



EUROPEAN
RENTAL
ASSOCIATION

Energy Transition in Rental

Executive summary
June 2025



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OBJECTIVES AND SCOPE

- ▶ The ERA energy transition project aims to facilitate the shift from fossil fuels to cleaner, renewable energy sources within the rental industry, aligning with the European Union's decarbonization targets ("Fit for 55" package goals, 55% reduction in greenhouse gas emissions by 2030).
- ▶ The study involved a comprehensive literature review, interviews with 35 industry stakeholders, and surveys conducted with rental companies and Original Equipment Manufacturers (OEMs).
- ▶ This report identifies and analyzes low-carbon solutions per equipment type and use case. Key energy transition drivers, barriers, and shifts in customer value proposition are presented.
- ▶ The following alternatives to fossil fuels listed are evaluated: battery electric; hydrotreated vegetable oil (HVO) and biodiesel; hydrogen (fuel cells and internal combustion engines).

DECARBONIZATION DRIVERS AND LOW CARBON SOLUTIONS

Current EU regulation on the sector mainly targets air quality, rather than focusing on decarbonization.

- ▶ Non-Road Mobile Machinery (NRMM) accounts for 3% of the EU's total Greenhouse Gas (GHG) emissions.
- ▶ The EU NRMM regulation sets emission air pollutants limits. These emission limits can be achieved by using exhaust aftertreatment technologies (long-term particulate filters) and are not a decarbonization driver.
- ▶ The upcoming EU Emissions Trading Scheme (ETS2) will impose a carbon price on fuels used in NRMM, which is expected to increase diesel fuel operating expenses (OPEX) by 10% from 2028.
- ▶ Some European cities are pioneering the energy transition by imposing decarbonization or electrification mandates on construction sites, both as buyers (contractual clauses) and regulators, as well as by providing grant schemes.

Electric batteries and HVO are identified as having the highest potential to reduce fossil fuel consumption in the equipment sector.

- ▶ HVO is the most widely used low-carbon solution for non-electrified equipment, requiring no engine modifications and low infrastructure changes. However, it faces environmental and long-term availability challenges.
- ▶ Battery electric machines offer significant environmental benefits and operating expense (OPEX) savings but have higher capital expenditure (CAPEX). CAPEX is, on average, twice that of Internal Combustion Engine (ICE) equipment. Significant cost reduction is expected from economies of scale, provided the adoption rate grows.
- ▶ OEMs are increasing R&D investments in battery electric technologies, projected to reach over 40% of R&D budget by 2030 according to the OEM survey conducted as part of the project.
- ▶ Hydrogen and also offers significant environmental benefits but are hindered by issues related to availability, infrastructure, and cost uncertainties.

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USE CASES SPECIFICITIES AND ENERGY TRANSITION CHALLENGES

The 3 main energy transition challenges identified are the investment premium, the access to energy infrastructure, and practicality of use.

Urban operations are subject to more environmental regulations and provide easier access to low carbon energy sources than remote sites.

- ▶ Client requirements, ease of access to a power grid, and temperature conditions should be assessed at the project level. These factors determine low carbon solution choices.
- ▶ Battery electric solutions can be prioritized at stationary sites with grid access, while biofuels and hydrogen could be preferred at remote sites with mobile activities.

CALL FOR ACTIONS AT INDUSTRY LEVEL

Harmonization of charging hardware and communication protocols is required to facilitate the adoption of electric equipment.

- ▶ Adopting automotive standards for AC and DC charging would allow greater equipment interoperability compared to today's brand-specific charging plugs and communication protocols.

Total Cost of Ownership being critical for decision making, updating the ERA Total Cost of Ownership (TCO) calculation tool appears as a priority.

ERA offers a free-to-use calculator to help companies estimate the TCO of equipment. Updated TCO calculations will allow to precisely factor in cost structure changes and to:

- ▶ Build profitable business cases, prioritize the most relevant use cases for low carbon equipment;
- ▶ Advocate to clients and policy makers and share knowledge on the financial benefits associated with low carbon equipment.

Greater coordination along the value chain is required.

- ▶ Dialogue with OEMs and regulators on battery charging standards and advocacy for harmonized decarbonization incentives will be key to facilitate the energy transition.
- ▶ Regular tracking of regulatory updates and technological progress is needed to inform investment decisions.

New training programs are to be developed for rental branches and equipment users.

- ▶ The transition to low-carbon solutions means changes in the way maintenance is performed, from the OEMs' dealership network to the customers' operation sites.
- ▶ In addition to changes in maintenance requirements, new skills are to be developed across the value chain to facilitate the energy transition (e.g. onsite energy management and optimization).



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