

## Financing Energy Renovation of Buildings in Italy, Croatia and Slovenia

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### PadovaFIT!

A Financing Investment Tool for the retrofitting of housing and service facility buildings in the PADOVA area

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#### **INITIAL FACTS**



- 220.000 inhabitants
- Lots of Class G condominiums
- Average 180 kWh/m²/year
- Housing needs during economic boom of 1960s-1970s



- Ageing population
- Lack of competencies in energy and Energy Performance Contracts
- General hostility to debts

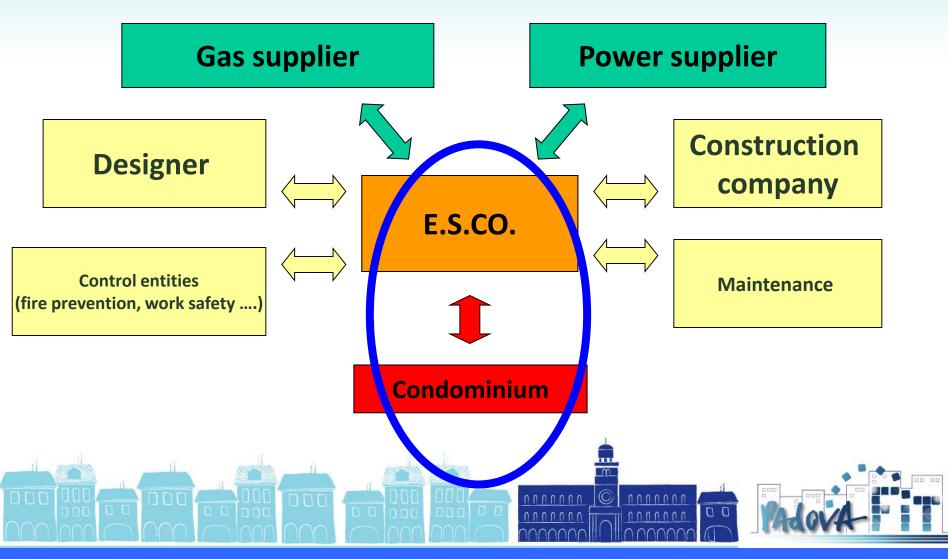






#### THE DELIVERY PARTNER

#### **Energy Service Company + Engineering Company**



#### **Stakeholders Involvement & Engagement**

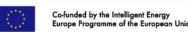
- **Different target groups** to address:
  - Single Building Managers and citizens
  - Building managers associations
  - Small owners associations
  - House Owners/Tenants Unions
  - Builders associations



- Target groups **potential resistance** (change in status quo, lack of knowledge, ...)
- Training of **Facilitators**: a TECHNICAL and PSYCHOLOGICAL work
- Light energy Audits and Condominium Assemblies ....







#### **Stakeholders Involvement & Engagement - the Activities**























#### **Technical Engineering – Light Energy Audit**

#### **CONDOMINIUM n.1 - STARTING POINT**



CONDOMINIUM n.1	Padova
Built in	1966
Dwellings	10
Floors heated	3
Square Meters heated	1.750 mq
Window frames	Wood, single glazed
Heating system	<ul><li>type: centralised</li><li>Installed: 1994</li></ul>

fuel: gas

Plant Power: 165 kW

Consumption	Average cons. [kWh, smc]		rage cost /year]	_
Electricity	6.000 kWh	€	2.000	
Gas	22.600 smc	€	22.000	



#### **Technical Engineering – Light Energy Audit**

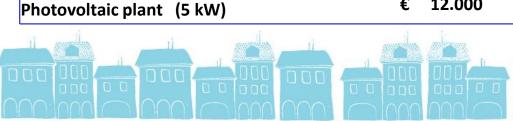




	Description		Cost [€]	Energy saving [%]	s Money savings [€]	Pay Back (without tax incentives)
Heating system refur - central heating boild - individual heat cour	er	€	50.000	23%	€ 5.060	[vears] 9,88
External Thermal Ins	ulation	€	58.000	20%	€ 4.400	13,18
Attic insulation		€	9.000	14%	€ 3.080	2,92
Double glazed windo	ws	€	47.000	18%	€ 3.960	11,87

18.000

12.000





€ 2.750

€ 1.600

50%

80%



6,55

7,50

(50% need coverage)

Solar thermal plant+ Heat cost allocators

#### **Technical Engineering – What type of contract?**

#### CONDOMINIUM VS ESCo

EPC (Energy Performance Contracting) based on certified performance:

ESCo (Energy Service Company) investment paid back according to energy savings achieved EPC contract highlights:

- Energy Audit and project design of works
- Works planning and timing
- ESCo Investment
- Condomium-Esco Contract Template validated by Municipality
- Duration of the contract
- Energy saving % (guaranteed) to be achieved
- Definition of baseline of energy consuption
- Quality assurance and <u>performance monitoring</u> methodology
- Management and maintanance of system(s) installed
- Energy service provider (heating, cooling, lighting)

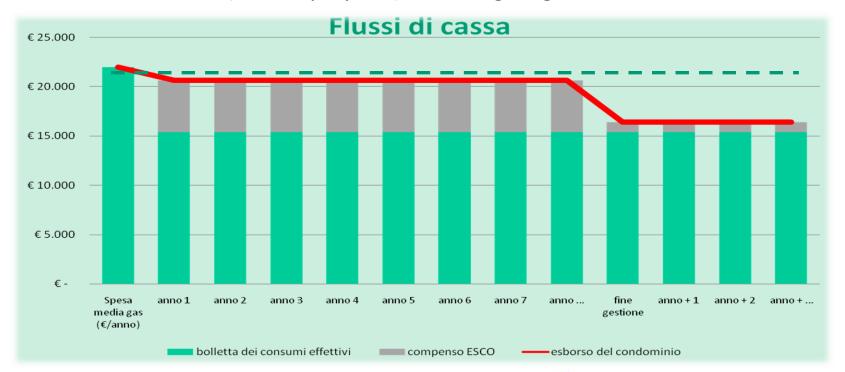






#### **Technical Engineering–Why EPC contracts are convenient?**

- ESCo entirely funds and implement the works + manages all systems installed
- Condominiums start saving a little bit on energy bill right after works end
- When contracts end (normally 9 years) full savings % guaranteed





#### **Procurement and Works – Contracts activated**

#### Delivery Partner selection call (Public Tender)

- Tender framework
- Technical criteria

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#### Municipality - Delivery Partner

Contract between Padova Municipality and ESCO/Construction Partner

- Delivery Partner Condominium
  - EPC contract template





CONTRATTO DI RENDIMENTO

RISHLTATO E FINANZIAMENTO





#### Added value for citizens

- Free energy audit lead by energy experts
- Increased knowledge on Energy issues and Energy Performance Contracting
- Delivery Partner takes care of all organisational, technical and financial aspects
   plus management and maintenance of the new plants
- Heating costs are blocked/reduced against future increase in fuel costs
- Reduced use of fossil fuels at local level: reduced CO<sub>2</sub> emissions
- Improved comfort
- Increased value of property



#### Padova FIT! - Lessons learnt

#### Which buildings are the most interesting?

- Built in the **20. century** with no recent energy investments
- At least 6 dwellings (or heated surface > 500 m<sup>2</sup>)
- Centralised heating plant (10+ years old)
- Delayed/missing payments on utilities/condominium bills < 10%.</li>
- Individual heaters: no EPC but regular contract + dedicated credit line









#### Padova FIT! ...If we could start over.....

- Tender documents and contract templates to be developed ASAP
- Select Delivery Partner very soon sign "easy" contracts early
- Geographical scale should be large enough to guarantee demand
- Building Managers engaged as facilitators
- Training of Facilitators just in time (facilitation actions not too early)
- Financial institutions to be engaged from the very beginning
- Engagement of **potential Delivery Partners** in the preparation phase





#### www.padovafit.it





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