Ministry of Economic Affairs


# Dutch vision charging infrastructure

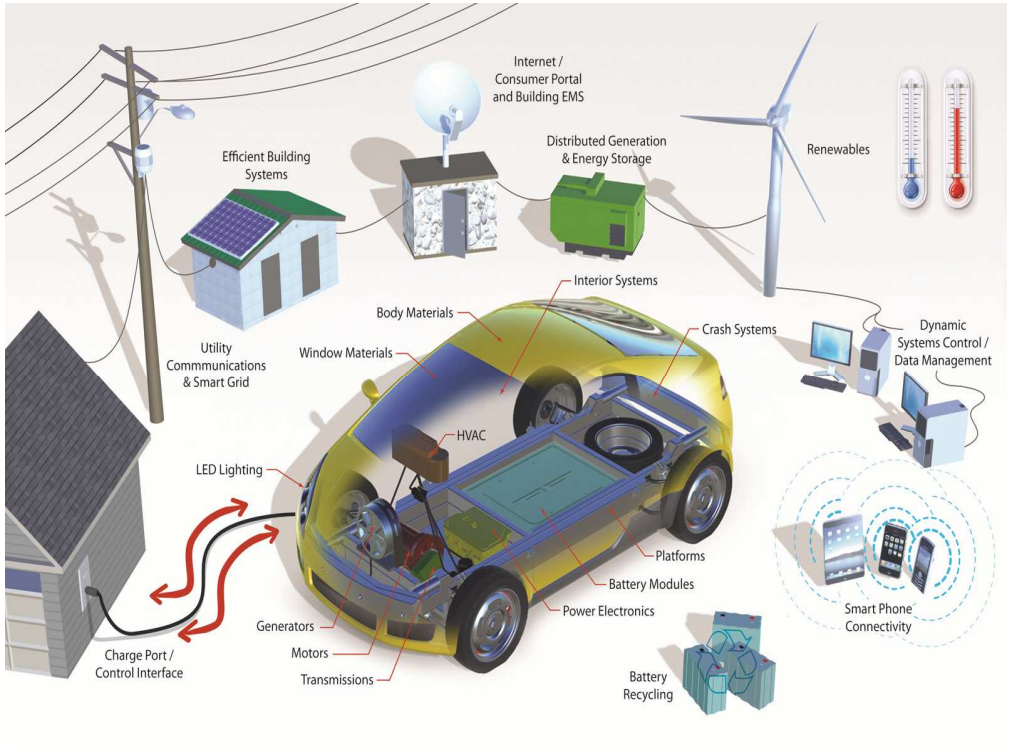
Marten Hamelink

**Top Sectors & Industrial policy Department**
Directorate-General for Enterprise & Innovation

# E-mobility in the Netherlands

*Why do the Dutch invest in electric vehicles?*

- Contributes to the economic position of The Netherlands
- Energy Security
  - Less dependent on oil
  - Electric vehicles are more efficient
  - Smart charging: energy storage, V2G and reduce grid investments
- $CO_2$ reduction



# E-mobility sector

ICT


Vehicles and boats


Components


Smart mobility

Charging infrastructure & roaming

# Green growth through e-mobility

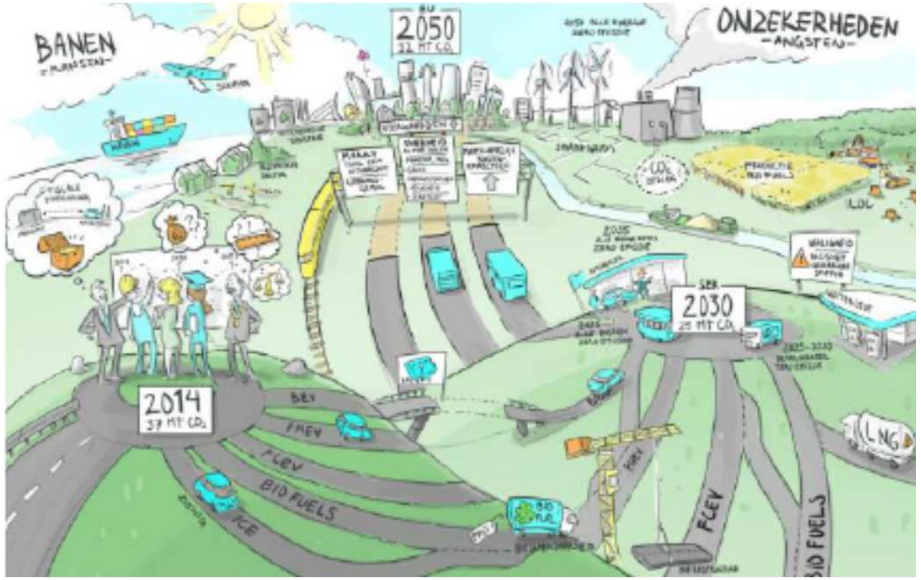
In 2014, electric driving added an estimated 3,200 jobs (FTE), €820 million in production, and €260 million in added value to the Dutch economy.


Source: CBS Statistics Netherlands/DOET/Netherlands Enterprise Agency

# Sustainable transport goals

- New registered cars zero emission in 2035
- All cars capable for zero-emission in 2050
- In 2050: 60% less $CO_2$ emission (1990)

- ➢ Sustainable Fuel Vision
- ➢ National Energy Agreement for Sustainable Growth



# E-mobility ambitions

- 2020: 10% newly registered cars have e-drivetrain
- 2025: 50% newly registered cars have e-drivetrain
  - of which 30% is BEV
- Nationwide network of charging points
- Netherlands is a frontrunner in e-mobility
- 2020: >10.000 FTE in EV sector
- More e-driven kilometres for PHEVs

## The central government's Policy Agenda looking ahead to 2020

Incentivising market stimuli

7.1.1 *The central government's contribution to 'Publicly Accessible Electric Charging Infrastructure'*
7.1.2 *Environmental Investment Tax Scheme (MIA) for charging infrastructure*
7.1.3 *Temporarily reduced energy tax rate for charging points*
7.1.4 *Energy tax in respect of electricity storage*
7.1.5 *Netherlands Investment Agency (NIA)*

Organised collaboration

7.2.1 *Formule E-Team*
7.2.2 *Green Deal – Electric Transport 2016-2020*
7.2.3 *Green Deal – Publicly Accessible Electric Charging Infrastructure*
7.2.4 *Administrative Agreement on Zero-Emission Buses*
7.2.5 *Zero-Emission City Logistics Green Deal*
7.2.6 *City Deals*
7.2.7 *Regions and the energy agenda*

Knowledge and innovation

7.3.1 *NKL – National Knowledge Platform for Public Charging Infrastructure*
7.3.2 *Top sectors and innovative charging infrastructure*
7.3.3 *Energy Top Sector – Urban Energy TKI*
7.3.4 *High-Tech Systems and Materials Top Sector*
7.3.5 *Logistics Top Sector*
7.3.6 *Multi-year R&D innovation programme*

Incentivising legislation and regulations

7.4.1 *Implementation of the EU Deployment of Alternative Fuels Infrastructure Directive*
7.4.2 *Incorporating solutions for obstacles in legislation and regulations*
7.4.3 *Charging infrastructure and the built environment*
7.4.4 *Amendments to the regulatory framework to make the electricity system more flexible*

International engagement

7.5.1 *Development of open standards*
7.5.2 *Electric Mobility Europe*
7.5.3 *Interreg Europe*
7.5.4 *Partners for International Business (PIB)*
7.5.5 *Electric Vehicle Initiative (EVI)*
7.5.6 *HEV-TCP*

Evaluation

# Fiscal measures 2016

- Vehicle purchase tax
  - € 0 until 1 gr $CO_2$/km
  - € 6/gr 1- 79 gr $CO_2$/km
  - € 69/gr 80 - 106 gr $CO_2$/km, up in levels until € 476/gr > 174 gr $CO_2$/km
- Vehicle circulation tax
  - Exemption for ZEVs
  - Half tariff for PHEVs until 50 gr $CO_2$/km
  - Normal tariff is € 400 to € 1.200 (depending on fuel, weight and address)
- Reduction of taxation for private use of company car
  - 4% BEV, 15% PHEV (until 51 gr $CO_2$/km)
  - Others 21/25% of catalogue value added to income before taxes
- Environmental investment rebate
- Various local and regional incentives

# Green Deal Electric Driving 2016-2020


## Elektrisch Vervoer 2016 -2020

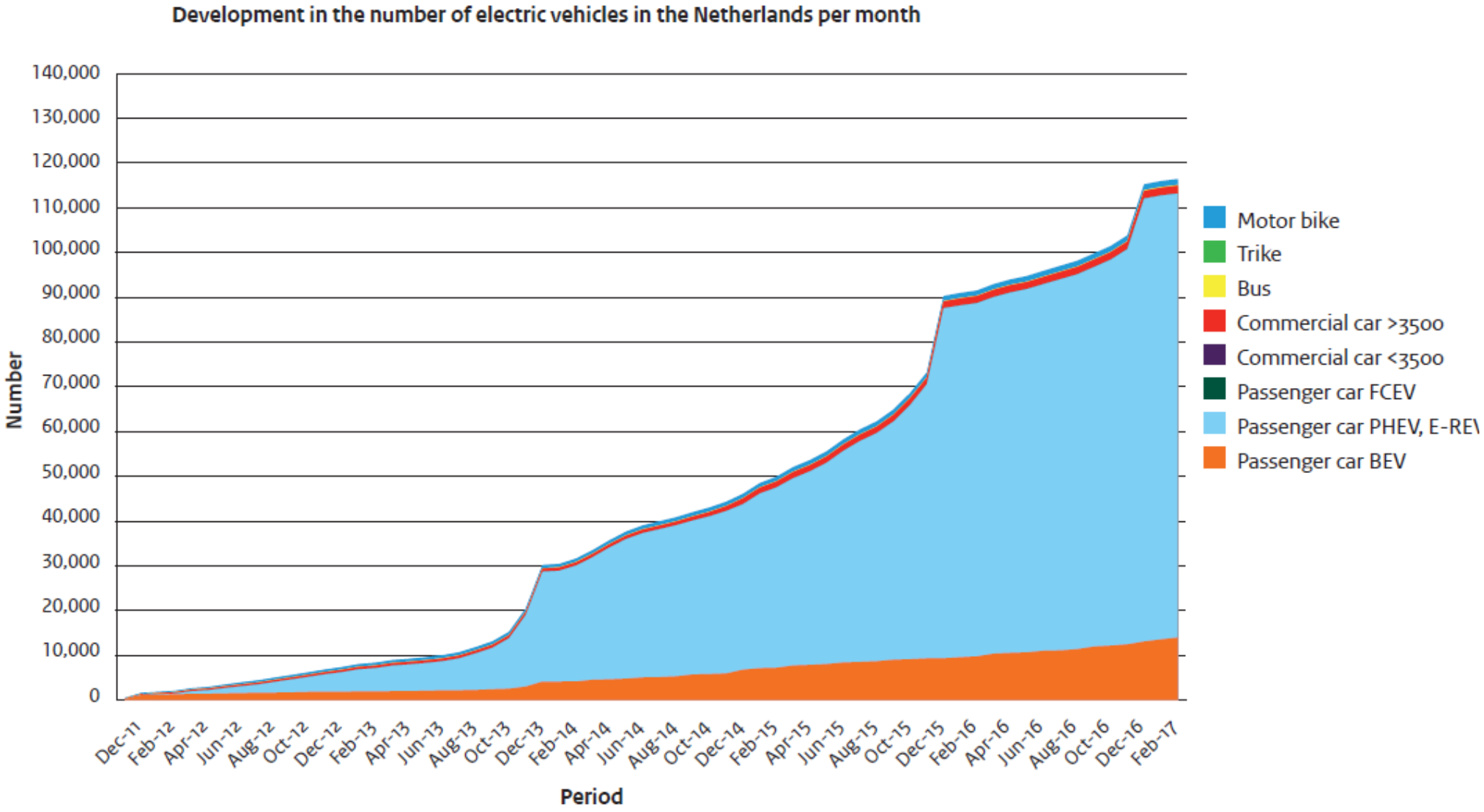
Ministerie van Economische Zaken
Ministerie van Infrastructuur en Milieu
anwb
AutomotiveNL
BOVAG
rai vereniging
netbeheer nederland
energie in beweging
NATUUR & MILIEU
De Groene Zaak
Doet
Dutch Organization for Electric Transport
energie-nederland
VNA
vereniging van nederlandse autoleasemaatschappijen
VNG
Vereniging van Nederlandse Gemeenten
TU Delft
TU/e
UNIVERSITY OF TWENTE.
3TU.
NVDE
MRA elektrisch
Provincie Noord-Brabant
Nederland elektrisch

# Green deal, actions of market parties

- **Lease companies**: actions to make lease cars attractive for consumers
- **Automotive sector**: develop an independent battery test
- **Distribution system operators** (DSOs): internationalise standards such as OCPI
- **Various living labs**

# Green Deal government actions

- Roll out of public infrastructure
- Launching customer
- Develop roadmaps to stimulate innovation
- Take away obstructive laws and regulations


Development in the number of electric vehicles in the Netherlands per month
Number
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Dec-11
Feb-12
Apr-12
Jun-12
Aug-12
Oct-12
Dec-12
Feb-13
Apr-13
Jun-13
Aug-13
Oct-13
Dec-13
Feb-14
Apr-14
Jun-14
Aug-14
Oct-14
Dec-14
Feb-15
Apr-15
Jun-15
Aug-15
Oct-15
Dec-15
Feb-16
Apr-16
Jun-16
Aug-16
Oct-16
Dec-16
Feb-17
Period
Motor bike
Trike
Bus
Commercial car >3500
Commercial car <3500
Passenger car FCEV
Passenger car PHEV, E-REV
Passenger car BEV

# Green Deal on public charging infrastructure

- Government financial contribution for public charging poles
- Provided that municipality and market party contribute equally
- In total €5,7 million
- And installation of the Netherlands Knowledge  Platform on Public Charging Infrastructure

# Development of charging points

| Charging points[4] | 31-12 2014 | 31-12 2015 | 31-12 2016 |
|---|---|---|---|
| Public (publicly accessible 24/7) | 5,421 | 7,395 | 11,768 |
| Semi-public (with restricted public access) | 6,439 | 10,391 | 14,320 |
| Fast charging points | 254 | 465 | 612 |
| Private charging points | 28,000 | 55,000 | 72,000 |
| Total | | | 98,700 |

4 The figures for private charging points are an estimate based on research and extrapolation based on registered EVs.

# Smart charging ready

**Top 10 gemeenten met het hoogste aantal Smart Charging Ready laadpalen.**

| | Gemeente | Aantal SCR laadpalen |
|---|---|---|
| 1 | Amsterdam | 950 |
| 2 | Den Haag | 669 |
| 3 | Rotterdam | 661 |
| 4 | 's-Hertogenbosch | 95 |
| 5 | Eindhoven | 80 |
| 6 | Breda | 62 |
| 7 | Tilburg | 49 |
| 8 | Alkmaar | 39 |
| 9 | Haarlem | 31 |
| 10 | Haarlemmermeer | |

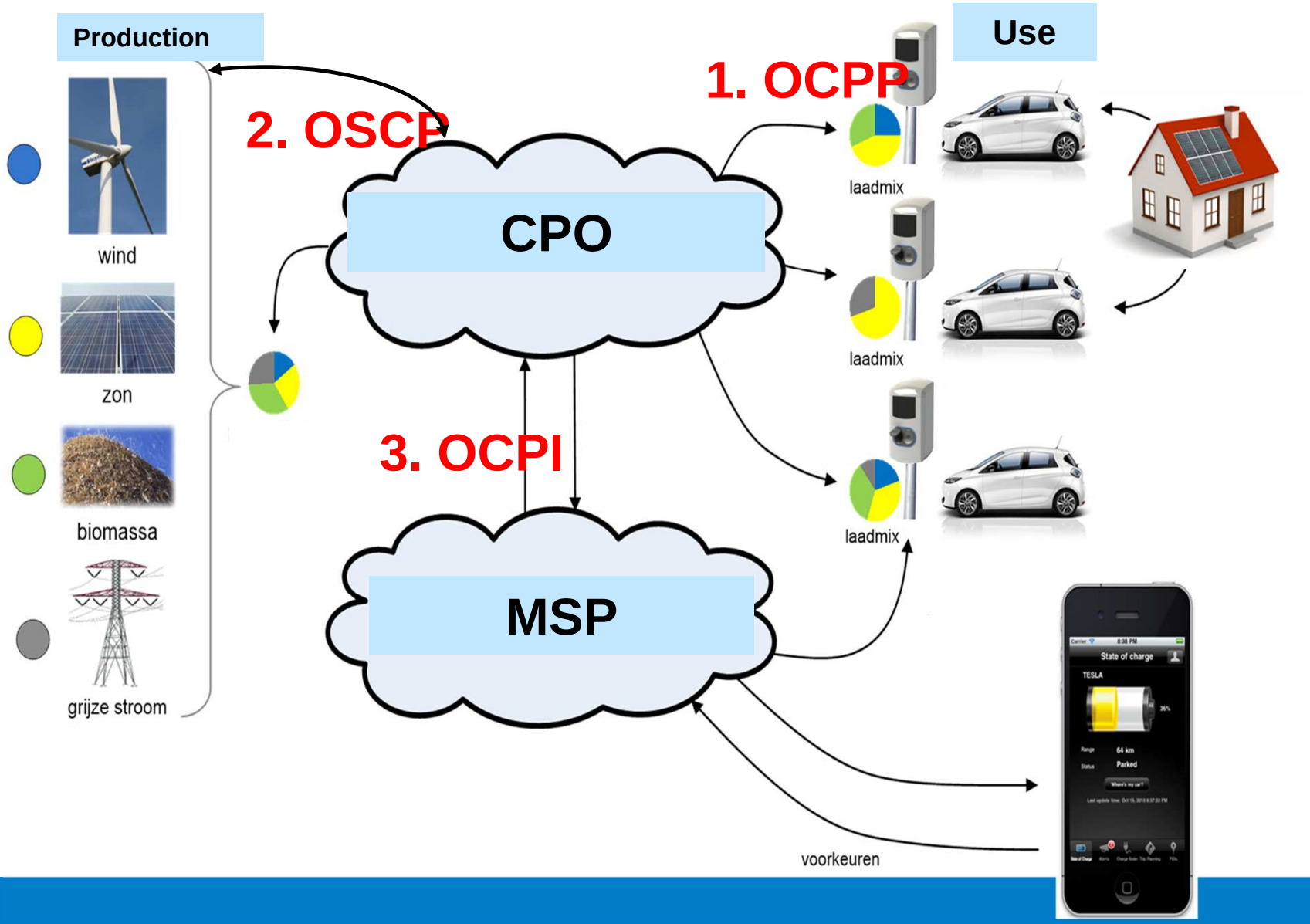
Vorige Alt+Pijl-links

LIVING LAB SMARTCHARGING

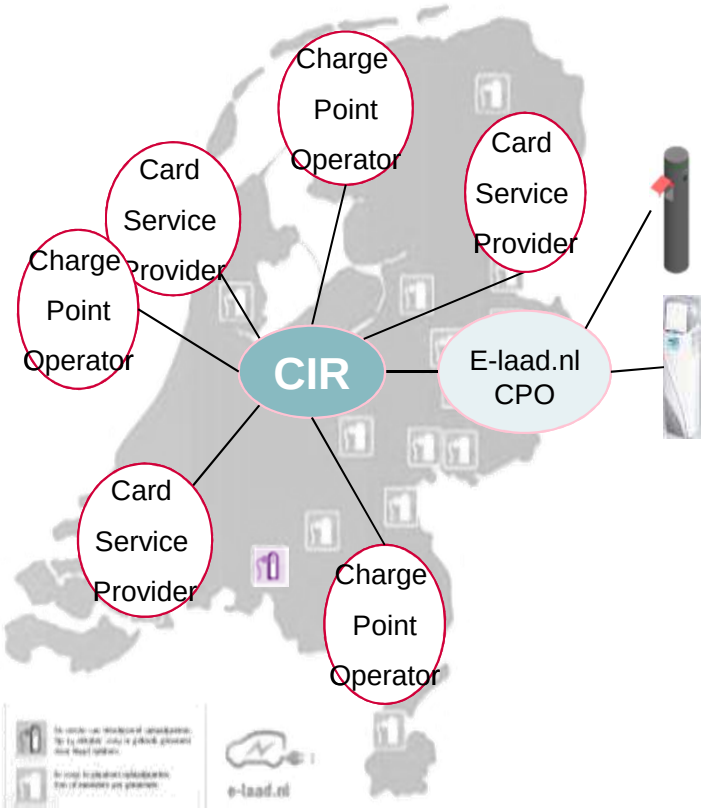
1. Smart Charging Ready (SCR) laadpalen

*Disclaimer:*

87% of public charging points is Smart Charging Ready


Production
wind
zon
biomassa
grijze stroom
2. OSCP
CPO
3. OCPI
MSP
1. OCPP
Use
laadmix
laadmix
laadmix
voorkeuren
State of charge
TESLA
64 km
Parked

# Dutch roaming system




- The only National roaming system in the world between independent operators and providers
- 100% of public charge stations connected + most semi public
- 25 Operators and Providers connected – managed by eVioLin
- NL + Belgium SPs and CPOs

# Dutch vision

- *Optimal accommodation of smart, autonomous electric transport in the Netherlands*.
- *Capitalising on economic opportunities*
- *Working to a profitable business*
- *A national network in a European context:*
  - *Interoperability & E-roaming*
- *Smart and flexible charging infrastructure within an increasingly sustainable energy system*

# Smart solutions required

- The rise of electric transport means there is a need for public (fast) charging stations, in particular for people who are unable to recharge at home or at work.
- Increase in scale will be a challenge for the energy network, which will face both an energy transition and a mobility transition.
- Smart and flexible solutions are required in order to facilitate a cost-effective development of the energy network.
- Electric transport is one of the best possibilities that has the potential to start playing a key role here.
- Smart charging in smart grids and V2G is therefore a solution which may save costs.

# Savings in the face of rising grid costs

That saving on costs results from:

- The reduction of the peak load and, consequently, the avoidance or deferral of investments in power grids.
- The contribution made to accommodating short-term fluctuations in electricity supply and demand in short-term markets and balancing markets (like frequency maintenance).

- The smart charging of electric cars at times when there is little demand for electricity therefore has the potential to make charging cheaper.

# The potential of V2G

- The developments and investments in increasingly smarter charging infrastructure systems will ultimately contribute towards a cost-efficient energy network in the long term.

# Thanx for your attention!

- Twitter @NedElektrisch
- NederlandElektrisch.nl

- Questions:
  M.hamelink(a)minez.nl