



EPC case studies

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Example – balance sheet treatment of EPC



Energy efficiency measures



- Building envelope insulation
- Window replacement
- Fuel switch to wood pellets
- Heating substations
- Thermostatic valves
- Heat pumps
- New cooling system
- Indoor lighting upgrade

Key figures



Total investment cost
EUR 5 million



Grant
EUR 1.5 million



Guaranteed energy savings
40% compared to baseline



Annual energy cost savings
EUR 400,000



Annual payments
EUR 320,000



Contract duration
10 years

Can this project be considered off-balance sheet under EPC guide?

Example: Hospital

Test against Eurostat guide rules



- Measures: measures are related to energy efficiency ✓
- Contract length: 10 years ✓
- Government financing: grant 20% ✓ **High importance**
- Guaranteed savings vs payments to ESCO*:
Energy savings: $10 * \text{EUR } 400,000 = \text{EUR } 4\text{m}$
Payments: $\text{EUR } 1.5\text{m} + 10 * \text{EUR } 320,000 = \text{EUR } 4.7\text{m}$
Operational payments > savings ✗

⇒ **The asset is on-balance sheet for the government sector**

How can this project be made **Maastricht neutral**?

**For simplification reasons the payments and savings are not calculated as net-present value (NPV)*

Other contract provision may also influence the balance sheet treatment, these are not analysed in this case study





Slovenia – National EPC programme supported by ESIF grants



Slovenia – EPC Programme



- 2014-2020 1.8million m² public building stock to be renovated
- Estimated investment volume EUR 415m
- Available resources from OP EUR 171.7m
 - of which grants EUR 146.7m
 - of which financial instrument EUR 25m
- Establishment of strategic development project:
 - Set up of project office, inventory of buildings,
 - Preparation of project documentation with ELENA technical assistance
 - Establishment of EPC model contract approved by Ministry of Finance and Eurostat
- Set-up of financing instrument in order to increase competition among ESCOs



Slovenia: CŠOD Bohinj

Pilot case



Training centre for school children in Triglav National Park

Renovating building to Zero Net Energy Building (NZEB) standard

- Investment volume EUR 714,000 (2.105m²)
- 50% financed by ESCO, 50% financed via EU grants and client own resources

Measures

- reconstruction of the boiler room, retrofitting central heating system, lighting retrofit, installation of ventilation system, advanced building management system, building envelope & joinery
- Switch to biomass fuel and heat pump
- Total energy savings 247 MWh/a (ca. EUR 44,000 p.a.)



Slovenia: Decision making process



- Potential beneficiaries apply for ESIF support for energy efficiency measures
- EPC test
 - If CBA shows that building is “EPC-able”, grant is only available when implemented via EPC (up to 40% of CAPEX)
 - if not EPC-able, normal public procurement
- Client undertakes energy audit and analysis
- Project office supports in public procurement (competitive dialogue)

A dedicated ESIF loan fund to support ESCOs and EPC clients is in preparation



Slovenia: Results of calls 2016-2020



	Total	EPC		Public procurement***	
Number of projects	65	28	43%	37	57%
Total net floor area (m2)	≈600.000	≈456.000	76%	≈144.000	24%
Eligible costs of projects (MEUR)	≈100	≈69	69%	≈31	31%
Average savings Qf/Anet floor area (kWh/m2a)**	75	86	115%	68	91%
Eligible costs/Anet floor area (€/m2)	167	≈151*	90%	≈215*	129%



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London Energy Efficiency Fund supporting EPC



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London: LEEF and MEEF



- Greater London Authority has set up the London Green Fund under JESSICA Initiative with EIB during 2007-2013
- One of the funds was the London Energy Efficiency Fund (LEEF) financing public building renovation
- It invested into energy efficiency and decentralized
- Project preparation supported by RE:FIT, initially funded by ELENA, currently financed by LEEF reflows
- In 2014-2020 it is continued with the **Major of London Energy Efficiency Fund (MEEF)**
 - MEEF has an investment volume of £ 500m
 - Long-term financing up to 20 years








MEEF Target Investment Sectors



MEEF Investment Policy allows flexible support for different entities and projects

MEEF can fund public and private sector entities:

-  Registered Providers
-  Education (Higher & Further)
-  Local Authorities
-  Health
-  Not for Profits
-  SMEs
-  ESCOs

MEEF can fund up to 100% of the capital cost of a £1m+ project but could also part fund large scale regeneration projects.

-  Energy Efficiency
-  Decentralised Energy
-  Small Scale Renewables
-  Energy Storage
-  Electric Vehicle Charging Infrastructure
-  Regeneration Projects (with low carbon credentials)

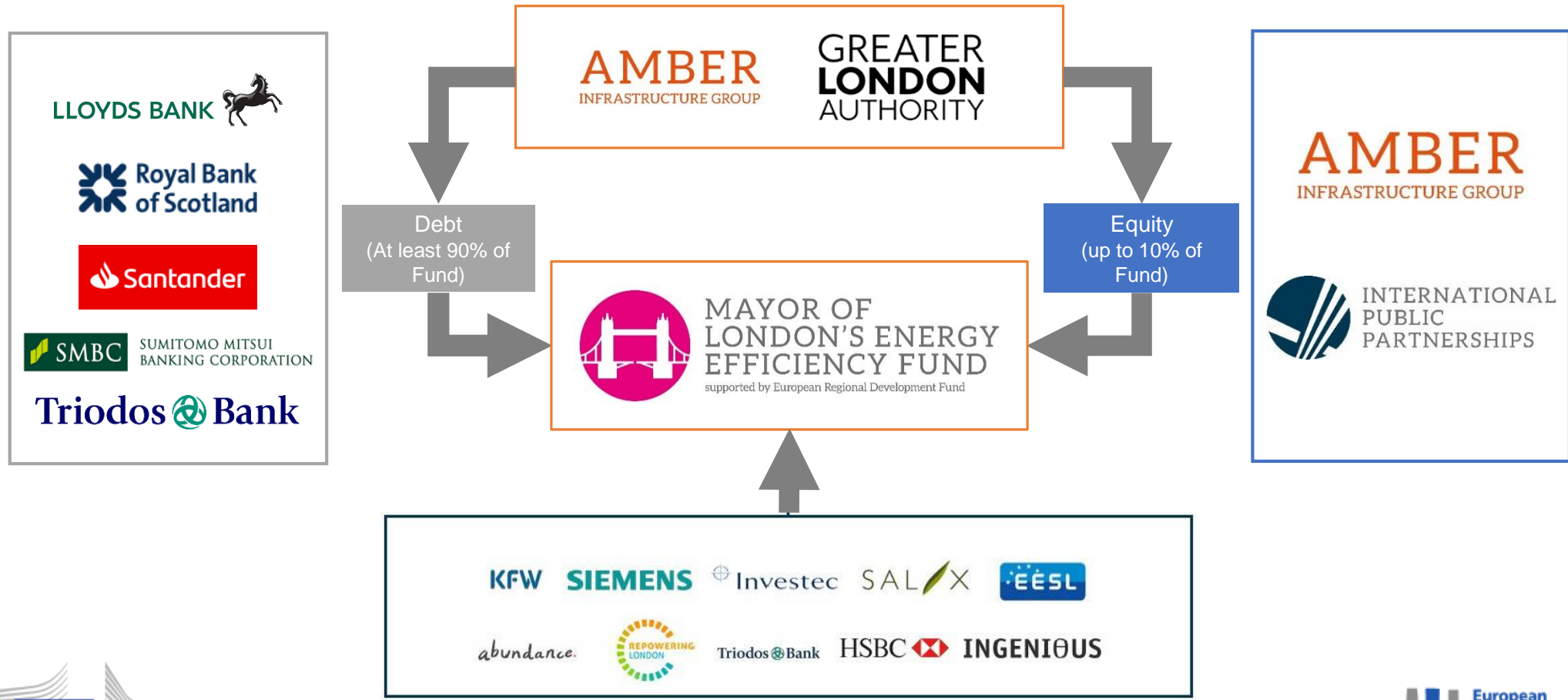
MEEF has a £2m Technical Assistance facility to support project development



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London: Leverage



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London Case study St Georges £13.3m



The Energy Centre will save the NHS Hospital Trust over £1 million a year that can be spent on improving patient care

Project / Financial Highlights

- Financial Close in 2014 & '15 and practical Completion expected in 2017
- 10-Year Loan
- A low cost and innovative source of funding to an NHS entity
- LEEF fully funded a £12m Energy Performance Contract (EPC) at St George's, one of the UK's largest teaching hospitals. This was supplemented by a further £1.3m for additional measures
- Flexible finance terms allowed the Trust to realise a significantly higher NPV for the project when compared to other funding options

Technical Highlights

- Installation of a CHP plant, remodelling of an energy centre and broad energy efficiency technology retrofit
- Expected to save 6,300 tonnes of carbon and over £1.2m p.a.
- Project procured through the NHS' Essentia framework (previously the London Procurement Programme)
- The Trust will achieve substantial financial and CO2 savings; reduced maintenance and a more comfortable internal environment for both patients and staff





EPC in the health care sector in Marche Region, Italy



Marche, Italy

EPC in health sector



- From 2014-2017 Region of Marche developed an energy efficiency scheme for health sector (MARTE) supported by Intelligent Energy Europe grant
- Objective: Using EPC for comprehensive renovation including renewable energy sources using EU Funds
- Outcome of project: Combining ESIF grants, ESIF FI for and ESCO own resources for project
- Contracts with 15 years duration signed with ESCOs end of 2017
- Implementation started end of 2018



Marche, Italy

EPC in health sector



Healthcare facilities	Investment in € (VAT 22% included)	CO2 savings		Energy savings		RES production
		tCO2/year	in %	toe/year	in %	toe/year
San Benedetto del Tronto Hospital	5.409.220,87	771,2	76	340	77	
Urbino Hospital	3.257.589,48	813,8	67	488	77	
Pergola Hospital	2.530.438,25	314,9	75	138	79	3,6
Sant'Elpidio a Mare Policlinic with Nursing Home	325.990,22	120,3	39	32	39	7,4
Petricoli Policlinic with Nursing Home	400.132,53	128,2	46	43	46	2,6
TOTAL	11.923.371,34	2.148		1.041		13,6



Financing of Marche health sector EPC



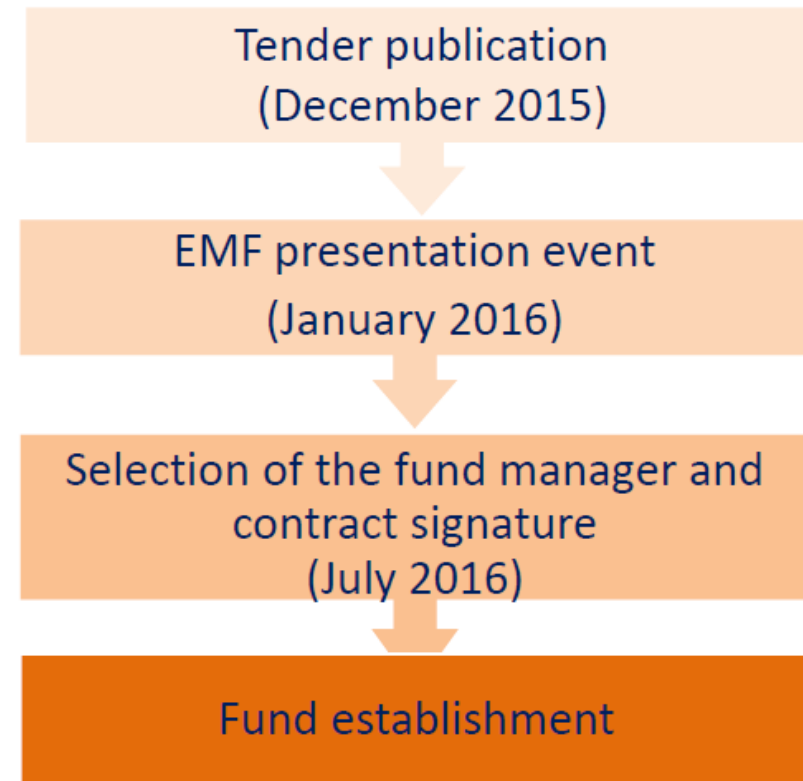
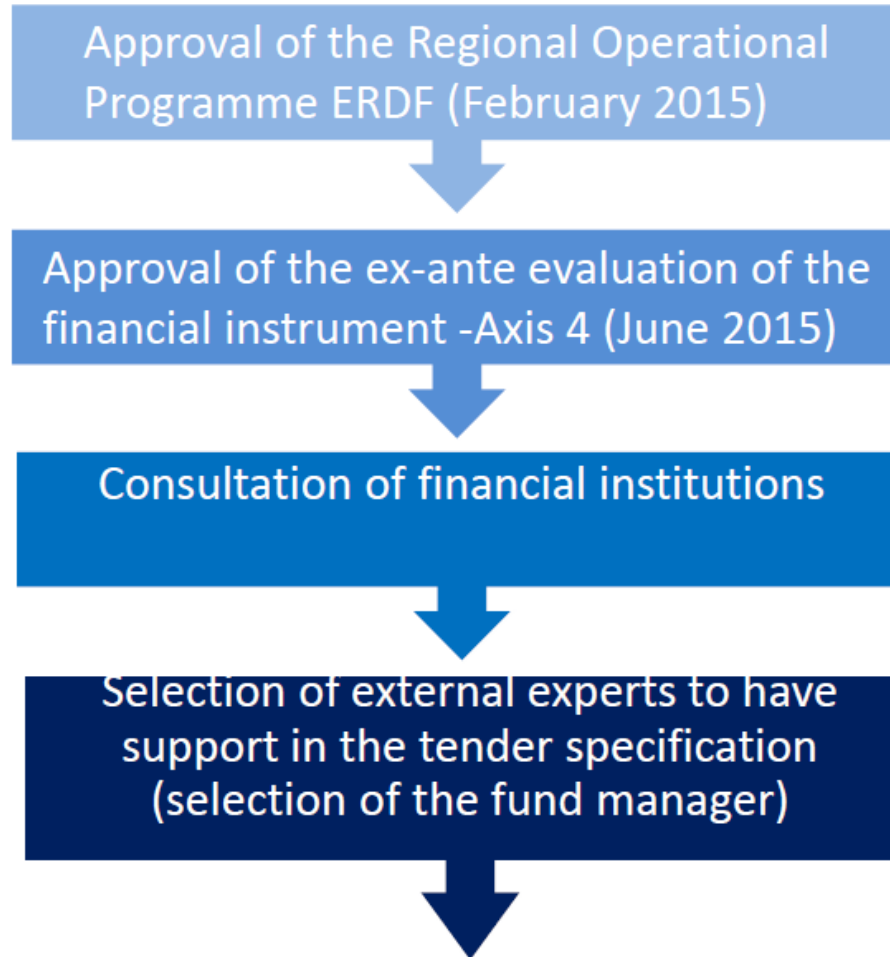
Financing to project:

- OP grant (max 40%) paid to the beneficiary that will pass it on to ESCO;
- OP interest-free loan (max 35% of the investment) for 15 years by to ESCOs directly;
- ESCOs provide remaining amount form own resources;

The experience from the health sector project inspired the set up of a regional Energy and Mobility Fund (EMF)



Establishment of EMF



Marche: Lessons learned



- Need for proper project preparation, such as a solid energy audit
- Return of investment of energy efficiency measures determine contract length
- ESIF funding is important to reconcile contract length and economic payback time of measures
- Need for affordable financing for projects
- Capacity building on EPC
- Interdisciplinary working group to manage call for tender
- Commitment of additional staff with specialised skills duration of contract (15 years)



