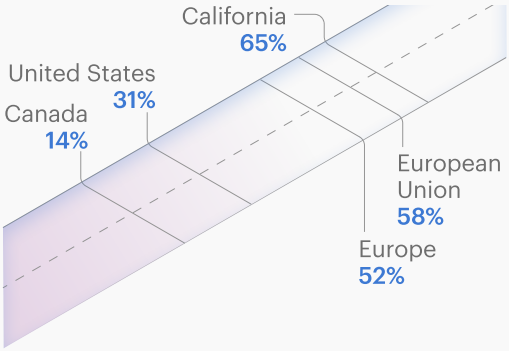
Are electric cars suitable for long road trips?

Among the many factors that consumers weigh up when considering switching to an electric car, the question of whether they can use it for occasional long-distance trips looms large. In 2025, the average on-road range of battery electric cars was close to 400 km, and some models available today offer more than 600 km, although they typically cost more. Electric car buyers must decide how much extra driving range is worth paying for, and how willing they are to rely on fast chargers along highways.

Driving on highways reduces electric vehicle (EV) efficiency, meaning that a battery electric car with a 400 km on-road range can typically cover around 320 km on its first leg, when starting from a full charge and stopping at 10% state of charge. That equates to a driving time of almost three hours at an average of 110 km/h. A 25-minute stop at a 150-kW charger can add over 200 km of range in highway conditions, equivalent to 2 hours of driving. Using a 250-kW charger increases this to over 250 km, or two-and-a-half hours of driving time. The latest technologies have reached megawatt levels, enabling full battery recharge in less than 10 minutes, although this places greater stress on the grid.

Sufficient charging infrastructure is essential for long-distance trips. Fortunately, the number of ultra-fast chargers (with power ratings of 150 kW or above) has been growing in recent years. Today, they represent close to 15% of global public charging points. However, the location and the reliability of these chargers are also important. In the European Union, close to 60% of highways had at least one ultra-fast charger every 50 km in 2024. In the United States and Canada, coverage was lower, reaching only around 30% and 15% of highways, respectively. As ultra-fast charger deployment increased by 30% in these regions in 2025, the share of highways covered is also likely to have increased. Despite progress in major markets and along key corridors, continued investment and policy support remain important for making long-distance road trips in EVs even more convenient.

SHARE OF HIGHWAYS WITH AT LEAST ONE ULTRA-FAST CHARGER EVERY 50 KM IN SELECTED LOCATIONS, 2024



In addition to accelerating ultra-fast charger deployment, policy makers can strengthen consumer confidence by improving the information available to EV drivers. Requiring manufacturers to report real-world ranges for both city and highway conditions, as well as over mixed driving cycles, would give drivers a clearer understanding of vehicle performance during long-distance travel, so that they can plan accordingly. Reporting performance losses in cold climates – with real-world measurements typically showing between 20% and 40% range loss in cold winter conditions – would further support effective planning.

ADDITIONAL HIGHWAY RANGE AND DRIVING TIME PER CHARGING SESSION FOR A 400 KM MIXED-CYCLE (CITY AND HIGHWAYS) CAR, BY CHARGING POWER, 2025