Population

730,000 in Lviv City

2,538,000 in Lviv Region

Area

180 km^2 in Lviv City

2169 km^2 in Lviv Region

GDP per Capita

3120 US$

Power Consumption

1770 GWh in Lviv City

Renewables Share

8 %

Road Network

670 km

Car Ownership

200 per 1000 Inhabitants

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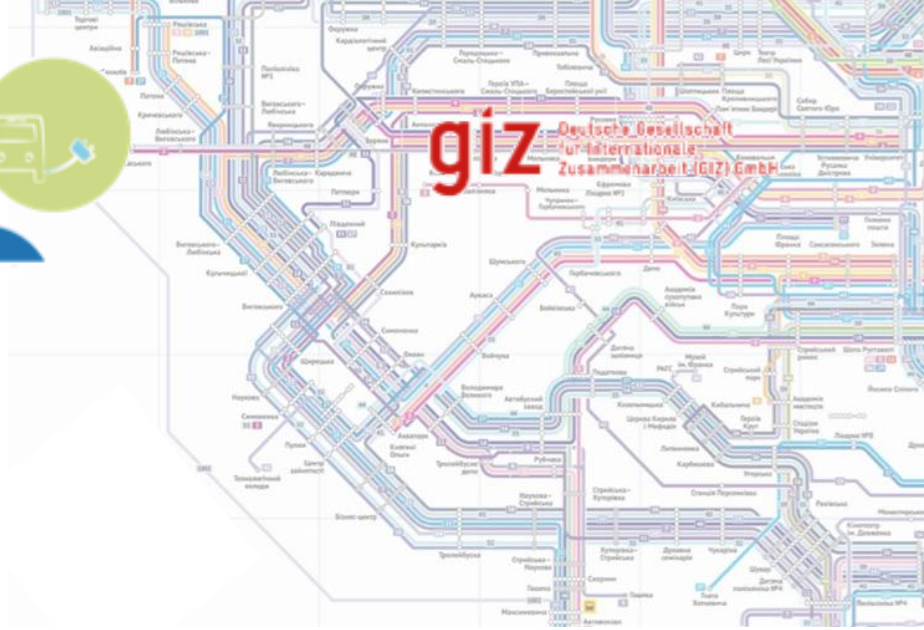
Lviv, Ukraine

Lviv is the largest city in western Ukraine and is located close to the Polish border. The city is best known for its historical centre, which is UNESCO heritage. The townscape is characterized by buildings in renaissance, baroque and classic styles. Lviv is considered as a culutral centre of music, literature, art and theatre.



Lviv, Ukraine

Transportation

Road Network

670 km

Modal Split

- 54 % Public Transport
- 23 % Motorized Individual Transport
- 21 % Walking
- 2% Cycling

More people tend to private car ownership, instead of public transport.

Public Transport

- 950 units in Lviv, incl. 200 trams and trolleybuses

Cars

315,000

in Lviv Region

- 200 per 1000 Inhabitants

Electric Cars

500 in Lviv City

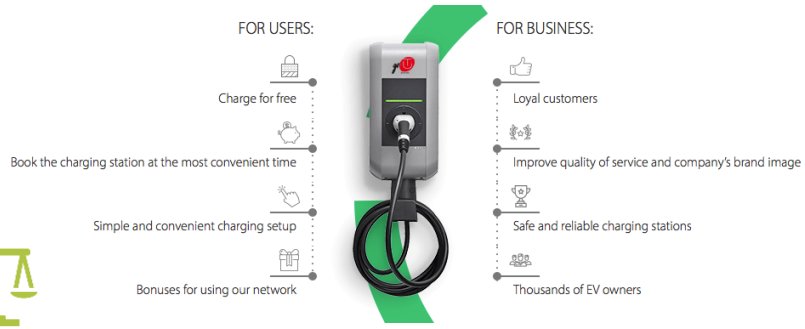
- 80 % are imported used cars due to high prices

EV-Regulations

- 0 % border tax for imported e-cars
- 20 % VAT

Charging Infrastructure

- 38 charging units in Lviv
- App *To-U* gives access to charging network



Advertisement of charging station supplier „go-tou „ [1]

[1] "Go TO-U network: who we are?" Go-tou. Accessed September 05, 2017. http://go-tou.com/.

Lviv, Ukraine

Energy

Electricity Consumption

1770 GWh/Year in Lviv City

43 %	nuclear
49 %	coal
8.0 %	renewables (mostly hydro)

Renewables Share

8.0%

Renewables Target 2035

for UKRAINE

25 %

RE-Strategy for UKRAINE

- **Supporting projects related to energy supply decentralization (RE, Smart Grids)**
- **Fostering low-capacity RES plants**
- **Plan to turn Chernobyl's nuclear wasteland into a 1 GW solar farm**

Name of primary energy supply sources	2015 [%]	2035 [%]
Coal	30	12,5
Natural gas	28.9	30.2
Oil products	11.6	7.3
Nuclear power	25.5	25.0
Biomass, biofuel and waste	2.2	11.5
Solar and wind power	0.1	10.4
HPS	1.1	1.0
Thermal power *	0.6	2.1
Total	100	100
Including fossil fuels	96	75
Including renewable resources	4	25

Status and Goals for Energy Shares in Ukraine [2]

[2] KYIV – 2017. NEW ENERGY STRATEGY OF UKRAINE TILL 2035: 'SECURITY, ENERGY EFFICIENCY, COMPETITIVE ABILITY', § Estimated NES indicators for the period till 2035 (2017).

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Lviv, Ukraine

Stakeholders

City Administration

- Supports EV strongly due to need of lowering CO_2 emissions & protection of historical city centres

EV / RE opportunities:

- Purchasing electric buses for city needs
- Purchasing electric bikes and vehicles for city administration

Households

- Interested in EVs due to high costs of petrol and diesel
- Buy used cars from abroad due to high purchasing costs

EV / RE opportunities:

- Private EV such as e-cars, -bikes, -scooters... (especially for historical city areas)

Industry

- So far no big interest in EVs
- Lviv ELECTRON factory develops electrical commercial trucks
- Annual trade fair on alternative energy in Lviv

EV / RE opportunities:

- Delivery vehicles for historical city areas with special requirements
- Charging infrastructure and marketing through tourism businesses

Lviv, Ukraine

Opportunities

- Increasing fuel prices due to high Hryvna exchange rates
- Special requirements for driving/parking in historical city areas (will be implemented by City administration)
- Short travel distances in cities
- Start of electromobility program in Lviv
- Need for change due to high air pollution

Lviv, Ukraine

Barriers ⚠

- Requirement for licensing electricity sales
- Low quality of electrical grid in the city
- Grid capacity not large enough for commercial entities installing chargers
- High prices for cars and infrastructure
- Bad exchange rate leads to less purchasing power for EVs
- Electrical infrastructure can not cover needs with growing EV market
- Low share of renewable energies

Lviv, Ukraine

Persona

Danylo

wants to catch up with new CO^2 emission requirements, but would have to exchange his complete car fleet with EV's.

Danylo Yamolenko, 42

"If city administration implements new requirements, they also need to help us catching up with them."

Is married and has two kids.

Owns a catering service for art events with 7 cars.

Lives in Lviv

Interested in new technologies

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Lviv, Ukraine

Persona

Alina

wants to contribute to reducing air pollution by buying an electric car,

but cannot afford the high purchasing costs.

Alina Kostevych, 32

" Our cultural heritage is all we have. We need to conserve it!"

Works as Project Manager for a building restoration company in Lviv City

Citizen of Lviv, thinks of purchasing an electric car

Lives in a village in Lviv Region

She is interested in theatre and music