

Dear Sir / Madam

Below I set out my personal thoughts on the consultation on “Future of local energy institutions and governance” as a recently retired researcher and project leader in the academic sector where my interests have spanned across both the electrical and gas sectors.

I have, therefore, limited my comments to those questions on which I feel I can reasonably comment.

I realise that some of the thoughts I set out below may be provocative or beyond the scope of the consultation but hope you will see them as an attempt to provide a positive contribution to policy and governance in the future of energy supply and use.

Kind Regards

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Q1. Are the three energy system functions we outline (energy system planning, market facilitation of flexible resources and real time operation of local energy networks) the ones we should be focusing on to address the energy system changes we outline?

The context of the energy system functions set out in the call is mainly focused on the electrical system due to the need to manage this element of the energy system in near real time. As a result less detail is given on how the functions will affect other parts of the energy system. No information is provided on whether or how market facilitation in one energy system might interact with other elements of the energy system

No mention is made within energy system planning of the need for demand reduction, particularly in the context of the reduction in heat demand envisaged by the Committee on Climate Change.

Only the role of formal institutions (Local Authorities, ESO, FSO) are considered in the call. This ignores the important role that individual and community groups as both users and generators of energy are likely to have within the future energy system at a local level.

Q2. Do you agree with the criteria we have set out for assessing the effectiveness of institutional and governance arrangements?  
and

Q3. Do you agree with our assessment of how far the current institutional arrangements are, or are not, well suited to deliver the three key energy system functions?

While all the criteria set out are important for good governance consideration needs to be given to the extent that institutional self interest might play. If institutions and oversight mechanisms are arranged, as currently, around individual vectors and scales (transmission and distribution) there will be strong incentives to maximise individual institutional benefit rather than overall system and consumer benefit.

Q4. Overall, what do you consider the biggest blocker to the realisation of effective energy system planning and operation at sub-national level?

As set out in 2/3 above institutional self interest will create a barrier to effective energy system planning and operation at sub-national levels. Sub-national versions of the FSO able to bring together all actors in the local energy system with the authority to mandate the local energy system will be required to prevent such a situation arising.

Public engagement with the process below the level of elected bodies will be necessary to ensure that there is support for the future energy system at local levels. It will be important that the impression is

not created that change is being imposed as, for example. the plan for a congestion charge in Greater Manchester which had to be abandoned due to public opposition and the subsequent finger pointing between local and central government.

Q6. Are there additional opportunities for change and benefits that we have not set out?

By limiting the context to the energy supply system the models presented do not account for other opportunities that impact on the operation of the energy system.

Building energy efficiency is critical in this context as heat demand is a significant contributor to energy demand at a local level and is heavily influenced by the local energy strategy. The current proposals take no account of changes in energy demand or how the cost of this will impact on energy system investment.

Current Climate Change Committee (CCC) advice is for a 10% demand reduction, however local ambition tends to focus on EPC improvements to EPC C or above or a 2-band improvement.

ONS data indicates that taking the later approach would achieve demand savings of 30% - 78%

Median estimated total energy cost by EPC band

| Energy Efficiency rating band | England      |                                 |        |            | Wales        |                                 |        |            |
|-------------------------------|--------------|---------------------------------|--------|------------|--------------|---------------------------------|--------|------------|
|                               | (£ per year) | % cost saving by improvement by |        |            | (£ per year) | % cost saving by improvement by |        |            |
|                               |              | 1 band                          | 2 band | C or above |              | 1 band                          | 2 band | C or above |
| A (92 plus)                   | 434          | -19%                            | 19%    |            | 428          | -11%                            | 25%    |            |
| B (81 to 91)                  | 364          | 32%                             | 56%    |            | 384          | 32%                             | 54%    |            |
| C (69 to 80)                  | 537          | 35%                             | 54%    | 0%         | 568          | 33%                             | 53%    | 0%         |
| D (55 to 68)                  | 824          | 30%                             | 50%    | 35%        | 842          | 30%                             | 51%    | 33%        |
| E (39 to 54)                  | 1177         | 28%                             | 49%    | 54%        | 1200         | 30%                             | 54%    | 53%        |
| F (21 to 38)                  | 1634         | 30%                             |        | 67%        | 1724         | 34%                             |        | 67%        |
| G (1 to 20)                   | 2328         |                                 |        | 77%        | 2613         |                                 |        | 78%        |

Source Energy efficiency of housing in England and Wales: 2021 Figure 10

(<https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/energyefficiencyofhousinginenglandandwales/2021#energy-efficiency-of-housing-in-england-and-wales-data>)

Funding to achieve retrofit based energy demand reductions should be seen as a component of the energy system, however there is no clear funding model by which this could be achieved. The CCC estimate retrofit cost of £10k per household while BEIS funded research by The Carbon Coop “People Powered Retrofit” (<https://cc-site-media.s3.amazonaws.com/uploads/2019/01/PPR-Report-June-2019.pdf>) suggests figures in the range £5-50K.

Given the circa 27m households in the UK using the CCC figure of £10k this would put the overall cost at £270 billion (range £50-500 billion using the People Powered Retrofit figures). To put this in context this is a similar order of magnitude to the investment that will be required to deliver the government’s current ambition for new nuclear generation by 2030.

There is a lack of policy as to how such investment should be funded particularly in the owner occupier and private rented sector (circa 83% of households). Relying on energy cost savings as envisaged in the Green Deal does not provide a sufficient incentive due to long payback periods.

The urgency of climate change means that approaches to achieve demand reductions that allow deployment of low carbon technologies through affordable funding mechanisms are urgently required. By treating energy demand reduction investment in the same way as energy system investment OFGEM could apply the Return on Capital Employed model to this investment. This would attract finance seeking long-term returns into the market while recognising that such investment has the same social value as energy supply and network investment.

Such an approach would provide a mechanism for the long term development of: supply chains, skills and drive cost reductions unlike the current start/stop grant funding schemes currently employed.

Q9. Out of the framework models we have developed which, if any, offer the most advantages compared to the status quo? If you believe there is another, better model please propose it.

Throughout this response I have, in effect, argued that the thinking that got us to the current position will not enable us to adapt to a changed future. By this I mean a structure where policy, regulation and commercial interests are organised along vector specific and scale lines. As a consequence framework models that perpetuate this organisation such “Internal Separation” and IDSO are unlikely to be able to deliver the scale of change that is required.

In contrast the “Regional System Planner / Operators” or “Interacting Organisations” offer a better hope of achieving the step change(s) needed. However the defined models should not be so tied to energy vectors, especially electricity.

At both a regional and, potentially, national level organising energy system planning around end uses: transport; heating and cooling, light and power, and commercial and industrial use would encourage approaches that delivered solutions best suited to the need. Such a planning approach could then drive vector delivery targets and operations by those with the skills to implement them.

At a regional level such an approach would then allow integration with other objectives such as economic development, environmental protection / improvements and health benefits to be incorporated in the planning cycle.

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Ian Madley