Increasing capacities in Cities for innovating financing in energy efficiency

A review of local authority innovative large scale retrofit financing and operational models

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Introduction The rationale for CITYnvest

How to accelerate investments?

- No need for reinventing the wheel
- Catalyst role for LRA – reflected in current EU directives, but some remaining challenges

Financiers

- predictability of risks

- standardization

- cash flows (IRR, NPV)

- transaction costs

Local EE projects

- capacity constraints (no core business)

- Bankability mentality

- ESA Accounting rules

- bundling needs

CITYnvest scope Wide scale capacity building

In-depth study

- 24 models analysed
- Guidance material

3 Pilot projects

- Liège (BE)
- Murcia (S)
- Rodhope (BG)

10 focus countries

- Guidance material
- Capacity building

Study scope What have we done?

- Analysed 24 existing models that address large scale and deep energy efficiency retrofit programs (including RES) involving public authorities across Europe (11 countries)
    - Level of ambition (aimed % of energy reduction, investment intensity, contract duration)?
    - Implementation methodology (technically and operationally) used?
    - Which operational services are provided to the beneficiaries?
    - Which financing schemes have been used?

- Provided a benchmark/comparison of the models along the following themes:
    - Their operational schemes (Facilitation, Integration and Aggregation)
    - Their implementation model (Separate Contractor Based (SCB) and EPC/ESC)
    - Their financial schemes (financing by Financial Institutions, by the ESCOs, by the Program Delivery Unit, by Investment Funds, by Citizens)
    - Attractiveness and risks
    - Impact on public balance sheet, staff requirements, scalability, development maturity, challenges and other

- Provided guidance material to support local authorities in their search for financing of their EE and RES programs (Recommendation and Decisions matrix)

Business models Common practices

Program Authority

- Public entity or organization in charge of the program or that controls the program.
- Define the program including the targeted beneficiaries, the level of ambition, the implementation/operational models and the funding vehicle that are being put in place (political commitment).
- Set-up and fund the Program Delivery Unit (PDU).

Program Delivery Unit

- Public and/or private entity set-up to implement/execute the program.
- Often a separate legal entity, but can also be a department of project team within an existing organization.

Beneficiaries

- The PDU delivers services to the beneficiaries according to the chosen operational and implementation models. Services can include financing of the projects.
- Most of the times, a Contractual framework is established between the PA and/or the PDU and the beneficiaries to access the PDU portfolio of services.

Business models What are the main characteristics?

2 Implementation Models

- Separate contracting based (SCB)
- Energy Performance Contracting/Energy Supply Contracting (EPC/ESC)

3 Operational Models

- Facilitation
- Integration
- Financing only

7 Operating Services

- Marketing
- Assessment
- Financial advice
- Facilitation
- Integration
- Aggregation
- Financing

5 Funding Vehicles

- Financial Institutions
- ESCO's
- Program Delivery Unit (PDU)
- Investment Funds
- Citizens

PDU Operating Services From low to high integration

Low — Level of services — High

Level of services (Low → High)	Standard services	Aggregation	Financing
Marketing	Marketing covers the commercialization of the services of energy efficiency to the beneficiaries. This covers the whole range of communication and commercial development services that are necessary to inform the beneficiaries of the types of offerings that are available to them.	Aggregation means that the Program Delivery Unit (PDU) bundles the projects of multiple beneficiaries by acting on behalf of them and by making them available to the market. This role can be associated to the integration or facilitation services, in both cases, the PDU manages the costs allocation between the beneficiaries. Aggregation is done to create economies of scale both operationally and financially.	Financing means that the Program Delivery Unit (PDU) will itself provide financing, either through an own fund or by packaging external financing solutions into an integrated financing service. In this case the PDU takes on the financial risk of the projects. This option is typically used where a dedicated fund is created as part of the energy efficiency program.
Assessment	Assessment is the role by which the PDU evaluates the technical and financial viability of the projects and decides whether or not they get implemented and/or financed.		
Financial advice	Financial advice means that the PDU provides guidance and consultancy to the beneficiary on available funding for his project.		
Facilitation	Facilitation means that the PDU does not sign the contracts with the beneficiaries, but coordinates or "facilitates" the whole process of projects delivery on behalf of the beneficiaries.		
Integration	Integration means that the PDU acts as an intermediary between the beneficiaries on one hand and the ESCO/contractors on the other hand. In this case, the PDU is the tender and contracting authority.		

PDU Operational models What are the differences?

FACILIATION (16/24)

- The beneficiaries are the tendering and contracting authorities.
- The contracts are signed between the beneficiaries and the ESCO/Contractors that deliver the retrofit works to the beneficiaries.
- The PDU facilitates the projects by assisting the beneficiaries during the preparation, the tendering process and the follow-up of the projects.
- The PDU share no risks.

INTEGRATION (8/24)

- The PDU is the tendering and contracting authority.
- The contracts are signed between the PDU and the ESCO/Contractors. The PDU delivers the retrofit works to the beneficiaries.
- The PDU take on the preparation, the tendering process and the follow-up of the projects. delivers the retrofit works to the beneficiaries.
- The PDU take the technical risks on.

FINANCING ONLY (3/24)

- The beneficiaries are the tendering and contracting authorities.
- The contracts are signed between the beneficiaries and the ESCO/Contractors that deliver the retrofit works to the beneficiaries.
- The PDU assess the bankability of the projects and finance them.
- The PDU take the financial risks on.

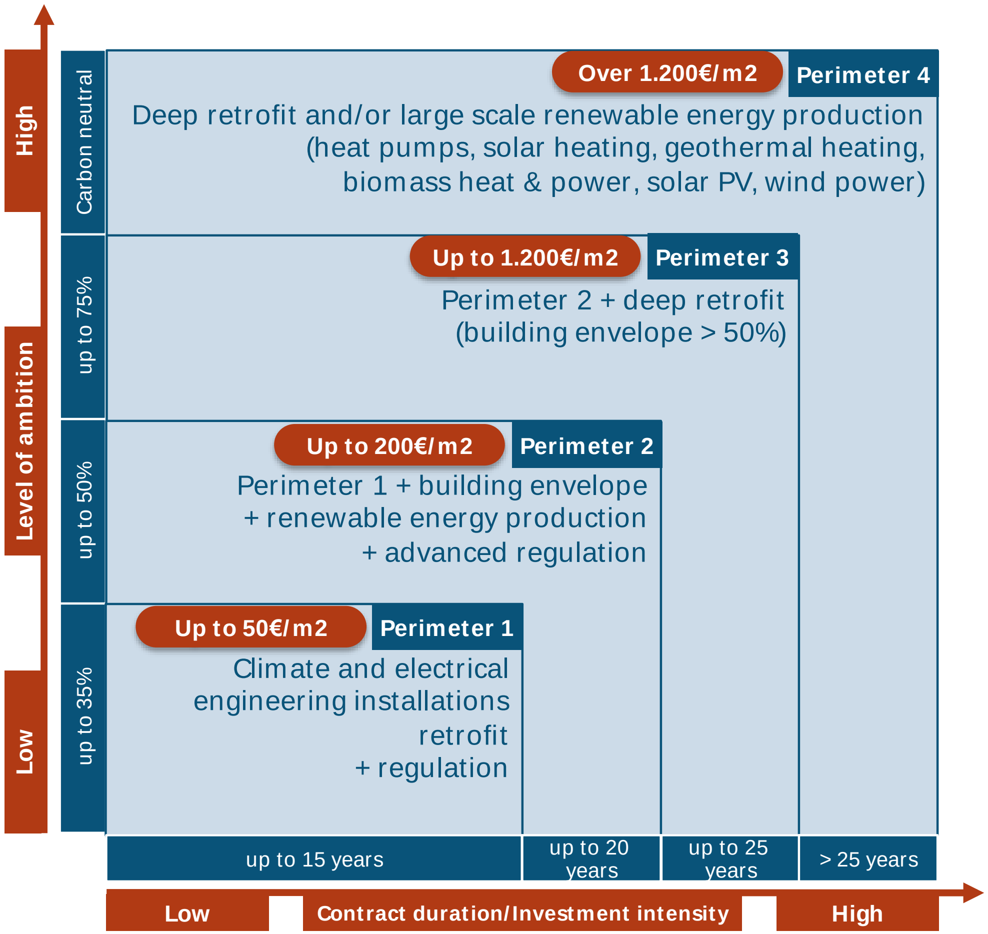
The main difference between the two models is the contractual relationship with the ESCO or contractors. But this have an strong impact on the risks and public balance sheet of the PDU.

Mapping Models positioning synthesis

	Facilitation model		Integration model		Financing only model
	Without aggregation	With aggregation	Without aggregation	With aggregation	
FI financing	REDIBA Eco'Energies EERFS	Berlin ESP RE:FIT Vlaams energiebedrijf ENSAMB Energie POSIT'IF	Warm Up North	-	N/A
ESCO financing	REDIBA Eco'Energies EERFS	Berlin ESP RE:FIT Vlaams energiebedrijf Rotterdam GB EE Milan PadovaFIT!	-	-	N/A
PDU financing	OSER	Fedesco Ox Futures	OSER	Fedesco Energie POSIT'IF Eandis EDLB EscoLimburg 2020 SPEE Picardie	N/A
Investment fund	EERFS SUNSHiNE	-	-	EscoLimburg 2020 Cambridgeshire MLEI	Energy Fund Den Haag KredEx
Citizens financing	-	OxFutures Brixton Energy Co-op	-	-	Saerbeck

Models involving facilitation are mainly financed via Financial Institutions or ESCOs while models using integration are mainly financed through the Program Delivery Unit (PDU) or an investment fund.

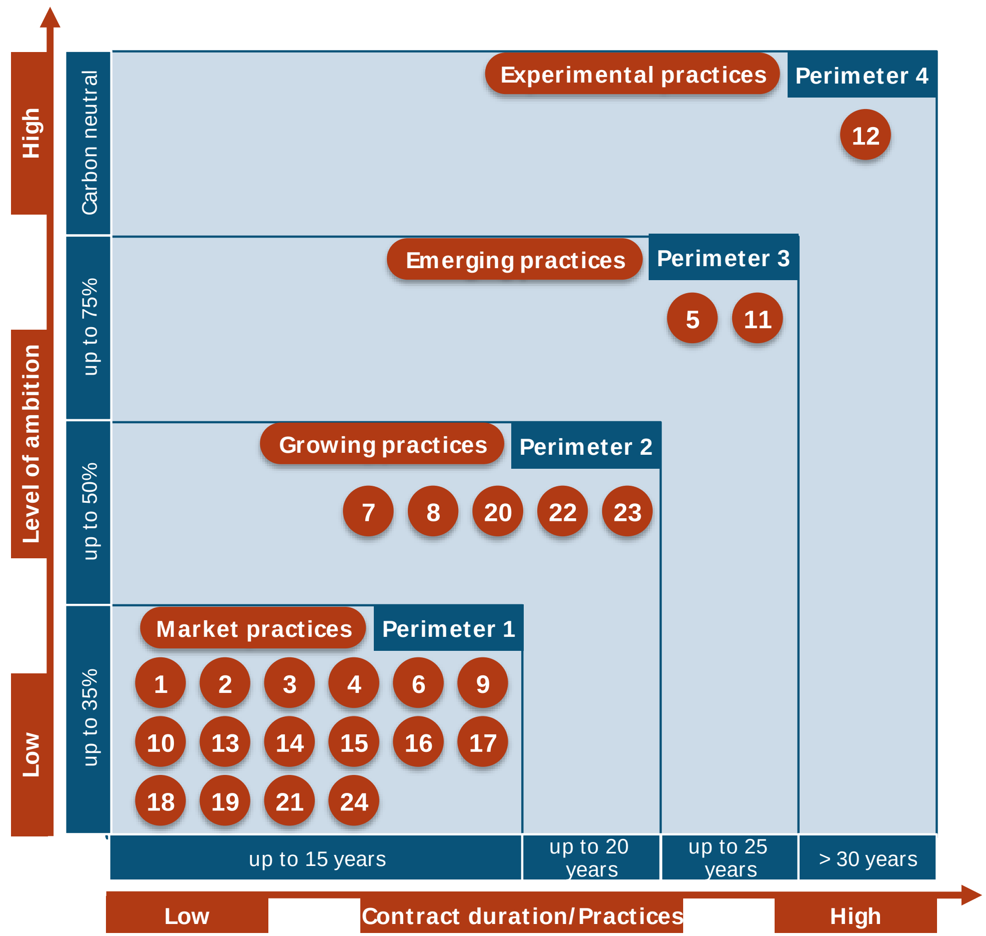
Level of ambition Understanding the impact!



- The marginal cost of energy savings follows a growing exponential curve: the higher the energy savings rate rises, the more the marginal cost increases exponentially.
- A low energy savings rate (e.g. 25%) has a competitive marginal cost (between 20 and 50 € per m2 heated). For a major renovation, to the level NZEB (Nearly Zero Energy Building), the cost can exceed 1,200 € / m2.
- Various studies shows that energy savings can't finance more than a 50% rate.

Level of ambition Models positioning synthesis

1. REDIBA
2. Berlin Energy Saving Partnership
3. RE:FIT
4. Vlaams Energiebedrijf
5. OSER
6. Fedesco
7. Eandis EDLB
8. ESCOLimburg 2020
9. Eco'Energies
10. Energy Fund Den Haag
11. Energies POSIT'IF
12. Climate Community Saerbeck
13. Cambridgeshire MLEI
14. Ox Futures
15. Rotterdam Green Building
16. Energy Efficiency Milan
17. ENSAMB
18. Brixton Energy Co-op
19. EERFS
20. SUNShINE
21. Warm Up North
22. SPEE Picardie
23. KredEx
24. PadovaFIT!



The great majority of the models targets Perimeter 1 or "standard market practice", though factor 2 (50% savings) models gain in attention, factor 4 (75% savings) remain marginal.

CITYnvest Conclusions

- The success of the models often seem correlated with the existence of a well-functioning Program Delivery Unit, and…
- A clear leadership role of the public partner (ambition and willingness to invest)
- EPC/ESC implemented models are very fit for perimeter 1 energy efficiency ambition levels (<35% savings), mostly driven by facilitation models
- Factor 2 (50% savings) and factor 4 (75% savings) energy efficiency ambition levels are very often “integration” driven, both technically as financially.
- High energy efficiency ambition levels (factor 2 and factor 4) do not focus on short to medium pay-back terms

CITYnvest Conclusions

- EU 2020 target (25%): this level of ambition could be reached at a very low cost (under 50€/m2!). Existing financing tools are sufficient to support that target.
  - EPC implementation model should be a “standard/mandatory practice”, certainly in the public and commercial building stocks
  - Facilitation and/or technical assistance services should be promoted and supported by national/regional authorities.
- EU 2030 target (40%): there is a need to learn by project to improve the market practices and/or business models. New financing tools will be necessary to support that target.

Belgium playground The national/regional level?

- Federal authority
  - Fedesco: acting up to march 2016 as PDU for the Federal Public Services (FPS) under SBC and EPC implementation models. Offering TPF (PDU Financing).
  - Building Agency: since march 2016, Fedesco has been integrated to the Building Agency. Extended EPC program expected to be programmed within the federal buildings stock.
- Flemish Region:
  - Vlaamse Energiebedrijf (VEB): acting as PDU for the Regional Public Services (RPS) and other flemish public authorities under the EPC operational model. VEB do not offers TPF.
  - ESKIMO Project: pilot project lead by the Flanders Innovation & Entrepeneurship Agency (with the support of Belesco) the to evaluate ESCO/EPC business model for SME.
- Walloon Region:
  - No regional initiative at date.
- Brussels Region:
  - No regional initiative at date.

Belgium playground The local level?

- Various initiatives
  - Eandis: acting as PDU for flemish municipalities under SBC operational model. Offering TPF (PDU Financing).
  - Infrax: acting as PDU for the flemish municipalities under SBC operational model. Offering TPF (PDU Financing).
  - Igretec: acting as PDU for the local municipalities under SBC operational model. Offering TPF (PDU Financing).
  - GRE Liège (Province of Liège) : acting as PDU for local municipalities as a pilot project under the EPC operational model. GRE liège do not offer TPF.
  - EPC Help Desk (Province of Vlaamse Brabant): acting as a kind of PDU for local municipalities. Services limited to assessing EPC feasibility and assisting municipalities in selecting EPC project facilitator.

Belgium playground Conclusions

- A lot of initiatives, but investment level remains very low due to:
  - Integration model (as applied in Belgium!) shows some limits to leverage investments
  - Facilitation model is well developed but only a few EPC contracts implemented at date (lack of demand!)
- ESCO market is ready to play it's role, authorities must now play their:
  - Set-up a legislative framework for the ESCO/EPC/TPF models but largely for EE investments (at all levels, see new deal "Loi de Transititon Energétique" in France)
  - Make mandatory EU 2020/2030 objectives (at least for large building stocks owners)
  - Refocus existing funding towards new financing tools (e.g. using ERDF funds as investment funds instead of grants in order to leverage investments, see London Energy Efficiency Fund or Den Haag Energy Efficiency Fund)
  - Stimulate (and finance) pilot projects in order to improve business models for factor 2 target (EU 2030) and beyond!

Thank You

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