Energy efficiency for hospitals: EPC and revolving fund
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Marche Region – Dept. for Infrastructure, Trasports and Energy

Open Days event, 13th October 2015, Brussels
The project is co-funded by the IEE Programme (MLEI – PDA section)

It develops at regional level

Marche

Coordinator:
Marche Region – Department for Infrastructures, Transports and Energy

Partners: Regional Healthcare System; Energy Agency of Modena; University of Marche; Association for healthcare engineering and architecture

Project duration:
March 2014-October 2016

HEALTHCARE SECTOR

Energy efficiency investments in 3 hospitals and 2 community clinics

INVESTMENT planned at the beginning of action: about €15 million

It promotes Energy Performance Contracts-EPC model

Energy Fund: financial instrument in the framework of ERDF Regional Operational Programme 2014-2020
MARTE aims to create innovative financing models and strategies to support energy efficiency investments in the health sector.

The main phases of the project implementation

- **Assessment** of the interventions for the buildings energy retrofit
- Development and publication of the [EPC call for tender](#)
- Establishment of the **Energy Fund**
- **Procurement** phase
- **Capacity building**, communication and dissemination strategy
The ASSESSMENT of the interventions for the building energy retrofit

(EN 16247-2)

Each hospital: several blocks, different architecture and year of construction

Different location: mountain area, coast and hills

<table>
<thead>
<tr>
<th>Id (City)</th>
<th>Climate Zone</th>
<th>Number of floors</th>
<th>$S_u$ [m$^2$]</th>
<th>$V$ [m$^3$]</th>
<th>Time of construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Benedetto del Tronto</td>
<td>D</td>
<td>8</td>
<td>36,863</td>
<td>159,422</td>
<td>1960s-1980s</td>
</tr>
<tr>
<td>Urbino</td>
<td>E</td>
<td>8</td>
<td>21,018</td>
<td>87,238</td>
<td>1960s-1990s</td>
</tr>
<tr>
<td>Pergola</td>
<td>E</td>
<td>6</td>
<td>8,195</td>
<td>34,026</td>
<td>1970s</td>
</tr>
<tr>
<td>Sant’Elpidio a Mare</td>
<td>D</td>
<td>7</td>
<td>23,600 (34,444)</td>
<td>105,800 (152,399)</td>
<td>1970s-1980s</td>
</tr>
</tbody>
</table>
3 Acute hospitals

San Benedetto del Tronto

Urbino

Pergola

3 nursing homes (community clinics)

Sant’Elpidio a Mare

Petritoli
## Most convenient combination of retrofit interventions according with EPC tender business plan too

<table>
<thead>
<tr>
<th>Id (City)</th>
<th>Actions</th>
<th>$E_{\text{P.H}}$</th>
<th>Energy reduction [%]</th>
<th>Initial investment [k€]</th>
<th>Cost reduction [k€/year]</th>
<th>GHG reduction [kgCO$_2$/y]</th>
<th>PBP [year]</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Benedetto del Tronto</td>
<td>retrofit of whole envelope and heating generation and control system</td>
<td>7.60</td>
<td>77</td>
<td>4600</td>
<td>358</td>
<td>771000</td>
<td>13</td>
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<tr>
<td>Urbino</td>
<td>retrofit of whole envelope and control system. Starting CHP.</td>
<td>15.44</td>
<td>79</td>
<td>3150</td>
<td>218</td>
<td>813825</td>
<td>15</td>
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<tr>
<td>Pergola</td>
<td>retrofit of whole envelope and heating generation and control system</td>
<td>12.40</td>
<td>79</td>
<td>2180</td>
<td>110</td>
<td>315000</td>
<td>20</td>
</tr>
<tr>
<td>Sant’Elpidio a Mare</td>
<td>window replac., new heating system regulation, lighting and solar panels</td>
<td>19.4</td>
<td>(heating) 33.9%</td>
<td>(electric) 47.4%</td>
<td>370.4</td>
<td>120384</td>
<td>11.6</td>
</tr>
<tr>
<td>Petritoli</td>
<td>window replac., roof insul., new heat generation and regulation, lighting and solar panels</td>
<td>20.9</td>
<td>(heating) 49.8%</td>
<td>(electric) 32.4%</td>
<td>370</td>
<td>127730</td>
<td>9.3</td>
</tr>
</tbody>
</table>

**Extensive renovation activities**

**Low cost actions**
• Reduction consumptions of acute hospitals by up to 77% with “high cost investments” were hypothesised.

• Savings over 35-40% for the “low cost investment” refurbishment actions (community clinics)

• despite the huge expected energy savings, the Pay Back Period is quite long (15-20 years).

• As regards the second type of action, the PBP (9-11 years) is almost compatible with the duration of Energy Performance Contracts

• in order to make the investment convenient from the economic and financial points of view, it must be supported by some form of economic incentive
DEVELOPMENT of the **EPC call for tender**

**EPC contract 15 years scenario**

- **Economic value energy savings/ year**
  - About € 600,000

14 years

- **Economic value energy savings**
  - About € 8,400,000

- **Total costs investments**
  - About € 11,000,000

Investments are *not* economic sustainable only through the energy savings
MARTE EPC contract scenario

Total investments

- Regional contribution 40%
- Revolving fund 42%
- ESCo 18%

Regional Operational Programme
ERDF Marche 2014-2020
DEVELOPMENT of the **EPC call for tender**

Tender documents has been developed according to the energy audits results and the economic analysis/EPC business plan:

Investment planned: around € 11 million

**Period**: 15 years

1 call for tender and 2 lots

**Open procedure**

**Publication**: planned by the end of 2015 (after the adoption of the Implementation plan of the Operational Programme ERDF Marche 2014-2020)
Establishment of the **Revolving Fund - Steps**

1. Approval of the Regional Operational Programme ERDF (February 2015)
2. Axis 4: 65 million € aimed at energy efficiency
3. Approval of the ex-ante evaluation of the financial instruments for Axis 4 (June 2015)
4. Consultation of financial institutions
5. Publication of the tender+selection of the fund manager+fund establishment

*We are here*
ENERGY AND MOBILITY FUND

Financial resources: about 23 million € (1/3 Axis 4 resources)

Sectors:
- Energy efficiency of buildings 39%
- Mobility sector 42%
- Energy efficiency for SMEs 19%

Type of interventions:
- Energy efficiency of public buildings (B1.1)
- Public lighting (B1.2)
- Healthcare buildings MARTE project (B2)
- Renewable of public transport vehicles (B.3)
- Energy efficiency for SMEs (B.4)

(Action 13.1 : interventions B2 and B1.1)

<table>
<thead>
<tr>
<th>Type of beneficiary/intervention</th>
<th>B1.1</th>
<th>B1.2</th>
<th>B.2 (MARTE)</th>
<th>B.3</th>
<th>B.4</th>
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<tbody>
<tr>
<td>ESCOs and PPP</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public sector (local authorities</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public sector, companies for pub</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small and Medium -sized enterprises</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
Challenges and …next steps

The link between MARTE and the ESIF 2014-2020 is one of the main interesting point of the project, but at the moment it is affecting the project timeline

The EPC contract model doesn’t fit well with deep energy retrofitting

- Adoption of the Implementation plan of the ROP ERDF 2014-2020
- Publication of EMF tender
- Publication of the EPC tender
www.marteproject.eu

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Thank you for your attention