

# CERtuS

**Cost Efficient Options** and Financing Mechanisms for **nearly Zero Energy Renovation** of Existing Buildings Stock.



## Training Materials

### WP5: Capacity Building in Municipalities

Examples of financially feasible renovation projects



## Examples of financially feasible renovation projects

### St. Bartholomew's Hospital

This project has been funded with an **Energy Performance Contract and financed by an external fund, which invested 100% of the required capital cost.**

SDCL provided £2.5m, 100% of the capital cost of the project, for financing the installation of a low carbon combined chilling/heating and power (CCHP) solution at St. Bartholomew's hospital. "CCHP is an optimal approach to generating lower carbon electricity and heat under the recent EU Energy Efficiency Directive."

**Design and operational risks transferred to the (UK Energy Efficiency Investments) Fund.**

Total budget: €3,437,860

Contract duration: 7 Years

Annual guaranteed savings: €675,100 (£493,000)



## Examples of financially feasible renovation projects

### Municipal schools, France

The project aimed to the energy renovation of 300 kindergartens and elementary schools located in the city of Paris. Beyond its climate action goals, the project offers financial savings, notably thanks to contractual guarantees related to final energy savings.

The retrofitting programme has been implemented through **Energy Performance Contracting (EPC)**, while it has been benefited from the **European ELENA-EIB technical assistance**.



Total budget:	€180,000,000
Contract duration:	20 years
Expected annual savings:	€750,000
ELENA-EIB technical assistance - grant:	€1,370,000

## Examples of financially feasible renovation projects

### ISOM Hospital - Public Private Partnership



**Renovation of the energy production systems of the ISOM Hospital in Bologna by means of a Public Private Partnership**

**CONCESSION FOR THE ENGINEERING, CONSTRUCTION AND OPERATIONS OF POWER PLANTS, TECHNOLOGICAL SYSTEMS, WORKS AND SERVICES FOR HEALTHCARE CAMPUS «POLICLINICO S. ORSOLA-MALPIGHI», BOLOGNA**



- **Contract Duration:** 24 years and 6 months
- **Construction Works Duration:** 3 years
- The intervention is focused on the renovation of energy production systems, with the construction of a new tri-generation power station able to produce thermal energy (hot and cold fluids) and of the distribution heating&cooling network. It is one of the largest energy efficiency upgrade in Italy under a PPP framework
- This project was realized by important Italian companies acting as partner in a dedicated JV. Two partners were also acting as Energy Service Company and Sinloc was an Equity Investor

## Examples of financially feasible renovation projects

### ISOM Hospital

The object of the PPP procedure was the renovation of 27 buildings of the Sant' Orsola Hospital



#### SITE FIGURES

Gross Area Surface	373.780 mq
Patient Area Net Area Surface	67.643 mq
Number of buildings	27
Number of beds	1765

# Examples of financially feasible renovation projects

## ISOM Hospital

The object of the PPP procedure was the renovation of the Sant' Orsola Hospital



- | SOLUTIONS PROVIDED  |  |
|---|--|
| <ul style="list-style-type: none"> <li>▪ new trigeneration system</li> <li>▪ new thermal central unit</li> <li>▪ new refrigerator unit</li> <li>▪ renewal of steam thermal central unit</li> <li>▪ substations revamping</li> </ul> | <ul style="list-style-type: none"> <li>▪ electrical system new configuration</li> <li>▪ enhancement of remote control and regulation systems</li> <li>▪ civil works</li> </ul> |

## Examples of financially feasible renovation projects

### ISOM Hospital

The project was financed by the EEEF – European Energy Efficiency Fund through two Project Bonds which provided financing sources of 32mn€

#### PROJECT FIGURES (C/mIn)

Total Project size	41 (VAT included)
Equity (shareholders cofinancing)	6,5
Public contribution	2,6
Senior Debt	26
VAT Facility	5,9

#### OPERATIONAL REVENUES (C/mIn per year)

Maintenance	~ 3
Energy Service	~ 11

#### BANCABILITY

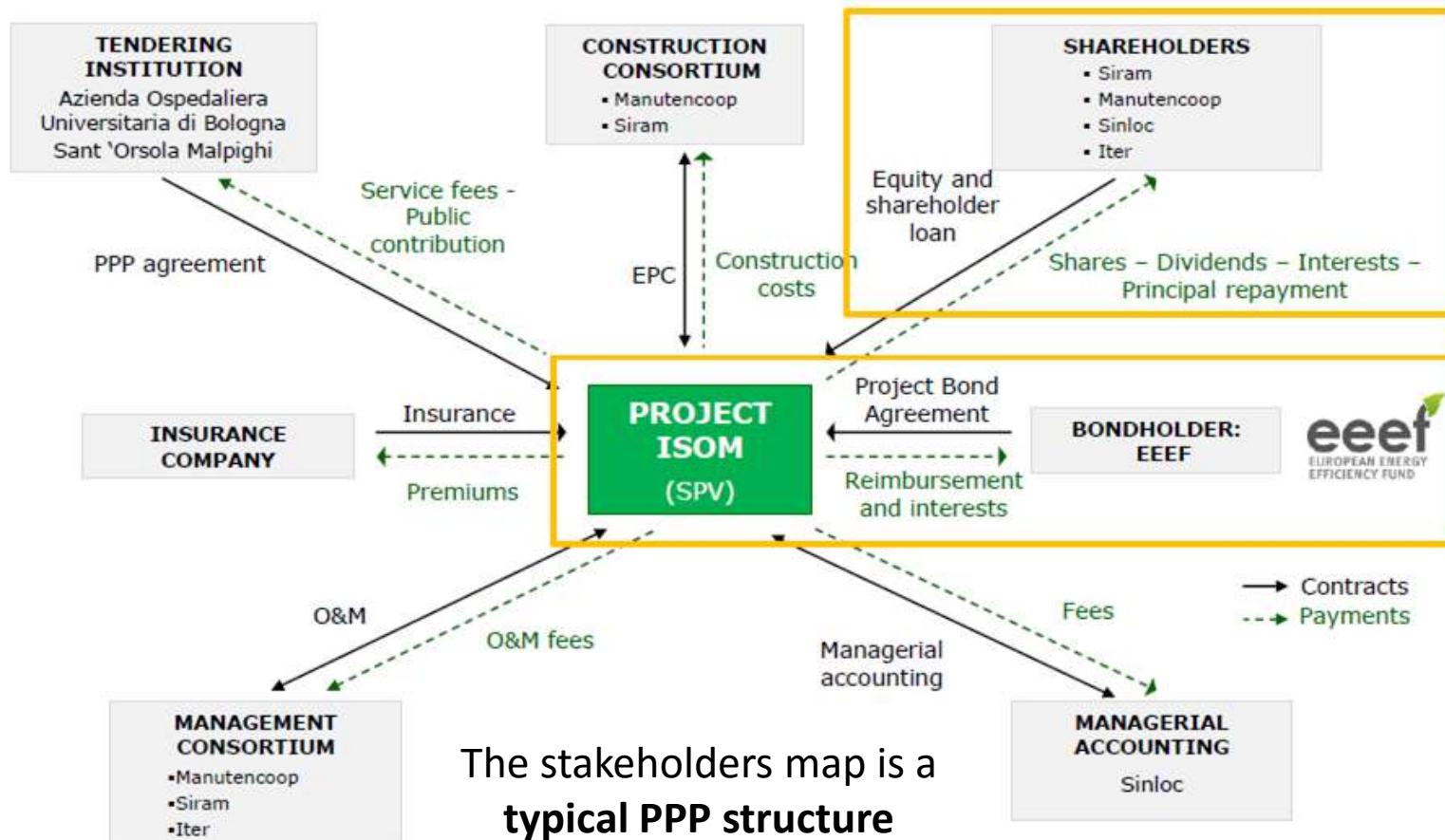
Leverage	
Senior Debt	80%
Equity	20%
Bancability Ratios	
DSCR target	1,30
LLCR avg	1,27

- **EEEF: The European Energy Efficiency Fund (EEEF)** is an innovative public-private partnership dedicated to mitigating climate change through energy efficiency measures and the use of renewable energy in the member states of the European Union
- It focuses on financing energy efficiency, small-scale renewable energy, and clean urban transport projects (at market rates) targeting municipal, local and regional authorities and public and private entities acting on behalf of those authorities

<http://www.eeef.eu/>

# Examples of financially feasible renovation projects

## ISOM Hospital



The stakeholders map is a **typical PPP structure**

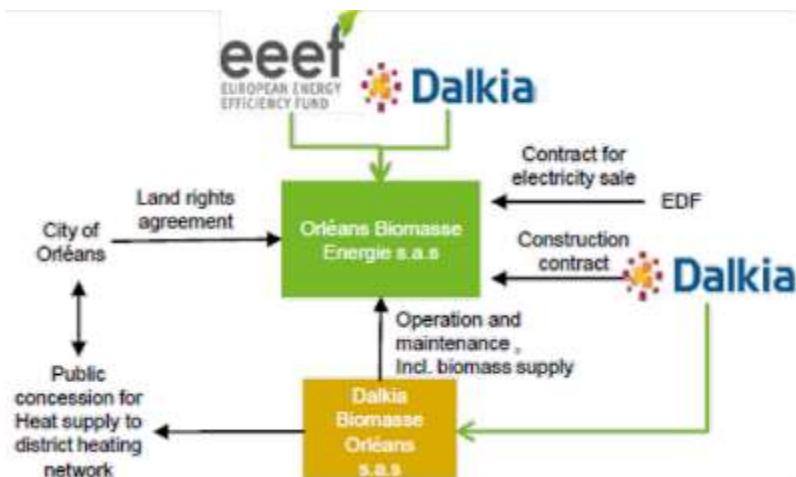


# Examples of financially feasible renovation projects

## City of Orléans, France

Combined heat and power plant which is capable to deliver 25MW to an existing district heating network and 7.5MW of electricity. The expected thermal energy production is equivalent to 13,000 households of district of La Source, while the expected annual electricity production is approximately 50,800kWh.

The CHP plant is fired by wood chip biomass sourced from local suppliers within a radius of less than 100km. The EEEF equity investment has been replicated in "CHP biomass City of Rennes" project.



Total budget: €36,000,000

**EEEF equity investment: €5,100,000**

**Debt financing: €30,000,000**

Contract duration: 18 Years

Annual energy production: 50,826kWh

## Examples of financially feasible renovation projects

### AKA United Nations Hotel, New York



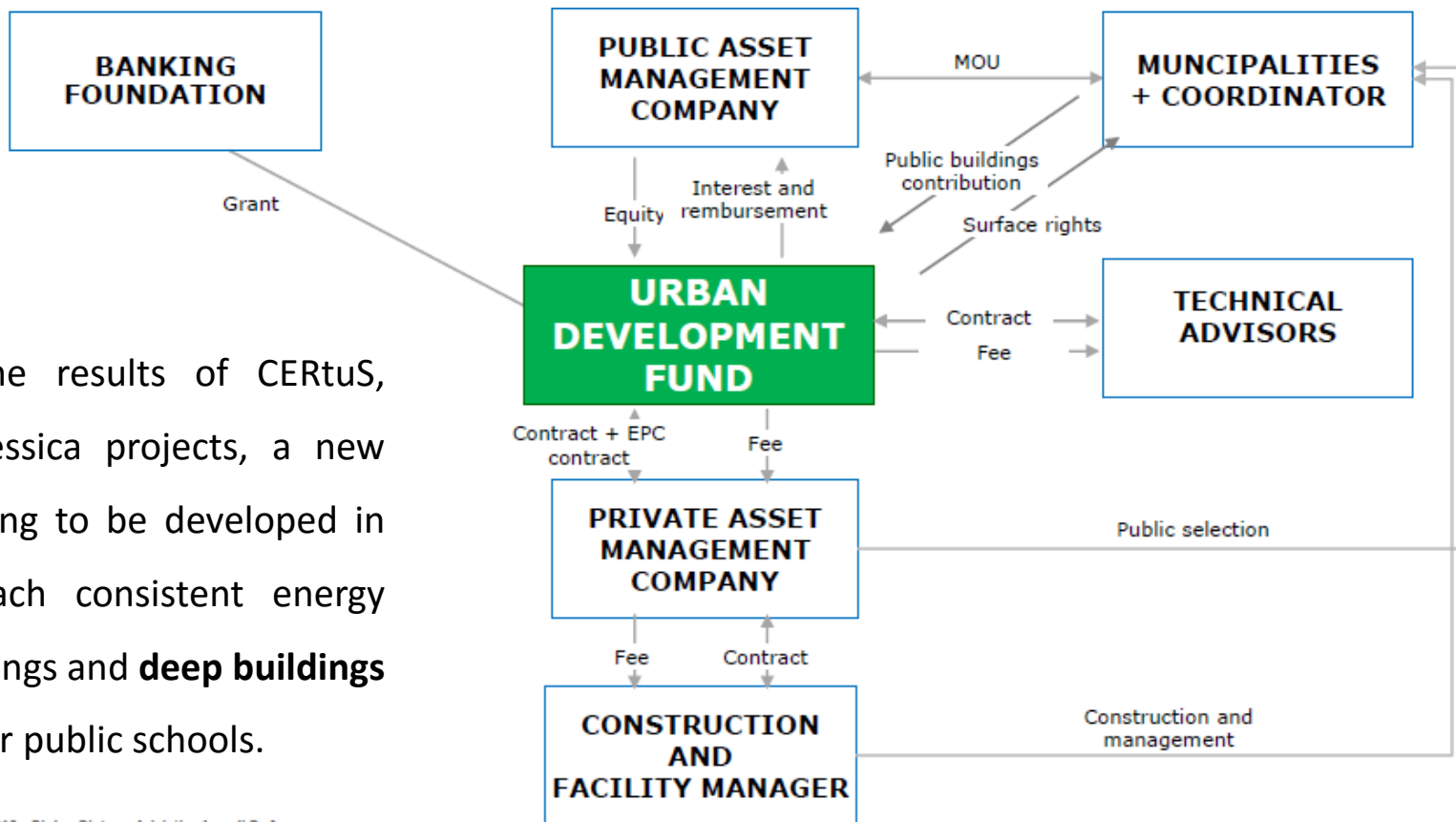
The “AKA United Nations” is an extended-stay hotel-condominium located in New York, USA. Part of the capital money for the renovation of the hotel’s building has been collected using the **real estate crowd funding** platform Prodigy Network.

The renovation of the “AKA United Nations” hotel is the first real estate project financed partly with crowd funding.

Total budget:	\$95,000,000
Crowd funding cumulative investment:	\$12,000,000
Crowd funding minimum contribution:	\$20,000
Number of crowd funding investors:	116
Investment period:	12 – 24 months
Expected IRR for crowd funding investors:	19 – 23%

# Examples of financially feasible renovation projects

## Schools Deep Renovation



Based on the results of CERtuS, Elena and Jessica projects, a new project is going to be developed in order to reach consistent energy efficiency savings and **deep buildings renovation** for public schools.

# Examples of financially feasible renovation projects

## Schools Deep Renovation

### PROJECT KEY DATA

Project length (years)	30
Energy efficiency target	20%

### INVESTMENTS

Investments in public schools	50.000
Planning and design costs	750
General expenses and insurances	290
<b>Total investment</b>	<b>51.040</b>
VAT	5.100
<b>Total investment + VAT</b>	<b>56.140</b>

### Schools (average hypothesis)

Sqm schools	50.000
Students	5.000
Sqm/student	10
Construction costs (€/sqm)	1.021

### Municipalities fees (C/mq/months)

Investments	5,7
Utility contracts (energy)	1,0
Maintenance	2,1
<b>Total monthly fee / sqm</b>	<b>8,8</b>

Different financing sources will be combined: private sources from banking foundations (grant and technical assistance) and public funds (subsidised funds). EPC contracts could be further implemented to obtain private sources

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