal?

Yes. Our architecture fully separates:
Physical delivery (distribution network as delivery service)
Peer energy trading and flexibility services
Direct consumer participation without retailer intermediation
Orchestration platforms that integrate multiple participants without bilateral retail contracts.

10. Do you have any other comments on this paper?

Portable V2G offers renters full participation, extending flexibility benefits beyond property owners.
V2G adoption reduces fossil fuel imports, supports national energy security, and lowers economy-wide energy costs. V2G makes government BEV rebates compelling.
Retail market structures are increasingly unsuited to digital orchestration and flexibility markets.
Platforms like Blackcurrent already demonstrate viable P2P orchestration models that function without legacy retail control.
The digitalisation roadmap must explicitly include:
V2G as a primary flexibility resource, paid for by consumers, mass storage embedded in networks.
Open orchestration protocols
Consumer meter data rights
Transparent energy tracing for locational delivery pricing

Written feedback and/or supporting documentation

We will publish all survey responses on our website alongside your name and organisation (if applicable). Are you happy for the Authority to publish your submission? If you think we shouldn't publish any part of your survey response, please select 'No' and let us know what parts should not be published and why in the box below. *

Yes