

Electric Mobility in Europe's hilly heartland: The Swiss case



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MOBILITY ACADEMY, JANUARY 2010. Ask any representative of the new E-Avantgard in Europe, which country you should visit in order to get in touch with the latest and hippest innovations in electric mobility and 8 out of 10 would send you to Switzerland. For years, the Swiss were seen as both the "innovators" and "early adaptors" of electrified vehicles and Switzerland was considered to become the e-frontrunner in Europe, quickly attracting an "early" and "late majority" of automotive consumers to electric mobility and thus paving the way for Europe's "laggards" to eventually follow the Swiss-lead electric hype.

Indeed, Switzerland had lot's to offer when it came to showing the pathway of shifting from combustion-powered vehicles to battery-electric ones. Start with the Mendrisio, in the Italian-speaking part of Switzerland that ran a pioneering project with light and electric vehicles (LEVs) between 1995 and 2001. As one of the first of its kind, this state-funded experiment generated substantial insights into the demand-side of everyday-use of electric two- and four wheelers as well as the means to overcome some of the obstacles on the supply-side, ranging from battery-maintenance to infrastructure provisions. Whoever was involved in this project clearly got a fair insight into the nitty-gritty bits of electric mobility – something that many of the current pilot-projects in Germany and Austria are now trying to repeat.

Although the project, with its budget of 21 Million Swiss Francs, fell short of its goal to reach a threshold of 8% LEVs in Medrisio, it became the point of reference for most of the subsequent activities in Switzerland and maybe elsewhere in Europe. Up to today almost all of the cars introduced during the project are still on the road and many have made it to neighbouring countries like Austria and Italy. Moreover, Mendrisio certainly helped to further fuel the ambitions of new and established Swiss automotive suppliers like Mes-Dea, [Brusa](#) or [Protoscar](#) to continue their R&D in the field of electric cars and develop new propulsion and storage-systems.

Beyond innovative automotive suppliers, the Swiss e-innovations-cluster today entails a series of other actors, who all have their share in promoting electric vehicles. Amongst them, for instance e'mobile, the "Swiss Association for Electric and Efficient Vehicles", which runs consumer-awareness campaigns since 1980 and strives to "nudge" consumers into electric mobility by organising exhibitions and test-drives throughout the country.

At the political level two federal offices are currently sharing leadership over electrification issues. While the Federal Office of Energy (BfE) has traditionally framed the public debate over electric cars, for instance by funding demonstrations projects such as Mendrisio or organisations like e'mobile, the [Federal Roads Office \(ASTRA\)](#) is now challenging the pole position of the BfE and begins to define its own stakes in current and future electrification policies. Rightly so, one may say, because with the new electrification-consensus spreading across countries and industries in Europe, as well as the large-scale market-entry of big-series electric cars in a foreseeable future, a governmental body in charge of motorised individual transport, like the [ASTRA](#), is well-advised to get involved and its "hands dirty". In particular, the question of how to guarantee a sufficient budget for road infrastructure-investments, if, under an aggressive electrification-scenario, the revenues from fuel-taxes are shrinking, is at the top of the ASTRA-agenda.

It is precisely the issue of infrastructure-provision and - planning that featured amongst a number of other issues during the debates at the recent [Swiss Forum for Electric Mobility in January 2010](#). For the first time and under the patronage of Federal Counsellor Moritz Leuenberger, all Swiss E-stakeholders gathered in Lucerne to map Switzerland's electric avenue ahead. Upon invitation by the Mobility Academy, a forward-looking Think-Tank, founded by the [Swiss car-club TCS \(Touring Club Switzerland\)](#), key actors from both, the transport- and the energy-sector, rolled out their expectations with regards to the electrification of individual motorised transport.



After a few design changes the *Lampo II* fits to the vision of Protoscar as a sexy, high-performance electric sports car

While the Forum took a distinct transport-perspective, it became clear that many of the country's electricity companies have identified E-mobility as a prospering new market and are now in search of viable business-models for serving the needs of tomorrow's battery-minded transport-users. In particular market-leaders such as Alpiq or BKW have gathered substantial momentum throughout the past two years and are engaged in a number projects and partnerships with players from the automotive sector. [Alpiq](#), for instance, presented its Vision 2020 at the Forum, an ambitious road-map for electrifying Switzerland's car fleet, foreseeing 700.000

hybrid- and battery-electric vehicles for 2020, corresponding to approximately 15% of all passenger cars. Other small and medium-sized utilities, such as the [KWO Grimselstrom](#), are seeking to harness the sustainability-potentials of electric cars, by stressing the role of renewable energy sources and thus their contribution to reducing GHG-emissions from road transport. Contrary to countries like Germany, Switzerland is largely free of CO2-intensive energies and already today generates 60% of its electricity from renewable sources – an ideal precondition for a truly sustainable electric car.

The massive engagement of many Swiss utilities in this emerging market is also driven by the absence of another big player: the car-manufacturers. Switzerland does not benefit from (or suffer under) the ambitions of motor-manufacturers to overcome their crisis and boost electrification. Nevertheless, a number of manufacturers regard the alpine republic as an ideal test-bed for their new products, given the purchase-power and eco-mindedness of many Swiss citizens. It is therefore, that the Forum also featured a European premiere: [Nissan Europe](#) displayed its purpose-designed "Leaf" for the first time and presented both the ground-breaking battery-technology and the business-case behind this innovative vehicle.

For the time being, however, other car-manufacturers are shaping Switzerland's struggle to serve an increasing demand for BEVs and PHEVs: Tesla is selling its first models to Trendsetters around the country, Think has entered partnerships with several SMEs and promises to provide fleet-cars and fleet-management-services and Smart returns to its cradle, hitting Swiss roads with its first EVs before the end of 2010. (For Nicolas Hayek, the Swiss "watch-mogul" and spiritual father of Smart, who always wanted the "SwatchMercedesART" to be an electric car, this return must be a most welcomed one). Beyond these makes, another truly exciting car has been making the headlines of Swiss papers during the past year: the [Mindset](#). Far from entering the market in the next year this prototype of a BEV is indeed Swiss-made. Designed by a former VW-Design Chief, equipped with the latest battery-technology and initially financed by an investor, who already had his hands in another Swiss E-innovation – the TWIKE – this car really introduces a new era of motoring and might some day become the icon of an emerging Swiss electric mobility industry.



Mindset presents his electric car during the 1st National Forum for Electric Mobility

Like elsewhere, there are high hopes linked to the market-uptake of electric vehicles in Switzerland. But Switzerland, just like its neighbour Austria, is also keen to ease the integration of electric vehicles into its regional and national transport systems and not merely replace one private – although more energy-efficient

– car by another. For Swiss opinion-leaders, electrification embraces the entire transport-system and affects cycling and walking just like motoring. The best example is the fantastic success of Flyer, the Swiss-made electric bicycle – a true high-flyer in terms electric mobility marketing.

Against this background, it does not come as a surprise that another successful Swiss transport innovation is often seen as an almost natural partner for the electric car: the car-sharing company Mobility with its 90.000 clients. Hopes are, that thanks to Mobility, the introduction of the electric drive-train into the automobile will also further challenge traditional forms of car-usage and accelerate the shift from ownership to usership, in particular in urban agglomerations. For Mobility, however, the currently available generation of electric cars does not seem ripe for car-sharing fleets that are typically characterised by a strong user-friendliness and high reliability. Still, other fleet-operators, such as the state-owned Swiss Post with its daughter "[Post Mobility Solutions](#)", are already today electrifying their scooter-fleets and are test-running small fleets of full-battery electric cars in several Swiss communes.

To summarize, as any industrialized country struggling with the unintended consequences of modern transportation, Switzerland is looking out for technical and social innovations to make mobility more sustainable. Electric mobility in general and the electric car in particular, are offering substantial opportunities to modernise the Swiss transport system, increase its energy-efficiency and reduce its CO2-emissions.

During the [1st National Forum for Electric Mobility](#), leading decision-makers in the Swiss road transport community have made a strong commitment to promoting electric mobility and helping to pave the way for a successful market-introduction of electric vehicles, by signing up to the [Charta of Lucerne](#).

In absence of a consistent "top-down" approach by the Swiss government, the [Charta of Lucerne](#) is meant to become a key "bottom-up" policy-document for "electric-action" in transport development for the next years. Such bottom-up approach is regarded by most Swiss transport actors, as an appropriate way forward in a country, where the issue of electrification is not "high-jacked" by any dominant player from a particular industry. It offers the chance to build up an electrified transport-system in a coherent and participatory way, taking into consideration indigenous potentials and local specificities, rather than forcing a new technology into the market with substantial state-subsidies and costly fiscal instruments. The mission is, to offer electric mobility products and services that are both ecologically sound and economically competitive. Eventually, it will have to be the Swiss transport user, who defines his or her own degree of electrification – a truly Swiss way of doing things.

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