Preparing Charged Vehicles in the Prosumer's Ecosystem

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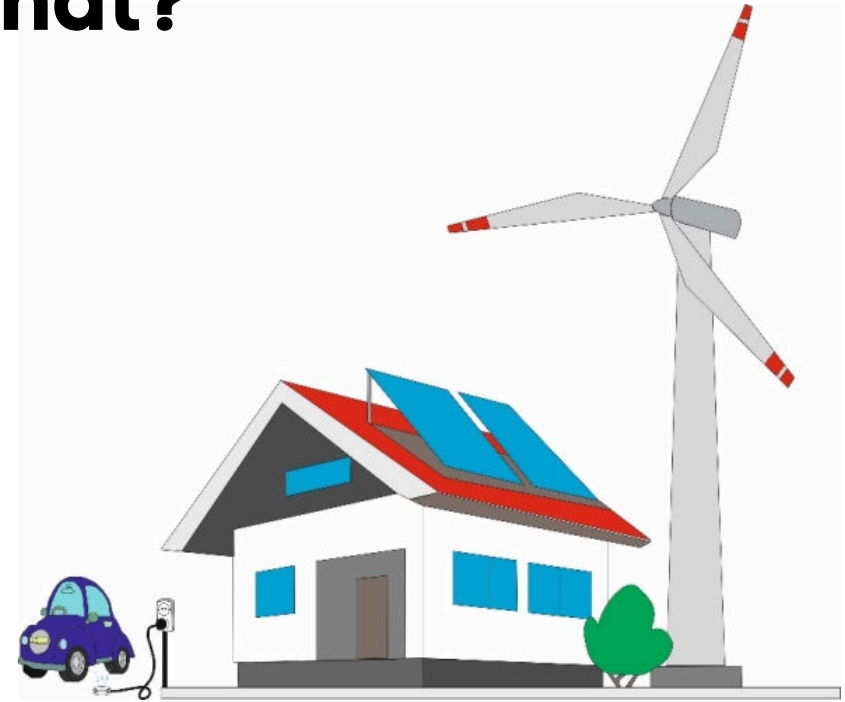
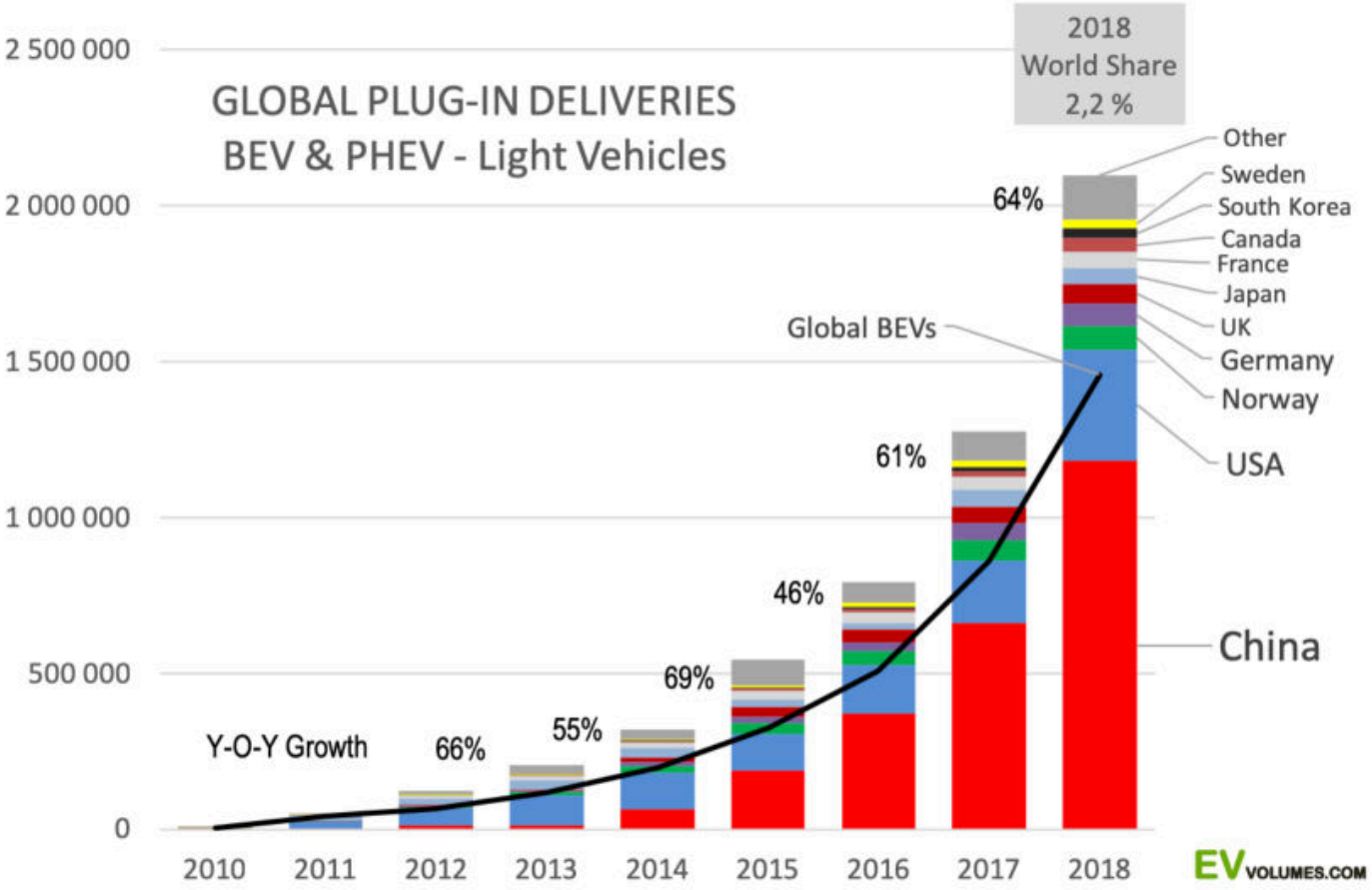
Prosumer means what?

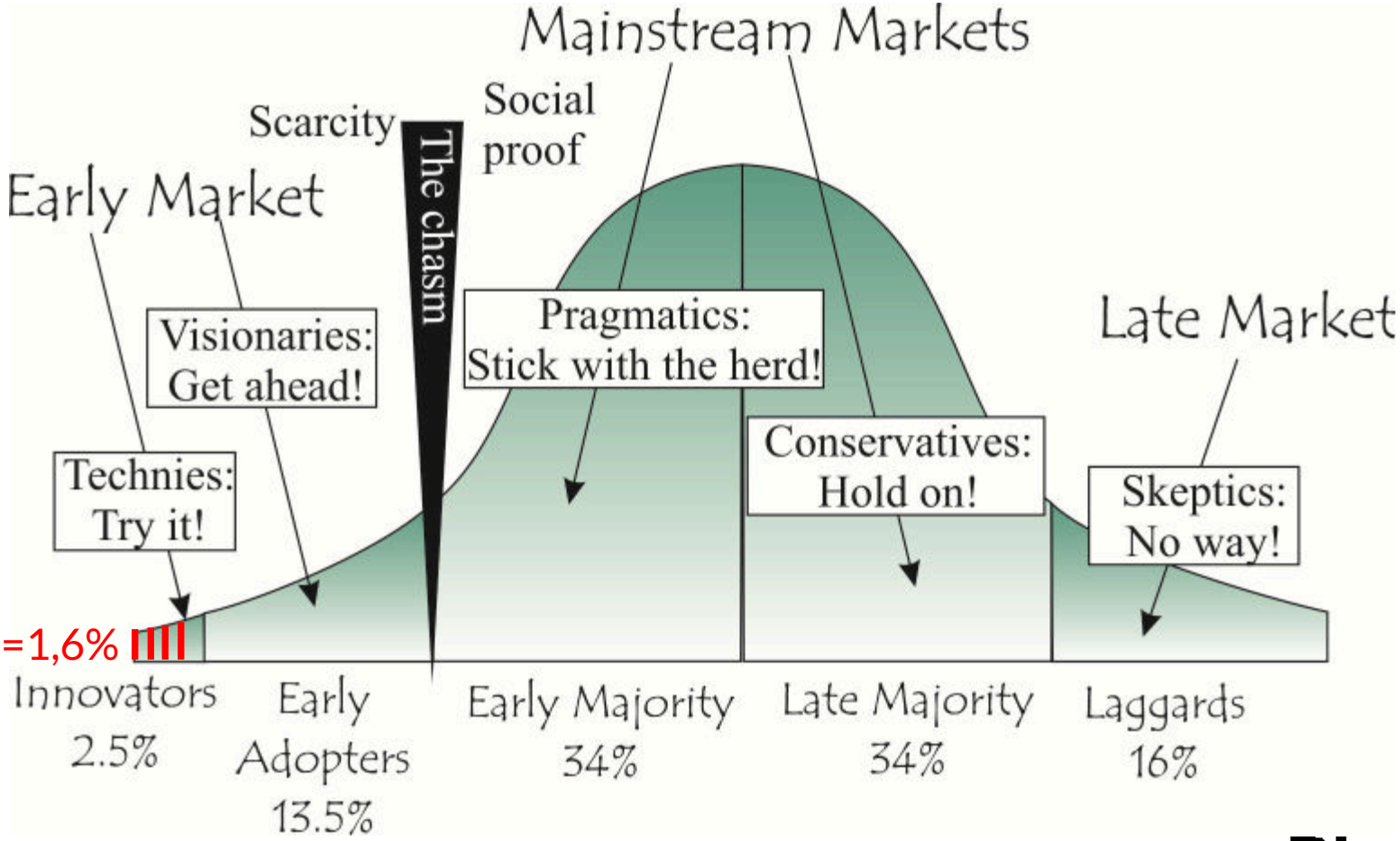
- A **prosumer** is a person who both *produces* and *consumes* a product.

  Refers to individuals who are more than just regular consumers and who also may have a professional interest in a company or its products and services.

- The product in focus is related production and consumption of *electrical energy*.
- Diminish the role of a corporate producer – an effect of automation and globalisation.
- Companies that open up their processes to the end-user, integrating them as prosumers for shared benefits.




GLOBAL PLUG-IN DELIVERIES
BEV & PHEV - Light Vehicles
2018
World Share
2,2 %
2 500 000
2 000 000
1 500 000
1 000 000
500 000
0
Y-O-Y Growth
66%
55%
69%
46%
61%
64%
Global BEVs
Other
Sweden
South Korea
Canada
France
Japan
UK
Germany
Norway
USA
China
2010
2011
2012
2013
2014
2015
2016
2017
2018
EVVOLUMES.COM



Sweden

81025/5000000=1,6%

FIGURE 6 EVOLUTION OF GLOBAL TOTAL SOLAR PV INSTALLED CAPACITY 2000-2017

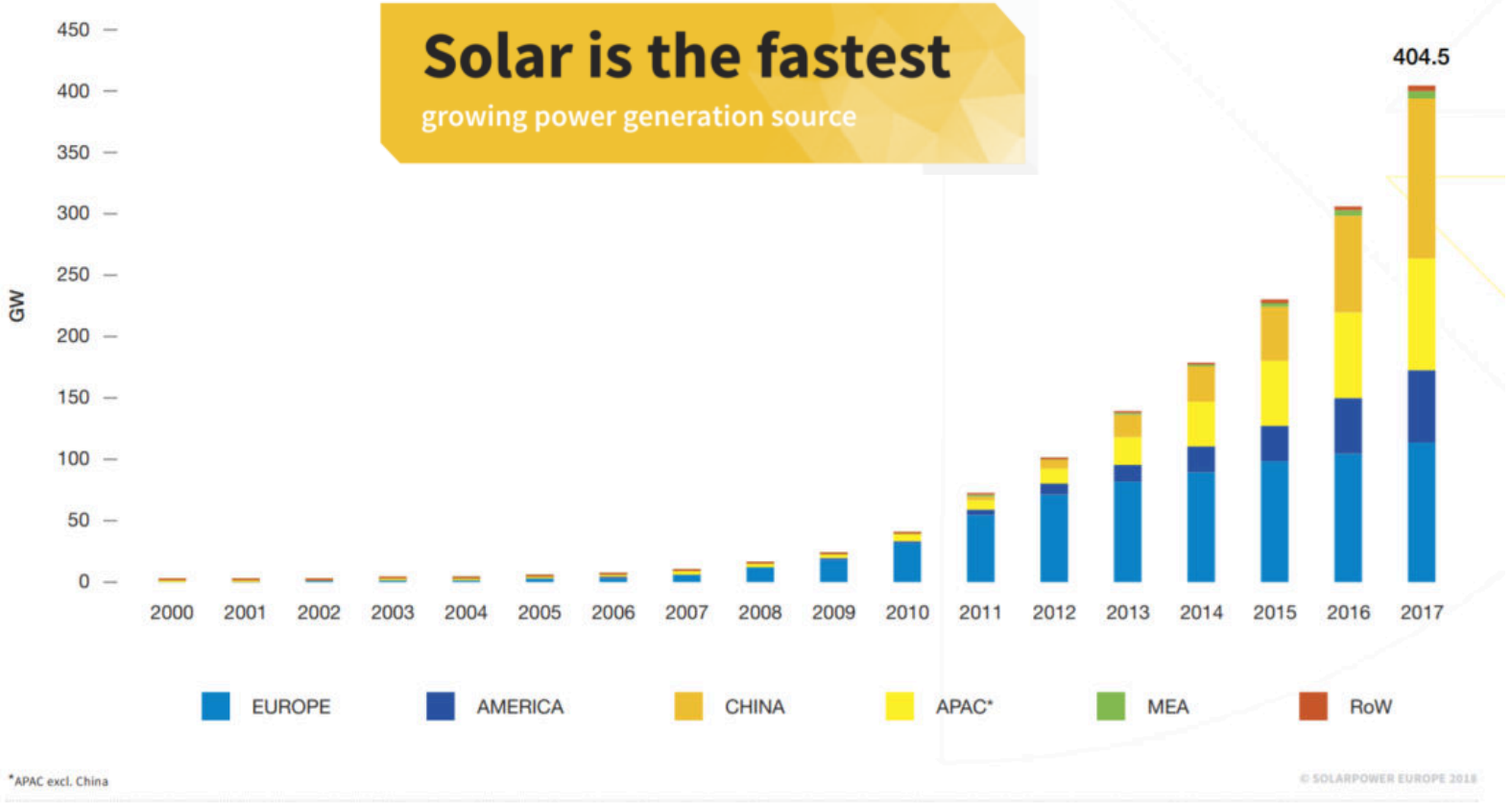
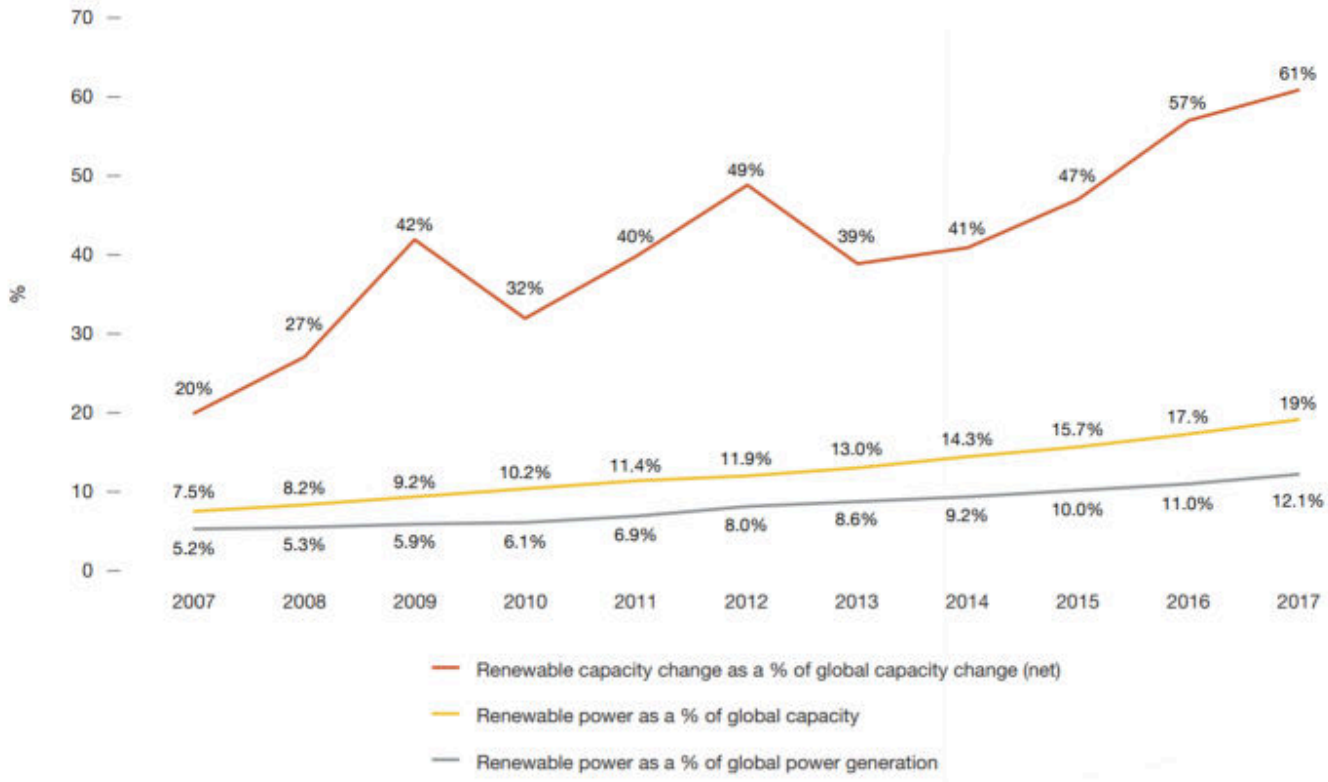


FIGURE 2 RENEWABLE POWER GENERATION AND CAPACITY AS A SHARE OF GLOBAL POWER, 2007-2017



Source: Frankfurt School-UNEP Centre and BNEF (2018)

EVs + solar: Benefits for the prosumers

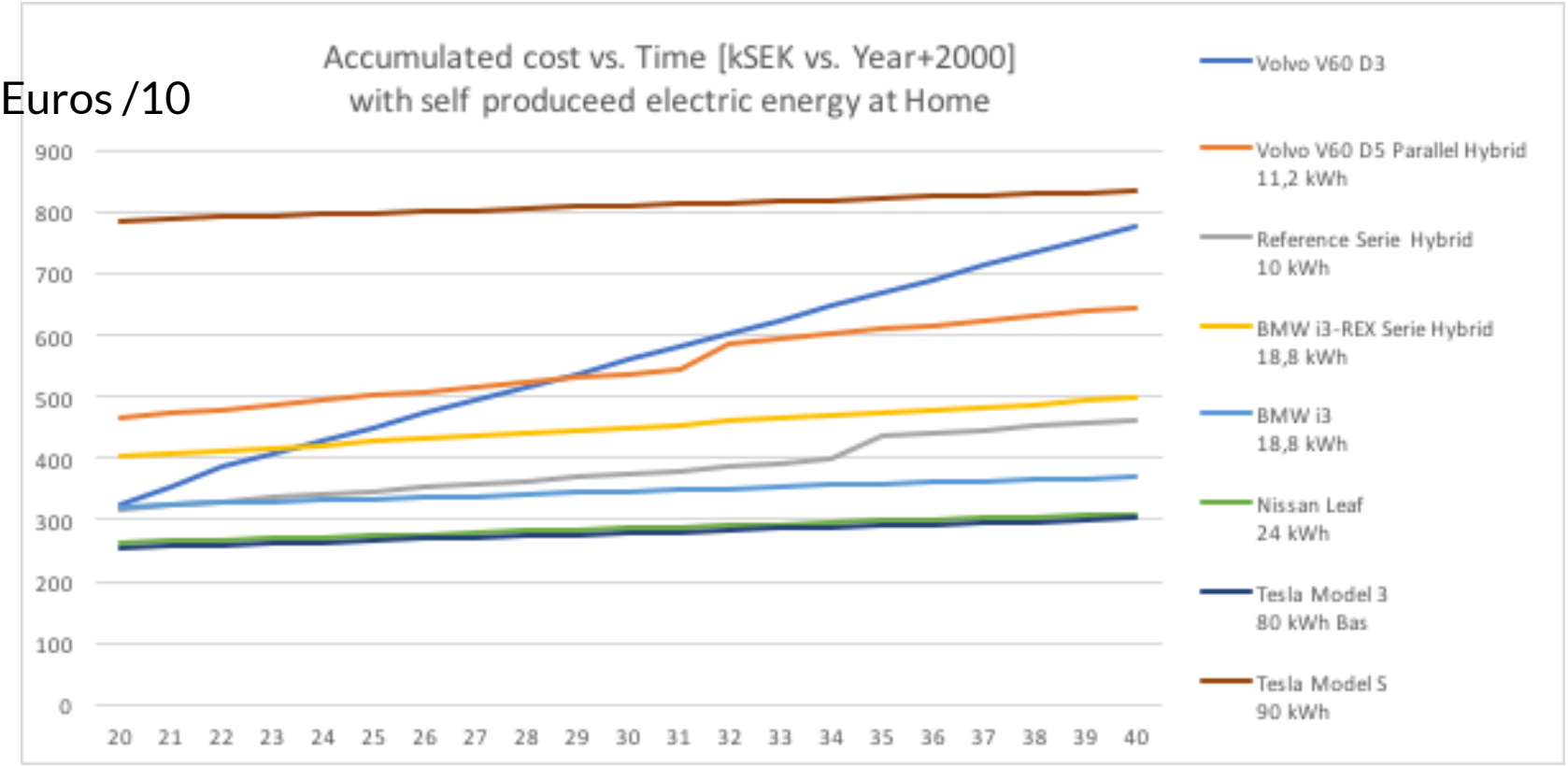
- Economy
  - Less energy from the net -> cheaper
  - Paid for excessive electricity generated back to the grid from the house
  - Peak shaving -> lower cost when power tariffs
  - Peak shaving -> lower cost due to down-sized main meter fuses in the houses

EVs + solar: Benefits for the prosumers

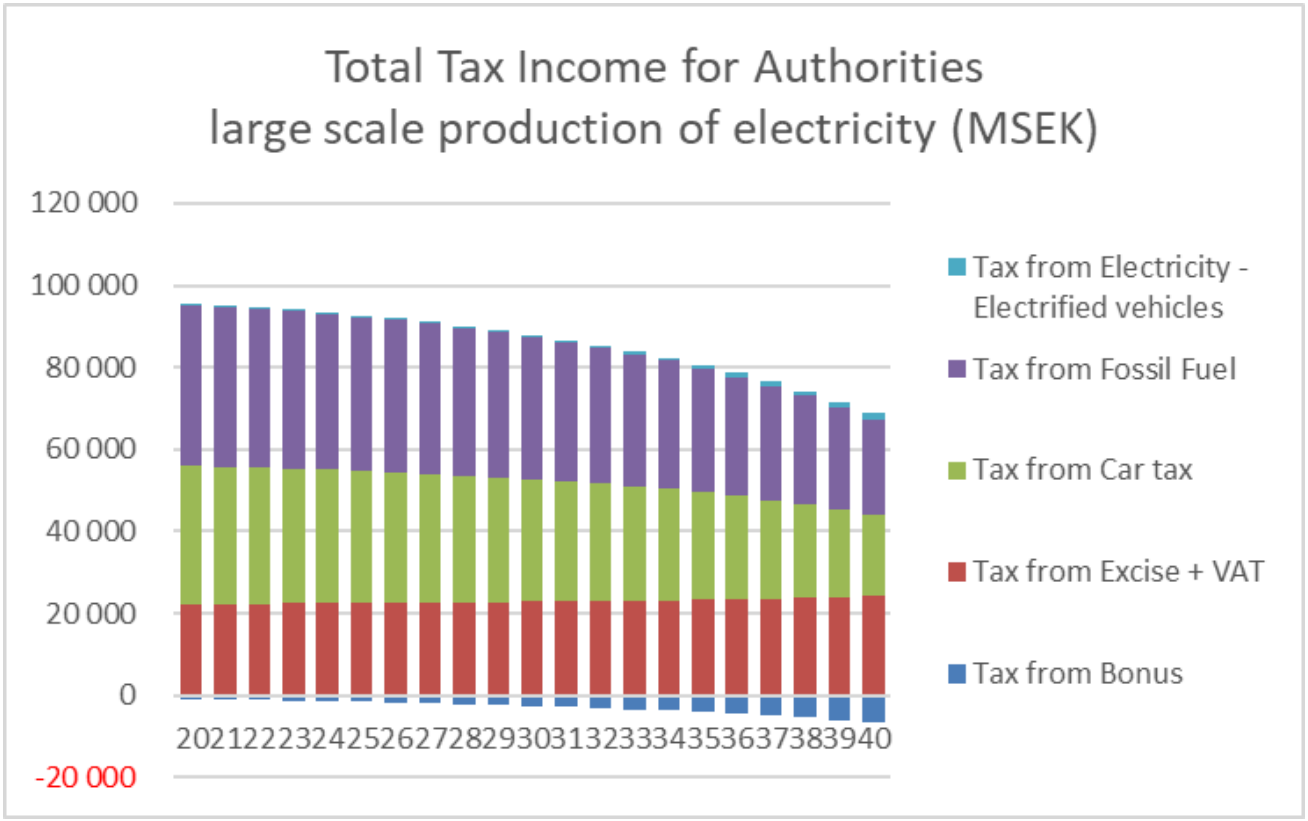
- Convenience and better life
  - Comfortable feeling of being self-sufficient with electricity insensitive to price variations of electricity
  - Convenient solution with respect to maintenance and usability (inductive charging even more convenient)
- Energy security
  - Backup power
- Environment
  - Lower emissions

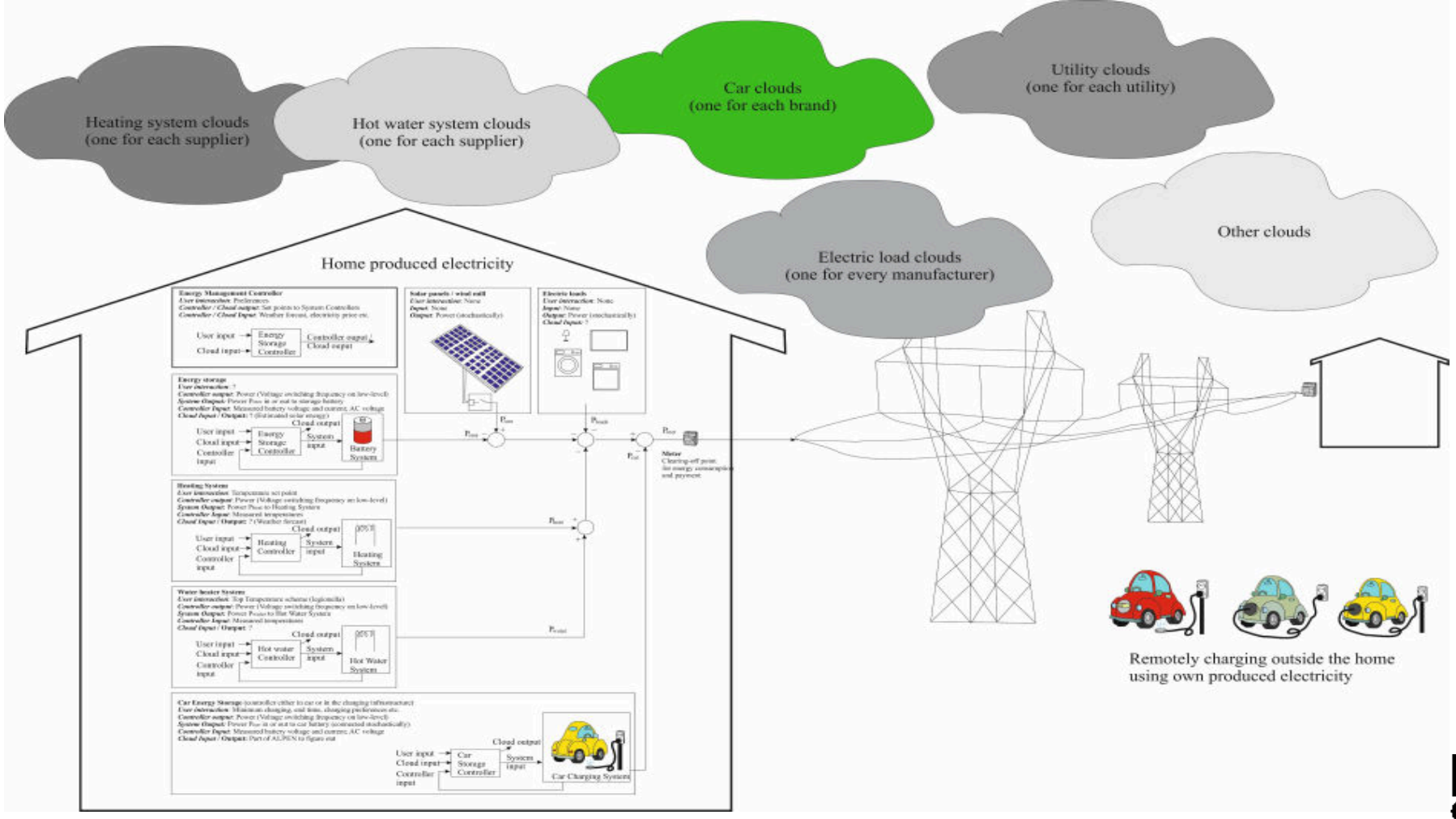
Cost for car customer versus time

kEuros /10



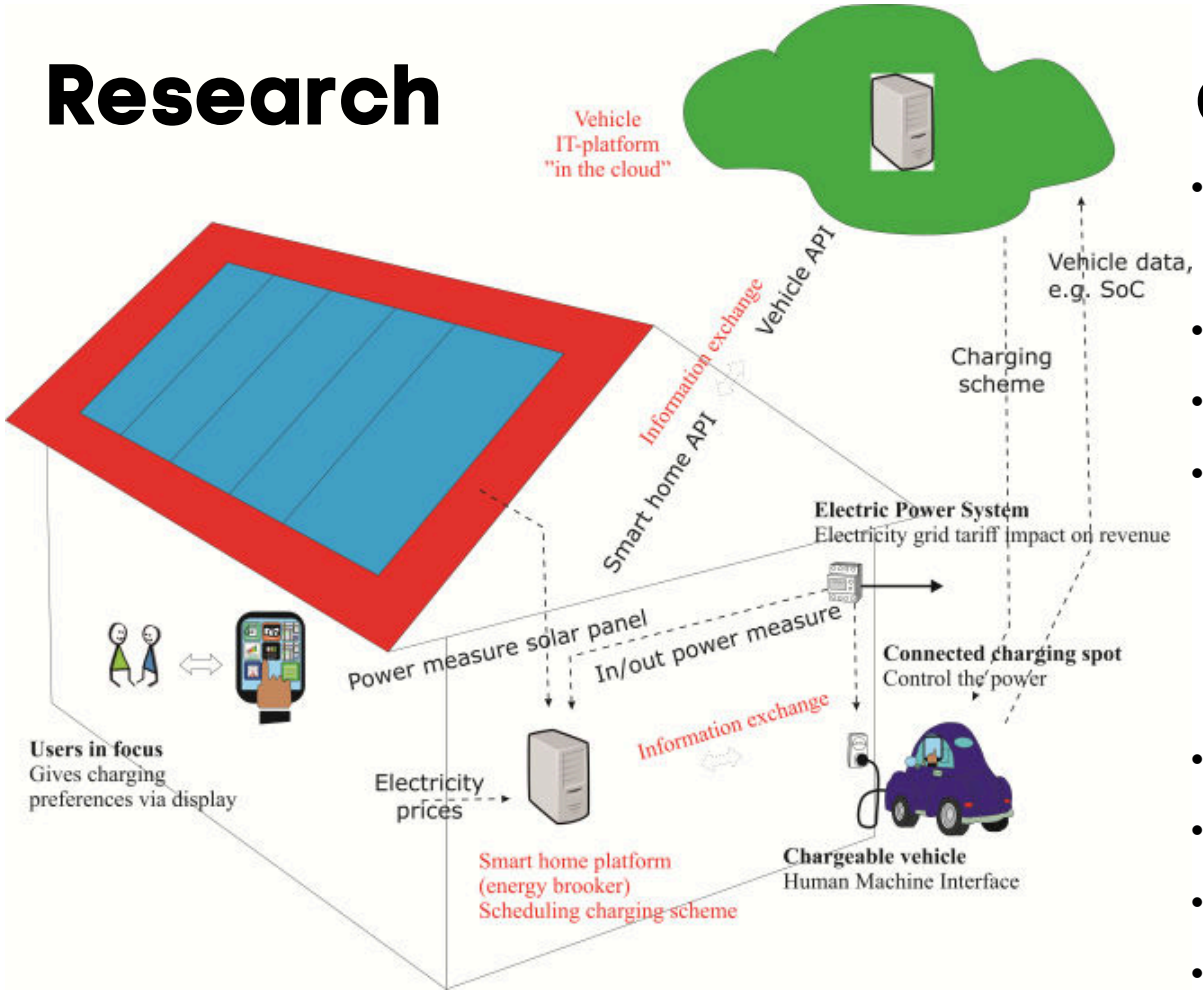
Tax revenue for the State versus time




Heating system clouds
(one for each supplier)
Hot water system clouds
(one for each supplier)
Car clouds
(one for each brand)
Utility clouds
(one for each utility)
Electric load clouds
(one for every manufacturer)
Other clouds
Home produced electricity
Energy Management Controller
Solar panels / wind mill
Electric loads
Energy storage
Heating System
Water heater System
Car Energy Storage
Energy Storage Controller
Battery System
Heating Controller
Heating System
Hot water Controller
Hot Water System
Car Storage Controller
Car Charging System
Meter
Remotely charging outside the home
using own produced electricity

1+1=3

Research areas



- User preferences
  - User interface in cars
- Business and eco-system
- Energy broker functionality
- Architecture& signal interfaces
  - Cloud APIs
  - Openness
  - Standardization
- Vehicle -> Grid
- Remote charging
- Grid tariffs
- Virtualfuse

Don’t forget the prosumers

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