

## Session 2

# Exploring the potential for wider scale roll out of different solutions

Esther van Bergen

Cenex Nederland



# Evaluating potential approach

New (Vehicle4)Energy Services – 8 selected for evaluation

No	New V4ES/ES	OP	NL	UK	BE	NO
1	Smart Charging - static flexible power profile	Amsterdam City	X			
2	Smart Charging - dynamic demand management	JC Arena	X			
3	Peak shaving for EV charging with battery storage	Oslo Vulkan				X
4	Solar charged E-bike replacement for passenger cars	KU Leuven			X	
5	Vehicle2Home – EV energy to household	Loughborough		X		
6	Vehicle2Building – EV energy to building	Leicester	X			
7	Vehicle2Grid (Household) – EV energy to grid	Burton-upon-Trent		X		
8	Battery Storage for energy trading – FCR <sup>*)</sup>	JC Arena	X			



# Commonalities or specifics of local context

Sources from pilot analysis reports and additional (desk) research focusing on four main local context dimensions:

- Regulatory perspective
- Energy market perspective
- Automotive market perspective
- Customer/prosumer perspective

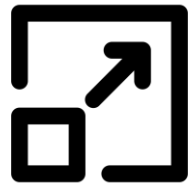


Evaluating a variety of potentially influencing factors

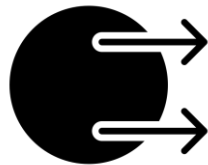


# Outcomes – some examples

Basis for (part quantitatively but primarily) qualitative analysis to determine the potential for:



Local upscaling  
(larger roll-out in the country of the pilot)



Transnational transfer  
(roll-out in the other countries)



# (V4)ES Potential – Summary Card

Johan Cruyff Arena – Dynamic demand management solution (Amsterdam, NL)

## Upscaling Netherlands

## Transnational Transfer

Regulatory



- ↑ Interoperability standards
- Dynamic pricing limited
- RED & EPBD

- Lower adoption interoperability standards
- Dynamic pricing limited
- RED & EPBD

Energy



- Competing services coming years
- Easy-to-replicate algorithm

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- Easy-to-replicate algorithm

Automotive



- ↑ EV growth
- 90% EVs = company car
- +/- 20 chargers/km<sup>2</sup> = high density

- Varying EV growth, all rising
- Varying charger/km<sup>2</sup> density, all rising

Customer



- High urbanisation = ↑ multi-story buildings

- Urbanisation varies, clustered in cities



Graded 5 – 6  
Graded 7 – 8



Graded 5 – 6  
Graded 7 – 8



# (V4)ES Potential – Summary Card

Smart (solar) charging of e-bikes to replace passenger cars (Kortrijk, BE)


## Upscaling Belgium

## Transnational Transfer

Regulatory 

- No ebike charging standardization


- No ebike charging standardization

Energy 


- Main charging during daytime
- RE on grid lagging


- Main charging during daytime
- Varying RE on grid


Automotive 

-  ebike market
- Limited market supply SC solutions

- ebike market varies
- Limited market supply SC solutions

Customer 

-  Health benefit awareness
- Limited technology knowledge

-  Health benefit awareness (cities)
- Limited technology knowledge

**As-is**  Graded 3 – 4  
**5-10 yrs**  Graded 7 – 8

**As-is**  Graded 3 – 4  
**5-10 yrs**  Graded 7 – 8



# (V4)ES Potential – Summary Card

## Vehicle2Home – Single Household (Loughborough, UK)

### Upscaling UK

### Transnational Transfer

Regulatory



- Limited interoperability standards
- Grid/tariff policies
- RED & EPBD

- Limited interoperability standards
- Grid/tariff policies
- RED & EPBD

Energy



- Connection upgrade?

- Connection upgrade?

Automotive



- Market availability
- Costs chargers / energy storage

- Market availability
- Costs chargers / energy storage
- EV & Infra uptake

Customer



- 78% access to off-street parking
- 800K homes already with PV

- Mix availability off-street parking
- Lower PV uptake to date



Graded 1 – 2  
Graded 5 – 6



Graded 1 – 2  
Graded 5 – 6



# V2X upscaling already in practice



100 business-fleet vehicles using V2G

Combination of predictable & dynamic use and charge environments

Into a working and sustainable marketplace

<https://www.cenex.co.uk/projects-case-studies/e-flex/>



Roll-out of V2G to 1,000 (domestic) customers

Geographical focus on England and Wales

Separate proposition for customers with onsite microgeneration

<https://www.cenex.co.uk/projects-case-studies/sciurus/>





# Key conclusions and recommendations

- To better incentivize customers to charge smartly and facilitate flexible/dynamic power profile solutions
  - allow room (to explore) price differentiation (national legislation)
- Infrastructure costs / static energy storage and grid/tariff related policies often form significant barrier / long ROI
  - market needs to be stimulated to increase supply diversity/ choice
- Lessons from EV market for ebike market
  - charging infra standardisation
- Awareness and engaging (end)customers is key to success of many solutions
  - include as stakeholder from start
- Adoption of such services involve several different stakeholders/partners and new knowledge
  - invest (time) in human resources to build own knowledge and understand the market



# Session 2

## Questions?

Esther van Bergen

Cenex Nederland

[esther.van.bergen@cenexgroup.nl](mailto:esther.van.bergen@cenexgroup.nl)



**Interreg**



North Sea Region

SEEV4-City

European Regional Development Fund

# Thank you for your attention

Team Cenex

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#SEEV4City

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# Get in touch



Jorden van der Hoogt  
Cenex Nederland  
[jorden.vander.hoogt@cenexgroup.nl](mailto:jorden.vander.hoogt@cenexgroup.nl)






Rogier Pennings  
Stevin Technology Consultants  
[pennings@stevin.com](mailto:pennings@stevin.com)

Esther van Bergen  
Cenex Nederland  
[esther.van.bergen@cenexgroup.nl](mailto:esther.van.bergen@cenexgroup.nl)



Luuk van Loosdrecht  
Stevin Technology Consultants  
[vanloosdrecht@stevin.com](mailto:vanloosdrecht@stevin.com)

 [@CenexNL](https://twitter.com/CenexNL)  
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