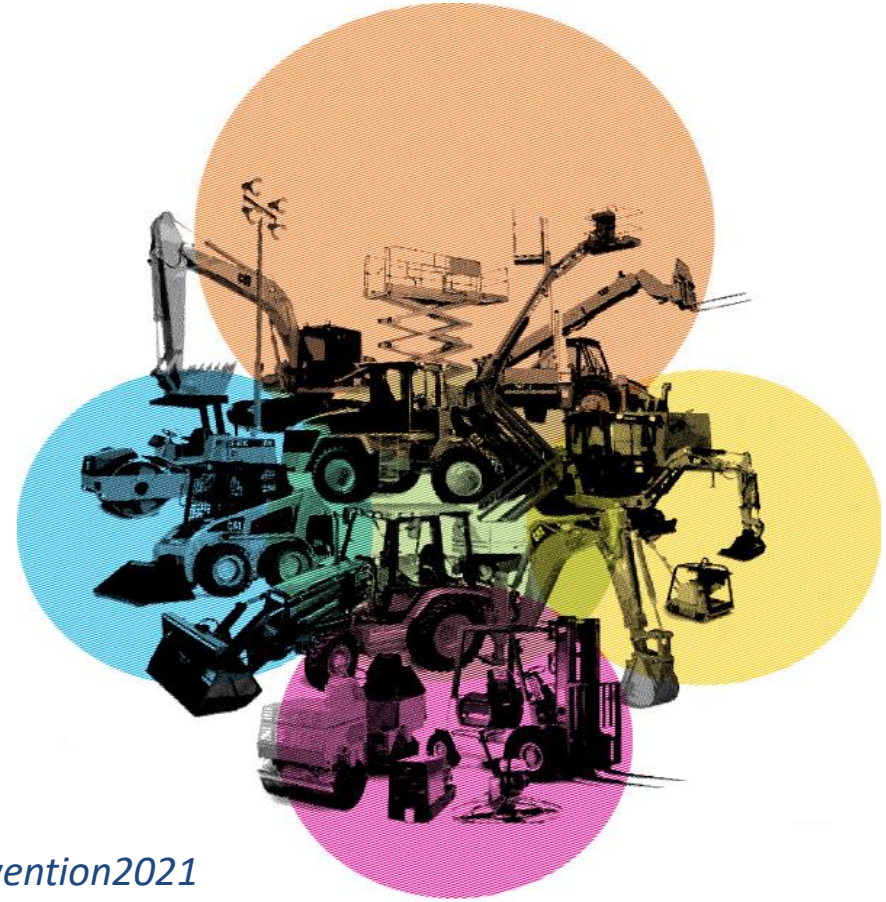
EUROPEAN
RENTAL
ASSOCIATION

ERA Equipment CO2 Calculator



Michel PETITJEAN,

ERA Secretary General

Please react on Twitter, @era_rental, #eraconvention2021

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The version 1.1 with alternative/comparative scenario

The ERA Equipment CO2 Calculator was first released in January 2021 and is a free-to-use online tool to enable equipment stakeholders to make more sustainable choices when using construction equipment.

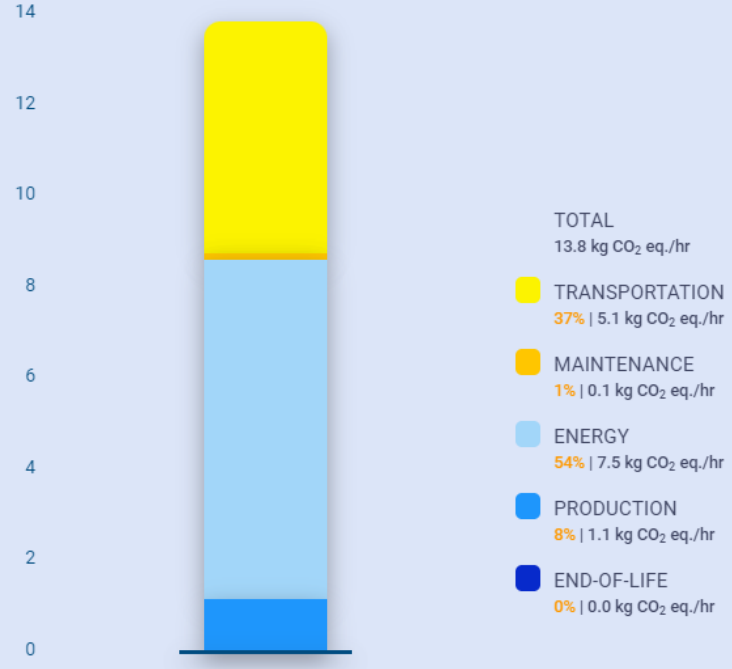
In March 2021, ERA has released a new and improved version 1.1, which now allows users to directly compare two separate scenarios for using construction equipment

This new version allows also to evaluate the impact of using hydrogen powered equipment.

ORIGINAL SCENARIO

CARBON FOOTPRINT BREAKDOWN

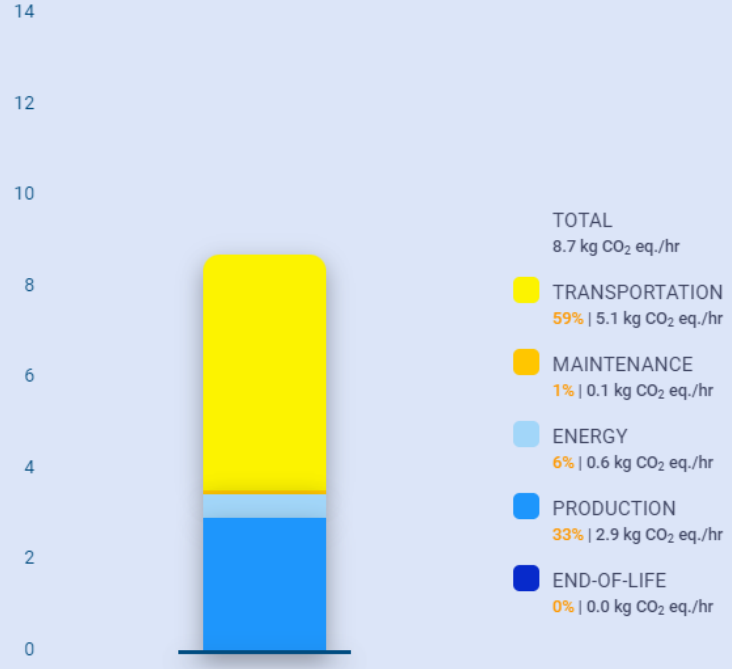
13.8 kg CO_2 eq./hr



ALTERNATIVE SCENARIO

CARBON FOOTPRINT BREAKDOWN

8.7 kg CO_2 eq./hr



ERA Equipment CO2 Calculator

Issue or type of feedback	Priority
Scope, content	
Definition - Create a database of models of equipment, including with corresponding LCAs	medium
Add support for other products, especially modular space	medium
Production - Add impact of production in different countries, especially for batteries	low
Production - Add precise footprint of batteries	high
Transportation - allow for two different load factors (one to go to jobsite , another for return)	medium
Transportation - create a database of trucks to choose from	medium
Lifetime - Operating hours - consider idle hours (motor on but machines not working) and working hours	high
Energy - distinguish categories of engines (Stage IV, V, etc..) which differ in consumption and emissions	medium
Energy - account for sources of energy on site (energy to produce energy - gen sets etc.)	medium
Energy - add hybrid machines?	medium
Energy - add HVO and other alternative fuels	medium
Maintenance - add oil filters , hoses..., distinguish between lubricant and motor oil	medium
Maintenance - add replacement batteries, distinguish between lithium and other batteries	high
Maintenance - add other wearing parts	low
Add a competence factor - training and competence of user, operator impacting energy consumption	low
Add innovation factor - quality and lifetime of product	low
Productivity (lower vs higher energy consuming product) —> CO2 per hour is only a rough indicator, CO2 per work unit proposed (e.g. car industry CO2 / km). Calculating the CO2 per hour based on energy consumption per hour could potentially lead to wrong conclusions. Meaning selection of a lower performing equipment to safe CO2 with the consequence that much longer time is required to perform and finish the job.	low

ERA Equipment CO2 Calculator

UX, technical	
Input	
Have dropdown menus to select types and models of equipment	medium
Have some fields pre-filled for easier input (LCA results, truck types etc.)	medium
Prepare use cases for limited use (for instance on-site use case, calculation only for transportation etc.)	medium
Lifetime - Total operating hours could be calculated automatically from utilisation hours per year and expected ownership lifetime?	low
Output	
Allow for calculation of multiple pieces of equipment (whole fleet, jobsite..) at once in aggregated dashboard (without having to go through all the steps for each individual machine).	highest
Ability to directly compare machines alongside each other , e.g a diesel machine & electric sized equivalent. Or deciding if a 2.5T or 3T excavator is more CO2 efficient for a particular job.	high
Make API available so that it connects to company CRM, etc	medium
Export calculation results to Excel	medium
Calculator to advice on decision between buying/using diesel or electric or fuel type	low
Include prefilled scenarios showing results for renting versus owning	low
Add ERA logo to the pdf printing template	low

Project for a version 2.0

3 different calculators:

→ **Equipment calculator (existing)**

→ **Handheld tools calculator (new)**

→ **Accommodation calculator (new)**

(The 2 new calculators will be very similar to the existing equipment calculator, guided through steps and animation)

→ **Fork-lifts will be included in the existing equipment calculator**

Project for a version 2.0

→ **Job site Equipment calculator (new)**

Doing job site calculation, every equipment will have its own duration, plus there will be a generic jobsite duration.

Doing a job site calculation, every equipment will have its own transportation distance

Project for a version 2.0

→ **Fleet Equipment calculator (new)**

Possibility to not only group together existing calculations but to create new CO2 calculations on the fly when creating the fleet calculation (without going through the 6 steps calculator?) or maybe also duplicating existing calculations (to confirm)

We assume that the fleet calculation may be a sum of all individual calculations (the result is always CO2 eq./h of use) or we can imagine to display more results: per year, per month etc.. (to confirm)

Project for a version 2.0 – more additions

→ Add option to analyse machines with hybrid energy supply

→ Improve modelling of batteries for full electric/hybrid machines

→ Add HVO biofuels.