

What are the fuel costs for electric, diesel and petrol vehicles for a given journey?

Dimensions of 'typical' cars make and model:

Make and model	Fuel type	Gross vehicle weight (kg)	Height (mm)	Width (mm)	Length (mm)
Nissan Leaf Tekna	Electric	1995	1550	2030	4490
Renault ZOE 2018 R110 ZE 40	Electric	1966	1562	1730	4084
Hyundai Kona electric 39kWh	Electric	2020	1570	1800	4180
Ford Fiesta ST line 1.5 TDCi	Diesel	1680	1466	1735	4065
Ford Fiesta ST line 1.0 EcoBoost 125PS	Petrol	1680	1459	1979	4387
Ford Focus ST Line 1.5 EcoBlue	Diesel	1895	1466	1735	4065
Ford focus ST Line 1.5 EcoBoost	Petrol	1890	1459	1979	4387

Nissan: <https://www.nissan.co.uk/vehicles/new-vehicles/leaf/prices-specifications.html#grade-LEAFZE1A-2/specs>

Renault: <https://ev-database.uk/car/1128/Renault-Zoe-R110-ZE40>

Hyundai: <https://www.evspecifications.com/en/model/42546b>

Ford Fiesta: https://www.ford.co.uk/content/dam/guxeu/uk/documents/feature-pdfs/FT-All_New_Fiesta.pdf

Ford Focus: https://www.ford.co.uk/content/dam/guxeu/uk/documents/brochures/cars/BRO-new_ford_focus.pdf

Performance of cars make and model:

Make and model	Fuel type	Test type	Electric energy consumption (Miles/kWh)	Average mpg WLTP combined
Nissan Leaf 2018 40kWh	Electric	WLTP	3.0	Maximum average mile range: 167.5
Renault ZOE 2018 R110 ZE 40	Electric	WLTP	3.5	Maximum average mile range: 116
Hyundai Kona electric 39kWh	Electric	WLTP	4.1	Maximum average mile range: 179.5
Ford Fiesta 1.5 TDCi	Diesel	WLTP	-	57.20
Ford Fiesta ST line 1.0 EcoBoost	Petrol	WLTP	-	48.85
Ford Focus ST Line 1.5 EcoBlue	Diesel	WLTP	-	60.83
Ford focus ST Line 1.5 EcoBoost	Petrol	WLTP	-	44.90

MPG taken from the Vehicle Certification Agency (VCA) <https://carfueldata.vehicle-certification-agency.gov.uk/downloads/default.aspx>

Rates of fast charging networks

Charging network	Cost (£/kWh)
Lowest cost (Polar instant)	0.18
Highest cost (Ecotricity Highway)	0.39
Average cost of 11 major networks within the UK	0.29

Rates of rapid charging networks:

Charging network	Cost (£/kWh)
Lowest cost (Polar instant)	0.25
Highest cost (Ionity)	0.69
Average cost of 14 major networks within the UK	0.32

Figures here are based on Transport for Greater Manchester's charging tariffs table as published in Local Transport Today.

The price for public chargers can range from free to £0.69p (<https://ionity.eu/en/where-and-how.html>) depending on location and time of day. Free charging is usually available at commercial areas such as supermarkets, hotels and retail parks.

Home charging:

Home charging	Cost (£/kWh)
Average	0.14
Over night	0.08

Figures taken from <https://pod-point.com/guides/driver/charging-electric-car-at-home> and https://www.ukpower.co.uk/home_energy/tariffs-per-unit-kwh

Summary of costs:

Fuel Type	Cost (Diesel and Petrol: £/gallon) or (Electric: £/kWh)
Petrol	5.74
Diesel	5.92
Lowest cost fast electric charger of a UK provider	0.18
Highest cost fast electric charger of a UK provider	0.39
Average cost rapid electric charger across 8 major UK providers	0.29
Lowest cost rapid electric charger of a UK provider	0.25
Highest cost rapid electric charger of a UK provider	0.69
Average cost rapid electric charger across 11 major UK providers	0.32
Electric home average	0.14
Electric home night	0.08

Fuel prices from 7/02/2020

Cost of running different electric, diesel and petrol cars:

Electric:

Nissan Leaf 2018 40kwh	Cost (£/kWh)	Electric energy consumption Miles/kWh	Cost per mile	100 miles
Lowest cost fast electric charger of a UK provider	0.18	3	£0.06	£6.00
Highest cost fast electric charger of a UK provider	0.39	3	£0.13	£13.00
Average cost fast electric charger across 8 major UK providers	0.29	3	£0.10	£9.67
Lowest cost rapid electric charger of a UK provider	0.25	3	£0.08	£8.33
Highest cost rapid electric charger of a UK provider	0.69	3	£0.23	£23.00
Average cost rapid electric charger across 11 major UK providers	0.32	3	£0.11	£10.67
Electric home average	0.14	3	£0.05	£4.67
Electric home night	0.08	3	£0.03	£2.67

Renault ZOE R110 ZE 40	Cost (£/kWh)	Electric energy consumption Miles/kWh	Cost per mile	100 miles
Lowest cost fast electric charger of a UK provider	0.18	3.5	£0.05	£5.14
Highest cost fast electric charger of a UK provider	0.39	3.5	£0.11	£11.14
Average cost fast electric charger across 8 major UK providers	0.29	3.5	£0.08	£8.29
Lowest cost rapid electric charger of a UK provider	0.25	3.5	£0.07	£7.14
Highest cost rapid electric charger of a UK provider	0.69	3.5	£0.20	£19.71
Average cost rapid electric charger across 11 major UK providers	0.32	3.5	£0.09	£9.14
Electric home average	0.14	3.5	£0.04	£4.00
Electric home night	0.08	3.5	£0.02	£2.29

Hyundai Kona electric 39kWh	Cost (£/kWh)	Electric energy consumption Miles/kWh	Cost per mile	100 miles
Lowest cost fast electric charger of a UK provider	0.18	4.1	£0.04	£4.39
Highest cost fast electric charger of a UK provider	0.39	4.1	£0.10	£9.51
Average cost fast electric charger across 8 major UK providers	0.29	4.1	£0.07	£7.07
Lowest cost rapid electric charger of a UK provider	0.25	4.1	£0.06	£6.10
Highest cost rapid electric charger of a UK provider	0.69	4.1	£0.17	£16.83
Average cost rapid electric charger across 11 major UK providers	0.32	4.1	£0.08	£7.80
Electric home average	0.14	4.1	£0.03	£3.41
Electric home night	0.08	4.1	£0.02	£1.95

Diesel:

Ford Fiesta 1.5 TDCi	Cost (£/gallon)	Miles per gallon	Cost per mile	100 miles
Average mpg WLTP combined	5.92	57.20	£0.10	£10.35

Ford Focus 1.5 EcoBlue	Cost (£/gallon)	Miles per gallon	Cost per mile	100 miles
Average mpg WLTP combined	5.92	60.83	£0.10	£9.73

Petrol:

Ford Fiesta 1.0 EcoBoost	Cost (£/gallon)	Miles per gallon	Cost per mile	100 miles
Average mpg WLTP combined	5.74	48.85	£0.12	£11.75

Ford focus 1.5 EcoBoost	Cost (£/gallon)	Miles per gallon	Cost per mile	100 miles
Average mpg WLTP combined	5.74	44.90	£0.13	£12.78

The tables illustrate the large differences in the price for charging an electric car. The cost of charging an electric vehicle depends on the location and time that a person decides to charge it. Charging at home at night will be the cheapest, whilst a public rapid charger can cost 763% more per kilowatt hour.

For any given distance, journeys made in an electric car tend to have lower fuel costs than the equivalent journey made in a car fuelled by diesel or petrol. However, there are instances where fuel costs for a petrol car can be cheaper than those of an electric car if the electric car is charged using certain public rapid chargers. The difference in fuel costs between diesel and electricity tends to be less marked than between petrol and electricity.

It should be noted that the values for miles per gallon and electric energy consumption used in this analysis are derived from official lab-based test procedures. Real world on the road performance will vary significantly due to factors such as weather, driving style and road conditions.