

Anna Kulhavy,
Ofgem,
107 West Regent Street
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27th July 2017

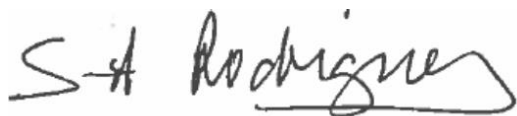
Dear Anna Kulhavy

RE: Consultation on RIIO-ED1 Innovation Roll-out Mechanism Submissions

Please find enclosed our response to your Consultation on RIIO-ED1 Innovation Roll-out Mechanism Submissions and our response is in relation to the UK Power Networks' submission.

I believe that UK Power Network's 'Low Voltage Network Visibility and Control System' project will support the Mayor in developing and delivering a range of programmes aimed at achieving his ambitions for reducing carbon emissions, improving air quality and enabling new development in London. This project will play an important strategic role in our ability to develop an integrated and flexible energy system that can deliver secure, affordable and ultimately zero carbon energy to our residents, businesses and transport system.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S-A Rodrigues', with a stylized flourish at the end.

Shirley Rodrigues
Deputy Mayor for Environment and Energy

RE: UK Power Networks Proposal - Low Voltage Network Visibility and Control System

Question 1: Do you consider that any of the proposed roll-outs will facilitate the Government's Carbon Plan, and/or deliver wider environment benefits?

Yes, it is considered that UKPN's proposal will facilitate delivery of the Carbon Plan and other wider environmental benefits. The Mayor wants London to be zero carbon by 2050 and that includes decarbonising both its energy and transport systems. To achieve this and the major improvements in air quality that the Mayor also wants to deliver for Londoners, the vehicular element of the transport system will need to consist of increasing numbers of ultra-low emission vehicles.

Carbon Plan – It will support objectives in:

- **Buildings** – The greater visibility and control system working in conjunction with smart meters will support the effective integration of buildings into the energy system. This will provide greater network flexibility and smarter, more effective use of energy at both a network and building level to support carbon reduction in buildings through energy demand reduction and management.

Buildings will also benefit from the role that decentralised energy and district heat networks will play in London's integrated energy system and the realisation of this role will be supported through this project.

- **Transport** – The rapid and large-scale transition to ultra-low emission vehicles and the extensive electric vehicle charging infrastructure associated with the electric vehicle component of this means that the requirement for greater visibility and control systems at the low voltage (LV) network level is very important. The network visibility will enable a more focussed and strategic approach to the roll-out of electric charging infrastructure, including rapid charging, by considering existing network capacity and what levels of re-enforcement would be needed to support various levels of charging infrastructure. The provision of strategically located charging infrastructure will allow for the successful electrification of cars, taxis, freight and public transport vehicles across London in support of the Mayor's ambitions for improving air quality and reducing carbon emissions.

This will also help address the significant financial and practical burden presently being felt by Transport for London and its delivery partners as they are having to roll-out vital electric vehicle charging infrastructure with a very limited level of low voltage network visibility.

- **Secure, low carbon electricity network** – The increased visibility and control systems on the LV network will allow greater integration of existing and new decentralised low carbon technologies (LCTs) into the low voltage network that will not only be of benefit for the owners of embedded generation but also for the LV network in providing demand response in times of constrained capacity. This visibility will also enable district heat networks and their energy centres to play a more strategic role in the wider energy system by optimising the role they can play in supporting the resilience and capacity of LV networks and deferring the need for re-enforcement through grid balancing and thermal storage on top of the demand response role mentioned earlier.

Question 2: Do you consider that any of the proposed roll-outs will deliver long-term value for money to customers?

Our existing energy system requires major evolution if the UK is to reduce its carbon emission to zero, in line with its ratification of the Paris (Climate) Agreement, in a cost-effective way. This means creating a future energy system that is smarter and far more integrated than at present, one where not only city energy systems are smart and integrated but where these systems are then integrated with the national system, specifically the electricity network.

The increased visibility and control systems will support the development of smart integrated energy systems, including the activities mentioned in Question 1, and this will help deliver long-term value for money for customers by supporting the development of cost effective decarbonisation pathways to 2050.

Questions 3 & 4: No Comment

Question 5: What are your views on the merits of any of the proposed technology roll-outs?

The UK Power Networks proposal will help address some of the development challenges facing London as it grows as well as supporting the decarbonisation and air quality ambitions that the Mayor has for London.

- To what extent are the proposed roll-outs relevant to current and future challenges in relation to the distribution network?

The visibility and control systems will help to address several of the energy challenges facing London as it grows. Some have already been mentioned in Question 1: greater integration of embedded generation into the LV network; optimising role of heat networks in decarbonising heat and supporting network flexibility; and supporting strategic and accelerated roll-out of electric vehicle charging infrastructure.

Another important area is the role this project can play in supporting the rapid rate of new development in London, including accompanying electric vehicle charging infrastructure. With new development, there is inevitably an increase in energy demand and in some areas of London where the LV network is approaching capacity it will need re-enforcement to enable the power demand from new development to be met. The increased visibility of the LV network provided by this project will allow areas where electricity network constraint could impact on new development to be identified early and fed into the strategic spatial planning process. This will provide both developers and UKPN with early insight into any LV network constraints that need to be addressed to enable new development to proceed in a timely manner. The Greater London Authority has been considering this issue for a while to understand the best way to enable investment ahead of need in the LV network to enable the timely realisation of large-scale development in London.

- What improvements, if any, do you consider that the proposed technology roll-outs offer compared to the current situation?

The outputs from the increased visibility and control systems programme will allow us to better understand the extent of LV network constraints across London and develop a more intelligent and cost-effective approach to spatial and energy system planning.

Question 6: What are your views on the timing of the proposed roll-outs?

The timing of UKPN's project is very good as the Mayor has ambitious targets for both reducing London's carbon emissions and improving its air quality, the planning and delivery of large-scale programmes to achieve these targets are already happening. The proposed timings for this programme would mean that it will be able to play an important part in the strategic development of these programmes.

We believe that in light of the Government's announcement on the banning the sale of petrol and diesel vehicles by 2040 and the Mayor's existing ambitions for the large-scale roll-out of ultra-low emission vehicles the timing of this project is more critical than ever. The considerable scope and scale of electric vehicle charging infrastructure that will be required to achieve these ambitions, in the timeframes required, means that it is increasingly important that the intelligence provided by

this proposal is available as soon as possible to help inform the strategic development and consequent roll-out of electric vehicle charging infrastructure.

- What would happen if any of the proposed roll-outs didn't occur until the next distribution price control starting in 2023?

It would mean that the planning and delivery of the Mayor's climate change mitigation and air quality programmes, for example energy system development and electric vehicle charging infrastructure, would have to happen without the intelligence and significant benefits that could be provided by the outputs of the increased visibility and control system programme.

- Does the timing of any of the proposed roll-outs have a significant effect on the expected level of benefits?

It would mean that the clear benefits and intelligence provided by this programme would not be available to help inform the spatial and energy system planning that will be happening in London over the next five years. The benefits of the programme could be significantly reduced if not undertaken until the next distribution price control period starting in 2023 as a considerable amount of strategic activity around London's spatial and energy system planning will inevitably have already happen in the intervening period.

Question 7: To what extent will the proposed roll-out facilitate the Carbon Plan?
UKPN's proposal will support the roll-out of the Carbon Plan as explained in Question 1.

- Please explain what aspects of the Carbon Plan you consider the proposed roll-out will facilitate.

The UKPN proposal will specifically support the roll-out of the following areas of the Carbon Plan: buildings, transportation and low carbon electricity network,

- What is your view of the claims made by the licensees regarding the contribution the proposed roll-out will make to these aspects of the Carbon Plan?

The programme will enable the benefits of strategic LV network visibility to inform network investment and capacity management ahead of need allowing new development, energy system evolution and electric vehicle infrastructure to happen in a more co-ordinated, intelligent and strategic way.

- Will any of the proposed roll-outs deliver benefits more quickly than the business as usual methods used across Great Britain (GB)?

The visibility and control systems programme will allow capacity and constraints across the LV network to feed into spatial and energy system planning in London, as explained earlier, in a way that is not possible with the current level of LV network visibility.

Question 8: To what extent will the proposed roll-out deliver wider environmental benefits?
The programme will support the Mayor's considerable ambitions for improving air quality in London.

- Please explain what, if any, environmental benefits you consider the proposed roll-outs will deliver.

As explained in Question 1 the programme will support the rapid and cost-effective roll-out of electric vehicle charging infrastructure across London to support the electrification of various forms of transport; including cars, buses, freight, taxis and private hire. Air quality in London will improve as the transport system becomes increasingly electrified due to the reduction in vehicles emitting NOx and PM pollutants from their exhausts.

Electrification of vehicles will also play an important role in the decarbonisation of transport in London and consequently support London and the UK in meeting their climate change targets. There will also be additional environmental benefits in relation to the reduction in noise pollution from the transition to electric vehicles.

- Will any of the proposed roll-outs deliver benefits more quickly than the business as usual methods used across GB?

The visibility and control systems programme will importantly allow capacity and constraints across the LV network to feed into the strategic and cost-effective roll-out of electric vehicle infrastructure for London in a way that is not possible with the current level of LV network visibility.

Questions 9 & 10: No Comment