National Grid ESO
Faraday House, Gallows Hill
Warwick, CV34 6DA

Jon Parker
Ofgem
10 South Colonnade
Canary Wharf
London
E14 4PU

Colm Murphy
Colm.Murphy@nationalgrideso.com
www.nationalgrideso.com

Date: 20th April 2020

Dear Jon,

NGESO response to the Reference Node consultation

This response is on behalf of National Grid Electricity System Operator (NGESO) and is not confidential. In the context of electricity charging arrangements, we are responsible for setting Transmission Network Use of System (TNUoS) tariffs and recovering the costs of system balancing actions from all relevant network users.

As the distributed demand weighted reference node ("reference node") is a complicated topic, we have provided some background to the reference node, before highlighting why we do not believe that there is an economic and clear rationale for changing the current approach.

To calculate TNUoS we use the transport and tariff models. The transport model reflects the cost of connecting to different parts of the network using demand and generation energy flows. This is run under two different backgrounds, Peak and Year-Round, which accounts for the different types of generation on the system. The tariff model creates the residual component to ensure that we recover the right amount of TO allowed revenues.

The reference node is a key element of the transport model. Today it considers the incremental flows on the network of adding +1MW at each node[1] in turn, which is balanced by a +1MW in demand pro-rated across all nodes according to their original demand level. The reason for putting +1MW of generation matched with distributed growth in demand, is that (in general) generation growth is 'lumpy' in that multiple MW of TEC connect at a specific location when a generator commissions or expands, whereas demand growth is more of a national pattern and does not affect one specific GSP.

It is worth noting that before the introduction of CMP213 (Project Transmit) in April 2016, there was a single fixed reference node. This fixed point was chosen to achieve the correct generation / demand split in locational tariff recovery, however choosing where this point should be and therefore the related collection from generation and demand was arbitrary. The single fixed reference node also no longer worked mathematically[2] when, through Project Transmit, the two backgrounds were introduced. We are supportive of Ofgem's view that there is not a clear case for changing the approach to the reference node. We believe that there needs to be a clear rationale and justification for why the distributed reference node should change away from the current distributed demand approach and we consider that there are existing routes to deliver the proposed benefits. Our views on the potential benefits set out in Ofgem's webinar are below, with more detail in the Appendix on the proposed reference node reforms.

1. **Improved competition between generators, including those different sizes and types of generation**
   We fully agree with the principle of equitable charges across users which will in turn support competition. We do not however support the reference node being the solution to this.
   There are existing reforms being considered through other areas of Ofgem's Access Significant Code Review (SCR) such as whether distributed generators should pay TNUoS which are looking at this same area, therefore it is not clear why a change to the reference node would be required.

[1] A node is a connection point on the transmission system
[2] Under the dual backgrounds introduced in Project Transmit, circuits are allocated to one scenario or the other, depending on which is deemed to trigger the need for incremental capacity. Without a distributed reference node, as the scenarios are non-simultaneous, mathematical errors would have occurred in the model.

From a competition in Europe perspective, the €0 – €2.50 per MWh range for generation TNUoS charges in GB was set by the European Commission to ensure that generators across Europe were on a level playing field. If there was a view from industry that this is no longer the case, then engagement with UK Government and the European Commission would be required, rather than a change to the reference node.

2. **Improved compliance with EU cap on generation charge levels**
   We continue to be dedicated to ensure compliance with the €0 – €2.50 per MWh range for generation TNUoS charges. Currently CUSC modifications CMP317 and 327 are looking at ensuring that there is compliance with this range.

   We believe that the transport model and the reference node are designed to be cost reflective and ensure that it works mathematically, therefore we are not supportive of changing the current, cost reflective approach, to achieve compliance with the €0-2.50 range which is not a cost reflective driver.

We believe that the current reference node approach has sound economic rationale which was supported by the Authority's decision on CMP213 (Transmit), and we do not believe that there is a justification for changing this approach at this point in time. In addition, when considering Ofgem's guiding principles for the Access SCR, we do not think that a change to the reference node supports any of Ofgem's criteria. We are open to engaging with Ofgem and industry on this, should a clear economic rationale come to light for both for the justification for change and the proposed solution.

Yours sincerely

Colm Murphy

Appendix – detailed views on options for reference node reform options

We have considered the different options for changing the reference node which Ofgem set out in their webinar, and have covered these in turn.

The ICRP methodology today adds 1MW of generation to each node and balances that with a distributed 1 MW of demand. There are a finite number of way to change this.

This first is to replace the distributed node with a fixed reference node. This the first of Ofgem's options. As noted in our main letter, we believe that a single reference node methodology is arbitrary. It would be very difficult to justify a specific figure for revenue collection from demand and generation, without any economic theory / rationale behind this. In addition, it is not clear how a single reference node would work under our two backgrounds of Peak and Year-Round which accounts for different types of generation. We would not want to revert to a single generation scenario, as we do not think that this would be reflective of different generators usage of the system.

The second way you can vary the methodology is more fundamental, and changes from an incremental methodology to a decremental methodology, and supposes instead of adding 1MW at each node you add -1MW. Without fundamental changes to the methodology this will provide unintuitive economic signals, significantly different from today. There are two variations of this in Option 2 and 3. Option 2 balances the -1MW at each node (an increase in demand), with a reduction of generation elsewhere. Option 3 is mathematical identical as an increase in demand or reduction in generation at the refence node have the same net effect of -1MW. We believe that these options are possible to implement, however the economic rationale for doing so is not clear. We generally do not see large demand connections at a single point, and therefore the rationale of adding +1MW of demand and using distributed *generation* weighted reference node is not reflective of system use today.

The third way retains the incremental methodology, but instead of matching the increased generation with increased demand pro-rated to initial demand, it replaces it with a reduction in generation. This supposes that the next MW of generation on the system is there to offset existing generation. This does not feel realistic of how the system is developing – and our FES scenarios indicate higher demand and increased generation capacity in the long-run as we electrify heat and transform to meet our net zero targets. This is Ofgem’s Option 4.

Ofgem’s final option 5 adds +1MW of generation at a node, and equally matching it with +1MW of demand at the same node. This implies no flows on the transmission system whatsoever. The locational charges would be zero in this instance. We know that the transmission system is used today, and therefore we struggle to understand the economic justification for using this approach.