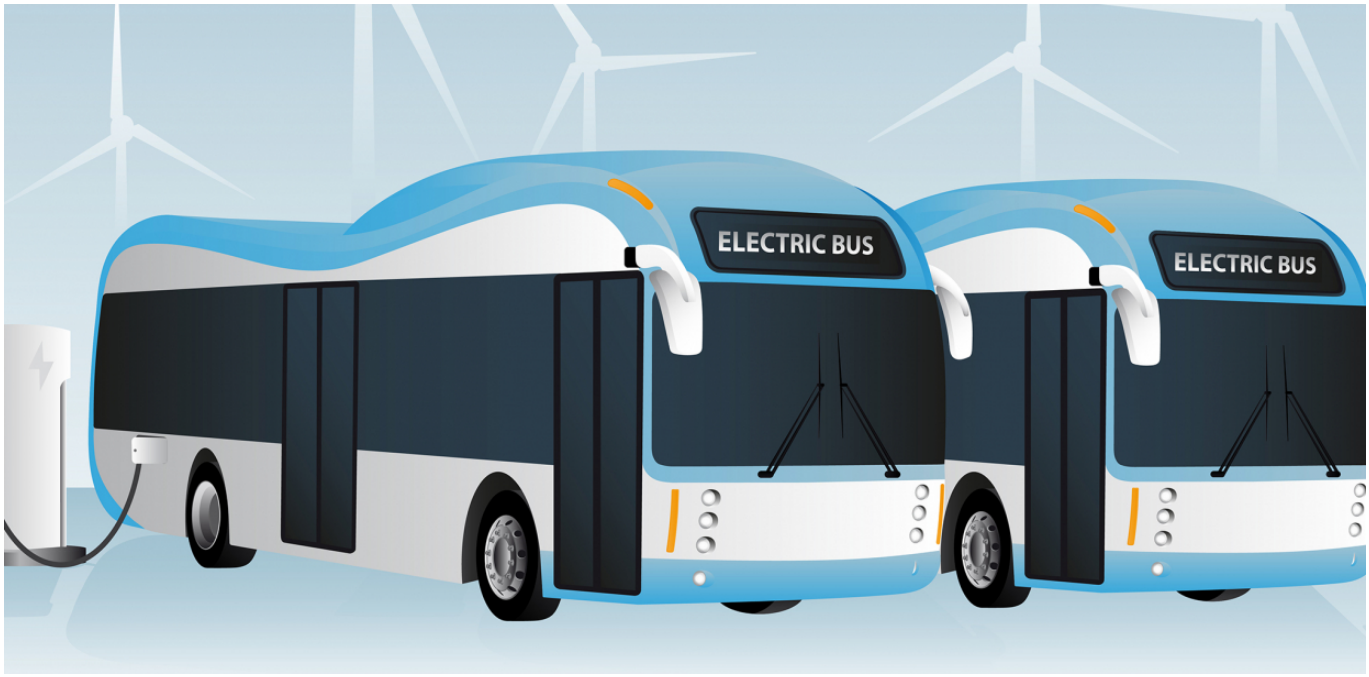
Electric bus strategy for rural transportation



EBP helped the Lake Zurich and Oberland public transport company draft a viable plan for the electrification of its entire bus fleet. Using diligent analyses of transit maps, the EBP team developed a plan for the staggered procurement of electric buses up to 2035.

Battery-electric buses are clearly superior to conventional diesel buses when it comes to lower CO_2, other harmful emissions, energy efficiency and noise. Still, public transportation companies face numerous challenges when attempting to electrify their bus fleets:

- Electric buses have shorter driving ranges than diesel buses.
- Charging buses at bus stations and/or during daily operation must be integrated into the operation process.
- Cost for procuring electric buses and appropriate charging infrastructure is still rather high.
- The rapid pace of technological developments in the area of bus and battery manufacturing has led to a significant degree of uncertainty about the best solutions to invest in.
- Owing to currently high demand, delivery times for electric buses can be excessive.

The Lake Zurich and Oberland public transport company (VZO) is facing these challenges as it attempts to electrify its entire bus fleet by the year 2035.

Conducting a reliable analysis of transit maps and fleets

Complex transit networks within the commuting area and the distribution of vehicles across multiple bus stations present a special planning challenge. EBP therefore first analyzed whether the established VZO goal was feasible. To this end, we mapped

Client

Lake Zurich and Oberland Transport Company (VZO)

Facts

Period	2019 - 2020
Project Country	Switzerland
Current number of buses	102
Size of transport area	250 km^2
Bus stops	449

Contact persons

Silvan Rosser
silvan.rosser@ebp.ch

Dr. Peter de Haan
peter.dehaan@ebp.ch

the current daily bus routes in the whole rural transport area. We then determined the extent to which the areas could be effectively serviced with currently available and future bus technologies.
Using projections of future demand for public transport in the commuting area, we were ultimately able to define an appropriate electric fleet composition for the year 2035.

Drafting a comprehensive and viable electric bus strategy

With the clear vision of an electric bus fleet for 2035, EBP worked out a suitable procurement plan for electric buses from today to the reference year. In addition to the procurement plan, the resulting electric bus strategy includes a total-cost-of-ownership analysis for the new electric buses and charging infrastructure. We placed special emphasis on adapting the strategy to VZO's specific operational procedures. This ensures a viable and deployable strategy, which was an important success factor for VZO.