Renault Rafale

E-TECH 200 ESPRIT ALPINE HYBRID FWD AUTOMATIC

Sustainability Rating

2025 ★★★☆☆ 57%

Clean Air
7.1 /10

Energy Efficiency
6.2 /10

Greenhouse Gases
3.9 /10

Driving Experience

Consumption & Range
ADEQUATE

Cold Winter Performance
ADEQUATE

Charging Capability
NOT APPLICABLE

Our verdict

The Renault Rafale is a full hybrid vehicle and its operating strategy makes good use of the 400 V electric system, resulting in credible consumption values. It shows a well-balanced environmental performance, resulting from a robust emissions control and efficient powertrain.

- The Rafale has efficient exhaust aftertreatment and scores average for tyre and brake abrasion; strong hybridisation helps reduce brake wear.
- It performs well in energy efficiency due to reasonable fuel consumption, with test figures ranging from 5 to 7.4 l/100 km.
- Despite relatively low fuel use, the total lifecycle emissions of 226 g CO_2-eq./km limit its greenhouse gas index score.

Disclaimer

Think before you print

Clean Air

7.1 /10

Comments

The Rafale's exhaust aftertreatment shows generally good efficiency in reducing the exhaust pollutant emissions. It is surprising that the tested results demonstrate a better performance that the officially declared legal test values. The scores for tyre and brake abrasion are about average. The strong hybridisation allows significant recuperation rates and thus reduction of the friction brake usage, although a pure electric vehicle performs much better in this aspect.

Exhaust emissions

Exhaust pollutant emissions are produced from combustion engines. Although current emission legislation is very strict, this type of emission directly affects air quality, and not all vehicles perform equally well. Read more

ADEQUATE

7.1 /10

In laboratory

Green NCAP performs a wide range of tests on cars in the laboratory. This is the best way to ensure controlled conditions and guarantee that all cars are tested in the same way, making their results comparable. Read more

ADEQUATE

6.4 /10

	NMHC	NO_x	NH_3	CO	PN	PM	Score
Legal test (WLTP)	●	●	●	●	●	●	**2.6** /8
Warm weather	●	●	●	●	●	●	**7.9** /10
Highway	●	●	●	●	●	●	**7.4** /10
Winter cold start	●	●	●	●	●	●	**6.6** /10
Winter warm start	●	●	●	●	●	●	**7.9** /10

On road

An on-road driving test , using portable emissions measuring equipment complements Green NCAP's laboratory tests. Read more

ADEQUATE

7.8 /10

	NMHC	NO_x	NH_3	CO	PN	PM	Score
Real-world mixed drive	●	●	●	●	●	●	**7.3** /10
Short city trip	●	●	●	●	●	●	**7.8** /10
Congestion	●	●	●	●	●	●	**2.0** /2

● good ● adequate ● marginal ● weak ● poor ● not applicable

Clean Air

7.1 /10

Non-exhaust emissions

Driving a vehicle also produces emissions different from those of the exhaust pipe. Green NCAP evaluates vehicle properties that contribute to tyre and brake abrasion.

MARGINAL **5.1**/10

Tyre wear

Tyre abrasion releases small particles during driving, and some vehicle properties have major impact on it. Heavier vehicles, wheel alignment causing increased slip angle, and aggressive acceleration responses all increase tyre wear and particle emissions. Read more

MARGINAL **3.2**/6

	Result	Score
Influence of mass		1.7/3
Wheel alignment		0.5/1
Accelerator response		1.0/2

Brake wear

Brake dust, produced by friction brakes, can be mitigated through filters, enclosed brake systems (like drums), or by reducing friction brake use with regenerative braking in electrified vehicles. Containment keeps dust inside the system, while recuperation lowers brake wear. However, heavier vehicles still generate more brake abrasion due to their greater stopping demands. Read more

MARGINAL **2.9**/6

	Result	Score
Brake dust mitigaton		0.0/4
Brake dust containment		0.0/6
Recuperative braking - warm test		2.9/6

good adequate marginal weak poor not applicable

Clean Air

7.1 /10

Additional Life Cycle Assessment information

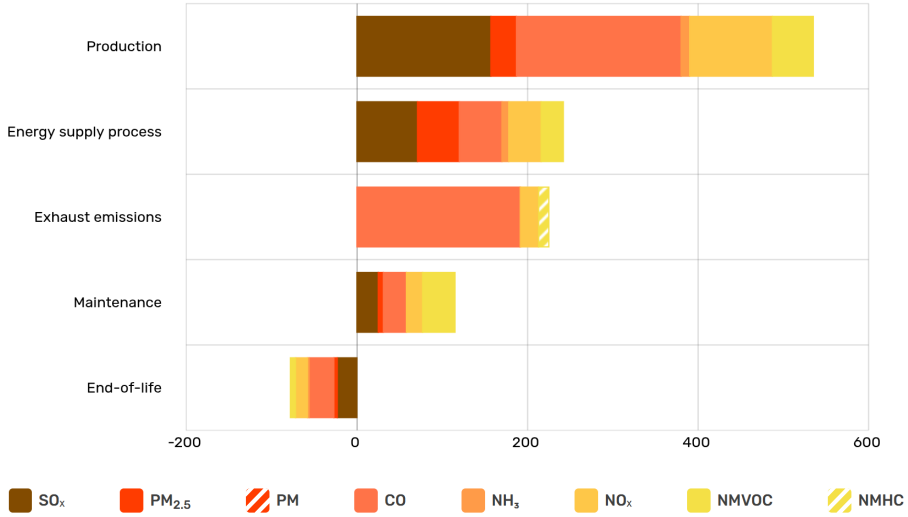
Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime, 'from cradle to grave'. In this section, pollutants are estimated in the various stages of a vehicle's life other than use. The chart also displays the measured emissions related to usage, which are taken as an average from the tests and are scored separately in the 'Exhaust emissions' part above. The end-of-life approach uses results in negative values because the benefit of materials recovery and recycling exceeds the effort of obtaining and processing virgin raw materials.

GOOD

9.3 /10

Pollutants

Most of the vehicle exhaust pollutant species are also emitted in others life cycle phases. These are health- and nature-damaging compounds, the amount of which should be reduced as well.



* Exhaust emissions are not contributing to the score in Additional Life Cycle Assessment information because they are scored in the Exhaust emissions section above

good adequate marginal weak poor not applicable

Energy Efficiency

6.2 /10

Comments

The car scores well in the Energy Efficiency Index thanks to favourable energy demand in the production processes and credible fuel consumption figures. The measured results are around 5 l/100 km in the warm tests and increase to 7.4 l/100 km in the -7 C Winter cold start test and to 6.9 l/100 km in the Highway Test.

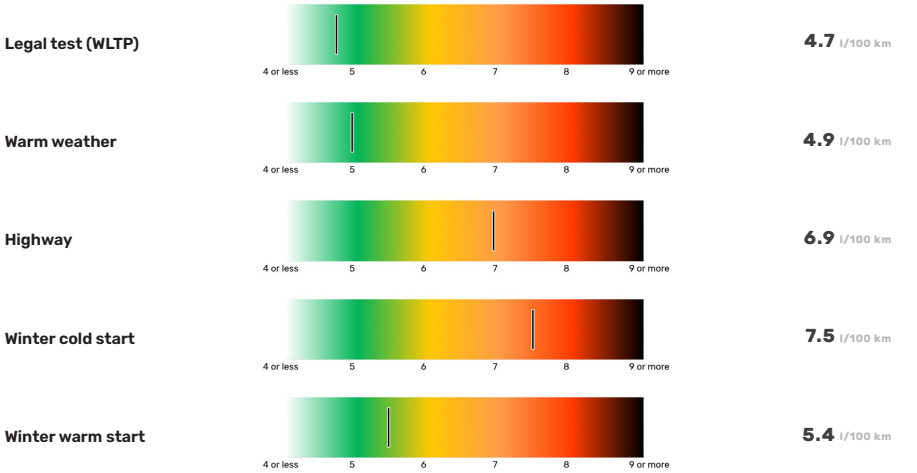
Energy demand

MARGINAL **6.0** /10

Propulsion energy consumption in laboratory

MARGINAL **3.8** /10

The vehicle's measured consumption figures are displayed in the bar chart. The colour scheme positions the values relative to low and high figures in a typical range. The ranges are different for combustion engine and pure electric vehicles.



good adequate marginal weak poor not applicable

Energy Efficiency

6.2 /10

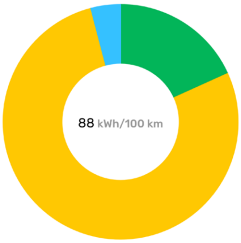
Additional Life Cycle Assessment information

GOOD

10.0/10

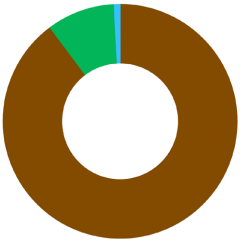
Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime 'from cradle to grave'. In this section, the total vehicle life cycle primary energy demand is displayed. The scoring does not consider the direct propulsion energy use, because it is scored separately in the 'Propulsion energy consumption in laboratory'.

Total LCA energy consumption



- Production & recycling 18.2%
- Battery production 0.0%
- Fuel/Energy supply 77.7%
- Maintenance 4.1%

Energy source share in total LCA consumption



- Fossil 89.8%
- Renewable 9.4%
- Other 0.8%

Direct propulsion energy share is not shown, it is included in 'Fuel/energy supply'

Rolling resistance

Rated here is the vehicle's resistance to movement at low speeds. Different factors have an impact on it, but the most significant one is mass.

GOOD

9.8/10

good | adequate | marginal | weak | poor | not applicable

Greenhouse Gases

3.9 /10

Comments

The relatively low fuel consumption values help the Rafale score better in this part of the assessment compared to many other combustion engine cars, but combusting the fossil fuel nevertheless emits significant CO_2 amounts, limiting the achievable score. In the full vehicle life cycle, a total of 226 g CO_2-eq./km are estimated, 134 g CO_2-eq./km of which are direct exhaust GHG emissions.

Exhaust GHG emissions

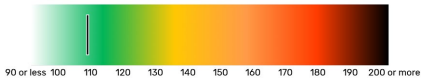
Combustion of conventional fuels releases greenhouse gases at the vehicle's tailpipe. The most significant of these gases are the emissions of CO_2. Green NCAP's assessment considers methane (CH_4) and laughing gas (N_2O) as well. Together, these are counted with their global warming potential to a sum known as CO_2 equivalent.

WEAK

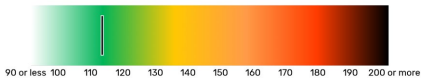
2.1 /10

In laboratory

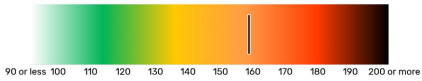
Green NCAP performs a wide range of tests on cars in the laboratory. This is the best way to ensure controlled conditions and guarantee that all cars are tested in the same way, making their results comparable. Read more



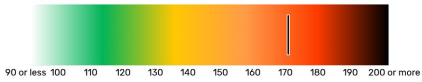
Legal test (WLTP) — **107.3** g CO_2-eq./km



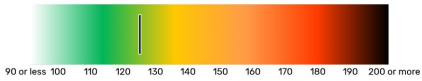
Warm weather — **111.8** g CO_2-eq./km



Highway — **157.0** g CO_2-eq./km



Winter cold start — **169.1** g CO_2-eq./km



Winter warm start — **123.4** g CO_2-eq./km

good adequate marginal weak poor not applicable

Greenhouse Gases

3.9 /10

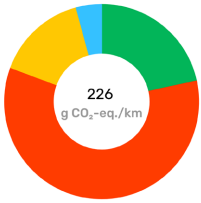
Additional Life Cycle Assessment information

Life Cycle Assessment (LCA) investigates the environmental impact of a car over its entire lifetime, 'from cradle to grave'. In this section, the total vehicle life cycle greenhouse gas emissions are displayed.

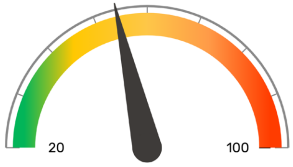
ADEQUATE

8.3 /10

Total LCA GHG emissions



- Production & recycling 21.6%
- Battery production 0.0%
- Tailpipe emissions * 59.1%
- Fuel/Energy supply 15.1%
- Maintenance 4.2%



tonnes CO_2-equivalent/vehicle

Vehicle Life Cycle average emissions **54** (+/-)
(best **46** | worst **65**)

* The scoring does not consider the direct exhaust GHG emissions at the tailpipe, because they are scored separately in 'Exhaust GHG emissions' above.

good adequate marginal weak poor not applicable

Driving Experience

Consumption & Range

ADEQUATE

Cold Winter Performance

ADEQUATE

Charging Capability

NOT APPLICABLE

Green NCAP Comment

Compared to conventional vehicles, which are only evaluated in the 'Consumption and Range' section, the Driving Experience assessment of full hybrid vehicles also includes the category 'Cold Winter Performance'.

- The real-world consumption estimations place the expected Rafale performance generally in the "adequate" range for both warm weather trips and for cold winter drives. The car is equipped with a PTC heater, but as heating in cold weather can require additional power, the combustion engine might need to be switched on in phases where it would usually be inactive and thus the consumption figures in cold weather increase more.
- The cabin heat supply of a combustion engine vehicle is much slower compared to an electric vehicle, but the Rafale is additionally equipped with an electric heater, which should have helped reach comfortable temperatures quickly. However, the heating up remains slow and the performance is evaluated as poor. On the positive side, the vehicle demonstrates very good thermal insulation, so that once the desired cabin temperature is reached, it should be maintained more easily.

Consumption & Range

ADEQUATE

Estimated actual consumption

ADEQUATE

What consumption can be expected in real world conditions?

In-laboratory measured consumption values are only partially representative of real-world use. Green NCAP's estimates aim at providing more realistic figures, which are based on measured results, modified by correction factors.

Conditions	Urban	Rural	Highway	Mixed	
Warm weather	6.7	6.3	6.2	6.4	l/100 km
Cold Winter	9.5	7.2	6.7	8.4	l/100 km

Accuracy of display

GOOD

Is the consumption figure on the display correct?

good adequate poor not applicable

Cold Winter Performance

ADEQUATE

How much further can you drive in winter, if the car is pre-warmed?

A cold vehicle has increased energy consumption at the start of its trip, mostly due to the cabin heating demand. Pre-warming the car while it is plugged, when possible, can significantly benefit its driving range in cold weather conditions. Green NCAP's winter tests are performed at -7°C.

Cabin heating

POOR

Does the vehicle get warm quickly in winter?

This indicates the time needed to reach 16°C in seconds at different positions in the cabin.

	Front	Rear
Head area	800 s	753 s
Footwell	1,764 s	

The rear footwell reached 16 C in 775 (left) and 1,547 (right) seconds.

Additional heating functions

What functions can be used to improve heating comfort?

Unlike a combustion car, which usually uses the engine's waste heat to provide warmth to the cabin, in electric vehicles, the energy needed comes from the battery. Therefore, there is a trade-off between thermal comfort and energy consumption. Some additional heating functions can deliver good thermal comfort performance at lower energy use compared to heating up the entire cabin. If they can be scheduled or remotely activated before a trip, while the vehicle is still plugged, both comfort and driving range can be notably improved.

	Y/N	Fitment
Heat pump	✗	
Seating heating front	✓	Standard for the tested version
Seating heating rear	✗	
Steering wheel heating	✓	Standard for the tested version
Sheduled pre-heating of seats	✗	
Scheduled steering wheel pre-heating	✗	
Scheduled cabin air pre-heating	✗	
Smart cabin heating management	✗	

good adequate poor not applicable

Cold Winter Performance

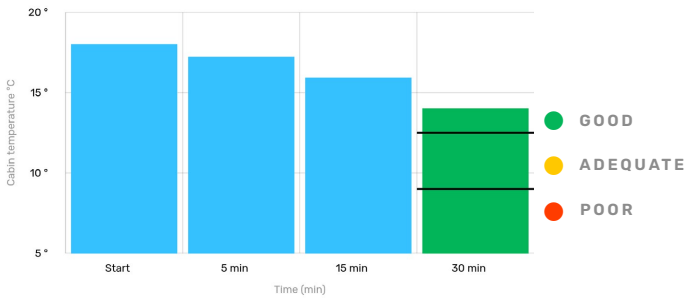
ADEQUATE

Cabin thermal insulation

GOOD

How well does the cabin maintain its temperature?

Assessed here is the average cabin temperature drop after 30 minutes, starting from 18°C when the outside temperature is -7°C and the vehicle is inactive.



good adequate poor not applicable

Charging Capabilities

NOT APPLICABLE

good adequate poor not applicable

Specifications

Vehicle class
Large MPV

System power/torque
147 kW/205 Nm

Engine size
1,199 cc

Declared consumption
4.7 l/100 km

Declared driving range
Overall n.a.
City n.a.

Declared CO_2
107 g/km

Declared battery capacity
Usable (net) 2.0 kWh
Installed (gross) n.a.

Mass
1,704 kg

Heating concept
Waste heat & PTC

Tyres
245/45 R20

Emissions class
Euro 6 EA

Tested car
VF1RHN0047203xxxx

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