



ELECTRIC VEHICLE

GLOBAL EV MARKET AT A GLANCE

Global EV market snapshot

Now on the world roads are:

20 mln.

passenger EVs

1.3 mln.

commercial EVs including buses,
delivery vans, and trucks

280 mln.

electric mopeds, scooters,
motorcycles, and three-wheelers

The market is set to grow significantly in upcoming decades.

Bloomberg forecasted that:

- By 2025 there will be 77 mln. passenger EVs on the road, representing 6% of the total cars fleet.
- The fleet of passenger electric vehicles will reach approx. 470-610 mln. in 2035.
- Electric vehicles will represent a aprox. **9 TLN. USD MARKET** opportunity between today and 2030, and approx. 53 tln. USD between today and 2050.

European* EV market snapshot

(*EU, U.K., Switzerland, Norway)

The European EV market is projected to reach USD 1,951.5 bln. by 2029 from an estimated USD 147.6 bln. in 2022.

During 11 months of 2022 2.2 mln. of new passenger EVs were sold in Europe which constitute about 22% of the total passenger cars sales volume:

- Battery Electric Vehicles – about 1.3 mln
- Plug-in Hybrid Electric Vehicles – about 0.9 mln

During 12 months of 2021 2.27 mln. of new passenger EVs were sold in Europe which constitute about 19% of the total passenger cars sales volume.

Ukraine, given its location, has potential to become a hub for automotive producers in their production and supply chains to meet the demand of European market

WHY UKRAINE?

Ukraine has a set of necessary prerequisites in place for location of EV production and to fulfilling European demand

Consumer market in reach

Approx. **1 bln.** ppl consumer market can be reached within 4 ths. km.

Critical raw materials

Industry critical raw materials (lithium, cobalt, nickel, etc.) are available in Ukraine.

Skilled and competitive labor force

- Ukraine is:
 - **21st** among 102 in the Coursera Global Skills Index 2022
 - **39th** out of 133 by Global Knowledge skills in the INSEAD Global Talent Competitiveness Index
- **90+** global players have located R&D facilities in Ukraine, which can be a further driver for innovations in E-transport industry

Ukraine's post war recovery provides for transport system electrification and significant internal demand

USD 35.5 bln. –

estimated value of the destroyed infrastructure

USD 2.7 bln. –

estimated value of the damages to vehicles

- The National Transport Strategy states the plan to increase the share of the EVs in Ukraine up to 75% by 2030.
- National Nuclear Energy Generating Company «Energoatom» plans to create a network of 120 fast charging stations in regional centers and on the main highways of the country by mid of 2024.

Ukraine has already set the ground for the e-transport market development having*

6

E-Mobility service providers

3,000+

EV charging stations

15+

charging station operators

7,700+

EV charging points / connectors

Ukraine has already proved itself as an efficient manufacturing partner for the world automotive players

Main auto parts producers working in Ukraine...



...for world-known brands of automakers...



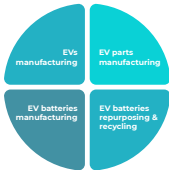
...supplemented by of Automotive IT solutions suppliers present in Ukraine





- CIT exemption programs
- VAT and customs duties exemptions for import of new equipment
- full or partial interest rates compensation on loans
- financing for arrangement of industrial parks

INVESTMENT OPPORTUNITIES



Potential **partnerships in manufacturing** between local Ukrainian players on existing premises with strategic investors bringing proven technologies



Improving cost efficiency via proximity to the European market, comparatively low operating costs, and government incentives



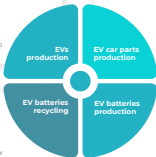
Availability of high-skilled **labor force experienced in automotive industry** (both production and IT) for strengthening of factories and R&D teams



Potential post-war **significant local market** for municipal and passenger EVs as well as alternative energy solutions (e.g. Used Batteries Energy Storage Systems)

Similar investment projects in Europe

- **EUR 0.2 bln.** - small EVs factory by Stellantis in Serbia
- **EUR 1.3 bln.** - EV factory by Volvo-Cars in Slovakia. Capacity: 250,000 all-electric vehicles per year
- **EUR 1.3 bln.** - "all-electric" vans factory by Mercedes-Benz Vans in Poland
- **USD 3.39 bln.** - EV production by SK Innovation in Hungary. Capacity: 430,000 items per year

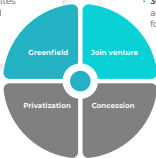


- **EUR 0.6 bln.** - EV components factory by SK Nexilis in Poland. Capacity: 137 tons per day and 50,000 tons per year
- **EUR 3.0 bln.** - EV components (precursor and cathode material production) factory by Umicore & Volkswagen Group in Germany. Capacity: cathode material and their precursors for 160 GWh cell capacity per year
- **EUR 1.6 bln.** - battery cell factory by SK Innovations in Hungary
- **EUR 7.3 bln.** - batteries factory by CATL in Hungary. Capacity: 100 GWh (gigawatt hours) plant.
- **EUR 2.0 bln.** - new-generation commercial vehicles and batteries plant by Ford Otosan in Turkey. Capacity: 210,000 new-generation commercial vehicles and 130,000 batteries per year.

- **USD 0.29 bln.** - EV battery recycling factory by Fortum in Finland
- **EUR 0.02 bln.** - EV battery recycling factory by Hydro and Northvolt in Norway

- **3,150+ ha** of sites for greenfield available

- **30+** companies in automotive cluster for potential JVs



2,000+ state owned companies for privatization

Ukrainian players – potential manufacturing partners

EUROCAR

- official Škoda cars manufacturer in Ukraine
- capacity: 80 ths. cars p.a.
- potential for capacity expansion



Cherkasy bus

- automobile and light duty motor vehicle manufacturing

megatek

- one of the largest manufacturers of high-quality grade-lead and lead alloys in Europe
- one of the leading manufacturers of lead-acid starter batteries in Europe

UNII

СКОРІА

- small, midsize, large, and oversize buses of various specialization (tourist, intercity, suburban, city etc.)



- the only full-cycle automobile manufacturer in Ukraine
- capacity: 180 ths. p.a.
- member of UroVo Group

SADA

- producer of starter batteries for automobile, agriculture and special-purpose vehicles
- capacity: 250 ths. p.a.



WESTA

- producer of SLI lead-acid batteries
- 2 plants: "Westa-Dnepr" and "Westa Industrial"
- capacity: 21 ths. daily / 7.6 mln. p.a.

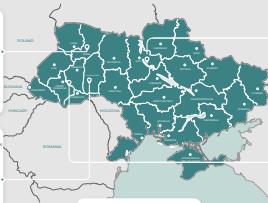
KRAZ

- producer of trucks and spare parts, trailers and semi-trailers
- lineup includes 33 base models, about 350 versions and over 1,500 configurations of two-, three- and four-axle conventional and cabover trucks

Ista

- producer of starter batteries
- capacity: 0.3 mln. p.a.
- 80% of products are being exported to the Western and Central Europe

Potential location: key facts



Region: Rivne industrial park
 Name: Rivne region
 Area: 105 hectares
 Ownership: municipal

Industrial park

Utilities: Electricity
 Water
 Gas

Distance to key destinations:
 to Rivne – 10 km
 to EU border – 200 km
 to railways – 2 km

Region: E40 Industrial Park
 Name: Kyiv region
 Area: 49 hectares
 Ownership: private

Industrial park

Utilities: Electricity
 Water
 Gas

Distance to key destinations:
 to Kyiv – 30 km
 to EU border – 400 km
 to railways – 42 km

Region: Khmelnytskyi region
 Name: Khmelnytskyi industrial park
 Area: 91 hectares
 Ownership: municipal

Industrial park

Utilities: Electricity
 Water
 Gas

Distance to key destinations:
 to Khmelnytskyi – 0 km
 to EU border – 400 km
 to railway – up to 2 km

Region: IZORA industrial park
 Name: Ivano-Frankivsk region
 Area: 53 hectares
 Ownership: private

Industrial park

Utilities: Electricity
 Water
 Gas

Distance to key destinations:
 to Chernivtsi – 70 km
 to EU border – 120 km
 to railways – 1 km

available
 in the process of construction/design works

S. Korea Blue-Chip Automotive players

Automakers



Battery makers



Parts manufacturers for automakers

