



EV charging in the Netherlands

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Nationaal Kennisplatform
Laadinfrastructuur

Introduction

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NKL Netherlands

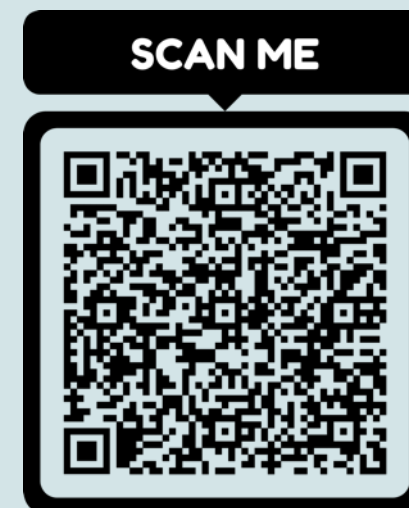
A national, independent knowledge platform for public charging infrastructure

To develop a positive business case for EV charging: a mature market, cost-efficient and future-proof

In collaboration with governments, market players, knowledge institutions, grid operators

Products are public and broadly applicable:

- Policy development, prognoses, locations, installation, tendering, contracting, monitoring
- EV charging for logistics and commercial transport: community building, pilots, knowledge development
- Customer journey, benchmarks on service and price transparency
- Human Capital Agenda
- Open standards and protocols (OCPP, OCPI)



The EV charging ecosystem in the Netherlands

3 phases...



2009-2014: “Champions” phase

Innovators drive the development of electric mobility,

Driven by: CO2- reduction,

Clean air,

Flexible storage for renewable sources,

Economic potential

Focus:

- Basic network of charging stations
slow and fast charging
- Defining the market for EV charging
- “Rules of the game”

- *Utilities (Grid operators, Energy supply) investigate new roles as CPO, MSP*
- *Elaad (grid EV expert organization) rolls out charging stations, develops OCPP protocol*
- *Formula E-team as the independent public-private EV council*
- *Cities (Amsterdam, Rotterdam) start with concessions*
- *Innovative new businesses appear (EVBOX, NewMotion, Fastned, ABB EV, etc)*
- *EV charging business association eViolin*

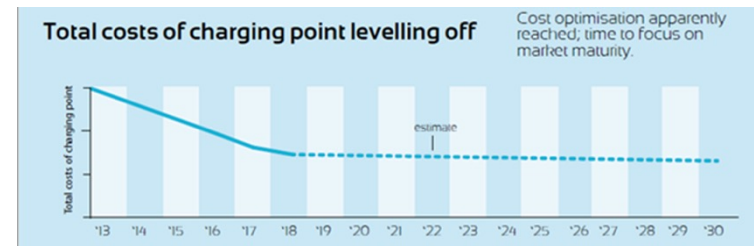


2014-2019: “New Market” phase

Leading players develop a business case for EV charging, the government provides structural support

Focus:

- Expanding the network of charging stations
- Developing EV charging services
- Smart Charging
- “Making money”



- *National Knowledge Platform for Charging Infrastructure*
- *Open roaming protocol OCPI*
- *Ministry of Economic Affairs -> Ministry of infrastructure*
- *EU directives (AFID, ITS)*

2019- 2023: “Growth Market” phase

Government decides on a Climate Agreement.
The National Charging Agenda is being developed:
A structured collaboration with a strong regional approach.
A positive business case for urban areas appears

Focus:

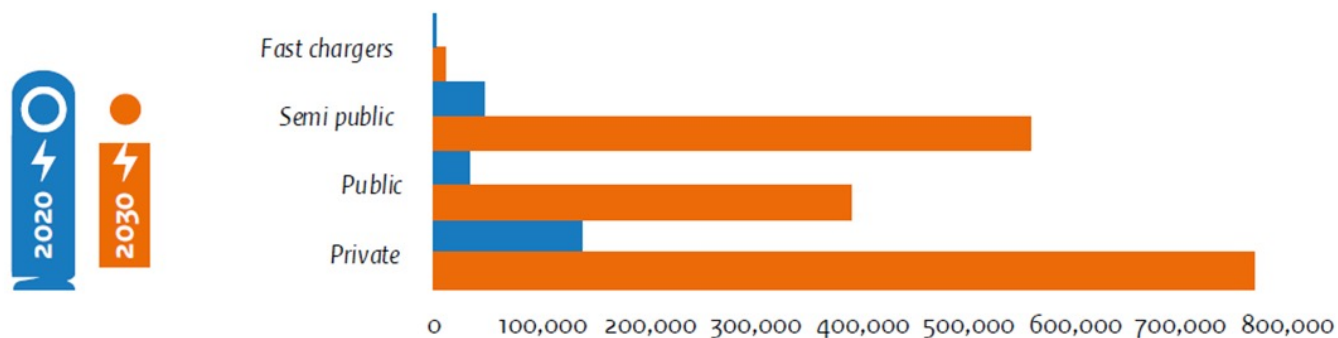
- Charging station differentiation
- Charging for new EV domains (logistics etc)
- Vehicle-to-grid
- Developing user-centric services, customer experience
- EV charging as an international market



The National Charging Agenda (NAL): Regional collaboration and acceleration

- 6 regions with different focus areas
- Supporting municipalities with roll-out
- Active collaboration with grid operators (Elaad)
- Active collaboration on development of knowledge and best practices (NKL)

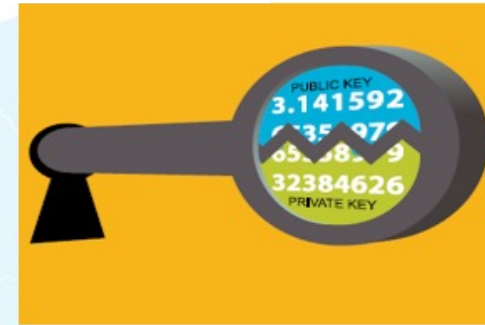
Charging point prognoses



The National Charging Agenda (NAL): Focus of activities



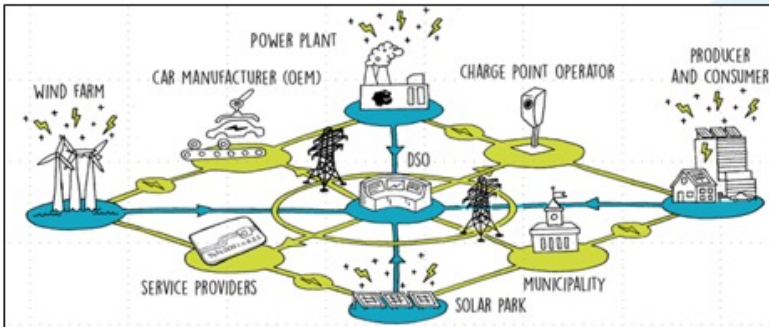
Accelerating rollout & realization process



OCPP
Open Charge Point Protocol



Open markets & open protocols



Upscaling smart charging & V2G



Safety & cyber security



Logistics & transport

A market driven model

Governments

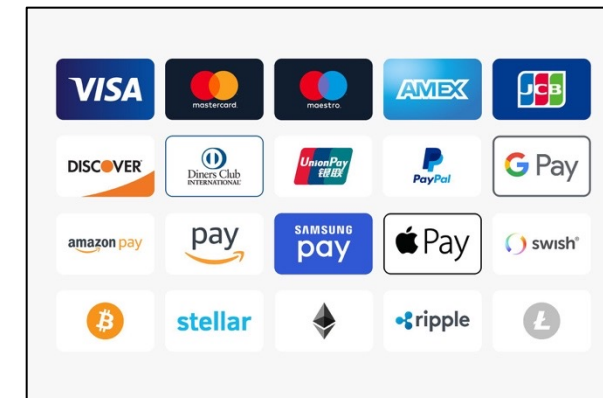
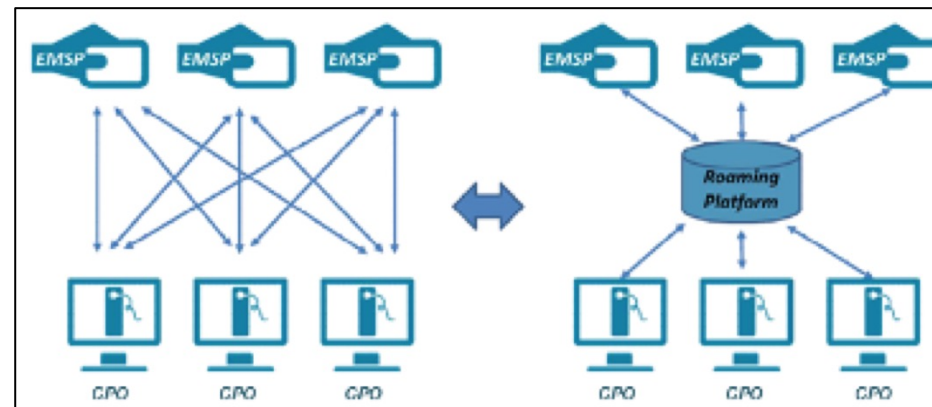
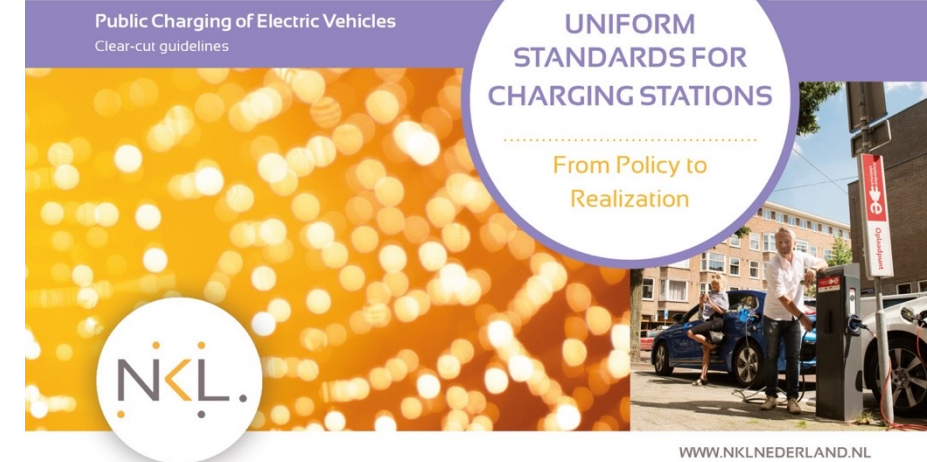
- Focus on accelerated implementation
- Central vs local organization and mandate
- Market vs Government mandate
- Policy and contract standardization
- A fair marketplace
- Public space is sacred



A market driven model

Business

- Joint business framework fundamentals
- Drivers of innovation (data, smart, V2G)
- Connecting adjacent sectors (energy, transport, urban development)



A market driven model

Users

- Availability of chargers
- Information
- Pricing
- Transparency
- Service



In a market driven model, **the EV driver is the central focal point**

But do we really take this perspective?

Success factors & challenges

- Government vision and leadership
- Public-Private collaborations (NKL, Elaad, eViolin,...)
- Dense and mature infrastructure
- Open Market & Economic value



Success factors & challenges

- Vision and leadership
- Public-Private collaborations
- Open Market
- Economic value

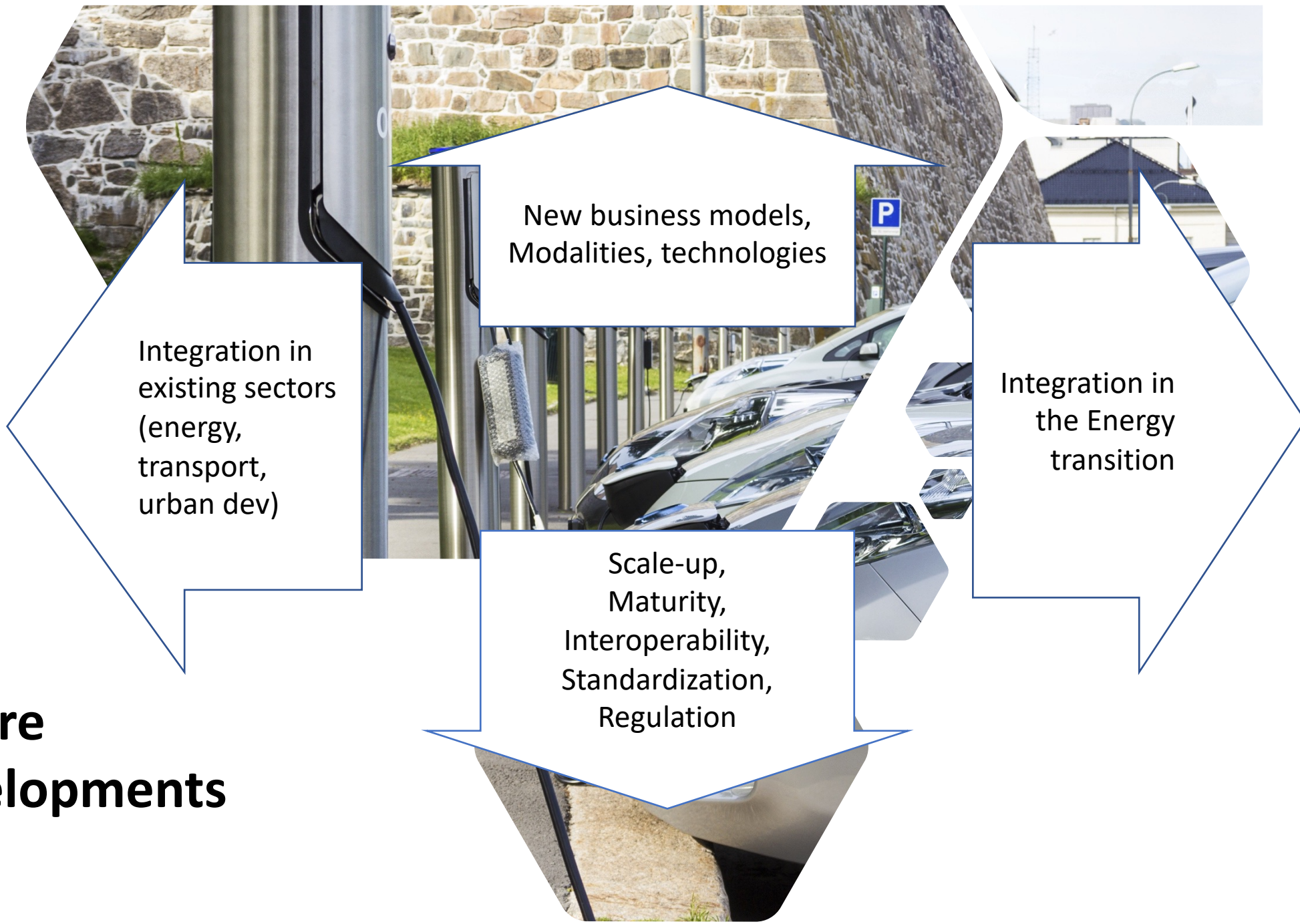
- Grid capacity
- Electrification of commercial vehicles
- Integrating in 'old' economy
- Mobility policies





**Future
developments**

Future developments



Integration in
existing sectors
(energy,
transport,
urban dev)

New business models,
Modalities, technologies

Scale-up,
Maturity,
Interoperability,
Standardization,
Regulation

Integration in
the Energy
transition

Thank you !

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