



# Fiscal barriers for smart charging



Baerte de Brey

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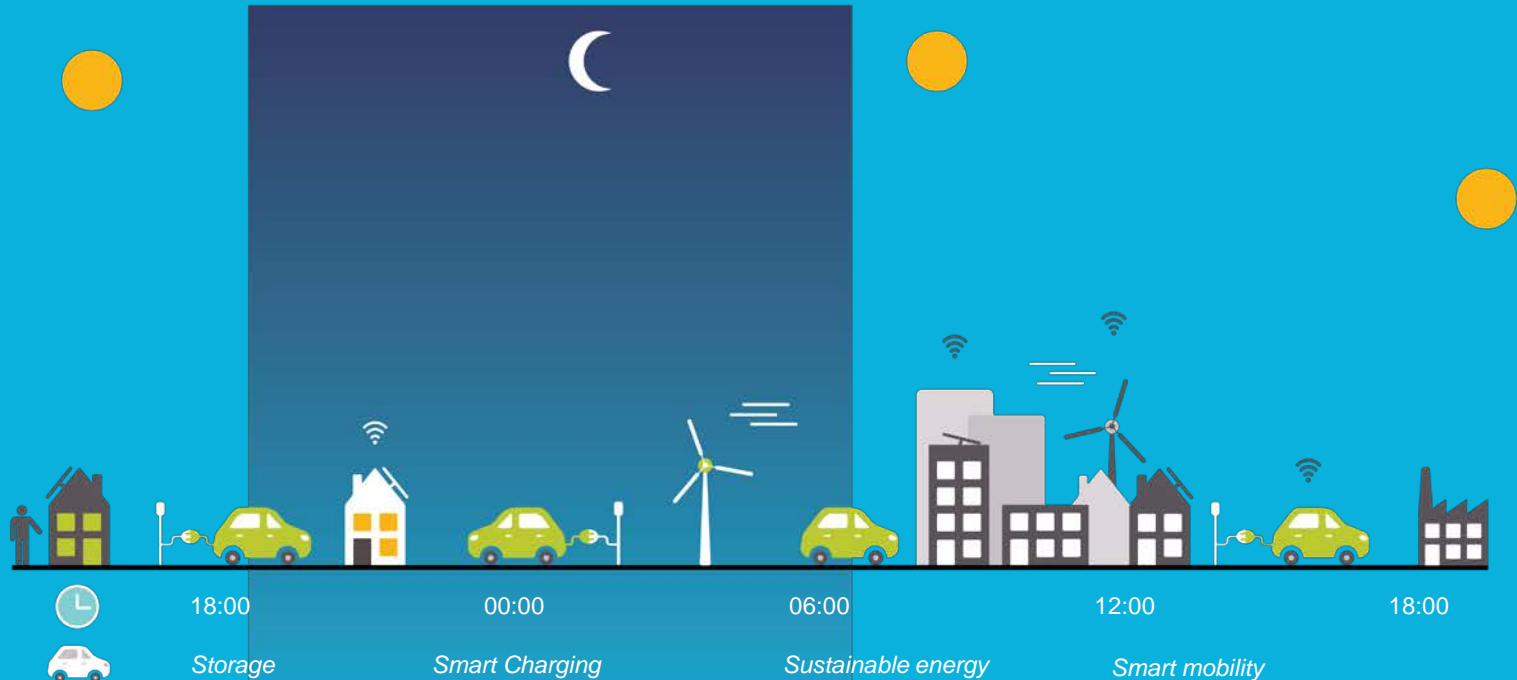


# High penetration of electric vehicles & infrastructure

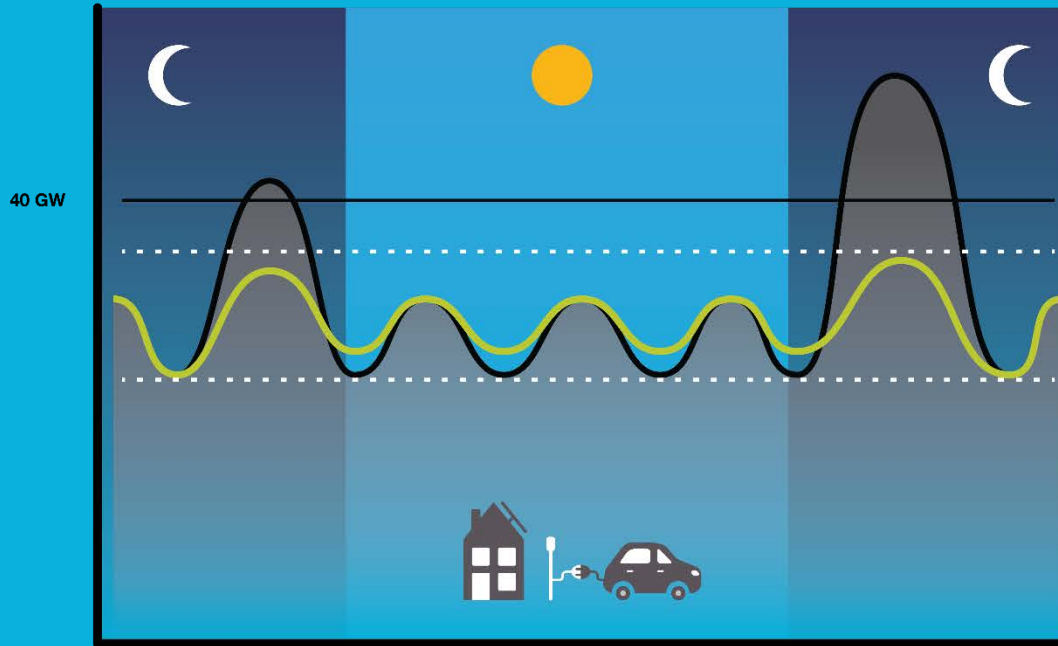


- Over 115.000 EV's
- 11.768 public charging stations
- 14.320 semi-public chargers
- 600+ fast chargers
- + 72.000 private charging stations

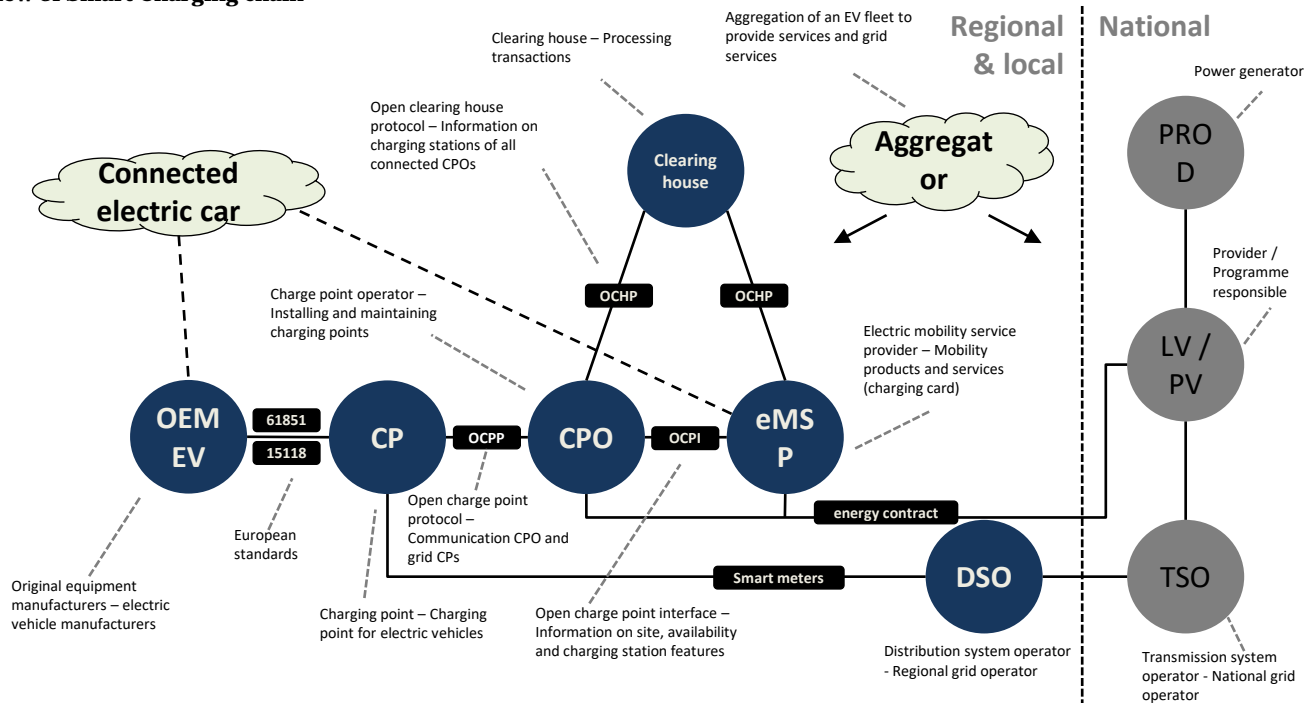
# VISION



# The effect of Smart Charging



## Overview of Smart Charging chain



# Regulatory questions

**Does this qualify as supply?**

**Between what parties is supply effected?**

**How does Smart Charging relate to netting?**

**How does Smart Charging relate to the self-generated power exemption?**

# Four case studies

1

## Lomboxnet



- Charging and discharging power by means of EVs is tested in the Lombok residential area in the city of Utrecht.
- A number of solar PV systems are directly linked to charging points in the area.
- The bi-directional charging points allow generated solar energy to be stored temporarily in EVs and to be re-delivered at a later time.
- This increases own use or allows storage to be used to balance the grid.

## 3

## Haarrijn



- Fast charging point for EVs along the A2.
- The configuration consists of a solar PV system, a charging station for 4 EVs and a battery system.
- The power consumption from the grid is lower due to storing of solar energy in the battery.
- This allows the grid operator to avoid investments (grid upgrade).

## Logical allocation

Provider A



Provider B



- Consumption is no longer registered on the charging point connection but on a virtual connection to a service provider.
- This allows EV users to switch between energy providers at the charging point, since energy contracts have been concluded with the service provider and not with the charging point owner.
- The advantage for an EV user is that this could entail a cost benefit at the charging point.
- A service provider can aggregate EV users to offer flexibility options.

## Flex power



- Flexpower is an initiative to vary the grid connection capacity with consent from the connected party.
- FlexPower aims to use idle grid capacity to charge electric cars. By smart charging outside peak hours, electric cars can be charged faster in public areas without causing congestion on the electricity grid.
- This creates more efficient simultaneous usage, which may prevent congestion and possibly also avert net upgrades.

# Missing incentive to optimise own consumption behind the meter in an EV



- No (financial) stimulation for e-drivers with (their own) solar panels to optimally use the self-generated electricity

# Possible double energy tax for V2G charging



- Every time the car is charged again after discharging energy tax has to be paid

# No incentive for the roll-out of charging infrastructure with maximum charge capacity for Smart Charging



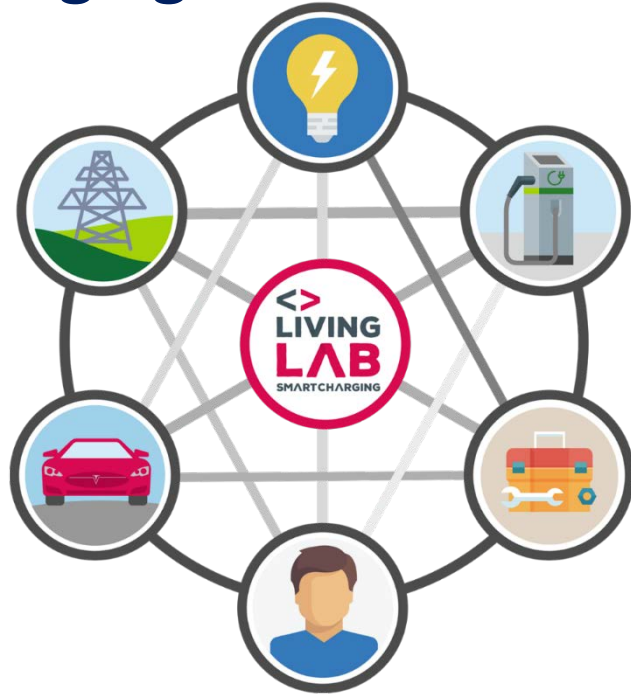
- Higher capacity of the connection, the faster a car can be charged
- More flexibility generated for the use of the car for Smart Charging.
- High capacity connection is significantly more expensive

# Possible incentive for Charge Point Operator to block Smart Charging



- CPO: maximisation of Charge Point Occupancy
- differs in some cases from the importance of other players
- Risk that the CPO will intervene in the planned Smart Charging

# Who determines the use of the electric car for Smart Charging?



- E-driver has connected his electric car to several initiatives
- which initiative takes precedence?

# Other countries

- Incentives on purchasing cars
- Time of use, demand respons
- Sntax



# Questions?

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