SLOVAK EMOBILITY MARKET OVERVIEW

Fast In Charge

Prepared by ZSE

14th October 2015

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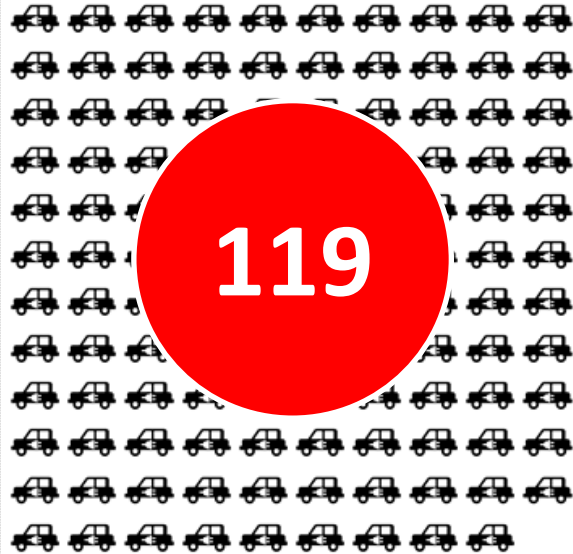
EV MARKET OVERVIEW

The number o electric vehicles on Slovak roads is very low, around 200. Majority of them is registered in Bratislava. We expect to have 10 – 25 k EVs in 2020.
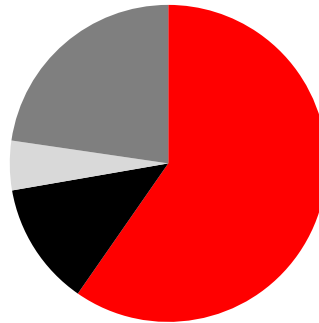
119

Total number of registered EVs on SVK market as of EoY 2014 is 119

Currently there are around 200 EVs on SVK roads.

Total number of cars on SVK market is around 2.7 M.

Distribution of EV per city

■ Bratislava ■ Kosice ▫ Zilina ■ Other

Almost 60% of all EV are registered in Bratislava.

Almost 90% of registered vehicles are personal cars (M1 category).

**100x** **Expected increase till 2025**

SVK national emobility strategy expects the number of EVs on SVK market to be 10 K – 25 K in 2020.

Number of EVs registered in Q1-Q2 in SVk is 81. There are yearly around 70 k personal cars registered.

To have 10 – 25 k EV on SVK roads, yearly new EV registrations have to reach in average 3 – 7 % of total registrations.

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CHARGING INFRASTRUCTURE OVERVIEW

There are only couple of players on the market (ZSE, GW, SE,…) usually focusing on both, CPO and MSP roles. So far, charging has been provided to customers mostly for free. Infrastructure is ahead of EV market (10 cars per QCH).
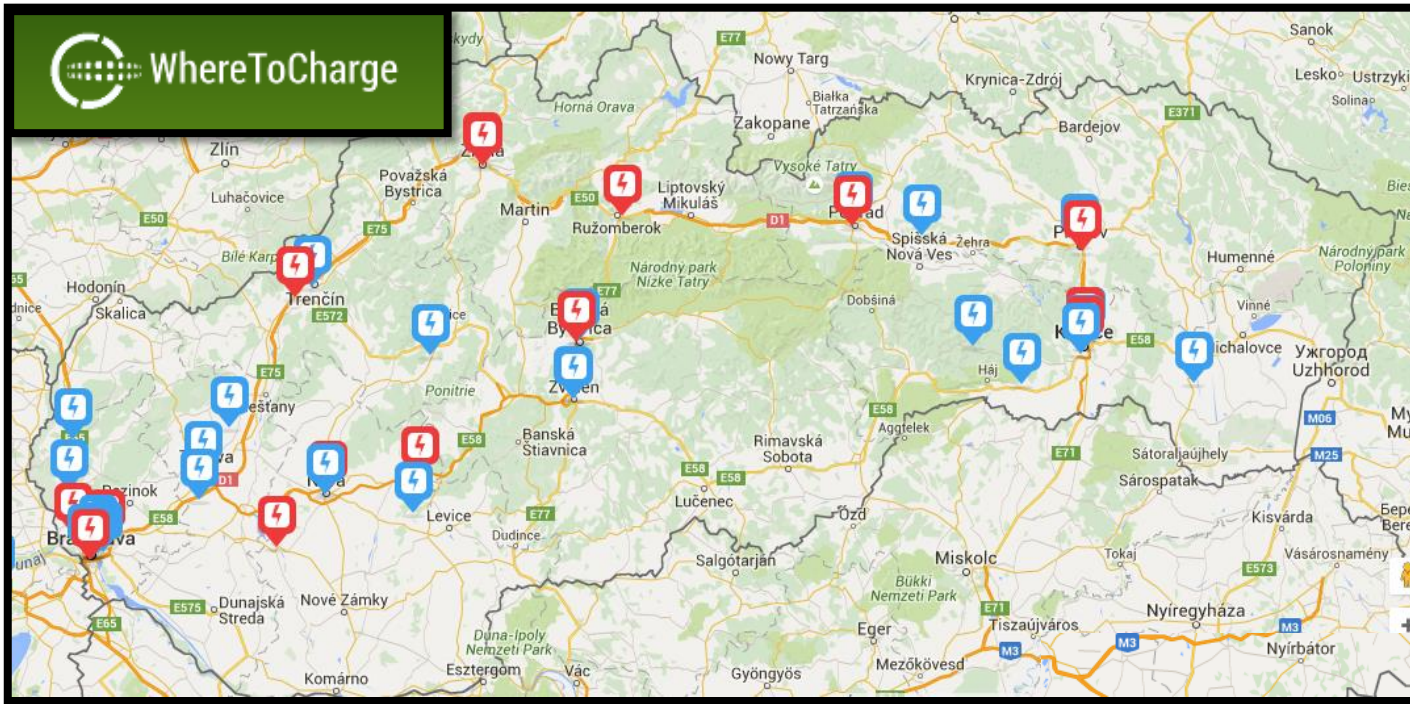
Some fast chargers not shown on map as they are being upgraded.

2015	AC	🔌 🔌 🔌 30
	Fast	🔌 🔌 20
2016	AC	🔌 🔌 🔌 ⟶ ?
	Fast	🔌 🔌 🔌 🔌 40

Infrastructure already allows to travel from Bratislava to Kosice.

Until H2 2015, fast chargers equipped only with CHAdeMO connector. Currently almost all fast chargers equipped with triple standard (AC 43 kW, DC 50 kW).

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SVK NATIONAL EMOBILITY STRATEGY

Electromobility strategy (approved 2 weeks ago) is key document which demonstrates national focus on green way of transport in form of EVs.

Introduction	What is emobility/EV. Who are main stakeholders. Changes brought by emobility.
Benefits & constraints	Benefits & contratings of emobility. Consumer view on emobility.
Challenges	Impact of emobility development. Future development scenarios. Emobility development incentives in the world.
Preparation for tech. changes	Key factors. Recommendations for emobility development.
Current status and future development	Current status. SWOT analysis. Quantitative estimation of future development. Suggestions for SVK government.

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SUGGESTIONS TO SVK GOVERNMENT

Emobiliy strategy recommends tools to policy makers to support emobility on national level. These tools are mostly related to support of EV and infrastructure development.

Suggested tools for support of emobility development

No direct subsidy

Incorporate emobility topic to other national policies	Stimulation of EVs sales (indirect support)	Support science, research and innovations	Information campaign
Education of new skills/knowledge at schools	Low emission zones	Apply green procurement principles	Simplify administration process (permits for chargers)
Reserve public parking place for owner of EV	Reserve public parking place for owner of public charger	Implement legal conditions for mandatory charging infrastructure for new parking plots	Build national charging network
Reserve parking spot for EV drivers on public institutions' parking lots	Assure subsidy to municipalities for building of charging infrastructure	Favor EV entrance and parking in city centers	Simplify administration for conversion of ICEV to EV

■ EV support   ■ Infrastructure support   ■ Research & Education

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CUSTOMER BEHAVIOUR

There are couple of interesting insights from emobility survey conducted in SVK/AUT/GER.

GOVERNMENT INCENTIVES

In all 3 countries most governmental support is requested for **EV purchase subsidies** and **deployment of infrastructure** – with varying shares among countries.
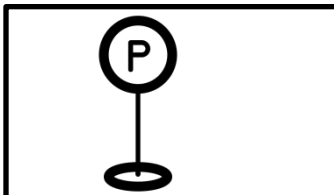
In AT EV Users are mostly asking for deployment of infrastructure (46%), **while in SK by far most EV Users are asking for subsidies for the EV purchase.**

PARKING

¾ EV are parked on the owner's property.

Apart from home, EV are more often parked in designated spots than Non-EV (SK: 60% vs. 29%, DE: 62% vs. 21%).

Overall parking situation for EV drivers is clearer (necessity to charge).

WILLINGNESS TO PAY

In SK 21% would pay less, against **only 12% willing to pay more**

If people are willing to pay more on average they would **accept additional cost of 17,6% for an EV**. In SK with 21,5% willingness is the highest of the 3 countries

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CUSTOMER BEHAVIOUR

There are couple of interesting insights from emobility survey conducted in SVK/AUT/GER.

ELECTRIC ENERGY ACCESS & POWER

27% of general population have access to an electric power point at their night car park.

Most EV have access to an electric power point at night: 92% in AT, 68% in DE, 60% in SK.

3,7kW is the most common available power (15%). But 63% of respondents with access to an electric power plant don't know the exact power.

EV Users in all 3 countries mainly have access to 11kW power plant.

MILAGE/DISTANCE

The annual mileage of EV is around 15.600km.

Around 2/3 of EV mileage is out of town/motorway driving.

Non-EV owners request a minimum range of 350-400km for considering a BEV as the only car in the household.

For considering a BEV as additional car they would ask for a minimum range of 200km

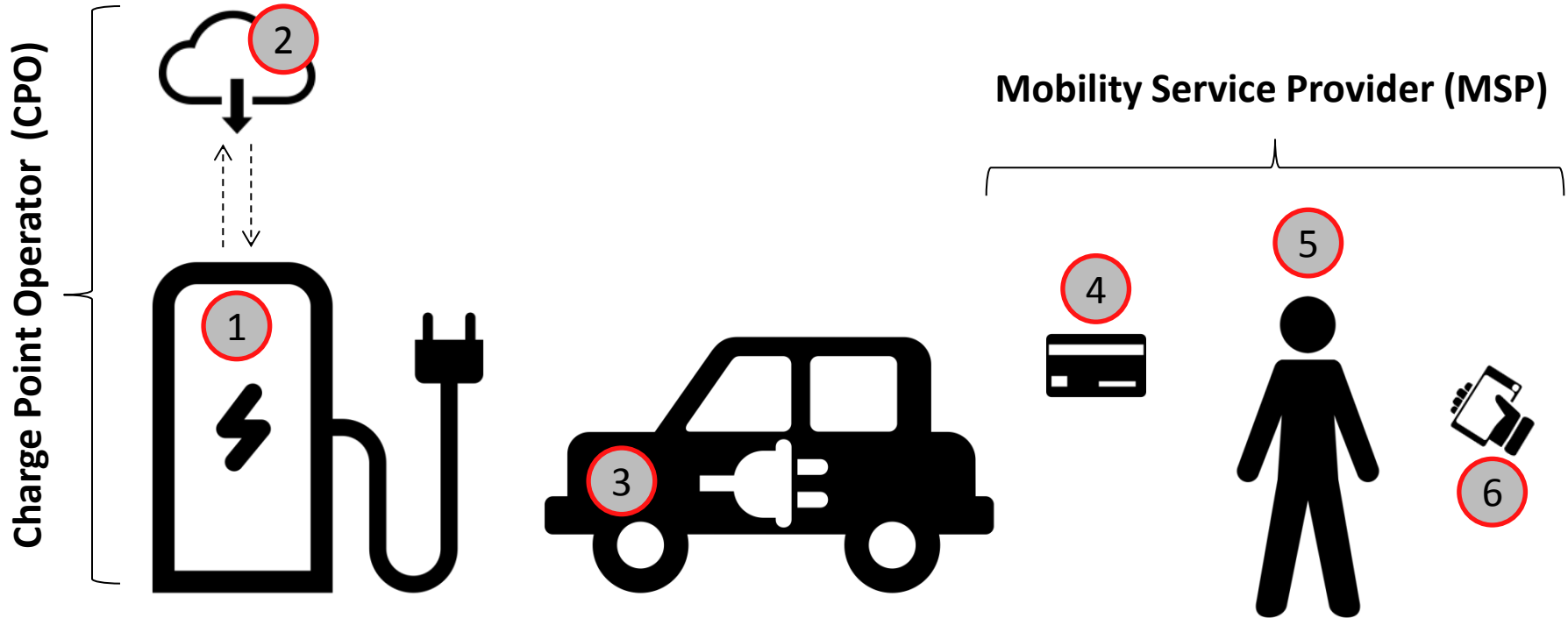For a 2 or more hours trip a detour of 17.7 km or 16.2 minutes would be acceptable

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CHARGING SERVICE COMPONENTS

Emobility service contains several components.

1. **Charging infrastructure**
2. **Control over chargers and data collection**
3. **Availability of wide range of EVs**
4. **Authentication and availability of charging in arbitrary charger**
5. **Different tariffs, payment options and billing for customer**
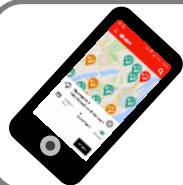6. **Front end application for customer – location and availability of chargers**

ASSURING EASY ACCESSABILITY & AD HOC ACCESS

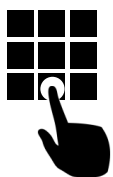**Easy access/authentication is crucial point to be solved.**

REGULAR SUBSCRIPTION ACCESS

- RFID CARD
- MOBILE APPLICATION
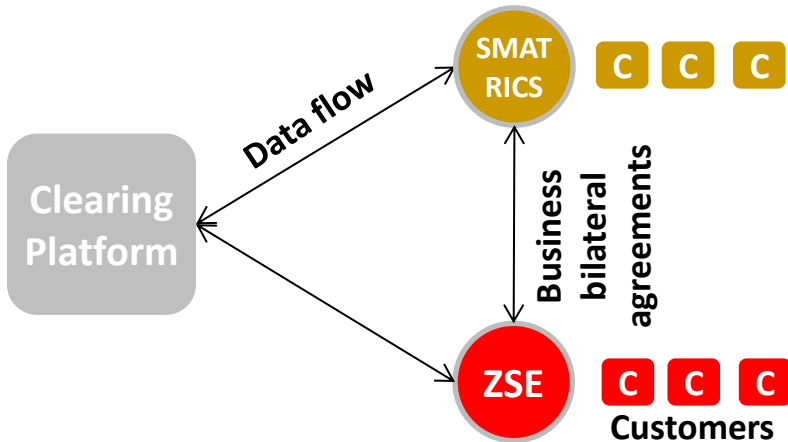- PIN CODE AUTHENTICATION

AD HOC ACCESS

- POS TERMINAL
- CASH
- CALL CENTER
- SMS
- PREPAID

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ROAMING

Roaming among different emobility service providers is important to assure seamless charging experience.

2014	2015	2016-17
No roaming	**Roaming SVK, AUT, SLO**	**Roaming CZE, GER, BEL**

SIMPLIFIED ROAMING SCHEME

ZSE customer accesses SMATRICS charger with ZSE RFID.

Charging session info sent by SMATRICS via Clearing to ZSE.

ZSE charges fee to customer based on bilateral agreement with SMATRICS.

ZSE pays fee paid by customer to SMATRICS.

Clearing Platform

Data flow

SMAT RICS — C C C

Business bilateral agreements

ZSE — C C C
Customers

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FRONT END APPLICATION

Charging front end applications/platforms will bring convenience for customers.
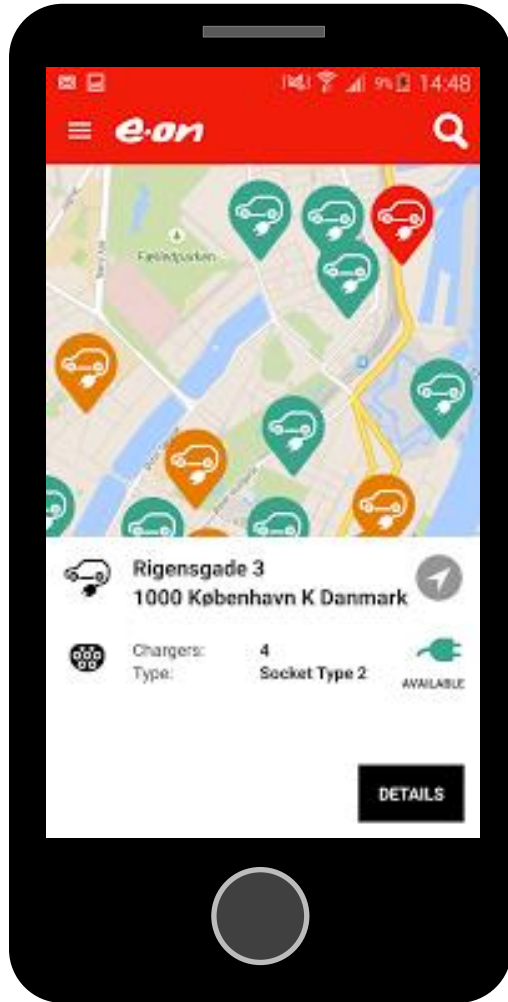
Map of chargers & static information (connectors, ..)

Overview of live charger status (dynamic information)

Authentication via application

Historical data and reporting

Remote overview/control

Charger reservation

Navigation to charger

Convenience for customers

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Thank you for your attention

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