


# Vision of long-term transition to e-mobility

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# **Vision of long-term transition to e-mobility**

A low-angle photograph of high-voltage power lines and pylons against a dark blue night sky filled with stars. The lines and pylons are silhouetted against the starry background, creating a sense of depth and scale.

E-mobility is an important component that will contribute to a low-carbon society.

This in turn has an effect on:

- Car manufactures
- Producers of smart charging stations
- Owners of buildings and parking spots
- Operators of electricity distribution and transmission grid

AND

- Potential users and owners



## Productive resources

- How will we sustainably solve the challenge of increased electricity needs caused by simultaneous charging of the e-fleet?

## Grid

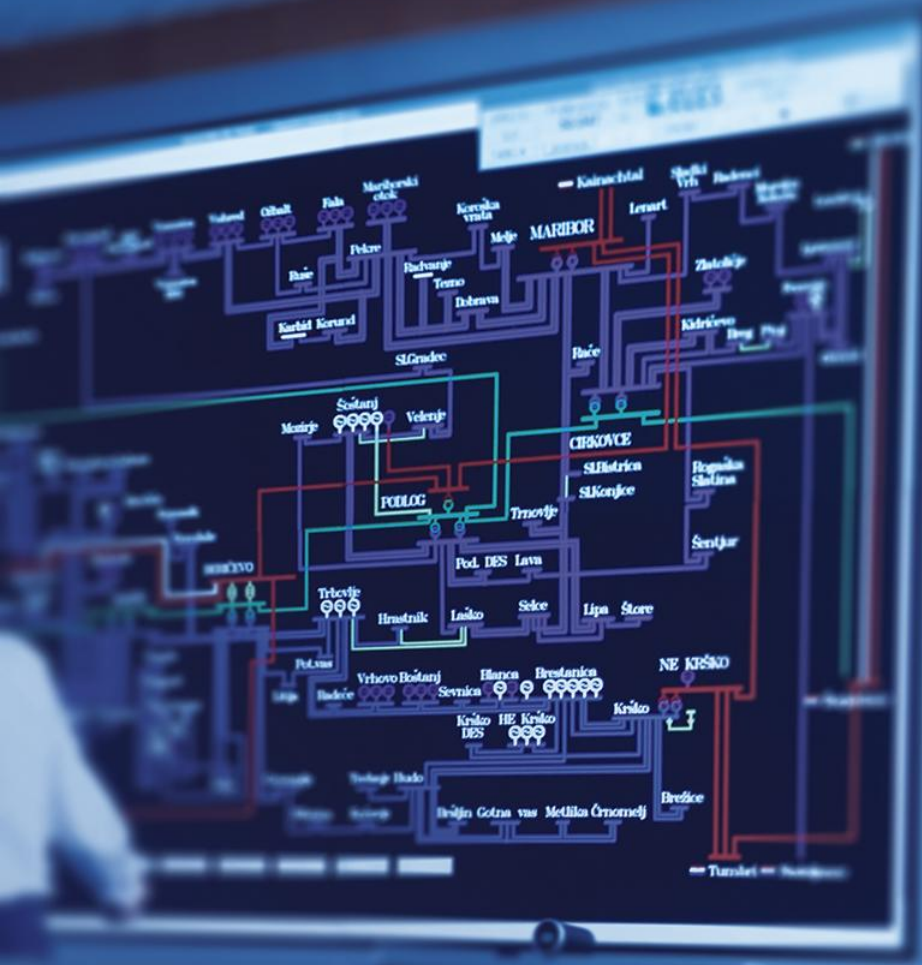
- How do we envisage an electricity grid that will be capable of meeting the expectations of hundreds of thousands of drivers at the same time?

## Expectations

- Will the final outcome meet the expectations of key stakeholders?

# E8

Concept of integral development of  
infrastructure for mass charging of  
electric vehicles



The concept is based on eight principles of optimal development, and balances all the key aspects determining the accessibility, robustness, sustainability and rapid expansion of private charging stations.

# 1. Informed users

Users support the frequent and longer connection and central management of charging power.



## 2. Dense network

Prolonged charging is accessible to every owner of an electric vehicle.



### 3. Instant identification

Charging stations automatically recognize and enable its advanced hosting.

## 4. Easy connection

Contact technologies enable frequent connection of vehicles to chargers.



## 5. Remote control

The power of each private charging station can be remote controlled effectively.

## 6. Multi-level integration

Private charging stations are integrated into the control centres of the electricity grid (DSO, TSO).

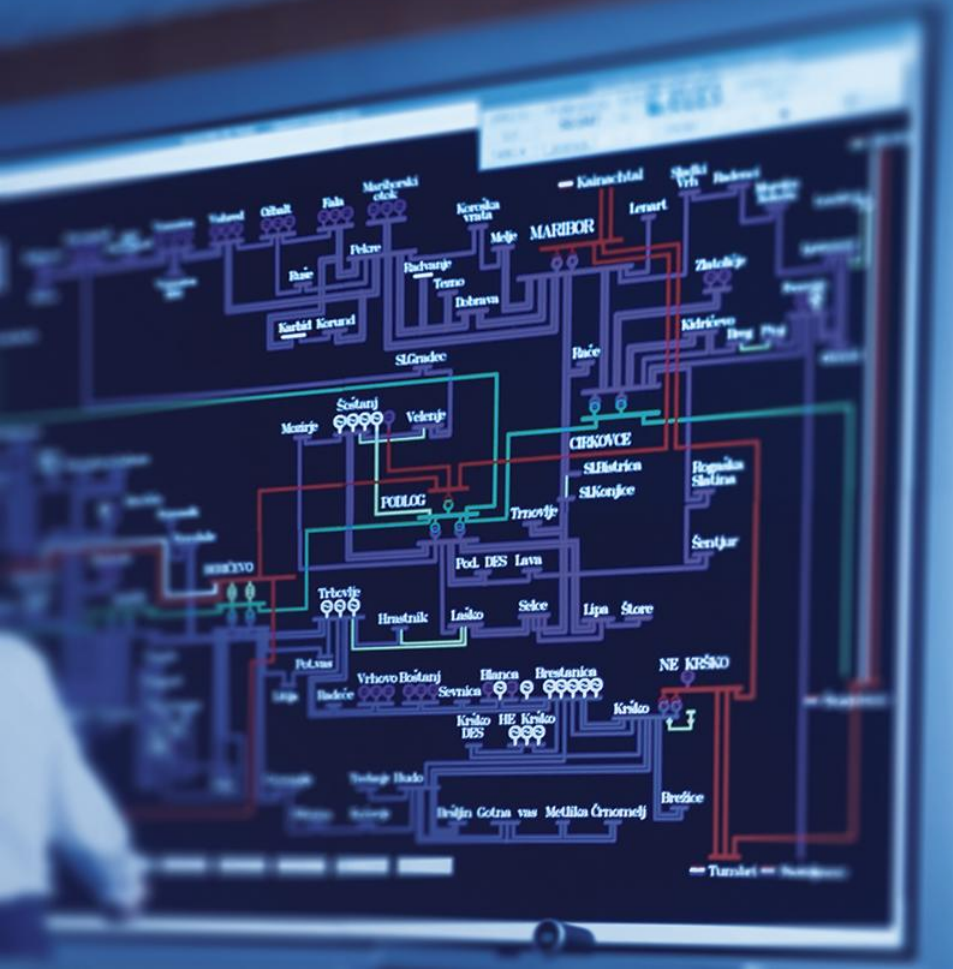


## 7. Consumption market

Charging stations are included in the active consumption market.

## 8. Strategic management

The challenges of using quick charging stations and local electricity storage units are effectively controlled.



## Where we are?

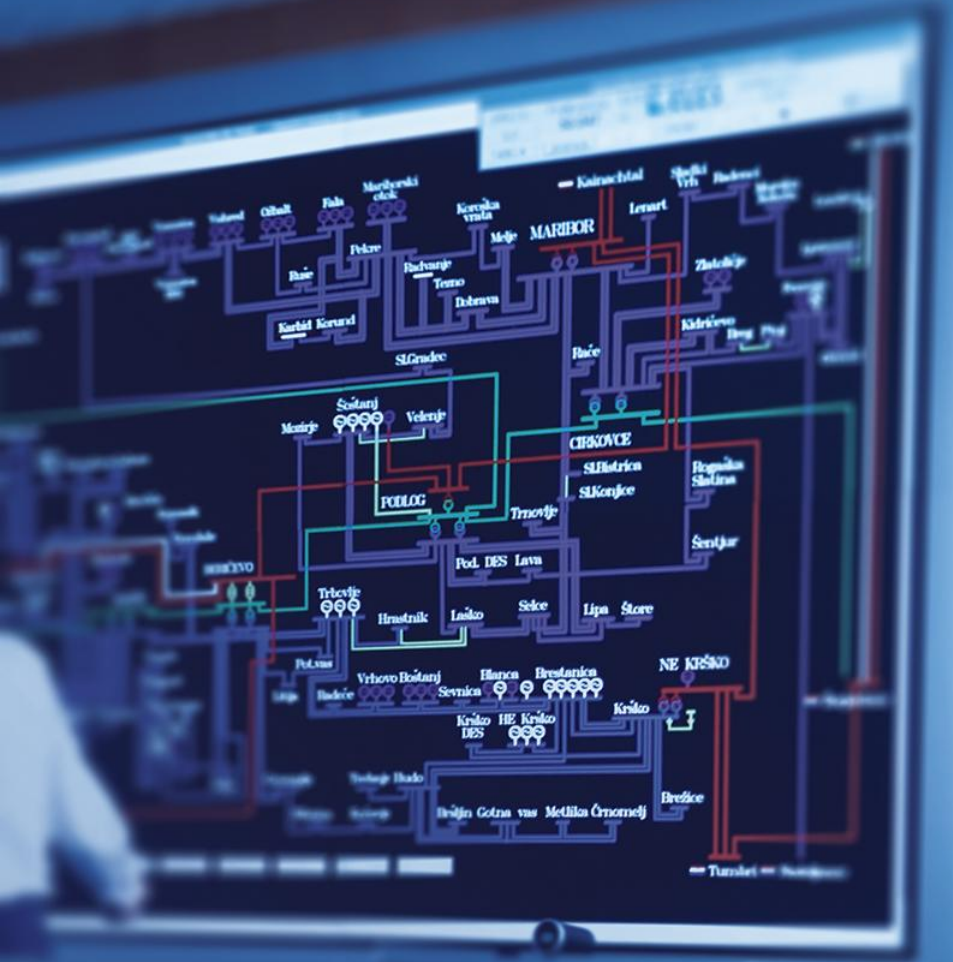
ELES is currently verifying the concept on the level of concrete solutions:

- Exploring the user aspect – 14 company e-vehicles
- Setting up 18 charging stations
- Establishing one management system for charging stations


# 2.0

**Social aspect of the  
E8 concept**





The reality of  
EV drivers and their passengers

A low-angle, black and white photograph of high-voltage power lines and pylons against a dark blue night sky filled with stars. The lines stretch from the bottom left towards the top right, creating a sense of depth and scale.

EVs have to tackle three technical hurdles on their way to widespread dissemination:

- Price
- Battery performance
- Lack of charging stations

But there is one social aspect that has to be addressed:

- Analysis of consumers potential and mindset to become EV users

A low-angle photograph of high-voltage power lines and pylons against a dark blue night sky filled with stars. The lines and pylons are silhouetted against the starry background, creating a sense of scale and infrastructure.

## The user experience has to be improved

- Users will have to be educated on how their participation in e-mobility affects the network
- Awareness about smart utilization of the charging infrastructure will have to be raised
- The distinction between fast and slow charging and its effects on the grid will have to be deeply explained

## Example

- E-vehicle owners will have to choose a slow charging/domestic charging station instead of fast charging stations (to insure that energy for EV will come from RES and the electricity network will not need large investments)



- Do I have space at home for a charging station?
- What if I live in a flat?



To get a clear picture on the reality of e-mobility social aspects have to be studied.

- Households have to be asked to report on their residential and work locations
- Households driving behaviour needs to be analysed
- Households need to report on their income
- Peoples attitude toward e-mobility has to be studied

Answers to this questions will give us answers to whether the households have the potential to drive electric.

Human mind set will not change overnight.

How do we now that? People are still not properly sorting their garbage!

What is easier to tackle? The technical side of e-mobility (like constructing a cheaper EV) or the social side (like changing the mind set)?

**SSH research is needed for the future development of e-mobility.**

**Thank you!**

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