ASSESSING THE IMPACTS OF OFGEM’S TCR ON LARGE NON-DOMESTIC CONSUMER BILLS: USING DATA ANALYTICS TO CREATE CLARITY IN THE ELECTRICITY MARKET

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1. AIM
To develop a model for quantifying the impact of Ofgem’s network charging reform project (TCR) on the Non-domestic consumer bill. The target is to provide insights to large industrial consumers on what a possible post-TCR market might look, and how these changes are reflected in their costs. More specifically, this paper investigates Ofgem’s proposals regarding TGR tariff and DuoS residual tariffs.

2. BACKGROUND
Ofgem launched the Targeted Charging Review Significant Code Review (TCR-SCR) in 2017. TCR-SCR aims to review and reform the network charging arrangements associated with the recovery of fixed costs of both the transmission and distribution networks [1].

Several key factors have driven the need for a change in the charging structure:
• The imminent penetration of large and unpredictable loads such as electric vehicles (EVs) has created a need for more efficient network utilization to limit future re-enforcement costs [2].
• The system’s transition from a passive demand with large-scale and centrally dispatched power stations to a relatively flexible and distributed system with a wider variety of actors in the play.

A changing system requires updated regulation in network charging.

3. METHODOLOGY
Figure 1 – Framework for Modelling Impact of Ofgem’s TCR on the Consumer Bill

Consumer Cost Model: HR costs for DNO region and voltage connection of the site for a predefined FY
UK Infrastructure Model: MMNs & consumptions per voltage connection for all UK DNO regions
UK DNO Market Model: UK DNO allowed revenues retrieved per voltage connection across all regions
TCR Impacts:
Quantify how ND consumer costs are disrupted from Ofgem’s TCR policy

Cost-Reflectivity:
This means that the higher the usage, the higher the charge. Charges based on this route are likely to reduce market distortions

Practicality:
The smallest possible deviation from the current market agreements structure

4. RESULTS:
Figure 3 – Imperial SK Costs 2018/19 Detailed Breakdown

Table 1 - Imperial SK Future Cost Projections

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<td>Total Annual Cost (€)</td>
<td>10,900,00</td>
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<td>10,910,81</td>
<td>13,862,844</td>
<td>14,730,699</td>
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Figure 4 – Post-TCR Market DuoS Commodity Tariffs

Figure 5 - TCR Impacts on Imperial SK Campus Network Costs

4. CONCLUSIONS AND RECOMMENDATIONS
• Imperial SK Campus costs show a 7% increase in annual electricity costs in a cost-reflective and practical post-TCR market. - HV & DNO Region 12
• This would likely result in an increased appetite for investments in flexible demand and battery technologies.
• It is recommended to Ofgem to carefully investigate the cases where HV consumers see a decrease in costs. This could potentially reduce the appetite for time-of-the-day investments and result in TCR being counterproductive with the implemented Energy Policies over the last decade.

5. REFERENCES
[1] Ofgem “Distributional and wider system impacts of reform to residual charges.”
[2] Embedded Benefits: Impact Assessment and Decision on industry proposals to change electricity transmission charging arrangements for Embedded Generators”, 2018