



## A forensic, data-led approach to inform an ambitious carbon reduction strategy, focused on Scope 3 emissions



**M**arshall Land Systems, part of the Marshall Group, is a UK-headquartered company that designs and produces deployable infrastructure used by military, security and humanitarian organisations in some of the world’s most hostile environments.

### OVERVIEW

**2,480 tonnes\***

Annual total carbon reduction opportunity

**699 tonnes\***

Annual material based carbon reduction opportunity

**218 tonnes\***

Annual production optimisation opportunity

**1m+**

Data points analysed

**40+**

Manufacturing stages assessed per product

**500+**

Technical specifications examined

### THE CHALLENGE

Marshall Group established a target to become net zero by 2030. This gave Marshall Land Systems the need to set some shorter-term goals, which was to roadmap a path to significantly reduce the carbon footprint of its deployable infrastructure product in the next 12 months. However, without a benchmark for current CO2e, it was difficult for the business to see where these reductions could be made.

### THE SOLUTION



The first step to tackling carbon emissions was to understand the carbon footprint of the Marshall product.

The team focused on calculating Scope 3 emissions for the most standardised Marshall product, taking account of a range of variables including the extraction of the raw materials, the production of parts, and the emissions generated by suppliers and transportation. The team also conducted in-depth reviews of engineering processes, supply chain, build materials and CAD models to create a holistic picture of carbon emissions on a part-by-part basis.



From this analysis, Vendigital created a carbon baseline dashboard which displayed the data using a number of bespoke metrics, such as carbon intensity by material. This allowed Marshall Land Systems to examine and impact the design for the future ensuring that the embedded carbon were factored into all engineering, manufacturing and supply-chain chain decisions.

The increased data visibility meant it was possible to rapidly identify areas where there was scope to reduce carbon emissions, find solutions such as changes to materials and track progress against targets. The business could also report its carbon reduction achievements to the Group with confidence.

\*The design and implementation of product engineering ‘rules’ to ensure the carbon footprint of raw materials is considered when designing a product. For example, changing from aluminium to steel where possible delivered a carbon emissions reduction of 1,000kg per unit.

 Marshall are committed to building extraordinary futures for our customers, our communities, our people and our planet. We outlined this with our pledge to be carbon net zero by 2030. In Marshall Land Systems, we wanted to accelerate our progress towards our net zero target with industry standard and recognised methods for carbon profiling. The comprehensive data and depth of analysis provided by Vendigital has given us the tools to analyse and baseline our embedded product carbon, which is critical to helping us make the changes necessary to meet our challenging target. 

**Ollie Raymond, Head of Product Engineering, Marshall Land Systems**

 To meet Marshall Land Systems' ambitious goal of reducing carbon emissions, an examination of every aspect of the design was required. Through careful design, we have put Marshall on a path to deliver substantial carbon reductions in the near-term and, importantly, our bespoke dashboards have given decision makers within the business the visibility required to support their journey to meet their longer-term goals. 

**Isabel Thompson, Director, Vendigital**

## THE RESULTS

- Each product unit contains 19 tonnes of embedded carbon. Through a number of identified opportunities Marshall have been able to roadmap a path to reduce the carbon per unit by 10,000kg of CO<sub>2</sub>e.
- By designing out carbon intensive materials and production methods, this will reduce the embedded carbon by 14%.
- Assessed Marshall's global manufacturing footprint which highlighted that the decision to start operating in Canada will provide the opportunity to reduce the product's embedded carbon by over 50%.
- Assisted Marshall's investment strategy by identifying opportunities to remove carbon intensive equipment at its new greenfield facility within the UK.
- The design and implementation of product engineering 'rules' to ensure the carbon footprint of raw materials is considered when designing a product. For example, changing from aluminium to steel where possible delivered a carbon emissions reduction of 1,000kg.
- The creation of bespoke dashboards will help Marshall identify the largest areas of carbon contribution within products on a long-term basis.

