



Infrastructure for HDV

Global MoU webinar
Tuesday 10 May 2022

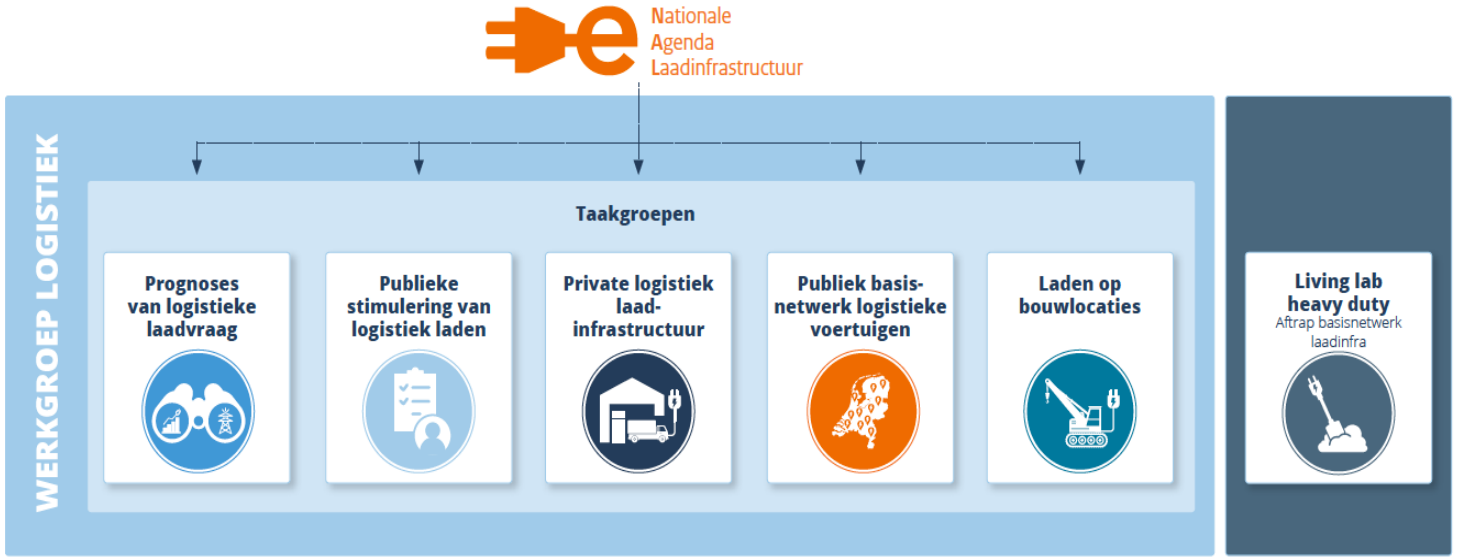
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National charging infrastructure agenda (NAL)

- Charging infrastructure should not be a barrier to transition to battery electric logistics
- Steering committee NAL and collaborative agreements with met 5 NAL-regions en G4 (Amsterdam, Rotterdam, The Hague and Utrecht)

- Working group NAL Logistics:



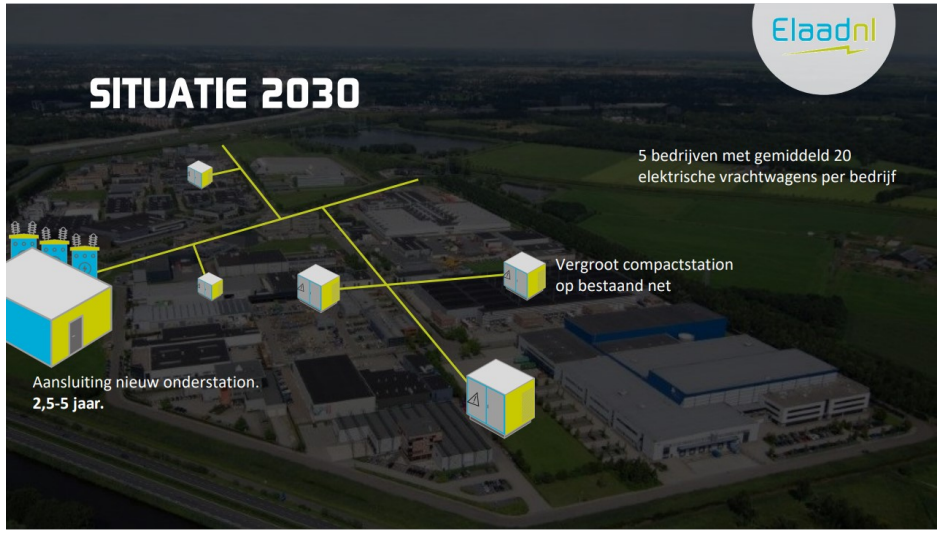


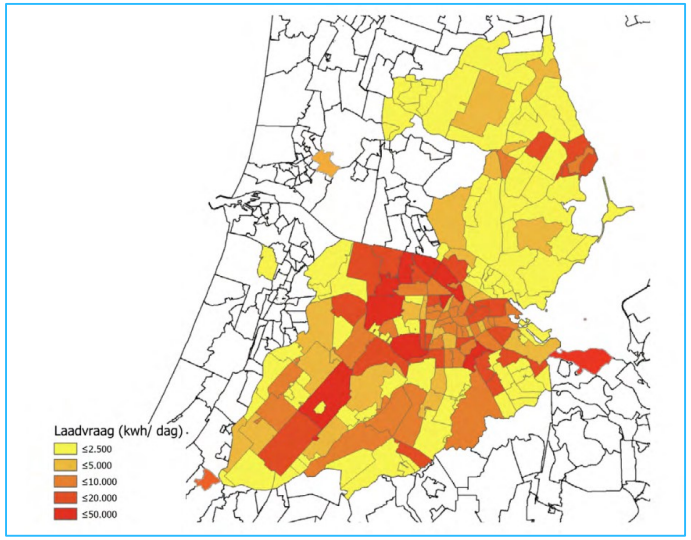
Sufficient deployment of charging infrastructure

- Public vs private charging
- Fast charging vs regular charging
- Reliability and availability
- Sustainable businesscase and appropriate market rules for publicly accessible charging
- Application of smart charging
- Cross-over with other applications (E-OV Hub Kralingse Zoom RET)
- Future proof grid capacity
- Funding hardware, software, land or grid upgrades?

Challenges for timely deployment

- Appropriate funding mechanisms
- Personnel capacity at local governments
- Future proof grid capacity






Noordhollands Dagblad

Premium

Albert Heijn wil wel rijden met elektrische vrachtwagens maar kan niet, want het stroomnetwerk is vol: 'Als we in 2030 klaar willen zijn, dan moeten we nu handelen'

Een truck aan de oplegger bij het distributiecentrum van Albert Heijn in Zaandam.

1. How to deal with different types of locations?

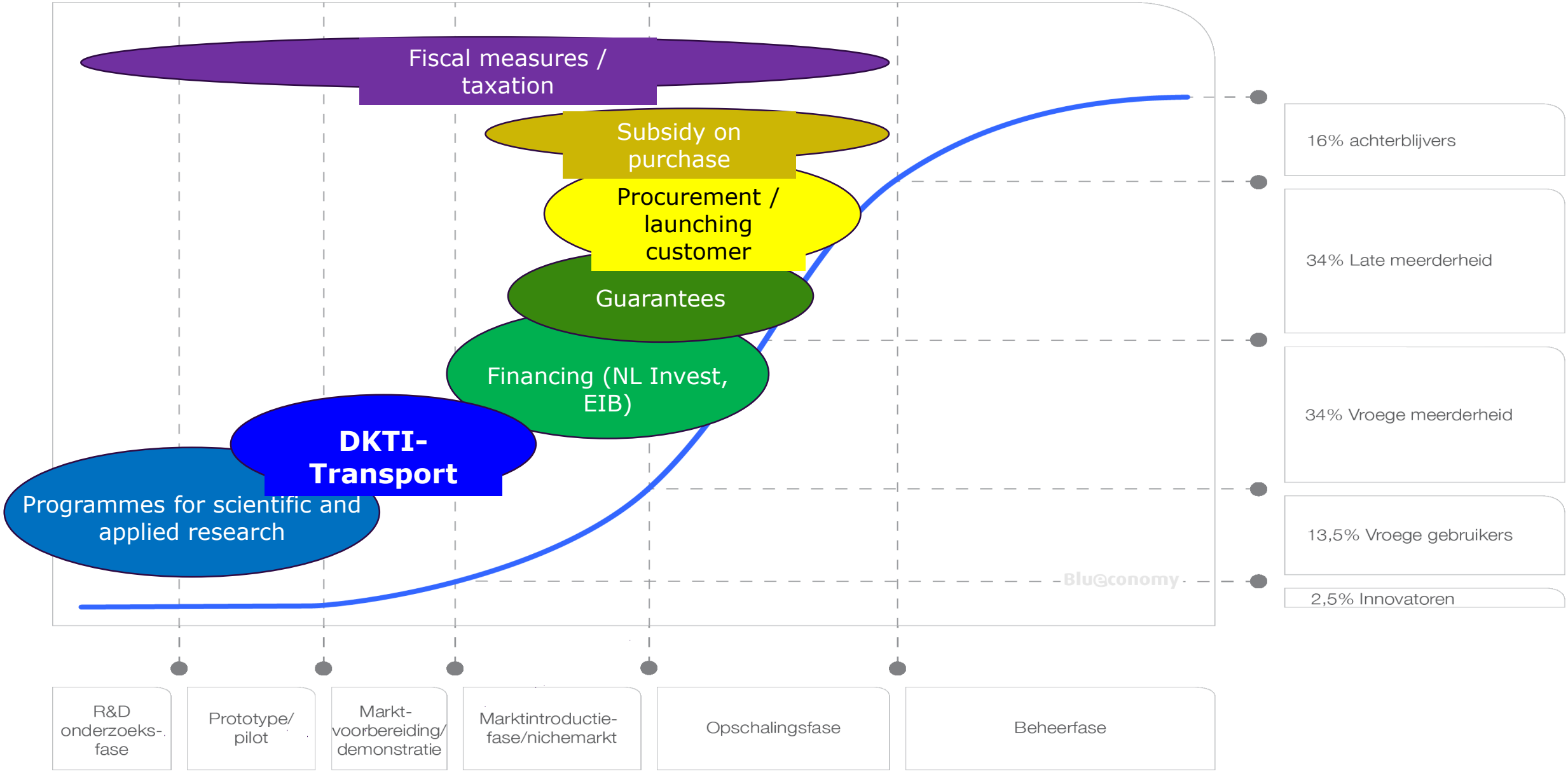
Lower energy density and refill speed, so more locations needed!

- Option 1: Expansion of existing refueling infrastructure
- Option 2: New locations with zero emission infrastructure
- Option 3: Industrial scale locations (multimodal, such as harbours)

These locations can be on public lands or private lands, which further complicates the puzzle.

For governments its important to have a rollout vision/strategy for these different location types

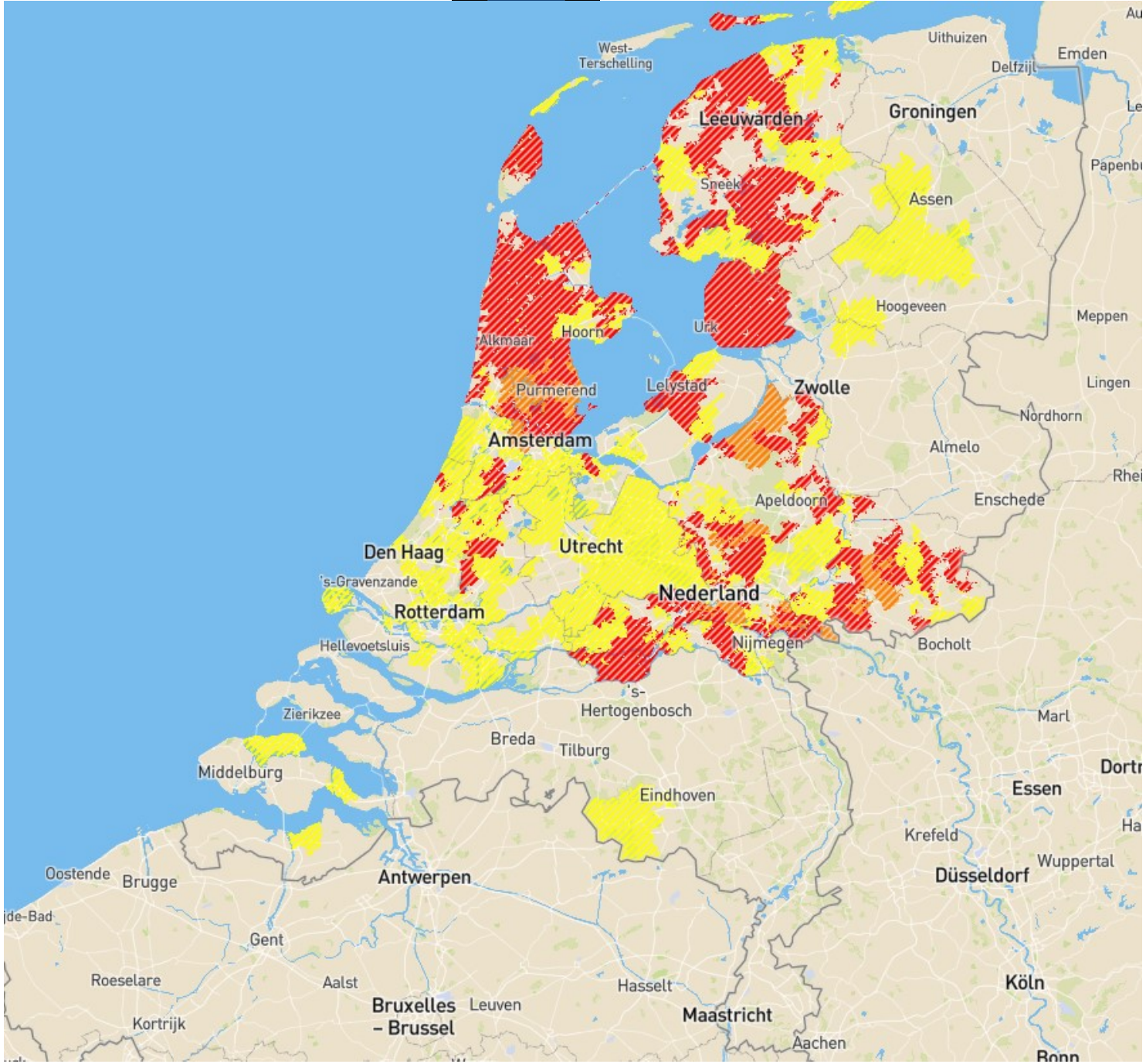
1. Instruments for introduction new technologies



2. Personnel capacity at (local) governments

- Many tasks for infrastructure rollout are set with local governments or agencies
- Not all local governments have appropriate budget allocation to allow staff to work on charging infrastructure
  - Often starts with one person that only spends part of the time on that topic
- Roles and responsabilities are not clearly distributed
- NLD implemented expert pools to support local governments
- New coalition agreement also adds substantial budget to local governments for the energy transition

3. Future proof grid capacity



https://capaciteitskaart.netbeheernederland.nl/

3. Future proof grid capacity

- EHS = Extra high voltage
- HS = High voltage
- MS = Medium voltage
- Jaar = year
- Kosten = costs

stations	ruimtebeslag	doorlooptijd	kosten in €, excl grond
EHS/HS station EHS naar HS omzetten Vermogen: >500 MVA	40.000 - 100.000 m2	7 - 10 jaar	10 x 10 zakjes > 100.000.000
HS/TS station HS naar TS omzetten Vermogen: 100-300 MVA	15.000 - 45.000 m2	5 - 7 jaar	2,5 x 10 zakjes > 25.000.000
HS/MS station HS naar MS omzetten Vermogen: 100-300 MVA	15.000 - 40.000 m²	5 - 7 jaar	2,5 x 10 zakjes > 25.000.000
TS/MS station TS naar MS omzetten Vermogen: 20-100 MVA	2.000 - 10.000 m²	2,5 - 5 jaar	1.500.000 - 10.000.000
MS station koppelt LS netten en distributiefunctie Vermogen: 10-40 MVA	200 - 4.000 m²	2,5 - 3 jaar	1.300.000 - 6.500.000
MS/LS station MS naar LS omzetten, per station ca. 50-250 huishoudens op aangesloten Vermogen: 0,2-1 MVA	10 - 35 m²	0,5 - 1 jaar	35 - 250

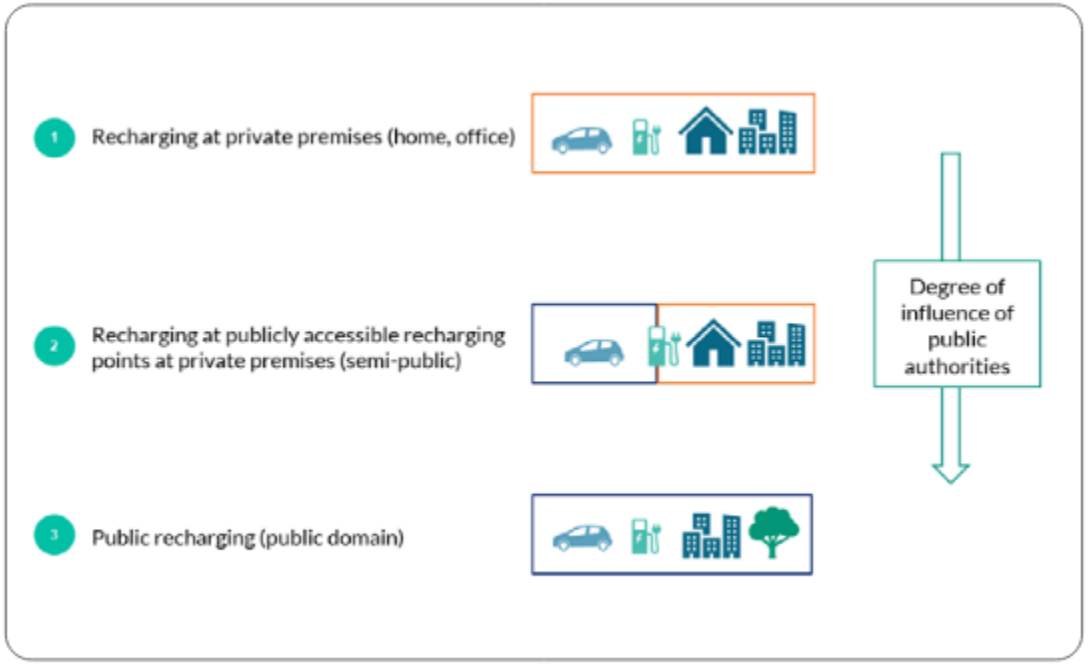
Wat kost een verbinding in ruimte, tijd en geld?

verbindingen	tracébreedte	doorlooptijd	kosten in €/m
lijn EHS/HS EHS naar HS brengen Vermogen: >500 MVA	100 m	7 - 10 jaar	5.000 - 10.000
kabelcircuit HS HS naar TS brengen Vermogen: 100-300 MVA	10 m	5 - 7 jaar	1.000 - 5.000
kabelcircuit TS HS naar MS brengen Vermogen: 100-300 MVA	10 m	1 - 3 jaar	300 - 1.000
kabelcircuit MS EHS naar HS brengen Vermogen: 20-100 MVA	1 - 10 m	0,5 - 3 jaar	100 - 400
kabelcircuit LS koppelt MS-n etten, transport- en distributiefunctie	circa 1 m	0,5 - 1 jaar	70 - 150

[Basisdocument_over_energie-infrastructuur_143.pdf (netbeheernederland.nl)]

Role public sector

- Different support mechanisms per development phase
- Clear strategy for all location types at appropriate levels of government
- Clear communication with grid operators for timely grid upgrades
- Setting minimum requirements (standards & protocols) for the infrastructure



Source: Floris Jousma (Fier Automotive), "Planning the roll-out of (public) recharging infra", (with adaptations)

Role private sector

- Clear picture with logistics value chain where HDVs are going to charge
- Willingness to share data in pilot phase to support further rollout strategies and funding from governments
- Perspective towards a healthy business case
- Compliance with evolving rules and requirements