

Innovatorzone Multi-energie in wijken



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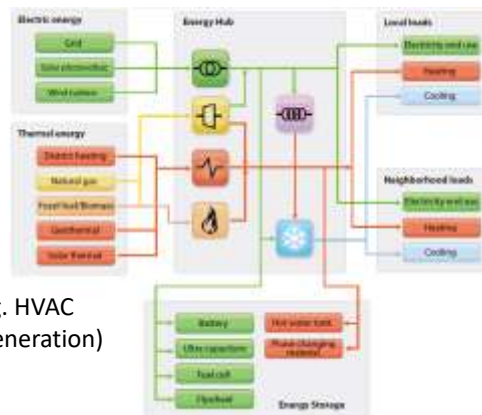
Focus innovatorzone

Multi-energy for districts



What?

- Districts/mixed sites
- Multi-energy carrier solution
- Interaction heat/cold/electricity
- Local energy hubs

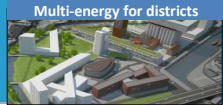


Challenges

- Interoperability of components e.g. HVAC
- Intelligent heating networks (4th generation)
- New ESCO's



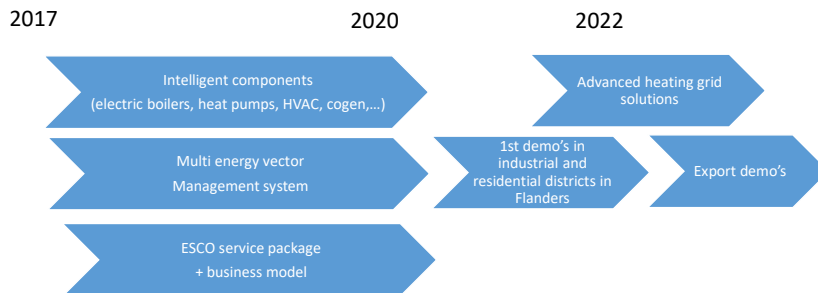
Innovator zone - Why?



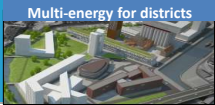
- + 7.000 EU cities with dedicated energy plans
- + 20.000 district developments
- Flanders
 - urbanised area
 - high engagement: 150 cities & communities



Roadmap



Ambition



Timing	KPI	
After 1 year	Consortia formed	2
	Number of companies in the consortia	10
	Project proposals submitted	2
	Feasibility studies	4
After 3 years	Demos performed	1
	Technologies enhanced	5
	Number of cities involved	4
	Number of companies involved	15
	Multiplication factor project financing	3
After 5 years	Demos performed	4
	Number of cities involved	8
	Number of companies involved	20
	Multiplication factor project financing	5
	Number of export activities running	3



Project ideas



Innovatorzone Energie Cloud Platforms



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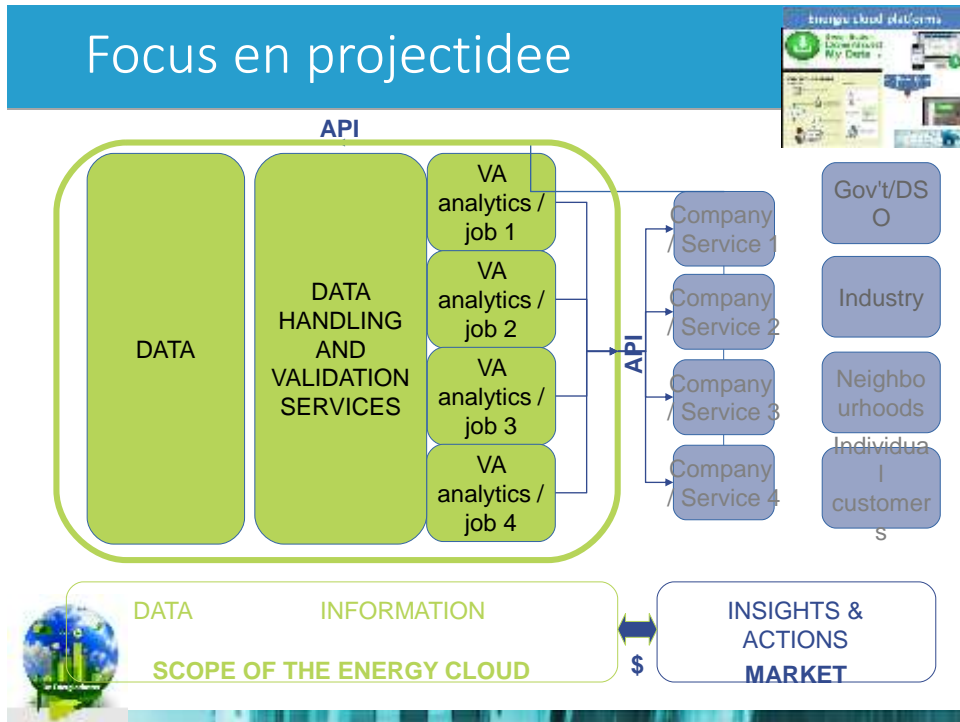
Focus innovatorzone



- Centrale, gestandaardiseerde cloud met energiedata
 - Grootschalige opslag&verwerking
 - Connectie met andere innovatorzones/projecten
- *Enabler* voor apps&diensten van derden
- Beveiliging en Privacy



Focus en projectidee



Focus en projectidee

- Cloud zelf is gemeenschappelijke infra
 - Publieke middelen
- *Enabler* voor apps&diensten van derden
- Beveiliging en Privacy



Ambitie



KPIs in 1 year	Consortium assembled	3
	# of companies in the consortium	9
	Projects applied	2
	Feasibility studies	4
	Update program	At the end of the year
KPIs in 3 years	Finished demonstrator projects	2
	# of ports included	2
	# of companies in the projects/studies	10
	Assigned project means	EUR 3 million (excl. investment)
	Total feasibility studies	15
	Update program	At the end of the 3-year period
KPIs in 5 years	Finished projects	5
	# of companies in the projects/studies	20
	Project means	EUR 10 million (excl. investment)
	Update program	At the end of 5-year period

Intelligente renovatie



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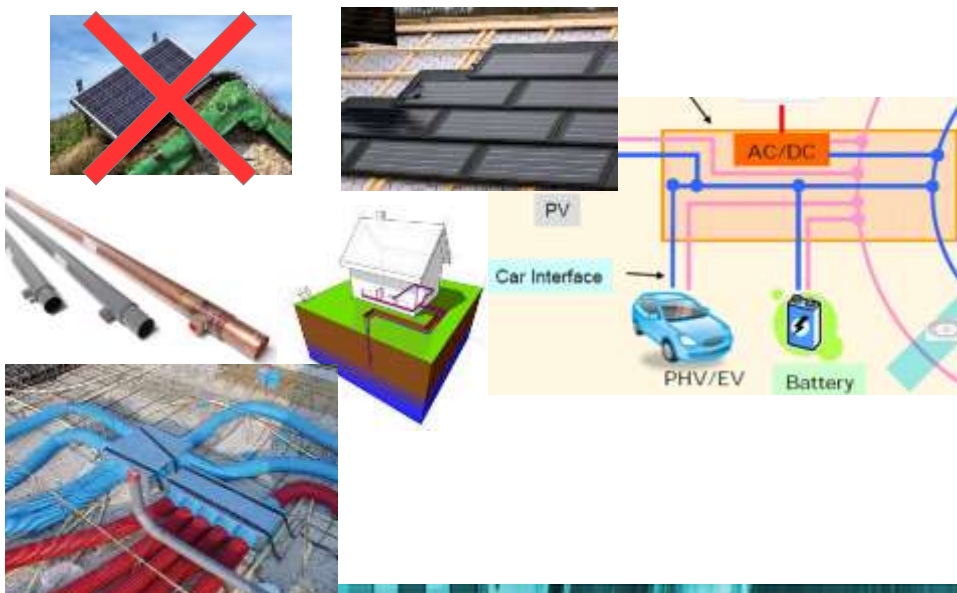


Focus innovatorzone



Intelligent renoveren naar energieneutrale gebouwen met geïntegreerde energieproductie en –opslag

- In Europe almost 40% of residential buildings predate 1960, while only 15 to 20% were built after 1990. Present renovation rate of our building stock is too low to achieve the energy efficiency goals of 2050
- Key element is **sustainable use and production of energy**.
- This requires a systemic approach and an organizational innovation, encompassing energy efficiency, low carbon technologies and the smart management of supply and demand



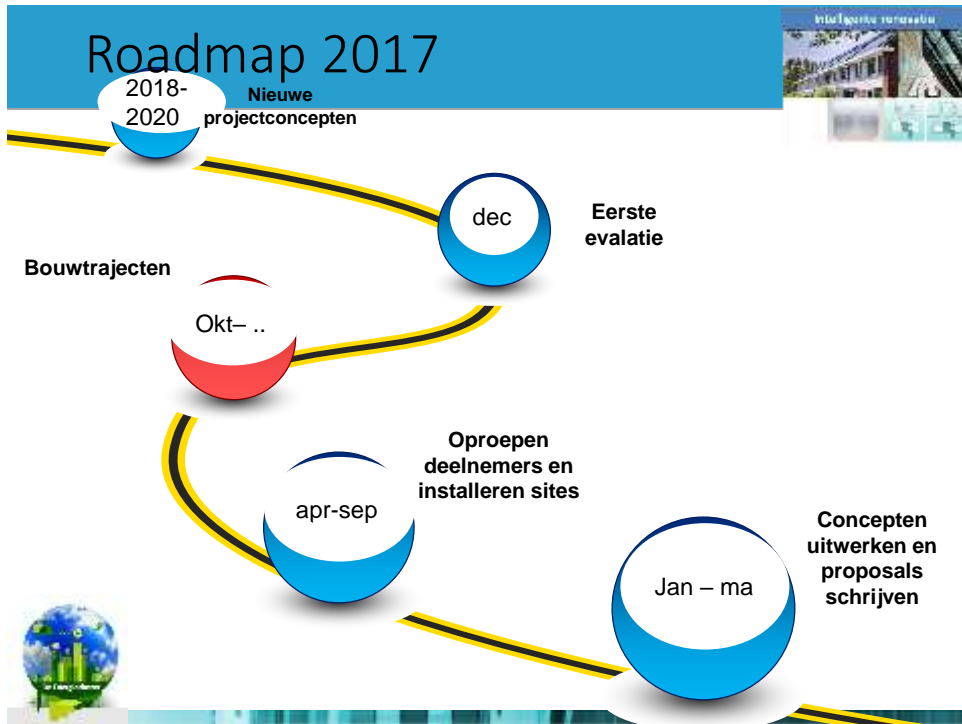


Focus innovatorzone



- Focus remains on **affordable housing** with the aim to increase living comfort
- **upscaling** the production and working on **cost-efficient production** processes.
- focus on **techniques** that are both **feasible** within the Flemish building context and **scalable** to an international level
- **best available technologies and new techniques** that are both feasible and scalable to an international level
- **Easy access** to new techniques, innovative components and smart systems





Ambitie

KPIs in 1 year	Consortia assembled	3
	# of companies in the consortium	5-10
	Building sites initiated – residential	3
	Building sites initiated – collective	2
	Infrastructure investment	EUR 4 million
	Additional project means	EUR 1 million
	Number of companies involved in the building projects	20
KPIs in 3 years	Consortia assembled	5
	# of companies in the consortium	5-10
	Finished demonstrator projects	2
	Additional building sites initiated – residential	7
	Additional building sites initiated – collective	3
	Infrastructure investment	EUR 5 million
	Additional project means	EUR 2 million
	Number of companies involved in the building projects	60
Number of companies reached through dissemination	300	
KPIs in 5 years	Finished projects	6
	# of companies involved in the building projects	20
	Number of companies reached through dissemination projects	600
	Assigned project means	EUR 10 million
	Update program	

Projectideeën

- The power backbone for IoT devices
an intelligent **safe-to-touch DC nanogrid** for new and renovated buildings, which integrates power and broadband data communication on a building scale, simplifies cabling and gathers power usage data for local energy management applications outperforming AC energy management tools.
- Collective upgrade
overcome a lack of comprehensive knowledge about how much energy flexibility different building types, in this case target buildings are collective residential building with a focus on social housing, and their usage may be able to offer in future energy systems (IEA task 67)



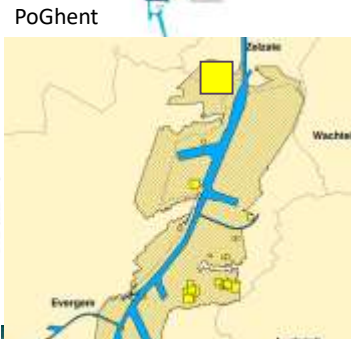
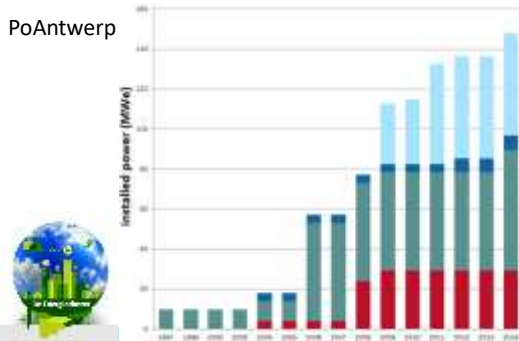
Innovatorzone Energiehavens



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Why?

- 4 ports PoZ, PoO, PoA, PoG
- 2008-2013
 - PoAntwerp: 250 PJ/yr
 - PoG: 54 PJ



Why?

- Harbour areas have a large potential
 - High energy intensity
 - Cross road of multiple vectors
 - Electricity, heat, gas (methane, hydrogen), liquids
 - Potential link to transport
 - Rail, road and waterborne
 - Sustainable agenda
 - Running projects and planned investments
 - Industrial area allowing for industrial activity
 - Large value for the economy



Focus innovatorzone

1. The harbour area as a power plant
 - Leverage on
 - Wind aan de stroom
 - Terra Nova
 - Increase flexibility
2. Energy storage via power-to-products
3. Towards greener harbour infrastructure
4. Innovative thermal (heat/cooling) projects
 - Use of waste heat via thermal power stations, heat transport
 - Demand side management cooling/refrigeration with extensive integration of renewables
5. Shore power



Projectideeën & roadmap

- Prio 1: harbour area as a power plant
 - Explore use of storage
 - Batteries, hydrogen, methanol
 - Potential link to transport or chemistry
- Prio X: open for discussion



Ambition

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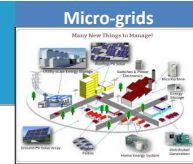


Innovatorzone Microgrids

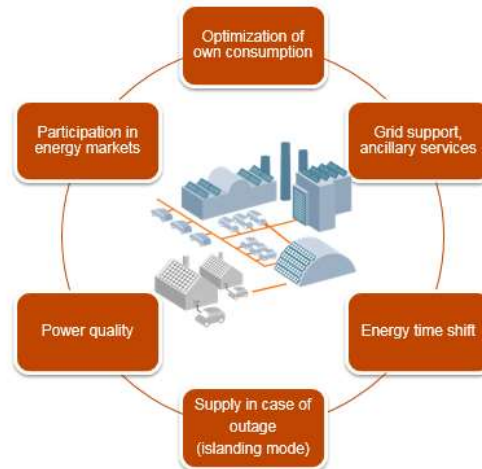


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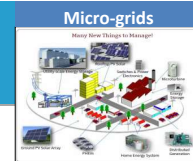
Focus innovatorzone



Grid connected microgrids/ VPP



Focus innovatorzone



- **Bouwen van een open system voor micro grids via een building block concept**
 - CHP, Gen set, PV technologies, Heat pumps, on shore wind turbines, storage units, Grid-active and grid-interactive inverter systems,...
 - functional block controle systemen.
 - De interconnecting technologie kan single- of three-phase AC, low-voltage DC of een hybride structuur zijn.
 - multi-agent structuur om de energetische balans over het gehele network op quasi instante wijze te garanderen.
 - software system(s) gebaseerd op machine learning algorithmen kunnen elke building block van elke speller verbinden mits ze voldoen aan de standaarden voor connectiviteit..
 - De software optimaliseert het system gedurende een leerperiode. Objectieven: lokale real time balancering van het vermogen, afstemming vraag-aanbod gedurende bepaalde tijden en het voorzien neven diensten.
 - Het een system moet een balans vinden tussen efficiëntie, duurzaamheid en asset lifetime.



Roadmap 2017

Micro-grids



Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Presentatie concept en oproep nieuwe deelnemers om building blocks te completiseren Samenkomst en verder uitwerken concept		Vernieuwde proposal voor discussie VLAIO. Verhaal sterker maken	Oproep bedrijven gebaseerd op vernieuwd concept en werkvergaderingen	Potentiële sites in kaart brengen en benodigde technologie afstemmen	idem	Idem + budget	Idem + budget	Concretisering van de projecten	Opstelling componenten in lab voor tests	idem	Idem+ review gebaseerd op eerste vaststellingen



Ambitie

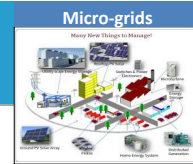
Micro-grids



KPIs in 1 year	Consortium assembled	June
	# of companies in the consortium	10
	Projects applied	2
	Feasibility studies	3 to 4
	Set up lab concept	October
	Update program	March
KPIs in 3 years	Finished demonstrator projects	2
	# of companies in the projects/studies	10
	Assigned project means	EUR 3 million (excl. investment)
	Total feasibility studies	10
	Update program	At the end of the 3-year period
KPIs in 5 years	Finished projects	5
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Projectideeën



Stad Kortrijk : project..

Stad Leuven : Balan Cities (Hertogensite, ..

Stad Gent : Nieuwe dokken

Industriële sites nodig

Andere ? (Hospitaal, Kazerne, Universiteit,...)

Nood aan additionele partners om ALLE
wenselijke Building Blokken aan boord te hebben

!

