

# Masterplan Charging Infrastructure 2035

Protoscar, your partner to estimate the need for a charging infrastructure for electric vehicles in your region and its relative business case. Thanks to Protoscar support you can for instance give an answer to following questions:

- How is your city or region preparing for the electrification of vehicles?
- How much can your city or region save by planning ahead a need-based primary installation of charging stations?
- How many electric vehicles will there be in your city or region in 2035?
- How much will the investment be for the installation of the charging infrastructure?
- How does a paying business model look for the operation of a charging infrastructure?

Cities and regions are faced with new challenges due to the introduction of electric vehicles. The mass introduction of electric cars has started. Various scenarios of the TA-Swiss study show that by 2035 in Switzerland between ca 25% and over 60% of the new sold vehicles will be plug-in.

By setting up a Masterplan based on practice, your city or region can prepare in order to guarantee an reasonable and exploitable charging infrastructure, and at the same time avoid misinvestments.



## Protoscar is your ideal partner for the Masterplan charging infrastructure 2035

Protoscar offers self-developed formulas, verified by third parties, to calculate the requirements of a charging infrastructure.

By using the procedure already verified, a comparison of the results is possible.

Protoscar disposes of an excellent and long-standing practical knowledge of the charging infrastructure for electric vehicles and is involved in the standardization procedure for the charging infrastructure of the near future.

Protoscar also has a deep knowledge of the automotive sector, in particular with regard to electric vehicles.

The cooperation between the Fraunhofer Institut IAO and Protoscar led to the creation of both networks "Elektromobile Stadt" and "Future Car" which regularly assemble important firms for project meetings and work groups. This allows Protoscar an insight into relevant German research projects and a close contact to the German industry.

## The standard procedure

The estimated number of electric vehicles is calculated according to the conditions of your city or your region and based on different existing studies regarding market penetration. Afterwards we examine the total requirements for various types of charging infrastructure while taking into account the relevant features of your city or region.

The analysis is divided into the following points:

- SWOT Analysis: The qualitative requirements of your city or region are determined by analyzing strengths and weaknesses as well as opportunities and threats for the electric mobility.
- Evaluation of the number of electric vehicles: The number of electric vehicles is classified and calculated according to the time frame. Strengths and weaknesses are evaluated and subsequently used to set up the formula of the number of plug-in vehicles.
- Evaluation of the number of charging stations: The formula is used to determine a quantitative evaluation of appropriate types of infrastructure. Following segmentation of charging stations is used:
  - sleep&charge
  - work&charge
  - shop&charge
  - coffee&charge
  - espresso&charge
- Positioning: Proposal for the positioning of the public charging infrastructure.

The Masterplan Charging Infrastructure 2035 is based on three sequential phases:

1. Estimate of requirements for private and public charging stations for electric vehicles foreseen within 2035.
2. Cost calculation for the implementation of the public charging infrastructure of your city or region and analysis of possible business models.
3. Assist in setting up the necessary documents for the competition notice.

A suitable primary installation of charging stations requires a scientific study which is an essential part of an efficient plan. Protoscar offers the experience and the necessary instruments. We are at your disposal for a personalized professional advice.

### References

It is with the pilot project VEL 1 (1994-2001) in the town of Mendrisio, that Protoscar had the opportunity to gather firsthand expertise in the introduction of electric vehicles and the necessary charging stations.

The methodology for the Masterplan has been developed by Protoscar, and it has been applied several times since 2011:

- City of Zurich: on behalf of ewz, Elektrizitätswerk der Stadt Zürich (2011/2012).
- Canton of Ticino: for the RiParTi 2.0 project, Infovel (2010/2013).
- Stuttgart: within "Schaufensters LivingLab BWe mobil, project "Ladeinfrastruktur Stuttgart und Region" (2014-2015).
- Canton of Geneva: on behalf of the Canton (2015).