

Electricity Network Innovation Competition Full Submission

Supplementary Answer Form

Project: REVISE

Tick if this answer has been provided verbally: ☐

Project code	WPD/EN/NIC/05	Question Number	32																																																																																																																
Question date	06 September 2018	Answer date	10 September 2018																																																																																																																
Submission section question relates to	N/A																																																																																																																		
Topic	a) Low carbon/environment and net financial benefits; d) Is innovative																																																																																																																		
Question	Please indicate (approximately) the ratio of carbon benefits arising from the ACS which are attributable to reducing periods of curtailment (outage) and carbon costs attributable to embodied carbon.																																																																																																																		
Notes on question	None																																																																																																																		
Answer	<p>This answer builds on Sections 3.4 and K.2.2 of our FSP which describes the methodology for calculating the carbon benefits of the ACS Method.</p> <p>We have provided Graph 1 which shows the ratio of the ACS embodied carbon cost to the ACS cumulative carbon saving (due to reduced DG outages) for each year post-trial and for each roll-out scenario.</p> <div style="text-align: center;"> <p>Graph 1 - Ratio of ACS Embodied CO2 Cost to ACS Cumulative CO2 Saving</p> <table border="1"> <caption>Approximate data for Graph 1</caption> <thead> <tr> <th>Year</th> <th>Post-trial Scale (%)</th> <th>Licence Scale (%)</th> <th>GB Scale (%)</th> </tr> </thead> <tbody> <tr><td>2024</td><td>10.5</td><td>10.5</td><td>10.5</td></tr> <tr><td>2025</td><td>5.5</td><td>9.0</td><td>10.0</td></tr> <tr><td>2026</td><td>3.5</td><td>7.0</td><td>7.0</td></tr> <tr><td>2027</td><td>2.5</td><td>5.0</td><td>5.0</td></tr> <tr><td>2028</td><td>2.0</td><td>4.0</td><td>4.0</td></tr> <tr><td>2029</td><td>1.5</td><td>3.0</td><td>3.0</td></tr> <tr><td>2030</td><td>1.0</td><td>2.0</td><td>2.0</td></tr> <tr><td>2031</td><td>1.0</td><td>1.5</td><td>1.5</td></tr> <tr><td>2032</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2033</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2034</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2035</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2036</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2037</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2038</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2039</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2040</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2041</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2042</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2043</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2044</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2045</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2046</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2047</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2048</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2049</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> <tr><td>2050</td><td>1.0</td><td>1.0</td><td>1.0</td></tr> </tbody> </table> </div>			Year	Post-trial Scale (%)	Licence Scale (%)	GB Scale (%)	2024	10.5	10.5	10.5	2025	5.5	9.0	10.0	2026	3.5	7.0	7.0	2027	2.5	5.0	5.0	2028	2.0	4.0	4.0	2029	1.5	3.0	3.0	2030	1.0	2.0	2.0	2031	1.0	1.5	1.5	2032	1.0	1.0	1.0	2033	1.0	1.0	1.0	2034	1.0	1.0	1.0	2035	1.0	1.0	1.0	2036	1.0	1.0	1.0	2037	1.0	1.0	1.0	2038	1.0	1.0	1.0	2039	1.0	1.0	1.0	2040	1.0	1.0	1.0	2041	1.0	1.0	1.0	2042	1.0	1.0	1.0	2043	1.0	1.0	1.0	2044	1.0	1.0	1.0	2045	1.0	1.0	1.0	2046	1.0	1.0	1.0	2047	1.0	1.0	1.0	2048	1.0	1.0	1.0	2049	1.0	1.0	1.0	2050	1.0	1.0	1.0
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	<p>From Graph 1, the embodied carbon cost of the ACS Method is approximately 11% of the carbon saving in the first year post-trial. The ratio reduces dramatically for subsequent years for all roll-out scenarios. This is because each ACS unit that is rolled-out contributes carbon benefit for each year of its service life meaning that the cumulative carbon benefit quickly outweighs the embodied carbon cost which is lower than the saving and is only incurred once for each unit (at the year of the installation).</p> <p>By the year 2033 the ratio is below 2% for all scenarios which means the cumulative embodied carbon cost of the ACS is almost negligible compared to the carbon saving generated by the ACS units from this point forward.</p>
Attachments	None