



EnergyVille

Research
into sustainable energy
and smart energy systems

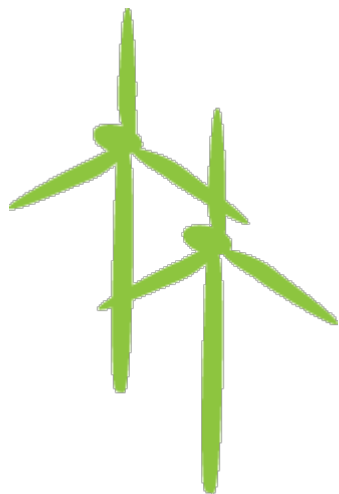




EnergyVille: energy framework

- Two markets
 - Commodity for large consumers
 - PRICE, PRICE, PRICE and reliability
 - Electricity and gas are products
 - Europe based
- Service for small consumers
 - Energy sources: do not care
 - Comfort, well being
 - SME: Sit back and relax
 - Local based (Flanders,)

Flemish energy research by



VITO

- Energy Technology
- Sustainable Cities



KU Leuven

- Electa
- Building Physics
- Mechanics

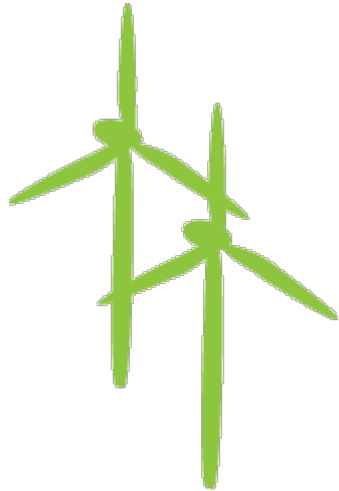


imec

- Photovoltaic Research



Flemish energy research by



Energy *Ville*



EnergyVille

Expertise in sustainable energy
and intelligent energy systems
in cities and their surroundings

Research – Development – Training

✦ For:

- 🏠 Industry
- 🏠 Governments

✦ With:

- 🏠 Local partners
- 🏠 Regional partners
- 🏠 International partners



EnergyVille



 Connected in an interconnected world





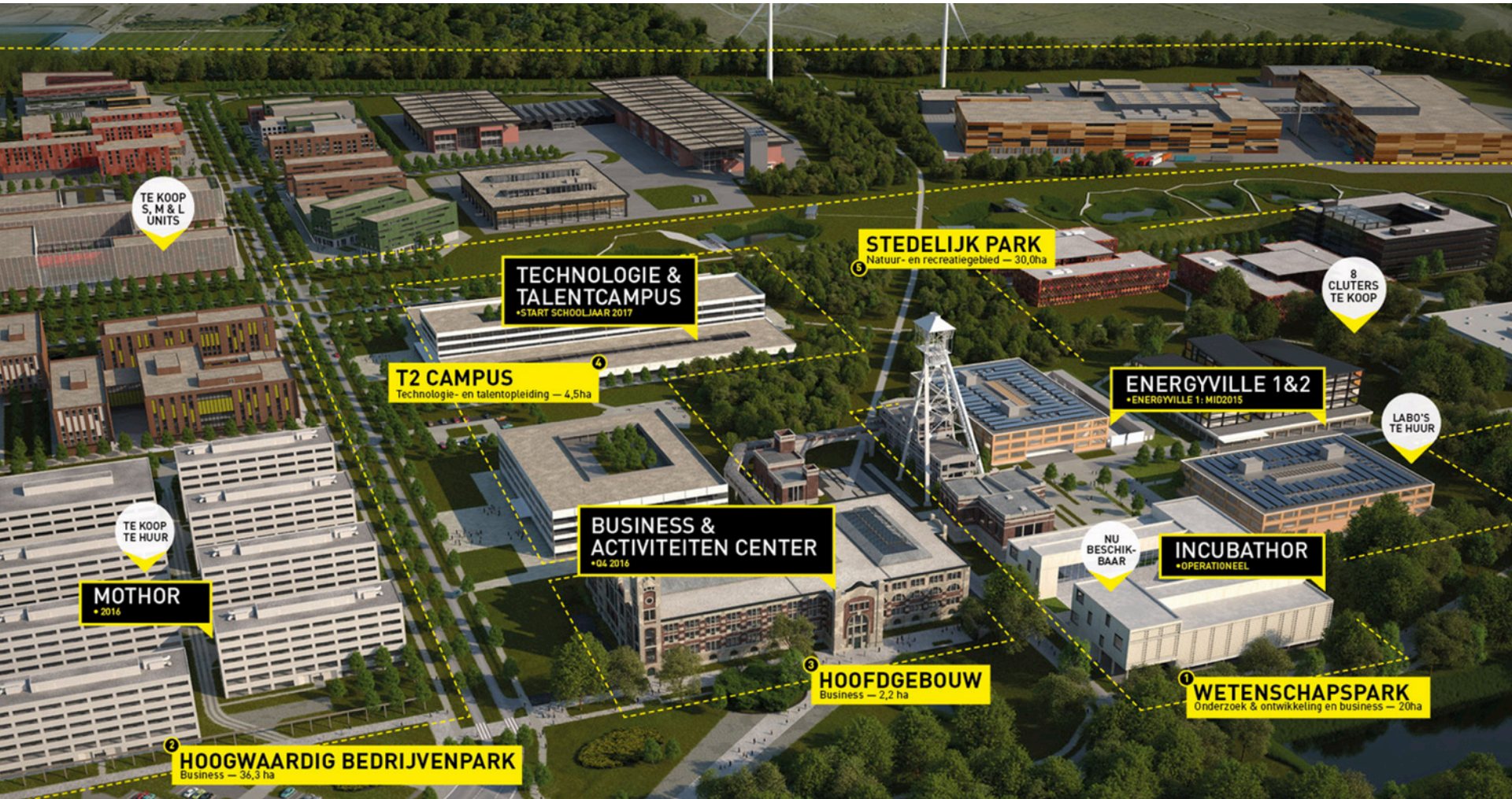
EnergyVille – embedded in a local context



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Program @Thor



MenThor

Setup an ecosystem:

- bring stakeholders together
- translate visions on energy, to roadmaps and experiments
- integrate research, education

Technology & Talent Campus
and entrepreneurship



AcceleraThor

Stimulate start-ups

in energy services and technology

- L1: boost entrepreneurship (FBS)
- L2: idea > validated business plan (KIC)
- L3: upscaling (LRM/Numha)



Facilitate developing your business from Thor

Regulation Free Area



DemonstraThor

Integrate technology and research,
offer a Living Lab:

- EnergyVille HomeLab
- EnergyVille BatteryLab
- EnergyVille MatrixLab
- EnergyVille ThermalLab
- EnergyVille CarLab
- EnergyVille SolarLab
- Thor Block of Buildings
- Thor Smart Grid
- Thor 4G Heat Network



Host teams @Thor



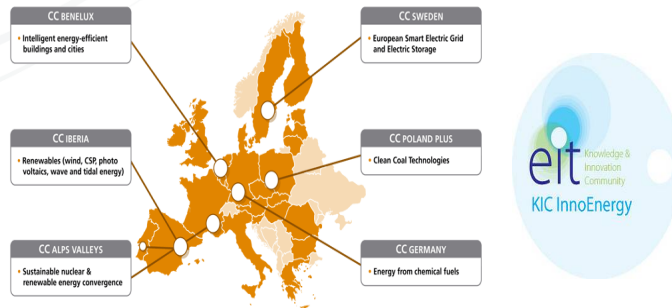
EnergyVille – Embedded in a broad context

Flanders



SGF brings together industry and knowledge centers on **intelligent energy networks** to make them a reality

Europe



EIT stimulates the knowledge triangle research, innovation, education for and together with industry

Europe



DERlab develops criteria for the operation of **distributed energy resources** in the grid

Inter-national



GSGF brings together industry on smart grids across the globe (secretariat and technical knowledge hosted by EnergyVille)



EnergyVille

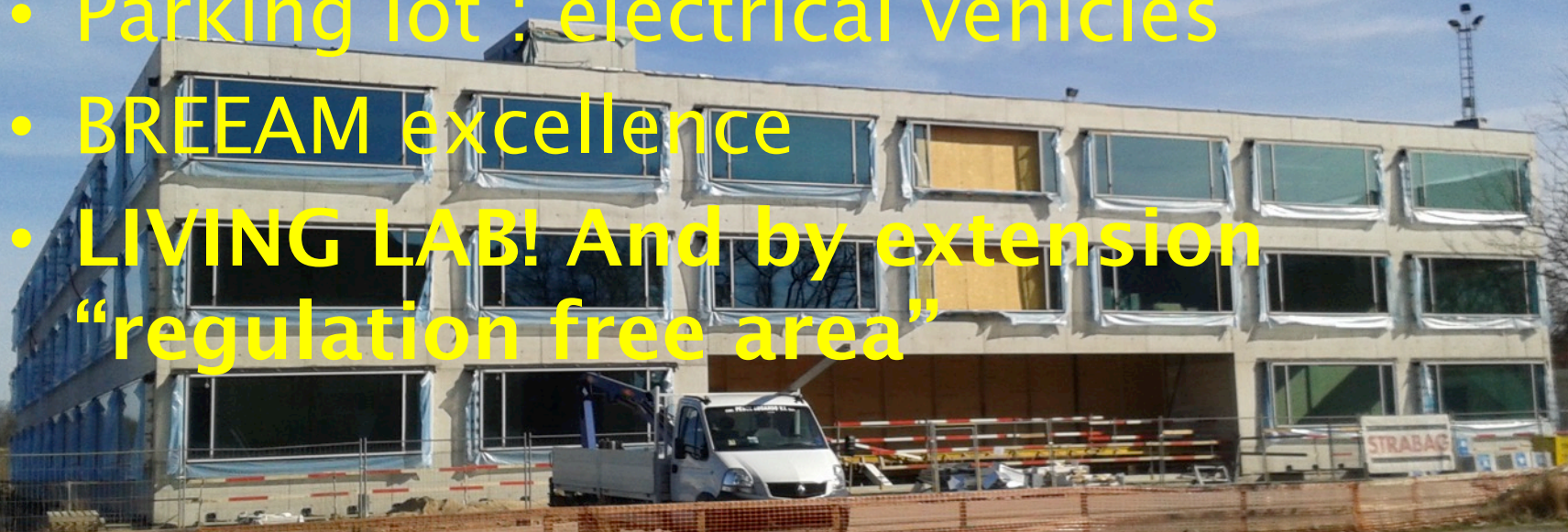
- ▶ Driving force behind the transition towards sustainable energy supply
- ▶ Stimulus for research, business development and jobs in Genk
- ▶ Central position in the European knowledge triangle ELAt, Eindhoven, Leuven, Aken

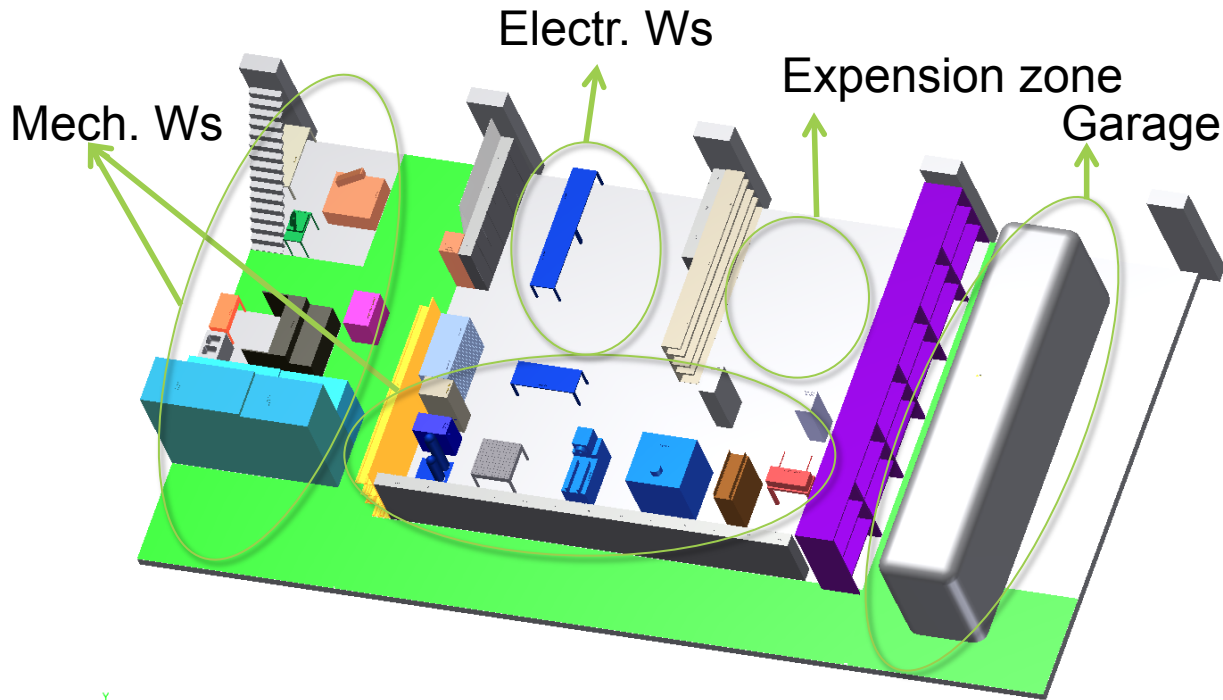




Building: EnergyVille 1

- 15000 m² floor area
- 5000 m² lab infrastructure
- 200 desks
- Parking lot : electrical vehicles
- BREEAM excellence
- **LIVING LAB! And by extension
“regulation free area”**





S~ 450m² (h~ 6,5m)

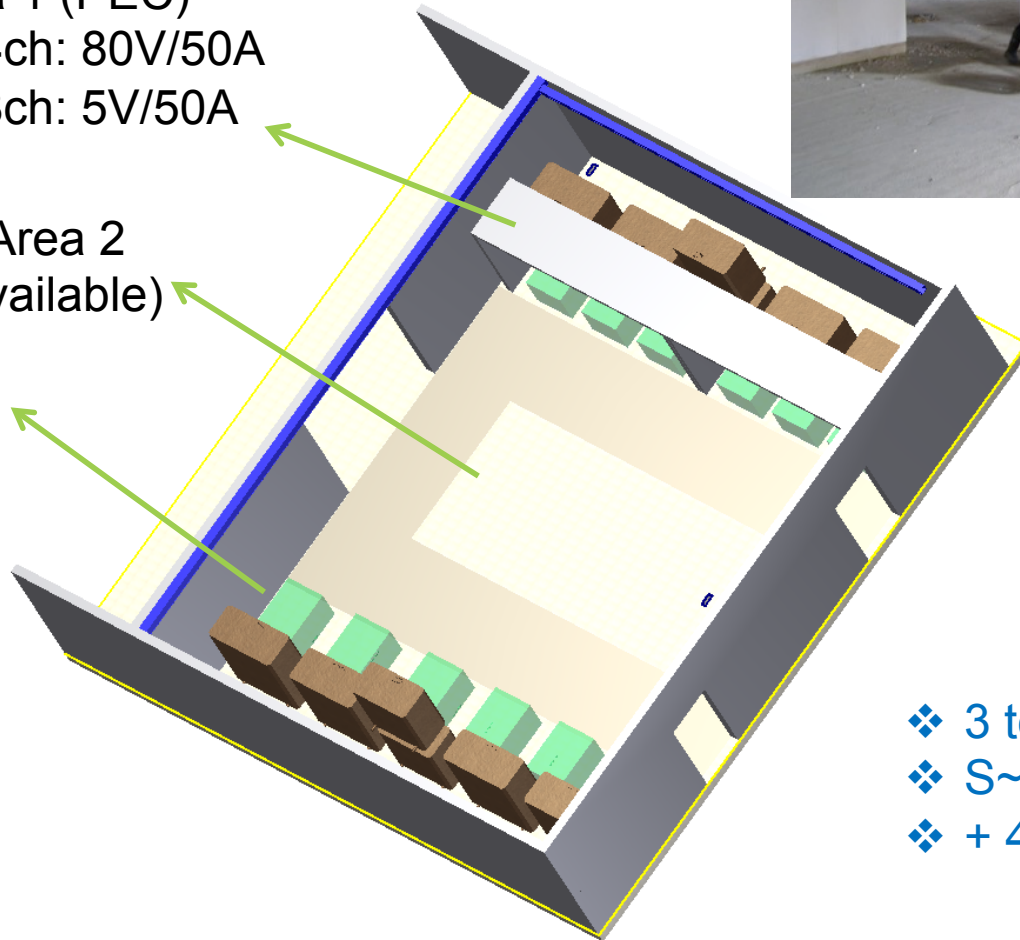
Battery lab



Area 1 (PEC)
2*24ch: 80V/50A
2*48ch: 5V/50A

Area 2
(available)

Area 3
(available)



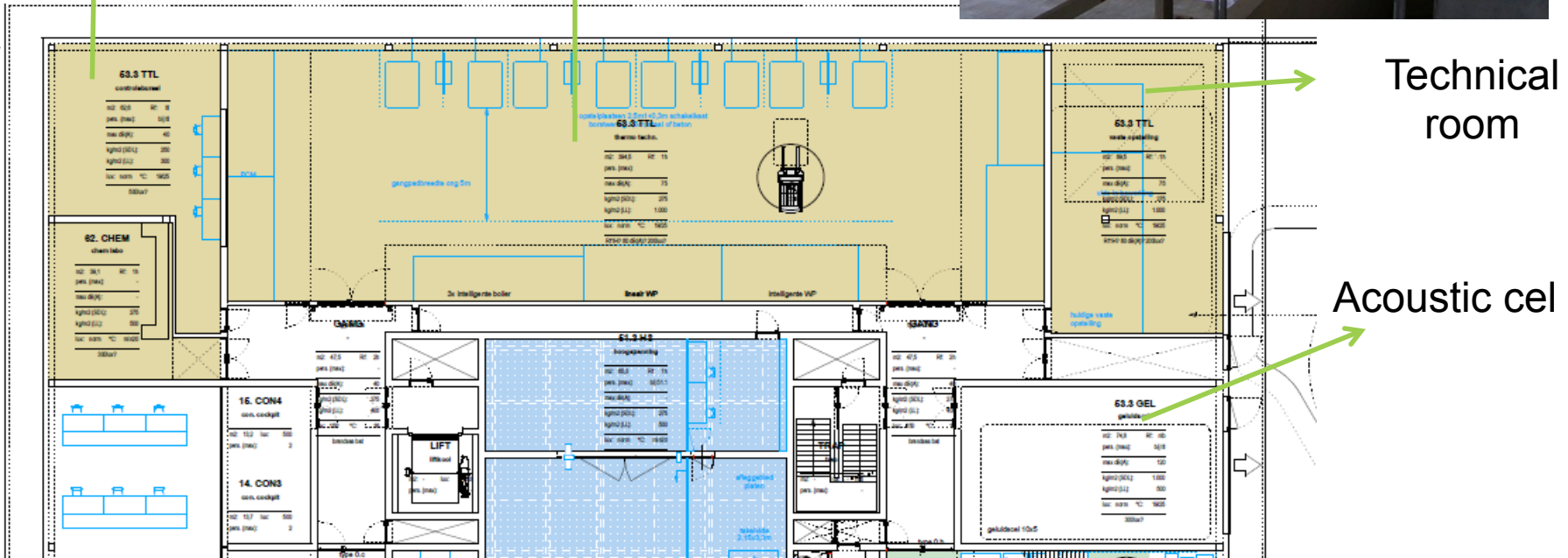
- ❖ 3 test areas
- ❖ $S \sim 150\text{m}^2$ ($h \sim 3.5\text{m}$)
- ❖ + 40m^2 opslag





Control room

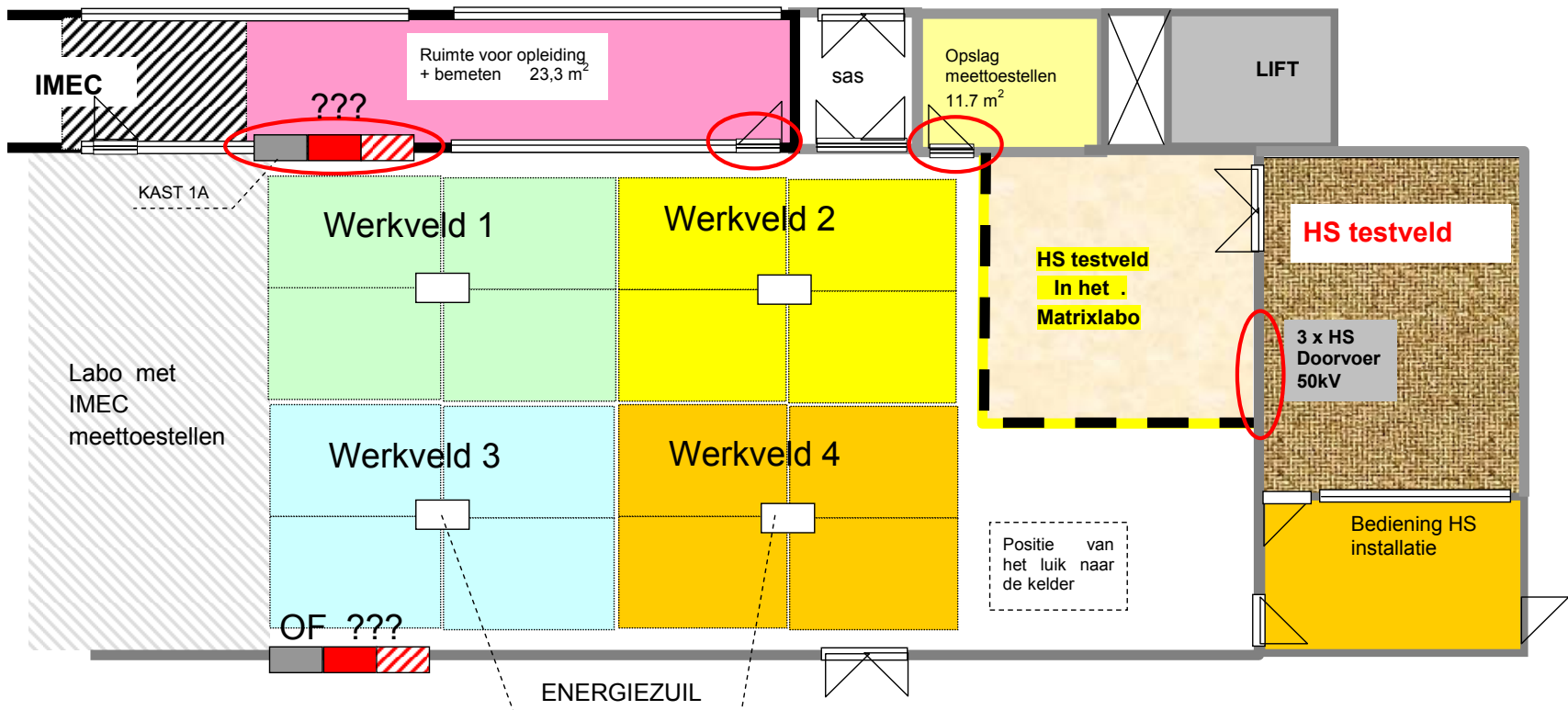
lab



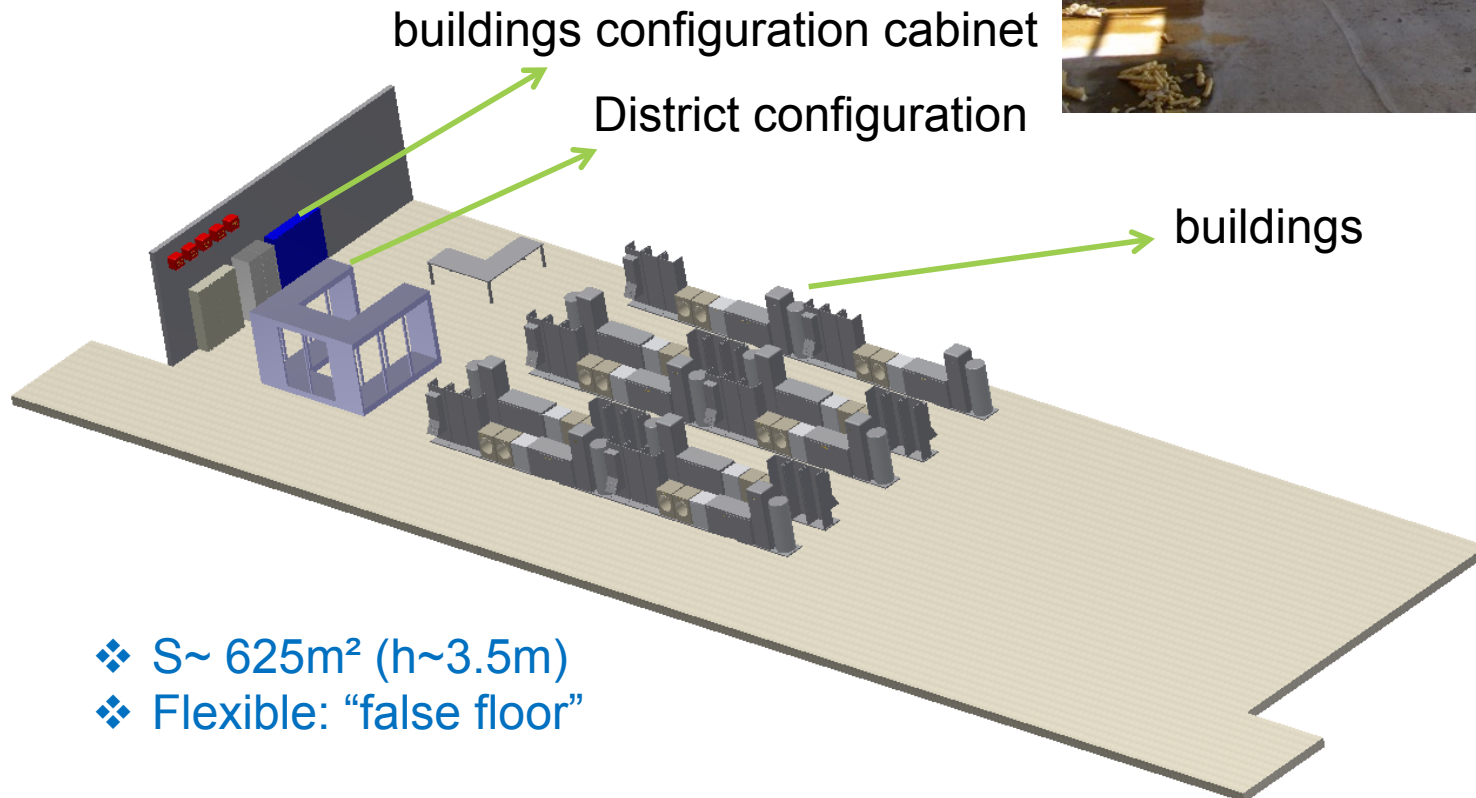
- ❖ S test area ~625m²; h~6,5m
- ❖ Pe: 500kW max
- ❖ Pth: 1MWth max (ext koelunit)



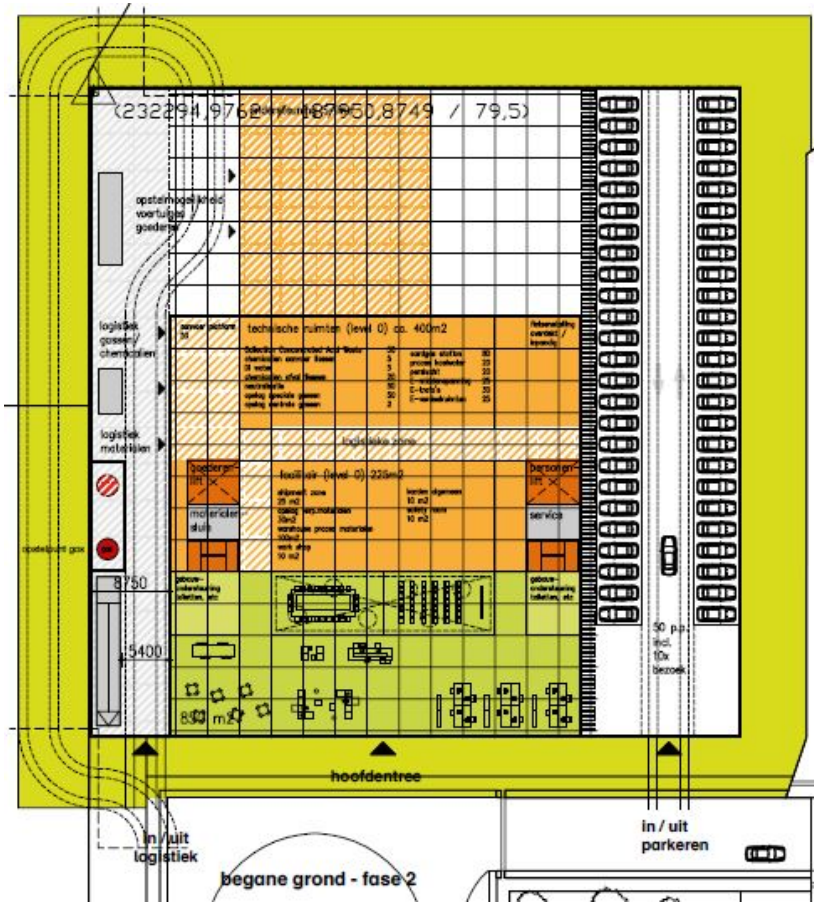
- ❖ 16 Work fields
- ❖ MV labo
- ❖ IMEC labo



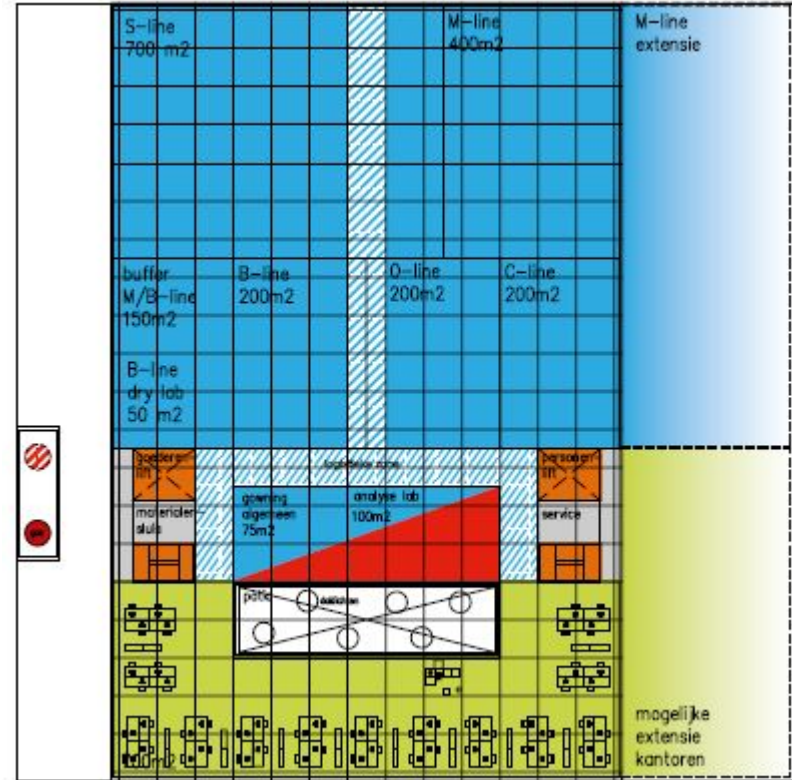
Homelab



Building: EnergyVille 2



Ground Floor



Labs Floor +6.5m



Campus
EnergyVille

Campus EnergyVille

- Campus EnergyVille Thor Park, Waterschei, Genk
- With the support of:



Vlaanderen
In Actie
Pact 2020



met steun van het
Agentschap Ondernemen



Europese Unie

Met steun van de
Vlaamse overheid





Campus
EnergyVille

Campus EnergyVille

- Campus EnergyVille Thor Park, Waterschei, Genk
- With the support of:



Vlaanderen
In Actie
Pact 2020



met steun van het
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Europese Unie

Met steun van de
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Research into

*E*lectrical Storage

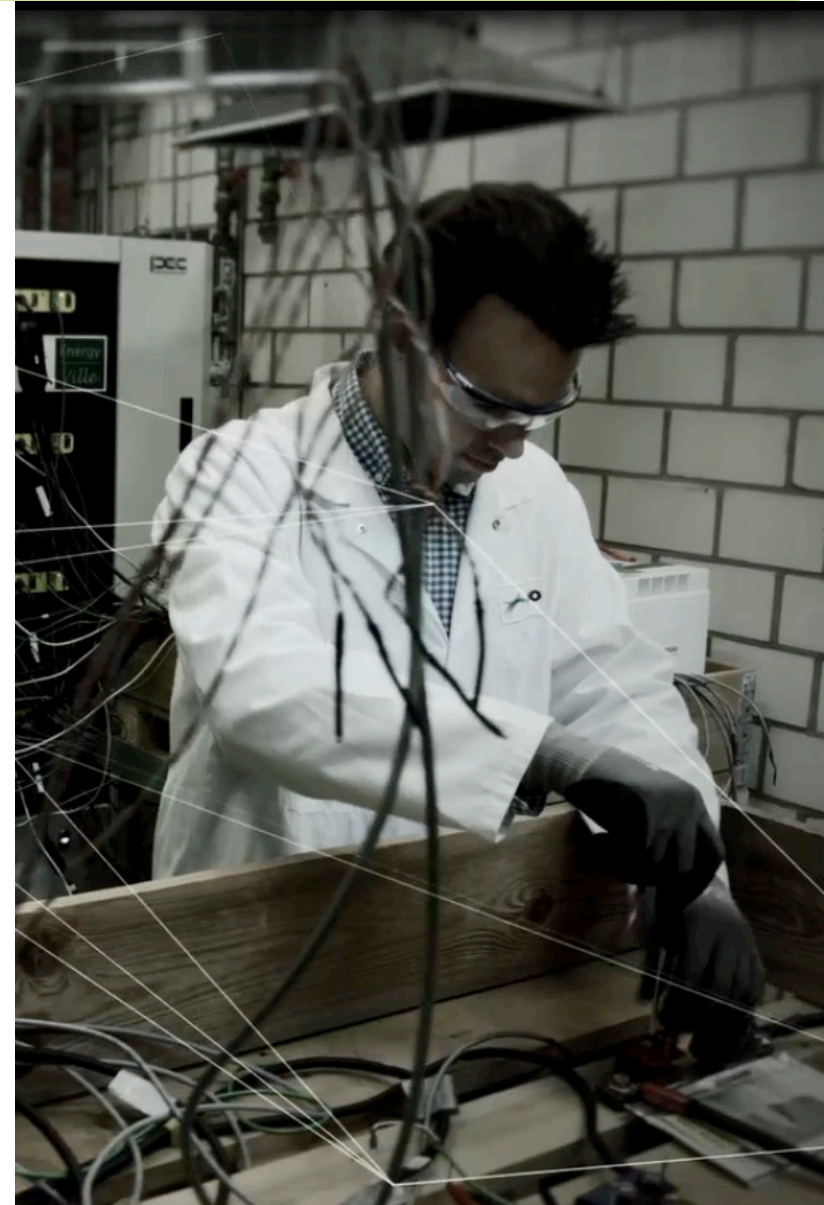
*T*hermal Systems

*E*lectrical Systems

*E*nergy Markets and Strategies

*C*ities in Transition

- New types of batteries
- Battery Management Technologies
- Integration of Storage Devices
- Long Term Storage and Conversion





Electric vehicles



**SMART CHARGING SYSTEM
FOR ELECTRICAL VEHICLES**

Optimization of Thermal Energy Systems

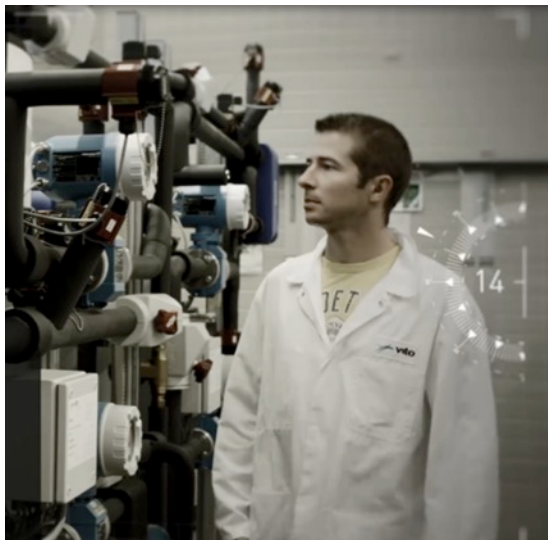
Substations

Optimal
(building)
Energy
Demand

Advanced
Thermal
Energy Storage

Integration of
Energy
Conversion
Technologies

4G thermal networks

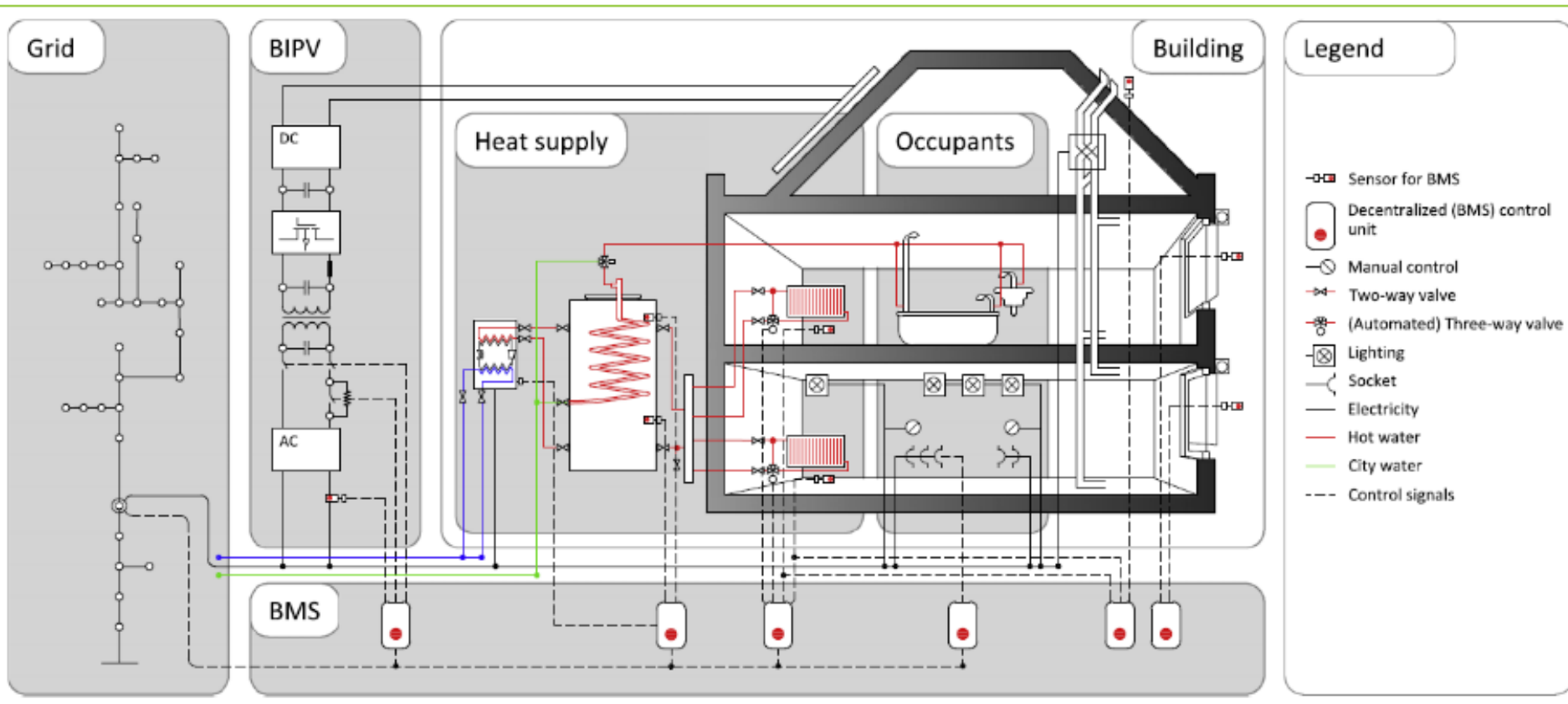


- HVDC
- Technologies for grid services
- Photovoltaic Integration in buildings and DC nanogrids
- Cell and module technologies



Photovoltaic Integration

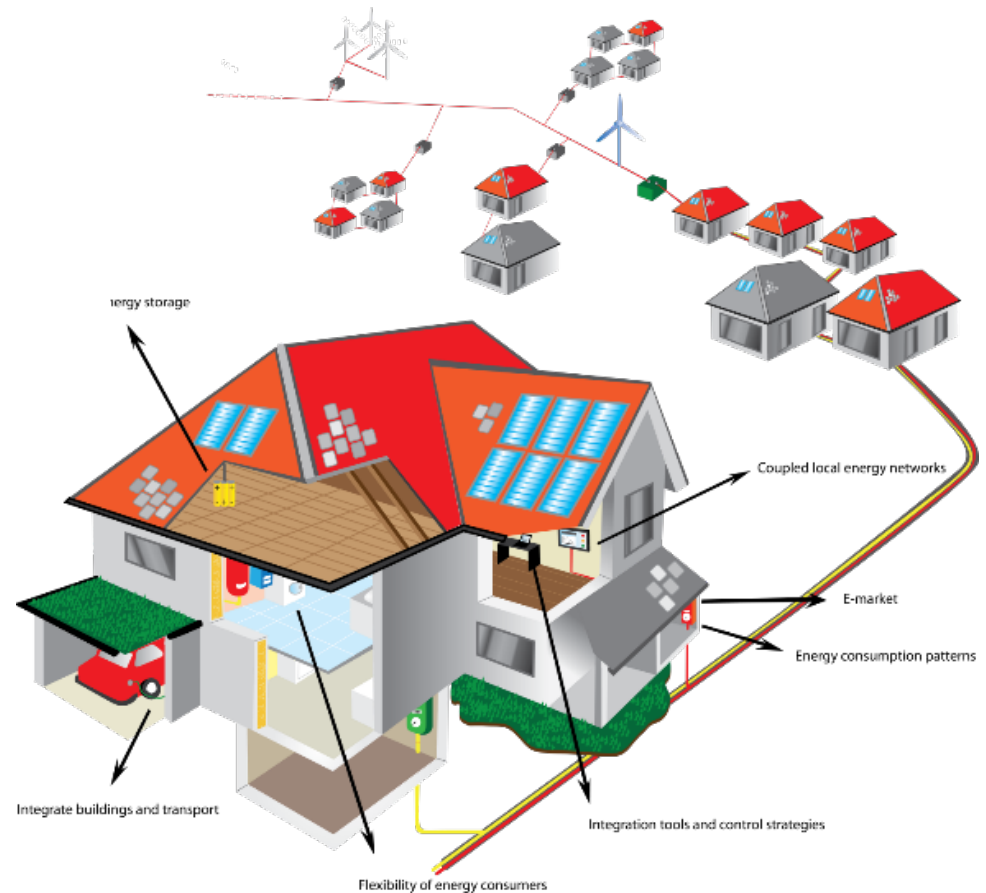
Integrated District Energy Assessment by Simulation



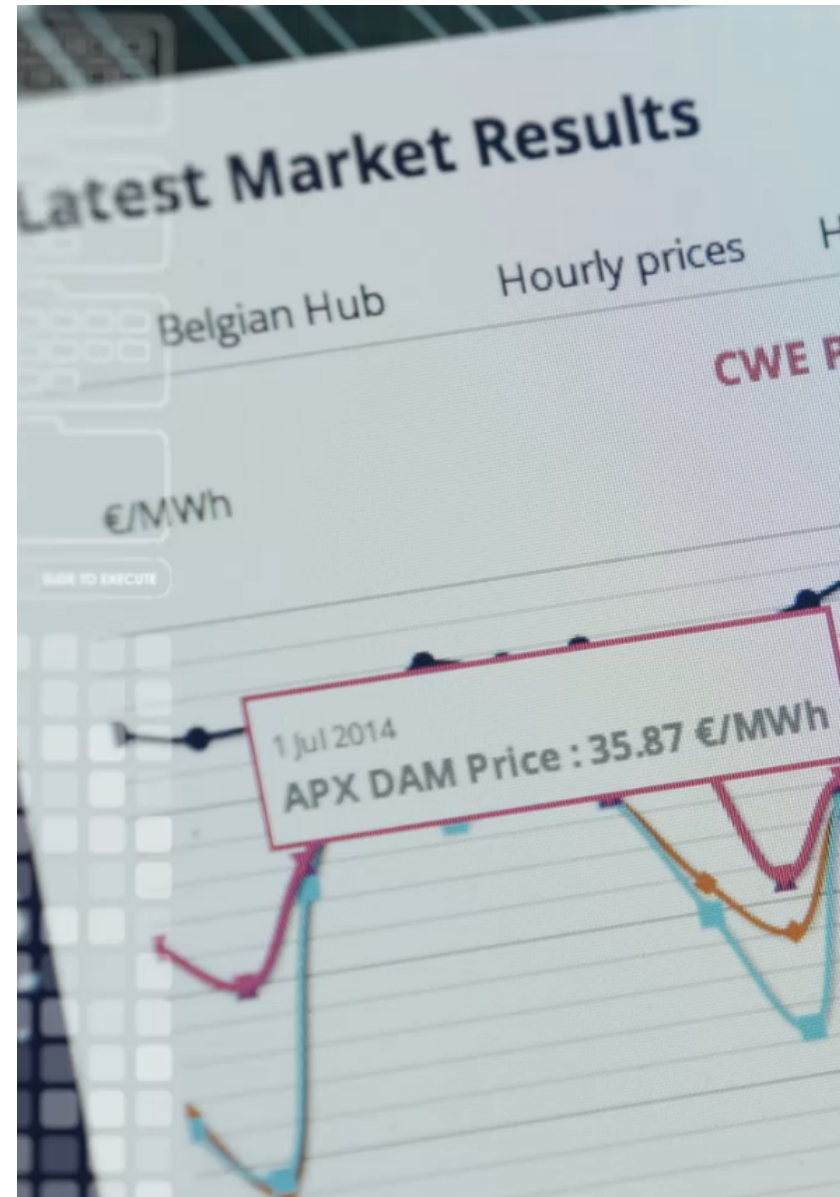
🏠 Modelica environment

Linear: a living lab

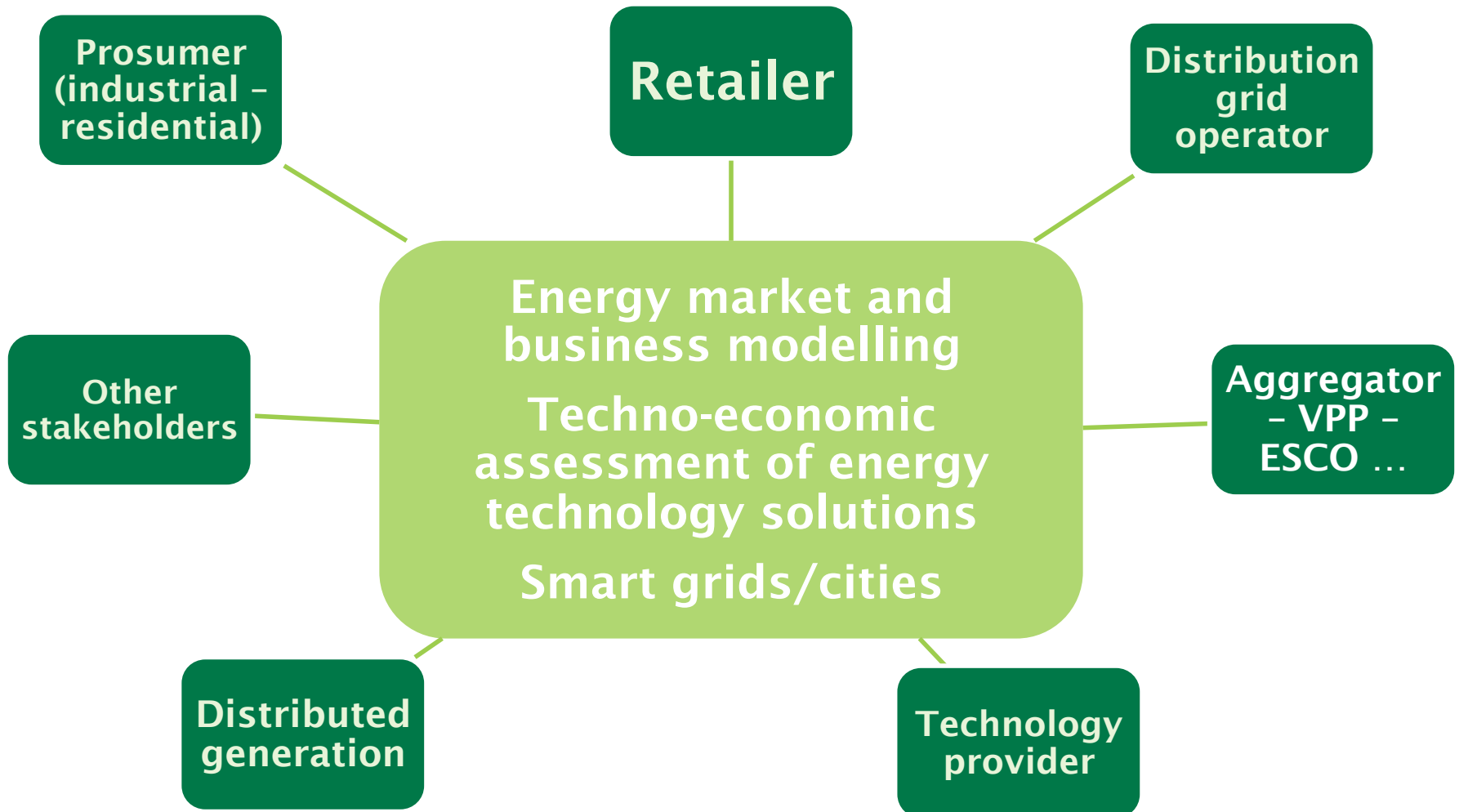
- Demand side management of domestic loads
- Demonstration pilot project with households



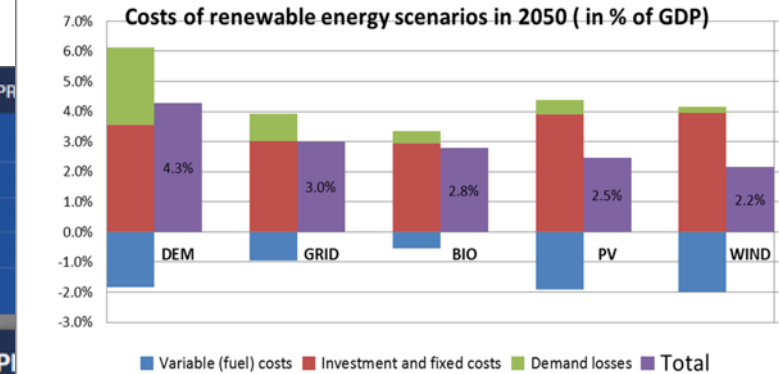
- New concepts/scenarios for energy markets
- Interoperability
 - Communication
 - clustermanagement



European Energy Markets



- Support for key stakeholders in the energy transition
- Modelling future energy systems
- Economical and environmental impacts
- Technology roadmaps
- Living labs and user behavior



WHAT NEW SERVICES CAN I DEVELOP? >>

HOW CAN I ORGANIZE MY SMART ENERGY PROJECT? >>

WELCOME TO THE S3C TOOLKIT WEBSITE

This website is meant for anyone who is involved in, or intends to become involved in, the development of smart grid projects, products, or services in which engagement of end users plays an important role.

What you find here is a set of tools and guidelines with practical information and advice on the implementation of your project, based on in-depth investigation of a family of [partner projects](#). The [collection of tools and guidelines](#) provides answers to questions like:

- How can I use smart grids to help people save energy?
- What should I take into account in the planning phase of my project?
- Which types of incentives are there, and when to use which one?

[READ MORE >>](#)

- Building renovation strategies
- Energy district design
- Sustainable building concepts



- Databases & tools to support retrofit decisions
- Costs and effects over the full life cycle
- Co-operation models / services

Home | Deze website? | Energieconsulentenproject? | Nieuwsbrief | NAV.be

KENNISDATABANK

Zoek in de kennisdatabank

- ▶ EPB in een notendop
 - Het ABC van de EPB
 - Eisen
 - Recente aanpassingen in de EPB-regelgeving
 - EPB-software
 - Verschillen tussen EPB-EPC
 - VEA
 - Premies en belastingvermindering
 - Enquête: EPB en vergoeding
 - EPB in Brussel
 - Woordenboek
- ▶ Basics voor uw ontwerp
 - BEN-gebouwen
 - Oevenverhitting in EPB
 - Bouwknoppen
 - Passiefbouw
 - Duurzaam bouwen
 - Gebouwen met ergoedwaarde
 - EPB & renovatie van een woning
 - Slim omgaan met Aangrenzend Overeenkomende Ruimten
- ▶ Bouwstenen van uw ontwerp
 - Luchtdicht bouwen
 - Bouschil
 - Isolatie
 - Buitenschrijnwerk
 - Buitenschil
 - Technieken

Energieambities bepalen volgens woningtypologie

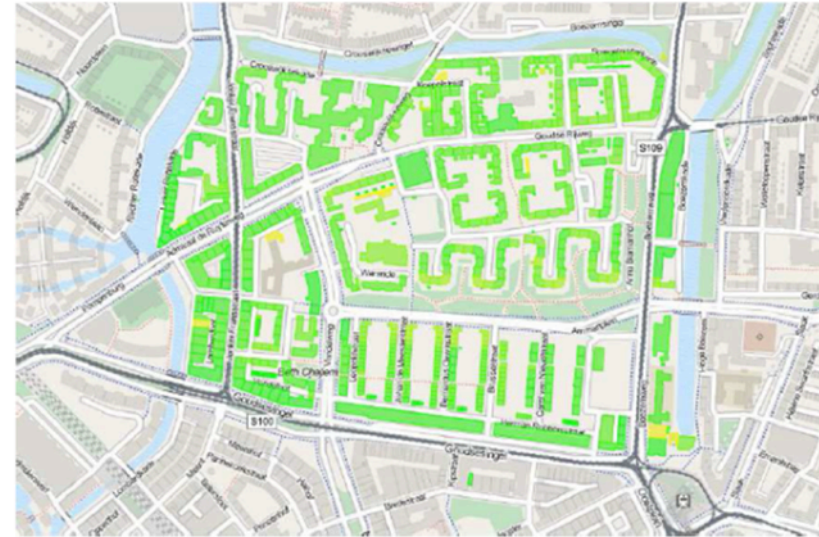
Deze tool is gebaseerd op een onderzoeksproject van VITO, de Vlaamse Instelling voor Technologisch Onderzoek. Deze studie liep van 2009 tot 2012 en beschrijft de Belgische woningtypologie in het kader van het Europese onderzoeksproject TABULA.

Via een set van **typische woningen** voor de Belgische context wordt het **gebouwegebonden energieverbruik** voor verwarming, warm waterconsumptie en hulpenergie voor de werking van de technische installaties in kaart gebracht. Daarnaast worden voor elk **woningtype twee renovatiescenario's** uitgewerkt.

	< 1946	1946 - 1970	1971 - 1990	1991 - 2005	> 2005
Vrijstaande woning					
Halflopen bebouwing					
Rijwoning					
Ingesloten appartement					

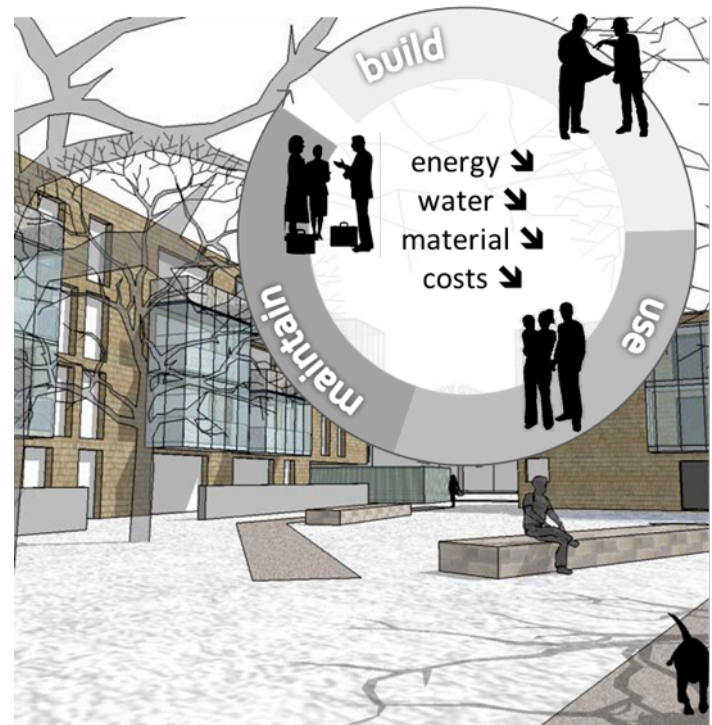
Energy district design

- Local energy & climate policy
- Tools for innovative district planning
- Integration of renewable energy : smart grids, district heating and cooling
- Smart city living labs

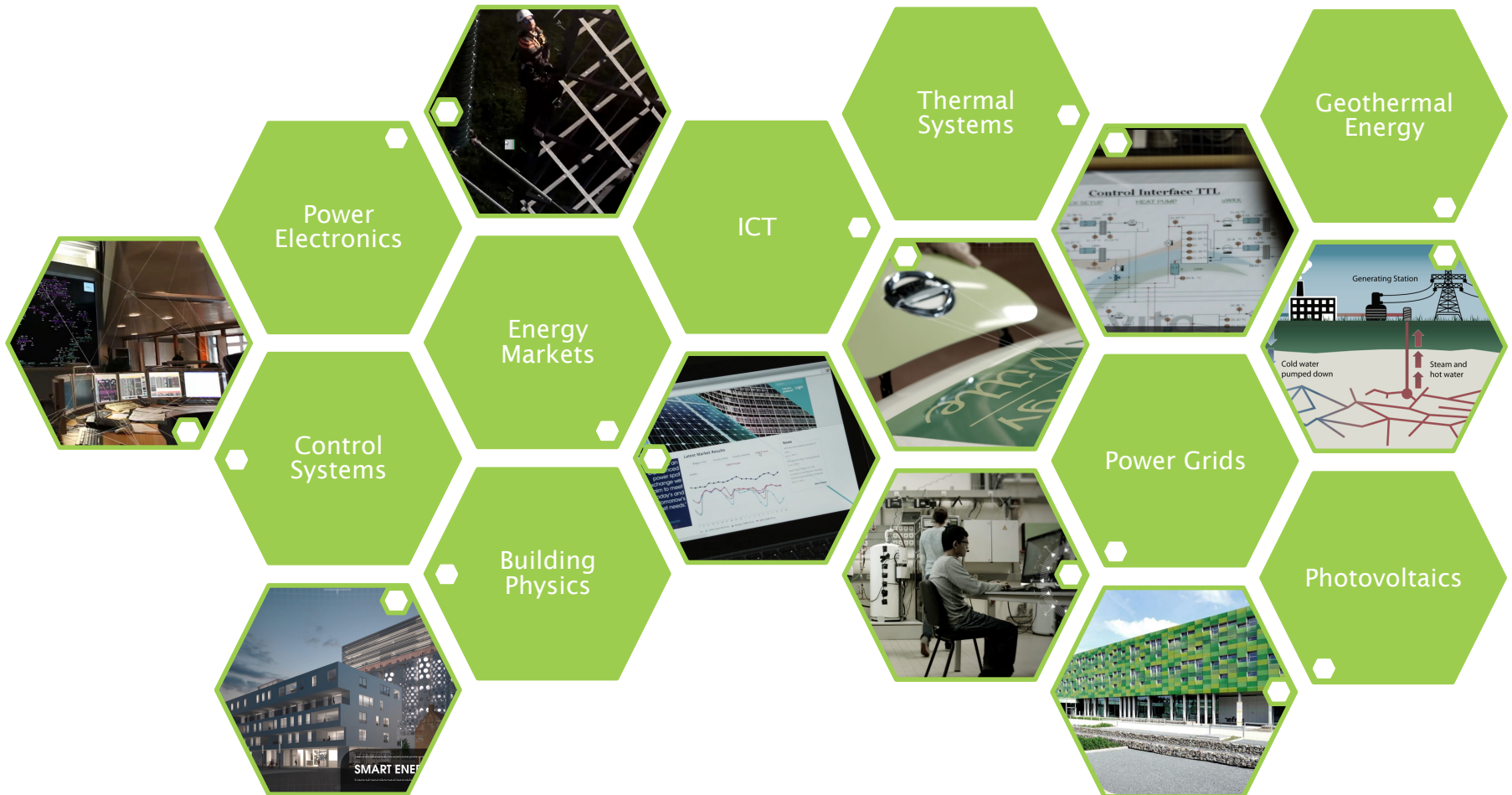


Sustainable building concepts

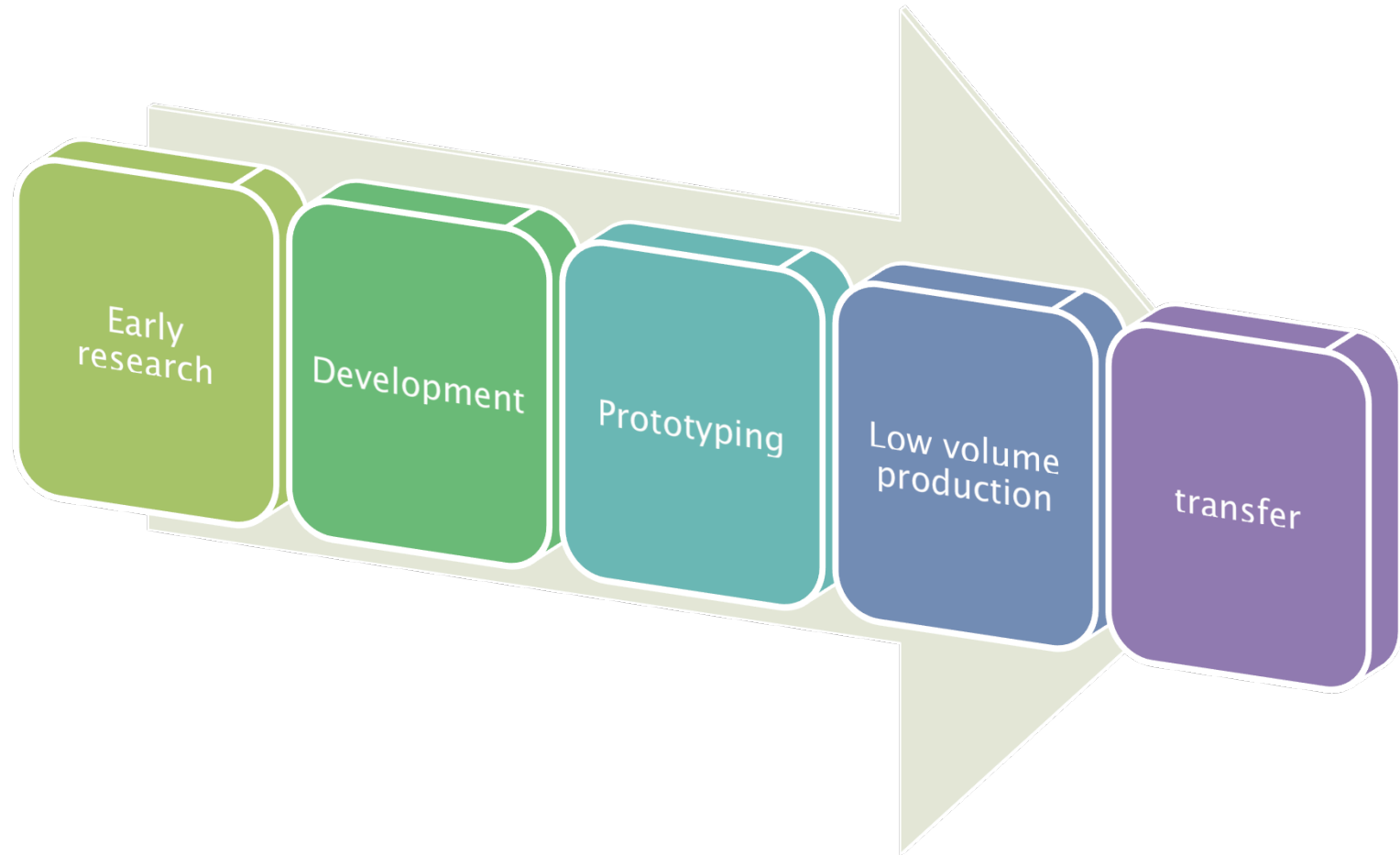
- Sustainability assessment of building materials, buildings and districts
- Life cycle analyses and life cycle costing
- Support for innovative building concepts – flexible and adaptive design



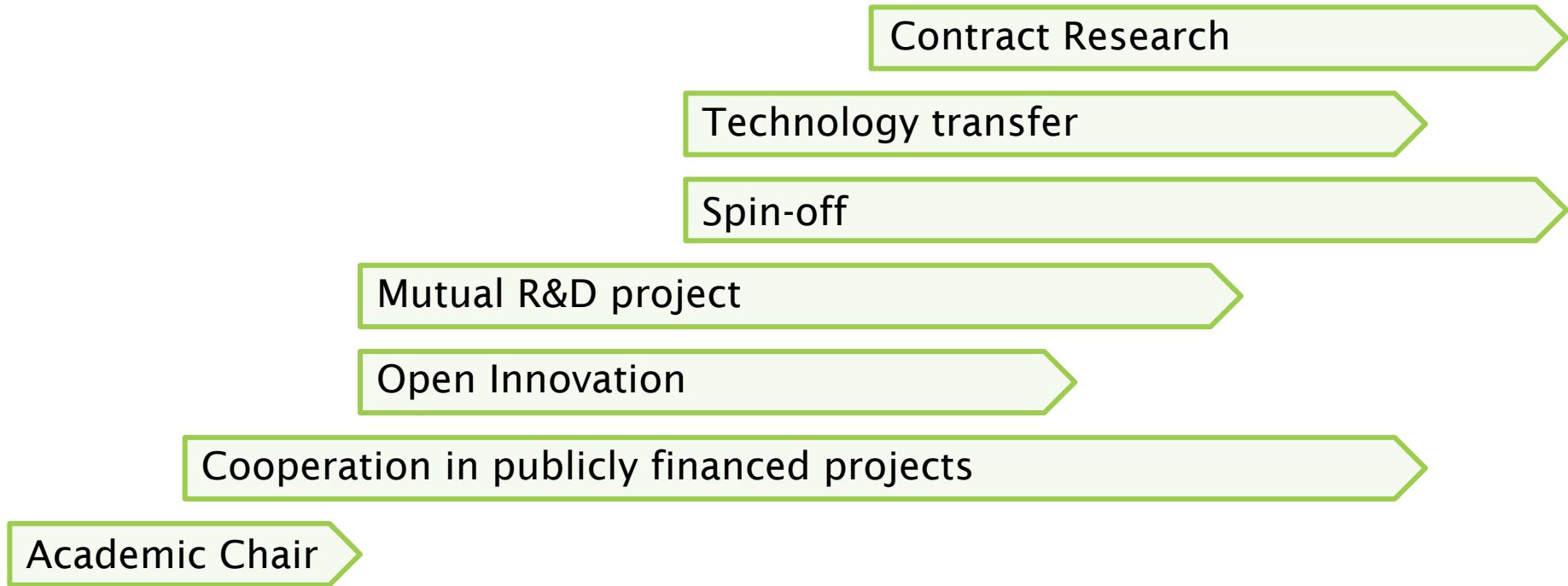
Domains of expertise



Innovation chain



Cooperation possibilities



Technology Readiness Level



More info?

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