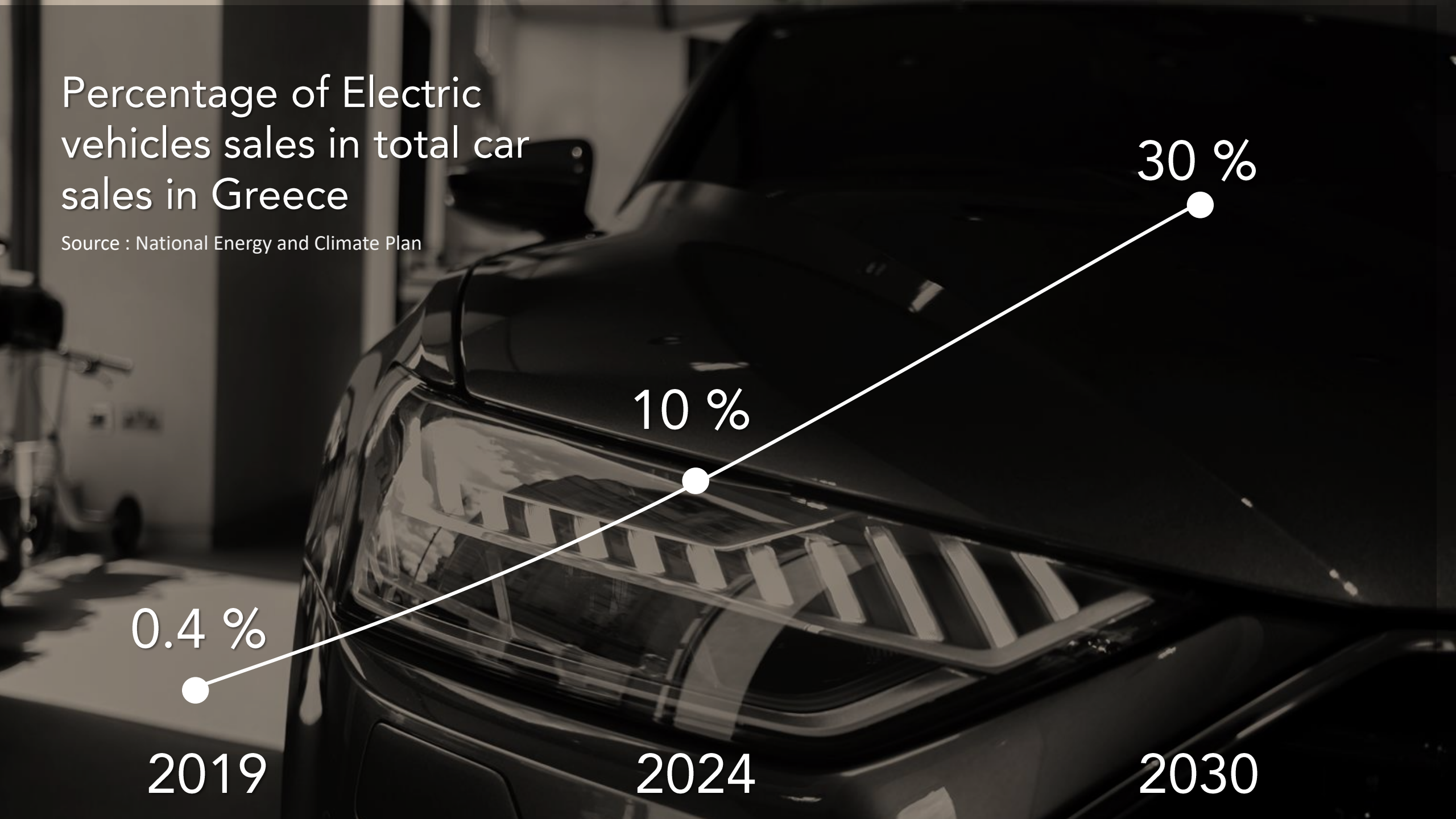
# PARITY

## Smart Electric Vehicle Charging


Christos Stefanatos
Parityplatform.com


Percentage of Electric vehicles sales in total car sales in Greece
Source : National Energy and Climate Plan
0.4 %
10 %
30 %
2019
2024
2030

# Where will I charge?

Home Charging


Destination Charging

On-route Charging

And how I am going to pay?

# Charge point management app


Driver's digital Wallets


legrand®

greenlots
A Member of the Shell Group

Schneider Electric

# OCPP

## Open Charge Point Protocol

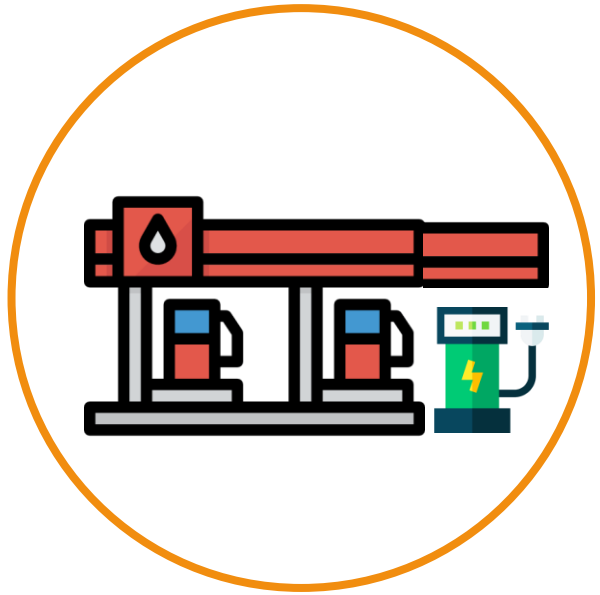
VATTENFALL

LINYANG
林 洋

正華科技
SUNHOPE

iocharger

# CUSTOMERS

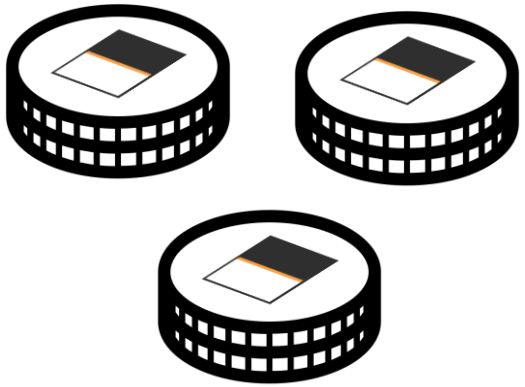


Gas station owners

Corporates

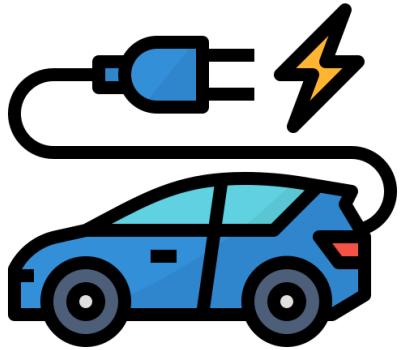

Retail Shop owners

# With a universal transaction system I can charge anywhere!



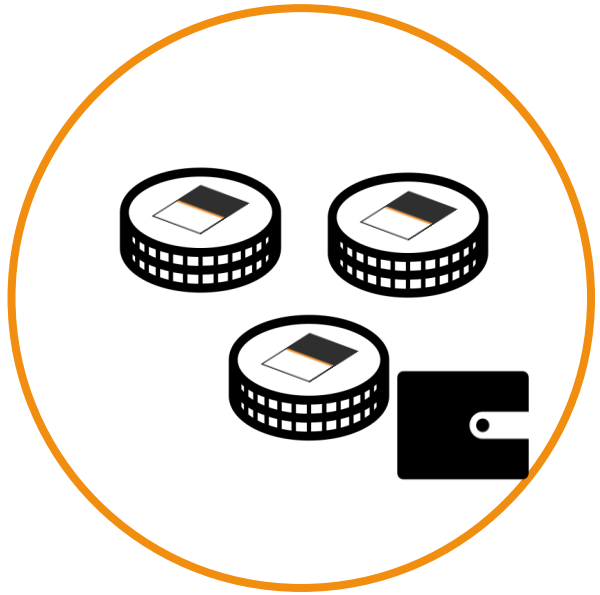
3 PARITY credits

=



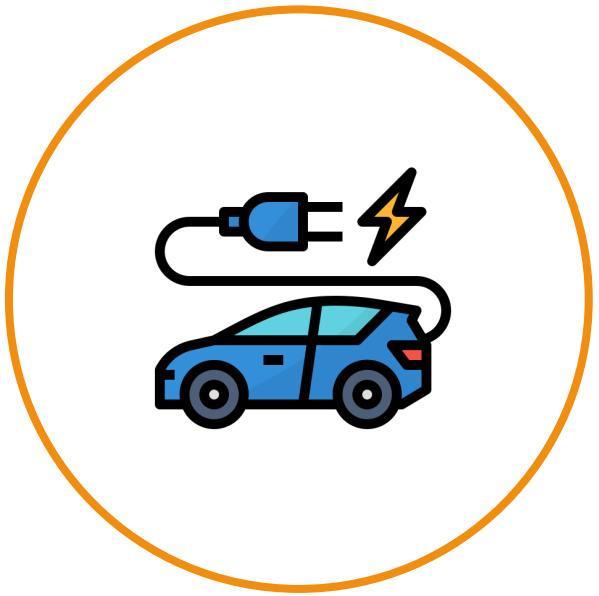
3 kWh of charging on any station using PARITY transaction software

# DRIVERS



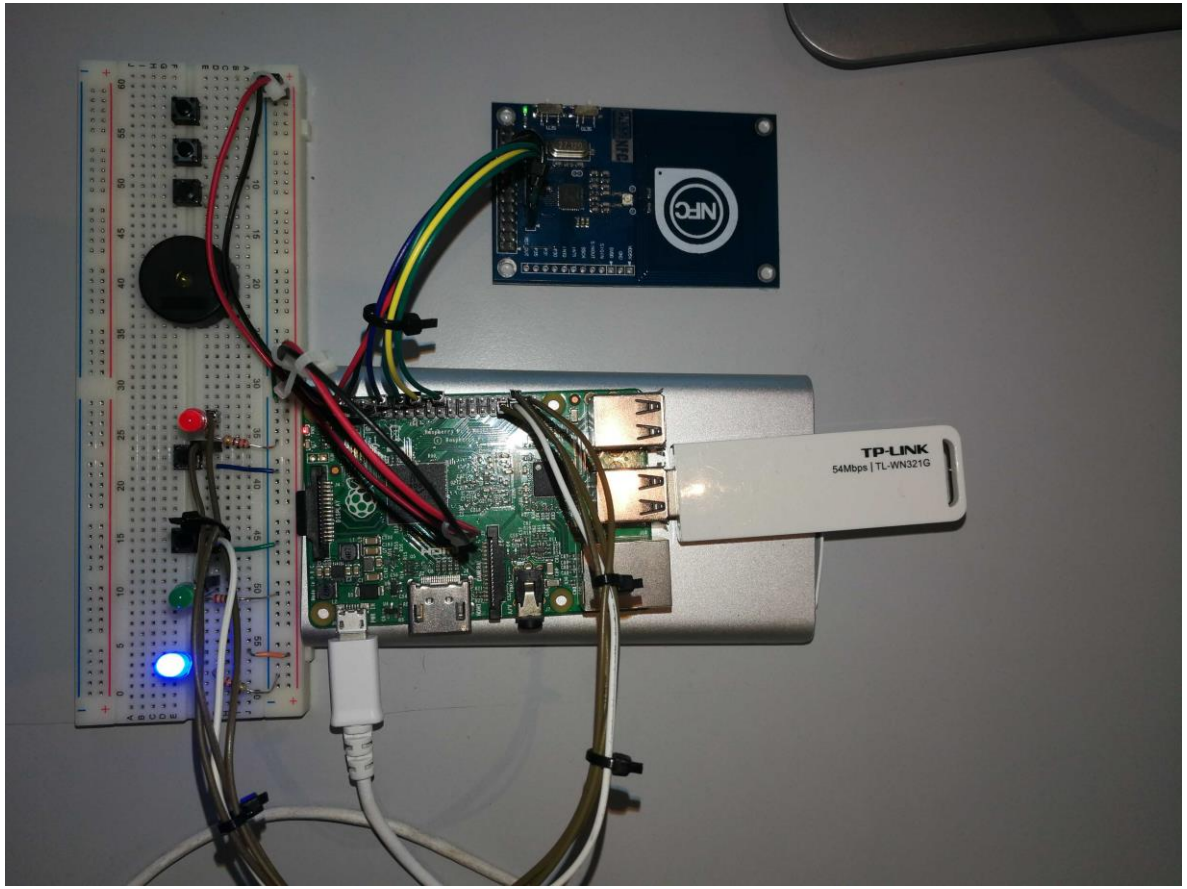
Purchase Credits on your app

Find Charger and plug your vehicle



Use credits to charge

# HARDWARE


NFC
TP-LINK
54Mbps | TL-WN321G


LEVITON
Power
Charging
Fault
40A

onboarding fee / charger

+

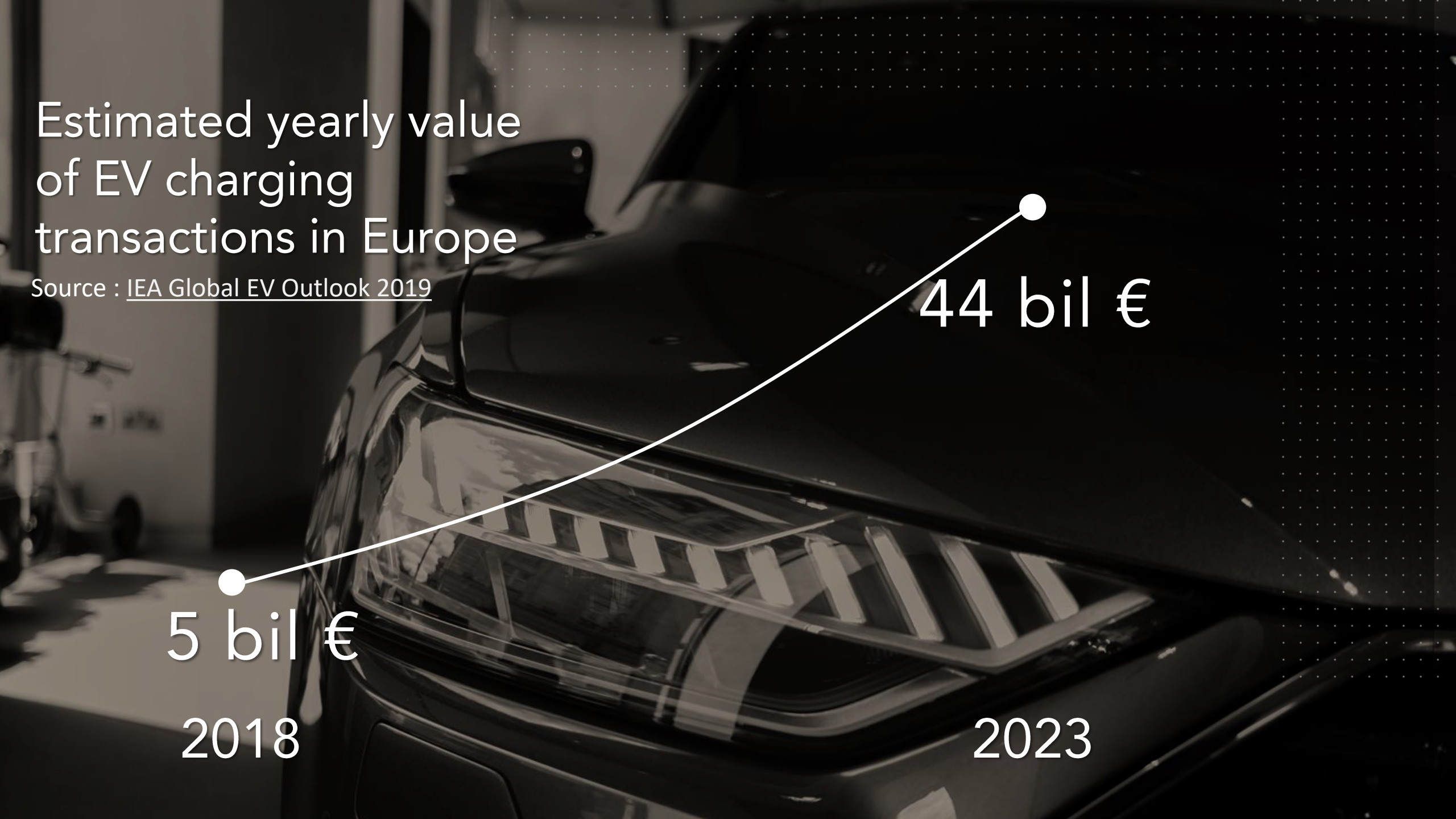
commission on transactions

=

Revenue for PARITY

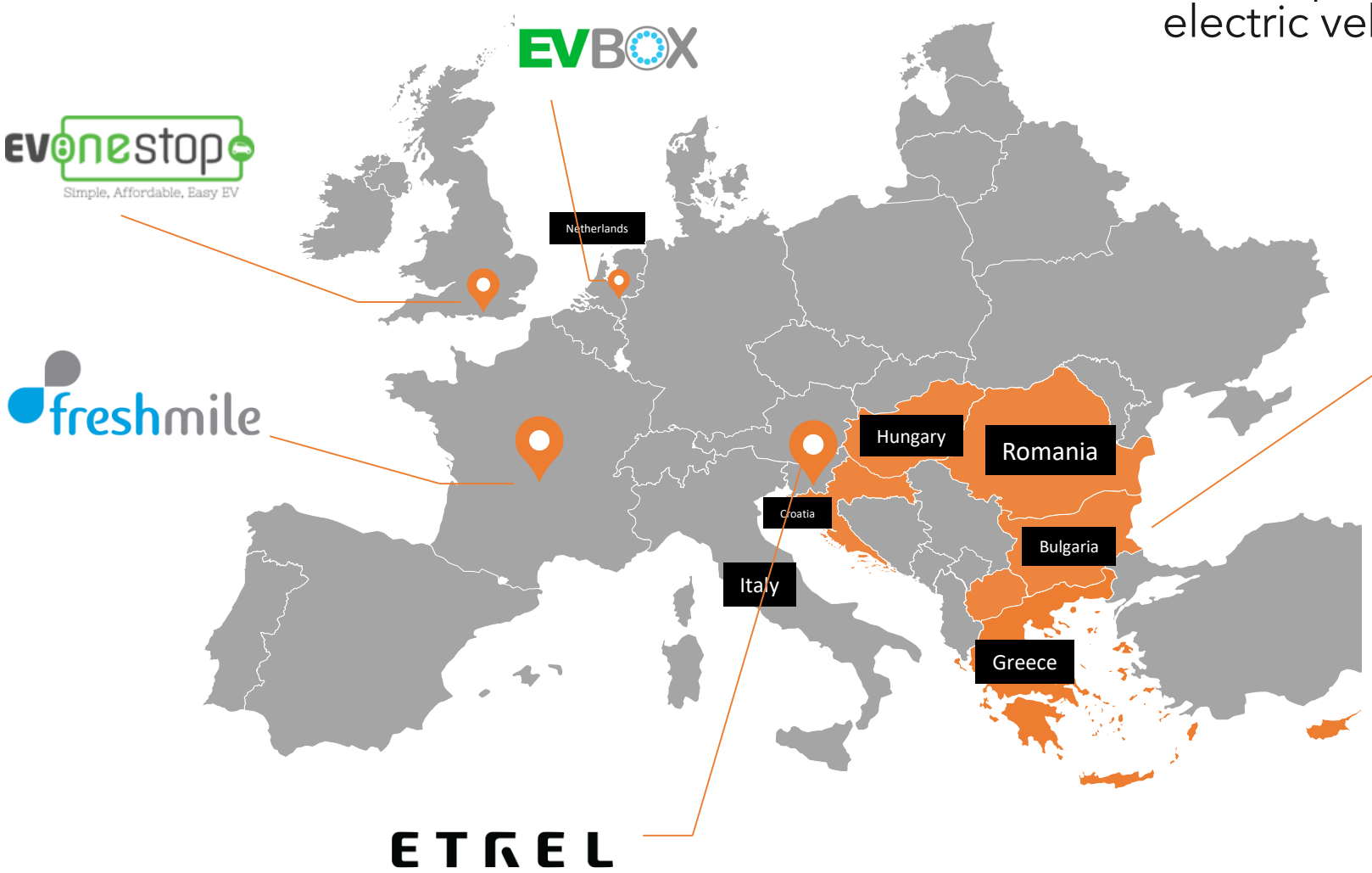
# Estimated yearly value of EV charging transactions in Europe

Source : IEA Global EV Outlook 2019



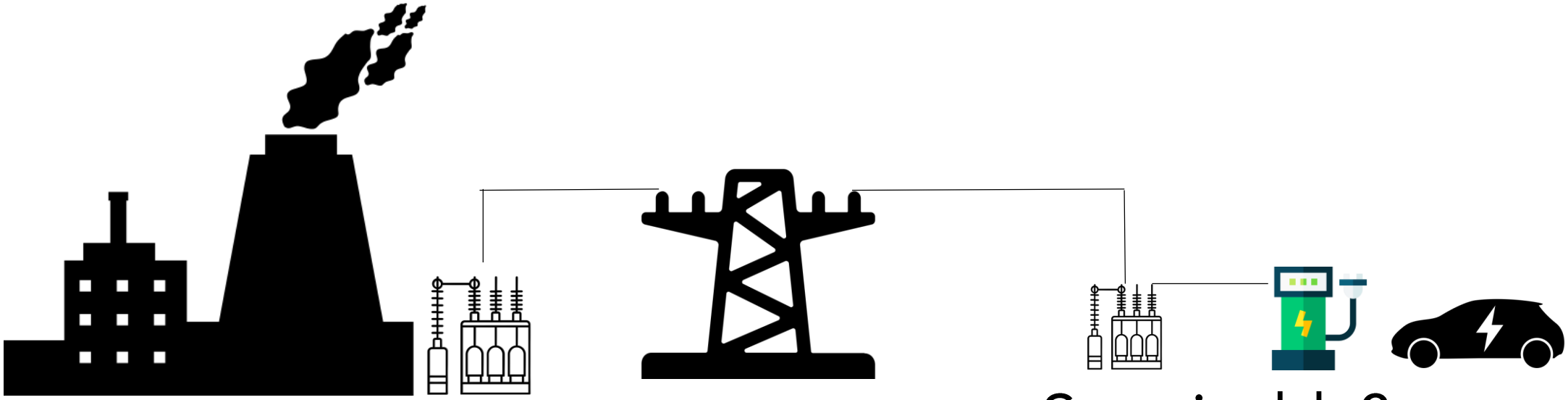
# COMPETITION MAPPING

Huge potential in SE Europe growing electric vehicle market



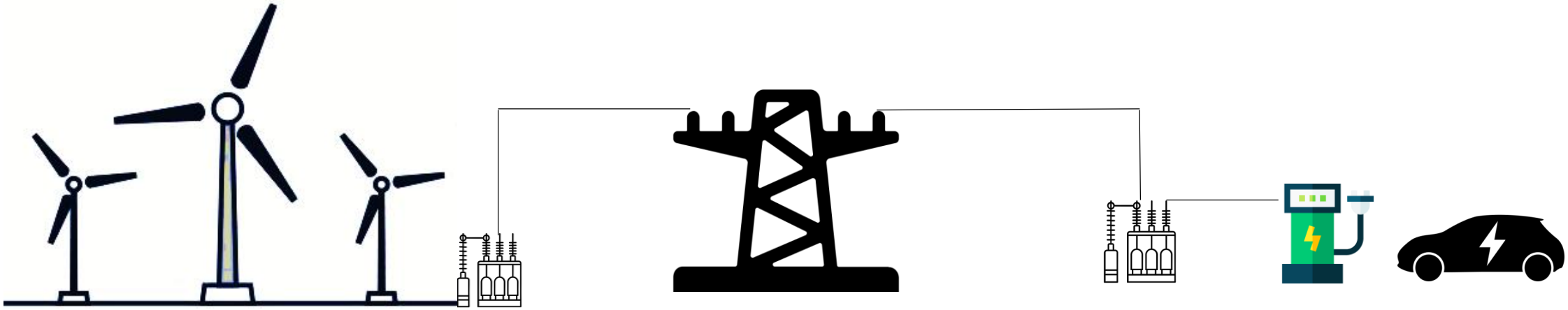

PARITY

# SMART CHARGING



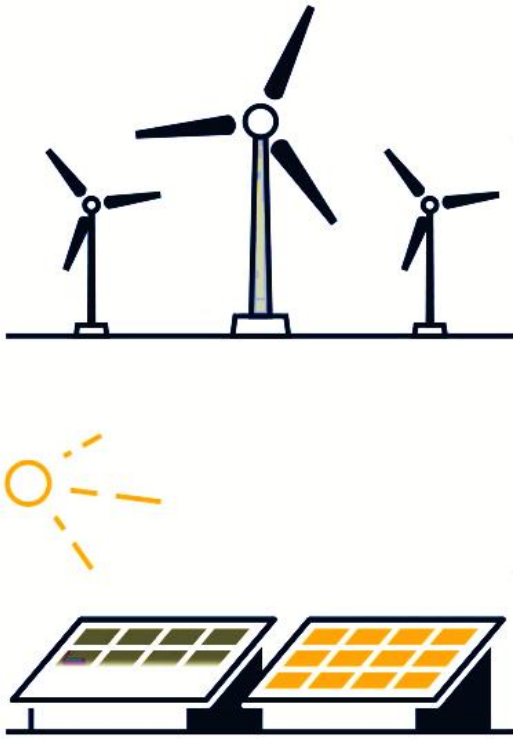
Sustainable?

# SMART CHARGING

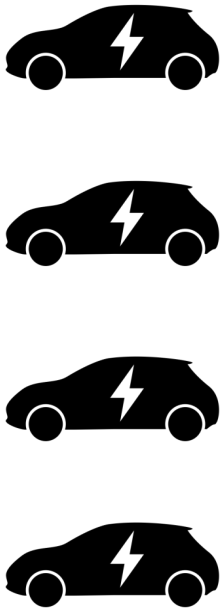


More Sustainable!

# SMART CHARGING



Surplus RES
Production



Smart timing of electric vehicle charges can decrease curtailment of Green Energy


Το κόστος φόρτισης είναι φθηνότερο για την επόμενη ώρα.
ging Cos
harging Time (minutes)
15
kWh
12.5
OK

# TEAM

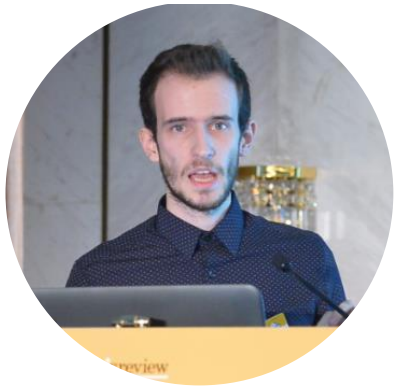
## Christos Stefanatos

MSc Mech Engineering
NTUA
Passed CFA Lvl 2

Prev:

EuroEnergy

Operations Controller



## Alexios Karadimos

MSc Electr Engineering
University of Patras

Prev:

UNIVERSITY OF PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

Robotex 17
2nd Position

## Nikolaos Karadimos

MSc Electr Engineering
University of Patras

Prev:

UNIVERSITY OF PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

Crowdhackathon Insurance 3nd Pos

## Konstantinos Fousekis

MSc Info Systems
Un. of Aegean
Thesis on Blockchain & Energy

Prev:

OTE

Data Scientist

## Panagiotis Patikos

MSc Mining Engineering, NTUA
BSc Finance, ACG Deree

Prev:

ELANDIS

Investment Analyst

# Dashboard

Search...

Chris Stefanatos

Overview

## My wallets

PRT 0.2217 EUR/PRT

PARITY Token

24%
Nissan Leaf Battery
Last Upd : 17:20 pm

5
Stations
Near me

Current balance

430.24 PRT

Current Price

0.2217 EUR +0.12% buy

Charging now requires 50% more Parity tokens than the average requirement for February.
Cost is expected to decrease by 30 % in three hours.

Schedule Charge

78% Lignite and Gas

22% Wind

0% Solar

7321 MW Current National System Demand

69.21 €/MWh Current National System Price

+22% Price higher than average SMP

## Transactions

ALL SEND RECENT

16:23, 12 Jan 2019 → 342 PRT
Top-up via web application c_stefan €65.23

15:00, 20 dec 2018 ← 44.20 PRT
Nissan Leaf charge at Patras Charging Station

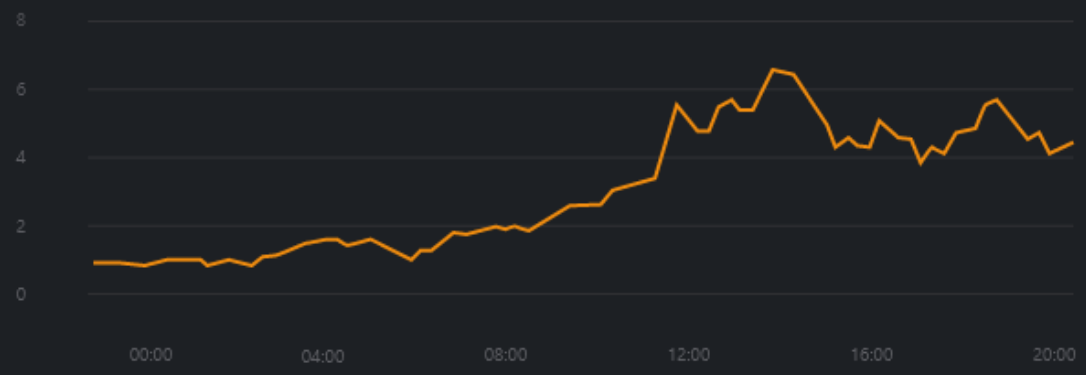
11:00, 11 dec 2018 ← 85.20 PRT
Nissan Leaf charge at Patras Charging Station

09:23, 11 dec 2018 → 134.34 PRT
Top-up via web application c_stefan

09:27, 08 Nov 2018 ← 94.34 PRT
Nissan Leaf charge at Patras Charging Station

## PRT tokens/kWh

1h 1d 2d 3d All




## Daily av. Charge Cost

EUR PRT

10 Oct 2019
1.8213 PRT/kWh

09 Oct 2019
3.2252 PRT/kWh

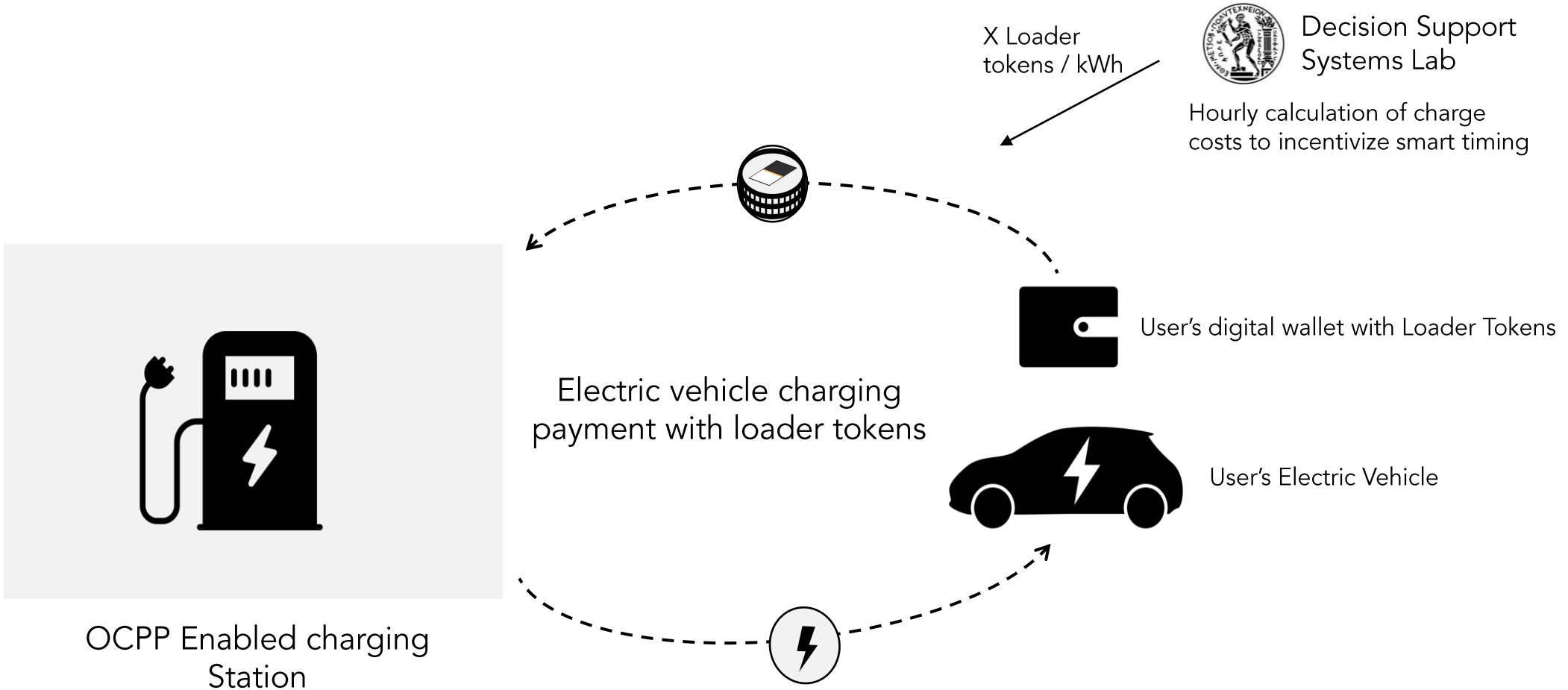
08 Oct 2019
4.2232 PRT/ kWh

07 Oct 2019
1.2391 PRT/ kWh

## News

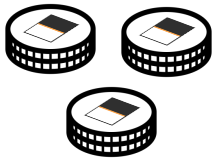
Large Greek Utility rewards loyal clients with PRT tokens
16:23, 12 dec 2018

# CONCEPT


X Loader tokens / kWh
Decision Support Systems Lab
Hourly calculation of charge costs to incentivize smart timing
User's digital wallet with Loader Tokens
Electric vehicle charging payment with loader tokens
User's Electric Vehicle
OCPP Enabled charging Station

# CONCEPT

User wallet with tokens



Loader tokens

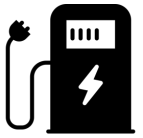
Proprietary Valuation Algorithm by NTUA

Calculation of cost per kWh charged as function of grid conditions ( RES production, Demand)

Web app for the management of charging station

Transaction management for charges.

Charging station that is remotely managed by Loader web App. (OCPP)



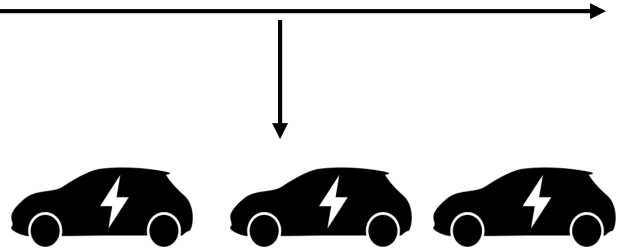
Decision Support Systems Lab

PARITY

# EXAMPLE

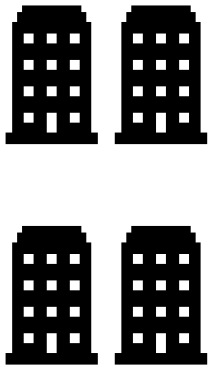
October 12th 2023 , 8.30 am

Available RES Capacity
7500 MW



Charging cost:
1.23 Loader tokens/ kWh

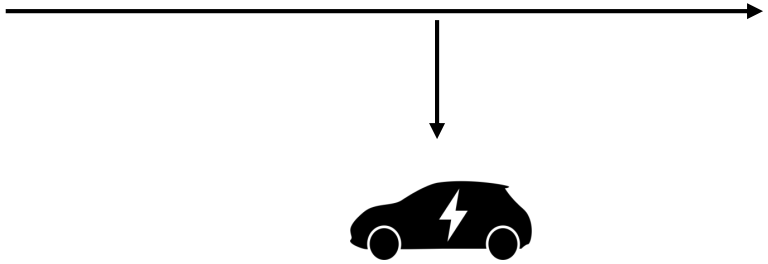
Total National Grid Power
Demand 6800 MW
(excluding EV charging)



# EXAMPLE

October 15th 2023 , 14.30 am

Available RES Capacity
6000 MW





Charging cost:
3.43 Loader tokens/ kWh

Total National Grid Power
Demand 6500 MW