

March 12th, 2026 11:30 - 13:00, Bilbao

Financing PEDs: Is there a Business case for PEDs?



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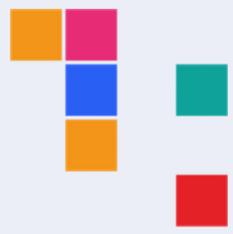


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Where did we come from?



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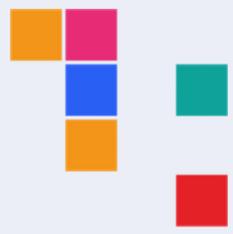


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Where are we now?



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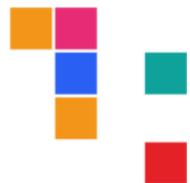


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Scalable Cities

Lessons from the past and the present : Business models from SCC projects



Selection of 11 European Smart City Lighthouse cases

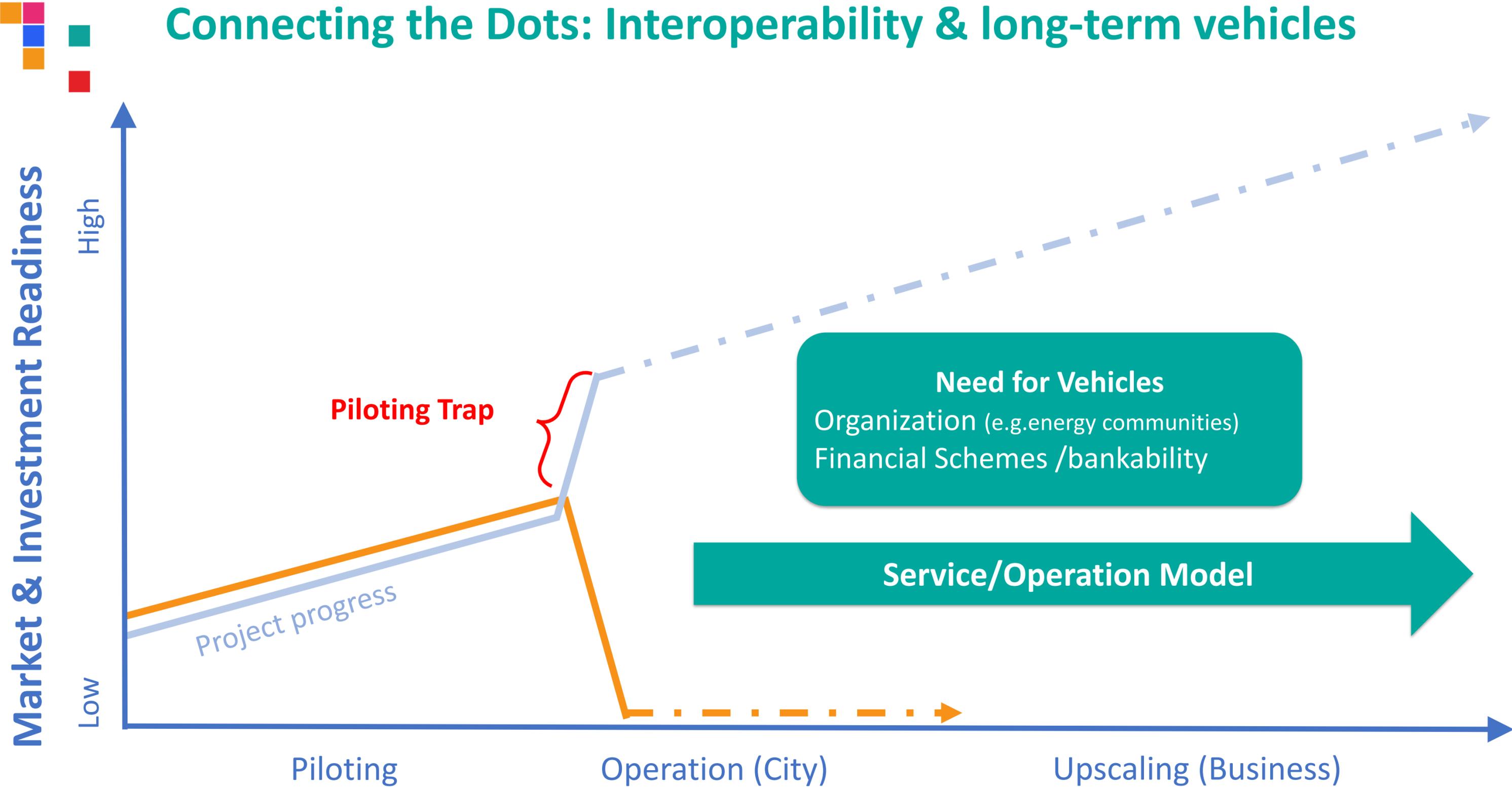
PEBs building blocks: storage, energy management, platforms



Damian Wagner-Herold & Andrea Geyer Scholz <https://smart-cities-marketplace.ec.europa.eu/insights/publications/scalable-cities-expert-report-european-smart-cities-business-models>



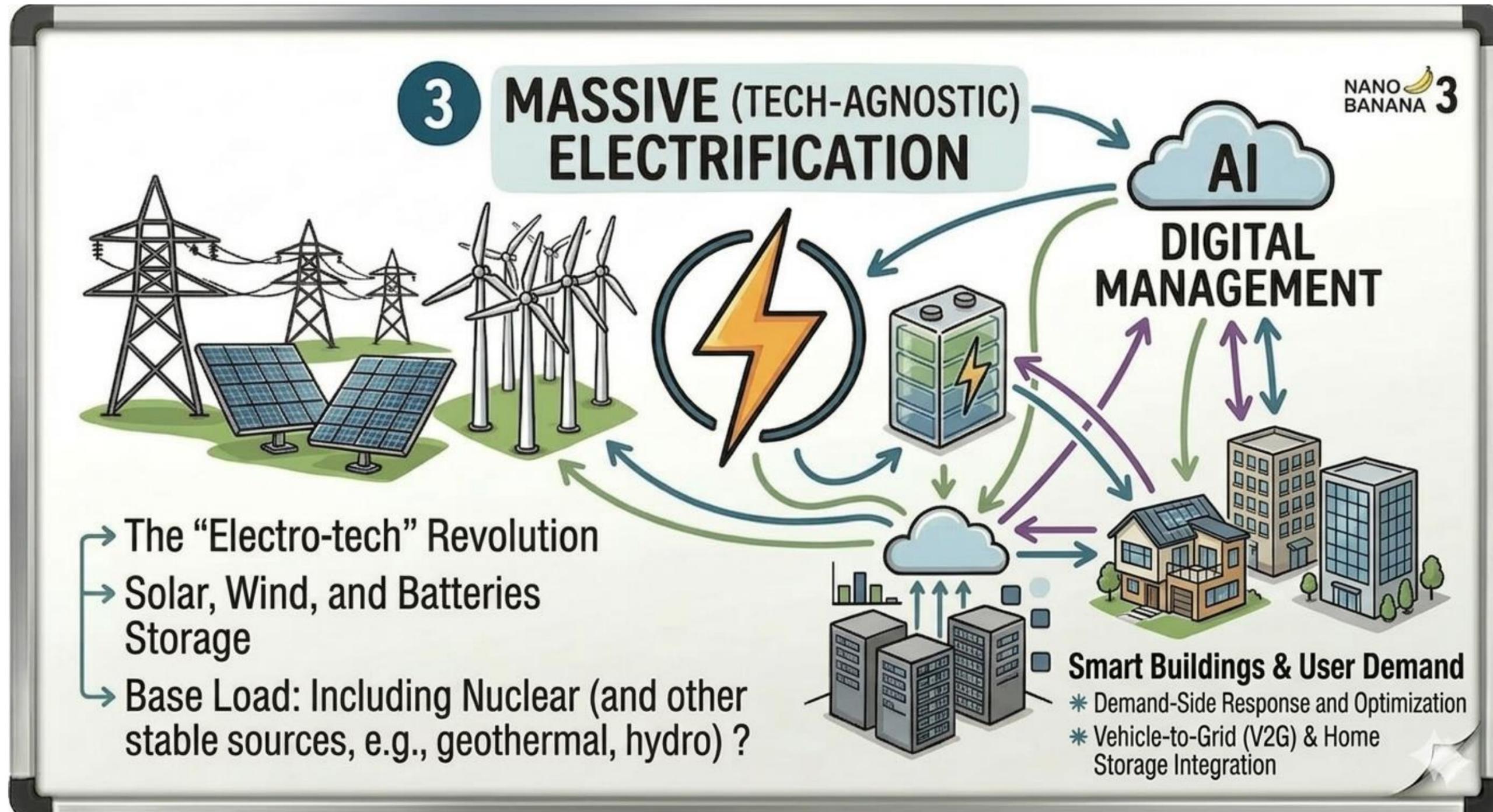
Connecting the Dots: Interoperability & long-term vehicles



Damian Wagner-Herold & Andrea Geyer Scholz <https://smart-cities-marketplace.ec.europa.eu/insights/publications/scalable-cities-expert-report-european-smart-cities-business-models>

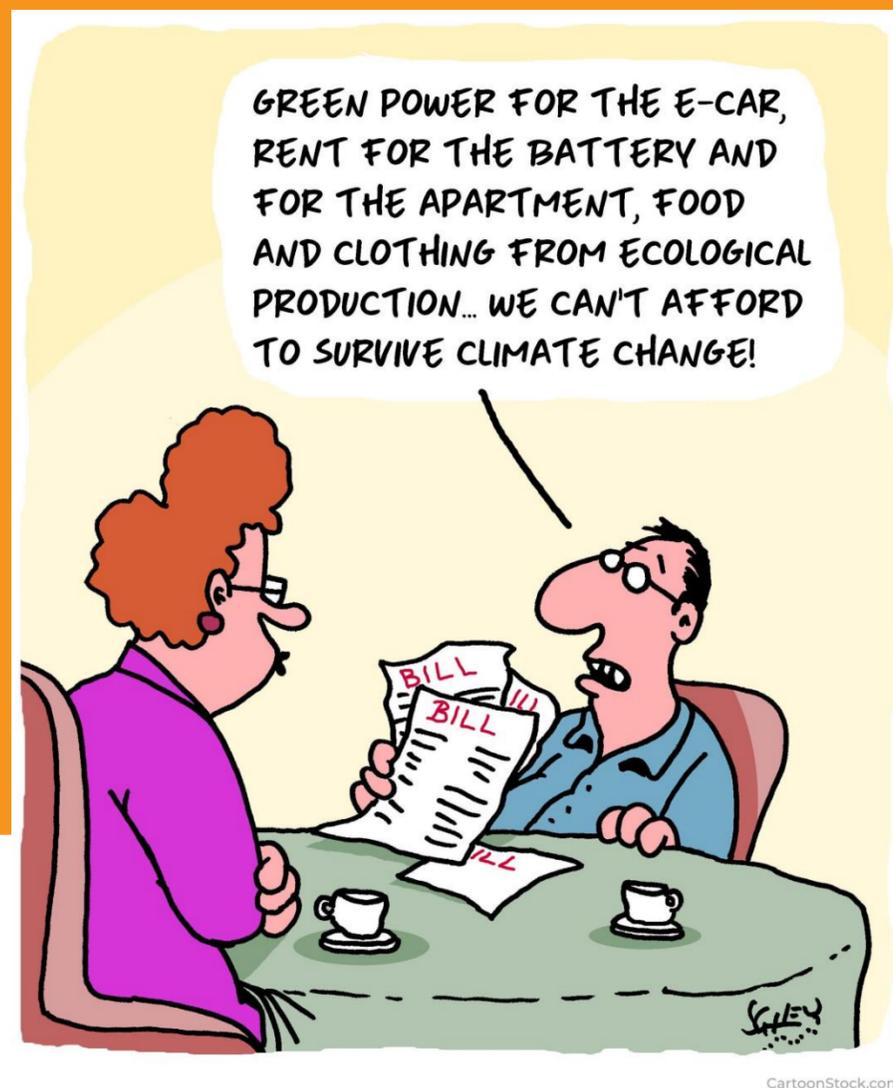
Solution (upscaling) process

The PEDs Holy grail





Is there a business case for PEDs?



Is there a business models for PED?

01

Projects are not designed to scale

Lack of business models, data and financial engineering,

Cities we have project, we lack financing

Investors : we have money, we lack projects

02

Scale is not there to create a significant impact

Can the solution become far cheaper than incumbents?

Can the solution beat the incumbents at any level?

03

Many projects need innovative financing schemes

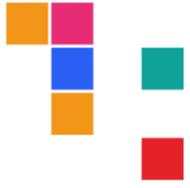
including non-monetary benefits, deployed on a massive scale to be bankable.

04

Unpacking the Positive Energy Districts' components or solutions is essential

It is complicated to find a Positive Energy District (PED) business model, as there are too many components to collect and orchestrate for an investor.

PED is a process, but it's a long one, as the time needed to develop a PED is 5 years with no guarantee of success! doing ten times will require 50 years



What are the required conditions to create business models for Peds?





5 conditions to create business models for PCEDS

'5 CONDITIONS FOR PED BUSINESS MODELS'

CITY ORCHESTRATION

REGULATION → INCENTIVES → STAKEHOLDERS → DE-RISKING

Align all actors!

- Orchestrate the value chain.
- SPV or mission.

SCALE

Prime solutions → Mature!

SCALE UP!

SIZE ↑ COST ↓

- Lower costs, mass production!

PORTFOLIO APPROACH

Don't silo!

Buildings → Energy → AI → Mobility

- Don't silo!
- Building a portfolio of projects to create scale and adequate support.
- Maximize results, minimize risk.

INNOVATIVE FINANCING

PRIVATE BANK → SPV → GREEN HOLDING BANK → PED PROJECT

- New schemes such as SPV, guarantee, investment fund.
- Unlock investment.

DEMAND AGGREGATION

Create a big market!

WE NEED IT! YES! US TOO!

- Create a big market!
- Pull technology!
- Aggregate demand across cities in Europe

The Urban Orchestrator organisations

Special purpose vehicle



In-house public company with a purpose
Financial vehicle to develop one operation or
a portfolio (investment fund)



Acting with the **agility of a private company**
Capacity to **make deals with developers**
Ends with the end of the project



Few existing SPV are working on PCEDs at the
moment
**Need a strict control by cities to avoid any
financial adventures**



Endowment from the city's principal
shareholders
Land selling, building development, services

Lyon Confluence .fr

igretec



PDS Pražská
developerská
společnost

Mission type

Transversal team acting like a
mission on a specific urban area

Internal coordination between
departments
Strong link with the administration
facilitating replication and upscaling

Speed is not there
Hiring is more complicated
Finance is limited to city budget

Municipal budget : taxes and
subsidies



Landeshauptstadt
München

"Grass-root"

Local citizen organisation
investing in their district

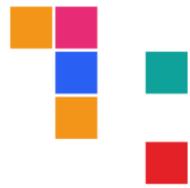
Citizen commitment
Good business models, citizens
are doing the job!

Hardly replicable without a
significant public funding

Services, subsidies from
the city

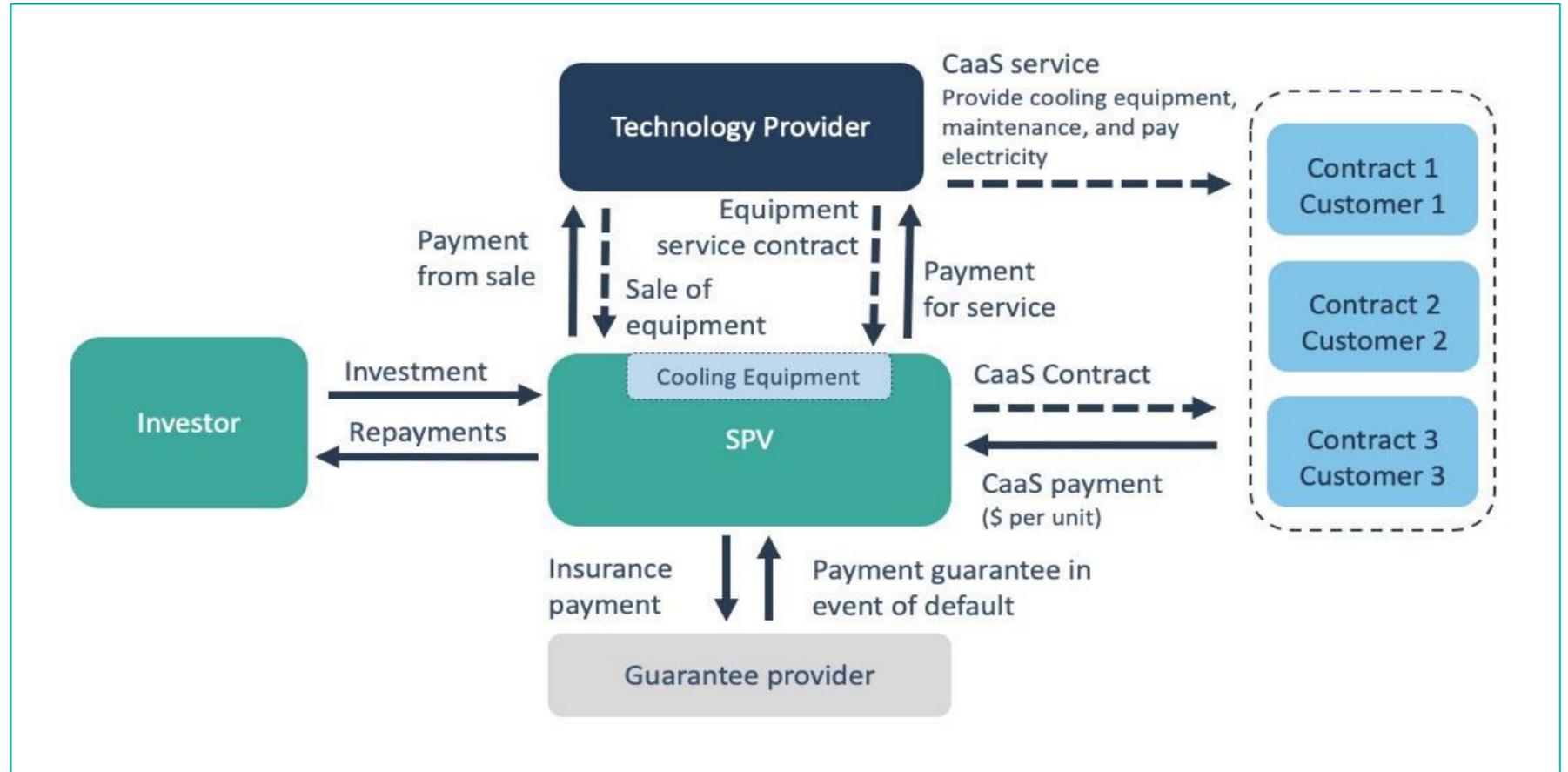
ELECTRICITY



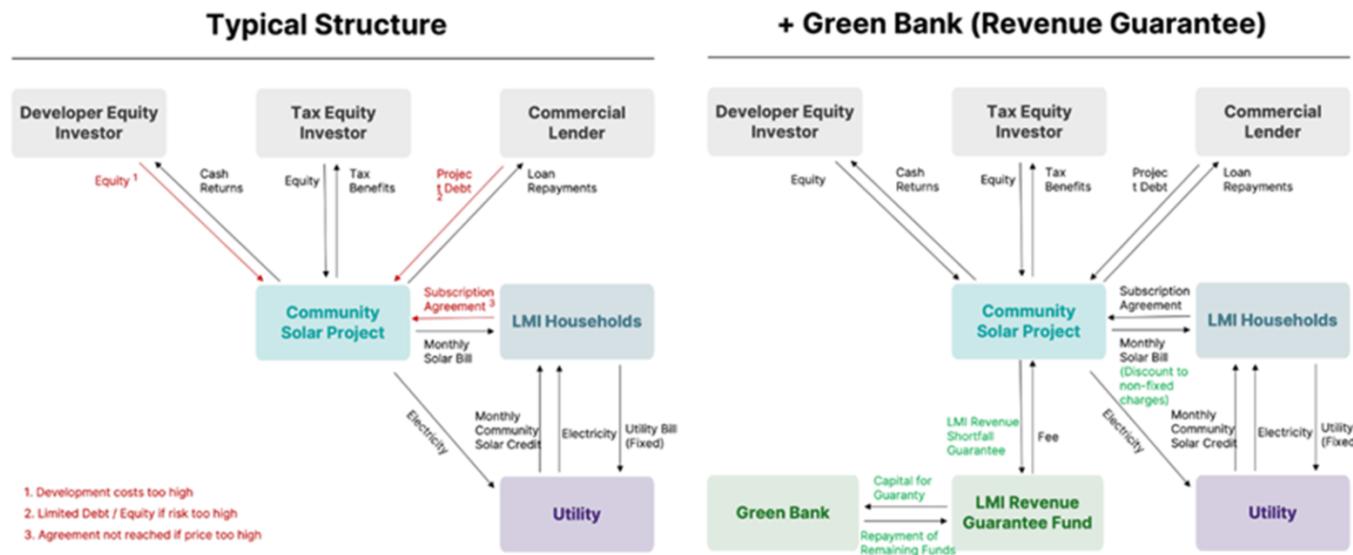


A PEds Business should be back-to-back with innovative financing schemes

Special Purpose Vehicles

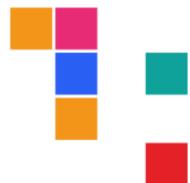


Community Solar for LMI Households



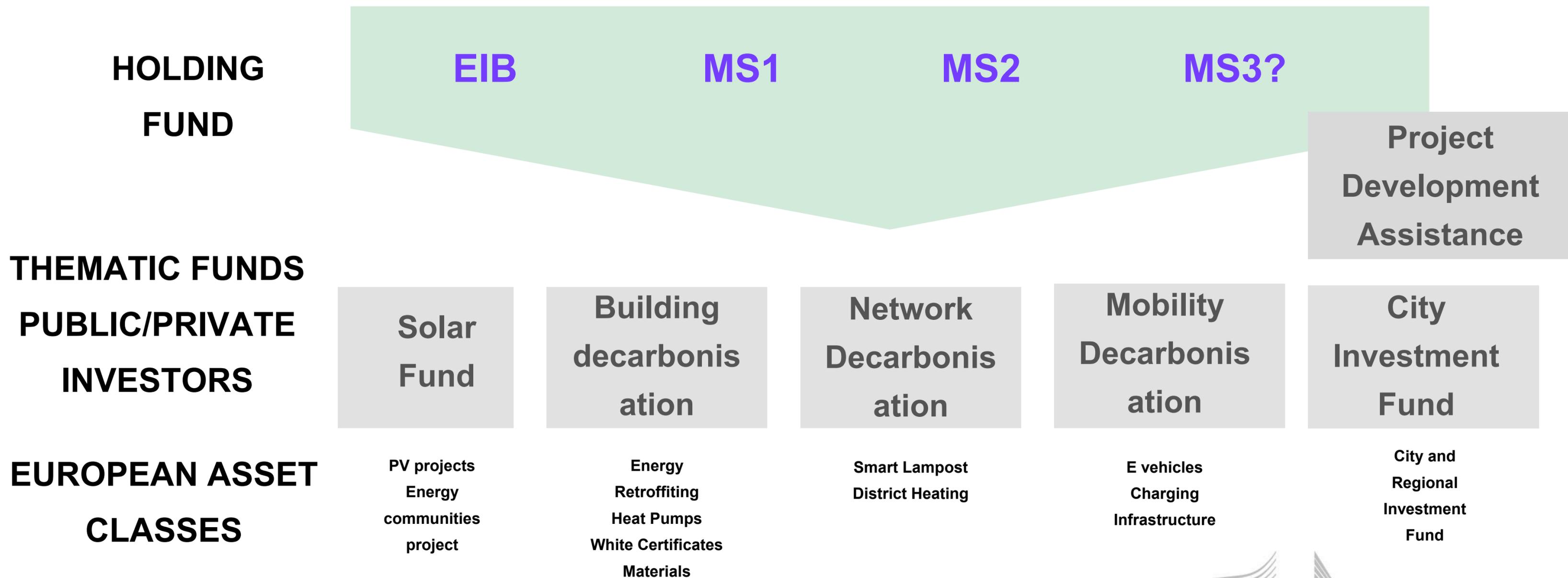
Green bank

Source: Coalition for Green Capital



THE FUND :POTENTIAL STRUCTURE

Structure a holding fund investing in Thematic Funds



Project Development Assistance

Funded by the   **European Commission**

Disclaimer: the EC and MS have so far not issued any position on this draft proposal

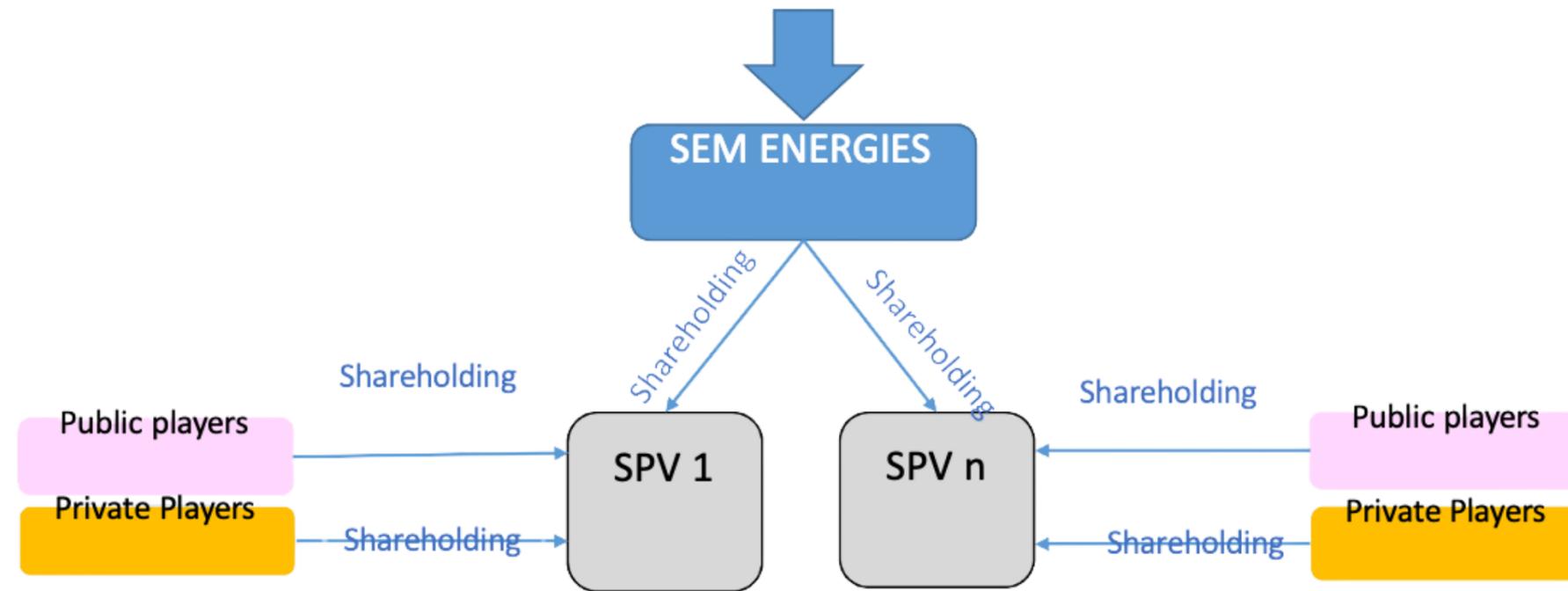
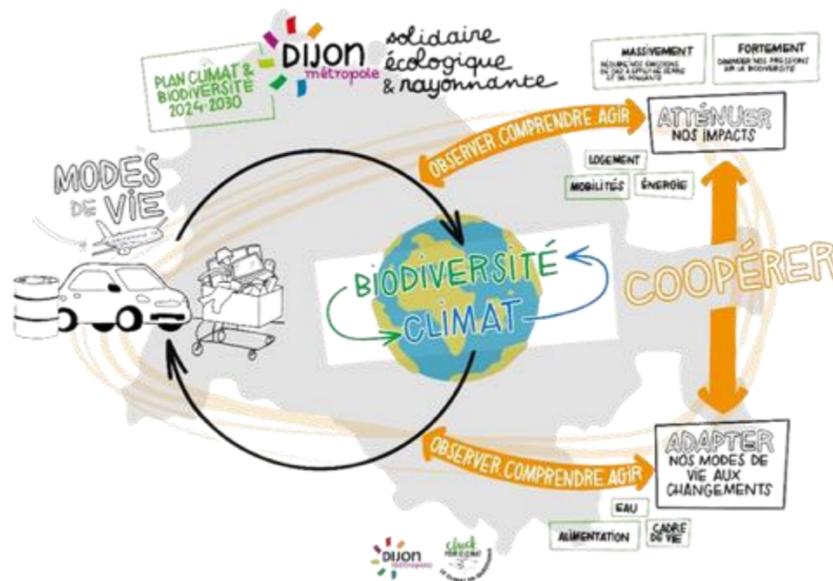
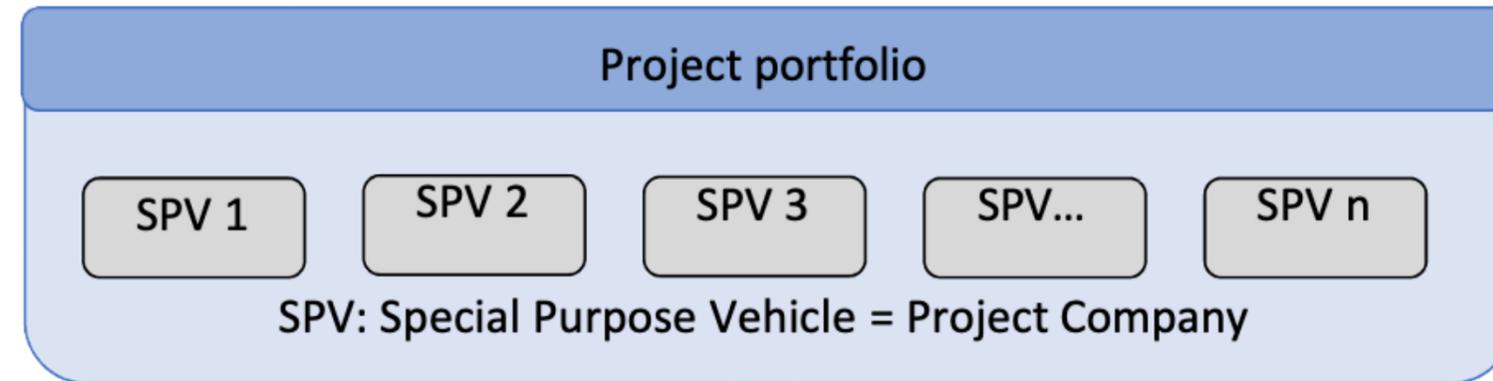


DIJON

Dijon Metropole : setting up a public private company and SPVs to engineer, finance and accelerate energy projects

SPV: Special Purpose Vehicle = Project Company

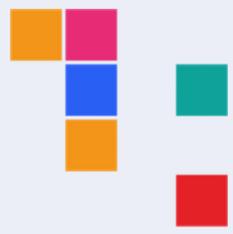
The SEM ENERGIES will be responsible for managing a portfolio of energy production and energy transition projects. It represents a potential of around 350 GWh/year out of the 500 GWh / year of the total potential.



Innovative financial strategies - P2P



Disclaimer: the EC and MS have so far not issued any position on this draft proposal



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GDF Alliance



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Business model vs. bankability

Business model

How firms create, deliver, and capture value in a market
The economic logic of the project or solution



Bankability

How a project is structured to attract investment
Soundness of that logic to support investment and debt repayment

Bankability dimensions

Bottom line question for investors:

"Will I get my money back, and is the risk worth taking?"

Projects need to demonstrate across four categories

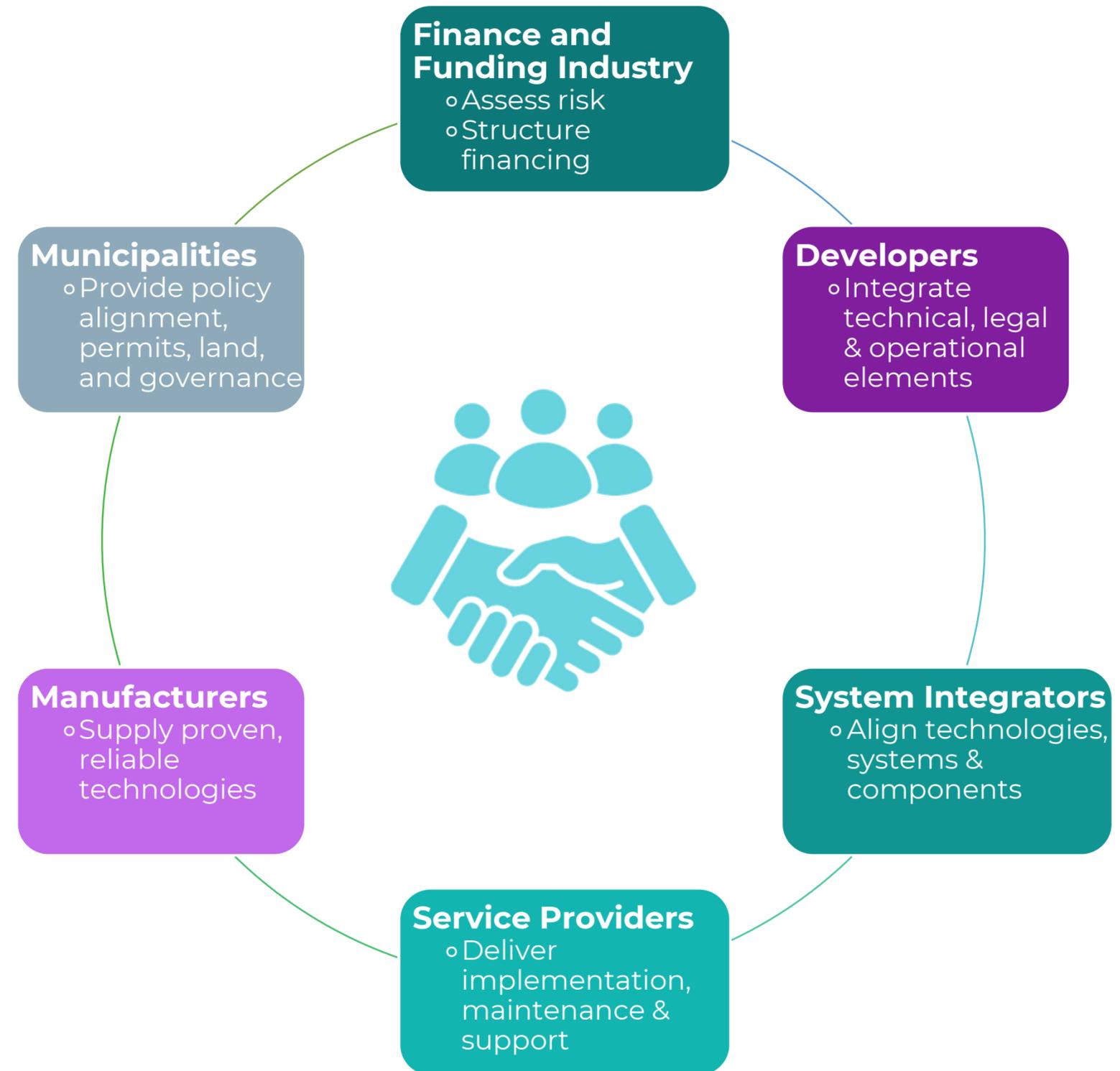
- Cities and investors often talk past each other or in different languages (climate ambition vs. bankability assessment)
- Climate projects often wrongly labelled non-revenue-generating



Interplay of stakeholders

PEDs often an umbrella of projects and providers
 Underlying business models and investment need, operational structures and delivery vehicles are complex and fragmented

➔ Difficult to implement!



Bankability is not binary

Most projects have solvable gaps if these are identified early.

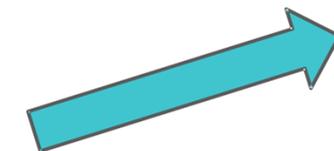
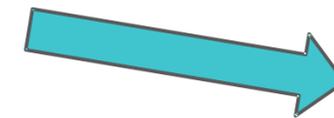
Bankability checklist: Structured assessment of evidence across key bankability dimensions.

Must-haves

Financial model, risk register, demand analysis, cash flow projections and technical viability

Value-adds

SDG alignment, replicability, social and co-benefits



Financial product shortlisting tool

matching project revenue profile with realistic financing instruments

Improving project bankability

- 1. Leverage digital infrastructure:** Reduces costs and manual work e.g. data collection and impact measurement
- 2. Scale and aggregation:** Bundling project types and revenues to reach viable ticket sizes and lower preparation costs
- 3. New revenue streams and co-benefits:** Carbon credits, biodiversity credits, energy savings certificates, or payments for ecosystem services increasingly viable
- 4. Monetising avoided costs:** Capturing value from reduced flood damage or avoided grid investments (wip)
- 5. Digital finance platforms and challenger investors:** DLT enabled platforms, challenger banks and neobanks may enable financing at smaller ticket sizes or at lower transaction cost (pilot phase)



Thank you!

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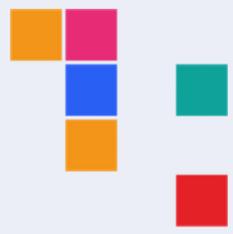


Developed in:

ARV and



These projects have received funding from the EU's Horizon Europe and 2020 programs and Swiss State Secretariat for Education, Research and Innovation (SERI).



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*What one must
learn to do, one
learns by doing.
-Aristotle-*

Mimi Eelman
Provincie Flevoland

Resilient Europe

Where the energy supply is safe & stable
Where we own and actively engage in our energy supply
Where we can live in a fossil-free society
Where there is equality in carrying the costs of the transition towards fossil-free solutions

Credits StGrafik / Shutterstock



Learnings from ATELIER - Amsterdam

- 1.Reducing capacity** of grid connection with **50 to 85%** compared to planned / regulated capacity
- 2.Governance** (energy)community is key to succes and upscaling potential
- 3.The overall used energy is less then designed/planned for
- 4.Integration energy-assets** required; thermal, electric, gas, storage, electric vehicle charging, photo-voltaic generation
- 5.Smart metering and managing (EMS)** required

Scaling is the real challenge

Walk the talk – making visible Exploring pilot potential

What if we apply the capacity reduction to all new developments in the City?

Organisational willingness is key

Providing/prescribing governance & contracting standards to developers

Top down vs. Bottom up approach

Physical & legal boundaries

Inés van der Klip

**EXPLORING
PILOT POTENTIAL**

Rethinking Amsterdam's Municipal Engagement in
Collaborative Governance

Technical
Energy Data
Analysis

ATELIER
Positive Energy Districts

INPUT FOR THE
HORIZON 2020
ATELIER PROJECT

COMMISSIONED BY: GEMEENTE AMSTERDAM
DATE: MARCH 2026
AUTHORS: KINGMA, E.J.; LOCHER, G.C.Y.; APERS

× Gemeente
× Amsterdam

Schoonschip

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Credits Ines van der Klip

Master thesis, MSc. Metropolitan Analysis, Design and Engineering
Delft University of Technology & Wageningen University and Research



Energy system Republica

Sources 261 kWp PV (photovoltaic generation)

Infrastructure & Storage

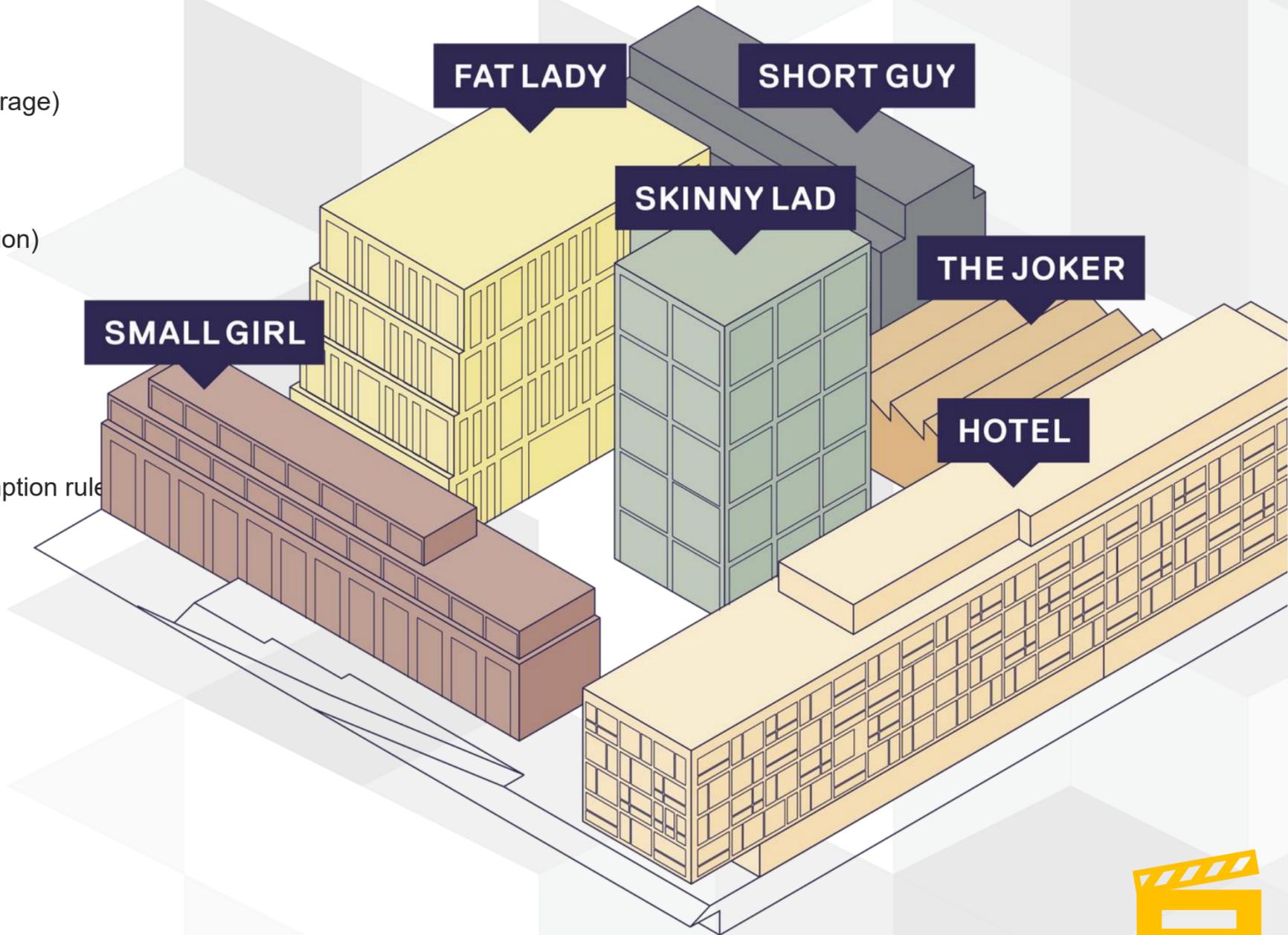
Storage 1 MW/1,1 MWh collective battery
 Heating district connection - 10.000 L heat buffer
 Heat-cold-storage – ATES (Aquathermal Thermal Energy Storage)
 Heat pumps 750 kWth, 250 kWe
 EV (electrical vehicle Charging: 32 E-charges (280 kW))

Governance

20.000 m2 commercial real estate, variety in users (cooperation)
 Organisation community – who takes decisions?
 Temporary limit transport capacity / congestion
 Energy Management System (EMS)
 Taxes
 Trade - day-ahead trade and net- balance services

Use

Hotel (110 rooms), offices, 55 apartments (23 rental)
 All users behind one meter (1.5 MVA), one internal net (exemption rule)
 Peak management to stay in the limit of the connection



Energy system SchoonSchip

Sources 516 PVpanels 60 PVtpanels 167 kWp PV (photovoltaic generation)

Infrastructure & Storage

Storage 30-46 ? individual batteries
30 heat pumps
EV (electrical vehicle) Charging

Governance

144 inhabitants in 46 households in 30 floating houses
Organisation community – who takes decisions?
Energy Management System (EMS)
Taxes
Trade - day-ahead trade and net- balance services

Use

All users behind one meter (? MVA), one internal net (exemption rule)
Peak management to stay in the limit of the connection



The legislative framework

Across Europe different implementation in national legislation regarding energy sharing communities such as PED's

The way the DSO is regulated is determining focus on building new infrastructure vs. facilitating decentralised solutions such as PED's

Because of geo-political situation it is vital to facilitate PED's at greater speed

- > requires system change
- > The role of energy communities
- > The role of the DSO

Contact



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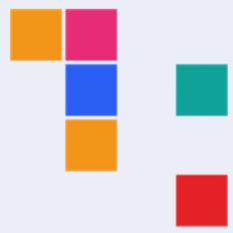
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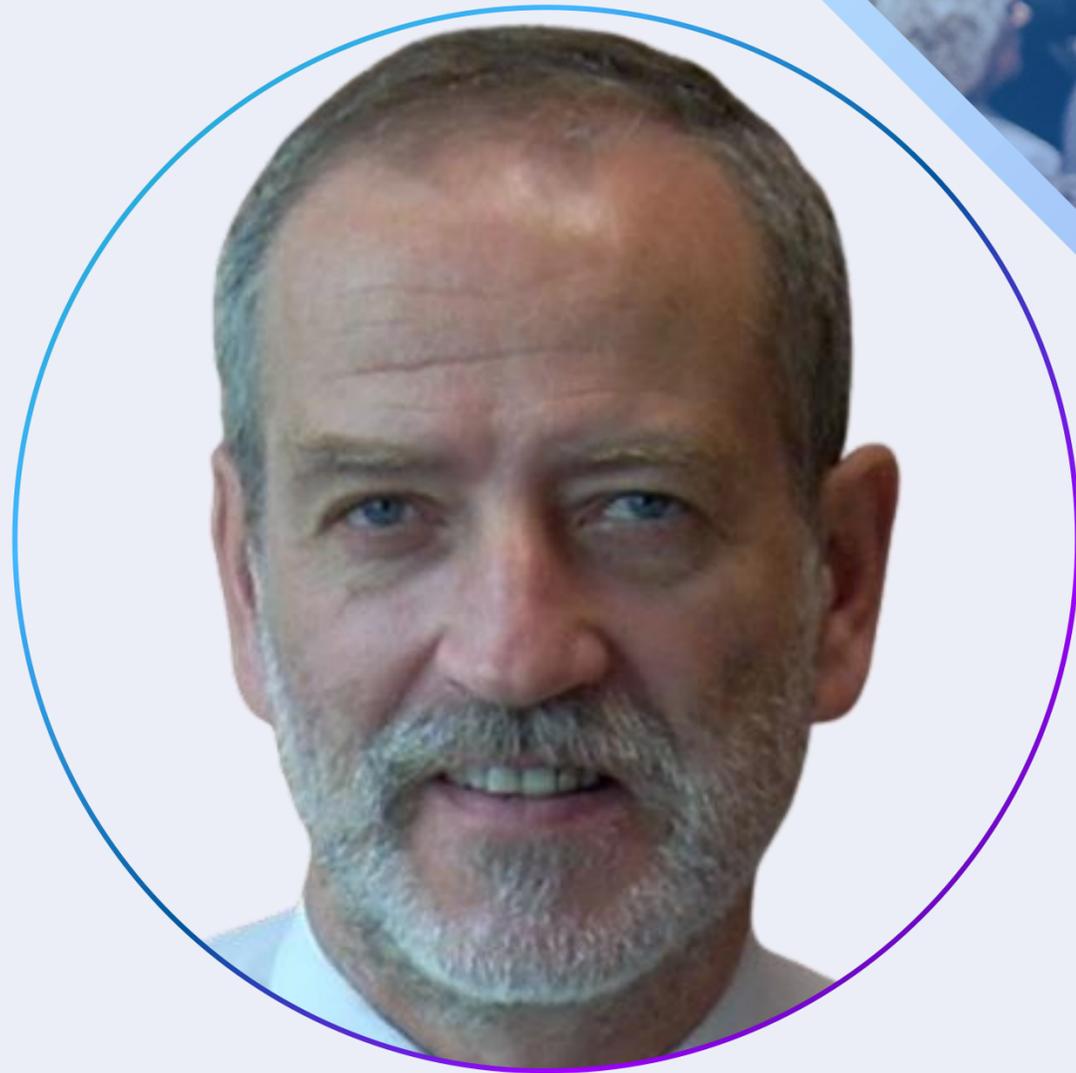
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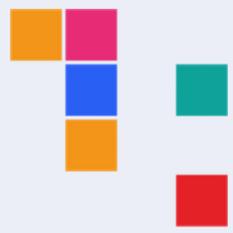


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Where do we go from here?



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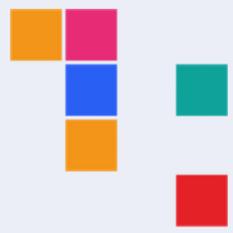


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**Financing PEDs:
Is there a Business case
for PEDs?**

**What is the single most
important change that will
make financing PEDs easier
in the next five years?**



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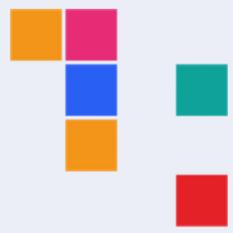


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