POLICY BRIEF

UsersTCP | GO-P2P

03
GO-P2P
FEB 24

Unlocking local energy markets

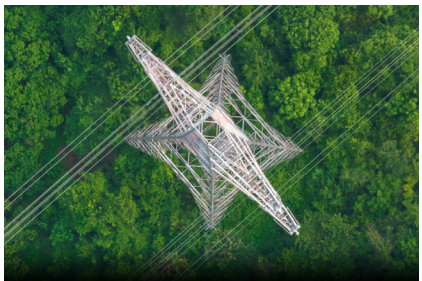
New energy business models known as peer-to-peer energy trading (P2P), transactive energy (TE) and community/collective self-consumption (CSC) would allow renewable energy to be exchanged directly between end-users in the local area. These models could deliver economic, social and environmental benefits and are increasingly being recognised in regulation, including the **European Union's Renewable Energy Directive.**

However, details of how to implement such models in practice are not provided in regulation. This policy briefing explores the policy changes needed to implement P2P/TE/CSC models, based on GO-P2P's findings so far.

The **Global Observatory on Peer-to-Peer, Community Self-Consumption and Transactive Energy Models (GO-P2P)** is a Task of the User-Centred Energy Systems Technology Collaboration Programme (Users TCP), by the International Energy Agency (IEA).

Observations for policy makers

- **Integrating P2P/TE/CSC markets into power system planning** could reduce the need for expensive grid reinforcement and improve electricity system resilience.
- There are currently **insufficient incentives** for consumers to provide the **flexibility and generation services** needed on the grid. P2P/TE/CSC markets could offer these, but understanding how to **equitably share costs and benefits** remains a challenge.
- P2P/TE/CSC are **distinct types of models** but share common features. They are sub-markets that operate within or alongside traditional energy markets; they involve a form of energy trading or sharing; they rely on some form of automation of transactions; they are characterised by their promotion and support of local generation and consumption of energy; and they include price negotiation mechanisms that reflect the aims of the sub-market.
- Different market structures are **more appropriate for tackling different challenges:**
  - Peer-to-peer energy trading models typically use economic incentives but also create social, energy democratisation, and environmental benefits. Participants are typically small scale and of similar size and can trade locally or across longer distances.
  - Transactive energy models focus on system benefits such as grid optimisation, with economic incentives for participants.
  - Community/collective self-consumption models are typically limited to local or small geographic regions. They are usually community owned and operated - delivering shared benefits for local communities.
- Local factors determine the aims and available resources, and so are vital to how these models scale.



In Germany the NOVA Principle, 'grid optimisation first, then grid strengthening', is being implemented by TransnetBW (TSO). Any expansion to the grid may only take place once all other options, including smart energy approaches, have been exhausted.

Source: (https://www.transnetbw.com/en/world-of-energy/nova-principle).

Key findings

Research insights

- **Standardising processes,** such as metering and data-sharing between devices, are needed to **reduce costs** and **improve security and trust**. Processes are needed to **minimise risks to consumer privacy** and ensure compliance with data protection regulations.
- Current **regulatory and licensing frameworks,** such as the 'single supplier' model are a **barrier to large-scale deployment** and need reform.
- Non-financial motivations to participate in P2P/TE/CSC markets such as **helping disadvantaged consumers and making the grid greener** make such schemes attractive for many, however, **not all domestic consumers want to join** these markets, and regulations need to be in place to ensure they are protected.
- **Many countries do not consider Local Energy Markets** (LEMs), which encompass all P2P/TE/CSC, in their approved grid planning methods. Regulators should **amend approved planning methods** to allow LEMs to compete with peak capacity-driven investments.

READ OUR PUBLICATIONS HERE

Policy recommendations

Cost reflective pricing

- Make electricity prices representative of the actual cost of supplying a consumer, reflecting energy flows and network use.
- Review how non-generation costs, such as policy costs and network costs, are charged to domestic consumers.
- Conduct analysis of potential distributional impacts to safeguard against inequities based on location, where certain geographical areas are subjected to higher prices.

Locational marginal pricing is common in the United States. This means that the price of electricity is determined in real-time at a specific location. An example is New England, where wholesale electricity prices are calculated to reflect the value of electricity at a particular location.

Source: (https://www.iso-ne.com/participate/support/faq/lmp).

Regulate for innovation and consumer protection

- Implement a multiple supplier model, allowing consumers to purchase electricity from several parties.
- Legally recognise new actors e.g. prosumers and community energy groups.
- Explore regulatory approaches to enable innovation, such as regulatory sandboxes and principles-based regulation.
- Set a consumer protection baseline, with strict minimum service entitlements for any consumer connected to the grid.
- Make information on past trials publicly available to enable others to learn from findings.

A pilot project in New Zealand is exploring "multiple trading relationships", allowing customers to purchase energy from multiple electricity suppliers

Source: (https://www.araake.co.nz/projects/mtr/).

Recognise the potential and risk presented by new devices

- Allow sub-metering. By removing identification with a single public meter, individuals and devices (e.g. electric vehicles) could engage in a range of transactions, behind and across the public meter. Sub-metering of devices (e.g. electric vehicles) allows them to respond autonomously to price signals and enables them to transact behind and across the site meter.
- Develop a standard for interfaces used for real-time monitoring, measurement and synchronisation of data generated by all market actors.

In the United Kingdom individual asset meters that are located 'behind the boundary point' are now allowed to be used for purposes of balancing and settlement of electricity.

Source: (https://www.elexon.co.uk/article/ground-breaking-modification-to-support-the-energy-transition-is-approved/).

ACKNOWLEDGMENT: These recommendations arise from the work of the GO-P2P research community of over 200 national experts across its contributing member countries.

For more information, contact the GO-P2P Task at **GO-P2P@userstcp.org**.

https://doi.org/10.47568/1PB131

UsersTCP | GO-P2P