

22<sup>nd</sup> October 2019

Office of Gas and Electricity Markets  
9 Millbank  
London  
SW1P 3GE

Dear Sirs,

***Open Letter on the RIIO-2 Framework***

***Position Paper on Distribution System Operation: our approach and regulatory priorities***

Swanbarton Limited welcomes the opportunity to respond to these consultations.

Swanbarton is a consultancy and technology developer with a specialisation in energy storage, system flexibility and energy markets. Active in the industry since 2003, Swanbarton's expertise covers storage at all scales: grid, industrial and commercial, community and domestic, and across the full range of associated technologies. Our current projects focus on deployment of modern and smart flexibility technologies; specifically, local electricity and flexibility markets, realised with our patented automated trading platform.

It is widely accepted that we urgently need to decarbonise our energy system. Indeed, this year the UK parliament made net zero emissions by 2050 a legally binding target. We are therefore encouraged by the work Ofgem has already undertaken ensuring customer interests align with the necessary transition towards a smart, flexible energy system that must play an integral role in meeting this target.

It is our understanding that Ofgem is undertaking several consultations ahead of the new price control period. Collectively these consultations are necessarily very broad in scope. We feel our expertise best places us to respond to matters pertinent to flexibility and storage. Furthermore, since the Open Letter and DSO position paper consultations are closely related (and share the response deadline of 15<sup>th</sup> October 2019) we have chosen here to respond jointly to these consultations.

Our points of response are as follows:

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1. Localised flexibility services are for managing instantaneous power through different parts of the system, and electrical power is delivered at the speed of light. The fundamental timestep of 30-minute settlement is not sufficiently granular to realise a smart flexible energy system at the necessary level of decentralisation. DNOs are aware of this underlying reality: for example, WPD's DSOF document *Network monitoring and visibility*<sup>1</sup>, shows the how the second-by-second output of a wind farm varies stochastically within the settlement period. Therefore, for the true value of flexibility to be unlocked, the system must be upgraded such that flexibility can be facilitated and managed on required timescales and localisation. Moving to market wide half-hour settlement is a move in the right direction but will not fully address this issue. Until the industry collectively acknowledges and addresses this, flexibility will never be able to compete fairly against network reinforcement, and to the ultimate benefit of customers.
2. We support the notion that DSO is a series of functions shared by multiple entities. Thus, DNOs cannot be expected to be the sole facilitators, nor allowed to be the gatekeepers, of the DSO transition.
3. RII0-2 EDR must hardwire DSOs for market fairness and transparency by mandating the *timely* delivery of operational network data at the second by second level. The DSO position paper does not explicitly quantify the location and time granularity of the required network metering. We therefore urge Ofgem to explicitly quantify metering requirements in the forthcoming working paper described in clause 1.26 of the position paper.
4. Electrification of heat and transport will introduce volatility on individual LV feeders at the secondary substation level that cannot be managed by flexibility at higher network levels.
5. With points 3. and 4. in mind, telemetering should as standard:
  - a. At least be second-by-second;
  - b. At least include direction and magnitude of real and reactive power flow;
  - c. Be down to the individual LV feeder level. (For the avoidance of doubt, in the GB system this is usually the last voltage level before most customer connections at 400-415 V three phase rms;)
  - d. Need not have settlement meter accuracy.
6. Where feasible, comprehensive telemetering installation at LV level may allow, through aggregation, visibility of power flow at higher network levels and thus save costs on more expensive higher voltage metering infrastructure. For example, the following low-cost solutions provide analogue signals to facilitate real and reactive power metering without necessitating customer outages:
  - a. Rogowski coils that measure current per phase;
  - b. Voltage probes into fuse carriers or clamped directly to exposed busbars.
7. Installation of network telemetering should be contestable. To facilitate this, the DNOs must be appropriately incentivised through the RII0-2 price control, to install standardised, network telemetering and then make the arising real-time data freely available. Where DNOs do not take advantage of such incentivisation, DNOs must allow installation of metering by third parties, who must then make the arising real-time data freely available in standardised form. This will prevent emergent business models being hamstrung by lack of network visibility, and successful investment made in telemetry will be of universal benefit to the industry, and ultimately to the benefit of customers.
8. Privacy and network security (including cybersecurity) are important factors to consider but

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<sup>1</sup> Distribution System Operability Framework, WPD, 2018, available at <https://www.westernpower.co.uk/our-network/network-strategy/dsof>

only present real problems in isolated cases. These are not insurmountable, and therefore should not be used by the DNOs as grounds for inaction.

- a. It is erroneous to conflate privacy issues associated with individual customer smart meters with those concerning network metering. Customers that raise privacy objections on the grounds of commercial sensitivity, or matters of national security, can reasonably request to have network data withheld if they are the *only* customer behind a network metering point, or if they can show their power consumption is not obscured by the activities of other customers behind the same metering point. (Indeed, such data would be redundant for flexibility market purposes, since it would simply be a replication of the flows measured by the customer's own meter.) We support the recent Energy Data Taskforce recommendations, in particular that data in the first instance should be Presumed Open.
  - b. Transparent, real time operational data must be completely open loop, and be separate from transducers connected to automated network control equipment. It should be a statutory requirement of the DNOs to keep closed loop automated control and protection systems separate and secure.
  - c. The DNOs should always retain operational control to ensure network security as facilitated through standards and grid codes (for example powers of remote curtailment as facilitated by G98/99). In this way, the market layer will produce market efficient network flows that contribute to, rather than threaten, network security. However, in exceptional circumstances that network security is threatened then the DNOs are always empowered to overrule market behaviour and take required actions.
9. RIIO-2 EDR and license conditions must mandate that DNO network infrastructure, assets and planning is made entirely transparent in a standardised form. Universal visibility of least-cost connection opportunities will fast track projects and reduce the burden of responding to individual connection requests on DNOs.
  10. RIIO-2 EDR and license conditions must mandate that DNO responses to network connection requests should be made entirely transparent and in a standardised form.
  11. Full planning and operational transparency, delivered in a timely and standardised form, will allow the DNOs to compete on a level playing field with other providers for DSO services, and thus decouple the DNO's monopolistic advantage from their commercial interests to the ultimate benefit of customers.

Finally, we urge Ofgem to continue to engage, collaborate and empathise with all entities in the industry ecosystem, including smaller and impartial organisations such as ourselves. Cultivating this empathy further will help innovation flourish, delivering a sustainable and economic future system that suits everyone.

Please contact us for further discussion of the content of this response.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'S. Le Blond'.

Dr Simon Le Blond CEng

Swanbarton Limited