

Government must address hurdles putting people off electric cars

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Credit: AI-generated image ([disclaimer](#))

Ambitious targets have been set by the [UK](#) and [Scottish](#) governments to become net-zero carbon economies by 2050 and 2045 respectively. But a variety of initiatives will be required on the part of government, industry and society to achieve this target.

Every industry will be required to have carbon reduction at the centre of what it does and rapidly introduce new technologies to achieve zero emissions from their activities. The question is how this should be done.

Take the case of cars, which are a major contributor of carbon emissions. According to one estimate, transport contributes to [30% of the EU's total emissions](#), with road transport contributing 72%. With this figure expected to rise, any strategy to reduce overall emissions should tackle this element aggressively.

The UK government has announced its [intention](#) to ban petrol, diesel and [hybrid cars](#) by 2035. With [a third](#) of the UK's carbon emissions coming from road transport, the government's combative posturing is understandable. But is banning combustion fuel technology the most appropriate way to reduce emissions from road transport?

This is how we do it

There are two issues to consider: one, readiness of alternative technologies to replace petrol and diesel on a mass scale; and two, in a democratic society, bans should be used as only a measure of last resort.

There is overwhelming scientific evidence that smoking causes serious harm to a person's health to the extent it could kill them. But cigarette production is not banned. To control consumption of cigarettes, governments have introduced a wide range of legislation that limits their sale rather than banning their manufacture.

So rather than banning the production of petrol and diesel cars, governments should rapidly introduce effective policies that would make the cleaner technologies more attractive to users. [Research](#) on long-term technological change shows once a technology is entrenched in an industry, it leads to "[path-dependency](#)", which means that because

shifting to alternative technologies can be costly—both for manufacturers and customers—industries often remain locked into existing technology.

Insights from our [research](#) into the century-long decline of Dundee's [jute textile industry](#) suggests that for any new technology to break dependency on existing dominant technology it must address two conditions: price (compared to the existing cost) and technical performance.

Looking back

The car industry has its roots in electric technology. The rechargeable battery was the [dominant technology](#) from the mid to late 19th century. But the discovery of new petroleum reserves and the invention of the [combustion fuel engine](#) in the early 20th century gave the petrol car a price and performance advantage over electric technology. This led to widespread adoption, making the combustion fuel engine dominant for over a century, leaving the car industry path-dependent on this technology.

But the industry has invested in innovation to break this dependency with alternative technologies, and hydrogen and electric have been around for quite some time. The electric car made a comeback in 1970s in response to the [oil crisis](#). But with the fall in prices later that decade, the electric car was no longer an attractive proposition. In 1996 General Motors introduced its EV1 in response to the [1990 legislator](#) by the state of California which required 2% of their sales to be zero emissions.

Toyota also introduced its hybrid Prius in 1997 followed by Audi and Honda models. However, all the early electric cars had less than a 100-mile range and were [relatively expensive](#). The cost and limited range issues have continued to hinder the widespread uptake of alternative

technologies and the industry has remained locked into the combustion fuel engine in the two decades since.

Getting in gear

These days we are beginning to see performance issues addressed in electric cars. Many are now able to cover anywhere from [150 to 230 miles](#) without recharging. Of course this is still far from what a diesel would offer on a full tank, but customers are gaining confidence.

Car manufacturers—existing makes and new players like Tesla—possess the technology to improve the performance of electric cars, and this will continue to advance. It is in their commercial interest to develop swiftly, to give them a competitive edge. But the main hurdle is price; electric cars are still more expensive than petrol and diesel cars—something industry bodies have [emphasised](#).

Banning the production of petrols and diesels will not make electric cars cheaper. If the price of electric cars remains higher, it will only trap customers into a costly commitment. An [MIT study](#) has found that a mid-sized electric car is likely to be around £4,300 more expensive to the manufacturer than combustion fuel through to 2030. If the UK government is serious about facilitating this technology shift, it must provide serious long-term policies to help reduce the cost of electric cars.

There are two ways to make the price of electric technology more competitive. First, make owning petrol and [diesel cars](#) expensive by imposing a "gasoline car tax." This is currently practised in a mild version in the form of a [congestion charge](#) in many cities, and a higher car tax on diesel engines. But it has not helped to achieve the ambitious electric goal.

Imposing further tax such as additional fuel duty could make driving petrol and diesel vehicles more expensive—but without viable cheaper alternatives, it will not go down well with the electorate and could add to economic woes. The second, and recommended option, that emerges from [our research](#) is to introduce incentives that make purchasing and running an electric car cost effective.

Today, many people have a genuine desire to buy an electric car. This market will only increase—customers are already sold on the benefits. But the price tag holds most back from making that final purchase decision. The trajectory of electric technology is at a critical juncture where a properly competitive price will convince buyers to make it their next purchase. And if the government gets it right, this model can be applied to other industries where there is a pressing need to shift to lower-carbon technologies.

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