



# Transition towards a more sustainable energy and mobility sector Electric Mobility in Belgium

*Carlo Mol – Project Manager Energy Technology*



# Access NSR



- ACCESS, Interreg VB North Sea Region Programme
- Europe is moving towards more sustainable, decentral and digital energy grids.
- **Cities** face the task of coordinating the local transition of renewable energy generation and storage while maintaining grid stability. Integration between energy vectors (heat, electricity) is necessary to enable wider flexibility and improved efficiency.
- Transition towards a more sustainable energy and mobility sector: Electric Mobility in Belgium



# Transition towards a more sustainable energy and mobility sector

## *Electric Mobility in Belgium*

- Technology & Business Models & Policy & End users
- Focus on electric mobility in next slides: high-level overview of trends / challenges / opportunities
- Based on my previous and ongoing experiences in electric mobility



- which already started in 2011 with the Flemish Living Lab Electric Vehicles

- continuing within the IEA TCP HEV



- and many research and demonstration projects within VITO/EnergyVille like



# Transition towards a more sustainable energy and mobility sector

## *Electric Mobility in Belgium*

- Technology & Business Models & Policy & End users
- Focus on electric mobility in next slides: high-level overview of trends / challenges / opportunities
- **Based on my previous and ongoing experiences in electric mobility**



- **which already started in 2011 with the Flemish Living Lab Electric Vehicles**

- continuing within the IEA TCP HEV



- and many research and demonstration projects within VITO/EnergyVille like





# Flemish Living Lab Electric Vehicles (2011-2015)



- Old project but topics and lessons learned still relevant
- Same topics were studied: Technology & Business Models & Policy & End users

## Start conference – Flemish Living Lab Electric Vehicles (29/9/2011)



## Partners involved: 48 industrial partners (1/3 SME) 15 public bodies, 9 research organisations

Partners Flemish Living Lab Electric Vehicles



Platform Coordinators



Companies



Local Governments



Research Institutes & Universities



# Flemish Living Lab Electric Vehicles (2011-2015)

- Old project but topics and lessons learned still relevant
- Same topics were studied: Technology & Business Models & Policy & End users

Looking back ..	2010	Initiative of the minister for innovation (Flemish Government) - Call for project proposals by the Flemish Agency for Innovation by Science and Technology
	2011	Approval of 5 living lab platforms : Volt-Air, iMOVE, EVA, Olympus, EVTecLab  Start conference – Flemish Living Lab Electric Vehicles (29/9/2011)
	2012	Setting up the platform structure : consortium agreement, working groups, ... Sourcing of platform infrastructure : vehicles, loggers, charging infrastructure, ICT, ... Selection of test population  Continuous activities during 2012-2014: <ul style="list-style-type: none"> <li>• <b>Open real-life test infrastructure : data monitoring - surveys - ...</b></li> <li>• <b>Innovation and research projects - User committees</b></li> <li>• <b>Common working groups : interoperability, data monitoring, testpopulation</b></li> <li>• <b>(Inter)national contacts</b></li> <li>• <b>Dissemination &amp; Communication &amp; Education</b></li> <li>• ...</li> </ul>
	2013	2014
.. & into the future	2015	Continuation of innovation and research projects & part of test infrastructure Final end report Flemish Living Lab Electric Vehicles  EVTecLab : launch of e busses with inductive charging (< 6/2015)
	2017	Deadline : Clean Power for Transport directive !!! National action plan ready !!!

## AGENDA



0. Introduction – Living lab



1. Electric vehicles



2. Charging infrastructure



3. Real life test population



4. Energy services



5. Mobility services



6. International fora



7. Panel debate



# Flemish Living Lab Electric Vehicles (2011-2015)

Infrastructure - vehicles: 401 EVs - more than 2.600.000 km monitored



Infrastructure - charging: 861 charging points (bikes & cars) at 163 locations



Infrastructure - ICT platforms: data monitoring and mobility services



Test population



## Projects

- 56 projects started - some still continuing
- wide range of subjects: vehicle technology, charging technology, energy delivery, user behaviour, services, business models, ...



# Flemish Living Lab Electric Vehicles (2011-2015)

## 4. Energy services



1. Charging and energy market aggregation

**Luc Dossche**  
Sales & Business Development Manager  
REstore  
iMOVE



2. Charging at home



3. Charging at semi public sites with green energy production

**Thomas Zeebergh**  
Project manager Volt-Air  
Siemens  
Volt-Air

On the electricity grid, supply and demand needs to be balanced at all times



### WHAT HAPPENS DURING IMBALANCE?

When there's an imbalance

Too high/low voltage  
Non constant frequency

Damage to electrical appliances  
Black-out risk



### HOW TO BALANCE THE GRID?



- Protect the balance on the grid by
  - Ramping up/down of production
  - Steering of consumption processes (e.g. EV's)

## Micro-grid at Siemens – Proof of Concept



PV park  
500 kWp /  
400 MWh/y

7 charging poles



IT platform /  
Data loggers



Cogeneration  
9kWe / 17kWth

6 Electric Vehicles



Energy Management system DEMS®

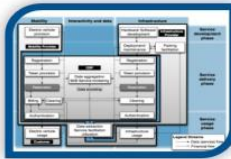


# Flemish Living Lab Electric Vehicles (2011-2015)

## 5. Mobility services



1. The future is networked and shared



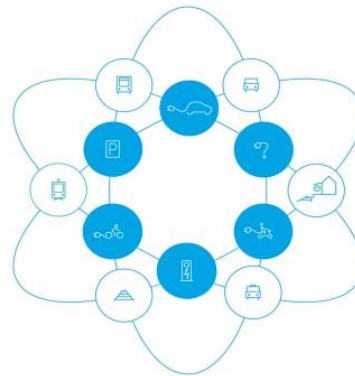
2. Open Service Platform B-to-B



3. Belfius E-fleet: innovative mobility service offering

**Koen Van De Putte**  
B-MS.22 Marketing & Sales  
Networked Mobility Development  
NMBS  
Olympus

## From owning vehicles to sharing mobility services



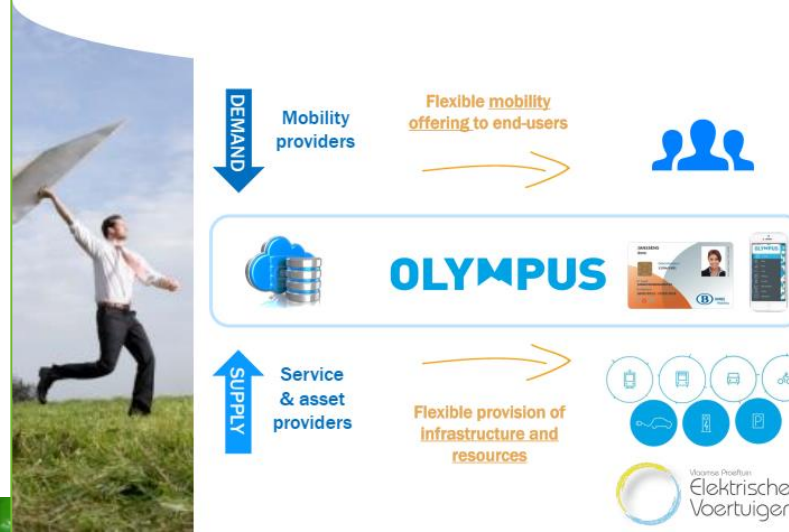
Sustainable mobility is a service that is not longer based on the ownership of vehicles, but on the use of vehicles within a flexible mobility offering.

The user becomes the **director** of his own mobility.

## Sharing mobility



## Platform where supply and demand meet



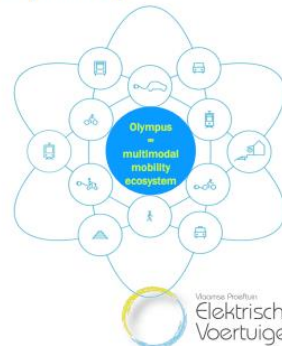
## Olympus helps partners make the most of new business development

Offer flexible multimodal mobility solutions in a convenient way to end-users

- Within defined mobility budget ("cafeteria plan")
- Integrating company cars, shared and public transport

Facilitating development of EV

- Interoperability of charging infrastructure
- Smart charging and energy balancing
- Boosted sales cycle





# Flemish Living Lab Electric Vehicles (2011-2015)

## Dissemination & Communication & Education 22 juni 2012: The-electric drive-in theatre



## Dissemination & Communication & Education



## Dissemination & Communication & Education



## Dissemination & Communication & Education



# Flemish Living Lab Electric Vehicles (2011-2015)



	<p>Final conference – Flemish Living Lab Electric Vehicles (1/12/2014)</p>
	<p>2015 Continuation of innovation and research projects &amp; part of test infrastructure Final end report Flemish Living Lab Electric Vehicles EVTecLab : launch of e busses with inductive charging (&lt; 6/2015)</p>
<p>.. &amp; into the future</p>	<p>2017 Deadline : Clean Power for Transport directive !!! National action plan ready !!!</p>

## Clean Power for Transport directive



National action plans : Deadline end 2016 !!!

Will be a extra boost ... also for the e-mobility sector !!!



- \* Electric mobility makes a lot of sense \*
- \* for ecological & economic reasons \*
- \* & it is fun to drive an EV \*

----

??? what if everything ran on gas or what if it didn't ???  
[http://www.youtube.com/watch?v=Nn\\_9hLJKAK](http://www.youtube.com/watch?v=Nn_9hLJKAK)





# Transition towards a more sustainable energy and mobility sector

## *Electric Mobility in Belgium*

- Technology & Business Models & Policy & End users
- Focus on electric mobility in next slides: high-level overview of trends / challenges / opportunities
- **Based on my previous and ongoing experiences in electric mobility**



- which already started in 2011 with the Flemish Living Lab Electric Vehicles

- **continuing within the IEA TCP HEV**



- and many research and demonstration projects within VITO/EnergyVille like



**Open Thor**  
LIVING LAB

# Situation 2022 - Policy

## AFIR: How can the EU's infrastructure law make Europe 'fit for 55'?

The European Commission has presented a solid proposal on the Alternative Fuels Infrastructure Regulation (AFIR), ensuring there is sufficient public charging infrastructure to follow the deployment of zero emission cars.



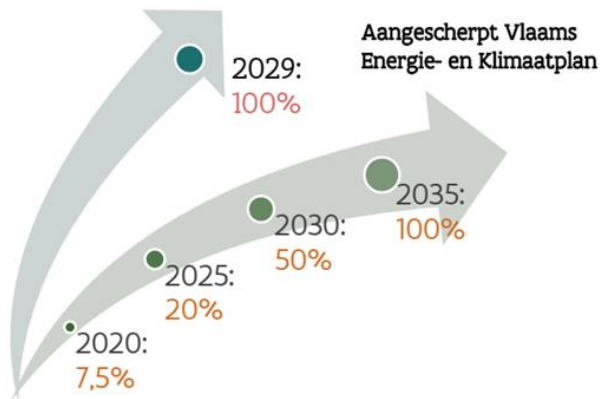
## Beleidskader (vernieuwd in 2021)



- Vlaamse visie/actieplan 'Clean Power for Transport': beleidskader voor beleid milieuvriendelijke voertuigen met ambities en acties (incentives, infrastructuur, projectwerking, communicatie, ...)
- Regelgevend kader (decreet en BVR) voor uitrol laadinfrastructuur en mogelijke ondersteunende maatregelen

# Situation 2022 - Policy

## Beoogd marktaandeel zero-emissie personenwagens



... en andere voertuigtipes

5 Nov 21

NEWS

## Flanders to ban new ICE sales by 2029

Electrification



The government of Flanders, the northern region of Belgium, has finalised a climate plan, just in time for its attendance at COP26 in Glasgow. The overall aim is to reduce CO2 emissions by 40% by 2030, in large part by electrifying mobility.



## New tax law on the greening of mobility



Local contact  
EY Belgium People Advisory  
Services

21 Sep 2021

Subject

### Introduction: Belgian government's green ambitions

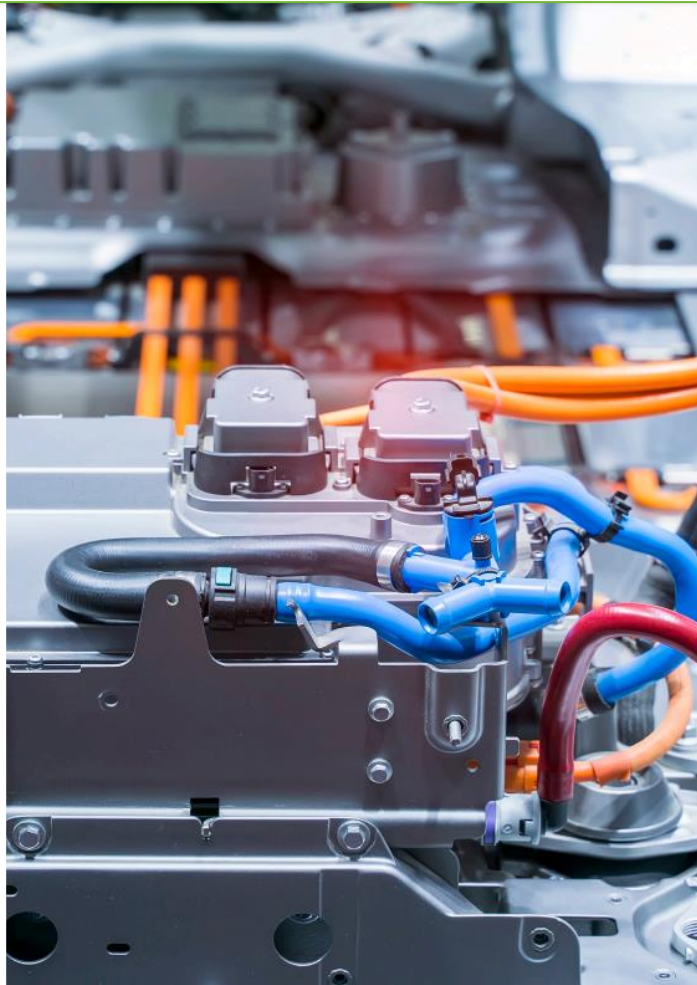
At the start of the De Croo I government, the ambition was expressed that all new company cars should be zero-emission cars by 2026. With the recent draft of law on the tax and social greening of mobility, this ambition has been put into practice.

In general, the reform consists of three major elements. First of all, the tax treatment of company cars will evolve and as of 2026, costs related to company cars will only be eligible for tax deductions in case of a zero-emission company car. Next to that the solidarity contribution will also undergo changes in order to stimulate the usage of zero-emission cars. Further, tax incentives will be foreseen to deploy electrical charging infrastructure in Belgium.

**All company cars electric from 2026 onwards**

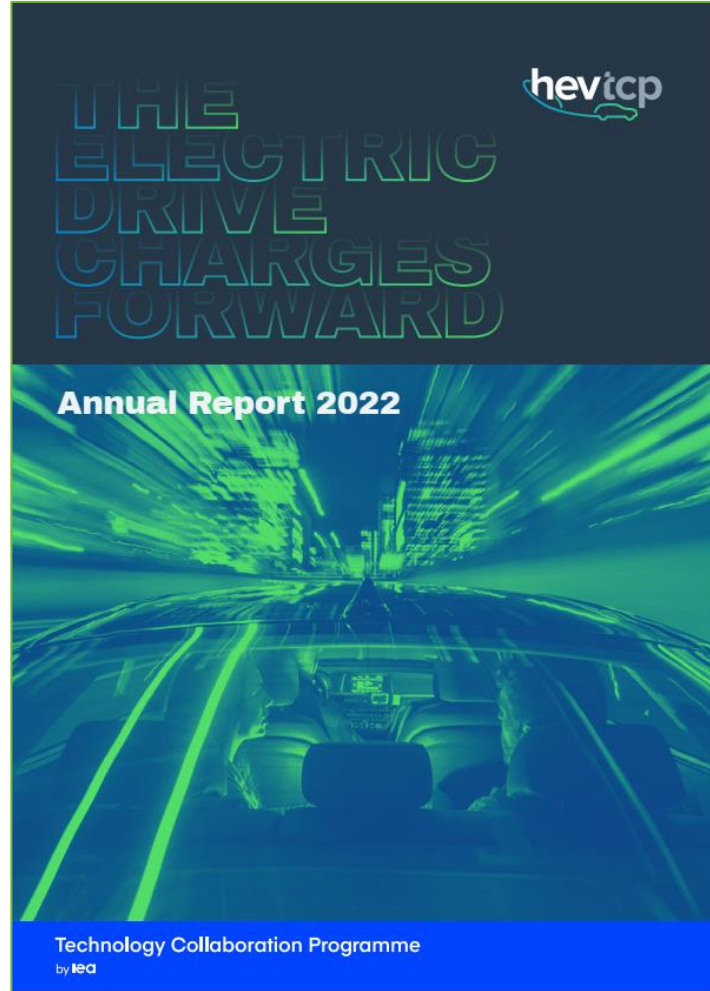


# Situation 2022 – EV Markets



## Global EV Outlook 2022

Securing supplies for an electric future



<https://www.iea.org/reports/global-ev-outlook-2022>

<https://ieahev.org/publications/>

# Situation 2022 – EV Markets



THE ELECTRIC DRIVE CHARGES FORWARD

Annual Report 2022

hevtcp

Technology Collaboration Programme  
by IEA

**Contributing Authors**

**INTERNATIONAL ENERGY AGENCY (IEA)**  
Ekta Meena Bibra, Transport Analyst

**AUSTRIA**  
Walter Mauritsch, Austrian Energy Agency  
Gerfried Jungmeier, Joanneum Research  
Andreas Dordt, BMK  
Constance Kiener, BMK

**BELGIUM**  
Carlo Mol, VITO  
Bert Wilkamp, Valued

**CANADA**  
Carol Burelle  
René-Pierre Allard, Natural Resources Canada

**CHINA**  
Ruijie Yu, CATARC  
Xiao Lin, Botree Cycling

**FINLAND**  
Ilkka Horneman, Business Finland

**FRANCE**  
Nicolas Dore, ADEME  
Yann Tremaecq, ADEME

**GERMANY**  
Hannes Neupert, EnergyBus e.V  
Stephan Schmid, DLR  
Özcan Deniz, DLR  
Matthias Lasko, FZ Jülich

**IRELAND**  
Graham Brennan, SEAI  
Declan Meally, SEAI

**ITALY**  
Francesco Vellaci, ENEA

**THE NETHERLANDS**  
Sorgja Munnix, Netherlands Enterprise Agency

**NORWAY**  
Andreas Brandland, The Research Council of Norway  
Erik Figenbaum, TOI  
Jon Sævi, Sintef

**REPUBLIC OF KOREA**  
Ock-Taek Lim, University of Ulsan

**SPAIN**  
Isabel del Olmo Flores, IDEA  
Juan Francisco Larrázabal Roche, IDEA

**SWEDEN**  
Peter Kasche, Sweden Energy Agency  
Mikael Fjalström, Sweden Energy Agency

**SWITZERLAND**  
Luca Castiglioni, SFOE  
Daniel Schaller, Federal Office of Energy

**UNITED KINGDOM**  
Joscelyn Terrell, Department for Transport

**UNITED STATES**  
Steven Boyd, US Department of Energy  
David Howell, US Department of Energy  
James F. Miller, Argonne National Laboratory  
P.T Jones, Oak Ridge National Laboratory

60 HEV TCP Annual Report 2022 TASK 39

## Interoperability of e-mobility services

**MEMBER COUNTRIES**  
BELGIUM  
CANADA  
FRANCE  
SPAIN  
SWITZERLAND  
THE NETHERLANDS  
UNITED STATES

**INTRODUCTION**  
The IEA TCP HEV Executive Committee (ExCo) unanimously approved Task39 at the 48th ExCo meeting held in April 2018 in Dublin (Ireland). At the 52nd ExCo meeting held in November 2020 as an online meeting, an extension has been requested due to the impact of COVID-19 on the Task39 planning. The extension has been approved and Task39 is now running from 01/04/2018 until 30/03/2022.

Belgium initiated Task 39 and The Netherlands officially joined from the start. During the first year, many countries expressed an interest to join Task39: Switzerland, United States, Spain, Canada, Germany, UK, Sweden, and France. Most of these countries have joined officially. Also, with the European Commission contacts are ongoing to share experiences related to their interoperability activities within the "European Interoperability Centre for Electric Vehicles and Smart Grids" and related to the AFID directive on the deployment of alternative fuels infrastructure in Europe.

Task39 will focus on user friendly charging infrastructure, more specifically at the interoperability aspects for charging passenger cars in the public and semi-public domain. Also, Smart charging is within the scope of Task39.

The market of electric vehicles is growing worldwide at an increasing speed. More and more electric vehicle models are being introduced on the market. End users and governments get more and more interested in the potential benefits of electric mobility since it offers a great potential to solve many of our environmental, societal and economic challenges. Therefore, policy makers are implementing supportive measures to facilitate the further uptake of electric mobility in their region. The main barriers to be addressed are the higher purchase cost, limited driving range and limited charging infrastructure.

The European Green Deal, published by the European Commission in December 2019, states that by 2025 about 1 million public recharging points will be needed for the 13 million zero- and low-emission vehicles expected on the roads of the European Union (EU). Governments and industry are making huge investments in charging infrastructure in the public and semi-public domain to facilitate the further uptake of electric mobility. Charging infrastructure will be needed, in more or less quantities, at all locations: residential, workplace and the semi-public and public domain.

By the end of 2020, there were about 2 million passenger cars (BEVs and PHEVs) in the 27 EU Member States and this number increased to more than 3.8 million at the end of 2021. By the end of 2021, there were about 260,000 publicly accessible

103 HEV TCP Annual Report 2022 BELGIUM

## Belgium

### ELECTRIC MOBILITY IN BELGIUM

**Introduction**  
The automotive industry always played an essential role in the Belgian economy. High-quality cars, trucks, buses, and other vehicles are developed and/or produced in Belgium. The automotive sector has an annual turnover of about 16 billion € and counts more than 300 companies with more than 45.000 direct jobs.

The automotive and mobility industry in Belgium is in a transition towards an industry of clean, connected, and smart mobility. Especially the traditional car assembly was under severe pressure during the past decades. In recent years, two Belgian car manufacturing plants have made important investments for electric car manufacturing, as well as battery pack assembly. But also, in the automotive supplier's industry, there are successful companies and new start-ups. For future job creation, our industry must continue to make the right choices and has to remain very efficient and innovative. Within the automotive sector, it is not only about making and selling vehicles anymore. It is about offering a clean, comfortable, seamless, and affordable mobility service to the end customer.

The automotive and energy sector are both in a transition towards complete decarbonization, which is critical to reach the EU's 2030 climate objectives and the long-term strategy of achieving carbon neutrality by 2050. Electric mobility and batteries will play an important role in this transition. The transport and energy sector will become more and more interlinked, and this creates new business opportunities for companies in this new e-mobility value chain (batteries, vehicles, charging infrastructure, digital mobility applications, ICT, smart mobility, and energy services).

**Passenger Cars**  
Today, Belgium still hosts two passenger car assembly plants: **Volvo Cars in Ghent** and **Audi in Brussels**. Both OEMs are active in the field of electric mobility and have their own battery assembly plants. Toyota Motor Europe has its European headquarter, logistics centres, and technical R&D centre with state-of-the-art Zaventem Proving Ground in Belgium.

Volvo Car Gent has been producing cars in Ghent since 1965. Today, it has about 6.500 employees. In 2020, the focus of the plant was mainly on the electrification of its models. Production of the Volvo XC40 Recharge, the first full electric model within the Volvo group, started in 2020. In March 2020, the battery assembly plant opened.



<https://www.iea.org/reports/global-ev-outlook-2022>  
<https://ieahev.org/publications/>



# Situation 2022 – EV Markets

## Bronnen van informatie in Vlaanderen

- Departement Mobiliteit en Openbare Werken: [Milieuvriendelijke voertuigen | Vlaanderen.be](#)
- EV Belgium: [Home - Website \(ev.be\)](#)
- eGear.be: [Elektrische wagens die je kan kopen in België \(inclusief prijzen\) \(egear.be\)](#)



**Duurzame mobiliteit**

## Milieuvriendelijke voertuigen

Alle voertuigen hebben een impact op het milieu. Door wat ze uitstoten, maar ook door de productie van de brandstof en van het voertuig zelf. Voertuigen die rijden op elektriciteit, aardgas of waterstof zorgen op korte termijn voor een betere luchtkwaliteit, minder CO<sub>2</sub>-uitstoot en minder geluidsoverlast.

---

### Uitrol publieke laadpalen



**Publieke laadpaal aanvragen**  
U kunt een publieke laadpaal aanvragen op het openbaar domein via een digitaal loket (Paal volgt Wagen).

**Lokale besturen en publieke laadinfrastructuur**  
De uitrol van publieke laadinfrastructuur op het openbare domein zal de komende jaren door de Vlaamse overheid georganiseerd worden, tenzij de stad...

OP DEZE PAGINA

- [Uitrol publieke laadpalen](#)
- [Projectoproep](#)
- [Types en kosten](#)
- [Vergelijk milieuvriendelijke en conventionele wagens](#)
- [Opladen of aardgas tanken in de buurt](#)
- [Een elektrische wagen opladen](#)
- [Projecten](#)
- [Beleid en cijfers](#)
- [Veelgestelde vragen](#)
- [Contact](#)


## EV Belgium zet in op 100% zero emissie mobiliteit

Producenten en dienstverleners

EV-Rijders

<b>Belangenbehartiging</b> Eerlijke marktwerking Ondersteuning van transitie Technische voorschriften	<b>Ledenwerking</b> Inhoudelijke werkgroepen Up to date informatie Netwerking en events	<b>Opleidingen</b> Technische opleidingen Sectorkennis en -data Wetenschappelijk onderzoek	<b>Inspiratie</b> Informatie en trends Boeiende events Warme community
----------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------

## ELEKTRISCHE WAGENS




**Overzicht van alle elektrische auto's die momenteel (2022) nieuw te bestellen en leverbaar zijn in België.**

Bekijk [hier](#) alle toekomstige EV's  
Bekijk [hier](#) alle occasie EV's

ABOUT  
eGear.be is een blog over elektrisch rijden en de toekomst van mobiliteit. Hier vind je nieuws, [subsidies](#), laadinfo en meer.

WHATSAPP



**Fast News:** wil je het belangrijkste e-mobility nieuws onmiddellijk via Whatsapp ontvangen? Klik [hier](#).



## 14 ELEKTRISCHE AUTO'S DIE BINNEN DE 6 MAANDEN LEVERBAAR ZIJN

Didier De Kerpel / 13 september 2022 / 11 Reacties / e-auto



We geven een overzicht van enkele elektrische auto's die, ondanks halfgeleider- en batterijtekorten, toch relatief snel leverbaar zijn.

De afgelopen twee jaar werden we overspoeld door onheilsberichten over lange levertijden voor [elektrische auto's](#), maar er zijn ook modellen die gewoon binnen een redelijke termijn leverbaar zijn. We contacteerden de belangrijkste automerken, en stelden op basis daarvan een overzicht samen van elektrische wagens die binnen de 6 maanden op je oprit kunnen staan, ook wanneer ze à la carte samengesteld worden.



# Situation 2022 – Charging Infrastructure

Choices to be made taking into account: type of location, charging technology, business model, governance, regulation, ...

## T&E's recharging masterplan for cars

smart charging    available 24/7  
easy payment    social fairness  
interoperable    fair & transparent prices

### HOME & WORK

- All buildings prepared for EV charging by 2025
- 'Right to plug' for EV drivers
- EU funding to cable buildings

### COMMERCIAL PROPERTY

- A fifth of parking spots with chargers by 2025
- Incentives for property owners

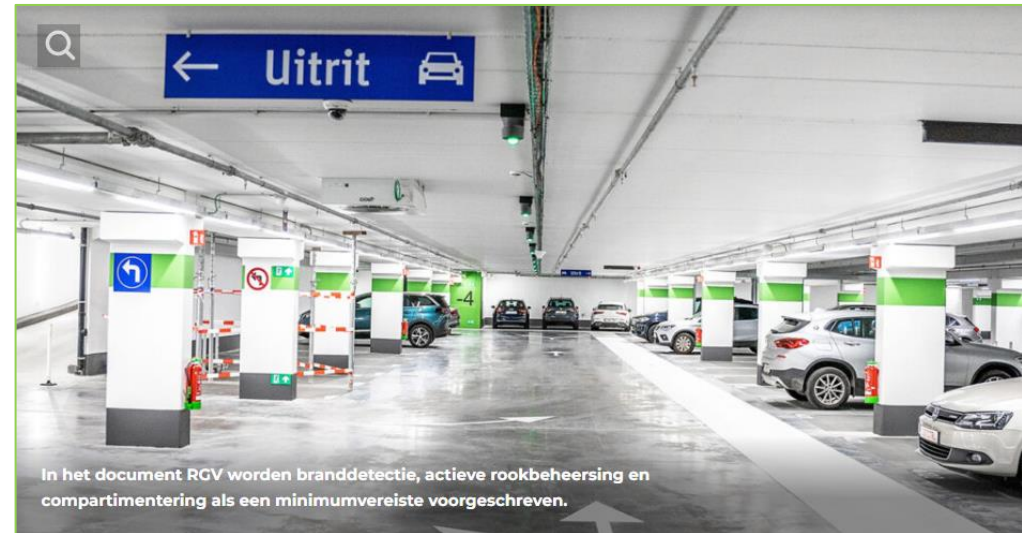
### CHARGING HUBS IN CITIES

- Prioritise shared & electric mobility: taxis and ride-hailing
- Fast chargers for urban deliveries
- Grid upgrades

### INTERCITY ROAD NETWORKS

- Full coverage by 2025
- Support charging in towns, villages and remote areas
- EU Legislation    Public Funding

@transenv    @transportenvironment.org  
 Source: Transport & Environment








# Situation 2022 – Charging Infrastructure

Choices to be made taking into account: type of location, charging technology, business model, governance, regulation, ...

Table 5. E-bus charging technology typologies and considerations

			
Charging system	Plug-in charging (AC or DC)	Opportunity charging (DC only)	Trolley wire charging (DC only)
Charging locations	Charge in depots via cable	On-road and/or in depots via pantographs	Charge using trolley wires See <a href="#">UITP detailed Knowledge Brief</a>



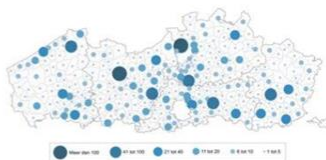


# Situation 2022 – Charging Infrastructure

Departement Mobiliteit en Openbare Werken: [Milieuvriendelijke voertuigen | Vlaanderen.be](https://www.vlaanderen.be): Charging Infrastructure Policy in Flanders

## Laadinfrastructuur 2015-2020

- **Uitrol van een basisnetwerk van 5 000 publiek toegankelijke laadpunten over heel Vlaanderen**
- **Invoering systeem 'Paal volgt wagen'**
- **Jaarlijkse concessies voor de uitrol onder coördinatie van Fluvius**
- **'opt-out' voor LO die de uitrol zelf organiseren**



## Laadinfrastructuur 2015-2020



- **E-rijder centraal**
  - eenduidige informatie (statisch/dynamisch)
  - billijke prijs
  - afstemming laadpassen
  - ad-hoc betaalmogelijkheid
- **Vlaamse data**
  - tijdelijke oplossing: afspraak CPO's en contract Ecomovement
- **Europees IDACS-project (15 lidstaten)**
  - Europese laadpaal-ID's
  - afspraken over datatoelevering, -beheer- en -toegang via het NAP ([www.transportdata.be](http://www.transportdata.be))

## Laadinfrastructuur 2021-2025

- **Conceptnota 'Aanpak laadinfrastructuur 2021-2025'**
- **BVR van 17/12/21**
- **30.000 extra laadequivalenten (CPE) in 2025**
- **(ultra)snelladers elke 25km op grote verkeersassen**



Lydia Peeters (Open Vld) mikt op 30.000 extra laadpunten in 2025

Vlaams minister van Mobiliteit Lydia Peeters (Open Vld) wil de komende vijf jaar jaarlijks 6.000 extra laadpunten voor elektrische voertuigen realiseren, goed voor in totaal 30.000 bijkomende laadpunten in 2025. Dat heeft de Open Vld minister gezegd vooraf op vragen van Robert De Roovere (CD&V) en Wim Verbeke (Vlaams



## Publieke laadinfrastructuur (1)

- **Flexibele invulling doelstelling op basis van monitoring data (aantallen en gebruik)**
- **Klemtoon verleggen naar vraaggestuurd (Paal volgt Wagen en Paal volgt Paal)**
- **Aanvullen met aanbodgestuurd (strategische plaatsing bv. op Hoppin punten)**
- **Rolverdeling**
  - Vlaams kader (regelgeving, voorwaarden, rolverdeling, opvolging)
  - Vlaamse coördinatie uitrol - bestekken en opvolging PvW en PvP
    - Mogelijkheid tot opt-out (Antwerpen, Gent en Oostende)
  - Private installatie/exploitatie door CPO (op het openbare domein zonder subsidie)
  - Rol lokale overheden (locatiebepaling, voorstellen voor strategische plaatsing, inrichting parkeervakken)

## Bestek publieke laadinfra

- **Lancering bestek 12 april 2022 – Start uitrol augustus/september**
- **Leidraad 'Lokaal laden' (cf. website)**
- **Twee aparte trajecten voor normale laders en snelladers**
- **Ruimtelijke inplanting als afweging tussen ambities voor elektrisch rijden, beleid lokaal bestuur, mogelijkheden elektriciteitsnet en business-case CPO**
- **Mikken op ca. 25% van de globale doelstelling (opt-in)**
- **Loten per cluster voor een betere marktwerking**
  - Cluster 1: VVR Limburg
  - Cluster 2: VVR's Leuven en Vlaamse Rand
  - Cluster 3: VVR's Antwerpen, Mechelen en Kempen
  - Cluster 4: VVR's Gent, Vlaamse Ardennen, Waasland en Aalst
  - Cluster 5: VVR's Oostende, Westhoek, Brugge, Midwest en Kortrijk

## Niet-publieke laadinfra

- **Thuis, op het werk, elders (grote meerderheid van de laadsessies)**
- **Rekening houden met versnelling vergroening bedrijfswagens**
- **Ondersteuning niches o.m. via projectwerking (faciliteren en/of publiek karakter verhogen)**
  - Lopende CPT-projecten en toekomstige CPT-calls
- **Verplichting op parkings van gebouwen (art 8 EPBD-richtlijn)**
  - bij renovatie/nieuwbouw (vanaf 2021) en bij bestaande niet-residentieële gebouwen (vanaf 2025)
  - minimumgrens voor beperkt aantal laadpunten
  - vooral eisen voor bekabeling
  - Richtlijn wordt herzien en verstrengd (i.k.v. Europese green deal)



# Situation 2022 – Charging Infrastructure

Departement Mobiliteit en Openbare Werken: [Milieuvriendelijke voertuigen](#) | [Vlaanderen.be](#): Charging Infrastructure Policy in Flanders



LEIDRAAD

## Lokaal Laden

Leidraad Lokaal Laden | 3

<b>1 Strategie voor de uitrol van laadpalen voor elektrische voertuigen in Vlaanderen</b>	5
1.1 Algemene omkadering en geldende wetgeving	5
1.2 Status uitrol publiek toegankelijke laadpalen	7
1.3 Op naar 35.000 CPE tegen 2025	8
1.4 Krijtlijnen voor de uitrol van laadpalen	8
1.5 Normale laadpalen uitrollen via drie strategieën	11
1.6 Betrokken actoren en verantwoordelijkheden in de uitrol	12
1.7 Potentiële locaties als hulpmiddel	13
<b>2 De uitrol van vraaggestuurde laadpalen in de praktijk: paal volgt wagen</b>	14
2.1 Wie kan een laadpaal op het openbare domein aanvragen en onder welke voorwaarden?	14
2.2 Hoe werkt het aanvraagproces voor een laadpaal op het openbare domein?	17
2.3 Het proces van aanvraag tot de ingebruikname van een laadpaal	17
2.4 Rollen en verantwoordelijkheden van lokale overheden in het aanvraagproces	18
2.4.1 Controle voorwaarden: advies verenigbaarheid parkeerregels	18
2.4.2 Kennisgeving beslissing	18
2.4.3 Locatiekeuze	18
2.4.4 Installatie en indiening naam laadpaal	20
2.5 Wegbeheerders aan zet voor het inrichten van parkeer- en laadvakken voor elektrische voertuigen	21
2.5.1 Signalisatie	21
2.6 Wegbeheerders aan zet voor het nemen van aanvullende reglementen	22
<b>3 De uitrol van datagestuurde laadpalen in de praktijk: paal volgt paal</b>	24
3.1 Wanneer wordt een nieuwe laadpaal bijgeplaatst?	24
3.2 Welke laaddata zullen beschikbaar zijn?	24
3.3 Rol voor de wegbeheerders in het bijplaatsen van laadpalen	25
<b>4 De uitrol van laadpalen op strategische locaties</b>	26
4.1 Keuze van de strategische locatie	26
4.2 Het uitrolproces van strategische laadpalen	27
<b>5 Parkeren van elektrische voertuigen aan laadpalen: monitoring in de praktijk</b>	28

Leidraad Lokaal Laden | 4

In de Leidraad Lokaal Laden bundelt het Departement Mobiliteit en Openbare Werken (MOW) alle relevante en recente informatie over het laadpalenbeleid van de Vlaamse overheid voor de lokale overheden.

Deze leidraad past binnen de nieuwe aanpak, waarbij het Departement MOW een coördinerende rol opneemt voor de uitrol van laadinfrastructuur. In nauwe samenwerking met de lokale overheden en andere partners. De leidraad beschrijft deze samenwerking, met een specifieke focus op het openbare domein en de rol van de lokale overheden bij de uitrol. In een latere fase zal de leidraad opgaan in een bredere gids elektrisch rijden voor lokale overheden, die de bestaande gids zal actualiseren en vervangen.

Meer informatie vind je op [www.vlaanderen.be/milieuvriendelijke-voertuigen](http://www.vlaanderen.be/milieuvriendelijke-voertuigen).

# Transition towards a more sustainable energy and mobility sector

## *Electric Mobility in Belgium*

- Technology & Business Models & Policy & End users
- Focus on electric mobility in next slides: high-level overview of trends / challenges / opportunities
- **Based on my previous and ongoing experiences in electric mobility**



- which already started in 2011 with the Flemish Living Lab Electric Vehicles

- continuing within the IEA TCP HEV



- **and many research and demonstration projects within VITO/EnergyVille like**



# Living Labs as tool to support & accelerate innovations

- <https://openlivinglabdays.com/>



European Network of Living Labs

## THE CITY AS A LAB, BUT NOW FOR REAL

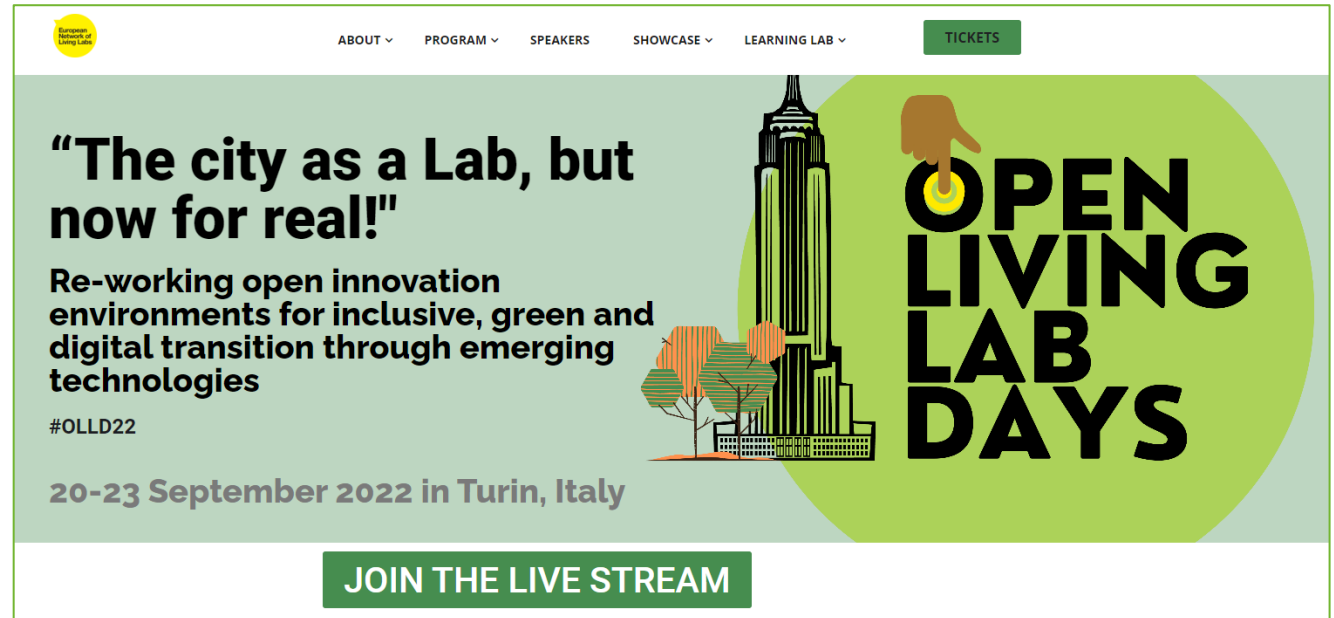
TURIN, 20 - 23  
SEPTEMBER

#OLLD22

WWW.OPENLIVINGLABDAYS.COM

TORINO CITY LAB  
CITY OF TORINO  
CTE  
NEXT  
European Network of Living Labs

**ENoLL Newsletter**



European Network of Living Labs

ABOUT ▾ PROGRAM ▾ SPEAKERS SHOWCASE ▾ LEARNING LAB ▾ TICKETS

## "The city as a Lab, but now for real!"

Re-working open innovation environments for inclusive, green and digital transition through emerging technologies

#OLLD22

20-23 September 2022 in Turin, Italy

**JOIN THE LIVE STREAM**

**OPEN LIVING LAB DAYS**



[EnergyVille - Discover the Open Thor living lab in Genk - YouTube](#)



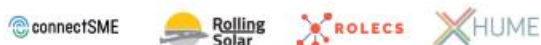
**Open Thor**  
LIVING LAB



# Living Labs as tool to support & accelerate innovations



## Projecten ingebed in het Open Thor Living Lab



### ONZE PARTNERS



### CONTACT

[openthor@energyville.be](mailto:openthor@energyville.be)

[www.openthor.be](http://www.openthor.be)

## Ons aanbod

*Heeft u interesse om uw dienst of product te ontwikkelen binnen dit ecosysteem? Dan bieden we u:*

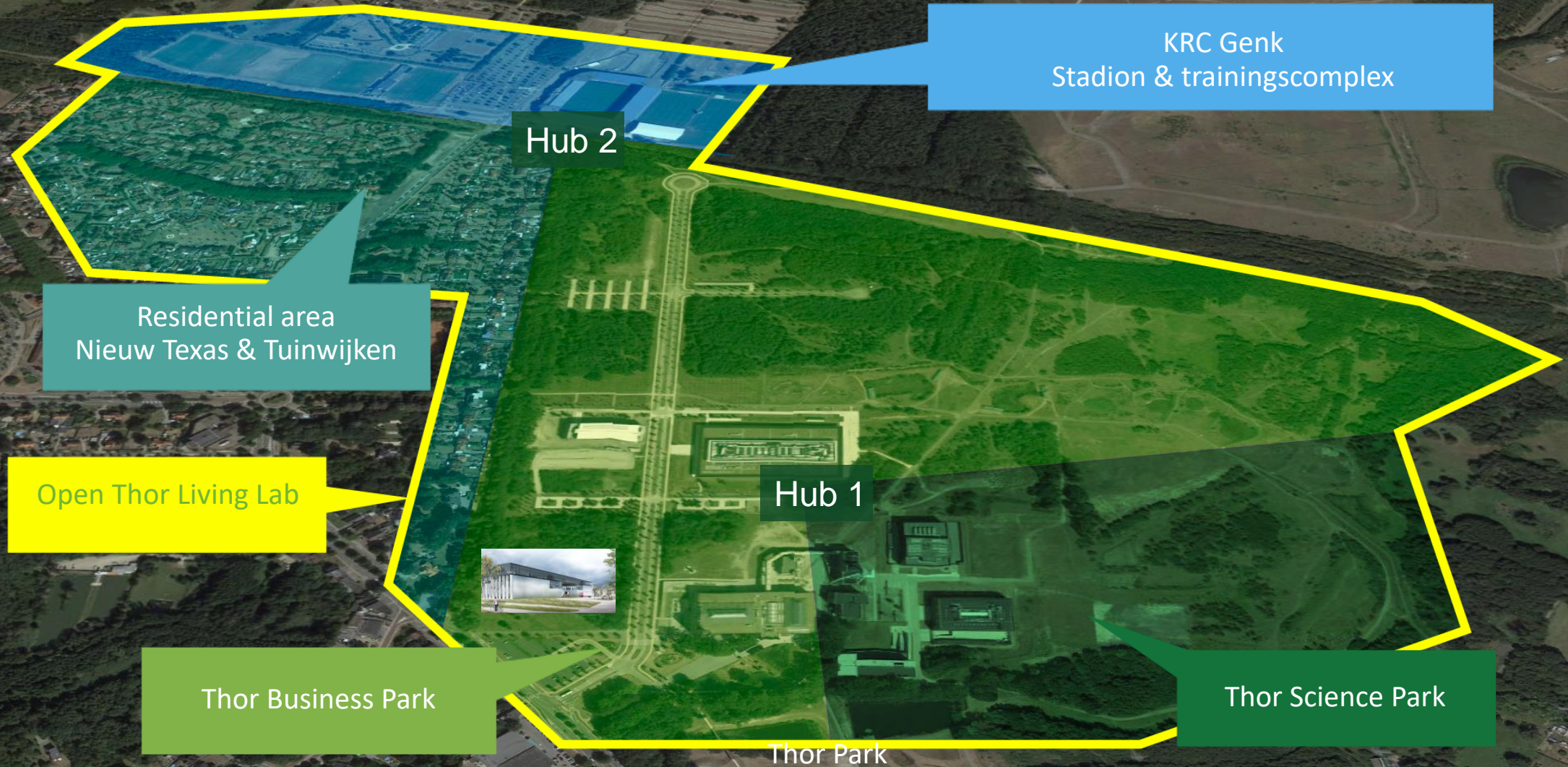
- ✔ **EEN "EASY-ACCESS" TOT INNOVATIE:**  
u maakt deel uit van een uniek ecosysteem met een hoge innovatie-ambitie.
- ✔ **EEN KWALITEITSVOLLE TECHNISCHE ONDERSTEUNING:**  
onze gespecialiseerde onderzoekers begeleiden u van a tot z.
- ✔ **EEN INTERNATIONALE BASIS AAN KENNIS:**  
een "veilige" en reële innovatieomgeving met echte bewoners en gebruikers.
- ✔ **U KRIJGT TOEGANG TOT ONS NETWERK VAN ONDERZOEKERS EN DEELNEMENDE BEDRIJVEN:**  
door onderdeel te worden van het Open Thor Living Lab komt u terecht in een inspirerend en innoverend netwerk.
- ✔ **MOGELIJKHEID TOT GEBRUIK VAN DATA VOOR EIGEN ANALYSE, TESTEN EN SIMULATIES:**  
u krijgt inzicht in relevante data en gegevens die u helpen in het optimaliseren en valoriseren van uw diensten of producten.

Where sustainable and innovative projects come to life





# Open Thor Living Lab





# Living Labs as tool to support & accelerate innovations



**EnergyVille** @EnergyVille · 15 sep. ⋮

Vers van de pers! EnergyVille breidt vandaag het Open Thor Living Lab uit met een innovatief thermisch netwerk & onderzoeksgebouwen om nieuwste bouw- en renovatietechnieken te testen. Meer weten? Ga gerust door de perstekst: [energyville.be/nieuws-events/...](https://energyville.be/nieuws-events/)



## De ruggengraat van het Open Thor Living Lab: innovatieve technologieën

- ⊙ 5E GENERATIE WARMTENETTEN OP LAGE TEMPERatuur
- ⊙ SLIMME LAADINFRASTRUCTUUR VOOR ELEKTRISCHE VOERTUIGEN
- ⊙ EEN UNIEKE RENOVATIE VAN EEN VOORMALIGE MIJNWERKERSBUURT TOT BIJNA-ENERGIENEUTRALE WONINGEN
- ⊙ INTELLIGENTE DATAPLATFORMEN
- ⊙ WIJKBATTERIJEN
- ⊙ ENERGIEKNOOPPUNTEN
- ⊙ DC-NET / GELIJKSPANNINGSNET
- ⊙ HERNIEUWBARE ENERGIEGENERATIE DOOR MIDDEL VAN ZONNEPANELEN, ZONNE-SPIEGELS, THERMISCHE INSTALLATIES, ...
- ⊙ GEÏNTEGREERDE PLUG & PLAY MODULAIRE BOXEN VOOR TECHNISCHE INSTALLATIES
- ⊙ ...

# ConnectSME : Examples voucher 1: Open Thor Living Lab



Vlaanderen	
Snowball (Harelbeke)	Inkoppeling van hernieuwbare energiebronnen in een kantooromgeving – proeftuin off-grid brengen
Green Energy Park (Zellik)	De slimme woning in de slimme woonwijk – afstemmen intelligente woonsystemen
Thor Park (Genk – VITO)	Energie-gemeenschappen met focus op slim laden
Nederland	
The Green Village (Delft)	Innovaties accelereren voor de verduurzaming van de gebouwde omgeving (wijkniveau)
Brainport Smart District (Helmond)	Energie in de gebouwde omgeving en / of mobiliteit
Campus TU Eindhoven	Metaalpoeder en waterstof

Innovative charging infrastructure solutions from Dutch SME's :

- StreetPlug
- Dutch Charge - CityCharge





# ConnectSME – StreetPlug – Ondergrondse Laadpaal

Website: <https://www.streetplug.nl/>



Oplossingen voor laadpaal en oplaadpunt | Streetplug



# ConnectSME – StreetPlug – Ondergrondse Laadpaal

## De StreetPlug leren kennen. - YouTube



The video player shows a silver StreetPlug charging station on a cart. A person's legs and feet are visible next to it. The station has a green light on top and a 'HYDROROCK' battery pack inside. A charging cable is plugged into the station. The video title is 'De StreetPlug leren kennen.' and it has 398 views as of Feb 23, 2021. The video progress is 0:17 / 5:43.

Hoe is de StreetPlug opgebouwd?

De StreetPlug leren kennen.

398 views • Feb 23, 2021

1 DISLIKE SHARE DOWNLOAD SAVE ...





# ConnectSME – Dutch Charge - CityCharge

Website: <https://www.dutchcharge.nl/>

Exploitant in high-end laadinfrastructuur

## CHARGING AS A SERVICE

Dutch Charge is de all-in partner op het gebied van laadoplossingen

Bekijk type parkeerlocaties

### Dienstverlening

Flexibele dienstverlening op maat en maximale ontzorging

Dutch Charge biedt een drietal flexibele maatwerk diensten aan. Naast dat wij kosteloos laadinfra verzorgen, kunt u uiteraard ook zelf investeren of kiezen voor shared business.

### CityCharge

Dé onopvallende laadoplossing voor de openbare ruimte

CityCharge, een product van Dutch Charge, biedt een veilige en intelligente oplossing voor de fors toenemende behoefte naar laadinfra en voorkomt hierbij verrommeling van de openbare ruimte.



# *ConnectSME – Dutch Charge - CityCharge*

## CityCharge - Uitleg Techniek on Vimeo



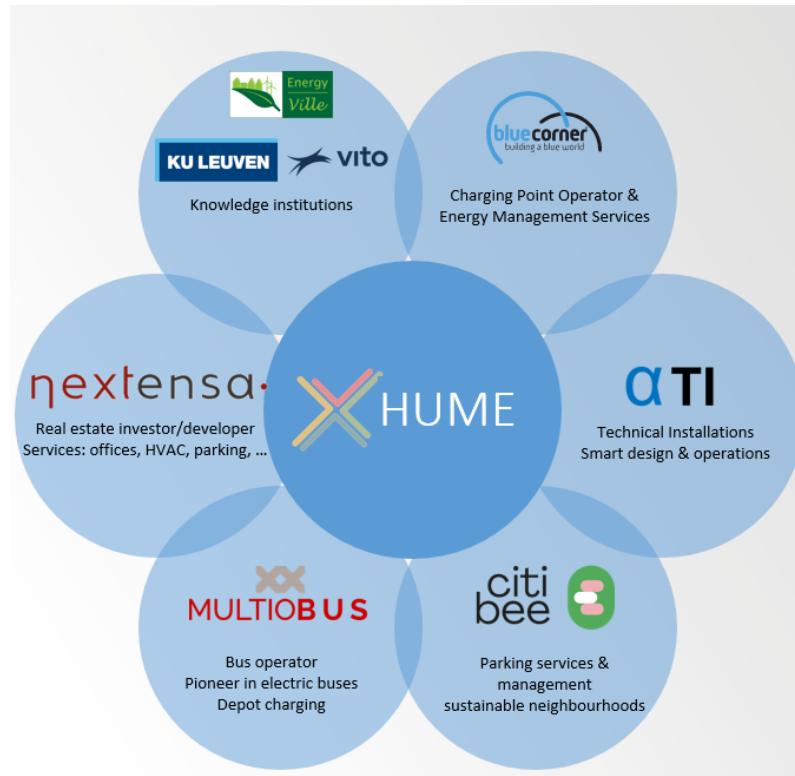
The CityCharge light pole has been developed together with leading businesses



# HUME: Hubs for Urban Mobility and renewable Energy



- HUME: 01/09/2021 until 29/02/2024 (30 months)
- ICON (Interdisciplinair Coöperatief Onderzoek) is een projecttype waarin een ad hoc en evenwichtig samengesteld consortium van één of meerdere onderzoeksorganisaties en minstens drie onderling onafhankelijke Vlaamse ondernemingen nieuwe kennis ontwikkelen, die praktisch toegepast kan worden en zo bijdraagt tot economische en eventueel ruimere maatschappelijke toegevoegde waarde in Vlaanderen. De Vlaamse industriële partners kunnen hierbij een beroep doen op steun van VLAIO (Agentschap Innoveren & Ondernemen).



## Project 'Hub for Urban Mobility and Renewable Energy' (HUME)

08/10/2021

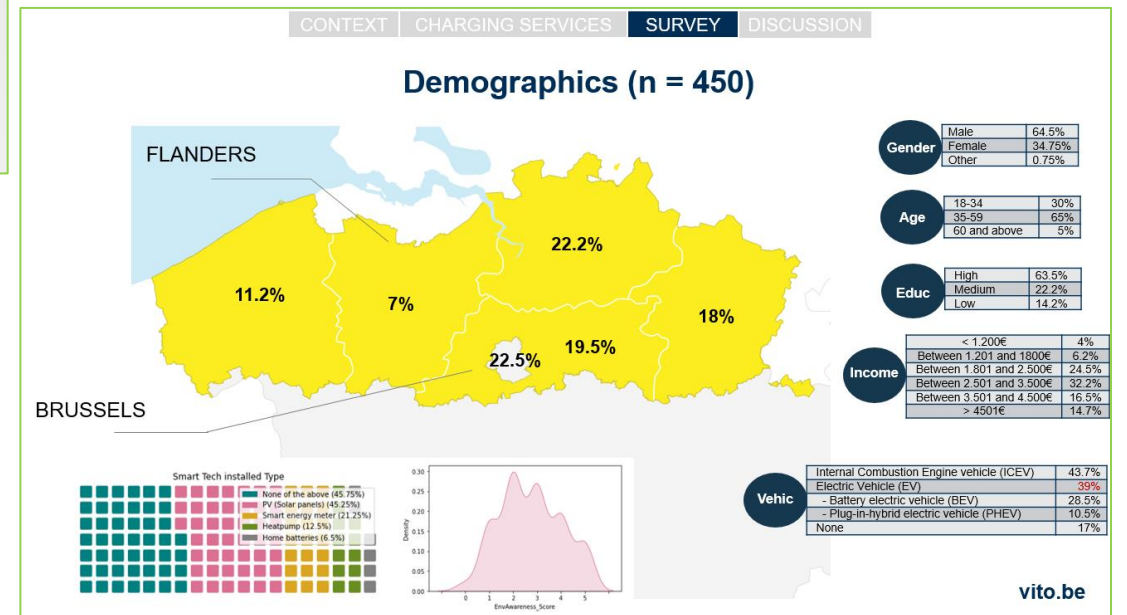
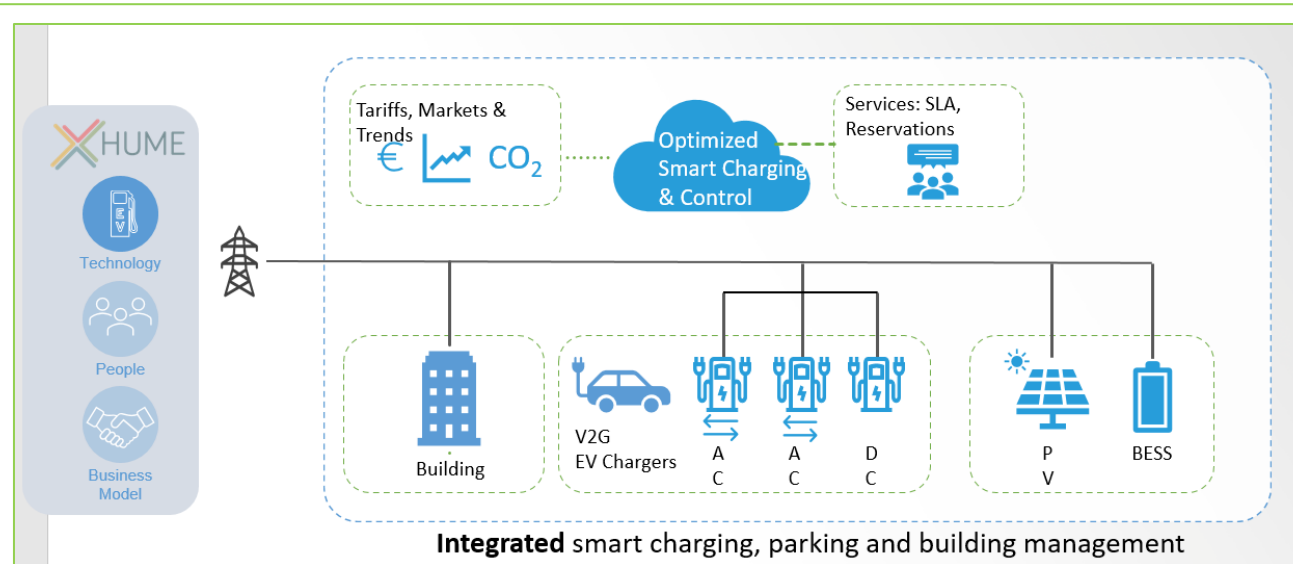
New policies, such as the new ambitious climate goals, will significantly accelerate the sales of electric vehicles and further boost alternative e-mobility solutions such as e-car sharing, e-busses, e-cargo bikes, etc. Providing sufficient collective parking and charging infrastructure for a wide variety of e-mobility services and powered by renewable energy sources will be a huge challenge in our cities. As on-street parking space is further reduced, semi-public hubs will play an important role in the transition.

In the interdisciplinary cooperative project 'Hub for Urban Mobility and Renewable Energy' (HUME), Blue Corner joins forces with Alfa Technical Installations, Multiobus, Leasinvest Real Estate and Move as well as with VITO, KU Leuven and EnergyVille to investigate fully secured complex microgrids and smart charging strategies. This project supported by VLAIO will study how a smart concept for combined renewable energy and e-mobility hubs for urban environments can look like. The focus will be on the optimized hardware and control architecture for the microgrid electrical system, a data-driven multi-objective smart charging strategy (algorithm), innovative services (combined energy and mobility, ancillary) and the overarching architecture that enables the integration of these elements.

The project aims for increasing the hosting capacity for charging points in mobility hubs while respecting the current grid capacity, improving the local use of renewable energy, reducing the HVAC energy consumption of the connected buildings, reducing the investment cost in electrical installations for HUME's compared to an equivalent non-smart installation, and achieve an additional revenue for the building/parking/charging operators from combined or ancillary services. The project will take 30 months.



# HUME: Hubs for Urban Mobility and renewable Energy





# HUME: Hubs for Urban Mobility and renewable Energy



- HUME is studying multiple demonstration and measurement sites within HUME consortium: building and/or parking, PV, BESS, BEMS, smart charging, ...
- INTERREG ACCESS pilot “Keerdokparking” is also a very interesting example for piloting fossil-free electric mobility in a building/parking environment
- More information: see next presentations of City of Mechelen and Ingenium



# Contact Information



Carlo Mol

Project Manager - Unit Energy Technology

VITO NV | EnergyVille | Thor Park 8300 | 3600 Genk (Belgium)

Phone tel: +3214335885 | Mobile tel: +32492586124 | [carlo.mol@vito.be](mailto:carlo.mol@vito.be)

LinkedIn: <https://www.linkedin.com/in/carlo-mol/>

Website: <https://www.energyville.be/en> & <https://ieahev.org/contact/>







!!! Thank you for your attention !!!