

Transatlantic Workshop on Electric Vehicles and Grid Connectivity

Session D: Effective Policies for Vehicle Demonstration & Deployment

“Demonstration activities in Belgium”



vito

vision on technology

Carlo Mol, VITO (Belgium)

IEA INTERNATIONAL ENERGY AGENCY



Outline

- » Belgium : Automotive industry
- » Policies for Vehicle Demonstration & Deployment in Belgium
- » Demonstration activities in Belgium
 - » Charging infrastructure
 - » Vehicle deployment
 - » Demonstration projects
- » Conclusions

Short Introduction VITO

- » Mission : As independent and customer-oriented **research organization**, VITO (\pm **600 employees**) provides innovative **technological solutions** as well as scientifically based **advice** and support in order to stimulate **sustainable development** and reinforce the economic and social fabric of Flanders.
- » Active in Sustainable Technologies in the field of :
 - » **Energy**
 - » Smart grids & integration of (PH)EV's
 - » Batteries & Ultracapacitors
 - » Environment
 - » Materials
 - » Remote sensing
- » More information : www.vito.be



Belgium : Automotive industry

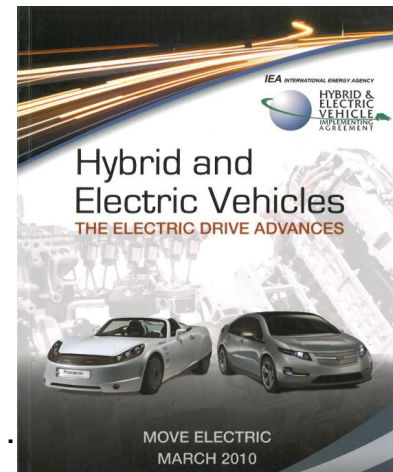
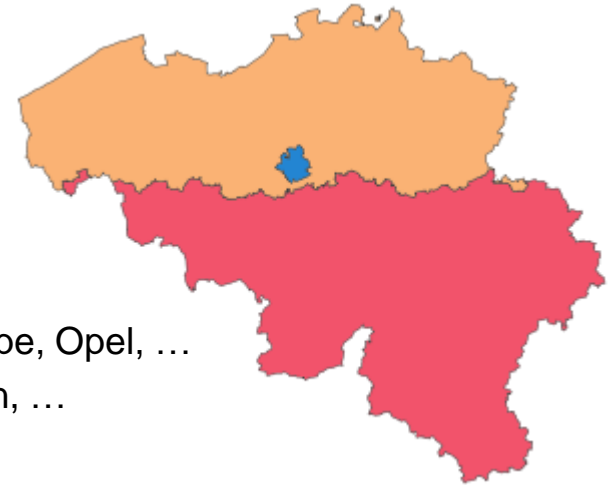
- » GDP : ± 383 billion € (2009)
- » Turnover automotive industry : 15,9 billion € (2008)
- » Employees in automotive industry : 81.661 (2008)

- » OEM's :
 - » Passenger cars : Volvo Cars, Ford, Audi, Toyota Motor Europe, Opel, ...
 - » Bus & Coach : Van Hool, VDL Jonckheere, Green Propulsion, ...
 - » Trucks : Volvo Europe Truck, ...
 - » Custom made vehicles : Mol Cy, ...

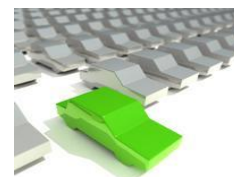
- » Suppliers :
 - » More than 300 suppliers from Tier1 - ...
 - » Tenneco Automotive, LMS, Bosal, Bekaert, Recticel, Punch Powertrain, ...

- » Universities / Research Institutes :
 - » Brussels (VUB), Leuven (KUL), Gent, Antwerp, Hasselt, Liège, ...
 - » VITO, Flanders' DRIVE, Green Propulsion, Sirris, VIL, VIM, ...

- » Platforms :
 - » Agoria Automotive, FEBIAC, AVERE, Citelec, VSWB, Campus Auto, CAW, .



Policies for Vehicle Demonstration & Deployment in Belgium



- » No official “action plan electric mobility” for Belgium published (yet)
 - » no numbers on expected EV & charging infrastructure

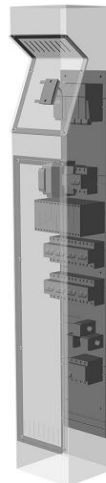
- » Visions, studies and efforts (on federal and regional level) ongoing to support the transition of the local automotive industry to “green, clean and safe”
 - » taskforce automotive since 2005, studies on “car and factory of the future”, BBL study, VIM study, ...
 - » broader government vision statements like “Flanders in Action” : breakthrough projects on “green and dynamic urban region” : smart cities = intelligent energy networks + housing + e-mobility

- » Most R&D&D funding schemes in Belgium are bottom-up and not thematical oriented
 - » One specific call for “Living Labs” on e-mobility expected end 2010

- » Open issues :
 - » Who does what (governments vs industry) ? Huge investments are needed on charging infrastructure, EV’s, ... Which business models are economically viable ?

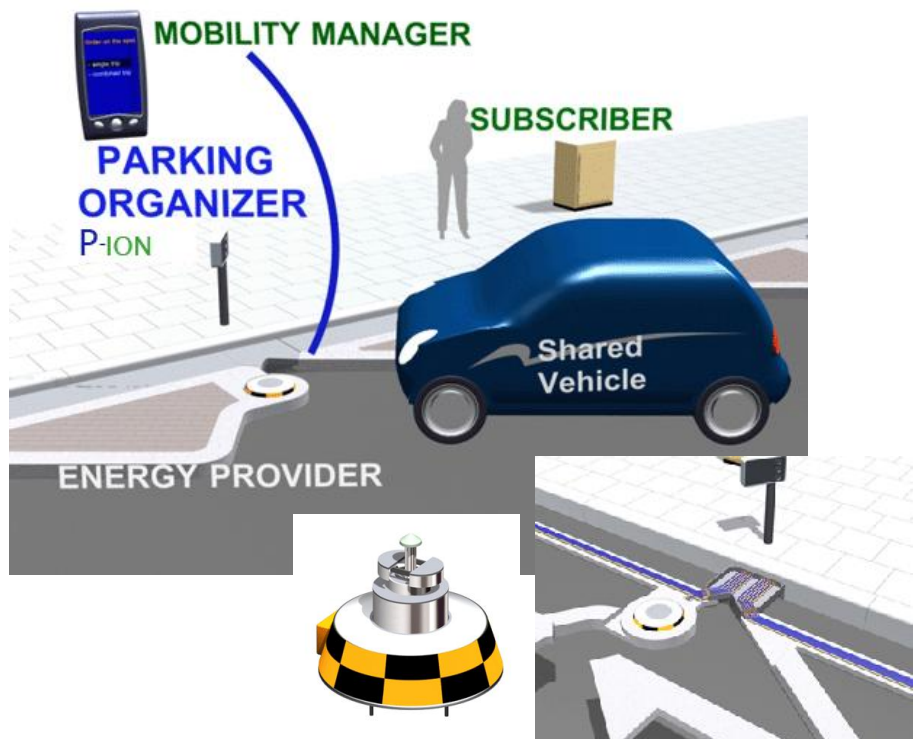
Initiatives on charging infrastructure

» A lot of (new) players on the market



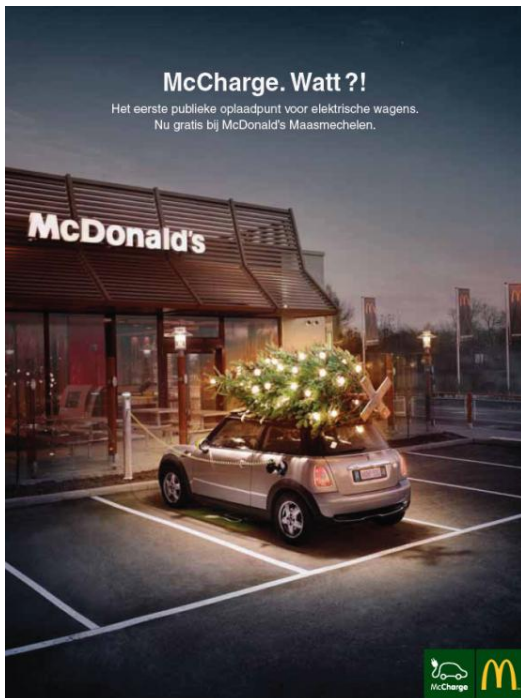
Initiatives on charging infrastructure

- » New ideas under development : on conductive & inductive charging (CED project)



Initiatives on charging infrastructure

- » Up to now private initiatives @ companies, parking spots and some public charging spots



Bij ons kom je niet toevallig **TOTAL**

QUICK CHARGE	QUICK CHARGE	Intermediate	Slow
125A / 400V DC	63A / 400V AC three-phase	32A / 400V AC three-phase	16A / 230V AC single phase
4€ / 10 MIN.	4€ / 10 MIN.	4€ / 20 MIN.	4€ / 60 MIN.

Initiatives on vehicle deployment

» First trials in small numbers started :

» OEM activities :



» Other EVs on the road :



» First large-scale deployment of (PH)EV's in Belgium :

» Demand Side Management will be studied



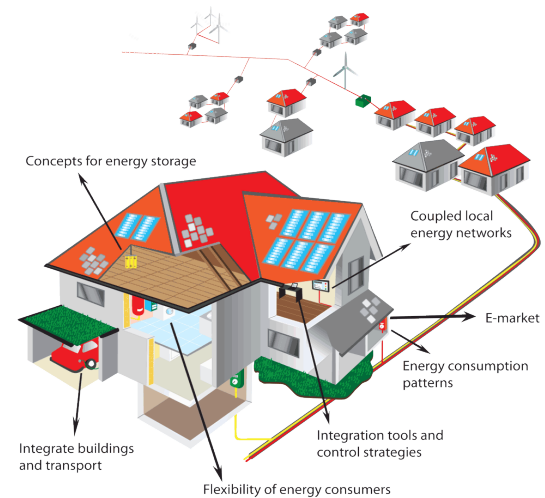
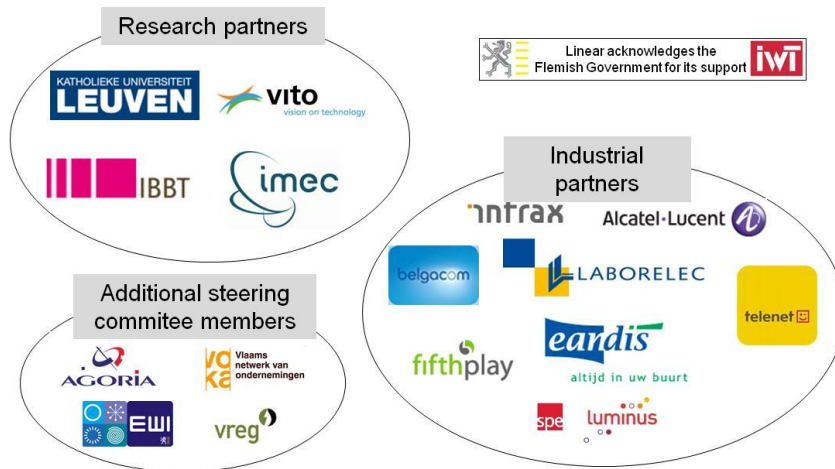
Initiatives on vehicle deployment

- » Don't forget heavy-duty vehicles
 - » First demo's in very small numbers started



Demonstration Projects

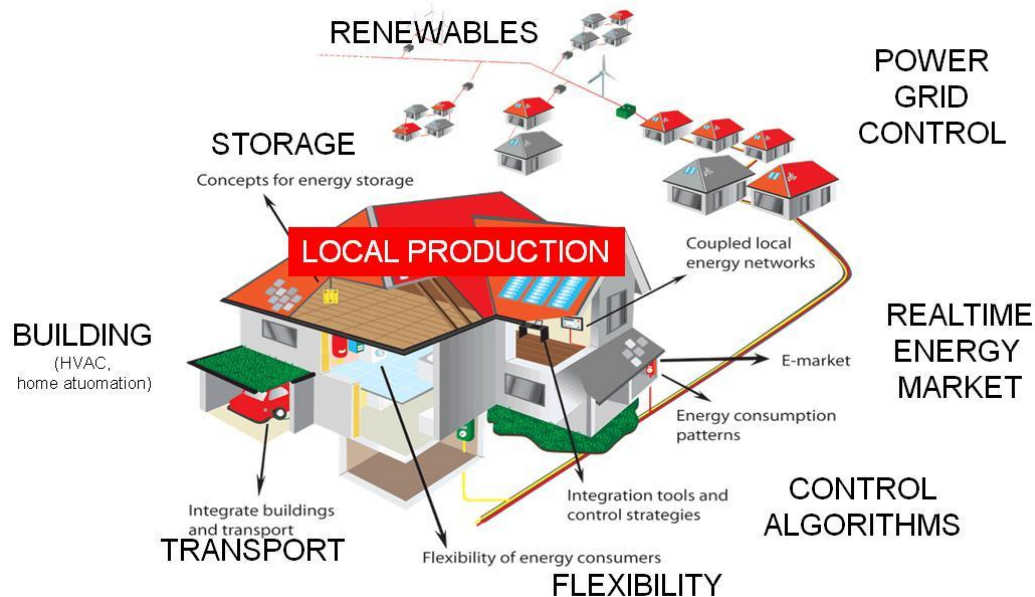
- » Linear : Breakthrough project: Smart energy supply in Flanders
 - » Local Intelligent Networks and Energy Active Regions
 - » <http://www.linear-smartgrid.be/>
 - » Large demonstration & deployment project on smart grids – smart homes, which also includes an e-mobility part
 - » Budget 40 m€, funding 10 m€, 5 years project, started in 2009
 - » Collaborative Innovation project with Flemish Industrial and academic partners



Demonstration Projects

» Linear : Breakthrough project: Smart energy supply in Flanders

- » Fieldtest with minimum 200 up to 1000 houses where “demand side management” will be demonstrated on a residential and district level, the flexibility of electric vehicles is also of high interest in this project, the exact fleet number of electric vehicles incorporated in the field test is not yet know



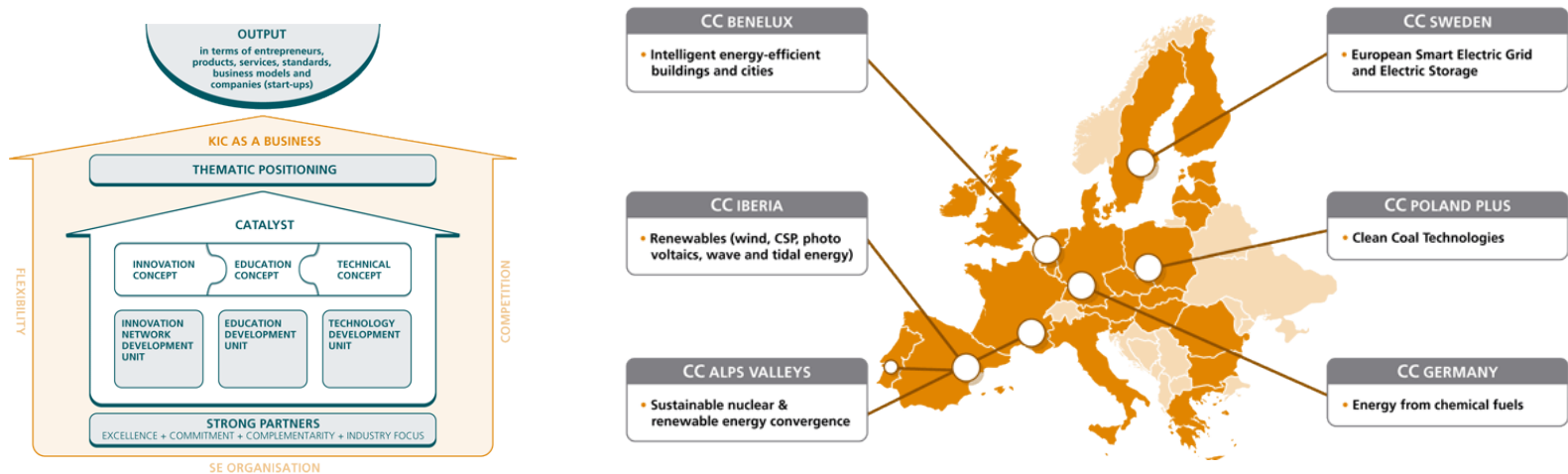


Demonstration Projects

» EIT – KIC – InnoEnergy

» <http://www.innoenergy-initiative.com/>

- » EIT – KIC : aim is closing the knowledge triangle “education-research-innovation” and make sure that research results gets valorized quicker in Europe
- » VITO is part of the Energy related KIC (InnoEnergy) within the co-location BeNeLux, our focus is “smart cities” which integrates energy efficient buildings, smart grids and electric transport in a city environment
- » First research project related to vehicles within co-location BeNeLux = EVCity “Business & services models to support the roll-out of electric vehicles in cities”



Demonstration Projects

- » Trans2House : “Transition pathways to efficient (electrified) transport for households”
 - » Focus on current barriers and policies needed to get a transition to more electrified transport, target group = Belgian household

- » ESTO : “Energy storage”
 - » Focus on Li-batteries for passenger cars and busses, so more component level research project

- » CED : “Continuous Electric Drive”
 - » Technical feasibility study on inductive charging for buses and passenger cars

- » SPARC : “Smart Plug-in Automobile Renewable Charging Services”
 - » Focus on charging infrastructure on parking spots and the business models needed behind it, demonstration of the proof-of-concept at a parking in the city of Bruges

- » ...

Platforms for information exchange

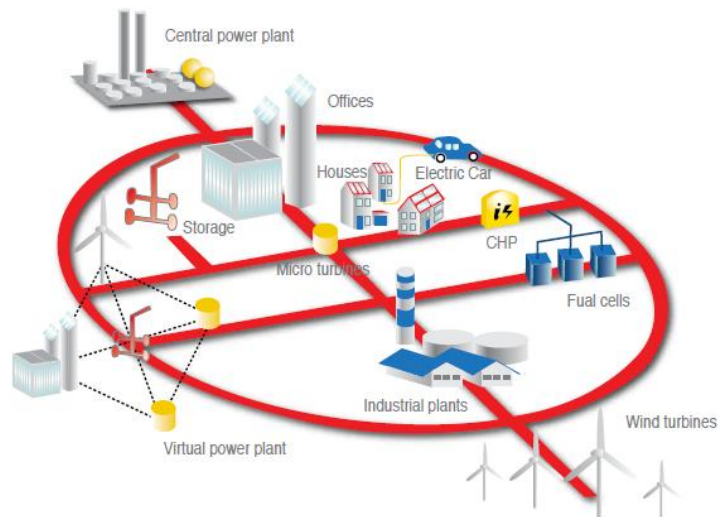
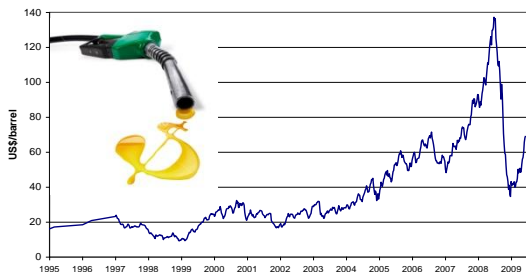
- » Belgian platforms
 - » Flanders' DRIVE, Agoria Automotive, Federauto, AVERE/ASBE, ...
 - » VSGP : Flemish Smart Grids Platform
 - » Grouping the Flemish industry to demonstrate new technologies in the domain of smart grids
 - » VITO is leading the working group "Grid Connected Vehicles" which deals with the infrastructure needed for charging the P(H)EVs and which is at the moment preparing different demonstration & deployment projects

- » IEA – IA – Hybrid & Electric Vehicles
 - » VITO is representative of Belgium in the ExCo meetings and is also Operating Agent of the Annex "Heavy-duty hybrid vehicles"
 - » Very good example of collaboration between USA and EU

Conclusions

» Huge challenges on energy supply & energy efficiency in all sectors

World crude oil prices



Conclusions

- » Need for an official “action plan electric mobility” for Belgium
- » Find synergies between different sectors :



Transport concepts : urban planning, multi-modal transport (walk, bike, public transport, shared car, private car), ...



Electric vehicles & components : improvement of energy-efficiency of components & systems inside the vehicles, ...



Infrastructure for electric vehicles : standardisation of plugs, communication protocols grid-vehicle, roaming and billing concepts, control algorithms for optimal coordinated charging with minimal impact on grid and maximum use of renewable sources, ...



Renewable energy sources, Intelligent houses, energy efficiency electricity/gas/heat/cold,



Political framework : supportive actions on legislation, incentives, ... to stimulate the investments in renewable energy and infrastructure for electrified transport

Thank you for your attention

CONTACT INFORMATION

- » Carlo Mol
- » VITO
- » Boeretang 200, 2400 Mol (Belgium)
- » Tel : +32 14 33 58 85
- » Fax : +32 14 32 11 85
- » Email : carlo.mol@vito.be
- » URL : www.vito.be

