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Ofgem Call for Evidence on the future of supply market arrangements

UK Energy Research Centre response

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Summary

The purpose of this response is to give recommendations on the reform of the energy supply market, based on research on "energy retail market governance" within Theme 5 on "decision making" which forms part of the UK Energy Research Centre research programme.

- Overall, we recommend that reform of the retail energy market should not be considered in independence from the work on 'systems flexibility', energy transitions, 'whole systems', network charging reform and wholesale market policy (section 3). Organisationally, this may merit a well-resourced team working on current industry challenges in a cross-cutting fashion.

- In response to question 1 regarding "criteria to evaluate a successful supply market", we recommend that the evaluation of energy retail market success should explicitly include an assessment of its compatibility with a low-carbon transition. Specifically, the retail market should allow for long-term investment recovery in low-carbon solutions (see section 2).

- In response to question 3 on 'default arrangements', we give an overview of approaches to organising default energy commodity supply in some US energy retail competition states (section 4). We hope this will help when reviewing international experience in more depth.
  Considering the discussion of longer term default arrangements, beyond the currently planned price cap, we emphasise that energy system roles and business models are likely to see great change by the 2030s, and that any long-term strategy for default supply designed now would likely have to be reformed soon (section 3.1). We note that, interestingly, the idea of default collective switching, depending on design, could in some ways look similar to the dominant US model of regulated regional monopolists providing default service (section 3.1).

- In response to question 4 on intermediaries, we suggest that Ofgem (and Government) should consider improving the potential for intermediaries and assess the likely implications of resale of commodity energy by a wider range of eligible players, subject to customer protection requirements. Defining the range of players eligible for resale somewhat narrowly could be used to explicitly promote certain developments, for example offers with some form of system benefit (as opposed to simply allowing customers greater choice about where to buy commodity). Opening reselling could mean that certain market segments might evolve towards a scenario in which some customer-facing functions, e.g. billing and contracting, become divorced from some other essential functions related to supply, if the regulatory framework was aligned accordingly. The organisation of government schemes, default supply (and universal supply obligation), supply-of-last-resort, and system cost recovery could well be delivered by more centralised (potentially regulated) entities. Innovators and new entrant suppliers often perceive these functions as a burden and are exempt in some cases. Allowing commodity resale could relieve these actors from some of the complexity, so that they could focus on engaging customers and developing energy service offers (see section 3).

  If this split in retail functions occurred, the supplier hub model (in terms of responsibility for all functions being bundled in one organisation) would be fundamentally reformed, and we suggest that Ofgem should be open to considering regulated-monopoly delivery of some of these non-customer-facing functions, which are necessary for future supply models in the long-term (section 5). This approach does not necessarily need to be chosen as a policy approach proactively, but Government (and the CMA) could be faced with a decision on this question, if

consolidation became apparent (or was allowed to occur) between market players currently delivering these functions.

We recommend that Ofgem and BEIS treat the decision for, or against, regulated monopoly provision of some functions related to commodity energy supply as inherently political questions and emphasise that evidence will not in itself offer answers. Ofgem and Government should carefully re-assess where competition is in consumers' best interest, and where other governance forms may deliver outcomes more in line with overarching energy policy goals in the public interest.

Contents

1 Introduction: why do energy retail markets matter to a low-carbon transition?

The demand-side has an important role within the decarbonisation of the energy system, as many of the changes envisioned by Government to achieve the carbon targets require energy users to actively support or at least accept changes in the way energy is used (Eyre and Lockwood, 2016). This could include investing in, supporting, and/or 'hosting' measures to lower demand overall, enable low carbon electricity generation and heating technologies, or shifting demand in time. At least some customers' cooperation is hence key in achieving the carbon targets through a combination of technological, behavioural, and social measures. The energy retail market, through the sale of commodity energy is one important gateway to the customer, and hence crucial to this wider demand-side transition. With this interface, the organisation owning the customer relationship in respect to commodity energy has:

- A channel to the customer for marketing goods, services, and public interest program participation, and for disseminating information.
- Control of the energy bill and tariff, and hence of how costs are presented to customers. This significantly influences how other service providers and technology companies can realise value for customers and the system from decentralised resources in response to price signals[1].

Decentralised energy resources (understood here as behind the meter storage, generation, energy savings, and demand response) have potential to deliver considerable system benefits. Because they are customer-sited, the energy retail market can play a core role in enabling their development through value-added energy services.

[1] Traditionally this organisation also holds the customer's data which is core for anyone wanting to develop value-added services including decentralised energy resources (DER). Because third-party access to data is being reformed within the smart-metering framework and the DCC, and hence somewhat independently from retail market policy at the moment, it will not be discussed further in this response.

It could be argued that energy services markets exist and can develop independently from commodity energy supply and that the markets for buildings, appliances, and cars (for example) do not have to converge with the market for units of energy. For large scale users, energy services and units have often been marketed separately, and customers frequently hold separate contracts, such as those for kWh and for services, including flexibility aggregation, energy performance contracting, and equipment financing. As smaller customers (medium and small commercial and eventually perhaps households) become active participants in the energy system however, they may need more integrated offers[2]. Bundling commodity into an energy services offer would allow delivering one bill to the customer, instead of several, with one contractual partner and one transaction.

For any bundled offer emerging in the current context, the licensed supplier plays an important role. A licensed supplier itself can develop an integrated commodity-and-energy-service offering or can cooperate with a services provider[3]. Where a services provider wanted to avoid becoming licensed, or avoid cooperating with a supplier, they would have to be permitted to resell commodity energy, in order to bundle commodity with services into one transaction. This demonstrates why the energy retail market and position of the commodity energy supplier in the current context can be vitally important for a more active demand-side and decarbonisation overall.

2 Criteria to evaluate a successful supply market

We welcome efforts to fundamentally rethink the criteria against which to evaluate the energy retail market. It is important to acknowledge that customers are not homogenous: different customers require different arrangements to benefit from the market, have varying interest in innovative energy offerings, and are also varyingly attractive for innovators to target.

We believe that the guiding criteria of success should include an explicit reference to the decarbonisation of the energy system. This criterion should ensure that the retail market rules (and their interpretation) actively facilitate a low carbon transition, and do not stifle the emergence of low-carbon retail innovations. Specifically, rules and the regulatory practice of interpreting these criteria and Ofgem's wider duties, should not stand in the way of long-term investment and planning.

Harnessing the potential of the demand-side for the energy system transition in many cases requires substantial capital investment, and not all customers have the means or want to invest. It is important that retail market rules do not hamper the development of models that involve third party financing of measures. The traditional interpretation of retail competition as individual customer choice at any point in time through switching commodity supplier may be at odds with some value-added supply innovations (Hall and Roelich, 2016), including those that bundle commodity with financing of assets (Eyre and Lockwood, 2016). There is a risk that integrated offerings that involve third party financing could be interpreted as anti-competitive, if they require long-term commitments from users to recover investments made by for example landlords or energy service companies[4]. It is important that the

[2] Moreover, from a policy perspective some integration of offers may be desirable, for example to promote the consideration of roof insulation when a solar PV system is planned.

[3] There are clear advantages for energy service firms and retailers to cooperate to reduce the cost of customer acquisition. In Texas, some successful cases of cooperation between energy retailers and 'solar service' firms are known, whereby the two types of companies offer certain preferential terms if the customer also takes service from the partner (see e.g. St John, 2016).

[4] While long-term contracts should not always be rejected, proprietary communication standards should be avoided to enable interoperability.

design of the future retail market arrangements and regulatory practice facilitate financing of low-carbon technologies and measures on the demand-side. Investment, along with customer engagement and innovation, are core to the low-carbon transition on the demand-side (Eyre and Lockwood, 2016). The Government is committed to enable long-term planning for investors on the supply side (e.g. CfDs; capacity market contracts). On the demand side, it is equally important to ensure that investments are facilitated by retail market arrangements and regulation. In some cases, this may mean that for some time individual customers' choice (for example of new tenants or house owners) would be traded off against allowing the recovery of a long-term investment in the interest of the wider system. For these cases, it would be important to then ensure that contract lengths are reasonable, and these customers are adequately protected and not being taken advantage of. This may imply regulatory intervention of some kind.

We do not mean to suggest that bundling commodity with energy services is the only way for energy service companies to successfully market these offers[5], achieve further energy savings, or engage customers. Nor do we want to suggest that all energy services offerings require large capital investments, and by extension lengthy contracts to recover them (for example, scaling flexibility aggregation is possible with relatively small investments compared to those required in the heat sector). There may also be ways to enable bundled offers contractually while still maintaining customer control over the commodity supplier[6]. But we do want to suggest that Ofgem, when designing new retail market arrangements and evaluation criteria, should recognise business models that bundle commodity with financing as a form of desirable innovation. These may be successful in promoting both much-needed investment in low carbon solutions, and customer engagement as 'hosts' of low carbon technology and measures on the demand side. This implies carefully examining how models that finance assets and measures may be hampered by current and future retail market arrangements.

A new interpretation of 'competition in retail' should be considered[7]. This could take various forms, but could encompass customers' option to choose between traditional and new ways to buy energy, for example. 'Qualitative competition' between different business models, technologies, or services, as opposed to the current state of price competition between entities with the same (commodity-focused) business model, could allow new forms of innovation. Importantly, long-term commitments by customers or others on their behalf should not in all cases be rejected as anti-competitive, so that third-party investments can be recovered[8].

[5] Large industrial and commercial customers commonly have several separate relationships. Some domestic customers are also principally willing to contract with two separate entities for energy (as shown today by some automatic switching intermediaries charging a fee if they successfully delivered bill savings).

[6] Germany has enacted a law in 2017 allowing landlords or contractors to sell rooftop-PV generated power to tenants who are then still apparently free to choose their supplier for central grid-supply.

[7] We recognise that Ofgem presents its call for evidence on the future of retail within the constraint of 'promoting competition' (call for evidence, pg. 6), in line with its statutory duties, and therefore suggest reinterpreting this duty in the absence of more fundamental policy reform which Government may or may or may not be considering.

[8] Some have suggested that a new approach to the retail market could also include customers choosing a local monopoly supplier for a limited time through a referendum to enable energy services models (Hall and Roelich, 2016), or through democratically elected representatives (local council). This would trade off individual choice for collective choice. We believe that local authorities would be better advised to set up energy service firms rather than commodity energy trading and retailing businesses, but fundamentally they seem well placed to engage customers in the energy (services) market.

3 Intermediaries and reselling

The supplier can play an important role in enabling or hampering the emergence of demand-side resources via the tariffs they offer, the cooperation in customer acquisition, and the potential bundling of offers. We agree with Ofgem's assessment that for many non-traditional business models that are customer-facing, the necessity for entities to cooperate with a licensed supplier can de facto be a barrier (if becoming one themselves is too difficult because, for example, too different from their core business) (call for evidence, pg. 7). This could be framed as a commercial barrier, if it is interpreted in terms of the supply chain being underdeveloped, or as a regulatory barrier, if it is seen as a case of innovators' access to the functions suppliers control being constrained by regulation[9]. Moreover, energy retailers could stand in the way of innovative energy service offerings involving decentralised resources because of their control of tariffs and bills. For many novel technologies and measures to realise their economic potential, bills and tariffs that reflect varying system costs will most likely have to be made available. Some innovative suppliers are actively pushing 'smart tariffs' and half-hourly settlement, but it may not benefit all suppliers' strategies to pass price signals through (or indeed the strategy of their mother firms if they operate within a holding). If some suppliers chose to not pass price signals through, customers' willingness to switch to suppliers who do, would influence the scope for energy services firms to offer them value-added services.

Ofgem and BEIS analyses of supplier incentives relating to half-hourly settlement and flexibility aggregation are a good start to fundamentally considering the role the supplier has within the system in facilitating or hindering innovative new offerings to customers by other parties. This analysis should be continued systematically within the work on 'whole systems', networks, the energy transition, and the future of retail. Although the GB 'big six' and large independent suppliers in many cases have publicly professed to be evolving their business models away from a focus on energy units towards value-added services, and in many cases are taking active steps in this regard, some suppliers may still remain interested in selling more units rather than less. Moreover, when firms acquire or set up new business units, it nevertheless remains challenging to truly integrate commodity and energy services at a firm level within one subsidiary, and in sales channels (see Goldman et al. (2000) for a discussion of some possible reasons). Furthermore, for a bundled commodity-and-services offering, suppliers would have to shift their revenue model from one based on energy units, to a subscription model, to break the pressure to sell more units to cover underlying costs.

Facilitating third parties to realise energy service solutions which enable customers to use less-grid electricity may not be in all suppliers' interest. Firms who have not organisationally separated the ownership and operation of fossil fuelled generation assets (such as flexible gas plants) are likely to have particularly great counter-incentives to enabling low-carbon demand-side solutions. More generally, suppliers owning generation plants (as opposed to procuring energy via PPAs), depending on how their business models are set up, may have counter-incentives to support measures which would induce (substantial) energy savings, depending on their overall strategy. Moreover, even if established suppliers themselves adopt energy services offerings and DER coordination services into their portfolios, the question remains whether and how they are able to use their status as suppliers to disadvantage their competitors seeking to develop customer-sited energy solutions (code governance is one way at the moment).

[9] Energy markets and business models are, more than some other goods, strongly defined by regulatory and policy parameters, and this can make differentiating between commercial and regulatory barriers difficult.

The potential barriers for innovators wanting to sell commodity and value-added services implies that making the resale of commodity energy accessible to more types of market players and types of offers should be considered. This might facilitate the development of bundled energy service models and open the space for other players beyond commodity-suppliers and bundled holding firms[10]. At the same time, this could mean a strong increase in compliance and enforcement work to ensure customer protection, as a larger number of more decentralised players in the market place would require more attention, or a different approach to ensuring fair conduct. Policymakers may want to consider limiting resale eligibility, for example explicitly to projects with system benefit, or delivering particular policy aims (such as greenhouse gas reduction, energy savings, or the promotion of particular measures or technologies). Allowing resale only in combination with certain measures the Government is seeking to advance could ensure that the benefits would not be outweighed by the costs of supervising a very large market[11]. Ofgem's suggestions of more strongly relying on consumer protection legislation enforcement, and perhaps providing a general authorisation for each case (call for evidence, pg. 9) seem like they could be sensible ways to protect consumers, although our research did not focus on consumer protection.

Allowing resale of commodity[12] energy by players who bundle it with another value proposition would probably lead to some functions currently included in what we define as 'supply' (wholesale purchasing and trading, settling customers, recovering system costs, and managing the commercial interfaces with other players via industry codes) to be divorced from other functions that are more immediately customer-facing, such as contracting, billing, and customer service. This would be similar to what happens in white labelled energy-supply today (although billing is then mostly provided by the licensed supplier). While white labelling requires a third party essentially buying a service from licensed suppliers, reselling, depending on how it would be organised, may not need the suppliers' explicit cooperation. In that case, it could lower the bar for new entrants trying to build a customer-facing business, including for organisations with less resources like community groups and local authorities.

The reason that some functions of supply could be sensibly divorced from others, if this were allowed to happen, may be that traditional functions seem to benefit from different scales than some value-added energy services. Many customer-sited solutions require a certain proximity to the customer, local

[10] Currently, resale is allowed at the purchase price, so that resellers cannot make a profit on commodity energy. This seems sensible, but to bundled service offers, service providers would have to be allowed to make a margin on the value added, while passing through the cost of commodity. This may imply that billing for this kind of activity would have to be disaggregated to improve transparency.

[11] Reselling open to anyone market-wide could be of interest to all kinds of players, including as a retention strategy, with no value added for the system or the customer. 'Value added' here is understood to mean more than just the convenience of buying commodity from a known or trusted brand. Some customers may like the idea of buying energy from a party they already have an affinity with, but these would not necessarily offer them the kinds of system-beneficial energy services and bundled offers that specialised firms may be seeking to develop. Allowing resale on a larger scale by any party, not linked to defined added value, could have mixed implications for customer-sited energy resources and decarbonisation. On the one hand, reselling non-energy firms could be more accommodating to solutions that reduce customer demand for commodity grid-energy because, depending on the rules, they would make no or only a small margin on the resale of units anyway (the relationship itself would be valuable for them). On the other hand, non-energy firms reselling, including bundled utility service, could crowd out firms seeking the customer's attention for value-added energy services that are needed from a system perspective, but may be a harder sell to customers.

[12] In some cases, the concept is referred to as 'bill consolidation' which may have a similar effect of allowing bundling of service and commodity, but perhaps implies a different contractual arrangement.

staff and expertise[13] to assess the premises and customers' situation, market credibly including gaining the customer's trust, installing the measure or asset, and in some cases motivating the customer's participation. The more contingent and complex the measures, the less scalable they are. However, some of the core energy supply functions (post-restructuring), such as wholesale trading and risk management, currently require a larger scale, so that these functions may not be very compatible with the promotion of decentralised energy services[14] within one business model or organisation. The optimal scale for any type of business is impossible to determine and changes over time with changing institutional development, technologies, processes, and customer demands. We are not suggesting that these functions cannot be combined, but simply that the supply chain may well be reconfigured if the regulatory framework enabled it.

Ofgem should take care to align other reform projects strategically with reforms of the retail market, because when retail arrangements and regulatory practice are designed to encourage demand-side investment, it is important to have signals in place which ensure the type and location of investments made are beneficial for the wider system, at least in the medium term. The future of retail, network charging, and reform of how wider system charges including environmental levies are recovered, invariably intersect and it is important that all customers can benefit from innovation (some commentators link this immediately to cost reflectivity, but policy goals related to social equity and environmental aims may result in this principle being balanced with others). Reforms to reselling rules and positions on contract length and switching should take care not to nurture a range of business models based on arbitraging of system-wide costs, if the environmental or system cost benefits do not justify it[15]. At the same time, the evolution of wholesale markets, technologically and in design, will also determine the future of retail market design and the value commodity suppliers will be able to bring in managing volatility. For Ofgem as an organisation, it is important to recognise that all policy areas and pieces of the supply chain are vitally important to managing the emerging changes, and that energy transition policy cannot be managed separately from policy on networks, wholesale and retail markets. This may have to become reflected in Ofgem's internal organisation as well.

In conclusion, we recommend that Ofgem should include in the evaluation of the retail market's success compatibility with a low-carbon transition and specifically support of long-term investment recovery in low-carbon solutions. On intermediaries, we suggest that Ofgem (and Government) should assess likely implications of allowing commodity energy resale and widening the range of eligible players, potentially limited to applications that support specific energy policy aims. More generally, it is important that the reform of the energy supply market and the associated criteria for evaluating success are strategically aligned with, and not considered independently from, Ofgem's other work including on 'whole systems transformation', network and policy charging, and wholesale markets.

[13] Exceptions are e.g. very scalable demand response solutions, or appliances that customers themselves can replace. Also, large centralised customers, e.g. large supermarket chains or building developers, are target groups for large energy service firms including those owned by the 'big six'.

[14] It is e.g. common practice for smaller energy suppliers to outsource at least some of their wholesale market risk to professional commodity trading firms.

[15] Arbitraging of system costs should not be encouraged, unless the Government decides to allow implicit support to (virtual or physical) behind-the-meter resources – for example with the aim to kick-start the development of the energy services market at residential level, or to encourage local balancing for an interim period. This was one of the explicit aims of the German "Mieterstrom" law which enables resale of rooftop-PV electricity to tenants.

4 Default supply arrangements: US experience with regulated 'default service'

Most jurisdictions in the US with retail market competition have 'basic' or 'default' electricity and/or gas commodity supply organised as a ('cost of service') regulated activity today[16]. Default electric service in the US is delivered by the 'utility'[17] that operates networks. The default arrangement under a regulated price is thus different than it is currently planned in the UK, but lessons may still be valuable.

The research undertaken by UKERC Theme 5 on 'energy retail market governance', among other areas, aims to assess how the development of low-carbon innovation on the demand-side (customer-sited microgeneration, storage, demand response, and energy efficiency) is influenced by various models of retail electricity market design[18].

Interviews with energy efficiency providers, decentralised PV and CHP companies, and demand response and storage vendors and aggregators, in states with and without regulated default electric service, suggest that currently, regulated default electric service itself does not negatively influence the development of business models accelerating decentralised technologies and resources. Interviewees noted that they perceive the unprotected residential, small, and medium scale customers in ERCOT (Texas) as more engaged and knowledgeable about the energy commodity market than in retail competition states with default electric service where customers are protected. In practice, this was however not perceived as an advantage because:

- currently, the business opportunities in states without retail competition are as good as, or often better than in Texas, based on dedicated policies to promote decentralised energy resources (equivalent to ECO and feed-in-tariffs in the UK)[19]
- customers in default service states, as well as in monopoly states, do show willingness to participate in DER programs marketed to them by third parties or the utility itself, even if they rarely or never shop for commodity, or don't even have the option to.

[16] US states with electricity retail market competition are Pennsylvania, Illinois, New York, Massachusetts, Connecticut, Maryland, New Jersey, Maine, New Hampshire, Rhode Island, DC, Delaware, and Ohio. Texas in the 'ERCOT' region is the exceptional state with retail competition and no regulated default tariff. Some other states such as California suspended or rescinded their retail market reforms in the early 2000s.

[17] Regulated 'utilities' operate distribution and transmission networks, provide default energy supply, and often run energy efficiency and demand response programs; sometimes alongside, sometimes outsourced to third parties. They procure energy via PPAs and are often prohibited from owning and operating generation facilities. This allows their profits to be 'decoupled' from volume commodity sales to make them indifferent to selling more or less kWh. As they are regulated entities, their incentives can also be changed to support energy efficiency through linking profits to targets in achieving energy savings ('shareholder incentive policies' in several states).

[18] It therefore focuses on a particular range of innovations and does not take wider innovative retail offerings like bundled utility service into account.

[19] Many micro-generation and distributed storage companies, and to a lesser extent, demand response providers initially relied on dedicated support policies (i.e. revenues above of what could be achieved otherwise, or in separate markets) because they were not competitive in or able to access markets as they are currently structured. As new, less sheltered revenue streams are only recently being developed by these firms, assessing the role of retail competition for DER in the absence of dedicated policies is more difficult. (In the case of building-energy-savings, it is likely that business models will continue to rely on centrally administrated programs because they cannot be as easily integrated into markets where the demand and supply side compete, as other (aggregated) DER can. In the literature, 'market failures' are explained to justify out-of-market support. Additionally, many end-use customers show less interest in and openness to energy savings measures than for microgeneration and storage, as captured in the literature on 'barriers' to energy efficiency.)

- energy retail customers in ERCOT are not often willing to enter into long-term contracts, and retailers who are trying to offer value-added services in energy efficiency (often subsidised by investments linked to the energy saving obligation on distribution-transmission companies) fail to realise models with longer-term investment recovery.

The research hence confirms what many in the UK are expecting: that already unengaged customers protected by a price cap are likely to remain uninterested in shopping for commodity energy. But it also did not find evidence that other forms of engagement, such as participation in demand response, energy efficiency, micro-generation, and storage 'hosting' or financing schemes are hampered by a price cap. In other words, energy services firms in the cases examined do not seem to experience barriers as a result of regulated commodity prices.

The question whether commodity retail competition is necessary for, or at least supportive of the development of value-added service innovation in energy retail, is as old as the debate about the merits of retail market competition and restructuring[20] more generally (see e.g. Joskow, 2000; Littlechild, 2000; Defeuilley, 2009). The arguments and evidence presented in defence of both positions do not offer conclusive answers to the question: does better or more innovation in value-added services happen when procurement of commodity is organised competitively, and when customers actively switch commodity suppliers? While for example Littlechild (2000) and Treadway (2015) argue that regulated prices should be phased out to allow the development of value-added services, some have suggested that default service could even promote value-added services (Joskow, 2000), as what is offered by the 'utility' is a very simple, 'no-frills' product that can act as a baseline to compare with market offers.

Often, market designers in the US states with default electric service deliberately chose to protect customers at the expense of increasing switching numbers. The aims for retail competition and the criteria to judge its success were different in these US markets, and regulators did not expect great gains from innovation enabled by switching. It was believed that the main benefit of retail competition would be to improve liquidity and forward contracting in the wholesale market, and that to this end, it would not be necessary to have all customers, let alone small customers switch suppliers. In this view, the fact that small customers are protected was more important than the potential gains from competition. Now that decentralisation and digitalisation arguably offer greater potential for customers to buy a variety of energy-related retail services, these jurisdictions are also in the process of reform.

With hindsight, closer looks at these markets show that, as expected, most residential and small commercial customers do remain with their default provider, while in the commercial and industrial market competition is vibrant and switching commodity suppliers is common[21]. Those residential customers who do switch, often seek the 'consistency' of a fixed price, rather than lower prices. US energy retailers rarely are able to offer residential customers a cheaper tariff than the utility[22], but the default rates tend to be somewhat volatile.

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[20] Here understood as introducing competition into generation and retail, and sometimes unbundling network operation. This question is formally unrelated to privatisation, as both kinds of market design can be implemented in the context of publicly or privately-owned entities.

[21] Please see the annex for US switching data for electricity.

[22] The low level of the regulated rate relative to retailer's offers is explained by a range of factors, such as lower transaction costs, scale, and zero marketing and customer acquisition costs, but also by the utility sharing regulated (distribution and transmission) utility overheads and services that aren't explicitly factored into the cost. This does not mean financial cross-subsidisation, but as utilities providing the default electric service are not organisationally unbundled, they of course share business units across the company. To counter this effect, some argue that regulators should provide 'headroom' when utilities provide default service. This means setting the

In terms of preferred designs for default electric service, commentators suggest that it should as closely as possible track wholesale market prices (e.g. Joskow, 2000; Treadway, 2015), so that retailers can offer their customers the alternative service of managing price risk for them. Therefore, Treadway[23] (2015, p.62) recommends to rely on short-term procurement to encourage customers to seek security of fixed prices in competitive offers. Several North American jurisdictions have provided for default arrangements like this, but at least in one case reforms have been made to reduce volatility as well.[24]

An important feature of the US model for default energy service is that utilities are not allowed to earn a profit from this activity. Utilities in the US are regulated on a cost-plus basis and regulators can choose to have these utilities provide a service on a cost-pass-through basis, while earning margins on other activities (such as network operation and energy efficiency investment)[25].

The US states studied in some cases also allow 'community choice aggregation', whereby municipalities can set up energy suppliers that automatically take over all (default/ unengaged) customers[26] [27]. Customers receive a notification and may opt out at any time. As compared to operating default supply out of the regulated (network-operating) entity, community choice aggregation relies on the local authority giving the organisation direction and the democratically controlled city government keeping it in check (including setting the rate), because state regulators commonly do not have jurisdiction over these municipality-run default suppliers. This model has been implemented by municipalities with intentions of enabling cheaper supply, being more environmentally progressive, and/or supporting the local economy. Some cities, notably Chicago, decided to abandon the project as unsuccessful after some time, but the number of these 'municipal aggregators' is currently growing. Often, these small organisations then outsource some key 'back-office' functions to large retailers (often 'gen-tailers', like the big six in GB) who then act behind the scenes on their behalf.

Gathering more in-depth insights into the various ways default arrangements are handled abroad, and likely implications for the system, innovation, and consumer protection can help Ofgem assess risks and opportunities associated with different approaches.

price above the cost to allow competitive providers to undercut it (e.g. Treadway, 2015), as was done in Texas in the early days of retail competition. This would also include factoring in the cost of advertising (ibid.).

[23] Treadway regularly publishes a scoring of competitive electricity retail markets in North America and makes recommendations to improve them (the ABACCUS reports). His reports are sponsored by companies with a stake in competitive retail markets.

[24] For instance, in Alberta, Canada, where retailers provide regulated default service, policymakers decided that the detriment to small customers caused by the price volatility associated with a short procurement window was not sustainable. The rules had allowed retailers to buy power for the 'regulated rate option' only 45 days in advance. This window was then extended from 45 to 120 days to allow for more price stability in the regulated rate (Government of Alberta, 2013).

[25] In learning from the situation in US states, it is important to keep the context in mind: State regulators in the US are not understood as 'independent' from state Governments, i.e. they are not bound as rigidly to one orientation or policy principle set for them in statute as Ofgem is. This means that they can themselves proactively take more freedom in changing policy direction, and conversely must be responsive to Government agendas.

[26] They then take the customers over from regulated, bundled utilities, unlike from competitive entities as they would in the UK if such an approach were pursued.

[27] Unlike in Germany and other European countries, these cases of 'municipalisation' rarely involve buying and operating the local network in addition. 'Community aggregators' are 'energy procurement'- only organisations, although they sometimes also implement public-interest schemes such as energy savings programs.

5 Longer-term reform

If the price cap is envisioned as an interim solution for default supply, as mentioned in the call for evidence (pg. 8), Ofgem and BEIS should take the uncertainty surrounding the wider energy market, market roles, and business models into account. This would suggest recognising that any solution to protect unengaged customers after the interim period, envisioned with the current market structure and state of the system in mind, will necessarily be outdated within a few years, given the uncertainty around the direction of change, and the effects of the innovation that may occur across energy markets. Several trends, related to future energy policy decisions, and changes in business models suggest that market roles will (or should) change greatly, among them:

- further decentralisation,
- digitalisation,
- the growing importance of new trading and platform technologies,
- the potential withering of the current wholesale market based on marginal costs, and
- the further integration of heat, electricity, and transport sectors.

The desired option for default supply will thus require regular (re)assessment in step with wider market changes.

As the wider energy system is being reformed, it is also important to fundamentally re-consider which functions policymakers believe should be delivered by competing entities, and what could or should sensibly be delivered by regulated monopoly entities. Ofgem has already begun developing a typology of functions (call for evidence, pg. 5) which is a useful first step to assessing possible future energy market arrangements, and default commodity supply specifically. All of these functions should be considered individually, and various (types of) system actors, regulated and unregulated, should be considered for their delivery, taking into account potential economies of scale and scope, as well as the actors' incentives, potential strategies, and core capabilities, even if they are changing in the context of wider business model innovation. The exercise of evaluating evidence to inform these decisions will necessarily be of a political nature because evidence itself will not be conclusive. Advantages and disadvantages of service provision by

- regulated monopolies,
- unregulated markets, and
- competing entities under price or margin-regulation

are, as ever, contested and uncertain.

Insights from other markets may be helpful for assessing experiences with allocating retailing functions. For instance, allocating the billing function to the distributor can stifle innovation if regulators do not allow for flexibility in how the costs are presented to the customer. In several US states with default electric service, utilities bill and meter all customers, with a disaggregated bill that lists distribution service separately from generation and other items[28]. In many cases, the utility collects the payments from the customer to cover all costs, and then pays the retailer their share for the energy sold (this model is sometimes referred to as 'purchase of receivables'). While this can have the positive effect of lowering market entry barriers by relieving retailers of the need for credit cover guarantees and the risk of bad debt (the cost of which is then socialised), it does prevent retailer-led tariff innovation because

[28] In some states, the customer receives two separate bills, one for generation only from their chosen retailer, and one for all other services from the utility.

retailers cannot change how the customer is charged – unless 'bill consolidation' or resale are allowed[29]. On the other hand, the regulators in this context have direct control over how customers are charged which in some cases can improve the prospect for third parties offering services to customers (e.g. behind-the-meter asset financing).

5.1 Default supply in the medium and long term

Once SVT-price caps limit the available profit from unengaged customers, it is possible that pure energy commodity retailing for small customers interested in very basic tariffs will not be as interesting for suppliers anymore, at least not until they have evolved their business model more widely. Of course, this will depend on the profit margin achievable with default supply and the strategies of different firms, and it is unclear whether organic further 'oligopolisation' or monopolisation would occur. If the margins from price-capped SVTs were high enough, incumbent suppliers might choose to continue cross-subsidising other offers to gain advantages among engaged customers. Cross-subsidising competitive activities with income from another business with stable, fairly predictable earnings may be a viable strategy for some. This would suggest that those suppliers offering default electric service would be at an advantage vis-à-vis smaller suppliers and those market actors without commodity trading competencies (as is arguably currently the case for incumbent suppliers). However, if the margins were less generous, some suppliers might choose to sell these business units which could lead to consolidation.

We are not taking a view here on whether organic or policy-driven monopolisation of default service would be a positive or negative development. But we are suggesting that policymakers should at least entertain the idea that certain functions within the package that is 'energy supply' today, could in the future be organised sensibly as regulated monopoly activities (integrated into distribution system operators for example or other types of organisations), at least for some time. There should be a recognition that there will always be unengaged customers, and, as not all customers are homogeneous, invariably not all will be 'attractive' from a commercial perspective to innovators and new types of suppliers. To lower barriers to innovation, the aim of introducing regulated default supply should also be to relieve innovators from the universal supply obligation. Not all customers will be able to participate in the energy system more actively, but if only some participate, the system overall, and by extension all customers, could still benefit if the signals are aligned well.

If monopoly provision of default service is not chosen pro-actively, policymakers should be open to the fundamental possibility to consider a new model (as opposed to applying common competition policy via the CMA if consolidation does occur). This would mean (re-)regulating some essential functions if competing market players do not want to deliver them (at an acceptable price).

Default service as a regulated monopoly activity would not necessarily preclude suppliers, within the engaged market segment, to find ways to engage customers, integrate services, or become behind-the-scenes service providers for other entities with more appeal to customers where there are business opportunities (created by customer demand, dedicated policies, or both). With reselling, energy service companies with value to add could maybe even create a more vibrant retail market, shopping around

[29] The research on resale is still on-going; it is unclear whether and how it is practiced so far in the states studied, and we cannot currently provide any evidence on practical experiences in this respect.

on their customers' behalf. In this way, competition in the active customer segment could continue and potentially even be extended, if resellers were able to more effectively engage customers.

Ofgem suggests that default, opt-out collective switching could be another way to protect unengaged customers in the longer term. Presumably the administrator of this 'service' would not be in competition themselves (or if so, only at regular intervals). This would imply that it would have to be centrally regulated by Ofgem to ensure its activities remain in consumers' or the wider public interest[30]. In some ways, this approach could in the end look similar to default service provision by regional monopolies in the US, save that the default service provider in the automatic switching model would be procuring power from suppliers instead of from generators[31]. It begins to look similar because utilities also procure power competitively from third parties and tender for provision of other services (like British DNOs are required to above certain thresholds). If there was a single regulated entity automatically switching unengaged customers to the cheapest supply option, it is not clear how this would be a better option than a regulated entity procuring power for customers directly wholesale from generators (especially if both provided the service at cost), so Ofgem should carefully assess all options. Moreover, default automatic switching could squeeze the available margins for suppliers substantially, so that it is not clear that their business model would remain sustainable in the long-term, as discussed above.

5.2 Multiple suppliers and 'back-ground functions'

To address potentially emerging peer-to-peer electricity markets and the interest of various parties to enable energy users to directly contract and transact with generators, Ofgem is exploring the possibilities for allowing customers to have several suppliers (call for evidence, pg. 7). This could also be relevant to energy service business models, as customers could feasibly have separate relationships for different end-uses, such as for heating, their electric car, appliances, etc. However, the research did not explicitly focus on this aspect of the supplier hub model, and we are not aware of jurisdictions where several suppliers per customer is currently a possibility, so we do not have evidence to share here.

However, it seems that if the appropriate supply-of-last-resort arrangement was in place, allowing more than one supplier/ generator/ prosumer to contract with customers at the same time would not necessarily create issues for consumer protection. It seems sensible that with multiple suppliers, 'supply of last resort' would be allocated in advance of failure, i.e. to a kind of 'background supplier' who may also have other functions. It would have to be determined, whether the customers themselves would have to choose their background supplier independently from other suppliers, whether they would be decided at the regulatory level (monopoly situation), or whether they would come attached to the

[30] In case this automatic switching role was taken on by a public-sector body under control of elected officials (such as a 'municipal aggregator' common in the US), some may argue that this would replace the need for central regulation.

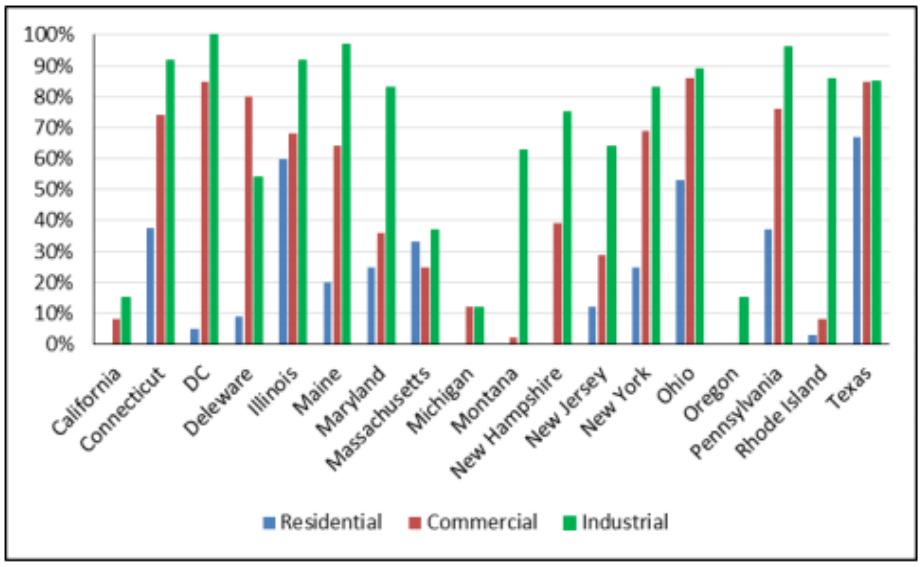
[31] Under current conditions, there is of course a difference in the skills required for procurement because the complexity of buying power wholesale today is greater than buying it retail. However, there are already specialised traders and brokers taking on wholesale market risk for small players today which the automatic switching agency (or agencies) could work with. Moreover, technology for energy trading is advancing quickly, potentially easing market access considerably and revolutionising the future of the wholesale market by the time the new default arrangement is implemented (for example the innovation in distributed ledger technologies and in energy and flexibility 'platforms').

customer choosing other offers in the market (implying cooperation between service providers/suppliers and background suppliers).

These background functions could be provided by regulated monopolies, price or margin-regulated competing, or pure competing entities. This requires fundamentally and openly re-assessing the balance between markets and monopoly, as discussed above. Reforms assigning some functions to a 'background supplier' on behalf of these multiple suppliers (including 'peers') would essentially institutionalise the context of outsourcing-relationships that exist today between non-suppliers and suppliers (e.g. in cooperating within 'white label' or 'exempt supply' arrangements) and bring them into the regulatory realm. It may also be helpful to include recovery of system costs like environmental levies and network costs within the package of 'background supply', if this would reduce administrative effort and lower market entry barriers. If competing entities provided the function of 'background supplier', either as regulated or unregulated service to those in contact with customers, policymakers would have to carefully think about which incentives and opportunities these entities may have to shape the customer-facing company's room for manoeuvre in developing their new offers.

6 Annex – switching rates in US states with basic electric service

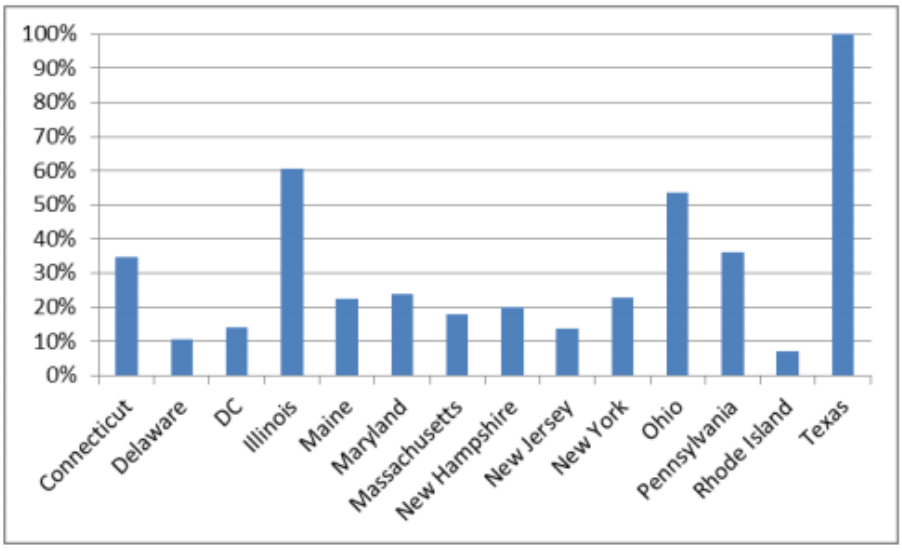
Competitive Retail Energy Suppliers' Retail Sales as Shares of Total MWh Sales, 2014[5]



[5] Sales shares are based on the most recently available state migration statistics obtained from state public utility commission websites for calendar years close to 2014. Data for Montana are based on U.S. Energy Information Administration [2012].

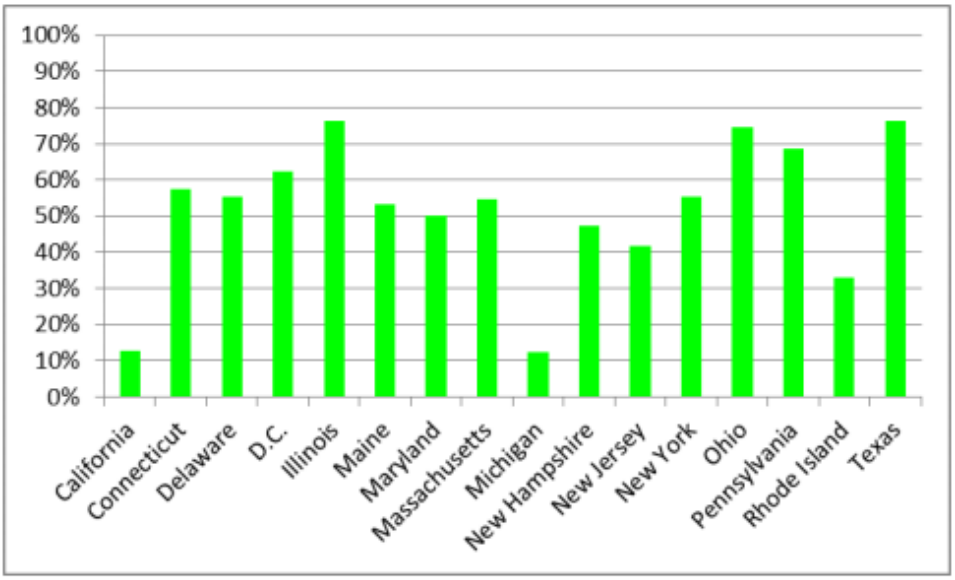
(Morey and Kirsch, 2016, p.5)

Residential Customers Taking Competitive Electric Service as Shares of Eligible Customers, 2014[6]



(Morey and Kirsch, 2016, p.7, citing data from Treadway, 2015)

Percent of Eligible Commercial & Industrial Loads Taking Competitive Electric Service from Non-Incumbent Providers, 2014[8]



(Morey and Kirsch, 2016, p.7, citing data from Treadway, 2015)

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