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## Electric car sales are booming in Switzerland

Sales of electric cars in Switzerland are rising sharply. This trend mirrors that seen in solar energy. Switzerland is subsidising the transition, but is not regulating the sale of electric SUVs.

STÉPHANE HERZOG

In ten years' time, Swiss towns and cities may be free from the fine particles and other gas pollution generated by cars that run on petrol and diesel. A new fleet of vehicles, electric this time, will be driving without emitting any CO<sub>2</sub>. "The literature shows that electric vehicles are the best option currently available in terms of significantly reducing the CO<sub>2</sub> emissions associated with private mobility," states Professor Mario Paolone, who runs the distributed electric systems laboratory at EPFL. Despite Switzerland's reluctance to legislate on the weight and CO<sub>2</sub> emissions of vehicles, the country is advancing in strides. "It is making the transition more quickly than many other European countries," stresses the expert. This is despite the fact that Norway, which has now achieved over 90 percent electrification, achieved Switzerland's level in 2014.

"Of all vehicles currently on Swiss roads, around 96 percent are petrol, diesel or hybrid vehicles that do not need recharging at an electrical station," says Laurent Pignot of Touring Club Suisse (TCS). But the growth in e-cars is real. Some 40,173 new electric cars were registered last

year, up 26.2 percent on 2021, according to the car importers' association auto-swiss. The market share occupied by electric vehicles was 17.8 percent of new cars in 2022, 13.3 percent in 2021, 8.2 in 2020 and 4.2 in 2019.

### More efficient, simpler and more economical

An electric motor – which has 200 parts – uses one-third of the energy consumed by a vehicle fitted with a combustion engine, which has 2,000 parts. Rising oil prices and the worsening climate crisis are stimulating the transition to electric vehicles. "Only vehicles that emit no CO<sub>2</sub> will be eligible for registration in Switzerland from 2035," states the umbrella organisation Swiss eMobility. The organisation is campaigning for charging infrastructure to be set up across the country urgently. Swiss eMobility is pushing for CO<sub>2</sub> emissions to be taken into account in vehicle taxation. This is rarely the case at the moment. Vehicle taxes vary from one canton to another, and they have little impact on the choice of which car people buy. "In France, heavy and higher polluting vehicles are taxed



Increased electromobility means greater electricity consumption. This begs the question: how environmentally friendly are charging stations? The one pictured here near Oftringen (canton of Aargau) has a solar panel roof.  
Photo: Keystone

very heavily at purchase, based on an exponential malus scheme that can involve penalties of up to 50,000 euros per car that emits more than 225 grammes of CO<sub>2</sub> per kilometre,” explains Luca Maillard, a specialist in vehicle evaluation at the Swiss Association for Transport and Environment (ATE).

Electrification in mobility is one of the solutions for achieving the zero overall carbon objective set by the Federal Council for 2050. However, the way to decarbonisation differs greatly among the actors in this debate. TCS is appealing to public authorities, saying that they should support the purchase of this type of vehicle and install private charging stations. ATE is saying the opposite. It recommends that incentives, such as exoneration from import tax, be abolished by 2025. It is also opposed to purchase incentives, such as when over 4,000 people in Valais qualified for a bonus of between 2,500 and 5,000 francs by purchasing an electric car. This system now only applies in Ticino.

### Importers are getting around the CO<sub>2</sub> rules

ATE would like to see rules that would mean fewer polluting vehicles on sale, whether electric or not. It has condemned the system still in force in 2023, inspired by the European Union’s system, which allows importers to group their purchases together – both good and bad – in order to achieve the averages imposed by law (i.e. a maximum of 118 grammes of CO<sub>2</sub> per km). In 2020, Tesla sold over 6,000 vehicles with a target value of 0 grammes of CO<sub>2</sub>. It had to concede this score to the Fiat-Chrysler group, which sold high-CO<sub>2</sub>-emission vehicles while limiting the number of fines it received, according to ATE. These fines amounted to 100 million francs in 2021. “But these penalties have little effect on SUV sales, given the large profit margins on this type of vehicle,” comments Luca Maillard, who reveals that over half of the electric vehicles sold are SUVs. These models, listed as 0 grammes CO<sub>2</sub>, are powered by batteries that can weigh up to 700 kilos. Each vehicle’s total weight is 2.5 tonnes. Allowing these behemoths onto the roads would cancel out any ecological advantage, since the grey energy required to manufacture them, as well as their power rating, more than offset the benefits. Mario Paolone counters this, “Broadly speaking, an e-tank [an electric SUV] is considerably more efficient and less polluting than a small car with a combustion engine, especially if the car is recharged using renewable resources”. The average electric car in Switzerland emits the equivalent of 20 g of CO<sub>2</sub> per

A piece of spodumene. The environmentally dubious practice of mining for minerals like spodumene, from which the alkali metal lithium is extracted, is one of the downsides of electromobility. Photo: Keystone



km, according to ATE. This score is compatible with Switzerland’s electric power mix, a significant portion of which is renewable energy. It is six times better than Poland’s score, for example. If you include all the expenses, an electric car costs the same as a petrol car. The real benefit is ecological: electric vehicles substantially reduce their carbon footprint after they have been driven for around 30,000 kilometres, although their initial footprint is worse than a petrol car’s. This footprint improves even further when the houses or buildings associated with the cars are fitted with solar panels. “You can drive on solar power and fully charge your car for four francs,” reckons Valais engineer Arnaud Zufferey.

### The issue of lithium and how to recycle it

“For the time being, the electrification of mobility has had no noticeable positive effect on the environment,” in the view of ATE, which is campaigning for greater development of active mobility and public transport. The other question involves the materials necessary for manufacturing the batteries. There is no global shortage of lithium; it is the mining and transporting of it that causes the pollution, according to experts. The solution to these serious environmental and social issues lies in recycling the batteries. The EU has stipulated that between 70 and 95 percent of the metals found in batteries (cobalt, lead, lithium and nickel) should be recycled by 2035. What about the energy? The transition to a vehicle fleet comprising 70 percent e-cars would lead to a 7 TWh higher demand for energy. Current total demand for electricity in Switzerland is 60 TWh, according to an international study published in 2022. “So, we are talking about an 11 percent increase by 2050. This is easily doable, especially if solar panels become widespread,” believes Paolone.