

Dr Jeffrey Hardy
Head of Sustainable Energy Strategy
Consumers and Sustainability
9 Millbank
London SW1P 3GE

1 May 2015

Dear Jeffrey,

Upside Energy would like to make the following observations on the discussion paper on Non-traditional Business Models.

Chapter 2 – Drivers for market entry

We also see the following two drivers. These are related to the drivers discussed in the paper, but I think it may be worth considering those drivers from a different perspective.

1. **Growth of the engaged consumer.** Much of the energy industry's discussion of consumers seems to be couched negatively – lack of engagement, resistance to change, etc. We'd question this framing. There is much evidence to suggest that consumers want greater control of their lives, greater access to information, trusted relationships with "brands", etc. These are all positive trends. If they are not evident in the energy industry, it's an attribute of the suppliers, not of the consumers.

For example, the discussion paper raises the issue of consumer "stickiness", i.e. reluctance to change supplier even if better (i.e. cheaper) offers are available elsewhere. Yet consumers aren't inherently sticky – they'll switch if offered something compelling. Look at their switch from landlines to mobile phones, and then to smartphones. That switching is not happening in the energy industry is a sign that the industry is not offering compelling alternatives. It thinks largely in terms of price – a 10% cost reduction might be worthwhile, but for many people it's not compelling when weighed against the perceived hassle and risk of switching. By contrast, moving from a "dumb" phone to a smartphone increases costs, but is nonetheless compelling to many people.

(Incidentally, firms like Apple would see stickiness as a positive sign, indicating brand loyalty. Although no-one is suggesting this is currently the case in the energy industry, it's possible to imagine NTBMs based on creating such loyalty and engagement. This is probably an attribute of many community energy schemes, for example.)

This framing is important, because it drives the industry's perceptions of the consumer. They are seen as disengaged, passive, vulnerable, in need of protection. This risks flowing through into regulation, which may focus on protecting them rather than on enabling them to exercise judgement amongst a broad palette of choices. This makes it hard to trial new models where a consumer might choose to engage more actively with the system.

For an alternative model, consider financial services. It is also heavily regulated, yet people can certify as "sophisticated" investors in order to access more risky

investments. And even in healthcare there are protocols that allow access to experimental medicines and procedures. These models won't transfer directly to the energy system – its interconnectedness means that one consumer's actions can damage other consumer's interests – but they illustrate that some consumers want, and can be allowed, to choose greater levels of risk if they can see commensurate benefits.

Of course, not all consumers will be engaged, and different consumers will be engaged by different things. NTBMs will make greater use of segmentation, delivering different offers to different sets of consumers, thus tapping into this desire for engagement and personalised services. This will require regulatory models that allow different types and levels of protection to be offered to different segments, with appropriate protocols for dealing with issues such as “informed consent”.

- 2. Increased ability to extract value from “soft” assets.** The discussion paper recognises technology change as a driver, and the resulting ability to gain greater value from assets such as information (e.g. to improve customer segmentation and hence enable definition and targeting of value-added services). This will undoubtedly result in new NTBMs. However, the essence of the driver is not simply technology: it is that technology enables organisations to make better use of soft assets such as information.

The energy industry currently appears to undervalue the asset it has in customer information. This is evident in, for example, the degree of focus on minimising the cost of the smart meter rollout, rather than on maximising the benefits that could be obtained from improved information. And there have been only limited attempts to engage consumers in discussions of how they can share in the value of this information, thus creating suspicion and resistance. New entrants with greater understanding of how to use such information, and how to use it to deliver high perceived value to consumers, could have a dramatic impact on the industry. It is important that such entrants are not precluded by industry incumbents restricting access to energy data.

Information-based business models will also create situations where the consumer isn't the customer. Firms will create business models where they use information about the consumer and their energy usage to deliver value elsewhere in the supply chain (e.g. to help manufacturers provide equipment maintenance services, or to target sales of new equipment and services). This will create issues of data protection and privacy, some of which will be covered by existing data protection legislation, but which may also have energy-specific implications.

And information is not the only soft asset that might form the basis of NTBMs. The industry is very focused on hard assets – plant, networks, etc – meaning that it is currently undervaluing assets such as flexibility. We anticipate the NTBMs based on monetising assets such as flexibility will grow in importance. This will often entail taking a stochastic rather than a deterministic view of asset utilisation, with consequent changes for management of system reliability, risks, etc.

Chapter 3 – NTBM environment

Flowing from the above drivers, we think another characteristic of NTBMs will be increased use of information and demand side flexibility to drive optimisation of use of hard assets on the grid. We are particularly interested in models based on increased asset sharing (e.g. as exemplified by the “sharing economy” and firms such as Uber and AirBNB) and increased asset utilisation (e.g. through stochastic rather than deterministic management of assets).

The former is driven by trends in customer participation; the latter by trends in ICT and information management; and the two may overlap to give powerful business models.

We believe the energy industry has, for good reasons, been very conservative in the way it uses assets. Assets such as networks are focused on a single purpose, with limited scope for reuse or multiplexing. This creates a highly resilient system, but it also has costs.

In particular, we believe that, by attempting to optimize the resilience of each individual component of the system (transmission and distribution networks, generation assets, etc), the industry has sub-optimized the overall system, e.g. by creating higher capital costs, and thus the risk that investments in infrastructure cannot achieve the hurdle rates required by investors. Thus the system may fail to build adequate capacity, creating the paradox that focusing too strongly on resilience damages the overall resilience of the system.

Thus we believe that business models can be developed around better use and re-use of existing assets. Our particular focus here is energy storage, where we believe using storage assets for multiple revenue streams will make it economic to add far higher volumes of storage capacity to the system, thus improving the overall resilience of the system. Any regulatory regime that inhibits such revenue stacking will also inhibit exploration of many potential business models.

The analogy of the “sharing economy” is instructive. Models such as Uber (sharing cars) and AirBNB (sharing accommodation) are both improving choice and reducing costs for consumers while opening up new revenue streams for producers (where consumer and producer may often be the same person). The energy system is both more critical and more interconnected than taxis or hotels, so the analogy is not perfect, but it may be informative to think about what can be learned from these markets (which also have numerous regulatory issues regarding consumer protection versus consumer choice).

We believe that it will be possible to find business models that enable energy consumers to share their assets, acting simultaneously as both consumers and producers, and which simultaneously lower overall system costs while increasing the overall resilience and flexibility of the energy system. It is not a case of trading off resilience for cost, as many appear to believe, so much as finding business models that can enhance both.

This discussion suggests that asset optimisation is closely related to risk. We can obtain greater rewards by taking greater risks. (This is exemplified by stochastic management of assets, where we can choose different risk/reward profiles.) Energy suppliers have traditionally focused on low risk models, and regulation has tended to reinforce this. The corollary to this is that they are probably not especially good at managing risk – they have been largely protected from it by a system that encourages stability over risk taking. But this has created systemic risk, through the cycle discussed above. We think there is scope to bring in new risk takers, via NTBMs, to help manage this systemic risk. We would welcome a regulatory regime that supports a wide range of better risk managers to enter the system and gain value from managing this risk.

As another corollary to this, we do not believe that establishing a “system architect” to create an overall model of the system and manage such systemic risk, as several parties are talking about, is necessarily the right approach. There is a significant risk that industry incumbents will capture this role, using it to lock in current, or only slightly changed, modes of thought and to lock out more radical innovations.

Chapter 5 – Market Effects of NTBMs

As well as assessing the costs and benefits from economic, environmental and social perspectives, it might be worth considering them from the perspective of risk. NTBMs could open up new risks, but they could also help manage existing risks more effectively and, in some cases, bring currently-unmanaged risks into sharper focus. In particular, we believe that the systemic risk of underinvestment in appropriate energy infrastructure could be better managed by increasing the value of, and hence investment in, assets such as storage and renewable generation by enabling NTBMs that use models such as asset-sharing and stochastic management to optimise asset utilisation.

Other insights that might be gained from the perspective of risk include:

- Growth of local energy generation and storage can help mitigate risks of failure in centralised generation and distribution (as people can still be served from local sources). It's not clear how the current energy system might account for this, e.g. by relaxing standards on the distribution network for consumers or communities who have high levels of local generation and storage.
- Giving consumers increased control will change their perception of risk. (E.g. objectively, flying is safer than driving, but people generally perceive driving to be safer, as they have more control when they are driving.) Thus giving greater control to consumers may reduce their perception of risk in the energy system even if it increases the objective level of risk. This may lead, for example, to greater tolerance of outages in systems where people have more local control. It is not clear how the current regulatory regime can accommodate such shifts in perception.

I hope this is helpful to you, and I would be very happy to discuss this further with you.

Yours sincerely



Dr Graham Oakes
Founder, Upside Energy
graham@upsideenergy.co.uk
+44 (0)7971 546288