Romanian E-Mobility Index REI 4

(Fourth edition)

E-Mobility was the winner of 2020

Special topic:
Intensified competition in the charging networks arena

Bucharest, April 2021

Photo: electric vehicles charging by iaremenko

Executive summary

Roland Berger presents the **fourth edition of the Romanian E-Mobility Index (REI)**, a bi-annual report covering the developments of the e-mobility ecosystem in the local market. Conclusions are based on the results of our proprietary **E-Mobility framework, with 4 main dimensions** (demand, offering & mobility services, regulatory environment and charging infrastructure).

The 2020 H2 index stands at **44** points (out of a maximum possible 100), ~6 points above the score in the second edition in 2020 H1.

Special topic

Each issue of the Romanian E-Mobility Index includes a **special topic**

REI 4 focuses on the **main players active in the charging station industry**, both in terms of network operators and main station locations

An independent charging station operator dominates the provider landscape with ~15% of all stations, while traditional utility players are starting to deploy significant numbers of charging stations

Roland Berger E-Mobility framework

Demand

Strong rebound in sales of new electric-powered vehicles, with a record ~4,000 units registered by the end of 2020 – **An increase of 93% compared to 2019**, even though the **overall market for new passenger cars contracted by 22%** in 2020 vs. 2019.

Share of EVs & PHEVs in total new car registrations has increased to **~3.9% in 2020 H2**, in line with the growth trend visible in all major EU countries.

Offering & mobility services

Continued expansion of EV and PHEV offering, with the number of available models on the local market doubling in 2020; **SUVs represented ~60% of all new models** in 2020 H2.

Limited development of mobility services following changes in consumer behavior driven by the pandemic; steady expansion of EV fleets for car-sharing companies.

Regulatory environment

Rabla Plus budget increased during 2020 H2 to EUR 41 m (record level), to sustain unprecedented demand from private individuals – **Usage of ~95%** by the end of the year.

Expansion of scope for the scheme, to also cover used cars no older than 6 months and allow the acquisition of models produced by Tesla.

Charging infrastructure

Significant increase in the bi-annual growth of publicly available charging stations, from 22% to 43% in 2020 H2, resulting in **~690 total stations** – Growth particularly driven by stand-alone retailers, car dealerships, malls and public parking facilities.

Fast-chargers' share increased to 32% from 25% in H1; **first ultrafast chargers** installed

Despite their 30% higher list price, small EV SUVs can prove advantageous to their owners from a cost perspective – With the inclusion of the Rabla Plus subsidy, TCO[1] analysis reveals **sub-compact SUV EVs achieve similar values to their ICE counterparts at a yearly mileage of ~8,000 km** considering a 5-year utilization period[2].

1) Total Cost of Ownership

2) Further TCO comparisons to be presented in future editions

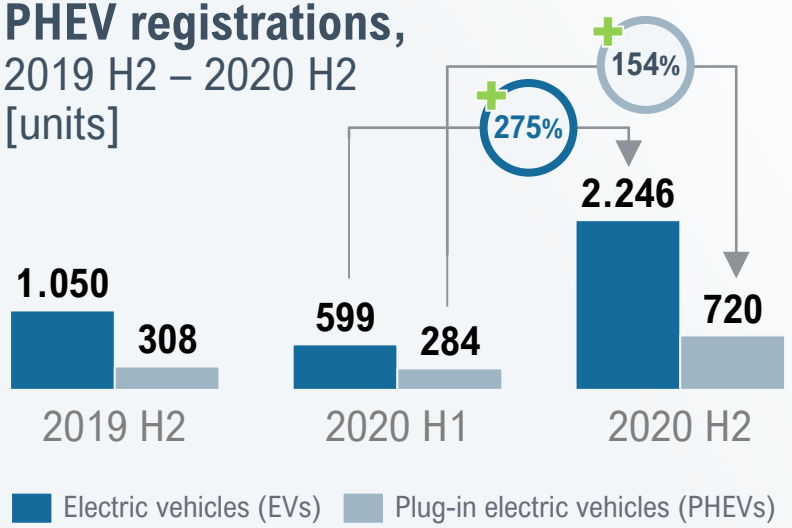
Sales of xEVs rebound strongly, reaching record numbers in 2020

Registrations of new electric and plug-in vehicles rebounded strongly in 2020 H2, after the decrease experienced in 2020 H1 due to the COVID-19 lockdown and the late start of the Rabla Plus subsidy scheme (first grants offered in May). A **record 3,849 new xEVs** were registered in **2020**, a 93% increase on registrations in 2019. The growth is even more impressive considering that the **overall number of new passenger cars** registered in Romania **fell by 22%** in 2020 vs. 2019.

The **appetite of consumers for 'green' vehicles was strongly supported through the governmental incentive scheme**, with the total pool of funds for 2020 doubling compared to 2019. This coincided with the **launch of several new xEV models on the Romanian market** and with **car-sharing companies expanding their EV fleets** in the main urban areas.

As a result, the **share of new EVs and PHEVs** in total new passenger car registrations also increased sharply, **from 1.8%** in 2020 H1 **to 3.9%** in 2020 H2.

Evolution of new EV & PHEV registrations, 2019 H2 – 2020 H2 [units]



3.9%

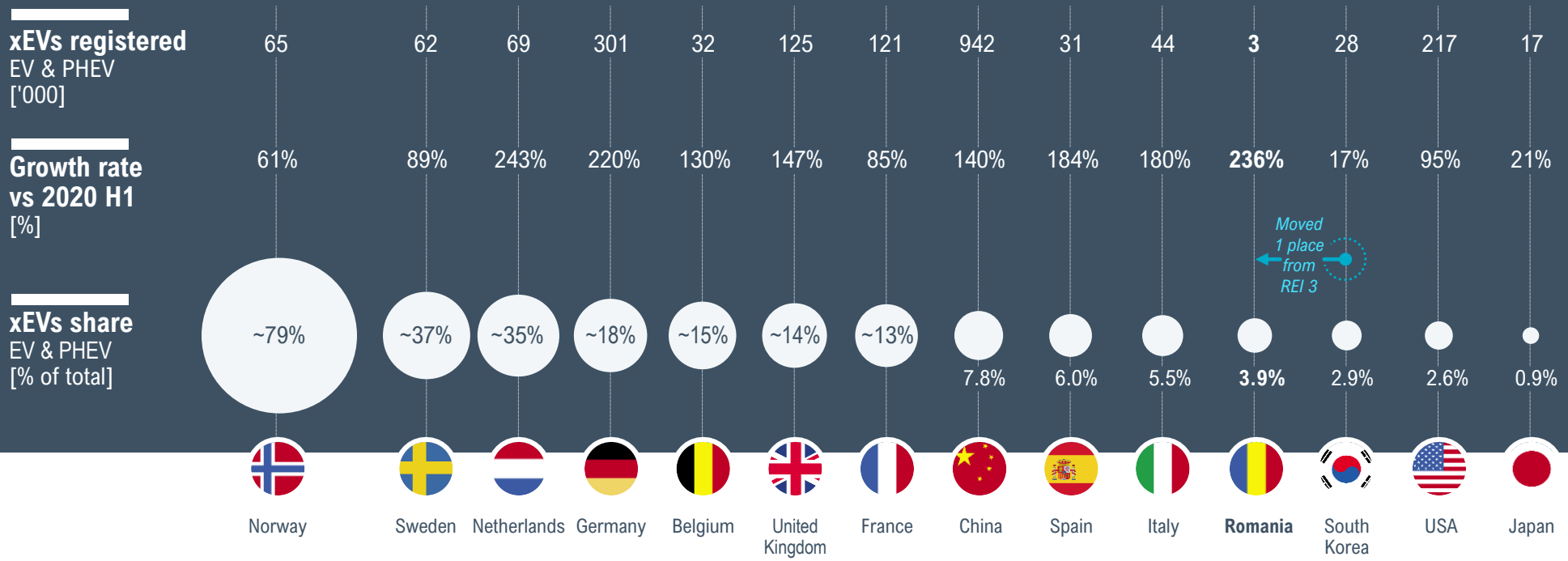
Share of EVs & PHEVs in total new car registrations in 2020 H2

New EV and PHEV registrations rose sharply in all major European countries; economic recovery in China as a key driver globally

Registrations of electric and plug-in passenger cars continued to accelerate in major European countries, boosted by the introduction of new or the upgrade of existing subsidy schemes in 2020 H2 (e.g. Netherlands, Germany). Similarly to the Romanian market, **new xEVs sales in the EU increased sharply**, while overall volumes of new passenger cars contracted, driving the **share of electric-powered vehicles in total new vehicle registrations to a record 13.3% for 2020 H2**.

China's economic recovery in the second half of the year represented a significant growth driver for xEVs manufacturers, with **~1 million new electric and plug-in passenger cars registered** in the country during 2020 H2.

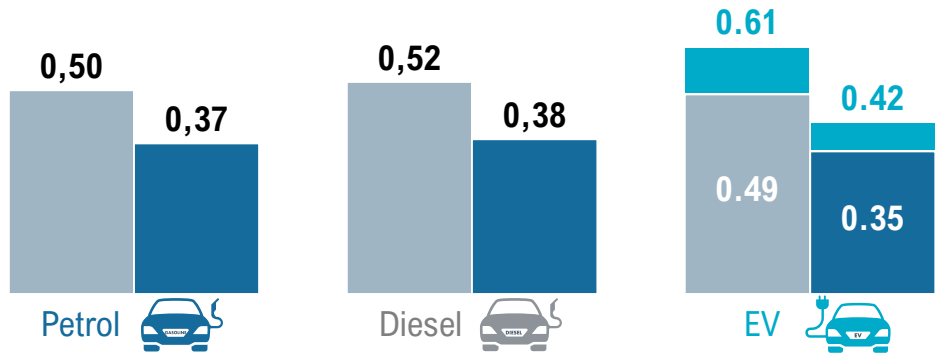
New EV & PHEV registrations, 2020 H2



Small EV SUVs reach breakeven with ICE models at just 8,000 km yearly mileage

Total Cost of Ownership (TCO) in Romania for a sub-compact SUV with ICE & EV powertrains[1)]

Average cost per kilometer [EUR/ km], 5 years of vehicle usage

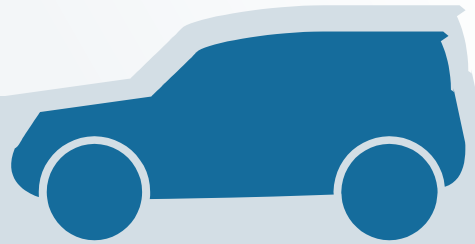


DS3 Crossback | Mazda MX-30/ CX-30 | Peugeot 2008 | Kia Niro | Hyundai Kona

1) Same car brand & similar model considered when comparing different powertrains

Roland Berger

REI 4 TCO comparison: **Sub-compact SUV[1)]**



Buying a sub-compact EV SUV in Romania is **cost efficient even at low yearly mileage**

Sub-compact electric SUVs achieve **similar TCO level as their petrol counterparts at a yearly mileage of ~8,000 km** when accounting for the existing governmental incentives (Rabla Plus). Despite their ~30% higher list price, EV running costs are lower, both in terms of fuel and maintenance.

Even without governmental subsidies, **electric SUVs** in the sub-compact segment are **only 10% more expensive** in terms of average cost per km **than their diesel counterparts** (at an average vehicle use of 15,000 km per year). As battery technology becomes increasingly efficient, this cost difference is expected to narrow.

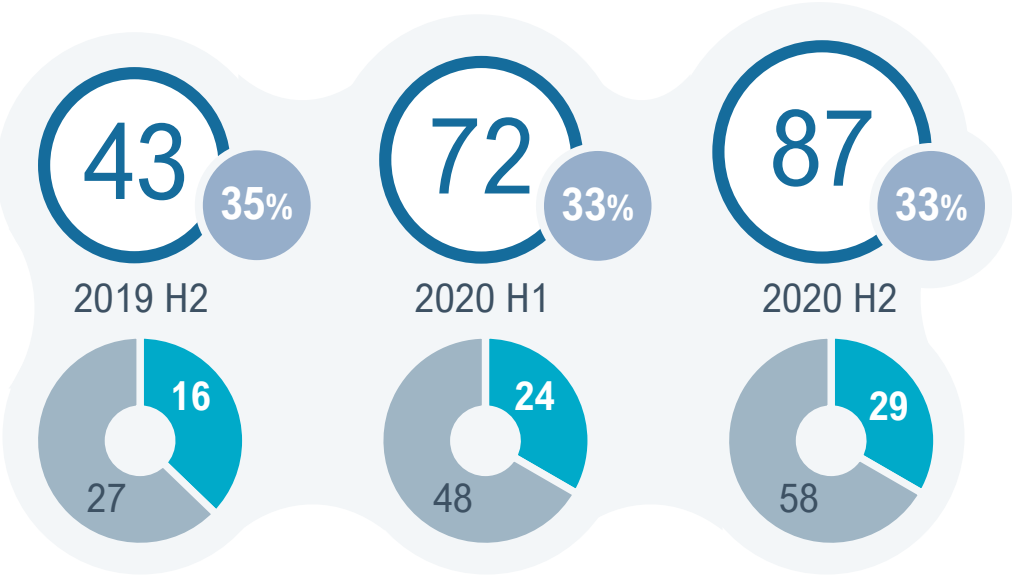
The variety of xEV models available continues to grow

The offering of electric-powered vehicles continued to expand, with **87 xEV models available** through local dealers at **the end of 2020,** representing **~25%** of the total number of models available on the market.

New releases included models such as the Volkswagen ID.3, which became the second best-sold pure electric vehicle during 2020 H2.

Mass-market producers continued the **trend of launching hybrid versions** of their most popular ICE-based models.

EV/ PHEV models available[1] & EV share in total EV/ PHEV models, [# of models, %]



Split of xEV models between pure EVs and PHEVs [# of models]

The number of new xEV models released locally slowed down relative to 2020 H1, but at the end of the year, the total number of models available on the local market was more than double that of 2019 H2. **SUVs represent 60% of the new EV and PHEV models** released in the market during 2020 H2, with producers recognizing there is a strong economic rationale for consumers to move towards electric-powered vehicles in this segment. One brand reached double-digits for the first time in terms of number of xEV models included in its local offering.

4 **Highest number of EV models from a brand**

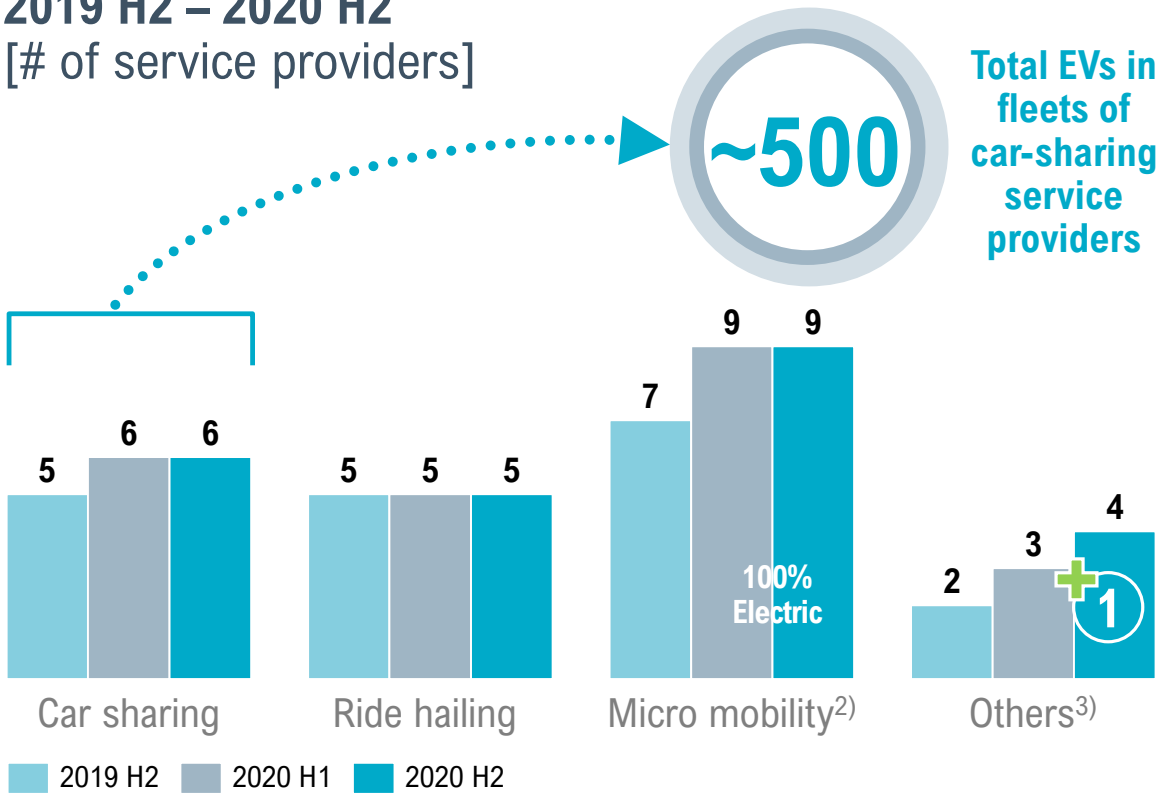
10 **Highest number of EV & PHEV models from a brand**

1) Values at the end of the analyzed period

Developments in mobility services were limited during 2020 due to the ongoing sanitary crisis

Evolution of alternative mobility services providers[1], 2019 H2 – 2020 H2

[# of service providers]



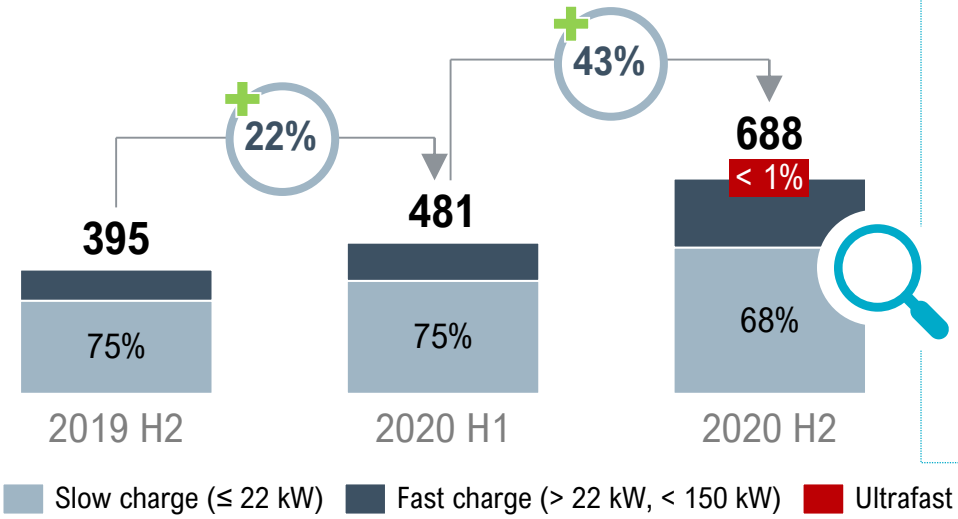
1) Only including vehicles with own propulsion system
2) Vehicles for urban use with mass below 500 kg, incl. electric scooters, bikes and unicycles
3) Includes ride sharing, peer-to-peer renting and other mobility services

The development of alternative mobility services **slowed down** in 2020 H2, mainly due to a **change in customer behavior** caused by the COVID-19 pandemic and subsequent **plunge in demand**.

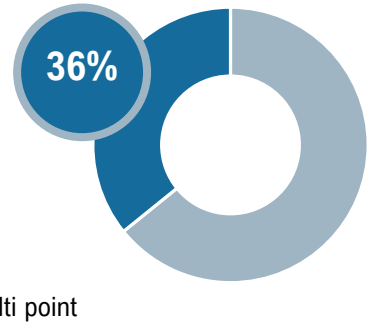
However, some segments continued to expand – For example, even though there are no new entrants in the **car-sharing market**, existing players have increased their fleet sizes, with a **focus on pure electric vehicles**. The **total number of EVs** available in all fleets increased to **~500**, from ~200 at the end of 2019, with plans for **further expansion** announced.

The charging infrastructure has significantly developed with increased focus on fast charging

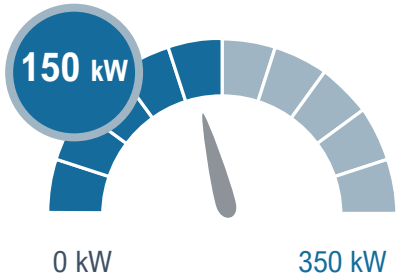
Evolution of charging infrastructure in Romania, 2019 H2 – 2020 H2 [#]



Share of multi-point stations (>2 chargers), 2020 H2



Maximum installed charging power, 2020 H2



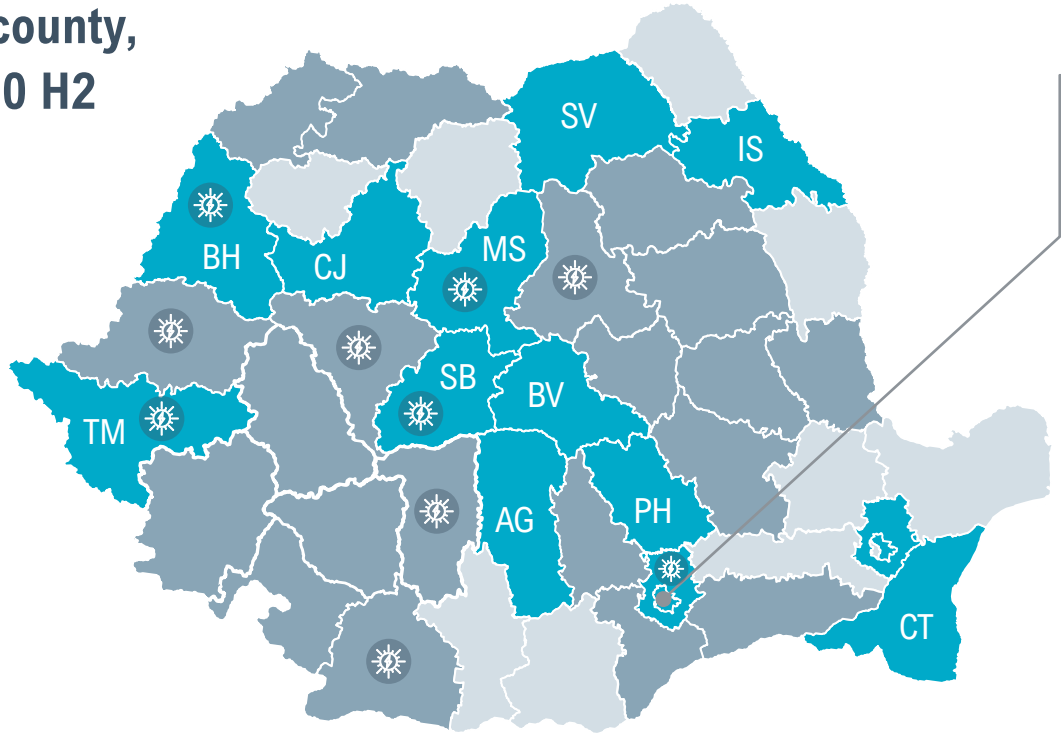
The development of the national charging infrastructure has surpassed its usual growth rate of 20-30% per 6 months with a **43% increase in 2020 H2.** Additional support schemes may further boost the installation of charging stations – For example, the 2021 phase of the Electric Up governmental program offers EUR 100 m and supports investments in charging stations[1)] and solar panels, with grant applications commencing in December 2020.

Although not bolstered by subsidies or incentives, the total number of installed charging stations reached ~690 at the end of 2020, an **82% increase in fast charging stations** versus 2021 H1, **which now account for close to one third of the national charging infrastructure**. A new milestone was reached in the second half of 2020, with **two new ultrafast chargers becoming operational.**

1) For SMEs and HoReCa players – Both public and private charging stations supported

Bucharest & Western Romania continue to have the most significant charging infrastructure

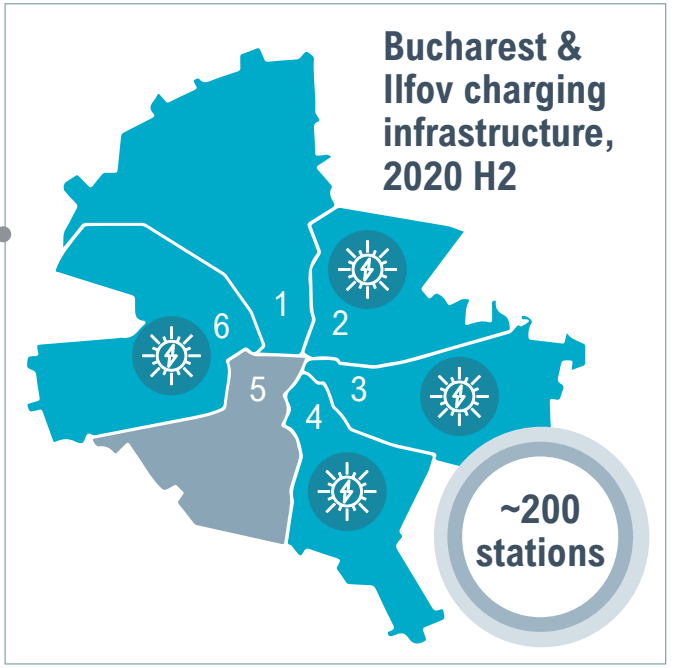
National charging infrastructure by county, 2020 H2



Counties with **less than 5 charging stations**
Counties with **5-15 charging stations**
Counties with **15+ charging stations**

Counties/ districts with **growth rate above the market average**[1)] (2020 H1 vs 2020 H2)

Bucharest & Ilfov charging infrastructure, 2020 H2

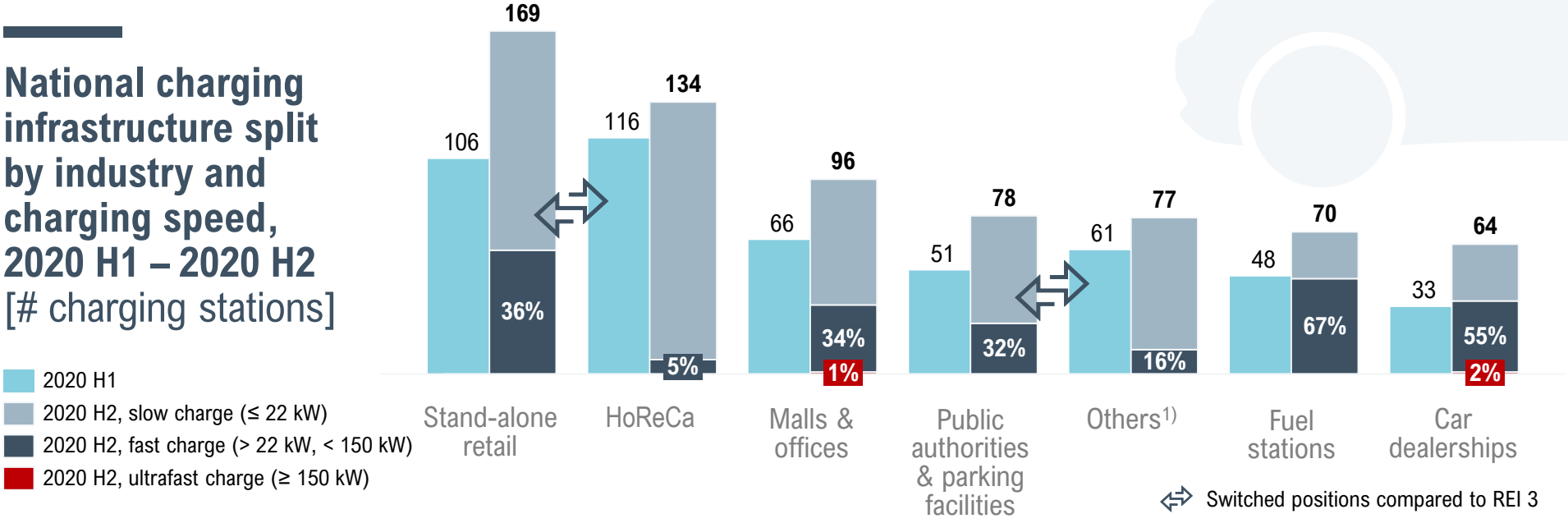


While there is **clear expansion** of the charging infrastructure **in major economic hubs and the Western part of the country,** there is increasing growth in regions such as Southern Muntenia and Southern Moldova. The Bucharest and Ilfov region continue their leading trend, accounting for almost 30% of the country's charging stations.

1) For counties with 6 or more charging stations in previous semester

Almost half of new charging stations are on retailer and shopping mall premises

National charging infrastructure split by industry and charging speed, 2020 H1 – 2020 H2 [# charging stations]



Stand-alone retailers have emerged as the leading segment in terms of number of charging stations at the end of 2020 H2. With a 60% overall growth, retailers have overtaken the HoReCa sector, the latter continuing to experience a slowdown due to the economic implications resulting from the ongoing COVID-19 sanitary crisis. The 'Public authorities & parking facilities' segment doubled its number of fast charging stations in the last semester, continuing its strong 2020 H1 trend.

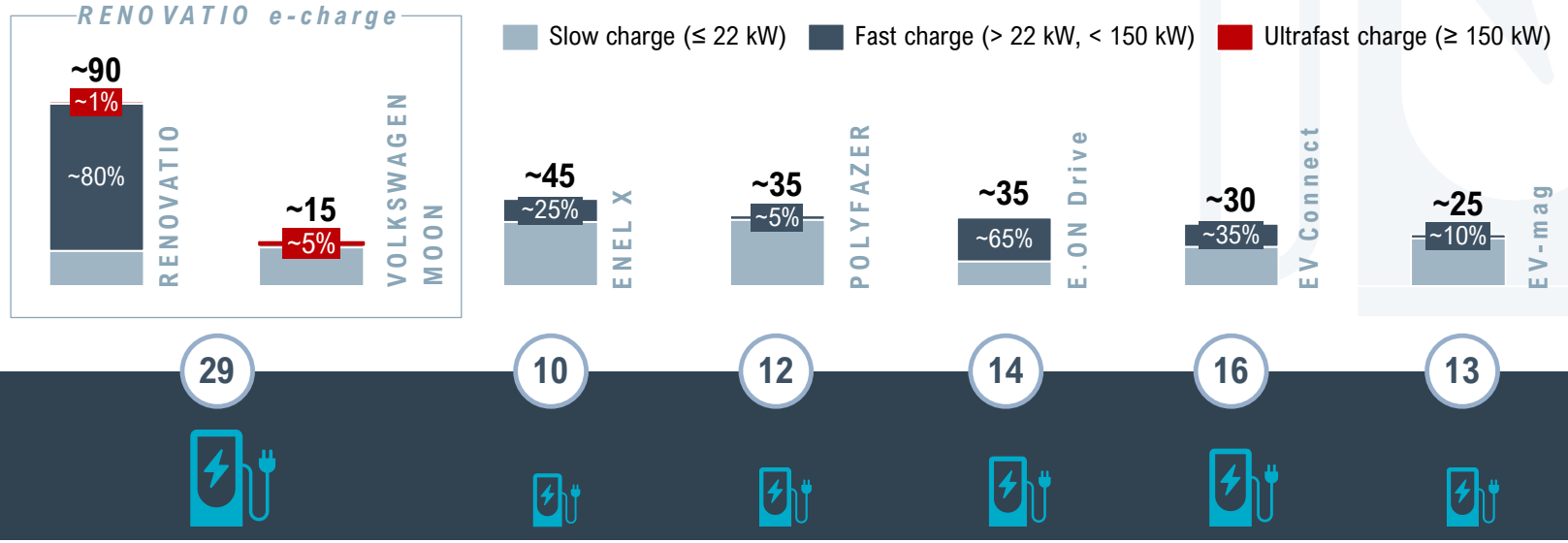
The first two ultrafast charging stations have been inaugurated in 2020 H2, with one of them launched by a dealership. The dealership segment has registered 95% growth, with 10 times as many fast chargers at the end of 2020 than in H1.

Fuel station operators have continued developing their fast charge infrastructure, with a 60% increase in the number of fast charging stations from 2020 H1; however, their share of Romania's overall number of fast chargers has dropped.

1) E.g., education & health facilities, touristic areas, entertainment centers, etc.

Special topic – Charging station infrastructure reaches commercialization state

Capabilities of charging station network providers [end of 2020 H2]



As a growing number of players develop charging station networks, the **market has evolved from its initial pilot phase to commercialization state**, where increasingly sustainable business models compete for an ever-growing customer base.

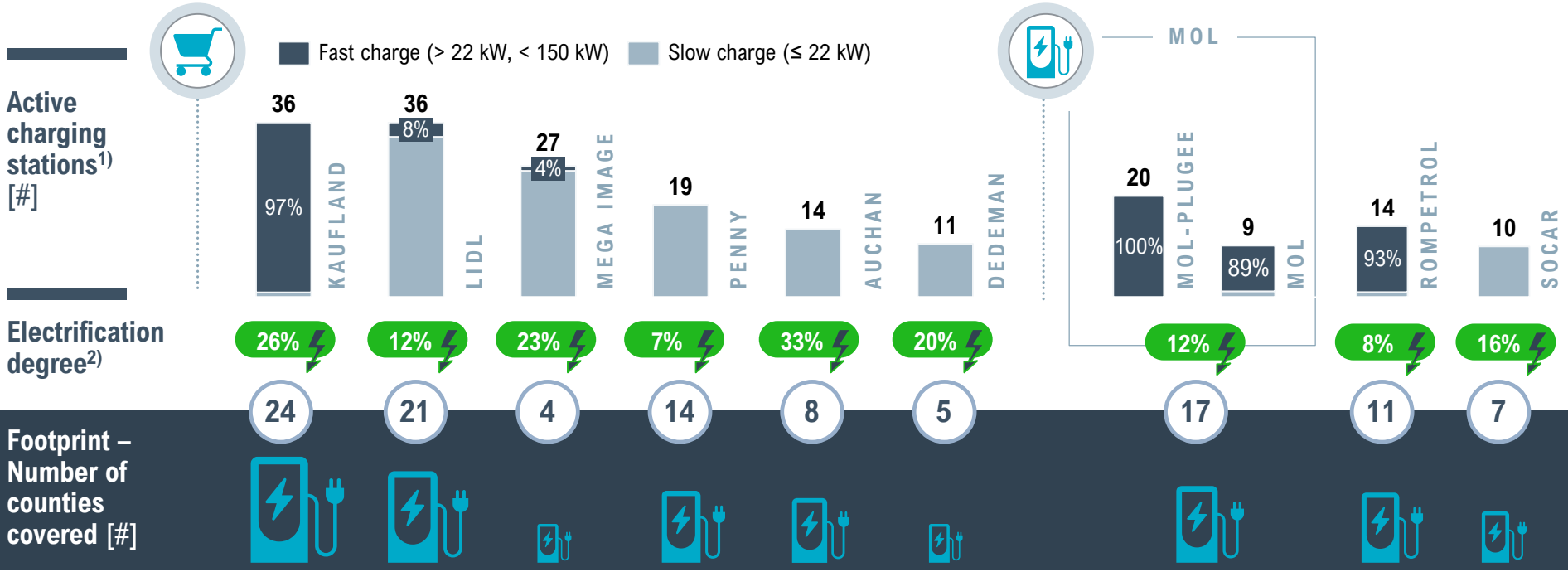
40% of all public stations in Romania are managed by 6 network players – Renovatio, alongside their partner MOON, provide ~15% of all charging stations at national level through their e-charge platform, with over 80% offering fast charge capability.

Mobile applications are the primary means to provide information and access to charging stations for customers. Payment by card and account top-up are the preferred payment options, while Enel X and E.ON Drive also offer subscription packages for lower price per kWh and access to additional features such as booking service for chargers[2]. However, **many apps have yet to reach maturity in terms of customer offering** – For example, no application currently offers functional trip planning, users having to rely on crowdsourced apps such as PlugShare for access to such capabilities.

1) One location with multiple charging points/ plugs considered as a one charging station; at least one plug to be functional for station to be considered active 2) Enel X only

Special topic – Retailers lead in terms of coverage, while fuel stations focus on fast charge adoption

Charging station capabilities of retailers and fuel stations [end of 2020 H2]



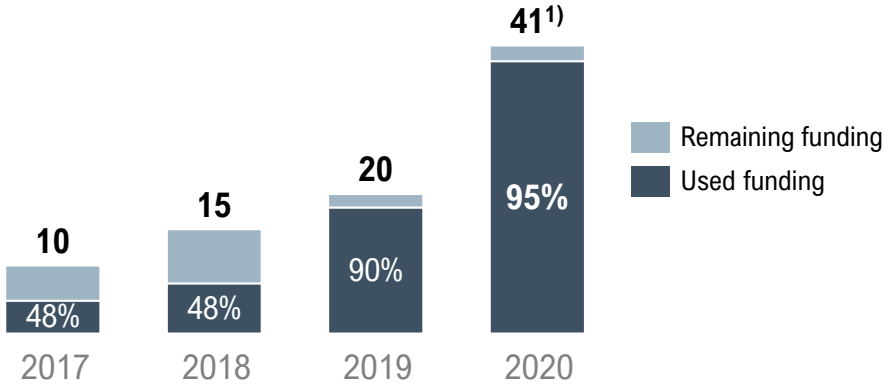
Kaufland dominates the retailer landscape in terms of fast charging capabilities by leveraging both its internal capabilities and its partnership with Renovatio, the latter equipping 2 out of 3 Kaufland charging locations. Retailers with **high electrification degrees** (e.g., Kaufland, Mega Image, Auchan) usually deploying the charging infrastructure in partnership with network operators.

The fuel station charging landscape is less developed than its retailer counterpart, with a lagging electrification degree, but increased focus on fast charging capabilities (~70% of fuel station charging stations, compared to 35% for retailers and DIY stores). **Mol is at the forefront** of fuel station vehicle charging stations **through its Plugee international program** which aims to bring network-style functionality to Romania through a dedicated app.

1) One location with multiple charging points/ plugs considered as a one charging station; at least one plug to be functional for station to be considered active
2) Number of active charging stations divided by total number of stores with dedicated parking lots

The record-setting budget for Rabla Plus program was a key driver for the xEV market growth in 2020

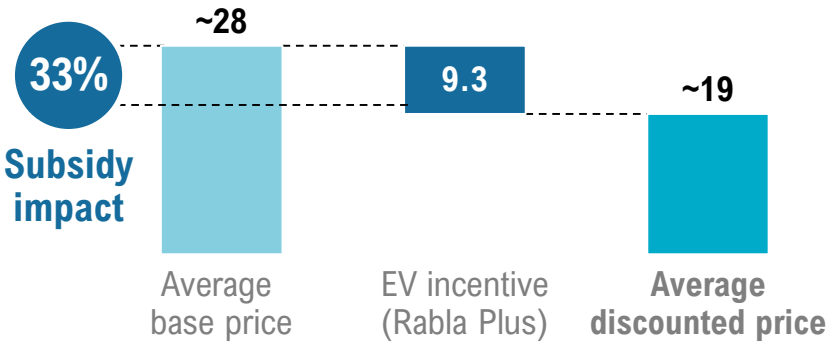
Evolution of total available funding through the government incentive scheme, 2017 – 2020 [EUR m]



The initial budget of EUR 29 m for Rabla Plus 2020, already an all-time record, was further increased to EUR 41 m during 2020 to sustain the **unprecedented demand from private individuals**.

In October 2020 the scope of the scheme was expanded to also **cover the acquisition of used xEVs no older than 6 months** and to **allow the usage of eco-vouchers for models produced by Tesla**, with the manufacturer announcing the launch of a local dealership soon after. By the end of the year, ~97% of the funds allocated for private individuals, and ~92% for companies, had been used.

Share of government incentives in average price of selected EV models[2)], 2020 H2 [%, EUR k]



EV models selected for analysis

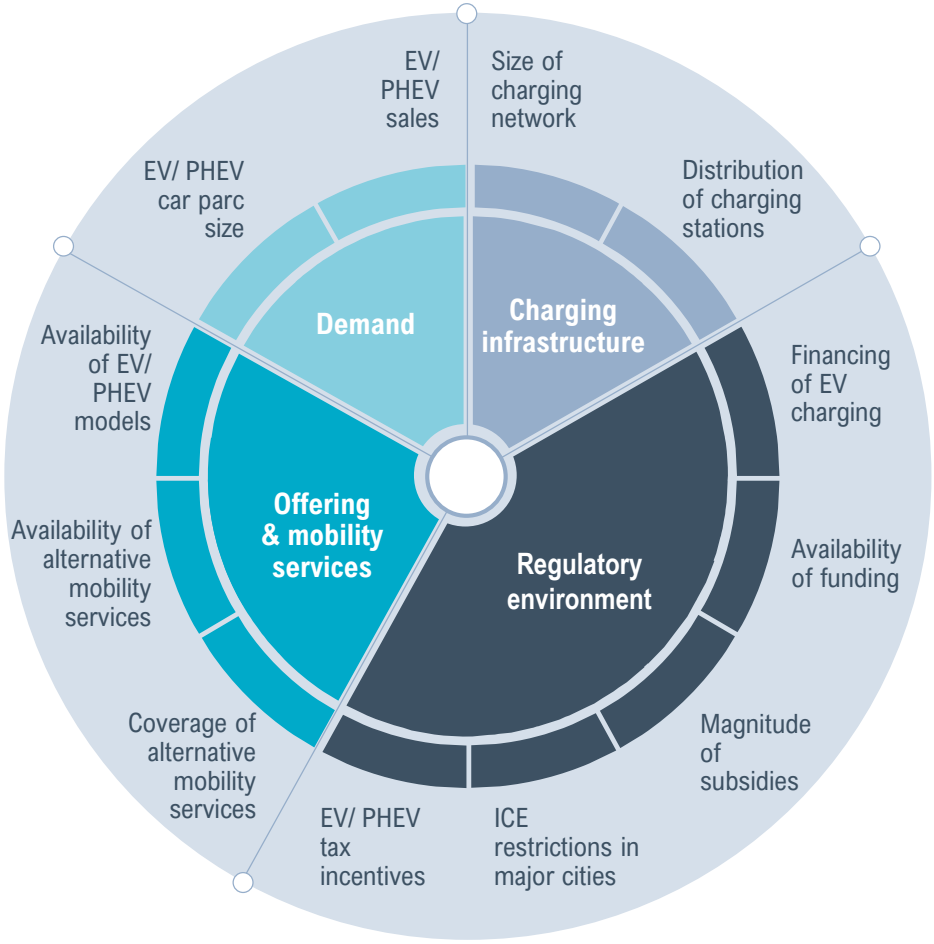
Renault Zoe | VW ID.3 | Skoda Citigo | Hyundai Kona | VW e-up!

1) Includes the extra allocation of EUR 12 m, which became available starting October 2020
2) Selection based on registration figures for 2020 H2 and expected future availability

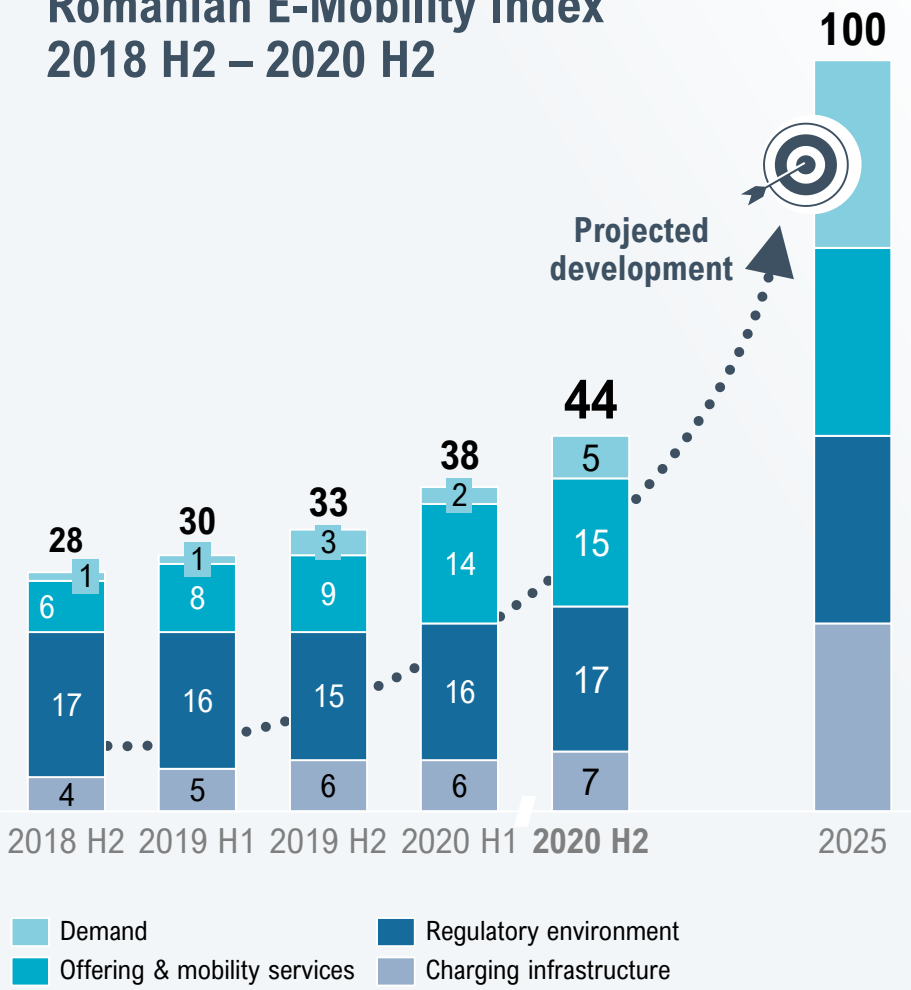
REI 4 stands at 44 at the end of 2020 H2

+6 points vs. 2020 H1

Key dimensions of the Romanian E-Mobility Index calculation



Romanian E-Mobility Index 2018 H2 – 2020 H2

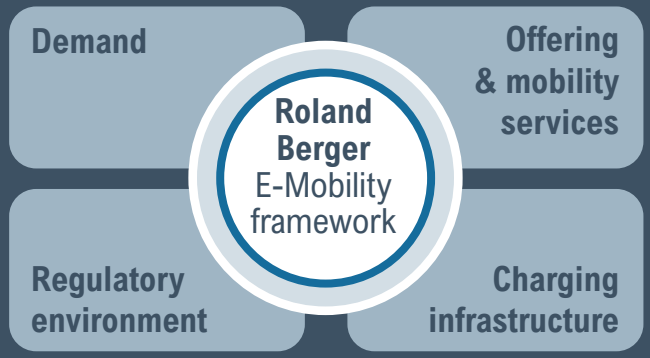


What is the Romanian E-Mobility Index?

The Romanian E-Mobility Index (REI) is a biannual Roland Berger analysis of the main e-mobility drivers within the Romanian market. It addresses stakeholders & decision makers across several key industries (e.g. energy/ utilities, automotive, retail, financial services, hospitality, real estate, etc.), as well as public authorities. REI includes figures & analyses grouped into four dimensions illustrated below.

Do people want electric vehicles and to what extent?

What are the regulatory conditions, in terms of both incentives for xEVs and constraints for internal combustion engines?



How developed is the local car offering and what mobility services can be accessed as an alternative?

How developed is the infrastructure for electric vehicles and what is the geographical/ sectorial spread?

The Romanian E-Mobility Index aims to answer key questions such as:

> What is the development status of e-mobility in Romania and how does this compare to more developed markets?
> Which factors are driving e-mobility developments and how do these factors evolve over time?
> How does the TCO of xEVs rate against vehicles powered by internal combustion engines?

Electric motor powertrains included in the study's analyses (referred to collectively as xEVs)

EVs (full electric vehicles)

Powertrain is fully electric and vehicle does not have an internal combustion engine; lower range than Plug-in hybrids, limited by the battery pack capacity

PHEVs (plug-in hybrid electric vehicles)

The electric motor uses batteries that can be recharged by connecting to an external power source; internal combustion engine engages in the case of increased acceleration or higher speeds

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For more insights into our Romanian E-Mobility Index figures and analyses please do not hesitate to contact us!

About us

Roland Berger, founded in 1967, is the **only leading global consultancy of German heritage** and **European origin.** With 2,400 employees working from 34 countries, we have successful operations in all major international markets. Our **50 offices** are located in the key global business hubs. The consultancy is an independent partnership owned exclusively by **250 Partners**.


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