Market penetration of xEVs in Switzerland: proposal for a more aggressive scenario

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Who we are

- Our missions: since 30 years, we open the road to e-mobility. We simplify the planning of charging infrastructure with in-depth analysis and definition of scenarios. We accompany companies and public institutions toward the mobility of the future with independent, practice-oriented consultancy,
- Our team: 8 specialists with different backgrounds (engineering, energy, economics),


Masterplan


Market analysis


Fleet electrification


Education

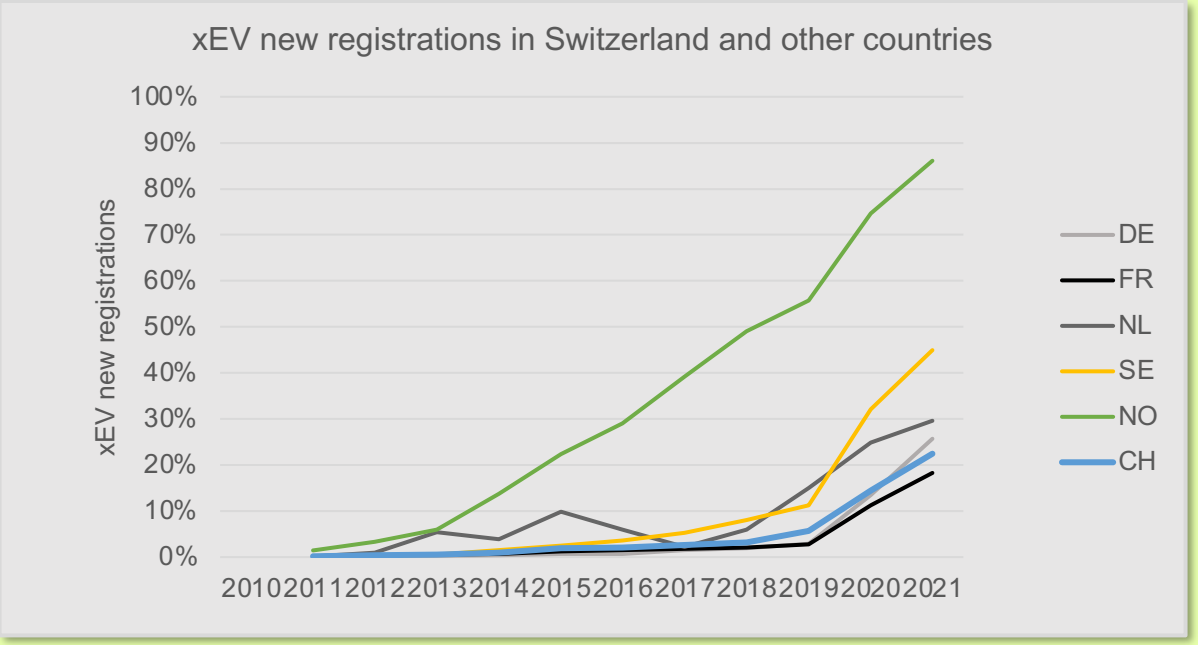

Sustainable mobility

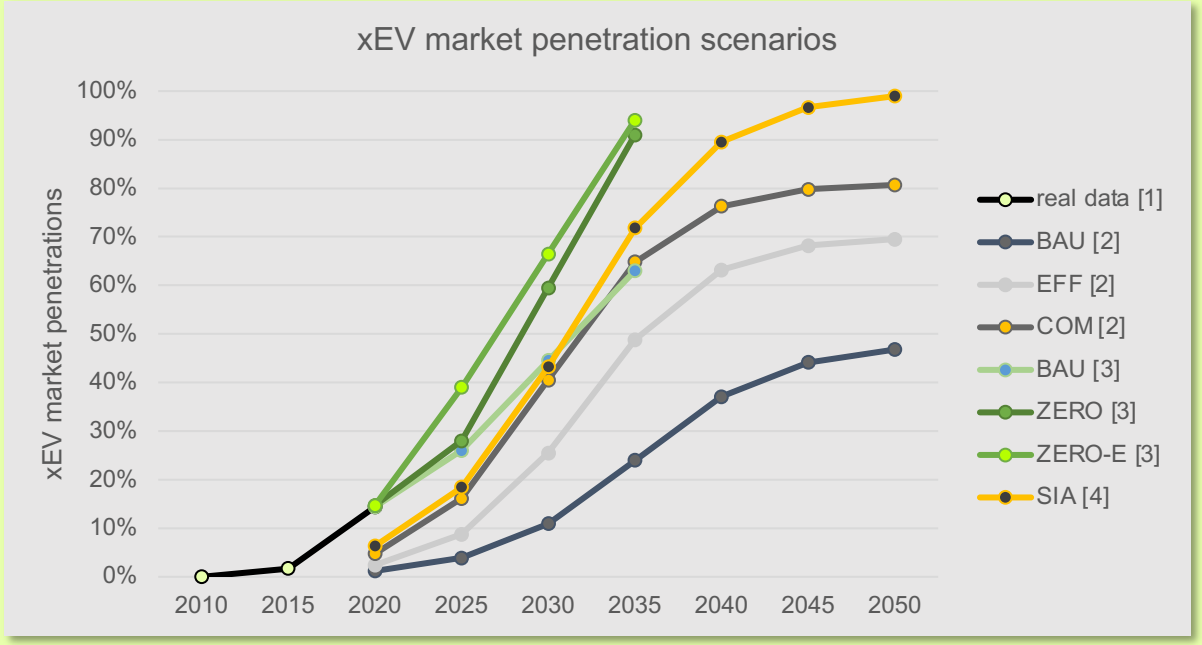

Charging infrastructure


New business models

Why a new scenario

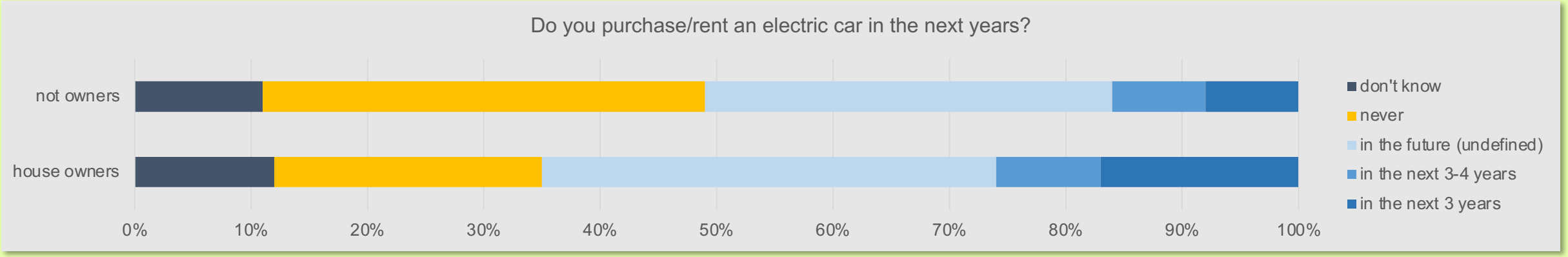
- The market penetration of xEVs in Switzerland shows a high market acceptance, even without nationwide subsidies or other economic incentives.
- But the scenarios issued by Swiss government and other organizations, are
  - either not matching the market evolution
  - or are showing a slower growth than the potential of Switzerland.





Why a new scenario

- The expected removal of the remaining market hurdles in the next years has pushed Swiss e-Mobility and Protoscar to develop a more aggressive scenario.
- Goals: to raise awareness of the potential market development and to stimulate the actions to tackle the bottlenecks which could slow down the electrification of the car fleet, because:
  - Switzerland is not yet ready for the imminent market ramp-up of electromobility, due to limited access to private charging stations: over 70% of the population does not have its own garage.
  - The urgent need for measures that are necessary for the upcoming market development has not yet been recognized by the decision-makers.



Driving factors

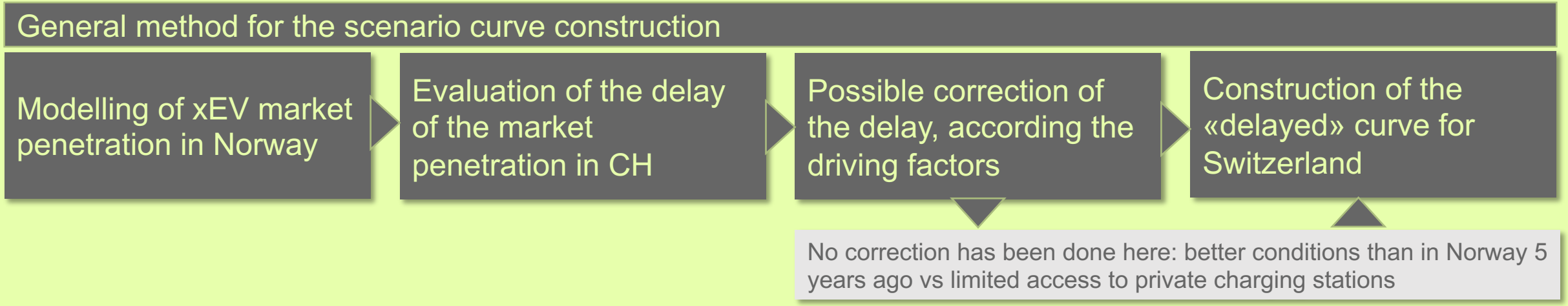
- Fines for CO_2 emissions (e.g. in 2020 importers paid 132 MCHF = 556 CHF per sold cars).
- Upfront cost reduction and competitive TCO.
- Increase of xEV models.
- Development of charging infrastructure (status end 2021: 6’606 publicly accessible charging stations in 3’163 sites, +25% charging stations in the last 12 months, 18% of plugs > 42kW).
- Increase of awareness
  - The number of people considering likely or much likely the purchase of an xEV in the next years is increasing.
  - E-mobility is more and more visible: public charging stations are more and more a common sight for the car drivers and passengers.
  - Knowledge transfer: more people is using xEVs, more people can disseminate the knowledge about xEVs, further increasing their acceptance.

Scenario assumptions

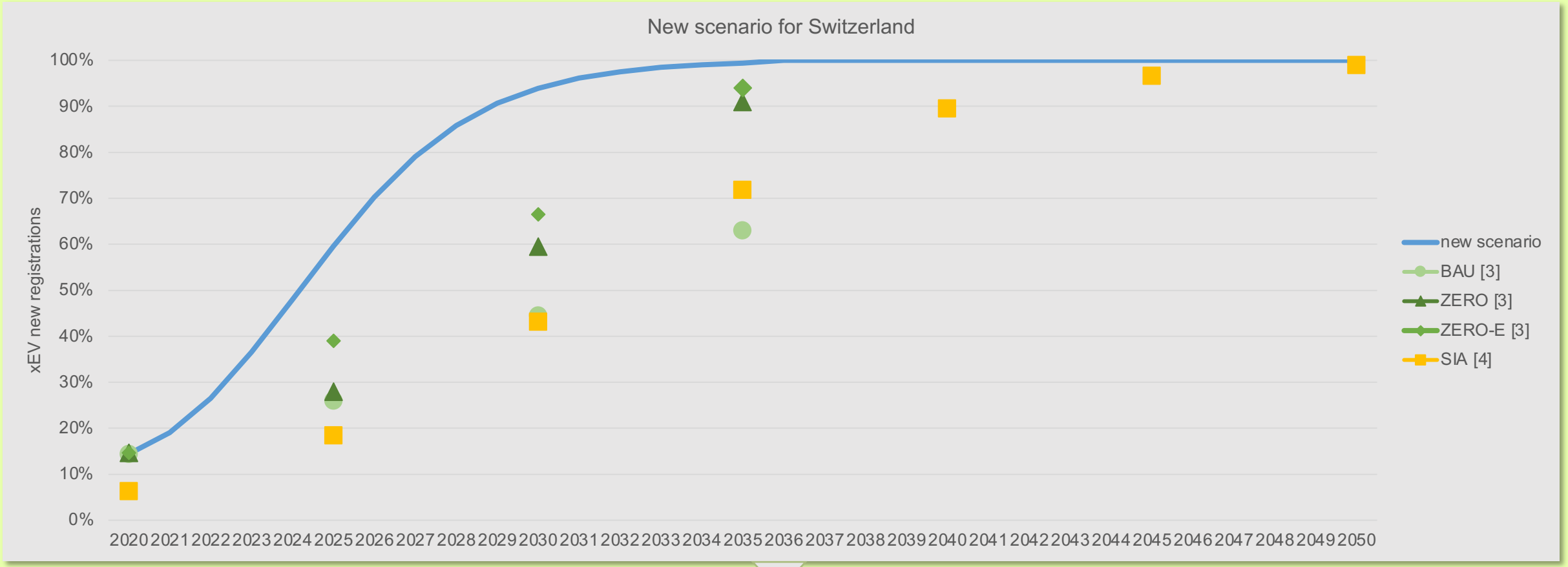
- Switzerland will continue to be very receptive to electric vehicles, thanks to the increase of the awareness and knowledge of the technology.
- Up to 2025, the electric vehicles will be adopted by the “early majority”, whose choice cannot be driven only by the environmental concerns, but it has to be supported by at least a more competitive upfront cost.
- Starting from 2025, the price parity will convince the “late majority” to switch to EVs and finally the “laggards” will be slowly forced to give up the ICE cars (achievement of the awareness about EV technology, the lack of alternatives).
- In 2035, 100% of new registered cars will be xEV.
- These assumptions suggest an “S” shape curve, modeling the growth from 2010 up today, the increase of growth rate between 2020 up to 2030, and finally a slow-down corresponding to the phase where the electric vehicles are adopted by the “laggards”.

Shaping of the scenario curve

- The curve construction has been done considering that:
  - in 2020 Switzerland achieved the same market penetration of Norway with 5 years of delay.
  - There are no reasons why Switzerland should not be able to replicate the market growth of Norway in the period 2015 – 2020, because:
    - all the driving factors are even better than 5 years ago,
    - even if Norway could rely on upfront cost parity between BEV and ICE, nevertheless Switzerland is showing good market results and the price parity is not far away.
- The curve represents the growth rate which Norway is experiencing, but with a delay of few years.



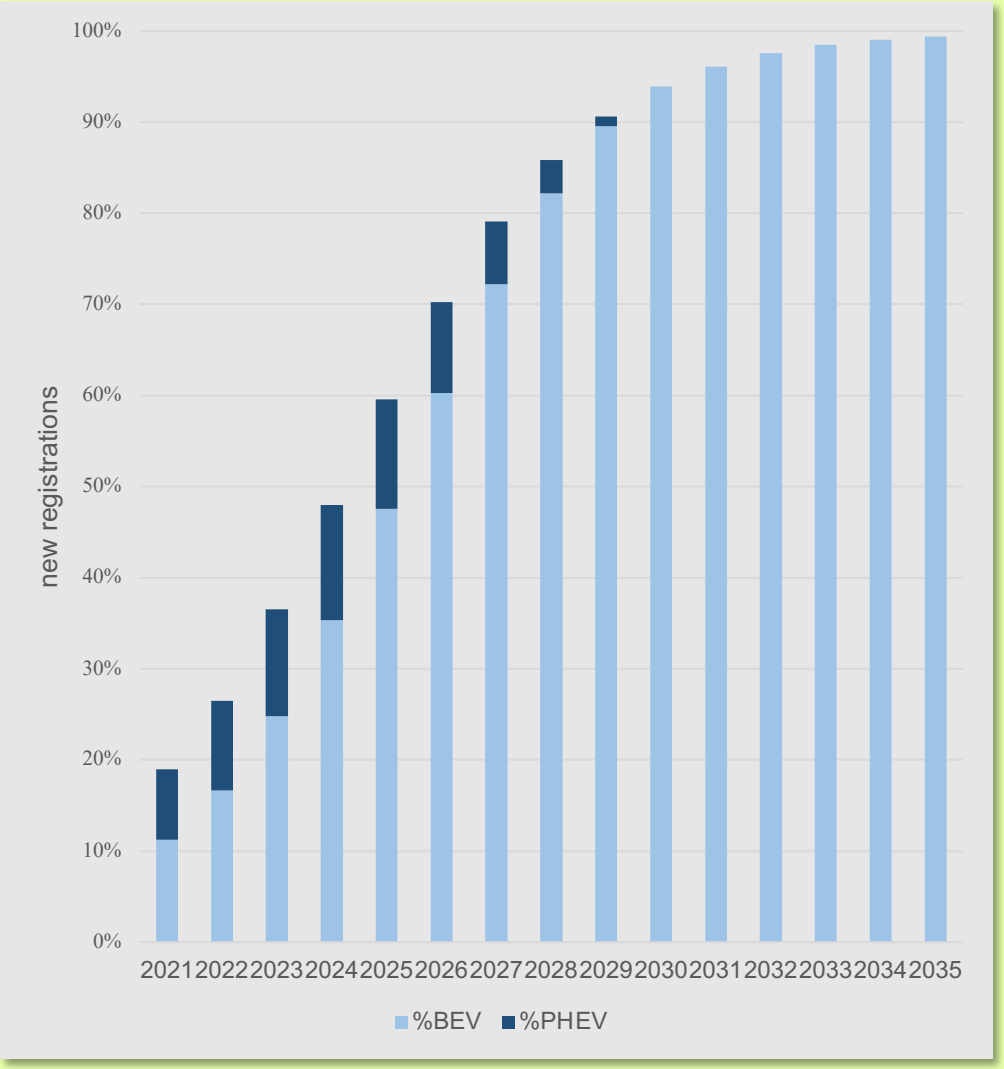
Results



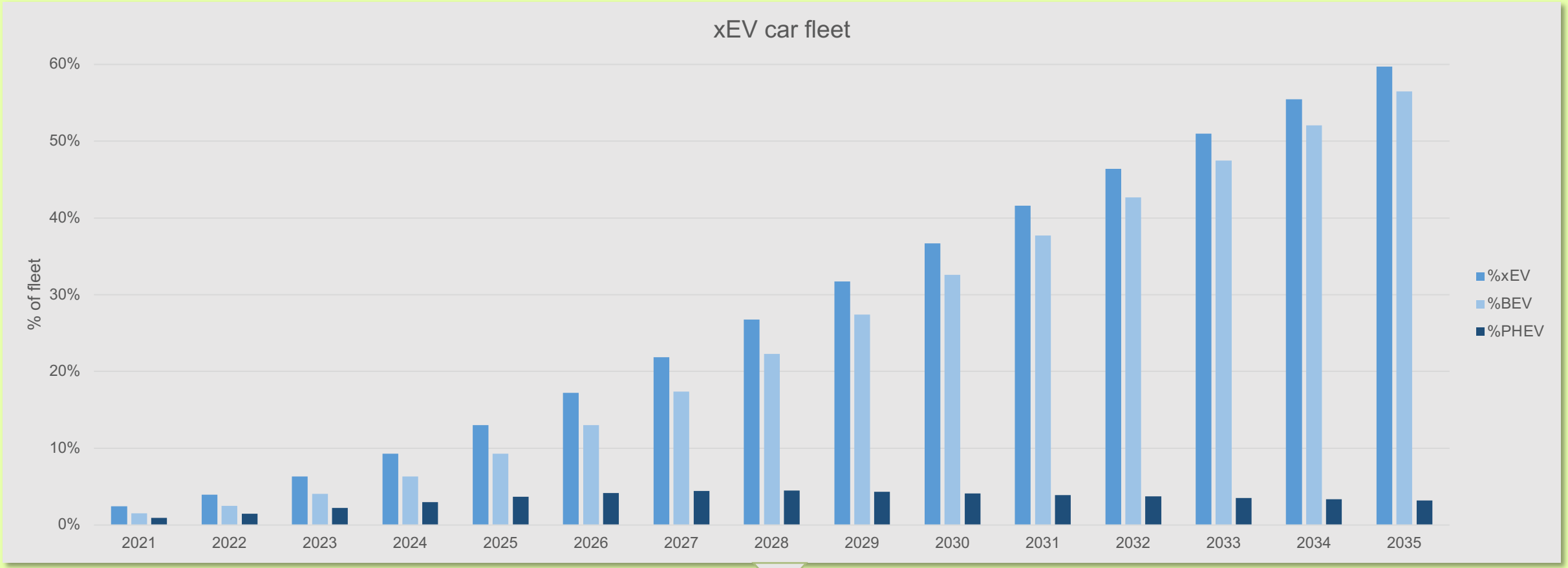
There are other scenarios heading to 100% in 2035, but their path is closer to a linear growth than the “Norway-like” growth, which have to be taken as the benchmark for a scenario aiming to reach the goals of new scenario

Split BEV/PHEV

- xEVs are made by BEVs and PHEVs.
- In 2030 all the xEVs will be BEVs, because:
  - PHEVs are only a temporary solution
  - As pointed out by some analysis, PHEVs are not providing environmental benefits: in real life conditions the use in charge depletion mode is less than the theoretical one. Once there will be more awareness about this issue, the subsidies for these vehicles will be no more given, accelerating their phasing-out.
  - Price parity BEV/ICE and the increase of public charging infrastructure, will remove all the motivations which could lead the customers to prefer PHEVs than BEVs.
  - It will make no sense for OEMs to continue to put two technologies in a car, with increasing production costs and complexity.



Impact of the scenario on the composition of the car fleet



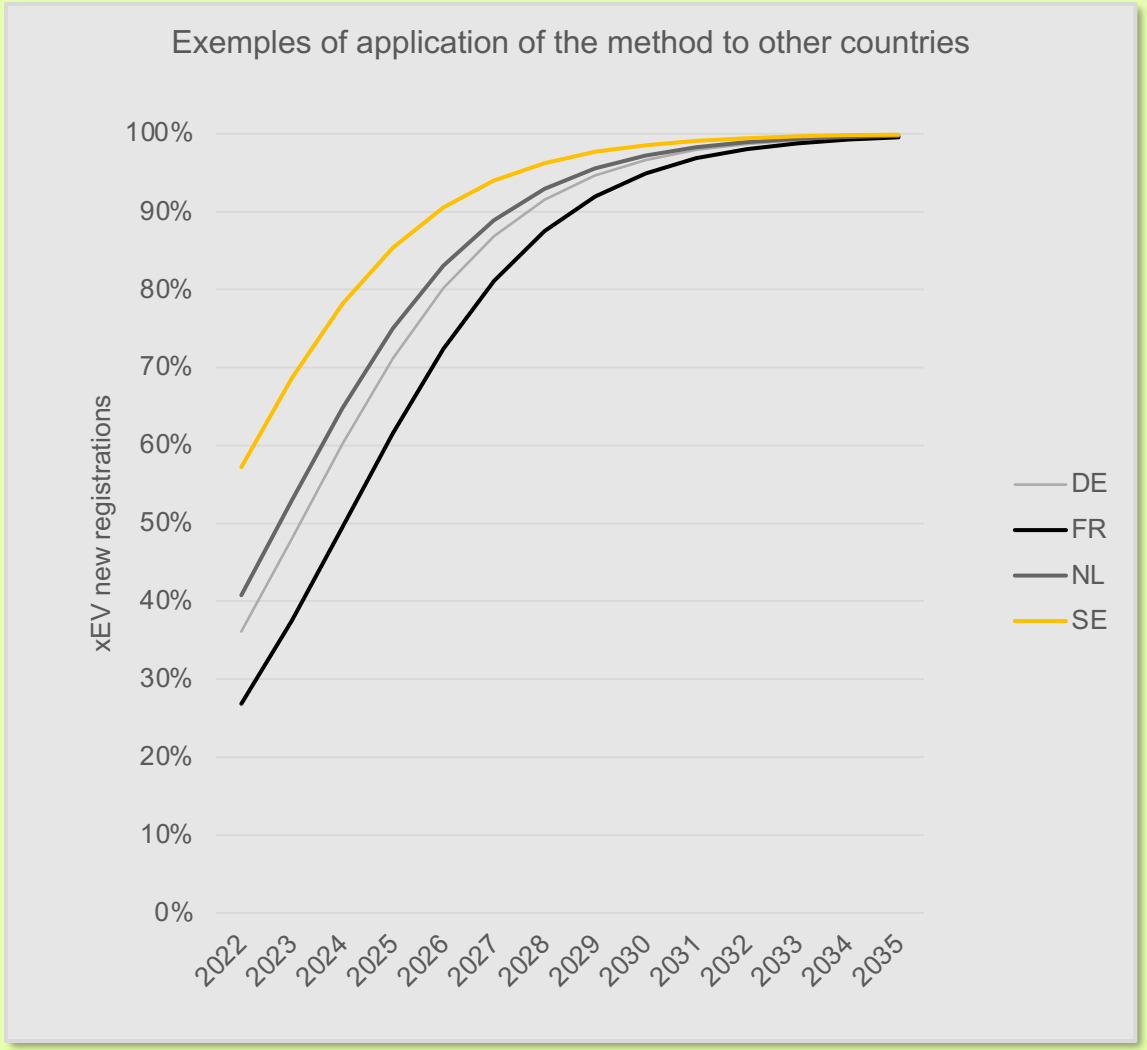
In 2035 xEV fleet reaches the 60% of the total fleet, with BEVs representing the 95% of xEV fleet

Conclusions

- We recommend to the e-mobility stakeholders in Switzerland to adopt this or any other more aggressive scenario.
- Real market data (market penetration in 2021 = 22,4%, 25,54% in Q1-2022) and the evolution of the driving factors, suggest that the xEV market has the potential to get a 100% market penetration in the period 2030 – 2035.
- The adoption of an aggressive scenario is a tool to increase the awareness about the market potential and to push the stakeholders to quickly act to remove the existing limitations to access to private charging stations.

Conclusions

- The method used for Switzerland could be applied to any country, upon an analysis of the driving factors and an estimation of their impact, i.e. if their evolution will set up conditions suggesting an electrification speed either similar or slower/faster than the one experienced by Norway.



Thank you for your attention

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