

Frequently Asked Questions

Why this study?

The main objective of this project was to take a closer look at the impact of rental on the carbon footprint of construction equipment and identify how to minimise its carbon footprint through independent analysis.

What are the key conclusions?

The research concluded that the efficient use of construction equipment lowers their total carbon footprint and that the rental business model stimulates efficient use. These emissions reductions can be significant, ranging from 30% to 50% over a product's full life cycle for rented versus fully owned equipment.

How come renting avoids such a large amount of carbon emissions?

Renting helps avoid emissions the following reasons:

- 1) **Equipment adequacy:** Renting ensures the right equipment is used for the job. By providing a wide range of products to choose from, it enables contractors to use the best machine for the task.
- 2) **Optimised transport:** Rented equipment travels shorter distances (rental branches are usually close to construction sites), and delivery trucks rarely travel back empty (as rented equipment is picked up at the same time other is delivered). This combined with the fact that truck size and load factors are optimised significantly reduces fuel use and emissions from transport.
- 3) **Utilisation rate:** renting maximises the utilisation rate of each piece of equipment and increases fuel consumption efficiency per hour of use.
- 4) **Maintenance:** Rented equipment is very well-maintained, which increases their efficiency and lifetime.

How can we ensure results are accurate and independent?

The study was managed by Climate Neutral Group (CNG) on behalf of ERA to ensure the full independence of the project and its outcome. Two specialist research companies, SGS Search and CE Delft, were also involved in the calculation of CO₂ emissions during the full life cycle of equipment.

What methodology was used?

Ten pieces of construction equipment from several manufacturers were analysed for the research. They were carefully selected to represent a wide variety of popular equipment categories including earthmoving, material handling, powered access, power generation, and hand tools.

Why focus on construction equipment?

With a growing population and increasing urbanisation, the construction sector is booming. In parallel, the importance of cutting carbon in the construction and operation of buildings is increasingly being recognised. A recent IPCC report states the building and construction sector must decarbonise by 2050 to meet the goals of the Paris Agreement. In this context, the use of construction equipment is one of the areas where the climate impact can be minimised.

Why focus on carbon emissions?

When considering the full life cycle of construction equipment, and in line with the global efforts to limit the increase in global average temperature to 1.5 °C above pre-industrial levels, a key focus is on limiting the carbon footprint of this equipment, especially in the use and end of life phase. Based on the LCA information, the researchers developed a carbon calculator to determine the total CO₂ emissions of the equipment in different user scenarios, including rental.

How will the carbon footprint calculator be used?

The researchers recommended that this carbon calculation tool be further developed before being released for use by the rental and construction industry and equipment users. Like the way in which the Total Cost of Ownership Calculator on the ERA website helps inform construction companies' decisions on where rental is the best option, the carbon calculator will inform decisions on the most environmentally friendly approach based on the lowest carbon impact.

How can the industry further improve its environmental footprint?

Given that fuel consumption currently has such a significant impact on the total carbon footprint of a piece of equipment, actors in the sector are working together to facilitate responsible fuel and alternative energy choices. Energy efficiency is also a priority, with equipment manufacturers developing increasingly efficient machines. Finally, recycling is a key area of focus, including the recovery of all the materials used in machines at the end of their life.

What is our call to action to policymakers?

EU policymakers can drive awareness of renting as a way to help curb CO₂ emissions during the full life cycle of construction equipment, especially in the context of public procurement. The upcoming EU decarbonisation package constitutes an opportunity to promote construction equipment rental as an environmentally sound option compared to contractors buying and owning their own equipment.