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# POLAND DRIVES E-MOBILITY

WARSAW 2021

IOŚ-PIB
Institute of Environmental Protection
National Research Institute

National Centre
for Climate Change
Institute of Environmental Protection
National Research Institute

COOPERATION

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Dear Readers,

This year has brought many key decisions for the sector – also in Poland. Foreign investments in electromobility are growing significantly – maintaining this trend requires qualified employees and domestic R&D. Our country ranks third in the European Union in terms of employment in the automotive sector.

Electric cars are gaining recognition among buyers all over the world. We run programs for subsidizing the purchase of electric vehicles, moreover – work has commenced on the construction of the IZERA Polish electric car factory. Positive signals also come from the sector of zero-emission buses production – Poland is the largest exporter of this type of vehicles in the EU. We are also strengthening our dominance in the area of battery production.

However, it is worth remembering about future challenges. One of the most important is the issue of ensuring adequate professionals to develop the Polish e-mobility sector.

**Michał Kurtyka**

Former Minister of Climate and Environment,
Republic of Poland

# 1 POLISH AUTOMOTIVE SECTOR IN NUMBERS

**The automotive branch is one of the key engines driving the Polish economy**

## EUR 87.6 billion

Turnover of the sector


Share in the industrial production


Share in the investment outlays in the industrial sector

## 397,000

Total sector employment

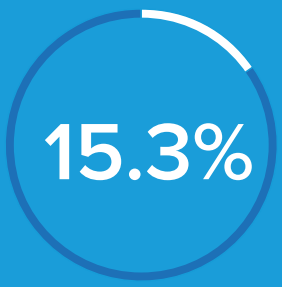
→ 3rd place in the European Union

## 210,000

Employment in manufacture of motor vehicles, trailers and semi-trailers

→ 7.6% share in total industry employment

Sources of data: Quarterly report of PZPM and KPMG "Automotive industry" Edition Q4 / 2021, „How will e-mobility change the Polish labour market? Green sectors of the future" by PSPA and BCG, AutomotiveSuppliers.pl, IBRM Samar, KPMG, Polish Investment and Trade Agency (PFR Group), GUS, Eurostat



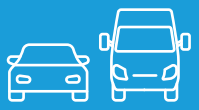

Share in total exports of goods

**EUR 28 billion**

Value of export

**342**

Number of companies operating in the sector



**402,560**

Number of new passenger and delivery cars registered in Q1-Q3 2021

**PRODUCTION IN Q1-Q3 2021:**

**176,500**

Passenger cars

→ 3rd place in the CEE region

**120,700**

Utility cars

**3,490**

Buses

Sources of data: Quarterly report of PZPM and KPMG "Automotive industry" Edition Q4 / 2021, „How will e-mobility change the Polish labour market? Green sectors of the future" by PSPA and BCG, AutomotiveSuppliers.pl, IBRM Samar, KPMG, Polish Investment and Trade Agency (PFR Group), GUS, Eurostat

# 2 MADE IN POLAND – AUTOMOTIVE SECTOR

## BUS PRODUCTION FACILITIES

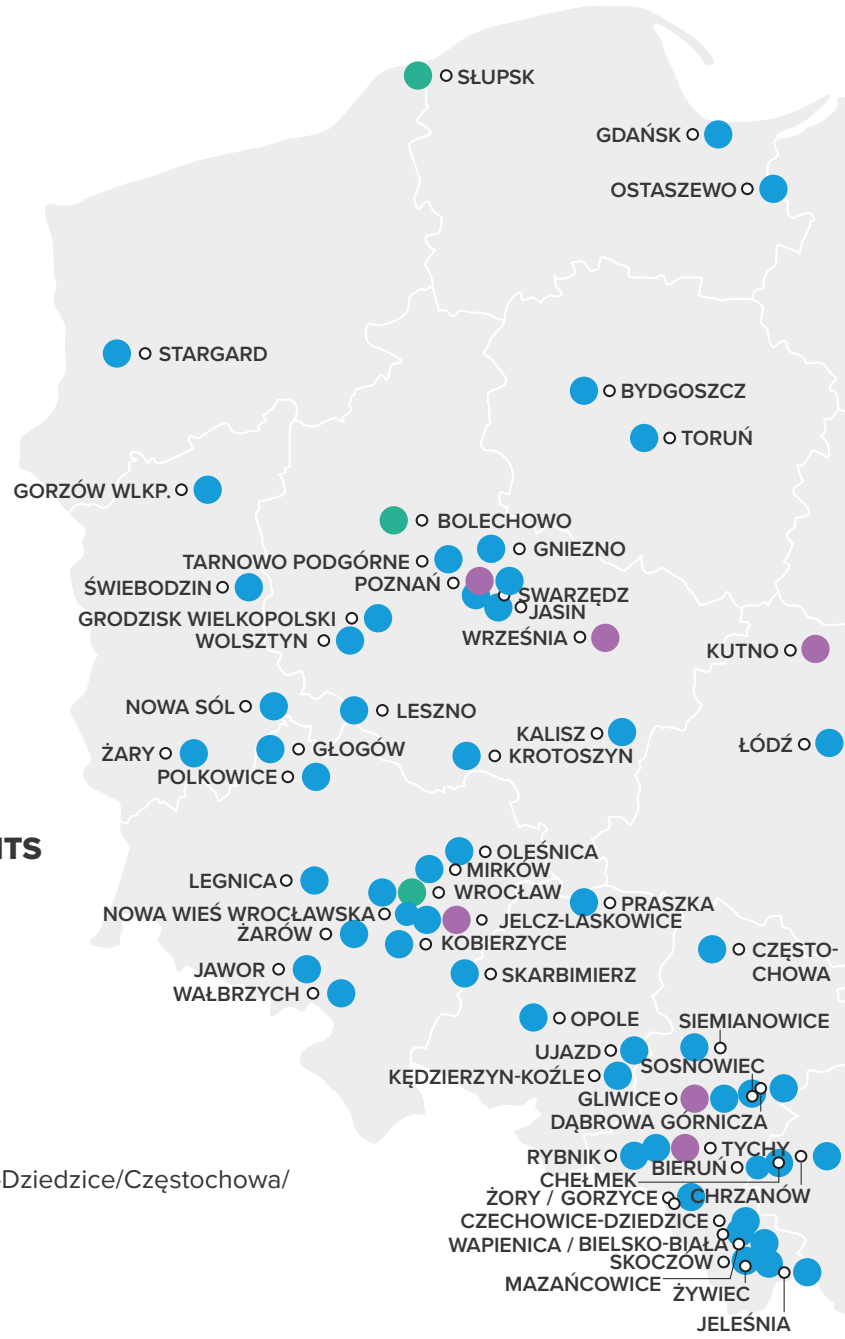
**Solaris** – Bolechowo
**Volvo Buses** – Wrocław
**MAN Bus** – Starachowice
**Autosan** – Sanok
**Scania** – Słupsk

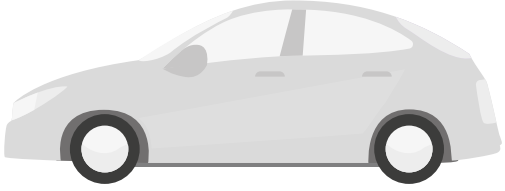
## CAR PRODUCTION FACILITIES

**Stellantis** – Tychy
**Volkswagen** – Poznań
**Volkswagen** – Września
**Opel** – Gliwice
**MAN** – Niepołomice
**Triggo** – Warszawa
**Melex** – Mielec
**AMZ-Kutno** – Kutno
**Automet** – Sanok
**Jelcz** – Jelcz-Laskowice

## SELECTED AUTOMOTIVE COMPONENTS PRODUCTION FACILITIES

**Mercedes-Benz** – Jawor
**Stellantis** – Bielsko-Biała
**Opel** – Tychy
**Toyota** – Wałbrzych/Jelcz-Laskowice
**Volkswagen** – Poznań/Polkowice
**Inter Groclin Auto** – Grodzisk Wielkopolski
**ZF Friedrichshafen** – Bielsko-Biała/Czechowice-Dziedzice/Częstochowa/ Gliwice/Wrocław
**Ronal Group** – Wałbrzych/Jelcz-Laskowice
**Michelin** – Olsztyn
**Bridgestone** – Poznań/Stargard/Wolsztyn/Żarów
**Goodyear** – Dębica
**Kirchoff Automotive** – Gliwice/Mielec/Gniezno
**Magna** – Dąbrowa Górnicza/Kędzierzyn-Koźle/Tychy/ Swarzędz
**Valeo** – Skawina/Zielonki/Chrzanów/Czechowice-Dziedzice
**Lear Corporation** – Tychy/Jarosław/Legnica/Bieruń/Mielec
**Boryszew Group** – Tychy/Chełmek/Toruń/Ostaszewo



## Active investment projects

| | |
|---|---|
| Number | **18** |
| Value | **EUR 0.464 billion** |
| Employment | **approx. 2,730** |

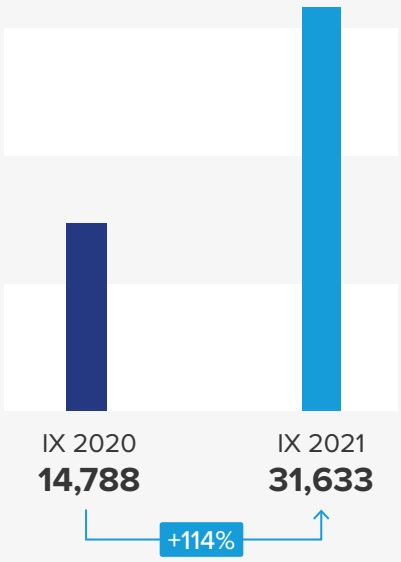
Source of data: PAIH


## SELECTED AUTOMOTIVE COMPONENTS PRODUCTION FACILITIES (cont.)

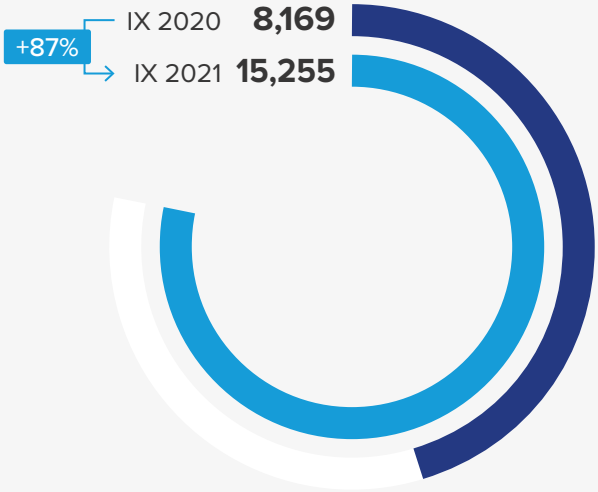
**CK Holdings (Magneti Marelli)** – Sosnowiec/Bielsko-Biała
**Brembo** – Dąbrowa Górnicza/Częstochowa
**Hutchison** – Żywiec/Łódź/Dębica
**Autopart S.A.** – Mielec
**ZAP Sznajder Batterien S.A. w Warszawie** – Piastów
**Pilkington Automotive Poland** – Sandomierz/Chmielów
**Saint-Gobain Innovative Materials Polska** – Żary/Dąbrowa Górnicza
**Knauf Industries** – Nowa Wieś Wrocławska
**Wirthwein Polska** – Łódź
**AC S.A.** – Białystok
**BorgWarner** – Jasionka
**Federal-Mogul** – Gorzyce
**Bosch** – Mirków
**Denso** – Tychy
**Bury Technologies** – Mielec
**MA Polska** – Tychy, Kielce
**Aptiv** – Gdańsk, Jeleśnia
**Delphi Technologies** – Błonie
**Exide Technologies** – Poznań
**Faurecia** – Grójec/Gorzów Wlkp./Legnica/Wałbrzych/Jelcz-Laskowice
**Gedia** – Nowa Sól
**Sanok Rubber Company** – Sanok
**Nexteer** – Tychy/Gliwice
**Kuźnia Polska** – Skoczów
**Global Steering Systems** – Opole
**Tru-Flex** – Ujazd
**Adient** – Siemianowice/Żory/Skarbimierz/Świebodzin/Bieruń
**Kimball Electronics** – Tarnowo Podgórne
**Leoni** – Kobierzyce
**Mahle** – Krotoszyn
**Polmotors** – Mazańcowice
**GKN Driveline** – Oleśnica
**NGK** – Gliwice/Dąbrowa Górnicza
**Autoliv** – Jelcz-Laskowice
**NSK** – Kielce/Wałbrzych
**Pro-Cars Group** – Tychy
**SE Bordnetze** – Gorzów Wlkp.
**Sitech** – Polkowice/Głogów/Września
**Spinko** – Leszno
**Tenneco** – Poznań/Rybnik/Gliwice
**Neapco** – Praszka
**Sumiriko** – Wolbrom/Zagórz/Sosonowiec
**Teknia** – Kalisz/Rzeszów
**Gestamp** – Wrocław/Września
**TI Poland** – Wapienica/Wyszków/Jasin/Bielsko-Biała
**Superior Industries Poland** – Stalowa Wola
**Erko** – Olsztyn (under construction)
**Harting** – Bydgoszcz

# 3 POLISH ELECTROMOBILITY IN NUMBERS

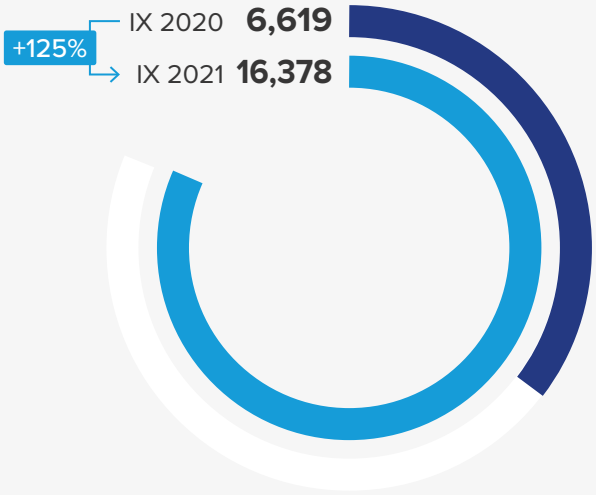
## NUMBER OF ELECTRIC PASSENGER CARS (BEV + PHEV)



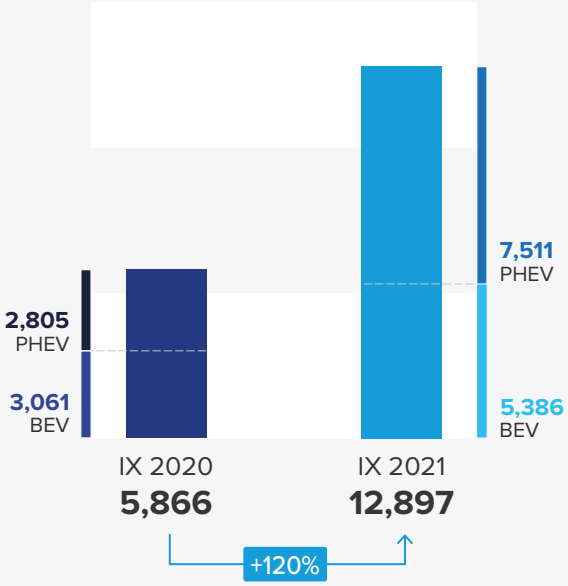

## NUMBER OF PASSENGER BEVs




## NUMBER OF PASSENGER PHEVs

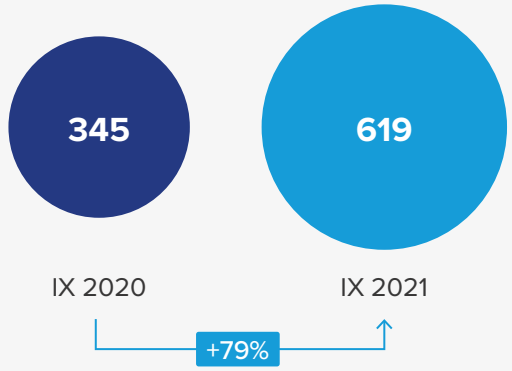



## NUMBER OF NEWLY REGISTERED PASSENGER CARS (NEW AND USED)

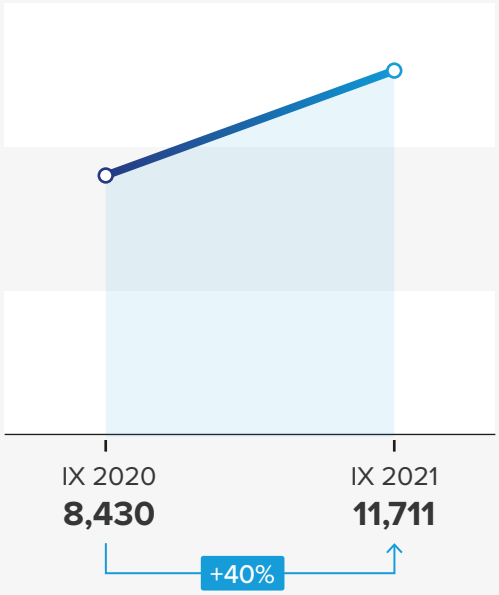



Source of data: E-Mobility Index by PSPA and PZPM

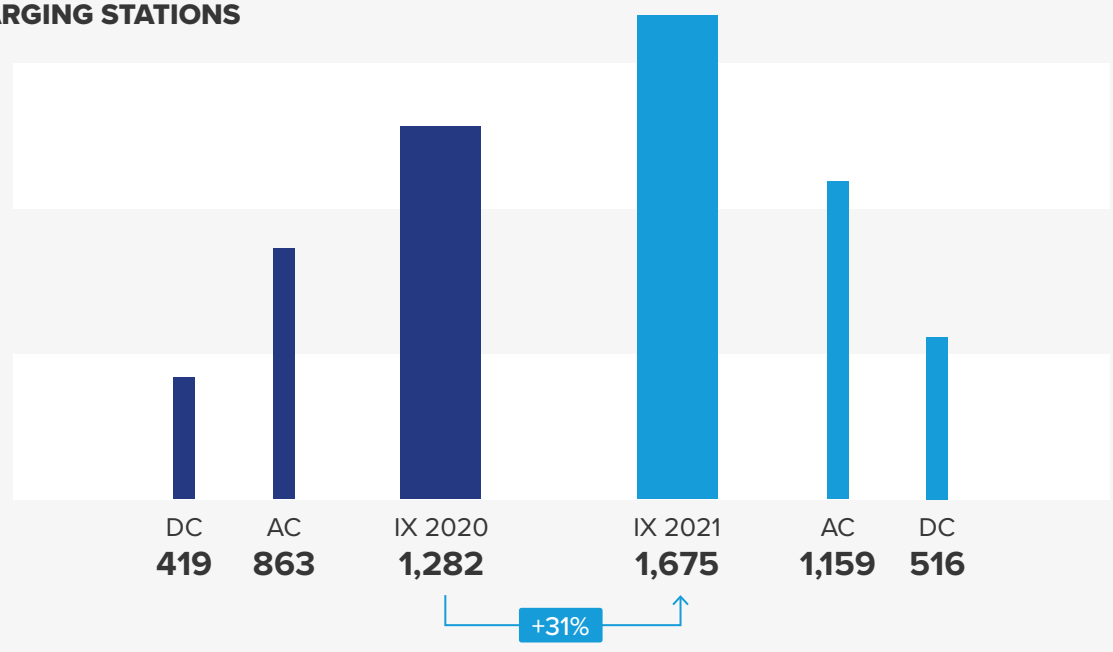
## NUMBER OF ELECTRIC BUSES




## NUMBER OF ELECTRIC MOTORCYCLES AND MOPEDS




## NUMBER OF PUBLIC CHARGING STATIONS




Source of data: E-Mobility Index by PSPA and PZPM

# 4 MADE IN POLAND – ELECTROMOBILITY

## E-BUS PRODUCTION FACILITIES

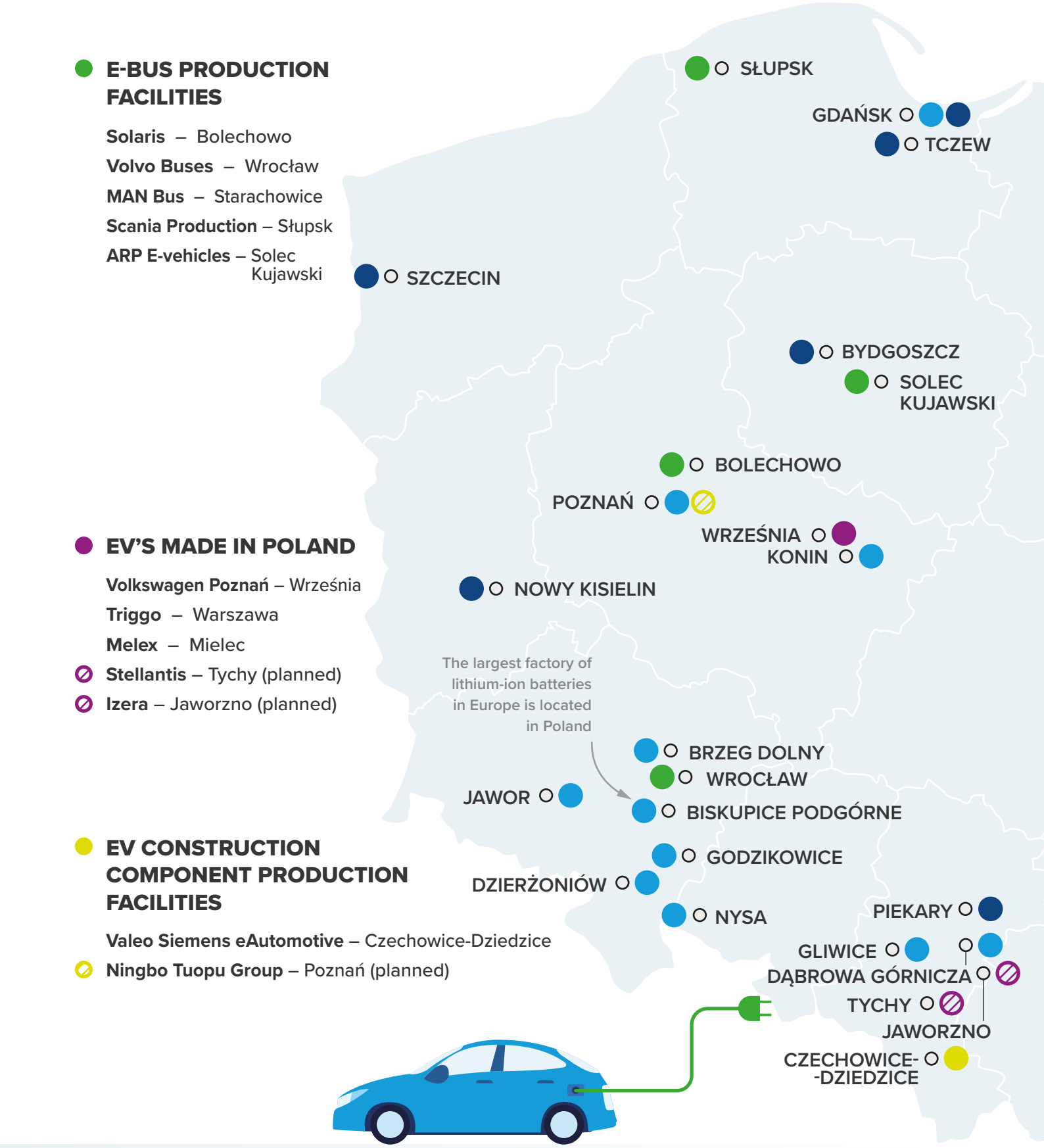
**Solaris** – Bolechowo
**Volvo Buses** – Wrocław
**MAN Bus** – Starachowice
**Scania Production** – Słupsk
**ARP E-vehicles** – Solec Kujawski

## EV'S MADE IN POLAND

**Volkswagen Poznań** – Września
**Triggo** – Warszawa
**Melex** – Mielec
**Stellantis** – Tychy (planned)
**Izera** – Jaworzno (planned)

## EV CONSTRUCTION COMPONENT PRODUCTION FACILITIES

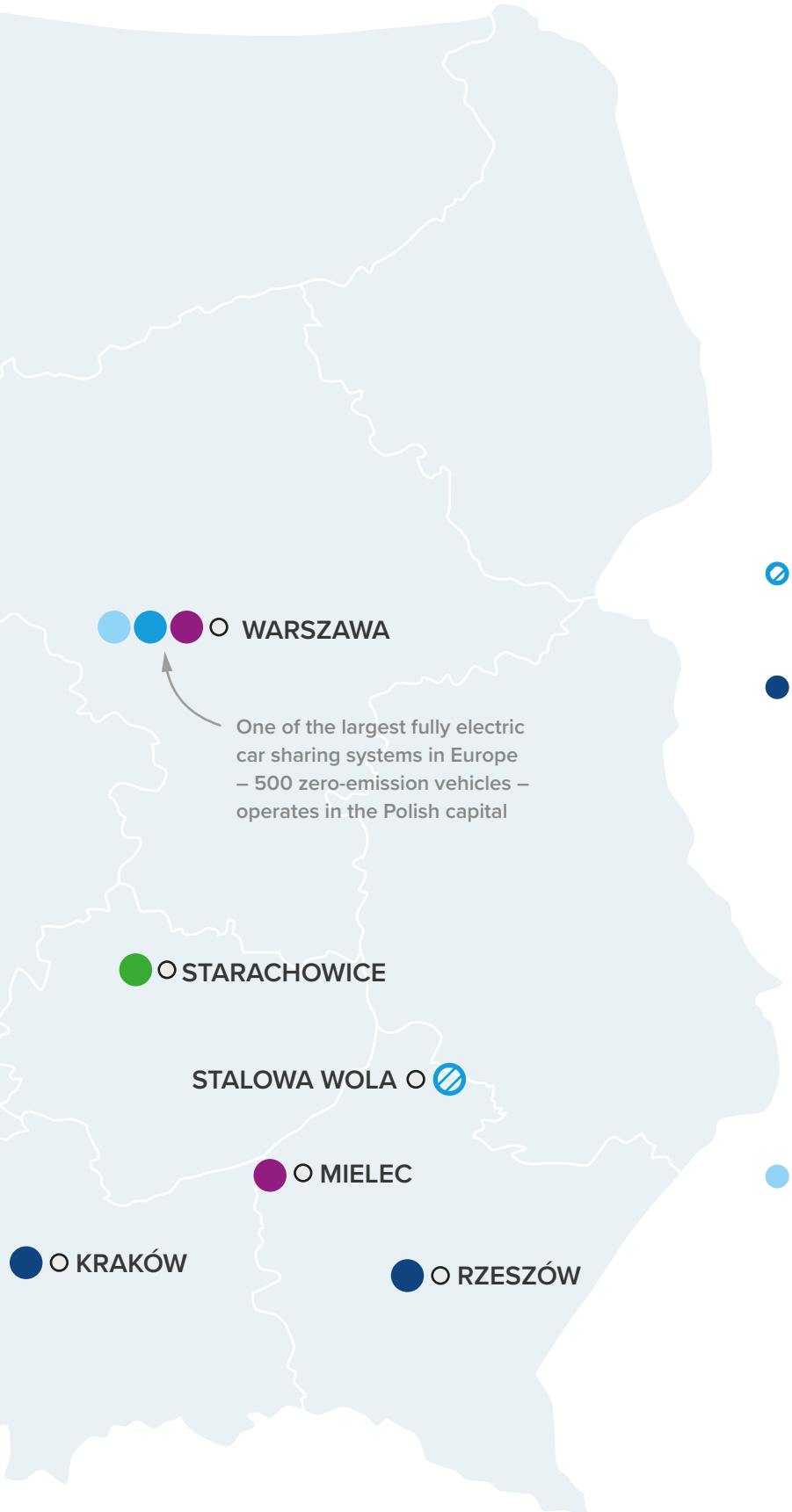
**Valeo Siemens eAutomotive** – Czechowice-Dziedzice
**Ningbo Tuopu Group** – Poznań (planned)



## Active investment projects

| | |
|---|---|
| Number | **17** |
| Value | **EUR 4.513 billion** |
| Employment | **approx. 16,170** |

Source of data: PAIH




### CELLS, LITHIUM-ION BATTERIES AND BATTERY COMPONENTS FACILITIES

**LG Energy Solution** – Biskupice Podgórne
**Northvolt** – Gdańsk
**Daimler** – Jawor
**BMZ** – Gliwice
**Umicore** – Nysa
**Guotai Huarong** – Godzikowice
**LS EV Poland** – Dzierżoniów
**Impact Clean Power Technology** – Warszawa
**Johnson Matthey** – Konin
**Capchem** – Godzikowice
**PCC Rokita i Shida** – Brzeg Dolny
**SK IE Technology** – Dąbrowa Górnicza
**Exide Technologies** – Poznań
**SK Nexilis** – Stalowa Wola (planned)

### EV CHARGING STATIONS PRODUCTION FACILITES

**Garo Polska** – Szczecin
**Ekoenergetyka-Polska** – Nowy Kisielin (near Zielona Góra)
**Enelion** – Gdańsk
**PRE Edward Biel** – Piekary
**Kolejowe Zakłady Łączności** – Bydgoszcz
**ABB** – Kraków, Tczew
**EC Enginneering** – Kraków
**Phoenix Contact E-Mobility** – Rzeszów

### EV POWERTRAIN COMPONENT PRODUCTION FACILITIES

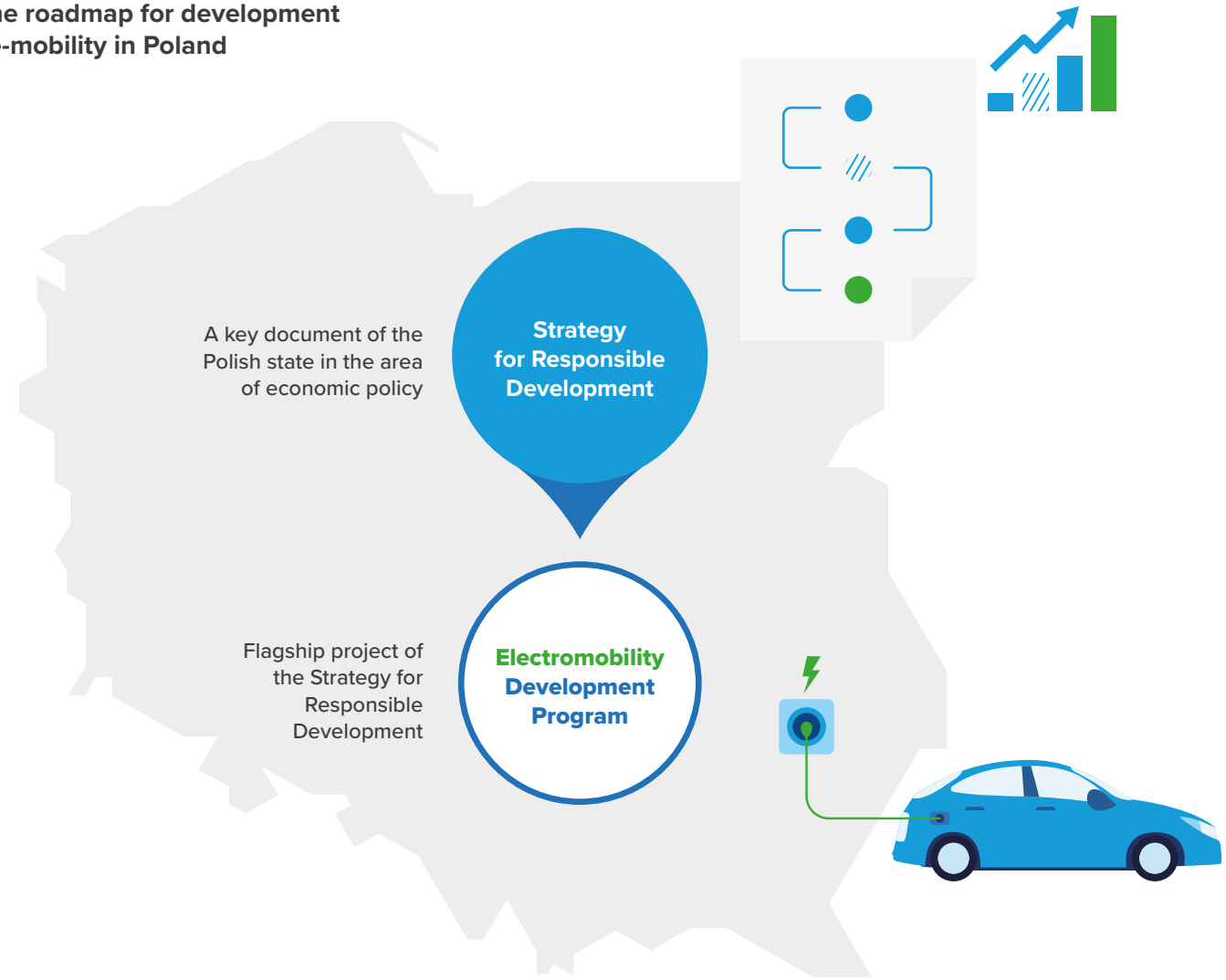
**MEDCOM** – Warszawa

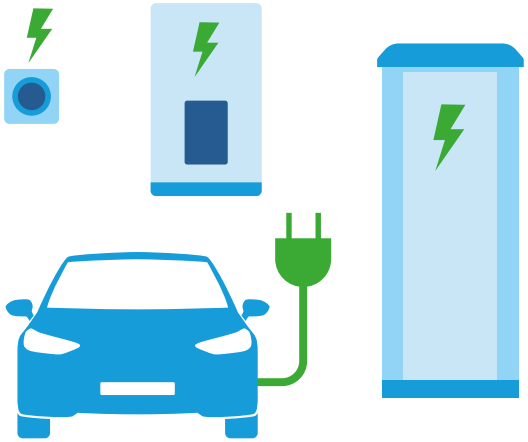
Status as of November 2021

# 5 POLAND'S STUNNING E-MOBILITY PLANS

## Leading to the e-mobility transition

**– the roadmap for development of e-mobility in Poland**



## Effects of the Electromobility Development Program

Electromobility Development Program

Adopted documents and legal regulations:

### Electromobility Development Plan in Poland

Adopted by the government on
**16/03/2017**

It defines the benefits associated with the widespread use of electric vehicles and identifies the economic and industrial potential of this area

### National framework for alternative fuels infrastructure development policy

Adopted by the government on
**29/03/2017**

They implement European regulations into the Polish legal order (Directive 2014/94/EU of the European Parliament and of the Council)

### Act on Electromobility and Alternative Fuels

It came into force on
**22/02/2018**

It creates a comprehensive legal framework by stimulating the development of e-mobility and promoting the use of alternative fuels in the transport sector in Poland

### Electromobility financial support system

It came into force in
**2021**

It creates financing instruments for the development of e-mobility by i.e. introducing subsidies for the purchase of electric cars and charging infrastructure

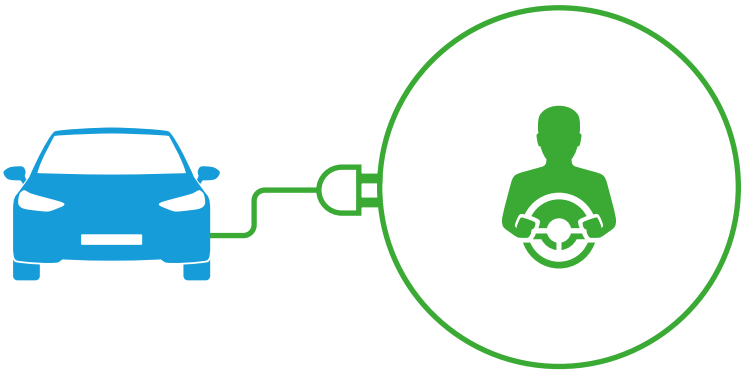
# 6 POLAND'S UNIQUE E-MOBILITY LAW

## Act on Electromobility and Alternative Fuels

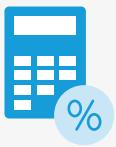
**Date of entry into force: 22/02/2018**

### Privileges for drivers

Statutory incentives for purchasing zero-emission vehicles



Exemption from excise duty




Tax privileges for electric vehicle users – PIT/CIT


Possibility of electric vehicles using bus lanes


Possibility of parking EVs free-of-charge in paid zones in city centres


Unlimited entry of electric vehicles to Clean Transport Zones

Exemption of zero-emission buses from tolls on national roads

**Amendments to the law regarding e-mobility in 2021** (selected regulations):

- → Facilitating the installation of chargers in multi-family buildings
- → Facilitating the implementation of Clean Transport Zones
- → Introducing the obligation to provide energy infrastructure in buildings and connection capacity for charging stations
- → Acceleration of the installation of high-power charging stations

# Obligations of public entities

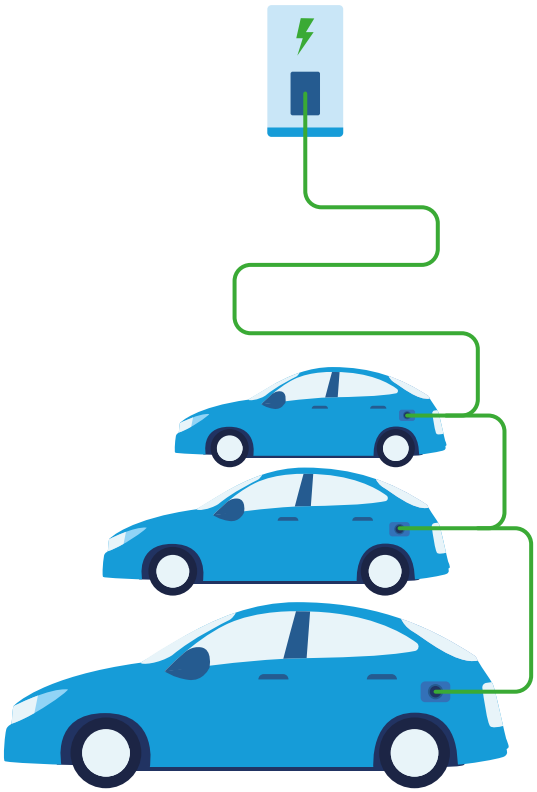
The administration statutorily supports the development of ecological transport

**CENTRAL AUTHORITIES**

**LOCAL GOVERNMENT UNITS**
OVER 50,000 RESIDENTS

**In the fleet of general and central state administration bodies, fully electric vehicles must constitute:**

| AS OF 01/01/2022 | AS OF 01/01/2023 | AS OF 01/01/2025 |
|---|---|---|
| At least | At least | At least |
| 10% | 20% | 50% |



**The share of fully electric vehicles in the fleet of vehicles in use in the office must constitute:**

| AS OF 01/01/2022 | AS OF 01/01/2025 |
|---|---|
| At least | At least |
| 10% | 30% |

**The share of fully electric vehicles or vehicles powered by CNG and LNG in the performance of public tasks, excluding public collective transport, must constitute:**

| AS OF 01/01/2022 | AS OF 01/01/2025 |
|---|---|
| At least | At least |
| 10% | 30% |

**They provide or commission public transport services using zero-emission buses in the number of:**

| AS OF 01/01/2021 | AS OF 01/01/2023 | AS OF 01/01/2025 | AS OF 01/01/2028 |
|---|---|---|---|
| At least | At least | At least | At least |
| 5% | 10% | 20% | 30% |

# 7 ELECTROMOBILITY FINANCIAL SUPPORT SYSTEM

## Programs of National Fund for Environmental Protection and Water Management

PROGRAM

### My EV (Mój Elektryk)

**BUDGET**

**700,000,000 PLN**

#### Subsidies for natural persons

| Financing | Budget |
|---|---|
| **Purchase** | **PLN 100,000,000** |

| Vehicle Category | Type |
|---|---|
| **M1** | **Zero-emission** |

Max. vehicle price

**PLN 225,000 / No limit** (for the Large Family Card holders)

Max. amount of the subsidy

**PLN 18,750 / PLN 27,000** (for the Large Family Card holders)

#### Subsidies for entrepreneurs, local governments and other institutional entities

| Financing | Budget |
|---|---|
| **Purchase / Leasing / Rent** | **PLN 600,000,000** |

| Vehicle Category | Type |
|---|---|
| **M1** | **Zero-emission** |

Max. vehicle price

**PLN 225,000**

Max. amount of the subsidy

**PLN 18,750** (no average annual mileage required) **/ PLN 27,000** (for annual average milage higher than 15,000 km)

| Vehicle Category | Type |
|---|---|
| **N1, M2, M3** | **Zero-emission** |

Max. amount of the subsidy

**PLN 50,000** (up to 20% of eligible costs, no average annual mileage required) **/**
**PLN 70,000** (up to 30% of eligible costs, for annual average milage higher than 20,000 km)

| Vehicle Category | Type |
|---|---|
| **L1e-L7e** | **Zero-emission** |

Max. amount of the subsidy

**PLN 4,000** (up to 30% of eligible costs)

PROGRAM

## Green Public Transport

(Zielony Transport Publiczny)

**BUDGET**

**2,500,000,000 PLN**

Maximum level of support

**Electric bus – 80%** of eligible costs

**Hydrogen bus – 90%** of eligible costs

**Trolleybus – 80%** of eligible costs

**Infrastructure – 50%** of eligible costs

**100%** of eligible cost in the case of returnable forms of support

Beneficiaries

**Operators and organizers of public collective transport, including local government units**

Duration

**2035** (expenses)

PROGRAM

## Support for electric vehicle charging infrastructure and hydrogen refueling infrastructure

(Wsparcie infrastruktury do ładowania pojazdów elektrycznych i infrastruktury do tankowania wodoru)

**BUDGET**

**870,000,000 PLN**

Beneficiaries

**Local government units, entrepreneurs, cooperatives, housing communities, individual farmers**

Duration

**2038**

PROGRAM

## My Electricity

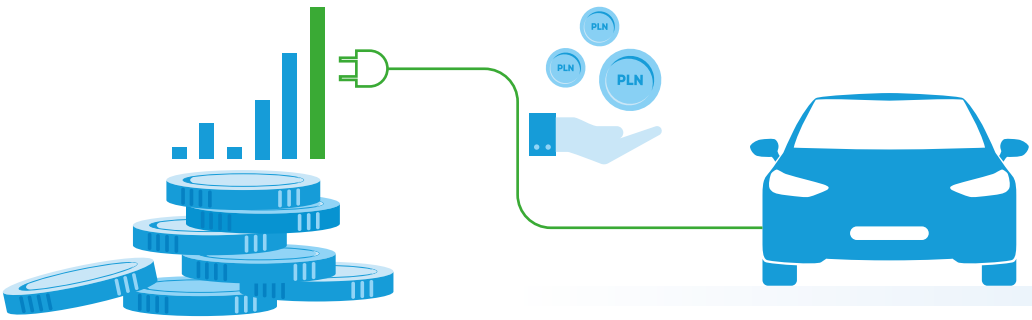
(Mój Prąd)

**Support for private electric vehicle charging infrastructure**

Planned launch date

**The program is under preparation**

**Q1 2022**

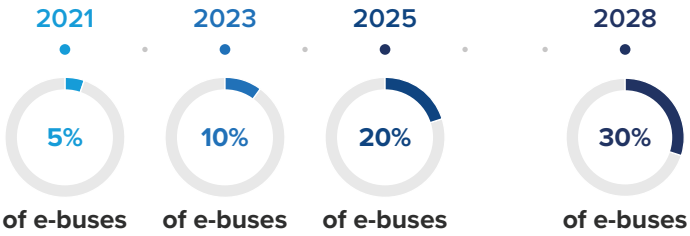


# 8 POLISH SPECIALIZATION – ELECTRIC BUSES

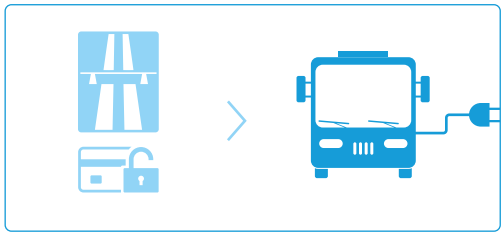
## LEGISLATIVE SUPPORT

### Act on Electromobility and Alternative Fuels

→ Imposes obligations in the field of rolling stock electrification on Polish local governments:




→ Introduces the exemption of zero-emission buses from tolls on national roads



## FINANCIAL SUPPORT

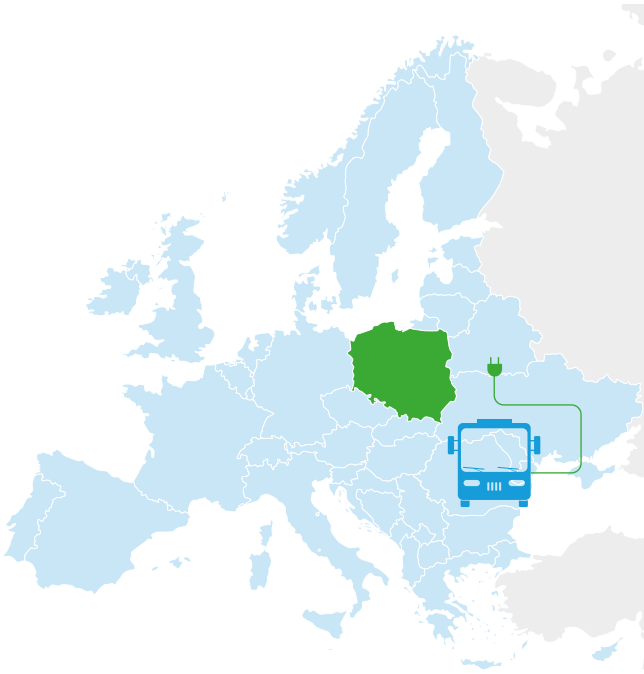
### Program of National Fund for Environmental Protection and Water Management

→ **Green Public Transport**
**2,000,000,000 PLN** to finance the purchase of electric and hydrogen city buses

### European Funds

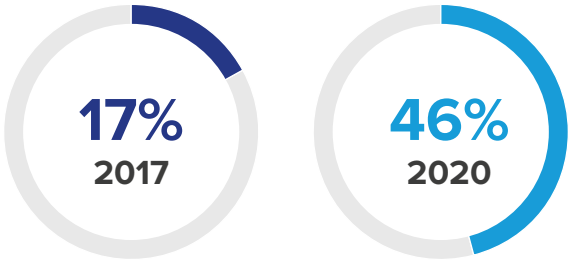
→ **Regional Operational Programs**
→ **Operational Program Eastern Poland**
→ **The Infrastructure and Environment Program**

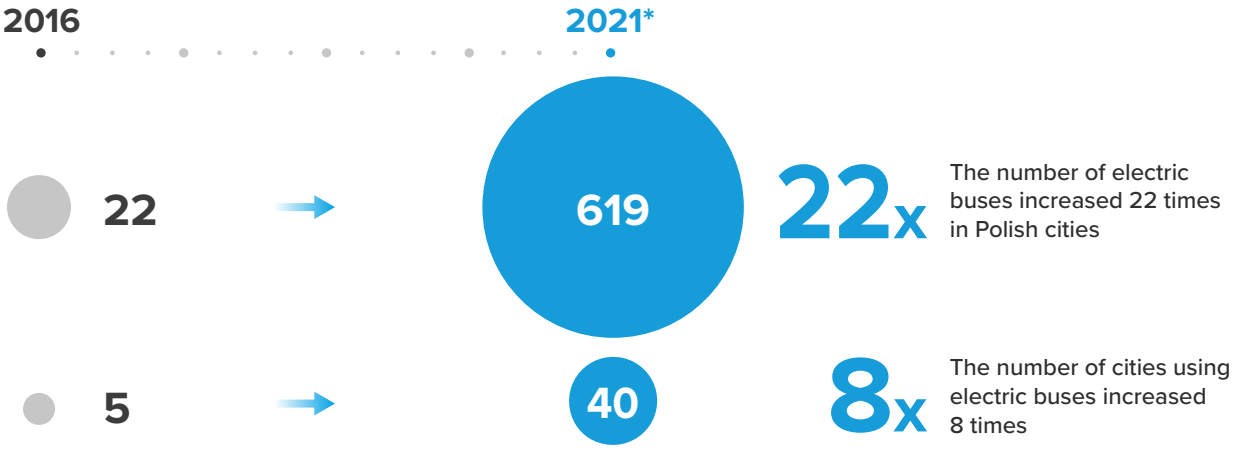
# Polish electric bus market



## No 1

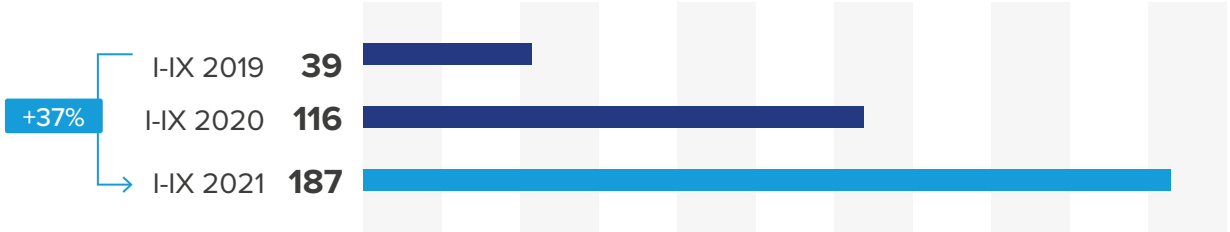
**Poland's share in the export of electric buses in the EU**




* Status as of September 2021

## Increase in the number of registrations of electric buses in Poland




Sources of data: E-Mobility Index by PSPA and PZPM, sustainable-bus.com, PSPA, Polish Economic Institute

# 9 POLISH SPECIALIZATION – CHARGING INFRASTRUCTURE

## LEGISLATIVE SUPPORT

› **Act on Electromobility and Alternative Fuels**

**MINIMUM NUMBER OF CHARGING POINTS AT PUBLIC CHARGING STATIONS IN POLISH COMMUNES**

Until 31/03/2021

| | | | | |
|---|---|---|---|---|
| Number of residents | > 1,000,000 | > 300,000 | > 150,000 | > 100,000 |
| Number of vehicles | ≥ 600,000 | ≥ 200,000 | ≥ 95,000 | ≥ 60,000 |
| Number of vehicles per 1,000 residents | ≥ 700 | ≥ 500 | ≥ 400 | ≥ 400 |
| Number of charging points | 1,000 | 210 | 100 | 60 |

## FINANCIAL SUPPORT

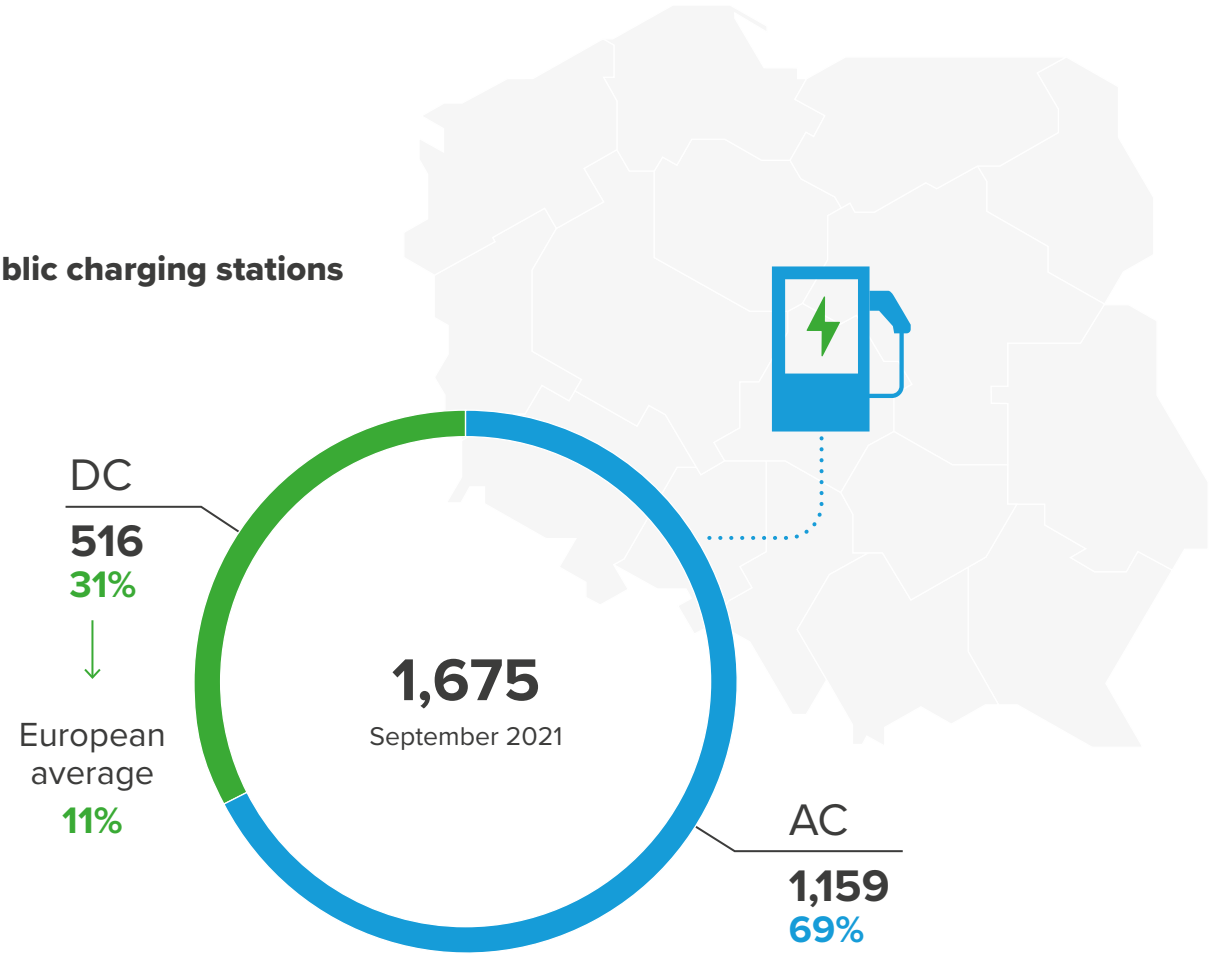
› **Programs of National Fund for Environmental Protection and Water Management**

→ **Support for electric vehicle charging infrastructure and hydrogen refueling infrastructure** – public and private charging infrastructure

→ **Green Public Transport** – public transport charging infrastructure

→ **My electricity** – private charging infrastructure

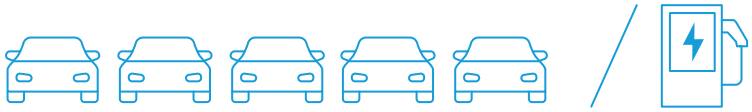
## Number of public charging stations




## Number of passenger electric cars (BEV) per public charging point

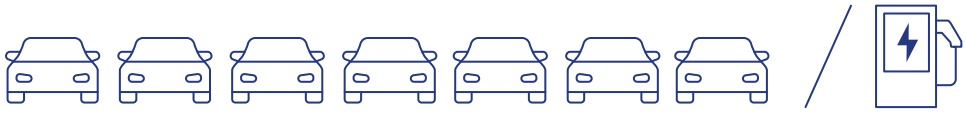
**Poland**

ca. **5**



European average

ca. **7**



# 10 POLISH SPECIALIZATION – LI-ION BATTERIES

## Poland's place in lithium-ion battery supply chain rank

(manufacturing capacity of electrolyte salts and solutions, anodes, cathodes, separators and cells)*

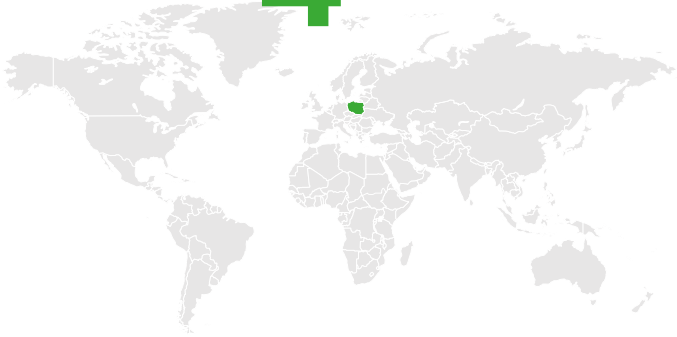
**2020/2025**

EUROPE

**1st**

WORLD

**4th**



## Poland – European center of li-ion batteries production

**Strategically located**

**Great base of qualified workers**

**Favourable conditions for business**

**State's support for investors**

* Source: BloombergNEF

## Companies from the battery sector investing in Poland


## LG Energy Solution*

- **Lithium-ion batteries for electric cars**
  - → The largest plant producing li-ion batteries in Europe
  - → One of the largest plant producing li-ion batteries in the world
  - → The largest foreign investment in Poland
- **Location**: Biskupice Podgórne
- **Year of commencement**: 2017
- **Target annual capacity**: > 35 GWh (up to 65 GWh)
  - → Enough to supply 500,000 electric cars with li-ion batteries each year
- **Total employment**: > 6,000 (by 2022)

**Umicore** | Nysa
- Cathodes for lithium-ion batteries

**Johnson Matthey** | Konin
- Lithium-nickel oxide (eNLO)

**Guotai Huarong** | Godzikowice
- Electrolyte for lithium-ion batteries

**Capchem** | Godzikowice
- Electrolyte for lithium-ion batteries

**SK Innovation** | Dąbrowa Górnicza
- Separators for lithium-ion electric vehicle batteries

**Daimler** | Jawor
- High voltage batteries for electric cars from the EQ line

**LS EV Poland** | Dzierżoniów
- Electronic components for electric vehicle batteries

**Impact Clean Power Technology** | Warszawa
- Battery systems for electric vehicles

**Northvolt** | Gdańsk
- Battery modules

**BMZ** | Gliwice
- Batteries for buses, scooters and electric bicycles

**PCC Rokita i Shida** | Brzeg Dolny
- Organic carbonates for electric vehicle batteries

**Exide Technologies** | Poznań
- Battery solutions

**SK Nexilis** | Stalowa Wola
- Copper foil for lithium-ion batteries

* Sources of data: eib.org, PSPA

# 11 IZERA – POLISH ELECTRIC CAR

## Project goals

Increased importance and innovation of Polish companies from the automotive industry

Employment creation

Acceleration of the development of electromobility in Poland

Intensified integration between the science and industry sectors

## Made in Poland

- Up to **70%** of interior
- Up to **80%** of body
- Up to **30%** of powertrain components

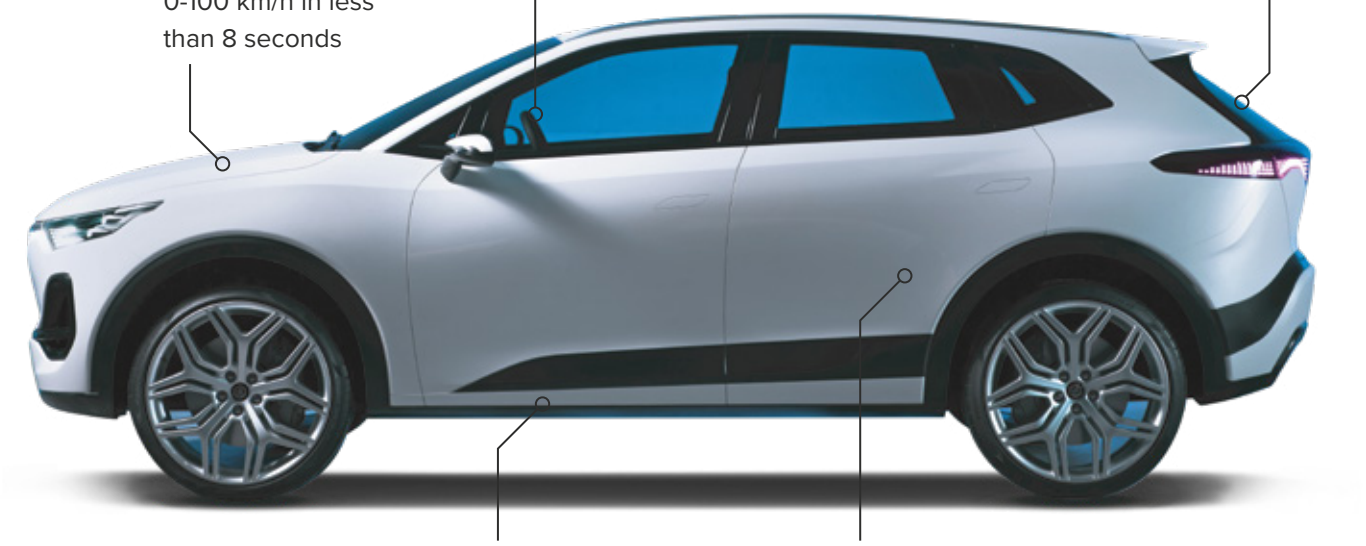
Photo source: izera.pl

# Main features

**Acceleration**
0-100 km/h in less than 8 seconds

**Advanced driver assistance systems**
Including ESC, FCW and TSR

**Body versions**
SUV & compact



**Range**
Up to 400 km on a single charge

**Commencement of production**
2024


## Izera's factory

Employment
**3,000**

Workplaces for suppliers and subcontractors
**12,000**

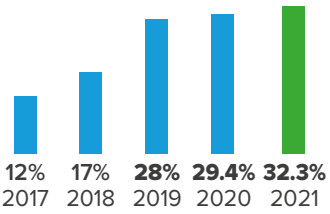
Start of investment
**2022**

Start of production
**2024**

Photo source: izera.pl

# 12 GROWING SOCIAL AWARENESS

**Year by year, drivers in Poland are becoming increasingly interested in electric vehicles**




## EV trend

In 2021, the upward trend related to the interest of Poles in purchasing an electric vehicle was maintained

## 32.3%

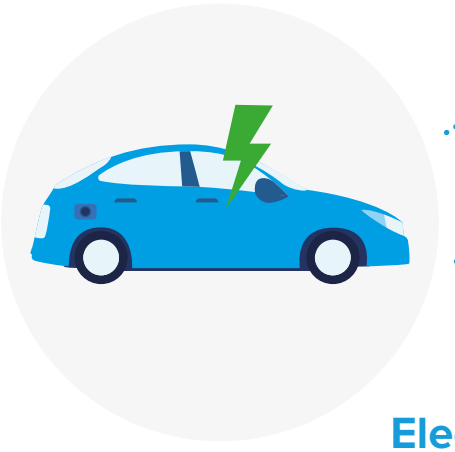
As many as 32,3% of Poles declare that they will realistically consider buying a vehicle with electric drive in the near future, getting acquainted with the market offer in this area (period of 3 years)

## Retreat from Diesel

The popularity of Diesel engines is declining – from 38% in 2017 to 16.3% in 2021

## 94.5%

The vast majority (94.5%) of EV users in Poland are satisfied with their electric vehicles



## Preferred price

The price range for which most respondents would like to buy an electric car is PLN 100,000-150,000

## Infrastructure

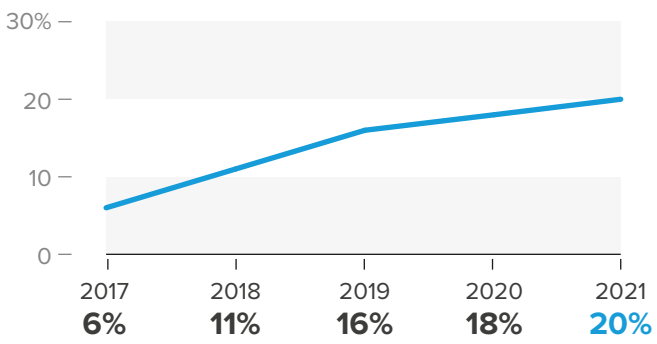
The development of e-mobility depends on the pace of expansion of the charging infrastructure. 46,3% of survey participants would like to charge their electric car at their place of residence, 20.4% at work, 32.7% while performing other activities (e.g. while shopping), and 0.6% elsewhere

## Electromobility – the future of the transport sector

79.5% of Poles believe that electric cars will replace combustion vehicles in the future

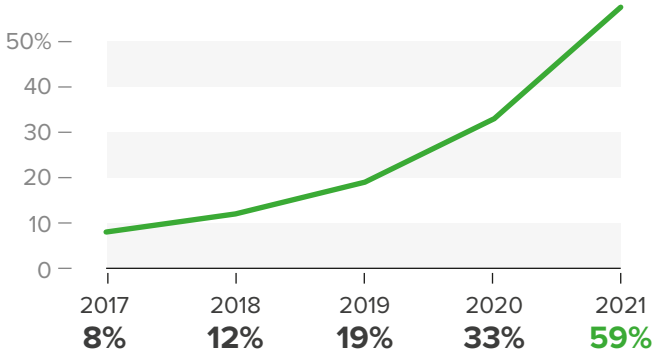
### Growing popularity of e-mobility

More and more Poles had the opportunity to drive an electric car




### Growing ecological awareness

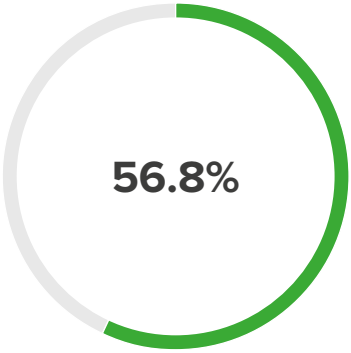
More and more Poles recognize the positive impact of EV on the environment



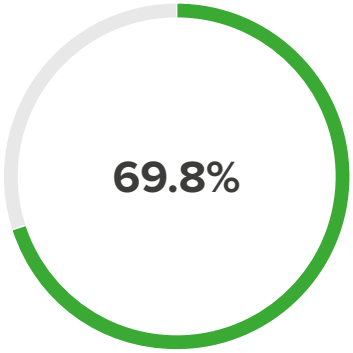



Source of data: "New Mobility Barometer 2021/2022" by PSPA

## Zero-emission public transport

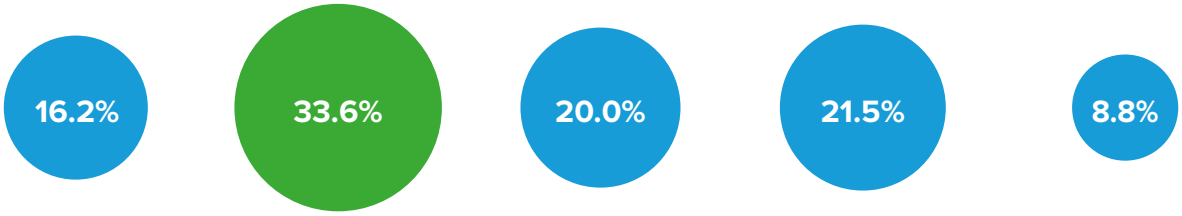



Poles move around the city using public transport services



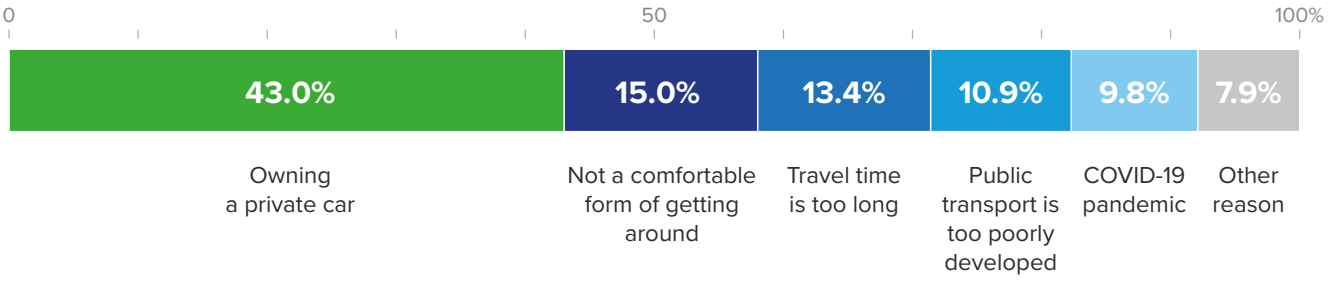

Poles using public transport choose this form of transport at least once a week

## How often do Poles use public transport?




Everyday | 3-5 times a week | Once a week | Several times a month | Less often

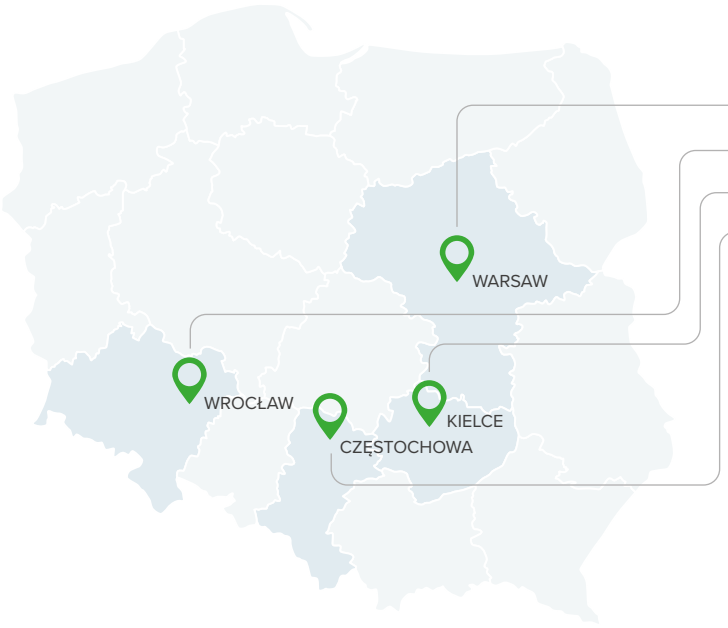
## Main reasons why Poles do not want to use public transport




Source of data: “New Mobility Barometer 2021/2022” by PSPA

# 13 EDUCATION AND RAISING PUBLIC AWARENESS

## Polish universities educate engineers in the electromobility sector




**Warsaw University of Technology**

**Wrocław University of Science and Technology**

**Kielce University of Technology**

**Częstochowa University of Technology**

**64.9%**

of all vocational schools in Poland provide education in professions dedicated to the automotive industry

**4776**

schools in Poland educate people who can find employment in professions in the automotive industry

## Elektromobilni.pl

**The largest educational campaign devoted to electromobility in the CEE region run by the Polish Alternative Fuels Association (PSPA) and the National Centre for Climate Change (KOZK)**

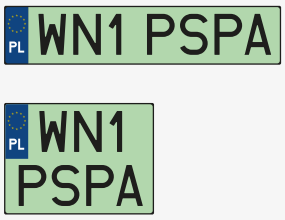
30 partners across the entire electromobility value chain

A comprehensive knowledge base on zero-emission transport

Practical tools and calculators to facilitate the purchase and use of electric cars

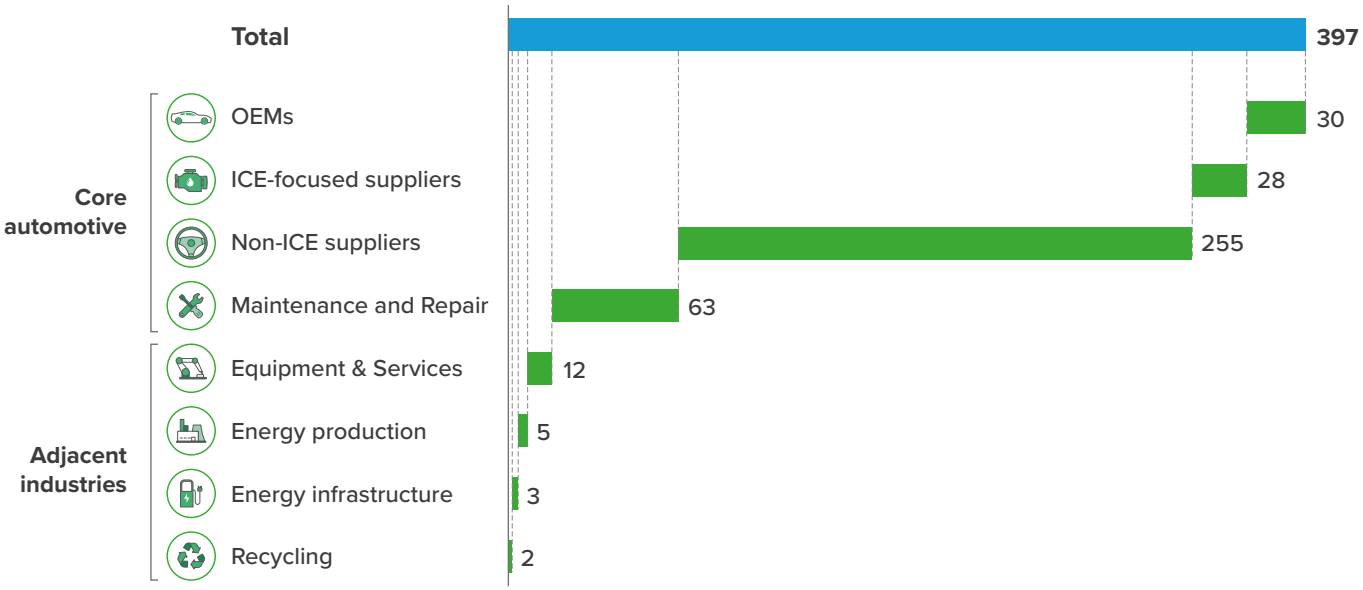
## Green license plates

**From January 1, 2020, battery-electric vehicles (BEV) and hydrogen vehicles (FCEV) in Poland receive green registration plates facilitating the identification of a zero-emission vehicle on the road**



# 14 HOW WILL E-MOBILITY CHANGE THE POLISH LABOUR MARKET?

## Number of employees (2020, in thousands)




ICE – internal combustion engine; OEM – original equipment manufacturer

## The development of electromobility in Poland may contribute to the creation of up to 17,000 new jobs

| 2030 figures shown | Production volume | Sales volume | BEV car parc | Public charging | Private charging | Net job impact |
|---|---|---|---|---|---|---|
| Pessimistic scenario | 604k | 584k | 751k | 95k | 450k | -17k |
| Intermediate scenario | 621k | 604k | 905k | 95k | 543k | -5k |
| Ambitious scenario | 660k | 626k | 1,023k | 95k | 1,110k | +6k |

Source of data: “How will e-mobility change the Polish labour market? Green sectors of the future” report by BCG & PSPA

# 15 HYDROGEN – THE FUEL OF THE FUTURE

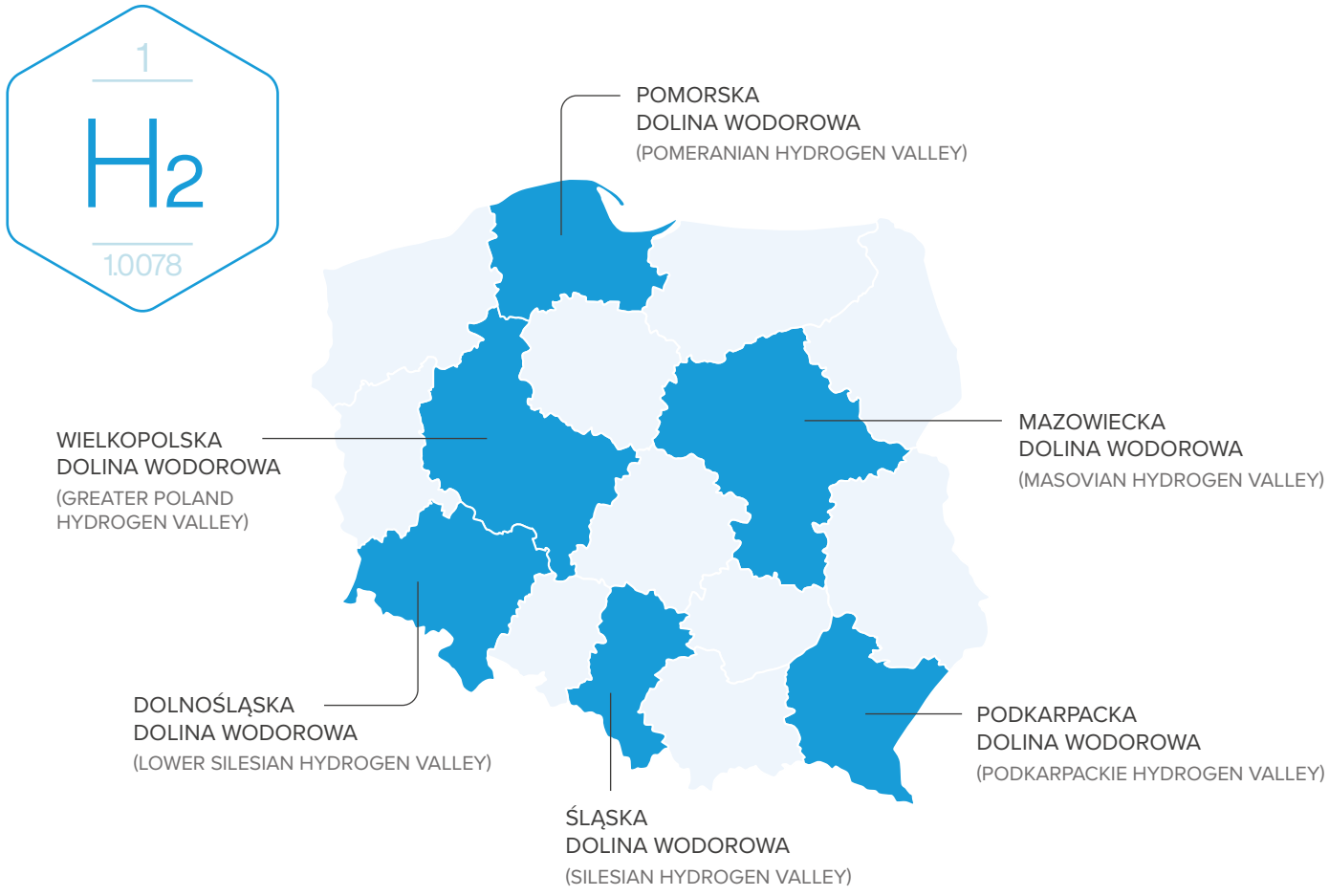
## System support

### “Polish hydrogen strategy until 2030 with a perspective until 2040”

**Main targets by 2030:**

- **2 GW** of the capacity of the installation for the production of hydrogen and its derivatives from low-emission sources, processes and technologies, including the installation of electrolysers
- **800 – 1,000** new hydrogen buses
- Minimum **32** hydrogen refueling and bunkering stations
- At least **6** hydrogen valleys

### Hydrogen hubs in Poland



# Production potential

## Poland is one of the largest producers of hydrogen in the world

POLAND

**1,000,000**
**tons**

Production in Poland

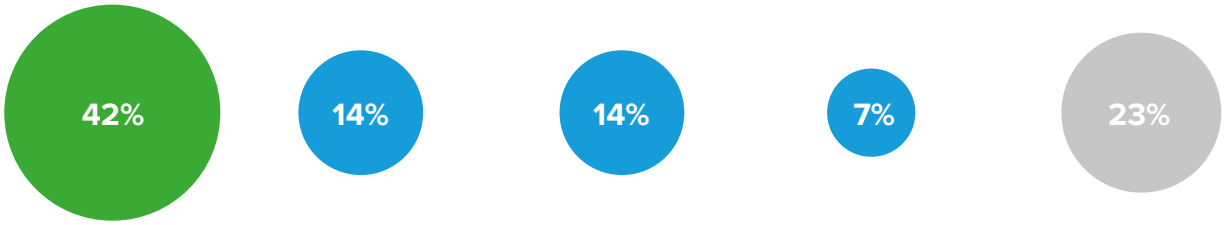
WORLD

**70,000,000**
**tons**

Production in the world

## Main producers of hydrogen in Poland

Structure of the share of the hydrogen market in Poland (2020)




Grupa Azoty | PKN Orlen | Grupa Lotos | Jastrzębska Spółka Węglowa | Others

## Innovative zero-emission vehicles

Hydrogen locomotive by Pesa

Hydrogen bus by Solaris

Hydrogen bus by Autosan

**Global e-Mobility Forum 2021** | 25 NOVEMBER

*DRIVING CHANGE TOGETHER*

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**LIVE STREAMING**

Report financed by
the National Fund for Environmental Protection and Water Management

Funded by National Fund
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and Water Management