MANDALA

Research note: How deeper EV adoption can protect the UK against oil supply shocks

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mandalapartners.com

admin@mandalapartners.com | media@mandalapartners.com

EV adoption can insulate Britons against oil supply shocks

Mandala has calculated that the UK holds around 22 days of petrol and 21 days of diesel in reserve, in line with its oil stocking obligations from its time as an EU member state.[1] These figures are drawn from pre-conflict stock levels in the second half of 2025.

The UK's growing passenger EV fleet has already begun to materially improve fuel independence. Passenger EVs and hybrids are saving the equivalent of 2.01 days of petrol reserve cover and 0.42 days of diesel cover. But the scale of the opportunity ahead dwarfs what has been achieved so far.

If the UK matched Norway's EV penetration rate, the highest in the world, petrol reserve cover would grow by a further 7.6 days, a 34 per cent increase on the current reserve. Diesel cover would grow by a further 3.1 days, around 14 per cent. This is not because the stock of fuel increases, but because a larger EV fleet means the same reserve is drawn down more slowly, stretching further in the event of a supply disruption. This brings about annual savings of around 25 million barrels of oil equivalent (mboe) for petrol and 20 mboe for diesel.

Norway is frequently invoked by those who argue the UK should expand domestic oil and gas production. The comparison is apt, but not in the way its proponents intend. Norway is a major oil exporter and still chose to lead the world on electrification, using fossil fuel revenues to fund the policy measures and infrastructure that made it possible. Those who cite Norway as a case for drilling more cannot selectively ignore the half of its energy strategy that has nothing to do with oil.

99 per cent of all car trips in England are under 100 miles, well within the range of even entry-level EVs.[2] Range anxiety is a more legitimate concern in Norway, the longest country in Europe, where geography and terrain demand greater of EVs, and the cold weather saps battery range by up to 20 per cent.[3] If Norway is leading EV penetration despite these challenges, range anxiety should be far less of a concern inhibiting adoption in the UK.

Beyond security, EV drivers are already insulated from the price shocks now hitting petrol and diesel users. Within a fortnight of the conflict escalating, petrol prices rose by 11p per litre and diesel by 20p per litre. At current petrol prices, it is already around £580 cheaper per year to run an EV than a petrol equivalent. In addition, the economics of running an electric vehicle are set to improve further following the recent court ruling that VAT on public charge points should be reduced to 5%, saving EV drivers up to £12 per full charge.[4]

In a world of frequent oil supply shocks, anchored to one of the least stable regions in the world, the case for electrification should framed as one for the hip pocket of the average person rather than the environment. If the UK wants to be credible on energy security and household affordability, it needs to create the correct policy settings to accelerate the EV transition.

[1] Department of Energy & Climate Change (2015) *UK Emergency Oil Stocks*
[2] Office for Zero Emission Vehicles (2025) *Electric vehicles: costs, charging and infrastructure*
[3] Washington Post (2025) *Most new cars in Norway are EVs. How a freezing country beat range anxiety.*
[4] The Sunday Times (2026) *EV charging costs could tumble after judge rules tax rate unfair*

Methodology

The following methodology was compiled using the resources and econometric approaches outlined below. All analysis has been prepared using the best available information and data sources as of Tuesday, 24 March 2026. Readers should note that results are subject to the limitations and assumptions inherent in each data source and methodology described.

EV Impact on fuel reserves

1. Collated data from the DVLA tables VEH0142 and VEH0105 on registered passenger vehicles by motive power type, the RAC Foundation on total national fuel consumption, and the UK Government's ENV0101 dataset on petroleum consumption by transport mode and fuel type. Reserve stock data was taken from the UK Government's ET 3.4 Supply and Use of Petroleum Products, using figures from the second half of 2025.
2. Determined the share of petrol and diesel consumption that HEVs and BEVs effectively displace. BEVs use no liquid fuel, while HEVs only partially displace it, so they were treated separately. The HEV displacement rate was derived from desktop research on the share of trips HEV drivers travel in electric versus ICE mode. Both were assumed to be driven in the same way as the ICE vehicles they replace.
3. Determined cars' share of total national petrol and diesel consumption, yielding a car-specific daily consumption figure for both fuel types.
4. Constructed a counterfactual representing the total daily fuel consumption that would occur if the current EV and hybrid fleet were instead conventional ICE vehicles. Hybrids were assumed to operate in electric mode 40 per cent of the time, displacing 40 per cent of the fuel an equivalent ICE vehicle would consume; BEVs were assumed to displace 100 per cent. The difference between this counterfactual and actual consumption is the daily fuel saving attributable to the existing EV fleet. Applying this to the current reserve stock yields the additional days of cover the existing fleet provides.
5. Determined the reserve days with the increased consumption figures, and found the difference between this and the current reserve days, to get the days attributable to EVs.
6. This counterfactual was then repeated using Norway's fleet composition, sourced from Statistics Norway and converted to fleet share percentages, to model the reserve cover the UK would achieve at Norway's level of EV penetration. The UK ICE petrol/diesel split was retained throughout rather than Norway's diesel-heavy equivalent, to reflect the composition of UK vehicles that would be displaced. The difference in reserve days between the Norway scenario and the current UK position gives the additional days of cover that Norway-level penetration would provide.
7. The difference in daily consumption between the two scenarios, scaled annually, gives the fuel savings in million barrels of oil equivalent.

Consumer cost

1. Collated the Ofgem price cap for electricity per kWh, average annual vehicle kilometres travelled from Carwow, and petrol and diesel prices from the RAC Foundation for 23 February and 20 March 2026.
2. Used the HSBC Electric Vehicle Cost Comparison Calculator to calculate the annual fuelling cost differential between a Peugeot 308 PureTech 130 as a representative ICE vehicle and a Renault 5 E-Tech as a representative EV. For the ICE vehicle, costs were calculated for the post-price surge using the RAC price data.

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