



Netherlands Enterprise Agency

Smart Grids

the Netherlands experience

IEA DSM

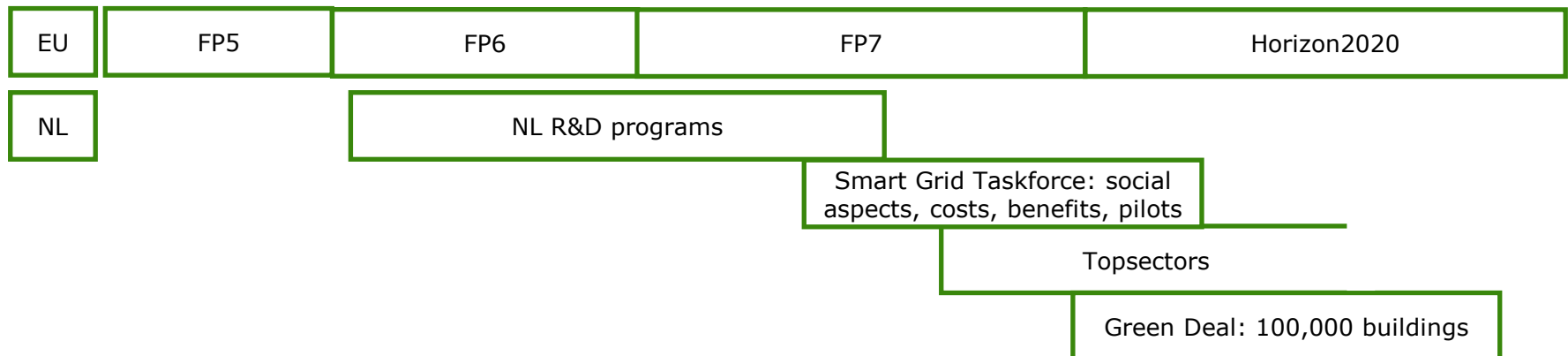
Oslo Norway, June 4 2015

Nicole Kerkhof



Programs smart grids => smart cities

2000 2001	2002 2003	2004 2005	2006 2007	2008 2009	2010 2011	2012 2013	2014 2015	2016 2017	2018 2019	2020 2021 =>
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R&D	R&D&D	combinations	larger scales
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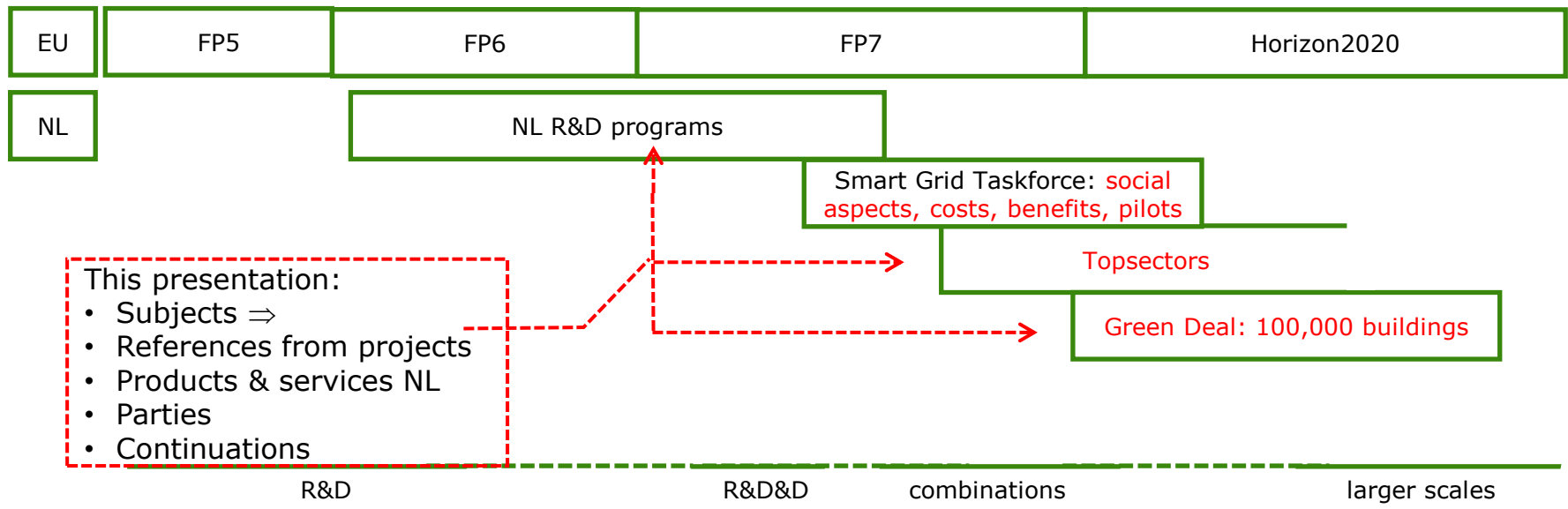
Programs smart grids => smart cities

2000 2001	2002 2003	2004 2005	2006 2007	2008 2009	2010 2011	2012 2013	2014 2015	2016 2017	2018 2019	2020 2021 =>
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From connecting DER to integrating them

..... technical, commercial, social & regulatory aspects

..... pilots interoperability ... more than energy larger scales





Innovation Programme smart grids

Taskforce Smart Grids 2011

- Real life projects
- Anticipation on aspects - Knowledge & learning
 1. Legislation
 2. Standards
 3. New products & services
 4. Consumer behaviour and user approach
 5. Vision



Innovation programme smart grids

Taskforce Smart Grids 2011:

- Real life projects
- Anticipation on aspects - Knowledge & learning
 1. Legislation
 2. Standards
 3. New products & services
 - 4. Consumer behaviour and user approach**
 5. Vision



Consumer behaviour and user approach

- Large part of the 12 experiences joined in the study
- Duration approx. 2 years
- Lessons learned within the projects



Study:

Consumer engagement & behaviour

Main question:

1. What is the effect of new techniques, products or services on end-users?
 - a) How to involve end users?
 - b) How to keep them involved



Outcome study on End users.

A. How to involve?

- ✓ Put customers earlier in process
- ✓ Think about the achievement not the technique
- ✓ Education is a must
- ✓ One intermediary per project

B. How to keep involved?

- Ambassadors
- Group responsibility



Examples from the pilots

- PMC Groningen - PowerMatcher
- JEM Zwolle
- Cloud Power Texel - KIEK
- New products from Smart Energy Collective



Products & services NL: PowerMatcher

Open source platform matching (renewable) supply and demand

P•WERMATCHER
smartgrid technology

- Better integration of sustainable energy
- Higher market value for green electricity
- Relieves the power grid
- Ready for commercial use at any scale
- Open source technology

TNO innovation for life

P•WERMATCHER
smartgrid technology

WWW.TNO.nl/PowerMatcher



YouTube (3 min.): https://www.youtube.com/watch?v=Zz4OpVwYWE&feature=player_embedded

In operation:

- Netherlands: 1000 homes in Amsterdam, Gouda, Groningen, The Hague, Houten, Scheveningen.
- Denmark: 700 homes on Bornholm Island, EcoGrid project.

Your own energy Moment!

Make and use your own energy,
at the precise moment.
Good for the environment and your wallet.
You decide with Your Energy Moment.



<http://jouwenergiemoment.nl/>

Products & services NL: Texel island

By 2020, the municipality of Texel wants to be able to fulfil its own energy needs, entirely, by means of renewable energy. One of the parties that can contribute to this objective is the cooperative, TexelEnergie, which started the Cloud Power project with Liander and Capgemini: a self-sufficient community. The pilot project examines how such a community can function and how the flow of energy can be recorded and charged for. For this purpose, everything revolves around smart energy management.



<http://www.texelenergie.nl/>

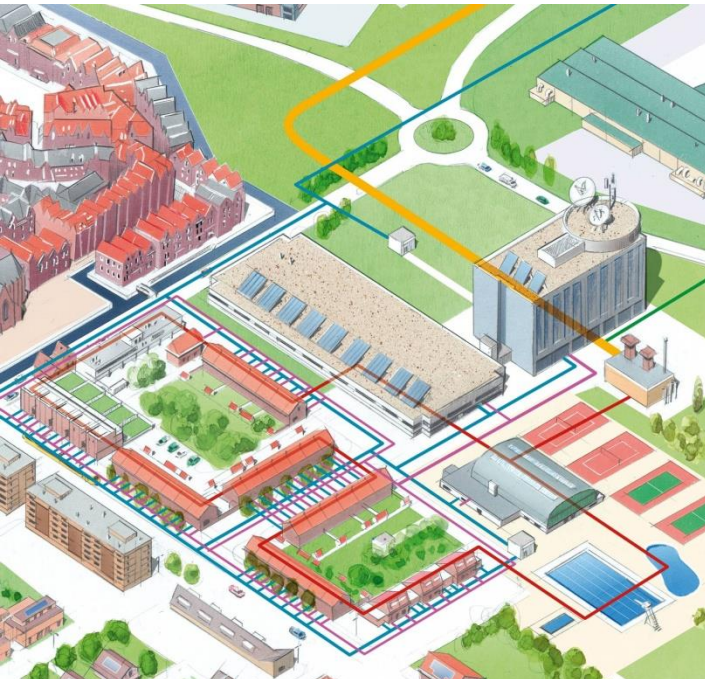


Products & services NL: for 5 distinguished user groups

Smart Energy Collective

(<http://www.smartenergycollective.com/site/pagina.php?id=44>)

ABB, Alliander, BAM, DELTA Comfort, DNV GL, Eneco, Essent New Energy, GEN, Heijmans, IBM, ICT Automatisering, KPN, RWS, Stedin Netbeheer.



The Smart Energy Collective is going to put the application of smart energy systems into practice at five locations for five distinguished types of user groups spread around the Netherlands. This will create a realistic picture of how the smart grids and services perform in different circumstances.

The five projects are:

- Existing residential district in Heerhugowaard ('SunCities')
- New residential district with district heating in Goes
- All electric new residential district in Gorinchem
- Industrial area in Haarlemmermeer
- Combination of a number of office buildings at different locations



Products & services NL: conscious use of energy

VEI: association insight in energy



BE  NEXT



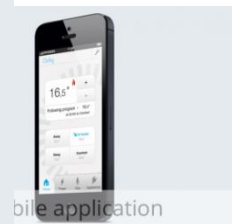
FLEXI  CONTROL



 Plugwise

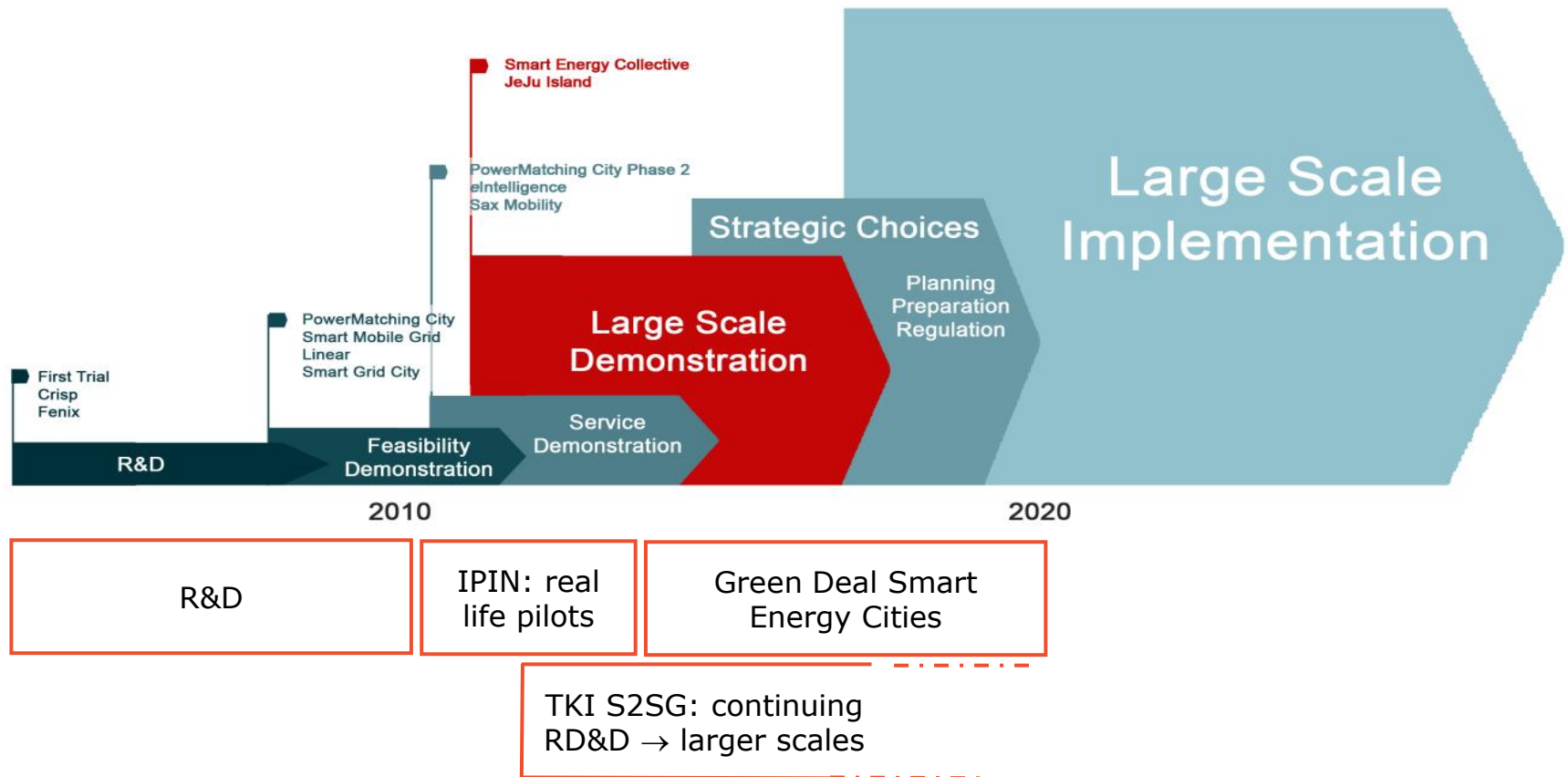


 Ouby





Programs & ambitions: from R&D => RD&D => larger scale



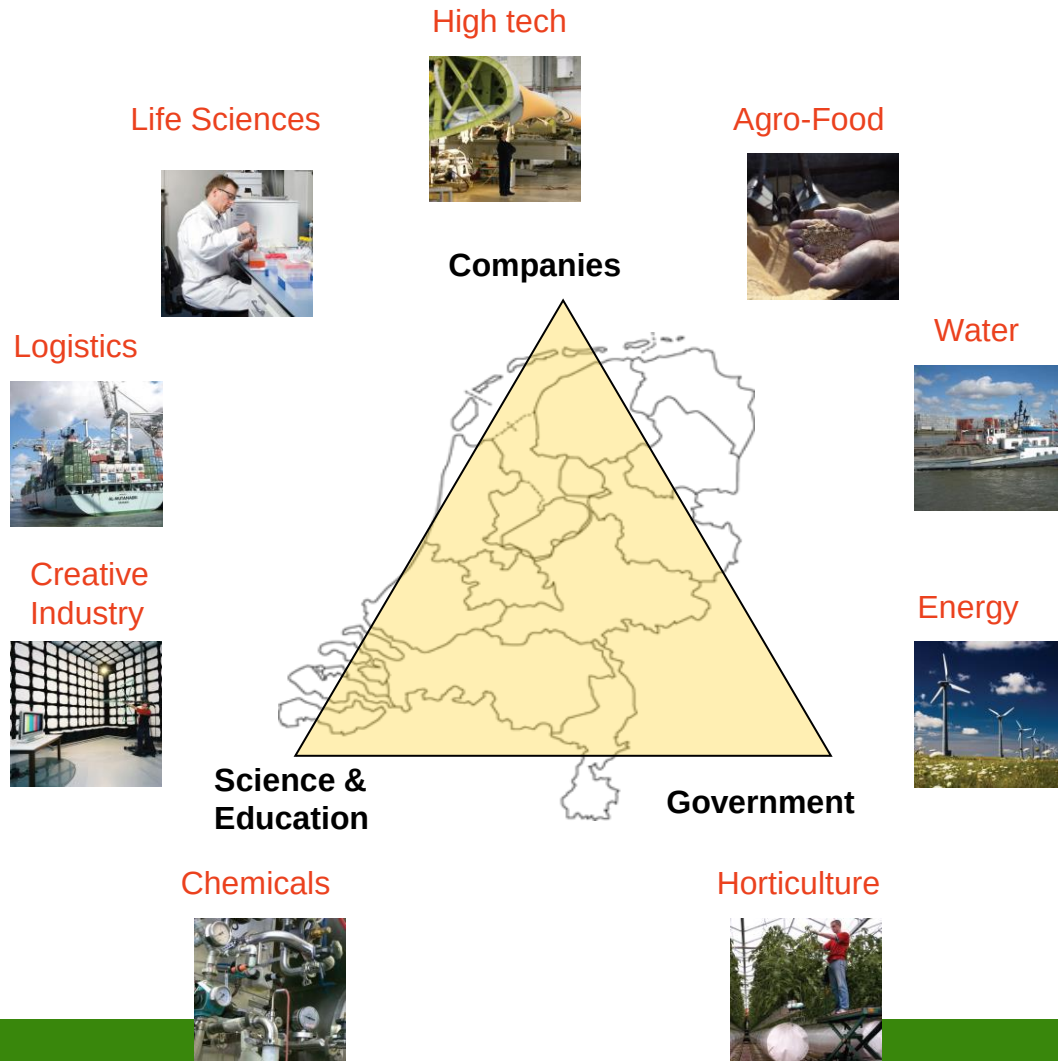
Who is who? (English)

(<http://www.rvo.nl/sites/default/files/2013/12/Who%20is%20who%20guide%20Dutch%20smart%20grid%20nov%202013.pdf>)



ABB	iNRG
Accenture	Intention
Alfen BV	Itron
Alliander NV	KPN
Almende BV	Laborelec NL
APX	Locamation
Atos	Mastervolt
Aurum Europe	Metsens
Avans	Nedap
BeNext	NieuweStroom
Betronic	Phase to Phase
Capgemini	Plugwise
CE Delft BV	Priva BV
CGI	ProxEnergy
CimPro	Prismian
Cisco	Quby
Cofely	Qurrent
CWI	RUG DS
Datawatt	RUG E&B
D-Cision BV	RUG EL
Deerns	RUG EP
Delta	RUG S&C
DNV KEMA	Saxion
Eaton BV	Schleifenbauer
ECN	Siemens
Elspec	Smart Dutch
Eneco	SMIT Transf.
Energiemanager Online	Stedin BV
enerGQ BV	Tebodin
Energy Ac. Eu.	Technolution
Enexis BV	Tenergy
Erasmus Univ.	Tilburg University
Essent	TKF
FemtoGrid	TNO
Fifthplay	TU Delft
Flexicontrol	TU/e BE
GEN	TU/e EE
Greenchoice	UCPartners
Hanze	Unica
Heliox BV	Univ. Amsterdam
Hogeschool Zuyd	Univ. Twente CTIT
HOMA B.V.	UPC
Honeywell BV	Utrecht Sust. Inst.
IBM	Utrecht Univ.
ICT Automatisering	Valstar Simonis
Imtech	Wattcher BV
	Westland
	Xemex

9 national public private partnerships ("Topsectors" from 2011)



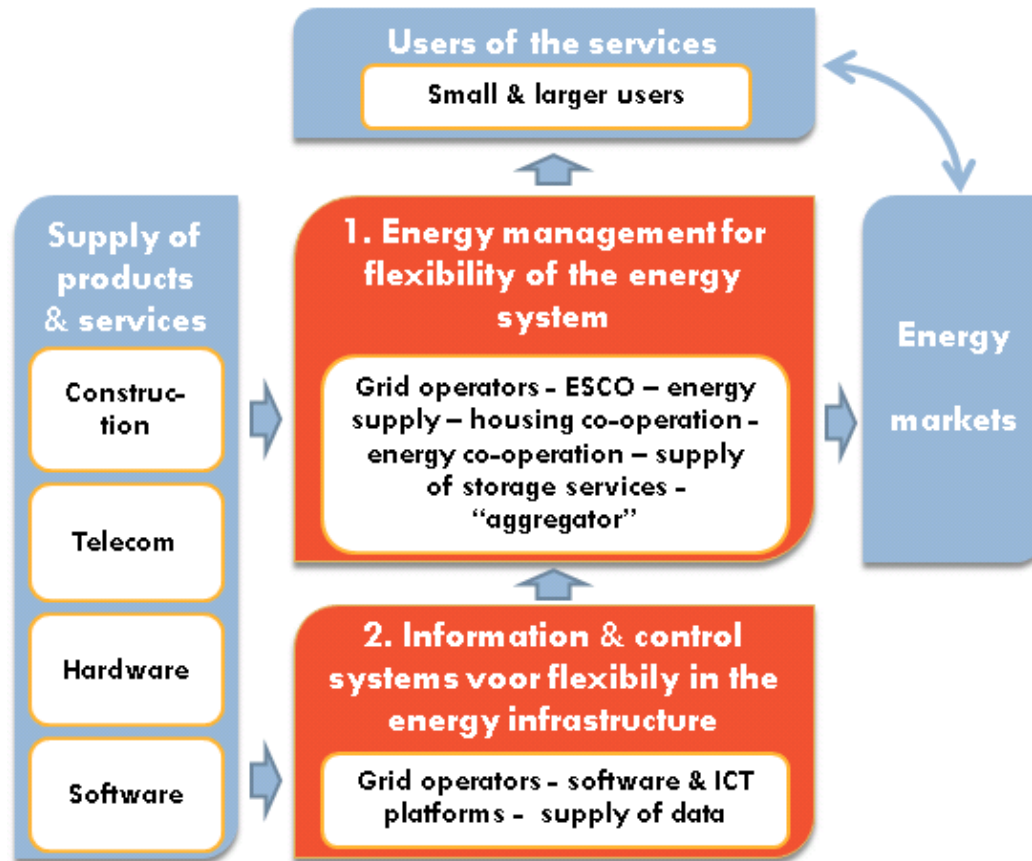


Energy

(<http://topsectorenergie.nl/english/>)

7 public private consortia knowledge & innovation (TKI) from 2012

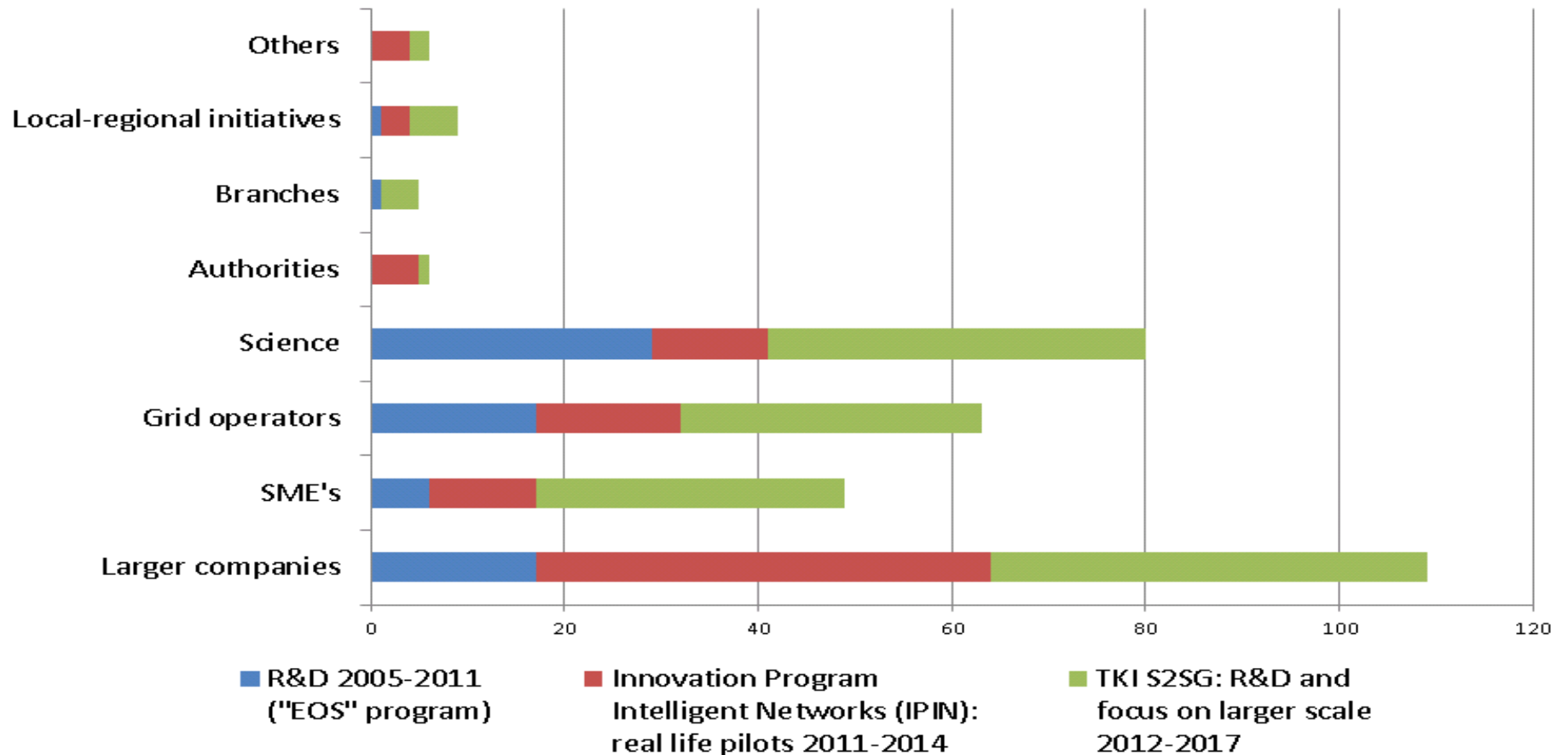
- Biobased Economy (BBE) [Factsheet](#) (English) & <http://www.tki-bbe.nl/> (Dutch)
- Sustainable Process Technology [Factsheet](#) (English) & <http://ispt.eu/home/> (English)
- Energy savings in Built Environment [Factsheet](#) (English) & <http://www.tki-energo.nl/> (Dutch)
- Gas [Factsheet](#) (English) & <http://www.tki-gas.nl/> (Dutch)
- Solar Energy [Factsheet](#) (English) & <http://tkisolarenergie.nl/en/> (English)
- ➔ Switch2SmartGrids (TKI S2SG) [Factsheet](#) (English) & <http://tki-switch2smartgrids.nl/> (Dutch)
- Offshore wind [Factsheet](#) (English) & <http://tki-windopzee.eu/> (English)



Program lines 1 and 2 and their position in a value chain



Numbers of participations in projects under a smart grid program





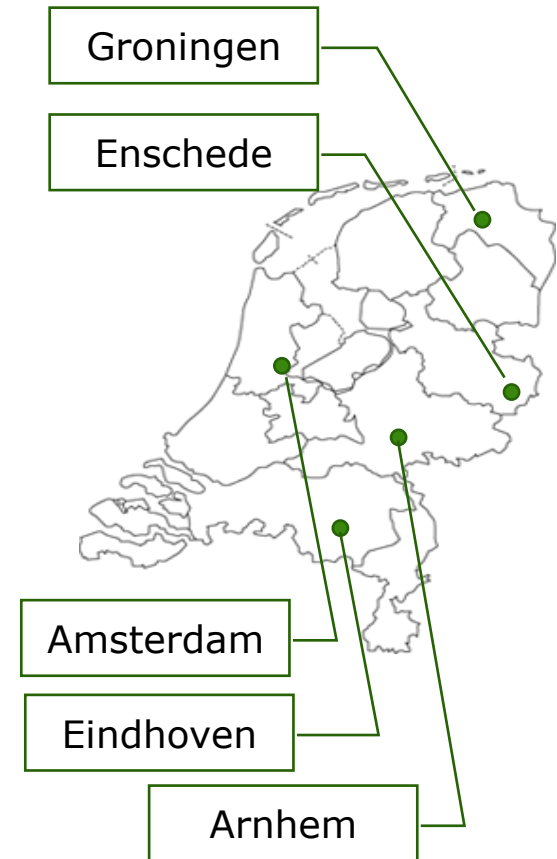
Green Deal

- Agreement (enterprises, social organisations, local authorities and Ministry Economic Affairs) in order to realise local sustainability ambitions.
- Under a Green Deal Ministry helps to remove bottlenecks such as regulation and to find appropriate partners.
- Areas: energy, climate, water, raw materials, mobility, biobased economy, building and food.



Green Deal Smart Energy Cities 2014-2019

- 5 cities
- Consortia knowledge & innovation:
 - Energy savings in Built Environment (Energy)
 - Solar Energy (Energy)
 - Gas (Energy)
 - Switch2SmartGrids (Energy)
 - CLICK NL (Creative industry)
- NL Grid Operators Association
- Ministry Economic Affairs





Green Deal Smart Energy Cities 2014-2019

- Low carbon energy solutions for 100,000 buildings in 5 cities.
- Companies should be attracted by large number, investing innovative technologies & services.
- Customer / energy consumer oriented.



Thanks for your attention

Nicole Kerkhof

Nicole.Kerkhof@RVO.nl

<http://www.rvo.nl/subsidies-regelingen/intelligente-netten>