

# eeef highlights

The European Energy Efficiency Fund (eeef) and Siram S.p.A (Siram) have been pleased to announce their subscription in September of a Joint Venture agreement, which aims to implement energy efficiency projects in Italy, on the basis of the smart cities model and public-private partnerships.

The newly established Città Illuminate S.r.l. (transl. Illuminated Cities), respectively owned 80 % –20 % by eeef and Siram, will enable Public Entities to implement technically advanced solutions, which rely on the so called "smart lampposts" and the integration of multiple services in the street lighting infrastructure. Projects such as these will facilitate more livable cities at the same time as to lower the rates of energy consumption, thanks to measures including the instalment of LED technology, remote control and management systems, video surveillance, wi-fi and charging stations for electric vehicles.

The structure of this Joint Venture allows a project finance approach even for projects of limited size, which fall beyond the scope of traditional project financing, while lowering significantly the structuring costs. In the frame of Città Illuminate, Siram is going to be the industrial partner and full contractor for each project commissioning and operations. Siram Group is indeed specialized in managing resources for both the public and the private market, being also Italian leader of energy efficiency services.

Renaud Capris, Siram's Director, commented: "We are very satisfied for the agreement achieved with eeef, that enable us to promote further sustainable and technological projects, intended to pursuing energy transition throughout the diffusion of the smart cities model".

"The JV will support small local communities to achieve cost savings at the same time as to improve and expand services offered to citizens and cut primary energy and carbon consumption" said Paola Rusconi, Fund Manager of the European Energy Efficiency Fund.



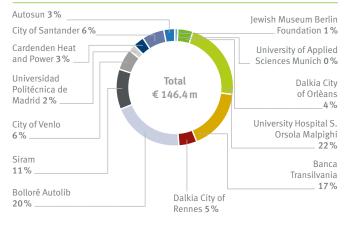
Nicolas Germond, CFO of Siram, and Paola Rusconi, Fund Manager of the European Energy Efficiency Fund, at signature of the JV agreement.

The first project entering the JV portfolio is located in the Municipality of Rozzano, in the Province of Milan. In the next months, in fact Rozzano will join the other European smart cities and adopt the technology state-of the-art across the whole city. The Municipality will benefit from an holistic ensemble of interventions, not only limited to street lighting but extending to other complementary measures, as tangible to the people locally, like refurbishment of the existing infrastructure and sidewalks. In addition to all the other upsides and benefits mentioned so far and equally important, the investment plan, which exceeds 3.5 million euros, will result in the Municipality of Rozzano getting primary energy savings by 77% of the baseline.



# **Active Investments**

#### **Active Investments by Partner Institution\***



# **Matured Investments**

#### Matured Investments by Partner Institution\*



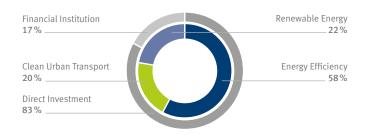
### **Active Investments by Country\***



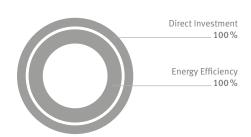
### Matured Investments by Country\*



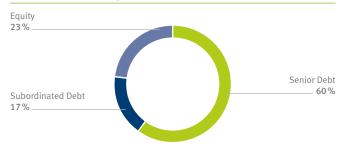
#### Active Investments by type of Partner Institution\*



#### Matured Investments by type of Partner Institution\*



# **Active Investments by Financial Instrument**



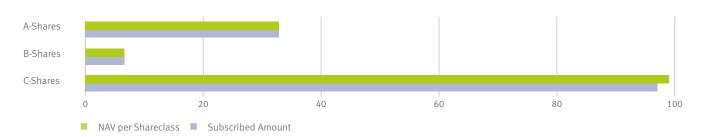
# Matured Investments by Financial Instrument



<sup>\*</sup> Based on commitments signed to projects, not including repayments or accrued interests.



### NAV as at 30/09/2018 (in € million)

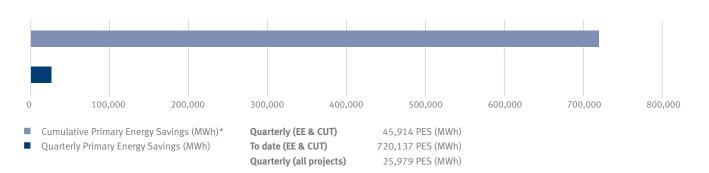


# **Impact Assessment**

# CO, savings (in tCO,e)



# **Primary Energy Savings (MWh)**



\* Cumulative data includes calculations from financial close to loan maturity, based on estimations for projects under construction and less than one year of operations and actual data for projects which have been in operation for over one year. Savings are for total project investment volume (i. e. eeef and non-eeef investments). Portfolio Primary Energy Savings CUT & EE (absolute and percentage) is for 100 % energy efficiency (EE), clean urban transport (CUT) and additional capacity RE projects only.

EE – energy efficiency. CUT – Clean urban transport.



# eeef closed transactions Existing projects

eeef created a number of videos to show the projects evolution, please watch them on the eeef website <a href="https://www.eeef.eu/home.html">https://www.eeef.eu/home.html</a>

#### Project: Jewish Museum Berlin



Country: Germany
Sector: Energy Efficiency
Type of Investment: Forfeiting
Total project size (€ m): 1.4
eeef investment size (€ m): 0.9
Financial close: 20 March 2012

Hinancial close: 20 March 2012
Maturity: 10 years
Status: In construction

#### General description

Johnson Controls' Energy Service Company (ESCO) and the Jewish Museum Berlin entered into an amended Energy Performance Contract (EPC) for both buildings of the museum with a total EPC volume of  $\leq 1.4$  m. Agreeing on energy efficiency measures comprising of the optimisation of heating, ventilation & air conditioning and an efficient energy management system, the project is expected to achieve a 26% reduction of CO<sub>2</sub> emissions compared to the baseline. It is a lighthouse project because of its innovative financing structure using forfeiting as a funding source.

#### Recent developments

• Project performance in line with envisaged plan

#### **Project: University of Applied Sciences Munich**



Country: Germany Sector: Energy Efficiency Type of Investment: Forfeiting Total project size  $(\in m)$ : 1.1 eeef investment size  $(\in m)$ : 0.6

Financial close: 15 November 2012
Maturity: 10 years
Status: In operation

#### General description

Johnson Controls' ESCO and the University of Applied Sciences Munich (UoM) entered into an energy performance contract (EPC) for both buildings of the UoM's campus in Munich-Pasing with a total EPC volume of € 1.1 m. The ESCO and UoM agreed on energy efficiency measures comprising the acquisition of a 49.5 kW combined heat and power (CHP) plant, the optimisation of heating, lighting, metering, building management and pumping. The implementation of all measures achieves an 6% reduction of CO2 emissions compared to the baseline. The ESCO guarantees the UoM certain energy savings p. a. and performs maintenance and building operation services for the 10 year contract period. This project is a role model for further energy efficiency investments in educational facilities such as schools, universities etc.

#### Recent developments

• Project performance in line with envisaged plan

#### Project: City of Orléans



Country: France
Sector: Renewable Energy
Type of Investment: Junior Funds
Total project size (€ m): 36.0
eeef investment size (€ m): 5.1
Financial close: 12 March 2013

Maturity: Perpetual Status: In operation

#### General description

The CHP plant with an installed capacity of 7.5 MW in electricity and 17 MW in thermal heat supplies the heat to the City of Orléans and sells the electricity via a Power Purchase Agreement (PPA) to Electricité de France (EDF) at a negotiated tariff fixed over 20 years. The plant is fired by wood biomass (90,000 tonnes p. a.) from a supply radius of less than 100 km. This project is the first equity investment of eeef (majority owner of the plant with 84%). The operation of the CHP plant achieves a reduction of CO<sub>2</sub> emissions by 18,533 tonnes p. a., approx. 65% compared to the baseline.

#### Recent development

• Project performance in line with envisaged plan



# eeef closed transactions

**Existing projects (continued)** 

### Project: University Hospital S. Orsola Malpighi



Country: Italy
Sector: Energy Efficiency
Type of Investment: Senior Debt
Total project size (€ m): 41.0
eeef investment size (€ m): 32.0
Financial close: 8 May 2013
Maturity: 20 years
Status: In operation

#### General description

The project entity, Progetto ISOM S. p. A., a special purpose vehicle (SPV) which is the counterparty of eeef, signed a concession agreement with the University Hospital S. Orsola Malpighi (UHSOM) in Bologna. Planned initiatives are intended to raise the energy efficiency of the entire fluid production and distribution system and reduce energy consumption via adoption of energy efficient equipment such as centrifugal chillers and absorbers, reconstruction of heat distribution networks, renovation of heat exchange substations and inclusion of a tri-generation plant for the combined production of cooling, heat and power (CCHP) sized on the basis of the energy consumption of the hospital facility which is fuelled by methane gas. The project will achieve a reduction of CO<sub>2</sub> emissions by 7,881 tonnes p. a., approx. 26% compared to the baseline. It has been the largest energy efficiency upgrade in Italy under a public-private partnership (PPP) framework so far and is a lighthouse project which demonstrates the positive impact of energy efficiency measures in public healthcare.

#### Recent developments

• Project performance in line with envisaged plan.

#### Project: Banca Transilvania



Country: Romania
Sector: Financial Institution
Type of Investment: Subordinated Debt

Total project size ( $\in$  m): 25.0 eeef investment size ( $\in$  m): 25.0

Financial close: 26 September 2013

Maturity: 10 years
Status: Investment phase

#### **General description**

Banca Transilvania (BT), one of the leading banks in Romania, and eeef signed a letter of intent regarding green lending to support energy efficiency and renewable energy investments in Romania. It is the first cooperation of the eeef with a financial institution and also its first transaction in Eastern Europe. With BT, eeef has a strong local partner with experience in financing several energy efficiency projects.

### Recent developments

• N/A

### Project: City of Rennes



Country: France
Sector: Renewable Energy
Type of Investment: Junior Funds
Total project size (€m): 47.6
eeef investment size (€m): 7.3

Financial close: 12 December 2013
Maturity: Perpetual
Status: In operation

#### **General description**

The fund has completed its second equity transaction, investing in Rennes Biomasse Energie, which operates a combined heat and power facility with an electrical output of 9.8 MWe and thermal output of 22 MWth over 20 years. This junior fund investment has been realised through the purchase of 85% of the shares of Rennes Biomasse Energie by eeef. Dalkia France is co-investor along with eeef and is shareholder of the remaining 15% of Rennes Biomasse Energie. The plant supplies 21,000 households in the city with green heat. The facility is estimated to save 13,258 tonnes of CO, per year.

#### Recent development

 $\bullet$  Project performance in line with envisaged plan



# eeef closed transactions

**Existing projects (continued)** 

# Project: Bolloré



Country: Franc

Sector: Clean Urban Transport

Type of Investment: Senior Debt Total project size  $(\in m)$ : 30.0 eeef investment size  $(\in m)$ : 30.0

Financial close: 23 December 2013
Maturity: 5 years
Status: In operation

#### General description

The French company Bolloré signed a bond subscription agreement for floating rate notes worth € 30 m issued by Bolloré and purchased by the eeef with a maturity of 5 years. eeef's investment is used to finance electric cars and required infrastructure used in Bolloré's European electric car rental concession. This transaction is within the framework of a green transportation initiative for the cities of Paris, Lyon and Bordeaux.

#### Recent developments

• N/A

#### Project: City of Venlo



Country: The Netherlands Sector: Energy Efficiency Type of Investment: Senior Debt Sold project size ( $\in$  m): 8.6 eeef investment size ( $\in$  m): 8.5 Financial close: 3 April 2014

Maturity: 15 years
Status: In operation

#### General description

The City of Venlo signed a long-term financing contract for € 8.5 m to finance street lighting upgrades with the objective of equipping a minimum of 16,000 lighting points with LED lights (73% of the total lighting points of the city) and achieving more than 56% energy savings. The existing public lighting is the largest consumer of electricity with approximately 36% of total consumption of the municipality. The large-scale street lighting upgrade is a further sign of the city's commitment towards environmental sustainability including, among other things, being one of the first cities in the world to support the principle of 'Cradle to Cradle' (C2C), a framework for using sustainable energy resources only, phasing out conventional energy sources.

#### Recent developments

Project performance in line with envisaged plan

# Project: Universidad Politécnica de Madrid



Country: Spain

Sector: Energy Efficiency
Type of Investment: Forfeiting
Total project size (€ m): 2.5

eeef investment size (€ m): 2.5 Financial close: 18

Financial close: 18 November 2015
Maturity: 9 years
Status: In operation

#### **General description**

eeef provided financing for the replacement of existing oil boilers providing hot water and heating to the Universidad Politécnica of Madrid ("UPM"). The retrofit of new gas boilers, thermal valves and thermal PV solutions will be completed in 32 buildings of the UPM. The project will realise 22% of Primary Energy Savings and 36% CO, se savings annually compared to baseline. The transaction resulted from the public tendering process launched by the UPM earlier this year. Ingenieria y Servicios de Eficiencia Energética S. L. ("Enertika") was awarded with the nine year mandate, and the Energy Management Contract ("EMC") was signed on the 4th of September 2015. The EMC will consist of measures to provide and install the technology required to upgrade existing infrastructure and perform operation and maintenance services as required to ensure optimal performance of the new technology.

#### Recent developments

• Project performance in line with envisaged plan



# eeef closed transactions

**Existing projects (continued)** 

### Project: Cardenden Heat & Power (CHAP)



Country: United Kingdom

Sector: Energy Efficiency, Renewable Energy

Type of Investment: Senior Loan Total project size ( $\in$  m): 5.5 eeef investment size ( $\in$  m): 4.34

Financial close: 31 October 2016
Maturity: 16 years
Status: In operation

#### General description

The project involves the replacement of gas boilers in residential buildings owned by Ore Valley Housing Association (OVHA) and small wind farms in the Fife Region in Scotland developed by CHAP. OVHA is a Scottish Housing Association, a registered social landlord with charitable status operating in central Fife, while CHAP is a subsidiary of OVHA. The boilers will be leased to OVHA and the wind plants will benefit of the national Feed in Tariff. The senior debt facility provided by eeef is complemented by junior funds from the Scotland's Renewable Energy Investment Fund (REIF) and equity from OVHA/CHAP. Overall, the project's target is to achieve cumulative annual savings of 99% for primary energy and 96% for CO<sub>2</sub>e compared to baseline.

#### Recent developments

- First disbursement in November 2016.
- Implementation of boilers and wind turbine completed in March 2017.

#### Project: City of Santander



ountry: Spai

Sector: Energy Efficiency
Type of Investment: Forfaiting Loan

Total project size ( $\in$  m): 9.2 eeef investment size ( $\in$  m): 9.2

Financial close: 18 August 2017
Maturity: 14 years
Status: In operation

#### **General description**

The project consists of the upgrade of the existing street lighting luminaires from predominantly high pressure sodium vapour lamps to the last generation PHILIPS LEDs. In the 12 months construction period, ending in November 2017, the number of lighting points replaced will come to a total of around 22,300 units. A system of UVEX wireless sensors will connect the whole infrastructure point-by-point with the City's digital communication network and the remote CEMILUX control system. Savings in CO₂ and primary energy are envisaged to reach 80% compared to the baseline. The project emerges from the European Commission Technical Assistance, successfully completed in 2015, with the Municipality of Santander receiving €450k of funding to conduct energy audits, set up the street lighting investment programme and the tender documents. The project is one of the largest street lighting upgrades in Spain under a Public Private Partnership (PPP) framework.

#### **Recent developments**

• €9.2 m fully disbursed in December 2017 as planned, when more than 98% of installations were completed. The project is expected to achieve final commissioning in November 2018.

# Project: Wattosun



Country: Portugal

Sector: Renewable Energy
Type of Investment: Junior funds (equit

Type of Investment: Junior funds (equity and shareholder loan)
Total project size (€ m): 10

eeef investment size (€ m): 5.1

Financial close: 29 December 2017

Maturity: 15 years

Status: Signed MoU, portfolio under construction

#### General description

The project consists of a portfolio of small-scale PV plants, allowing self-consumption up to 5.6 MW in total to end-users in the public sector across Portugal. Beneficiaries will be public entities such as municipalities, state-owned companies and other public authorities. The portfolio developer is Wattosun, an agile player with a highly skilled management team, which comes to a total of over 50 years of experience in developing, financing and operating rooftop and ground mounted PV plants globally.

The portfolio, comprising seven sub-projects, foresees installation of circa 21,100 solar panels. When compared to the baseline and the Portuguese electricity grid, the project is expected to allow seven public authorities to save globally  $CO_2$  e emissions of 2,650 tonnes per year and primary energy savings of 20,736 MWh per year. The self-consumed electricity would enable the public authorities to minimise or even exclude any exposure to changes in energy prices and benefit from effective electricity cost reduction.

#### Recent development

• Signed MoU, portfolio under construction



# eeef closed transactions

**Existing projects (continued)** 

# **Project: Illuminated Cities**



Country: Ital

Sector: Energy Efficiency

Type of Investment: Junior funds (equity and shareholder loan)

Total project size (€ m): 20 eeef investment size (€ m): 16

Financial close: 27 September 2018 Maturity: 15 years

Status: portfolio ramp-up

#### General description

Illuminated Cities (Città Illuminate S.r.l.) is a Joint Venture between eeef and Siram by Veolia. The JV targets a portfolio of street lighting projects in Italy, benefitting mainly municipalities of small-mid size. Primary energy savings are expected by 56% at a portfolio level and, for some projects, up to 78% when compared to the baseline. The implemented measures are designed according to a full smart city approach, where lighting integrates multiple services, thus not limiting to the upgrade to LED technology but also including other applications such as remote control and management systems, video surveillance, wi-fi and charging stations for electric vehicles.

#### Recent developments

• The portfolio has been populated with the first project, located in the Municipality of Rozzano (Milan Province), which entails investment costs by over €3.5 m. The parties are setting the drawdown.



# eeef projects financed

Matured facilities



ountry: Franc

Sector: Energy efficiency measures, public buildings upgrades

Type of Investment: Senior Debt
Total project size (€ m): approx. 25
eeef investment size (€ m): 5.0
Financial close: 3 April 2014
Repayment date: 12.02.2018
Status: Implementation phase

#### General description

The Société Publique Locale d'Efficacité Energétique (SPL) signed a mid-term loan agreement for € 5 m to finance the refurbishment of public buildings during their construction phase and to pave the way for raising further long term financing. The SPL was initiated by the Région Rhône-Alpes as a private special purpose company under the French Commercial Code, but operating with public capital. It is associated with a number of public authorities in the region and is dedicated to implementing energy-efficient refurbishment projects of public buildings (high schools, schools and gymnasiums), including renewable energy production. By setting an example of upgrading public buildings, while going beyond standard thermal regulations, the SPL is thinking ahead and aims to achieve its long-term objectives of energy savings and greenhouse gas reduction.

#### Recent developments

• SPL repayed the facility on the 12.02.2018







# eeef Technical Assistance development

The Technical Assistance (TA) Facility of the Fund, which has also received funding from the ELENA Facility under Horizon 2020 Programme of the European Union, was launched end of 2016. The objective of the new facility is to support public authorities to prepare investment programmes for a sustainable transformation in the areas of energy efficiency (mainly public building renovation

and street lighting upgrades) as well as small scale renewable energy. eeef has selected a pool of consultants to work closely with the public authorities during the preparation of feasibility studies, energy audits, public tender processes etc. Up to now, three projects have been selected under this facility: City of Gijón, Ferrara Province and Italian Ministry of Defence – Ducal Palace.

#### Project: City of Gijón



Country: Spain
Sector: Energy Efficiency
Total investment volume (€m): 21.7
TA amount approved (€): 400,000
Financial close: 24 April 2017

#### General description

City of Gijon is planning the implementation of an ambitious sustainable investment programme to complete energy audits for 98 public buildings and 40,000 street lighting points, identifying the appropriate set of energy efficiency and/or renewable energy related interventions, preparing and publishing the tendering documentation as well as preferably selecting an ESCO company to realise the measures within a two-year timeframe. As a Covenant of Mayor and RECI member (Spanish Association for Smart Cities), the city is fully committed to share its experience and best practices with other public authorities, thereby boosting the replication potential for such type of projects in Spain but also Europe-wide.

#### Recent developments

- Main TA phase completed, with delivery of all energy audit reports of the buildings and validation of the public lighting infrastructure.
- The TA Consultant prepared financial studies and public tender documentation and reviewed with the TA beneficiary.
- The call for tender publication is envisaged for Q4/2018.

#### Project: Ferrara Province - via SIPRO



Country: Italy
Sector: Energy Efficiency
Total investment volume (€m): 15.3
TA amount approved (€): 389,500
Financial close: 31 May 2017

#### General description

Joining forces with SIPRO (Agenzia Provinciale per lo Sviluppo) – a development agency with a 40-year track record – the investment programme of the Province of Ferrara addresses the implementation of energy efficiency measures in several municipalities to prevent high energy consumption and heat loss going forward. Municipalities directly involved in this TA project are Ferrara, Cento, Argenta, Bondeno, Mesola, Copparo and Voghiera. The investment programme includes deep energy retrofitting measures (in 13 buildings such as schools, offices, town halls and sport facilities) and the replacement of 27,000 public lighting points to LED technology in the cities of Ferrara and Voghiera. The tender for a LED replacement is planned to be launched by the end of 2017.

#### **Recent developments**

- TA work package for Ferrara public lighting has been completed and the tender published in April 2018.
- Five bidders presented valid offers as a result of the tender process. The public authority is now in the evaluation phase.
- Screening and validation of public lighting database for Voghiera is now final, reports are in progress.
- The TA Consultant carried out energy audits on 15 buildings, whose reports are in progress.



# eeef Technical Assistance development (continued)

Project: Italian Ministry of Defense - Ducal Palace



Country: Italy
Total investment volume (€m): 8.1
TA amount approved (€): 340,000
Financial close: 5 March 2018

#### General description

The Ducal Palace in Modena (Italy) is owned by the Italian government and is currently used by the Italian Ministry of Defense (MoD). With a total project volume of €8.1 m, the upgrade of thermal systems (€5.0 m) is expected to include new pipes for the network distribution plus improvement of the existing ones, advanced climate control system, replacement of old radiators and boilers and retrofitting the hot water system. For the building envelope (€3.1 m) the MoD plans reducing thermal losses by introducing insulation in internal opaque walls and air infiltration with improved sealing of window frames. The the Ducal Palace of Modena is located in the City of Modena, in the Italian region of Emilia Romagna. The palace was the residence of the Este Dukes of Modena for more than two centuries and today is owned by the Italian government. The main part of the building is currently used by the MoD and houses the headquarters of the Military Academy. In this building, military students attend academic lessons of several university courses held by professors from the public University of Modena and Reggio Emilia (UNIMORE). Part of the Eastern Tower of the palace houses the geophysical-meteorological observatory of UNIMORE, while the first floor is a public museum of the Military Academy with guided tours offered by the Municipality of Modena.

#### Recent developments

- The main TA phase has been completed and all energy audit reports delivered.
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