

Consultation (BEIS): Facilitating energy efficiency in the electrical system

The Energy Saving Trust (EST) is the leading, impartial organisation working to promote sustainable energy in homes, communities and transport. Promoting energy efficiency, particularly in homes and consumer products has always been at the centre of our work. Of particular relevance to this consultation:

- EST is a key delivery partner for Scottish, Welsh and Northern Irish Governments in residential energy efficiency and fuel poverty programmes. We deliver the Home Energy Scotland advice service, work closely with Scottish local authorities and support the energy efficiency supply chain. We are involved in delivering all of Wales's national home energy programmes. EST is the administrator of the NISEP, the Northern Ireland energy efficiency supplier obligation.
- EST has a long history of promoting voluntary and regulatory higher energy efficiency standards in consumer products, working closely with UK government and at European level. EST works extensively in partnership with a number of DNOs on community and residential focused energy management projects.
- EST delivers Wales' and Scotland's national community energy support programmes. Increasingly community energy projects are addressing wider energy management and energy efficiency alongside renewable energy generation.

Electricity demand reduction (EDR) has a vital role to play in the energy system transition in avoiding or reducing the need to build new generation and reinforce electricity networks and in reducing overall system costs. Current policy and market arrangements are not delivering this at anywhere near the scale that the UK needs.

Whilst the EDR evaluation showed clearly how cost effective such measures can be (for participants, the government and society), we agree with its conclusion that the design of existing mechanisms (such as the Capacity Mechanism), prevent EDR from competing effectively (with generation, flexibility and storage) as they do not recognise or adequately compensate for the permanent nature of EDR. The pilot effectively paid for just one winter of savings whilst the effective useful life of all technology installed under the scheme was 10 years or longer.

In the longer-term we would like to see a fundamental shift to ensure that demand management measures are at the heart of, rather than, a bolt on to such mechanisms and that financial incentives throughout the energy market are aligned (where feasible) to the UK's Net Zero ambitions. In the mid-term, we support both the current emphasis on innovation and the principle that flexibility, including EDR, should always be considered and deployed ahead of infrastructure.

If existing mechanisms are modified to encourage greater EDR participation, the rewards should be:

- i) outcome-based (based on verifiable demand reduction)
- ii) recognise the lifetime savings of the measure
- iii) acknowledge the offset costs to the whole energy system

Our Response:

Q1: Do you agree with the market barriers to energy efficiency investment described? Do you think there are additional barriers?

The evaluation shows that the greatest barriers to participation in the pilot were a lack of awareness; tight application timescales; high transaction costs ('hassle costs') and the limited financial compensation in comparison to the upfront capital costs.

Whilst monitoring and verification were also cited as barriers, this would be expected to reduce as the smart meter rollout completes, the market matures and there is a greater involvement of aggregators.

Whilst a rolling programme/ regular auctions would allow a market to develop and reduce these barriers, the issue of the relatively unattractive compensation would remain. The pilot was dominated by 'ready to go' lighting projects. This was due partly to the timescales but also the limited reward. This suggests that the expectation for 'additionality' should be qualified in favour of an acknowledgement that revenues are supplementary, with the goal being to reduce less attractive 'paybacks' and give ERD projects a better chance of competing against other investment opportunities.

Q2: What are the ways we can overcome the market barriers to energy efficiency investment?

- Create support and guidance for current non-participants, tailored for their sector (for example, communities) which will allow them to enter into the market and compete on an equal footing. The current processes and language are impenetrable to those not currently involved.
- Have a rolling programme to allow users to line up projects and the market to adjust
- Simplify the administrative burden
- Encourage greater participation by aggregators
- Increase the reward to more fairly reflect the lifetime savings achieved (by using standard persistence values or where metered, by paying on an annual basis for the lifetime of the technology), over a longer timeframe.
- Enable cross funding/ stacking of revenues of measures as happens in the USA.

Q3: How can we leverage current markets to facilitate energy efficiency? For example, markets flexibility technologies can access such as the Capacity Market, National Grid Energy System Operator's (ESO) balancing services markets or Distribution Network Operators (DNO) tenders for alternatives to network reinforcement.

We agree that EDR cannot compete effectively in the Capacity Market as currently formulated.

Whilst we feel that more fundamental reform is required to deliver a level playing field for EDR, we agree that the recent Science and Technology Committee recommendation: *'That Non-generation suppliers bidding for Capacity Market contracts should be eligible to bid for contracts of up to fifteen*

years, in line with new generation facilities¹ would help more demand-side focussed projects to participate.

The Green Alliance report [Smart Investment: Valuing flexibility in the electricity market](#)² recommended that the Capacity Market should evolve into a stratified market, which can place a higher value on more flexible resources. This, along with targets for different types of flexibility (generation, storage, DSR and EDR), would ensure more of a level playing field.

The Aberdeen Heat & Power CHP district heating network, has, with external support, competed successfully in the Capacity Market (<https://www.flexitricity.com/case-studies/aberdeen-heat-power/>). There are many other CHP schemes across the UK where locally produced electricity could be utilised in this way to help grid resilience if the framework was modified to encourage it.

At the DNO scale, DNO tenders for alternatives to network reinforcement may offer an interesting model to bring forward more EDR projects. We support the innovation seen in the DNO flexibility auctions run on the Piclo platform. A DNO-led approach however, will inevitably undervalue the benefit of EDR however as DNOs can only compensate for avoided network reinforcement, whereas EDR offsets cost across the whole energy system. A system that allowed for greater stacking of revenues however could mitigate this.

A benefit of DNO-scale mechanisms is that they could permit EDR projects to be valued according to the value it would deliver in that particular area (based on avoided network costs).

In general, however, we feel that current market arrangements for DNOs and GDNs are insufficient to fully realise the potential of EDR.

The following interventions would help to create more of a level playing field in the medium-term:

- Requiring DNOs to deliver large scale EDR and redesigning the RIIO to facilitate this. This should continue the focus on innovation and encourage this as part of DNOs core business, rather than through standalone projects.
- Competitive auctioning for storage/DSR/energy efficiency to deal with constraint issues
- For Ofgem/ other stakeholders to ensure that flexibility systems are always considered and deployed ahead of infrastructure construction.
- Extending the funding of Network Innovation Allowance / Competition for community projects/social obligations to deliver targeted advice and installations;
- Incentives in the form of additional network allowances provided to distributors, earmarked for energy efficiency measures, and rewarding actual energy reductions.

We agree with the recommendation of the Science and Technology Committee that *'the government should consider the case for amending Ofgem's principal objective so that it explicitly includes ensuring that regulations align with the emissions reduction targets set out in the Climate Change Act 2008'* (Paragraph 216).

¹ <https://www.parliament.uk/business/committees/committees-a-z/commons-select/science-and-technology-committee/inquiries/parliament-2017/clean-growth-emissions-17-19/>. Paragraph 207

² https://www.green-alliance.org.uk/resources/Smart_investment.pdf

Q4: How we can create new markets for energy efficiency? Please provide suggestions on how to design the different mechanisms.

We would suggest that the markets needs to be based upon a 'pay for performance' basis with market participants compensated for the reduction delivered for the lifetime of the measure (based on standard 'persistence' factors or through smart metering). In the pilot this would have meant participants received ten annual payments for example rather than just one.

A key lessons from the American market highlighted in the consultation document is of the 'stacking of revenue'. The payback of many technologies excludes them both from consideration on their own merits and from existing Government funding schemes such as SALIX. An 'outcome' based approach combined with scheme design that enables 'stacking' of revenue could bring forward these measures. Whilst the issue of state aid complicates the picture in the UK, stacking revenues from DNOs and the Government (via SALIX for example) could help bring forward public sector projects that fall just outside the restrictive SALIX eligibility. Similarly there could be potential in stacking revenues from DNOs and the Energy Company Obligation (from 2022) to further stimulate aggregated EDR projects in the domestic (and potentially the SME) sector.

A more localised approach (as in the Piclo DNO auctions) combined with metering (where the outcomes and the impact on load can be verified on an hour-by-hour basis) would also permit reduction to be priced according to the value they would deliver to local networks.

Our final point here is on ensuring mechanisms are accessible to a wide range of participants. Current non-participants are unfairly excluded from competing in the market due to a lack of support and guidance as to how to become involved and the scale that is often required. Support and guidance should be adequately resourced, and designed to assist particular groups (e.g. community groups).

Q5: What can we learn from other countries' electricity systems from an energy efficiency perspective?

The key lessons from the USA are the need to allow for/ enable revenue stacking and the obligation placed on suppliers to invest in energy efficiency. The acknowledgement that the funding received for participation here is not the main funding source, but rather a supplementary source of income for their schemes is very different from the design of the EDR pilot.

Q6: How could networks ensure that energy efficiency can compete fairly with other solutions as a potential alternative to network reinforcement?

As above.

Allow more innovative flexibility auctions that allow DNOs to price reduction according to the multi-year benefit they will deliver in the locality and set targets for EDR.

Q7: Are there potential benefits from combining EE and flexibility? How can we maximise these benefits?

Our view is that both should be encouraged and prioritised over infrastructure investment where these will deliver carbon reductions. Unlike flexibility, EE delivers permanent reduction so where these compete, it will be important to ensure that this additional benefit is recognised and rewarded.

Q8: What is the role of aggregators?

Aggregators provide an important educational role in helping consumers to identify opportunities and have the technical capability to physically connect the customers and integrate their load into their aggregated pool. They also perform a valuable role in reducing the administrative burden and risk of engaging and, by bundling projects, enable smaller and more diverse consumers to participate in the market.

Whilst we think aggregators can play a valuable role (and therefore should be encouraged), it is important that any future framework is designed to be simple and transparent so that smaller distributed users can engage directly and compete fairly. This will make the market function more effective and increase the innovation value that aggregators can bring.

Q9: How should we best align with existing policies, particularly those referenced in section 2.4?

No comment

Q10: Should we support behaviour change? If so, should it be supported in the same way as energy efficiency, which requires installation of measures?

Yes.

Pilot projects (for example SSE's SAVE project) have shown that consumers adapt their energy usage where financially incentivised to do so (for example switching off equipment). If it is a time of peak demand and low supply then half-hourly smart meter readings will verify reduced usage and this could be rewarded. Smart meters combined with innovative technology will be increasing able to verify this effect.

There is also a basic awareness raising issue here. The Committee on Climate Change have highlighted the importance of engaging citizens. Schemes / market offerings that for example, encourage consumers to participate (for example by rewarding them for using timers in electric immersion systems to heat water in 'off peak' periods) can deliver immediate benefits (reduction in consumer bills and increasing the resilience of the system).

Of greater long-term significance however may be the engagement and the potential this holds to build support for deeper action (at both the individual and societal level).