

Electricity Network Innovation Competition Full Submission

Supplementary Answer Form

Project: Optimise Prime

Tick if this answer has been provided verbally: ☐

Project code	UKPNEN03	Question Number	23															
Question date	13/09/2018	Answer date	17/09/2018															
Submission section question relates to	Section 10.3.1																	
Topic	a) Low carbon/environment and net financial benefits																	
Question	Section 10.3.1 describes the business case method. Please provide further information on the scaling up process including the calculations that were used and any assumptions that informed these calculations.																	
Notes on question																		
Answer	<p>The benefits were first calculated based on the number of light goods vehicles (LGVs) in our partners' fleets operating within the Licensee's area. There were then two scale-up steps for GB roll-out:</p> <ol style="list-style-type: none"> 1. Scale-up to estimate the number of <i>all</i> company owned LGVs within the Licensee's area to assess the impact of all commercial vehicles including those outside of the partners' fleets (see <i>calculation 1</i>). This led to the final <i>Licensee scale</i> benefits as presented throughout the FSP. 2. The financial and capacity benefits were then scaled up to GB roll-out based on peak demand from the RIGs submissions to Ofgem for each licence area (see <i>calculation 2</i>). <p><i>Calculation 1:</i> The vehicle statistics used were either supplied by the partners or obtained from the files published on the Department for Transport website. Vehicle statistics file VEH0402 contains the total number of LGVs in GB and UK and by ownership. Only company registered LGVs were considered as commercial vehicles and hence included in the calculations.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th></th><th colspan="2">LGVs in British Gas</th><th colspan="2">LGVs in Royal Mail</th></tr> <tr> <th>Company registered LGVs in GB in 2017</th><th>UK</th><th>Licensee area</th><th>UK</th><th>Licensee area</th></tr> </thead> <tbody> <tr> <td>1,848,000</td><td>13,500</td><td>2,979</td><td>41,000</td><td>6,707</td></tr> </tbody> </table>				LGVs in British Gas		LGVs in Royal Mail		Company registered LGVs in GB in 2017	UK	Licensee area	UK	Licensee area	1,848,000	13,500	2,979	41,000	6,707
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	<p>Note that the ratio of LGVs in GB to UK is roughly 0.972, based on the average number of LGVs from 2014 to 2017 in GB and in UK from the Department for Transport website. The reason to obtain this ratio was because we only had a UK volume for the partners' fleets so used the 0.972 to scale it down from UK to GB.</p> <p>It was further assumed that the split between home-charging and depot-charging commercial vans was 50/50. The project team, including our fleet partners, could not find any credible sources that give any insight into the GB wide split.</p> <p>Therefore, the scaling factor for all home-charging fleets from British Gas' fleet is:</p> $(1,848,000 \times 0.5) / 13,500 = 68$ <p>And the scaling factor for all depot-charging fleets from Royal Mail's fleet is:</p> $(1,848,000 \times 0.5) / 41,000 = 23$ <p>These factors were applied to the Licensee area number (i.e. 2,979 for British Gas and 6,707 for Royal Mail) to account for the impact of all commercial vans in the Licensee area.</p> <p><i>Calculation 2:</i></p> <p>The financial and capacity benefits were calculated at licensee scale based on the Licensee's networks, forecasted load growth and the commercial fleet uptake as described in Appendix 10.3.1. The Licensee scale numbers were then scaled up to GB based on network peak load as published in Ofgem's RIIO electricity distribution annual report 2016-17. This scale-up method was chosen because the project ultimately reduces peak load on the networks.</p> <p>Licensee peak load (sum of LPN, EPN and SPN peak load): 15,279 MW</p> <p>GB peak load: 53,812 MW</p> <p>Scale-up factor from Licensee to GB is therefore $53,812 / 15,279 = 3.52$</p> <p>For example, Table 12 in Appendix 10.1 shows that the total financial benefits at Licensee scale by 2030 is £60,810,475 and $£60,810,475 \times 3.52 = £214,171,952$ at GB scale. Some figures presented might differ slightly due to rounding.</p> <p>Note that carbon benefits, which only depend on the vehicle numbers, were scaled up to the total company owned LGV number (i.e. 1,848,000) as described in <i>Calculation 1</i>. No peak demand data were used.</p>
Attachments	