RENAULT TRUCKS E-TECH T 6X2

Environmental product information

RENAULT TRUCKS

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Renault Trucks

Renault Trucks is committed to improving sustainable goods mobility and is striving to reduce the effects its products have on the environment. Renault Trucks vehicles are designed to comply with legislation limiting atmospheric pollution and also to continue lowering fuel consumption which results in reducing carbon dioxide emissions.

Together with ever more fuel efficient transport solutions, Renault Trucks offers a full range of vehicles powered by alternatives to diesel fuel to enable operation in any environment: 100% electric; compressed natural gas; biofuels.

Renault Trucks implements an environmental policy based on specific commitments and a stringent management system that covers its dealer network, suppliers and partners. Its vehicles are manufactured in ISO 14001 certified production plants. It is geared to limiting its consumption of energy, water and raw materials but also to reducing waste production. Its products are designed to allow maximum reuse of the materials that have gone into their production.

Environmental product information

The environmental information on the product is derived from the Life Cycle Analyses (LCA) carried out on our vehicles. The LCA presented here takes into account the life cycle of a truck with factory-assembled electric batteries only, from the production of raw materials to final disposal and recycling. It provides data on the environmental impact of each of these phases. However, because it is vast and complex, in some cases the LCA. involves approximations. The results enable us to identify the most important environmental parameters in the product's life cycle. The vehicle's lifespan must be distinguished from the lifespan of the batteries built into the truck at the factory. The lifespan of an electric truck's chassis, cab and driveline will be longer. In fact, the chassis and cab are preserved thanks to the low vibration level of the battery-electric truck. The same applies to the powertrain, which has a longer service life on an electric truck than on a combustion engine truck. We know that the electric vehicle will last twice as long as the batteries it carries, i.e. 15 to 20 years, compared with an estimated 8 to 10 years for the batteries.

THE THEMES

The environmental product information studies the impact of:

- **materials:** extraction and processing of raw materials used to produce the vehicle.
- **production:** manufacturing processes used by the plants, component production at suppliers and on site transport of parts.
- **use phase:** production and consumption of electric energy. Homologation trials carried out for each type of engine as well as on-road tests make it possible to ascertain the effects of energy consumption. Depending on the conditions of use, a truck’s actual energy consumption can differ from the published results.
- **maintenance:** consumables and materials used in preventive maintenance and the production of parts (impact calculated on the basis of average values).
- **end of life management:** dismantling of products, management of waste and recycling the truck’s materials. After their usage on the vehicle, the batteries for electric vehicles, will have a second life as stationary electricity storage, before to be recycled.

THE RESULTS

The results shown include:

- the vehicle's bill of materials
- the rates of recyclability and recoverability as defined by the IS0 22628 standard
- the inventory results which show the data for the resources used and the emissions produced (pollution and waste).
- the assessment of the potential contribution to global warming. al.

BENCHMARK VALUES

Life cycle analysis results vary considerably depending on the data used for the calculations, the most important being country and energy source, energy consumption an mileage. The results shown here are based on the benchmark values for a **Renault Trucks E-Tech T**, **a 6x2 rigid** designed for regional distribution, throughout its entire life cycle.

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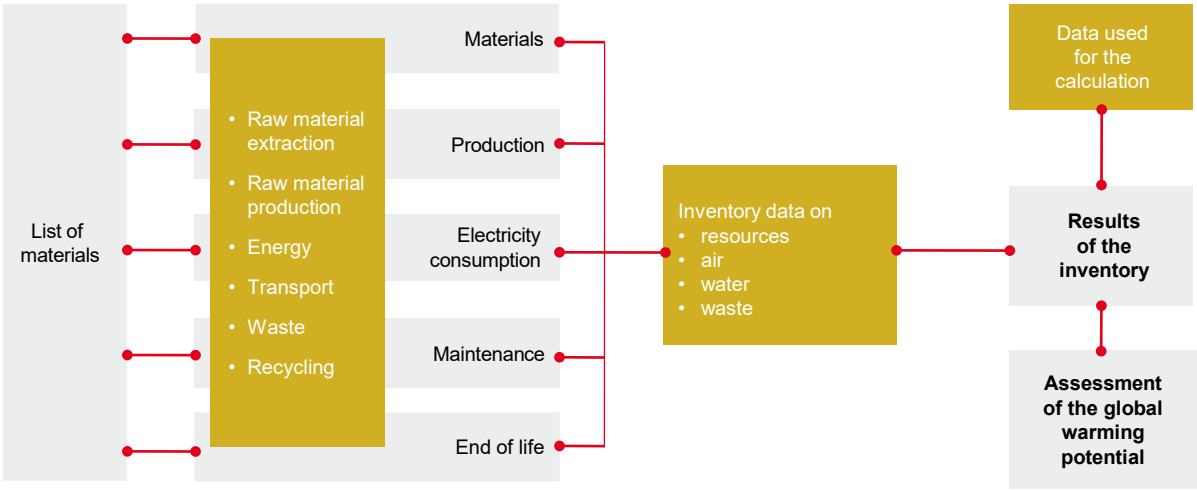
METHOD



DATA USED FOR THE CALCULATION

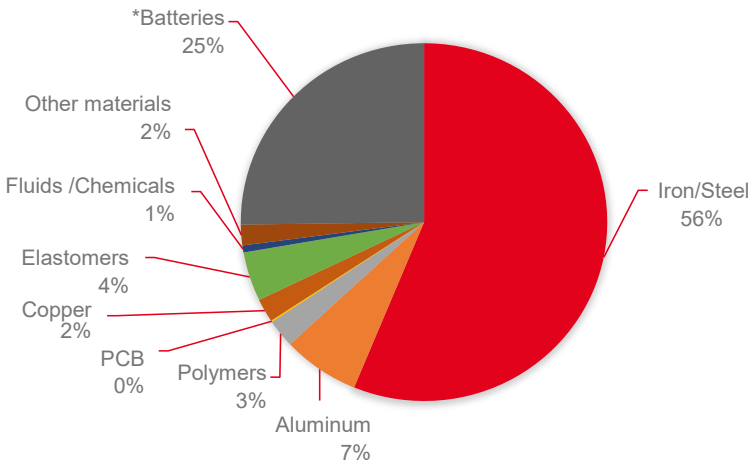
Vehicle model	Power	Number of batteries	Vehicle type	Distance (km)	Initial date	Update date
Renault Trucks E-Tech T	330 kW	6x90 kWh	rigid 6x2	675 000	2022	2024

* 675 000 km corresponds to the average number of kilometers that can be covered with factory-assembled batteries

BILL OF MATERIALS

Bill of materials used in the vehicle and taken into account for calculating the life cycle analyses.

Materials	kg
Iron/Steel	6691
Aluminum	810
Polymers	302
PCB	17
Copper	252
Elastomers	526
Fluids/Chemicals	76
Other materials	223
*Batteries	3000
TOTAL	**11897**



* Li-ion NCA

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RATE OF RECYCLABILITY AND RECOVERABILITY

The vehicles are designed to ensure that the maximum amount of materials used in their construction can be reused.

Rate of recyclability* 95,4%
Rate of recoverability* 98,3%

* Calculations according to the ISO 22628 standard: The rate of recoverability is the percentage of the vehicle's mass potentially able to be reused, recycled or recovered as energy (incineration with energy recovery); it is therefore always higher than the rate of recyclability.

INVENTORY RESULTS

	Unit	Materials	Production	Use phase	Maintenance	End of life	Total
Electricity - renewable*	MWh	15,85	6,73	According to country and primary energy source	6,51	-1,3	1201
Electricity - non-renewable*	MWh	-0,24	3,79		2,497	-0,23	7
Other renewable energy*	MWh	0,003	0		0	0,0038	0
Other non-renewable energy*	MWh	108,9	202		26,8	-25,9	11631
Materials	kg	8898	0		1460	-7814	2544
CO*	kg	103,2	20,6		2,8	-55,7	82
CO_2*	kg	26232	672		4608	-7926	29451
HC/VOC*	kg	66,5	7,4		13,8	-20,9	70
NOx*	kg	58,1	4,3		10,8	-15,75	61
SO_2*	kg	65,1	2,6		7,4	-17,1	61
Particulates*	kg	18,16	0,86		1,99	-6,87	17
Biological oxygen demand*	kg	0,79	0,13		0,26	0,01	1
Chemical oxygen demand*	kg	13,86	3,25		2,48	-0,2	21
CO_2-eq*	kg	29104	5450		5962	-17792	28673
CO_2-eq	**kg**	**60360**	**5450**		**5962**	**-29849**	**94382**
Use of water (excluding cooling)	m3		8,66				
Use of water for cooling	m3		2,17				
Non-hazardous waste treated	kg		339,16				
Non-hazardous waste to landfill	kg		10,21				
Hazardous waste treated	kg		193,54				
Hazardous waste to landfill	kg		4,7				

*Batteries excluded

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INVENTORY RESULTS –Usage Phase

By country	Unit	BE	CH	SP	FR	GB	IT	LU	NL	NO	SW	DE	EU28
Electricity - renewable	MWh	614	1029	1064	432	997	1230	1122	561	1251	969	1197	883
Electricity - non renewable	MWh	1162	880	679	1831	643	158	561	137	28	1022	371	718
Other renewable energy	MWh	0	0	0	0	0	0	0	0	0	0	0	0
Other non-renewable energy	MWh	731	469	1316	337	1165	1578	1229	1719	59	66	1464	1198
Materials	kg	0	0	0	0	0	0	0	0	0	0	0	0
CO	kg	139	115	256	72	359	286	256	165	19	188	300	296
CO_2	kg	174738	112585	273363	49836	219846	308532	308532	367401	29171	39034	390337	283302
HC/VOC	kg	332	267	912	193	703	1309	634	910	23	54	751	722
NOx	kg	224	196	607	152	404	397	445	422	16	81	525	440
SO_2	kg	59	90	453	86	191	175	194	110	7	41	231	344
Particulates	kg	17	21	53	15	28	33	48	48	5	18	59	48
Biological oxygen deman	kg	0	0	0	0	0	1	0	0	0	0	0	0
Chemical oxygen demand	kg	105	162	481	65	50	260	487	498	5	7	616	398
CO_2 eq.	**kg**	**183935**	**118510**	**287751**	**52459**	**231417**	**324770**	**324770**	**386738**	**30707**	**41088**	**410881**	**298213**

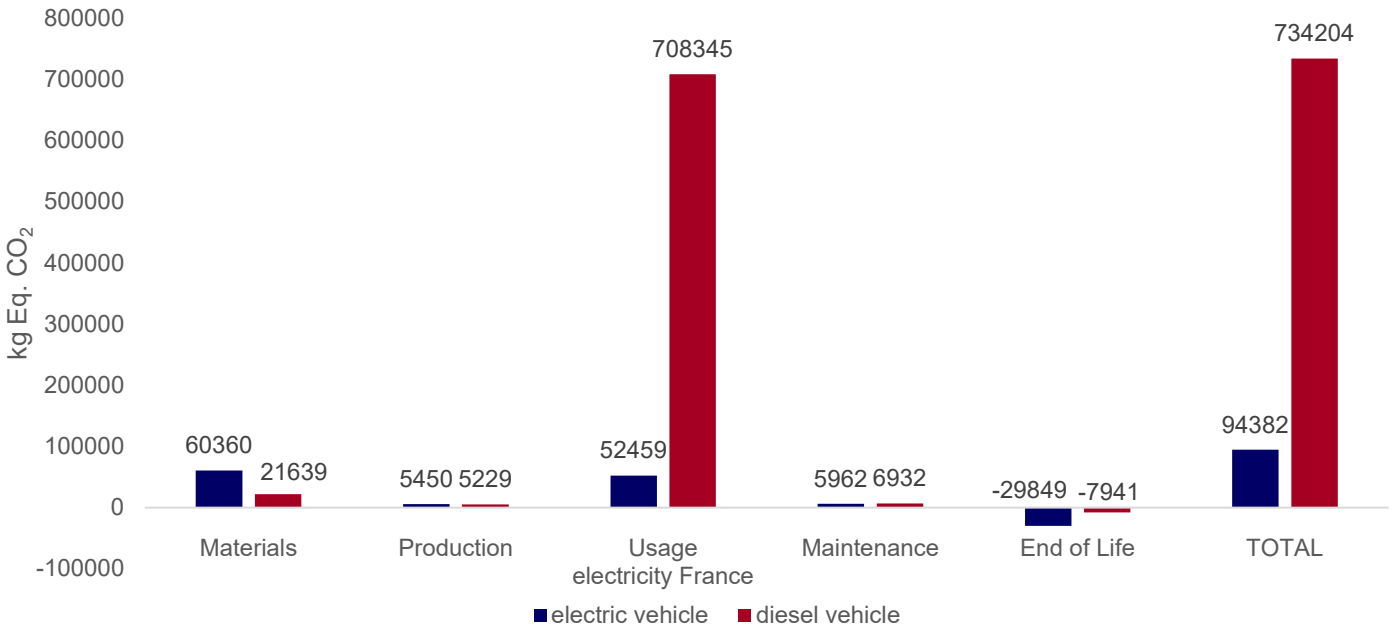
Assesment of the impact on the environment

Assessing a product's environmental impact throughout its lifetime makes it possible to determine which aspects must be studied to improve its overall environmental performance. This assessment may be qualitative but also quantitative by using appropriate methods and tools

GLOBAL WARMING POTENTIAL

Life cycle analysis makes it possible to determine a vehicle's global warming potential throughout its operational life. This potential consists of the various greenhouse gas emissions it produces that affect the climatic system. It is expressed as the equivalent quantitiy of Carbon Dioxide (kg equ. CO_2).

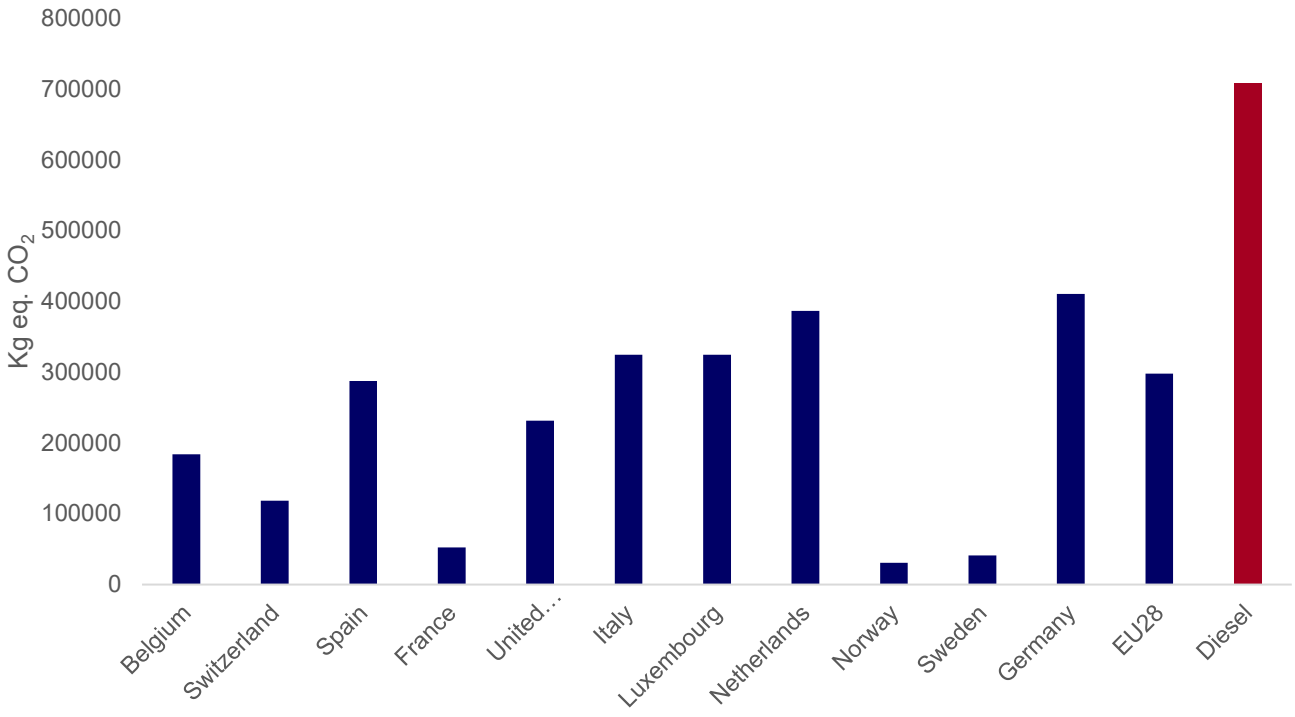
LIFE CYCLE EMISSIONS - CO_2EQ.



Global warming potential for the different life cycles of Renault Trucks E-Tech T 6x2 rigid.

Assesment of the impact on the environment

Use phase emissions from production of electricity - CO_2eq.
National average and comparison with Diesel



Main markets for Renault Trucks E-Tech T 6x2.

Assesment of the impact on the environment

COMMENTS

Over the entire life cycle of an electric truck, materials, including batteries, account for most of the greenhouse gases emissions, while the use phase, which is very predominant for a diesel vehicle, is less.

By switching to electric power, the reduction of the truck's climate impact during this use phase can be extremely important depending on the selection of the primary source of this energy and its production origin.

The analyses show that electricity produced from coal will have a high carbon impact, unlike electricity produced from nuclear or renewable energy sources. The results on the whole life cycle differ according to the national energy mixes within the European Union but show a gain in all countries that should increase as decarbonization progresses.

Powered by low-carbon electricity, of hydraulic origin at best, the **Renault Trucks E-Tech T 6x2** rigid shows a significant reduction in CO_2 emissions equivalent of its life cycle of nearly 90%.

By developing its 100% E-Tech electric range of vehicles Renault Trucks is substantially reducing the CO_2 emissions from products over their entire life. Renault Trucks is continuing its efforts to reduce batteries environmental impact by securing materials supply and recycling and by using new technologies.

Renault Trucks is preparing battery management in line with the principles of the circular economy. After their first service life, batteries can be reconditioned and reused on trucks. Then, they will be converted to applications other than mobility, in particular stationary electricity storage and then recycled at the end of their life, with the recovered materials being reinjected into the manufacture of new units.

Find out more about sustainability at Renault Trucks:
Sustainability | Renault Trucks Corporate (renault-trucks.com)

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