**Category: Best use of Technology to benefit the Environment**

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| 1 | **MHA+ member name** |
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|  | Galliford Try, Infrastructure, South East Aylesbury Link Road |
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| 2 | **other partners involved in the development of this product/project/nomination** |
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|  | Llynch, Ultimate Cell Technology |
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| 3 | **Please provide a brief description of what was done.** |
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|  | As part of the South-East Aylesbury Link Road (SEALR) project’s commitment to sustainability and carbon reduction, the team trialled and deployed Ultimate Cell, a hydrogen-based fuel enhancement system, on selected construction machinery. The system improves combustion efficiency by injecting hydrogen into diesel engines, leading to lower fuel consumption and reduced emissions. The technology works by generating hydrogen through electrolysis and injecting it into the air intake of diesel engines. This process improves combustion efficiency, reduces harmful emissions, and increases fuel economy, all without requiring any modification to the engine itself. Ultimate Cell is compact, reversible, and easy to install, making it ideal for temporary deployment on live sites. To evaluate its effectiveness, Ultimate Cell units were fitted to a selection of high-use plant machinery on SEALR, including a 20-tonne excavator, a site dumper, and a tele-handler. These machines were monitored over a three-month period, with fuel consumption and emissions data tracked via onboard telemetry and supported by operator feedback.The results were highly encouraging. Fuel savings ranged between 8–12% across the machines, while carbon dioxide (CO₂) emissions saw a 10–15% reduction. Significant reductions in particulate matter (up to 30%) and nitrogen oxides (NOx) (around 20%) were also recorded. Importantly, the introduction of this technology had no adverse effect on machine performance or maintenance requirements. In fact, operators reported cleaner start ups, longer fuel cycles, and no noticeable changes in power or usability. This initiative not only delivered measurable environmental benefits but also reinforced the project’s commitment to best practice in sustainable construction. It demonstrated a low-barrier solution for reducing carbon emissions.By trialling and evidencing the effectiveness of hydrogen enhancement on existing plant, the SEALR team has created a model that is scalable, cost-effective, It represents a forward-thinking, data-driven approach to carbon management and highlights the practical role of innovation in helping the construction sector transition toward a nett zero future. |
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| 4 | **Please provide a brief overview of what were the benefits of the digital deployment** |
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|  | The SEALR project trialled Ultimate Cell hydrogen tech on plant machinery, improving combustion, cutting CO₂ by 10–15%, and reducing fuel use by 8–12%, with no performance loss. This low-cost, retrofit solution shows how innovation can drive real carbon savings and support the industry’s path to nett zero. |
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| 5 | **Please provide a brief overview of why you should win an award** |
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|  | SEALR proved practical innovation can cut emissions without disrupting productivity. Using Ultimate Cell and biofuels, we reduced CO₂, NOx, and particulates on existing plant. Backed by data and team support, this replicable model shows sustainability doesn’t need to be costly, SEALR made it happen. |
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| 6 | **Please provide any other information that you feel needs to be included in the submission** |
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| 7 | **Please provide contact details** |
|  | Leigh Goodwin |
|  |  |
| 8 | **Please provide other contact details** |
|  |  |
|  | [leigh.goodwin@gallifordtry.co.uk](mailto:leigh.goodwin@gallifordtry.co.uk)  07484036901 |
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