

Research brief

Unlocking innovation at the grid edge: a regulatory proposal to extend 'complex site' arrangements

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Summary

Connecting highly-distributed renewable generation to constrained electricity distribution networks poses challenges, to which two solutions are normally proposed: (1) costly and disruptive network reinforcement or (2) real-time matching of local supply and demand through local energy markets. (1) is widely held to be undesirable, for social, economic, and environmental reasons. Where (2) is concerned, local markets are being developed and tested¹ but this is a slow process.

To accelerate matching of local supply and demand without recourse to competitive markets we propose an approach that is relatively rapid and straightforward, and that takes the system in the desired direction. The approach requires no primary legislation and builds on existing rules - complex site arrangements - that allow groups of individually-metered sites to be registered and accounted for as single entities within settlement. The arrangements were introduced to facilitate distributed generation on industrial sites with multiple network connections, and are now also used by some innovative energy communities.

There is a strong case for clarifying the balancing and settlement codes (BSC) related to complex sites, and for promoting the arrangements to further support group participation and confidence in smart local energy, whilst creating space for new business models. Below, we explain the reasoning behind our proposition, building on experience with an operational example and call for support towards realising increased innovation via clarifying complex site arrangements.



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The problem: limited access to smart local energy

Small-scale generation has helped to shift attitudes and practices around energy, and fostered more flexible demand to match generation better; even more so now that the feed-in tariff has been discontinued. Increasing the value captured from small-scale generation and reduced electricity costs, while fostering resilience and moves towards greater self-sufficiency, have been important motivators.

Prosuming arrangements work for those who have capital to invest, a roof on which to install solar PV panels or land suitable for a wind turbine or hydro power plant. For those who have no capital reserves, live in apartments, rent their homes or business premises, or have only a north-facing roof, there are few incentives to become more active in the electricity system. There are currently limited means for groups of energy users to reap benefits available to individual prosumers, where group members are connected to the network through multiple 'boundary points' (meter points at the network edge). Existing complex site arrangements are the only option under current BSC rules.



Energy Local: an innovative example of groups of users operating under 'complex site' arrangements

Energy Local CIC (EL)² is the coordinating body for Energy Local Clubs that have adopted the EL model, each adapting it to local conditions. This model allows for renewable generators to gain a better price for power used locally in the same half hour than they would receive by exporting it to the network, while consumers in their area can buy at lower cost than from a mainstream supplier. Members of EL Clubs are given access to local renewable generation, which is paid for on a 'match tariff' if they use it when it is generated.

The model works because 'complex site' rules allow for individual meter advances (readings), with generation and demand netted, to be aggregated and then to be taken to settlement under two MPANs. In practice, EL clubs operate as a single 'group of users' within the settlement system. They access similar benefits and incentives for using energy to those that would apply if they were co-located at the generation site.

By aggregating generation and demand within a limited area every half hour, the model incentivises demand at times of local generation, whilst reducing supplier costs from imbalances. It encourages efficient network use by reducing constraints, and incentivises investment in more renewable capacity by increasing the returns to local generators while reducing unit consumption costs.

Unlocking innovation by clarifying complex site arrangements to support 'groups of users'

The Energy Local model is but one approach. Clarifying the uptake of complex site arrangements could create space for further innovative approaches and business models at the grid edge.

An issue group under Elexon has recognised that it would be useful to clarify when a complex site can be used³. A modification is now being proposed, with the support of Elexon, that will set out five standard categories of complex site arrangement. A sixth category, explicitly for new approaches, to be used on a case-by-case basis, is also proposed.

Five standard categories of complex site arrangements should increase confidence in their use and create more certainty for existing and new system actors, including licensed suppliers, commercial entrants, community actors and local authorities. The sixth category will create a clear regulatory path for innovative new business models to be developed.

Clarifying complex site arrangements via a modification to BSC rules has multiple benefits. It requires no Treasury funding and avoids primary legislation, yet can be expected to advance matching of local supply and demand, increase competition and facilitate innovation towards smart local energy systems.

Based on the above we ask for your support in increased innovation via clarifying complex site arrangements.

This research brief was prepared by **Jake Barnes** and **Sarah Darby** as part of NEWCOMERS, a three-year, Horizon 2020-funded research project investigating the emergence and operation of new clean energy communities across Europe. Further information on the project can be found at <https://www.newcomersh2020.eu>

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¹ For example, <https://project-leo.co.uk/what-were-doing/transition/>

² <https://energylocal.org.uk/> see also Smart and Fair Local Energy: Introducing Energy Local, at https://www.newcomersh2020.eu/upload/files/Energy%20Local_Research%20Brief.pdf

³ <https://www.elexon.co.uk/smg-issue/issue-88/>