

THE EUROPEAN ENERGY EFFICIENCY FUND

ADVANCING SUSTAINABLE ENERGY FOR EUROPE

Annual Report 2018

European Energy Efficiency Fund Highlights

166

*million euros
current committed capital*

15

active investments

1

*matured
investment*

Cooperated with

34

*public authorities
since fund inception*



127

*million euros
cumulative invested capital*

*Investments
into*

8

member states

4

*signed eeff TAF
projects in three
member states*

367,401

*thousand megawatt hours
cumulative primary energy savings
from fund inception to Q4 2018*



389,743

*thousand tonnes carbon
dioxide equivalents
cumulative carbon savings from
fund inception to Q4 2018*

Did you know?

Contents

Introduction	4	CIMAC	38
Welcome	4	Wattosun	38
Letter from the Chairman	6	Banca Transilvania	38
Letter from the Investment Manager	8	Universidad Politécnica de Madrid	39
		Municipality of Santander	40
		Ore Valley Housing Association	41
		SPL – Région Rhône-Alpes	42
The eeff in 2018	10		
Introduction to the eeff's approach to innovative and portfolio financing	12		
The EU's evolving energy efficiency market	16		
		2018 Activities Report:	
		Funding	44
		Funding situation	46
The European Energy Efficiency Fund at a Glance	18		
The mission	20	Technical Assistance Support	48
The eeff's objectives	22		
The Fund's set-up	22	The eeff's Technical Assistance Facility	50
The eeff's business proposal	23		
Investment structure	24	Carbon, Environment & Impact Management	58
Development of the eeff since inception	25		
		Project assessment and monitoring	60
		Social and environmental management system (SEMS)	61
		Primary energy and greenhouse gas emissions savings 2018	62
2018 Activities Report:			
Investments	28		
The eeff's investments	30	Financial Statements	64
Bolloré	32		
City of Orléans	32	Balance sheet	66
City of Rennes	33	Income statement	67
Jewish Museum Berlin Foundation	34	Statement of changes in net assets	68
University of Applied Sciences Munich	34	Cash flow statement	70
Illuminated Cities	35		
Smart H&U	35		
University Hospital S. Orsola-Malpighi	36		
City of Venlo	37	Imprint	71

Introduction



Welcome

Dear Reader,

The 24th UN Climate Conference (COP24) took place in December 2018 in Katowice, Poland, and the attendees agreed on rules for implementing the 2015 Paris Agreement. This was in the form of a rulebook and will allow the parties of the Paris Agreement to implement, track and gradually increase their contributions to combatting climate change in order to meet the Agreement's long-term goals (including the 2 °C goal).¹ The Agreement lays down how countries' national climate contributions should be measured, compared and forwarded to the UNFCCC secretariat. Additionally, the international community reviewed global emissions reductions since 2015. The conference gave the political signal that the participating governments will not stand by the previous climate protection commitments but intend to further improve their national climate protection measures in the future, as agreed in Paris.²

It is estimated that USD 250 – 400 bn is needed in order to meet the UN 2030 goal on energy efficiency.³ The International Energy Agency state that cities represent almost two-thirds of global energy demand and produce 70% of carbon emissions from the energy sector. According to ACEEE, previous investments into the energy efficiency sector were into the building sector (60%) via the renovation of existing building stock followed by 26% of investments into the transport sector, and it is assumed that future years will mirror this investment trend.⁴ Retrofits of existing infrastructure are challenging tasks for public authorities in our cities; however, reducing existing energy consumption via energy efficiency related investments is a way to accelerate the energy transition process. By implementing such investments, cities can reduce costs, remove pressure on their budgets and support the stimulation of their local economies to create jobs.



The European Energy Efficiency Fund (eeef) was set up to fulfil a number of objectives including supporting public authorities in launching such investments. The eeef has also been successful in leveraging technical assistance facilities from various sources to launch the preparation of investments and has supported 34 public authorities in 12 EU member states since its inception. The Fund deploys various financing structures to aggregate energy efficiency related investments in various small and medium-sized municipalities while attracting capital from private industry players, which in combination with the eeef's funds ensures realisation of these investments.

Public funding alone cannot be sufficient to finance the necessary measures and the move towards a more sustainable, affordable and secure energy system. The eeef is committed to raising private funding in the future and has built an impressive track record of investing in the energy efficiency market in Europe, and I am confident that the Fund will effectively blend private and public funds on a larger scale to reach EU 2030 objectives.



Megan Richards

Chair of the Supervisory Board and
Director of the European Commission



1 http://europa.eu/rapid/press-release_IP-18-6824_en.htm

2 <https://www.auswaertiges-amt.de/en/aussenpolitik/themen/klima/cop-24-katowice/2171652>

3 <https://sustainabledevelopment.un.org/content/documents/2096Chapter%201-global%20investment%20requirement%20estimates.pdf>

4 <https://aceee.org/research-report/u1808>

Letter from the Chairman

Dear Reader,

When Patricia Espinosa, UN Climate Change Executive Secretary, delivered remarks in March 2019 at the 25th anniversary of the UN Framework Convention on Climate Change, she remarked, “While we’ve made enormous progress in 25 years, the world is still running behind climate change. Today, the urgency to address climate change has never been greater. We have the Paris Agreement, and we have the guidelines strengthening that agreement. What we need now are results.”

The EU has been at the forefront of international efforts to fight climate change and was amongst the first to submit its intended contribution to the Paris Agreement through a variety of financial mechanisms such as the European Energy Efficiency Fund (eeef). Over the last 12 months, the eeef continued to promote the efficient use of energy at the public level, and to date has successfully collaborated with 34 public bodies across Europe. These partnerships have enabled the Fund to directly invest and commit circa EUR 170 m in various projects and technologies with a range of SMEs and large energy companies to facilitate the enhancement of public infrastructure, including building renovations, public lighting upgrades, and renewable energy installations.

Since its launch, the eeef has gained first-hand experience of public entities’ challenges and has developed innovative financing solutions specifically designed to facilitate the financing for a range of energy efficiency and small-scale renewable energy projects composed of debt and equity solutions. Building on an established track record, the eeef has been instrumental in supporting recent small-scale energy efficiency projects, which when aggregated can have a large impact through the reduction of public spending and carbon emissions. During 2018, the eeef successfully closed two joint ventures, firstly with Siram, 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) will enable public entities to implement technically advanced solutions, which rely on so-called smart lampposts and the integration of multiple services in street lighting infrastructure. The second partnership sees the Fund joining forces with Sinloc with the mission to enhance energy efficiency in the healthcare and education sectors. The joint venture, Smart H&U, targets a portfolio of investments in public hospitals and universities distributed across several locations in Italy. Sinloc and the eeef will pool smaller projects together under the same umbrella and inject a total of EUR 15 m of risk capital in special purpose vehicles. The structure of both joint ventures will facilitate a project finance approach even for projects of a limited size, which fall beyond the scope of traditional project financing, while significantly lowering the structuring costs. Whilst it is paramount to continue working directly with municipalities to reduce public spending on energy consumption, it is also essential that the public sector is engaged to build further public-private partnerships to ensure that the necessary investments into the sector are mobilised.

A further demonstration of the need for innovative financing solutions for an aggregated portfolio is demonstrated via CIMAC (Comunidade Intermunicipal do Alentejo Central) and their street lighting upgrade project. CIMAC was constituted in 2009 and is an inter-municipal community consisting of 14 municipalities. They benefitted from the European Commission’s TAF through providing the resources to conduct the feasibility studies that resulted in aggregating numerous smaller street lighting upgrade projects into a single sizeable project of 56,000 lighting points. This year the Fund entered into its first aggregated street lighting infrastructure transaction benefitting CIMAC via a forfaiting agreement, following an energy performance contract format.

A highlight of 2018 was the development of the eeff's proprietary technical assistance facility (eeef TAF), which in addition to its own funds benefits from ELENA funding, part of the Horizon 2020 programme. Since securing its first beneficiary in 2017, the facility has gone from strength to strength and now has four public entities enrolled on the programme. In 2018, two new projects entered the facility: firstly, Kaunas District Municipality Administration, Lithuania – a new country for the Fund – with an aggregated street lighting portfolio, and secondly, the Italian Ministry of Defence, with a project to refurbish the Ducal Palace of Modena. The Ducal Palace of Modena is one of the most important historical public buildings in Italy and further demonstrates the vast variety of public entities the eeff is able to engage with to ensure the preservation of historic buildings. The existing eeff TAF projects (city of Gijón, Spain, and the Province of Ferrara) progressed well in 2018 with the completion of technical studies and plans in place to launch the public tenders in 2019.

With a breadth of market knowledge, the eeff continues to maintain its role as a thought leader within the energy efficiency industry. The eeff worked in collaboration with the World Bank to host a panel session at the European Commission's renowned Sustainability Week. Furthermore, the Fund was invited as a panellist to share their experiences at the LatAm Urban Mobility Conference, Mexico, to further shape the sustainability agendas of other global regions by sharing lessons learned from Europe.

Established in July 2011, the eeff is an innovative public-private partnership, dedicated to mitigating climate change through financing energy efficiency measures, small-scale renewable energy projects and clean urban transport initiatives. The Fund operates under the Advancing Sustainable Energy for Europe agenda, which invests in climate change projects for municipal, local and regional authorities, as well as public and private entities which act on behalf of those authorities. The eeff operates in all 28 member states of the European Union and contributes towards EU targets in the reduction of greenhouse gas emissions and implementation of energy efficiency and renewable energy measures. To date, the Fund's portfolio has saved ca. 390,000 t CO₂e compared to baseline.

In the coming year, the Fund will continue to intensify its ability to mobilise new initiatives and enable projects to come to fruition. It will do this through maintaining and developing new relationships with public authorities, with a focus on entering new geographical locations. At a time when the effects of climate change are visible to all, it is vital that active instruments intensify their operations to enhance their positive impact so that future energy efficiency and renewable energy targets are reached – supporting the global ambition of mitigating climate change and advancing sustainable energy.

I would like to thank the investors and project partners for their ongoing support of the Fund, the service providers – especially the Investment Management – and the entire Investment Committee and Board for their excellent contributions in 2018.

Best wishes,



Edward Claessen
Chairman of the Management Board



Letter from the Investment Manager

Dear Reader,

Over the last seven years, the European Energy Efficiency Fund (eeef) has built tangible relationships with 34 public entities across 12 countries including France, Germany, Italy, the Netherlands, Romania, Spain, Portugal, Lithuania and the UK. To date, the Fund has committed EUR 170.5 m to projects where a public entity is the beneficiary in the energy efficiency, renewable energy and clean urban transport sectors. Within these sectors, the Fund is investing into a range of technologies including building upgrades, public street lighting refurbishments, PV installations and complex CHP and tri-generation installations.

A highlight of 2018 was the closing of the Fund's first aggregated street lighting infrastructure transaction to upgrade a consortium of municipalities' public lighting. The eeef signed a forfaiting facility of EUR 12 m to finance the renovation of street lighting infrastructure in Alentejo Central Region, represented by CIMAC (Comunidade Intermunicipal do Alentejo Central). The project includes the UNESCO World Heritage site of Évora. The signing of this agreement illustrates the successful implementation of the eeef's strategy, from project development to financing. The European Commission Technical Assistance Facility, previously managed by the eeef, was instrumental in supporting CIMAC with the feasibility study that resulted in aggregating numerous smaller projects into a single sizeable project to upgrade 56,354 street lighting luminaires. Following a public call for the works, the project was awarded to I-Quattro, a project company jointly owned by I-Sete (45%) and FomentInvest (55%). The project envisages replacement of existing sodium vapour lamps with energy efficient LED luminaires within a nine-month construction period. This upgrade is expected to realise approximately 74% primary energy and CO₂e savings annually compared to baseline. In addition, the project will also generate EUR 7.1 m in monetary benefits for the 14 municipalities over a 12-year period of concession.

The eeef has built on its experience from the CIMAC project and been able to further establish its prominence in supporting recent small-scale energy efficiency projects through the launch of two joint ventures with key industry partners. When small-scale initiatives are aggregated, there is not only the potential for prominent public spending reductions through reduced energy consumption, but also the ability to achieve positive environmental impacts through the reduction of carbon emissions. This original approach provides a sustainable solution to upgrading public infrastructure in smaller communities through reliable third-party established industry players and energy service companies (ESCO).

A successful example of this financing structure is through the joint venture in which the eeef and SIRAM S.p.A. (Siram) are partners with the aim to advance smart cities in Italy. The newly established Città Illuminate S.r.l. (transl. Illuminated Cities), respectively owned 80% / 20% by the eeef and Siram, will enable public entities to implement technically advanced solutions that rely on so-called smart lampposts and the integration of multiple services in the street lighting infrastructure. Projects such as these will facilitate more liveable cities while also lowering the rates of energy consumption, thanks to measures including the instalment of LED technology, 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 traditionally are not suitable for project financing, while significantly lowering the structuring costs.

A further key achievement of 2018 was the Fund entering into a joint venture with Sinloc, which will contribute to enhancing energy efficiency in the healthcare and education sectors. The partnership takes the name Smart H&U and targets a portfolio of investments in public hospitals and universities distributed across Italy. These facilities will scale up their energy efficiency profiles as well as enhance the level of services provided to the end users. Patients, students and staff will benefit from modernised infrastructure, including state-of-the-art heating and cooling systems, smart lighting and building management systems. Sinloc and the eef will pool a number of smaller projects together to reach project scale and inject EUR 15 m of risk capital into special purpose vehicles. Smart H&U already has a promising pipeline of projects and continues to strengthen it.

The eef's Technical Assistance Facility (TAF) has gone from strength to strength since launch. Developed from the experience gained from managing the European Commission's TAF, the new TAF provides public beneficiaries with the necessary consultancy services to complete technical feasibility studies, energy audits and financial evaluations in a timely manner, with the aim to publish public tenders for the work after only a 12-month period from signing the TA contract with the Fund. The aim of this approach is to realise projects as quickly as possible. To date, there are four beneficiaries of the facility across three member states with a combined total project volume of circa EUR 70 m. Two new public entities entered into the facility in 2018. First is the Kaunas District Municipality Administration (Kaunas) in Lithuania – a key achievement for the Fund, as it is its first activity in Eastern Europe. Kaunas' project is to upgrade public lighting throughout a number of small municipalities. The second is the Italian Ministry of Defence, with a project to refurbish the Ducal Palace of Modena. The Ducal Palace of Modena is one of the most important historical public buildings in Italy and further demonstrates the vast variety of public entities the eef is able to engage with to ensure the preservation of historic buildings. The existing TAF projects (city of Gijón, Spain, and the Province of Ferrara) progressed well in 2018 with the completion of technical studies and plans in place to launch the public tenders early in 2019. The eef TAF is already demonstrating its ability to reduce the time frame for launching projects and hopes to maintain its catalytic abilities in 2019 through new projects.

The eef strives to provide ongoing support and appropriate financing options to public entities throughout the EU. Over the next years, the Fund aims to continue advancing sustainable energy for Europe through pioneering energy efficiency investments, implementation of new renewable energy generation capacities and the development of clean public transportation networks.



Georgie Debenham



Lada Strelnikova



Rahul Pratap Singh



Paola Rusconi



Iñigo Prior



Zarpana Signor



Pavel Atrofimovich

The eeeef IN 2018

1

Closed a forfaiting facility to finance the renovation of the street lighting infrastructure in the Alentejo region, Portugal.

2

Closed Illuminated Cities, a joint venture between the eeef and Siram S.p.A. to upgrade street-lighting in Italian municipalities.

3

Collaborated with Sinloc in a new joint venture to achieve smart hospitals and universities in Italy.

4

Signed the third eeef technical assistance beneficiary – the Italian Ministry of Defence.

5

Onboarded the Kaunas District Municipality as the fourth public authority joining the eeef to collaborate on the eeef Technical Assistance Facility.



Sector:
*Street lighting/
energy efficiency/
building retrofit*



Introduction to the eeff's approach to innovative and portfolio financing

To meet the EU's ambitious climate mitigation targets, a variety of stakeholders need to take action to ensure relevant energy efficiency projects are implemented. While it is undeniable that large impact can be achieved via large individual projects, the aggregation of smaller projects can be just as (if not more) impactful to globally reduce public spending and mitigate carbon emissions. In 2018, the eeff set up a number of innovative financing models, which facilitate such investments and pool them into single sustainable projects.

These approaches provide viable solutions to upgrade public infrastructure in smaller communities, through public-private partnerships between public authorities and reliable third parties from the private sector, with a particular focus on energy service companies (ESCOs). In 2018, the eeff provided financing to three flagship initiatives through different financing structures including two joint ventures and one forfaiting agreement. For each project, the Fund partnered with key industry players and/or ESCO companies who are able to apply for public tenders and then have liquidity to fulfil awarded public tenders. The aggregated approach reduces financing and project costs for all parties, resulting in a sustainable solution.

Complimentarily, the eeff – via its own technical assistance facility (TAF), which received partial funding from ELENA as part of the Horizon 2020 programme – is able to support public entities in bringing potential energy efficiency projects to fruition. The eeff TAF provides public beneficiaries with the necessary consultancy services to launch public tenders. The eeff drew upon its previous experience of managing the EC's technical assistance facility when designing this programme. The TAF is supporting a number of beneficiaries in realising aggregate portfolio projects.

The projects supported by the eeff are screened to ensure positive and tangible impacts, including decreased public spending due to reduced energy consumption, which contributes to primary energy and CO₂e savings. Furthermore, improvements to public infrastructure will enable local end users to access state-of-the-art technology and transform even small communities into smart environments.

The eeff investments closed in 2018 (Illuminated Cities Italy, Smart Hospitals and Universities Italy and CIMAC Portugal) are expected to influence over 15 communities by the end of the investment phase through the renovation of public assets with front-end applications and to scale up to the circle of European smart communities.

Italy Illuminated Cities

Project Profile

Città Illuminate S.r.l. (Illuminated Cities) is the holding company for the joint venture (JV) between the eef and Siram by Veolia and targets a portfolio of street lighting projects in Italy, mainly benefitting small to medium-sized municipalities. The newly established JV will enable public entities to implement technically advanced solutions known as smart lampposts and enable the integration of additional services within the street-lighting infrastructure, including the instalment of LEDs, remote control management systems, video surveillance, Wi-Fi and charging stations for electric vehicles. Projects such as these will facilitate more liveable cities while lowering rates of energy consumption. The eef is the main investor in the JV, while Siram acts as the industrial partner and full contractor for each project's commissioning and operation.

The first project in the portfolio is located in the municipality of Rozzano, in the metropolitan area of Milan, with an investment volume of circa EUR 3.5 m. Supported by Illuminated Cities, Rozzano has joined other European smart cities by adopting state-of-the-art technology, which is integrated into the street lighting infrastructure across the whole city. In addition to all of the aforementioned upsides, the project will result in the municipality of Rozzano receiving estimated energy savings in the region of 77% compared to baseline, with a corresponding impact on the municipality's electricity bill. More generally, primary energy savings are expected to be 56% for the entire portfolio when compared to baseline.

Project Partner

Siram Group is the Italian branch of Veolia Environment S.A., developing technologically advanced projects to deliver energy efficiency and reduce fuel consumption and pollutant emissions. The Group has been offering excellence in terms of energy efficiency and technological multi-service for over 100 years, placing itself as a leader especially in the public sector segment. Siram, with 3,000 employ-

ees, delivers highly innovative projects and provides energy planning solutions for urban communities, based on environmentally conscious approaches. The parent company Veolia is the world leader in optimised management of environmental resources, headquartered in Paris with operations on five continents and in 48 countries. Veolia employs around 169,000 people in the two hemispheres, both in the public and the private sector.

Highlights

The JV will support small communities in reducing costs whilst improving and expanding services offered to their citizens and cutting primary energy and carbon consumption. Implemented and proposed measures follow a full smart city approach, where lighting integrates multiple services, thus not limiting the upgrade to only LED technology but also including other applications such as video surveillance and Wi-Fi. In 2018, the eef made its first investment through Illuminated Cities of circa EUR 3.5 m.

The JV has been designed with innovative features to allow, in the frame of public private partnerships, a project finance approach even for projects of limited size, often considered beyond the scope of traditional project financing, while significantly lowering the structuring costs. Through such aggregation, the eef addresses one of the key challenges of financing energy efficiency projects of low investment volume.



Sector:
Street lighting

Key figures

Type of investment: Junior funds (equity and shareholder loan)	Total project size (€m): 20.0	Maturity 15 years
Financial close: 27.09.2018	eef investment size (€m): 16.0	Estimated tCO ₂ e emission savings (p.a.): 3,245
		Estimated MWh primary energy savings (p.a.): 22,380



Sector:
Energy efficiency/
building retrofit



Italy Smart Hospitals & Universities

Project Profile

The eeff and Sinloc have launched a joint venture (JV), which will contribute to enhancing energy efficiency in the healthcare and education sectors. The partnership takes the name Smart Hospitals and Universities (Smart H&U) and targets a portfolio of investments in public hospitals and universities distributed across Italy. These facilities will scale up their energy efficiency profiles as well as the level of services provided to the end users. Patients, students and staff will benefit from modernised infrastructures, including state-of-the-art building automation, heating and cooling systems, smart illumination and clean energy systems.

On average, it is estimated that primary energy and carbon savings will equate to at least 46% compared to baseline and the energy performance of each facility will increase due to the installed energy efficiency measures suitable for smart buildings.

Sinloc and the eeff will pool together smaller projects and inject a total of EUR 15 m risk capital in special purpose vehicles. Projects will be awarded by each grantor after a public call for tender and will each have a signed concession. Smart H&U already has a promising pipeline of projects and continues to strengthen it.

Project Partner

Sinloc is an Italian consulting and investment company that promotes the development of local public infrastructure through advisory services, feasibility studies and direct investments in public-private partnerships (concessions, project financing etc.). Sinloc's shareholders comprise 10 Italian banking foundations, and the company's equity holding exceeds EUR 50 m, mostly invested in infrastructure and local development initiatives. For further information about Sinloc, visit www.sinloc.com/en/Highlights.

This JV is a pioneering initiative that aims to prove that the healthcare and education sectors, in many European countries, have enormous market potential for energy efficiency upgrades, which perfectly triangulates the interests of the public, industrial and financial sectors.

Smart H&U materialises a new financing approach from the eeff that promotes the aggregation of smaller projects to offer access to finance. It also highlights the role of healthcare and education facilities in leading by example to deliver energy efficient, liable and smart public infrastructure to local communities.

Key figures

Type of investment: Junior funds (equity and shareholder loan)	Total project size (€m): 22.0	Maturity 12 years
Financial close: 21.12.2018	eeef investment size (€m): 7.0	Estimated tCO ₂ e emission savings (p.a.): 8,292
		Estimated MWh primary energy savings (p.a.): 64,616

Portugal CIMAC

André Espenica, First Secretary of CIMAC, commented at the end of the EC TA project:

The eeff was very important for CIMAC in order to demonstrate to the decision makers that this was not a change driven by impulse but rather a sustainable project in which we would improve the service level, the quality of the material and the relation that each municipality has with public lighting, along with achieving huge economic and environmental savings. CIMAC municipalities will be able to make a change in a couple of years (i.e. after planning and construction) that would have taken more than a decade to achieve otherwise.'

Project Profile

The eeff entered into a 12-year forfaiting facility of EUR 12 m with I-Quattro Lda. (I-Quattro) to implement its first aggregated street lightning infrastructure transaction, with the mission to upgrade over 56,000 luminaires within 14 municipalities represented by Comunidade Intermunicipal do Alentejo Central (CIMAC). CIMAC is located in the Alentejo Central Region in Portugal and represents a combined population of approx. 167,000 inhabitants.

Following the receipt of funding from the European Commission Technical Assistance Facility (EC TAF), CIMAC launched a public tender that proposes to renovate 56,354 luminaires across the underlying municipalities. In February 2018, the concession

was awarded to I-Quattro, an energy service company (ESCO). The renovation works will be implemented across the 14 municipalities comprising CIMAC, including the UNESCO World Heritage site of Évora. The project is estimated to realise 74% in primary energy savings and carbon savings annually compared to baseline consumption. Furthermore, it will result in EUR 7.1 m in economic savings for the municipality over the 12-year concession.

Project Partner

I-Quattro is a special purpose vehicle owned by Isete and by FomentEfficiency. I-Quattro has developed an impressive track record for lighting contracts over the past 12 years. FomentEfficiency holds the majority share of the Fomentinvest Group, which specialises in innovative and competitive energy efficiency solutions.

Highlights

The EC TAF previously managed by the eeff was instrumental in supporting CIMAC with the feasibility studies that resulted in aggregating numerous smaller projects into a single sizeable project.

The signing of the facility agreement with I-Quattro exemplifies the successful implementation of the eeff's strategy, from project development to financing.



Key figures

Type of investment:	Forfaiting facility	Total project size (€m):	16.6	Maturity	12 years
Financial close:	27.12.2018	eeef investment size (€m):	12.1	Estimated tCO ₂ e emission savings (p.a.):	5,516

The EU's evolving energy efficiency market

ACEEE's International Energy Efficiency Scorecard for 2018 quoted that the energy efficiency (EE) market has the potential to become the single largest resource to meet the increasing global energy demand. Shifting towards an energy efficient economy is deemed to be one of the most economical ways to preserve energy resources, with the potential not only to reduce energy bills but also to enhance a country's self-sufficiency in terms of energy by reducing energy imports.

During 2017, EE investments grew globally by 3% to a total expenditure of USD 236 bn (IEA 2018). As in previous years, Europe continued to deploy the most funds for EE investments (ca. USD 80 bn), followed by China and North America. The majority of investments (60%) were into the building sector via the renovation of existing building stock, followed by 26% of investments into the transport sector.

Evidence shows that global investments into the EE sector are growing year on year (y-o-y) and having a positive impact on global energy reduction (12% energy savings compared to baseline between 2000 and 2017). However, between 2014 and 2017, the increase in economic activities resulted in a net global energy consumption increase, outweighing the positive impact from EE measures.

A similar trend was observed within the context of the European Union, due to economic growth, increasing wealth, lifestyle changes and delays in policy implementation. However, on a more positive note, increases in primary energy consumption have been smaller than the increase in GDP growth – showing that the movement to a more sustainable European economy is progressing. The latest European Commission's annual report to the European Parliament and the Council¹ concluded that during 2014–2017, the primary energy intensity reduced in all member states except for Belgium, Greece, Italy, Hungary, Austria and Portugal compared to 2014. Overall, the EU's final energy consumption has reduced by 5.9% since 2005.

Recently, the European Parliament and the Council of the EU revised the Energy Efficiency Directive (EED) for 2030, which targets 32.5% energy savings. The directive reiterates the importance of EE as a driver to achieve the 2030 climate targets

and the EU's contribution to the Paris Agreement. Having fallen short of the targeted savings for 2018, the EU needs to intensify efforts and take measures that continue to deliver energy savings in the next decade. Collective results from 2018 demonstrate that the EU has made substantial progress in achieving energy savings, though the progress is not uniform across all member states.

According to the latest European Commission's annual report, until 2017, 17 of the 28 member states managed to reduce or keep their final energy consumption level below values required to reach 2020 targets; however, a number of countries did not deliver, including Belgium, Bulgaria, Germany, Estonia, France, Lithuania, Hungary, Austria, Poland, Slovakia and Sweden. In terms of maturity, Germany and France are among the more mature and developed EE markets, followed by the United Kingdom, Spain, the Netherlands, Italy, Belgium and Denmark, which are catching up, while all the remaining member states, especially those in Eastern Europe, still have immature EE markets.

The European Commission (EC)² recently published that approximately one-third of the energy savings during 2014–2016 were achieved through energy efficiency obligation schemes, energy/CO₂ taxes and financing/fiscal schemes. Notably, only a minor proportion of energy savings is due to the deployment of national funds. These statistics only further emphasise the need to disseminate information and best practice among member states as plans (e.g. national energy efficiency action plans) are put in place to prepare to meet the 2030 targets. For member states with developed EE markets, targeted actions are needed to remove regulatory/other barriers towards energy performance contracting (EPC) in the public sector with regards to purchasing, annual budgeting and accounting.



'Our results show that all countries would benefit from adopting additional energy efficiency policies,' said Steve Nadel, ACEEE's executive director. 'These policies will reduce dependence on energy imports, create jobs, cut pollution and save people and businesses money. They will also help countries remain globally competitive and meet climate goals,' Nadel said, noting that global energy demand is projected to grow 30% by 2040.

The Eurostat guidance issued in 2015 severely limited the promotion of EE projects in the public sector (including public buildings) due to the direct implications of public debt limits. It required that capital expenditures (CAPEX) for EE projects under EPC agreements needed to be over 50% of the total value of the building post-investment to qualify the EPC as a public-private partnership (PPP), else the CAPEX added to the public debt. During 2017, this Eurostat guidance was revised to remove barriers to EE investment in the public sector. The new guidelines should encourage the wider use of EPCs and support the faster development of EE markets across member states.

The private sector players such as energy service companies (ESCOs) need to act as catalysts to unlock significant energy cost reductions. ESCOs have been able to overcome various local market barriers and transform financial restrictions into

opportunities, as they are able to assume performance risks under EPC models by linking compensation to energy performance, thus incentivising a savings oriented approach. Over the last decade, the average ESCO volume in the EU has risen steadily. The total EU market is forecasted to reach USD 3.1 bn ESCO revenues in 2024 (from USD 2.7 bn in 2015), representing a 1.7% compound annual growth rate. According to the EC Joint Research Center,³ the EU ESCO market will continue to grow driven by demand for capital, which will in turn overcome regulatory/policy pressures and challenges around deferred maintenance.

1 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:224:FIN>

2 <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC106624/kjna28716enn.pdf>

3 <http://publications.jrc.ec.europa.eu/repository/bitstream/JRC106624/kjna28716enn.pdf>

THE EUROPEAN ENERGY EFFICIENCY FUND AT A GLANCE

'While we've made enormous progress in 25 years, the world is still running behind climate change. Today, the urgency to address climate change has never been greater. We have the Paris Agreement, and we have the guidelines strengthening that agreement. What we need now are results.'

Patricia Espinosa, UN Climate Change Executive Secretary

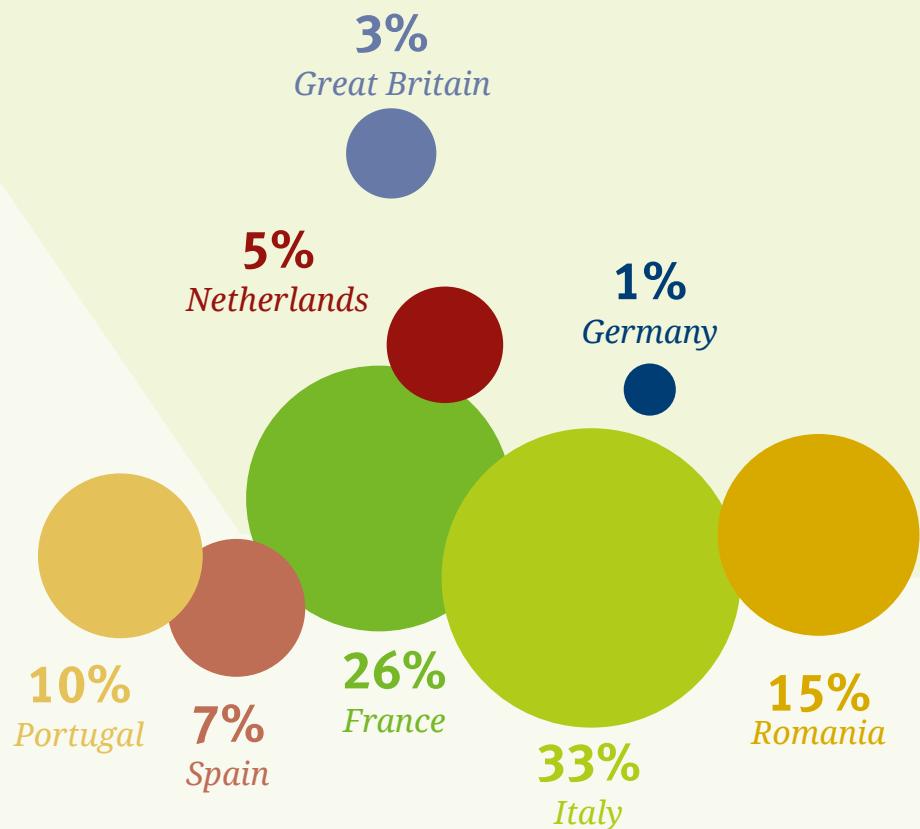
90

*months' development
of the eef since inception*

The mission

The eeff's mission is to contribute to advancing sustainable energy for Europe, in the form of a public-private partnership (PPP) with a layered risk/return structure, to enhance energy efficiency and foster renewable energy within the European Union, primarily through the provision of dedicated financing to municipal, local, regional or national authorities or public or private entities acting on their behalf. Financing is generally provided directly or through partnerships with financial institutions.

Investments by country*

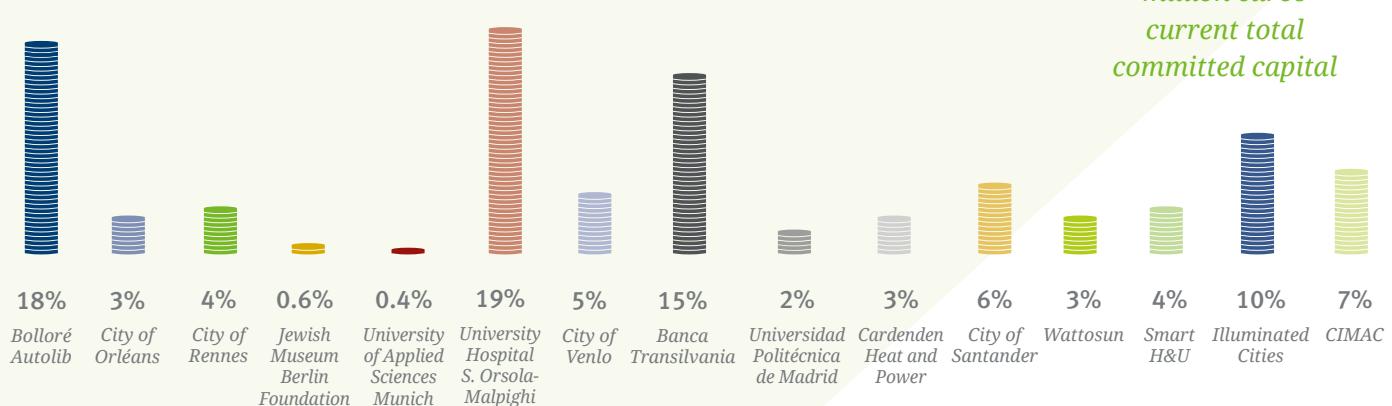


*Based on commitments signed to projects, not including repayments or accrued interest.

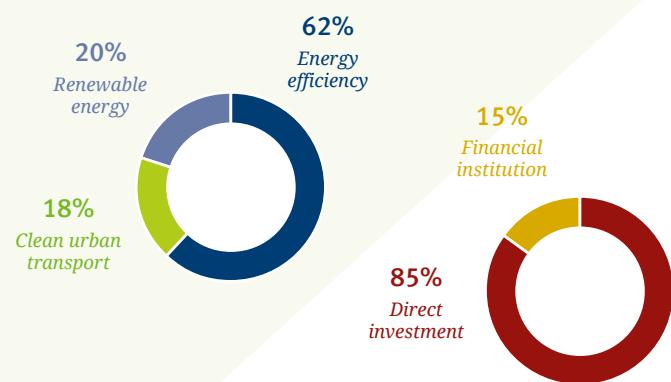


166
million euros
current total
committed capital

Investments by partner institution*



Investments by type of partner institution*



Investments by financial instrument



* Based on commitments signed to projects, not including repayments or accrued interest. Matured investments not included.

The framework will help to:

- Provide affordable energy
- Increase the security of the EU's energy supplies
- Reduce dependence on energy imports
- Create opportunities for growth and enhance environmental and health conditions

The eeff's objectives

The eeff aims to support the climate goals of the European Union (EU 2030 Framework for Climate and Energy) to promote a sustainable energy market and foster climate protection by:

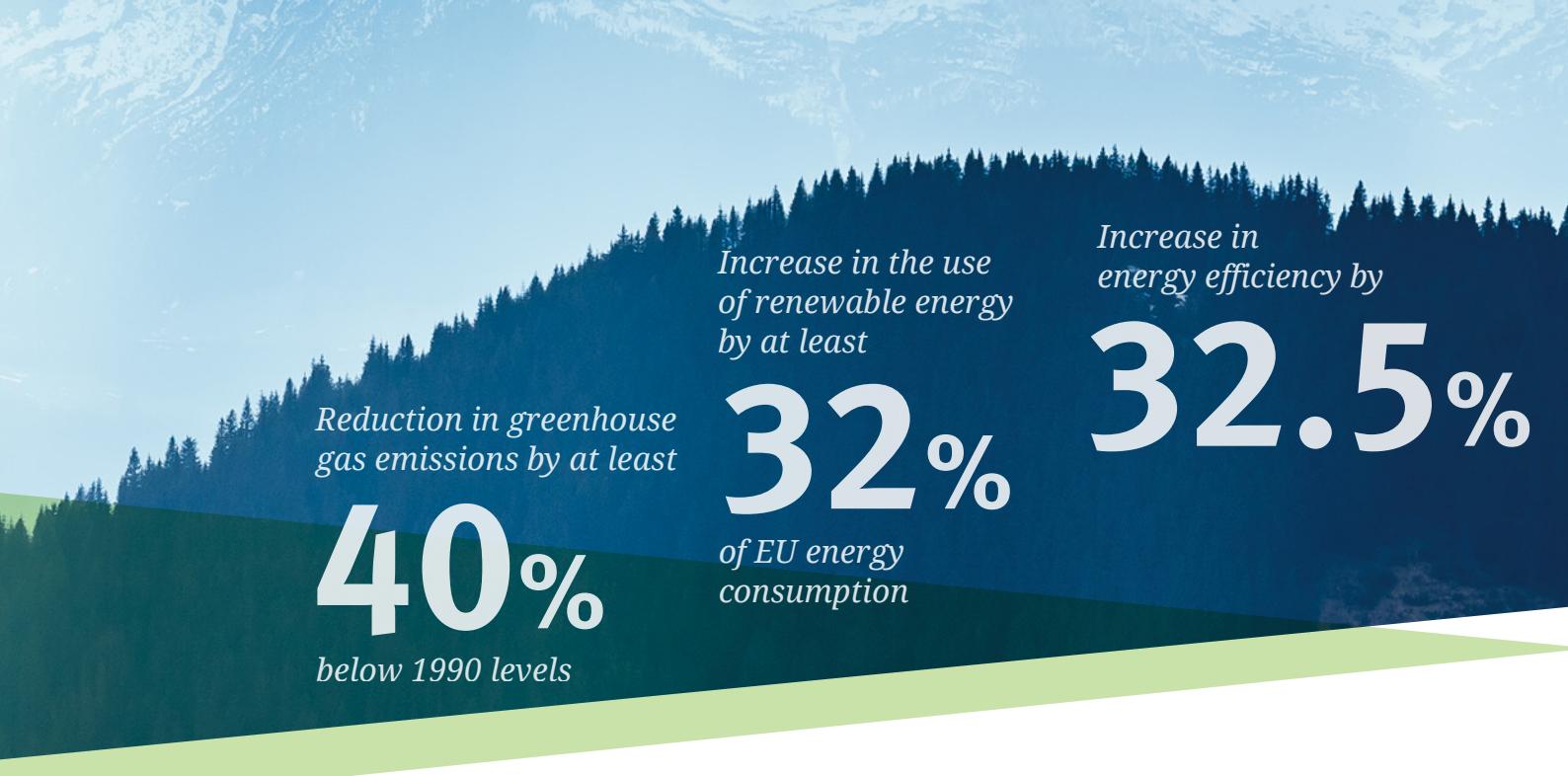
- Contributing to the mitigation of climate change
- Achieving economic sustainability for the Fund
- Attracting private and public capital for climate financing

The Fund's set-up

The Supervisory Board represents the Fund's shareholders. It provides permanent supervision of the management of the Fund and provides strategic advice to the Management Board on the overall development of the Fund's activities. It is appointed at the General Meeting of Shareholders.

The Management Board acts on behalf of the Fund, oversees its activities and is responsible for strategic decisions. It is the legal representative of the Fund. In compliance with the eeff's founding documents and applicable laws and regulations, it has the power to administer and manage the Fund.

The Investment Manager conducts the Fund's business on behalf of the Management Board and the Investment Committee. The Investment Manager also manages the eeff TAF at arm's length. Previously, the Investment Manager also managed the European Commission Technical Assistance Facility.



*Reduction in greenhouse
gas emissions by at least*

40%

below 1990 levels

*Increase in the use
of renewable energy
by at least*

32%

*of EU energy
consumption*

*Increase in
energy efficiency by*

32.5%

The eeff's **business proposal**

If you are a

developing a project in

with these features

**the eeff can support your
project, providing**

Public entity

... similar to the
city of Venlo (NL),
the Ore Valley Housing
Association (UK) ...

**Private company liaising
with a public entity**

... similar to Manutencoop
(IT), Enertika (ES),
Bolloré (FR), EDF Group
(FR), Johnson Controls
(DE) ...

**Financial institution
financing the above**

... similar to Banca
Transilvania (RO) ...

Renewable energy

As we have done with:
the city of Orléans/Rennes
(FR), the Ore Valley Hous-
ing Association (UK)

Energy efficiency

As we have done with:
the city of Venlo (NL),
the SPL – Région Rhône-
Alpes (FR), University
Hospital S. Orsola-
Malpighi (IT), Universidad
Politécnica de Madrid
(ES), Banca Transilvania
(RO), Jewish Museum
Berlin Foundation (DE),
University of Applied
Sciences Munich (DE),
the Ore Valley Housing
Association (UK)

Clean urban transport

As we have done with:
Bolloré – Paris, Lyon,
Bordeaux (FR)

**Avoiding CO₂e emissions
to at least 20% of baseline**

**Looking for funding in a
(flexible) range between
EUR 5 and EUR 25 m**

**In one of the
28 EU countries**

TAILOR-MADE FUNDING:

Debt

E.g. the city of Venlo (NL),
Bolloré (FR),
the Ore Valley Housing
Association (UK),
University Hospital
S. Orsola-Malpighi (IT)

Equity

E.g. the city of Rennes (FR),
the city of Orléans (FR)

Mezzanine

E.g. Banca Transilvania (RO)

Forfaiting structures

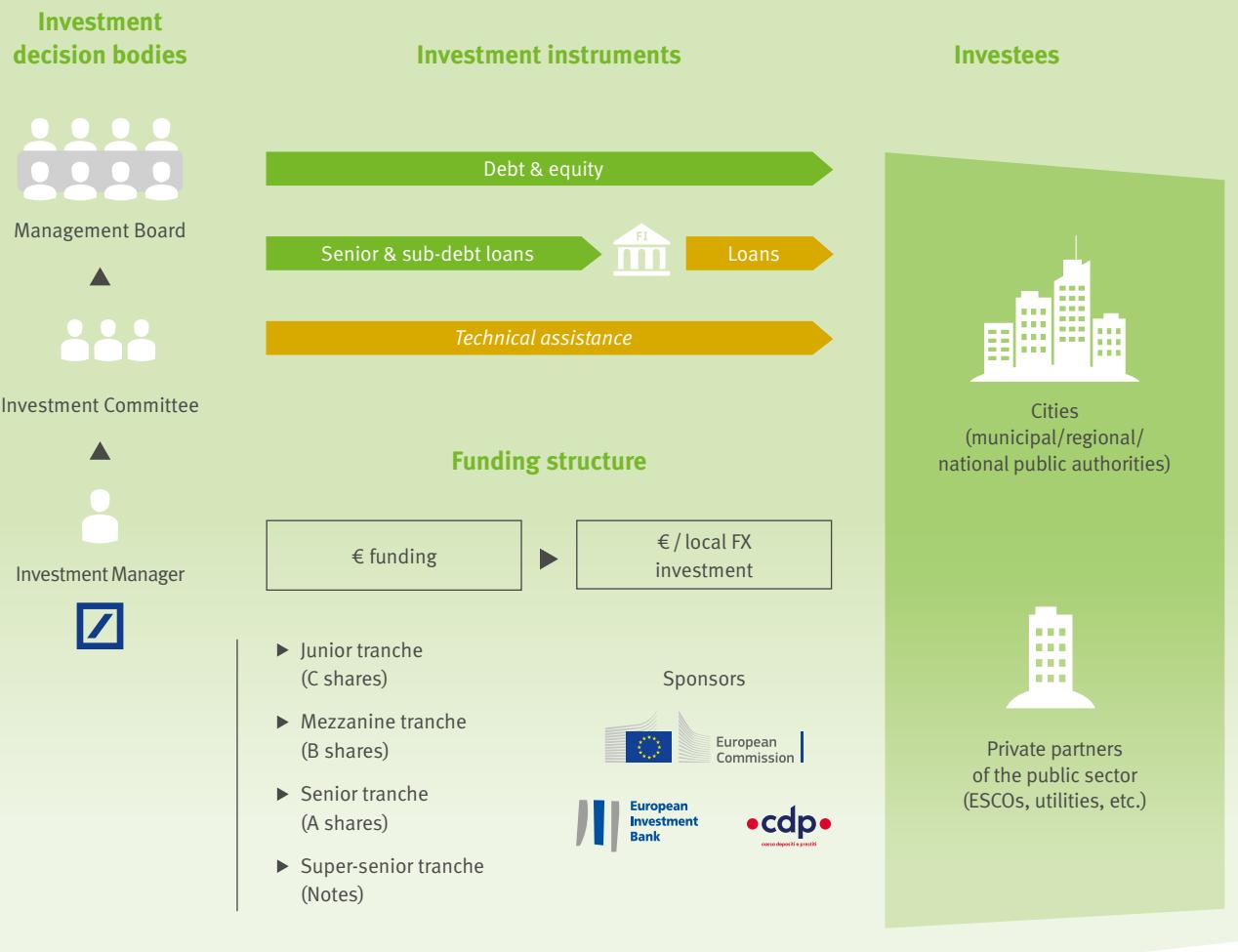
E.g. Universidad de
Politécnica de Madrid (ES)

TECHNICAL ASSISTANCE:

Closed EU TAF –
16 public authorities
across Europe

New eeff TAF launched
Four TA beneficiary
contracts signed

Investment structure



The Investment Manager proposes potential new investment in line with the eef's eligibility criteria to the Investment Committee. Upon positive feedback, the Investment Committee recommends the potential investment to the Management Board. The Management Board takes the final decision on the investment.

The investees of the eef are municipal, local and regional authorities or public and private entities acting on behalf of those authorities, such as utilities, public transportation providers, social housing associations, energy service companies (ESCOs), etc. Funding can be provided in euros and in certain cases also in local currencies.

*Partnership dedicated
to mitigating climate change*

Development of the eeff since inception

2011

July

- The eeff is created and capitalised by the initiators EC and EIB and the founding investors CdP and DB

2012

January

- Operational and procedural set-up of the Fund is finalised

March

- The Jewish Museum Berlin Foundation joins the eeff as its first partner institution via the ESCO Johnson Controls

November

- Financing of building retrofit project at the University of Applied Sciences Munich via the ESCO Johnson Controls

December

- The city of Santander cooperates with the eeff to receive technical assistance from the EC TAF

2013

May

- Financing of energy efficiency upgrade of the University Hospital S. Orsola-Malpighi in Italy
- The city of Córdoba benefits from the EC TAF

June

- The eeff achieves financial close on its first equity investment, the city of Orléans' CHP plant in France
- La Palma benefits from the EC TAF

September

- The eeff enters into a green on-lending facility with Banca Transilvania in Romania

November

- The municipality of Ringkøbing-Skjern signs a technical assistance agreement
- The Ore Valley Housing Association, Scotland, and the region of Rhône-Alpes benefit from the EC TAF

December

- The eeff achieves financial close for its second equity investment, the city of Rennes' CHP plant
- The eeff closes its first clean urban transport with Bolloré, France
- The cities of Marbella, Terrassa and Elche cooperate with the eeff via the EC TAF

► Investment activity

► Fund operations

► TA activity

2014

April

- ▶ Financial close for street lighting upgrade project with the city of Venlo
- ▶ The eef achieves financial close for a senior financing facility for the Société Publique Locale d'Efficacité Énergétique (SPL) in the Région Rhône-Alpes

June

- ▶ The University Hospital of Liège and the University of Liège sign a technical assistance agreement via the EC TAF

July

- ▶ The Limerick and Clare Education and Training Board benefits from the EC TAF

August

- ▶ GRE-Liège cooperates with the eef on technical assistance via the EC TAF

September

- ▶ Alentejo Central signs a technical assistance agreement via the EC TAF

December

- ▶ The municipality of Zaanstad and the Roscommon County Council benefit from the EC TAF

2015

January

- ▶ Irish education minister Jan O'Sullivan launches a technical assistance project with the Limerick and Clare Education and Training Board in Ireland

September

- ▶ The eef sponsors the Smart Countries and Smart Cities Congress 2015 in Paris
- ▶ The eef's University Hospital S. Orsola-Malpighi transaction wins the CESEF Energy Efficiency Award

November

- ▶ The eef closes its first transaction in Spain in cooperation with Universidad Politécnica de Madrid

December

- ▶ The eef fully disburses financing to the Société Publique Locale d'Efficacité Énergétique (SPL), which has launched 10 refurbishment programmes for buildings with four different local authorities in the Région Rhône-Alpes in France
- ▶ The eef fully deploys the construction phase financing of the energy efficiency upgrade to the University Hospital S. Orsola-Malpighi in Italy

2016

April

- ▶ The eef joins the Investor Confidence Project Europe to boost investments in the energy efficiency sector

June

- ▶ The eef cooperates with ADHAC, the business association for the promotion of sustainable district heating and cooling networks, in Spain

September

- ▶ The eef deploys final EC TA amount to the city of Santander in preparation for a pioneer PPP contract for the street lighting upgrade in Spain

November

- ▶ The eef closes its first community-based transaction in the UK in cooperation with the Ore Valley Housing Association and the Renewable Energy Investment Fund (Scotland)

December

- ▶ The eef initiates the Fund's own technical assistance scheme, the eef TAF

▶ Investment activity ▶ Fund operations ▶ TA activity

2017

2018

February

- ▶ The SPL OSER in the Région Rhône-Alpes delivers investments facilitated by the EC TAF of the eeff, combining market-based funding

May

- ▶ Gijón becomes the first city to join the eeff to collaborate on the new eeff TAF
- ▶ First-time award to a Belgian energy retrofit project is won by RenoWatt, Best Energy Project 2017 attributed by the EC and the Berliner Energieagentur – project facilitated by the eeff via the EC TAF

July

- ▶ Europe's smart city Santander starts the implementation of the street lighting infrastructure upgrade facilitated by initial technical assistance from the EC TAF
- ▶ The Province of Ferrara is the second public authority joining the eeff to collaborate on the new eeff TAF

October

- ▶ ISOM completes its award-winning energy efficiency upgrade of the Italian hospital S. Orsola-Malpighi

December

- ▶ The eeff signs a MoU in Portugal for small-scale PV installations across seven municipalities' public buildings

February

- ▶ Three projects complete the final stage under European Commission technical assistance managed by the eeff successfully, including the Spanish cities of Terrassa and Marbella as well as the Portuguese public authority Alentejo Central

March

- ▶ The Italian Ministry of Defence collaborates with the eeff TAF to refurbish the Ducal Palace of Modena

October

- ▶ The eeff and Siram become partners to advance smart cities in Italy via a new joint venture

December

- ▶ The eeff and Sinloc collaborate towards Smart Hospitals and Universities in Italy via a new joint venture
- ▶ The eeff and CIMAC via I-Quattro enter into a forfaiting agreement to upgrade the street lighting infrastructure in 14 municipalities

2018 ACTIVITIES REPORT: **INVESTMENTS**

170.5

*million euros committed by the eeef
since inception*

The eeff's investments

Since its inception, the eeff has invested a total of EUR 170.5 m in 16 partner institutions, of which EUR 127 m have so far been disbursed.

Germany (Berlin, Munich)

€1.6m

- **€1.0 m** forfaiting loan to the Jewish Museum Berlin Foundation via the ESCO of Johnson Controls
- **€0.6 m** forfaiting loan to the University of Applied Sciences via the ESCO of Johnson Controls

Italy (Bologna, Northern Italy)

€54.8m

- **€31.8 m** senior loan and VAT facility to Progetto ISOM for the upgrade of the University Hospital S. Orsola-Malpighi
- **€16.0 m** equity investment in the JV Illuminated Cities with Siram by Veolia for a portfolio of investments (EE: smart public lighting)
- **€7.0 m** equity investment in the JV Smart Hospitals & Universities with Sinloc for a portfolio of investments

Spain (Madrid, Santander)

€11.7m

- **€2.5 m** forfaiting loan to the Universidad Politécnica de Madrid via Enertika
- **€9.2 m** forfaiting loan to the city of Santander to upgrade existing street lighting

France (Orléans, Rennes, Paris, Lyon, Bordeaux, Rhône-Alpes)

€42.4m

- **€5.1 m** shareholder loan and equity for the city of Orléans' CHP plant
- **€7.3 m** shareholder loan and equity for the city of Rennes' CHP plant
- **€30.0 m** senior debt to Bolloré

€5.0 m senior debt to the Société Publique Locale d'Efficacité Énergétique (SPL) in the Région Rhône-Alpes (matured)

Romania (various locations inc. Cluj-Napoca, Bucharest)

€25.0m

- Subordinated loan to Banca Transilvania for on-lending into energy efficiency and renewable energy projects

United Kingdom (Cardenden, Scotland)

€4.3m

- Senior debt facility to the Ore Valley Housing Association via the SPV Cardenden Heat and Power

Portugal (Lisbon, Alentejo region)

€17.2m

- **€5.1 m** junior funds to be invested in the installation of solar panels
- **€12.1 m** forfaiting facility to CIMAC I-Quattro to upgrade existing street lighting

Netherlands (Venlo)

€8.5m

- Senior debt facility to the city of Venlo

Investment locations



France Bolloré

The French company Bolloré, a provider of car-sharing services for electric cars, signed a bond agreement worth EUR 30 m with the eef in 2013. The investment financed electric cars and the infrastructure (i.e. charging stations, rental places, etc.) required for Bolloré's European electric car rental concessions.

The project, which provides cities with environmentally friendly electric cars, started in Paris and has subsequently been extended to Lyon and Bordeaux. The eef's bond has mainly been utilised in these regions. At the end of 2018, Bolloré had 4,000 cars and 6,500 charging stations installed across the locations where the eef's funding was utilised.



Sector:
*Clean urban
transport*

Key figures

Type of investment:	Senior debt	Total project size (€m):	30.0	Maturity	5 years
Financial close:	23.12.2013	eef investment size (€m):	30.0	Estimated tCO ₂ e emission savings (p.a.):	8,658

France City of Orléans



The operating combined heat and power (CHP) plant has an installed capacity of 7.5 MW in electricity and 17 MW in thermal heat. The plant supplies heat to the city of Orléans and sells electricity via a power purchase agreement (PPA) to Électricité de France (EDF). Orléans Biomasse Énergie, the project's special purpose vehicle (SPV), is majority owned by the eef (purchase of 84.4% of its shares). This project was the first equity investment by the Fund.

The project enables a decentralised energy supply for the city of Orléans using an existing district heating network. The plant, which is fired by wood biomass from a regional source, allows 15,000 households in the city to achieve annual savings of around EUR 200 each with the new energy source and increases the environmental sustainability.

Key figures

Type of investment:		Total project size (€m):	36.0	Maturity	Perpetual
Equity and shareholder loan		eef investment size (€m):	5.1	Observed tCO ₂ e emission savings (p.a.):	15,294
Financial close:	12.03.2013				

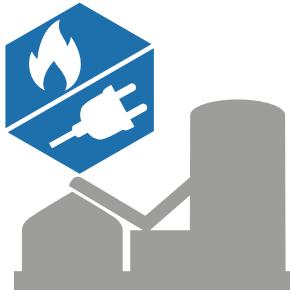
France City of Rennes

Following a bid for tenders launched by the French Commission de Régulation de l'Énergie (CRE3) for the production of green energy using a biomass cogeneration plant, Rennes Biomasse Énergie SAS was authorised to build and operate a combined heat and power facility with an electrical output of 10.4 MW and a thermal output of 22 MW for the next 20 years. Rennes Biomass Énergie, the project SPV, is majority owned by the eef (purchase of 85% of its shares). This was the second equity investment signed by the eef.

The project enables a decentralised energy supply for the city of Rennes using an existing district network. The plant enables 21,000 households in the city both to save money with the new energy source and to increase their environmental sustainability. The project generates sustainable heat aligned with offtake requirements and, due to the biomass fuel, achieves significant carbon savings compared to baseline.

Key figures

Type of investment:	Total project size (€m):	47.6	Maturity	Perpetual
Equity and shareholder loan	eef investment size (€m):	7.3	Observed tCO ₂ e emission savings (p.a.):	11,592
Financial close:	12.12.2013			



Sector:
*Renewable energy/
biomass CHP*

Germany

Jewish Museum Berlin Foundation

The Jewish Museum Berlin and the energy service company (ESCO) Johnson Controls entered into an energy performance contract (EPC) for the museum buildings in 2012. The eeff's initial investment totalled EUR 1.7 m. In 2015, the project scope was revised and consequently the eeff's investment size was reduced to EUR 1.0 m.



Key figures

Type of investment:	Forfaiting loan	Total project size (€m):	1.4	Maturity	10 years
Financial close:	20.03.2012	eeef investment size (€m):	1.0	Actual tCO ₂ e emission savings (p.a.):	2,936

The project includes a number of energy efficiency measures, including the optimisation of the heating, ventilation and air conditioning and an efficient energy management system. The first energy audit for the project was completed in 2017 and 2018 annual primary energy savings equated to 3,856 MWh.

This years' audit identifies that the project is achieving increased savings compared to last year due to full and consistent operations. Primary energy savings in 2018 equated to 12,872 MWh.

Sector:
*Energy efficiency/
building retrofit*



Germany

University of Applied Sciences Munich

The University of Applied Sciences Munich and the energy service company (ESCO) Johnson Controls entered into an energy performance contract (EPC) for both of the buildings on the university's campus in Munich-Pasing, with a total EPC volume of EUR 1.1 m.

The ESCO and the university agreed to energy efficiency measures composed of the optimisation of the heating, lighting, metering, building management and pumping systems, as well as the installation of a 49.5 kW combined heat and power (CHP) plant. The project was implemented in 2013 and continues to achieve savings aligned with projections. In 2018, it achieved 1,768 MWh of primary energy savings compared to baseline, which is equivalent to 30%.



Sector:
*Energy efficiency/
building retrofit/
CHP plant*



Key figures

Type of investment:	Forfaiting loan	Total project size (€m):	1.1	Maturity	10 years
Financial close:	15.11.2012	eeef investment size (€m):	0.6	Observed tCO ₂ e* emission savings (p.a.):	148

* The University of Applied Sciences purchases a renewable energy electricity blend; impacting the actual observed carbon savings.



Sector:
Street lighting



Italy Illuminated Cities

Città Illuminate S.r.l. (Illuminated Cities) is the holding company for the joint venture (JV) between the eeff and Siram by Veolia, targeting a portfolio of street lighting projects in Italy, mainly benefitting

small to medium-sized municipalities. The newly established joint venture will enable public entities to implement technically advanced solutions known as smart lampposts and enable the integration of multiple services within the street lighting infrastructure. These projects will enhance public infrastructure whilst reducing public energy consumption. This is thanks to measures including the instalment of LEDs, management systems, video, Wi-Fi and charging stations for electric vehicles. The eeff is the main investor in the JV, while Siram acts as the industrial partner and full contractor for each project's commissioning and operation.

Key figures

Type of investment: Junior funds (equity and shareholder loan)	Total project size (€m): 20.0	Maturity 15 years
	eeff investment size (€m): 16.0	Estimated tCO ₂ e emission savings (p.a.): 3,245
Financial close: 27.09.2018		

Italy Smart H&U

The eeff and Sinloc have launched a joint venture, which will contribute to enhancing energy efficiency in the healthcare and education sectors. The partnership takes the name Smart Hospitals and Universities (or Smart H&U) and targets a portfolio of investments in public hospitals and universities distributed across Italy. These facilities will scale up their energy efficiency profiles as well as the level of services provided to the end users. Patients, students and staff will benefit from modernised infrastructures, including state-of-the-art building automation, heating and cooling systems, smart illumination and clean energy systems.

On average, it is estimated that primary energy and carbon savings will improve by half and the energy performance of each facility will increase due to the installed energy efficiency measures.



Sinloc and the eeff will pool together smaller projects and inject a total of EUR 15 m risk capital in special purpose vehicles. Projects will be awarded by each grantor after a public call for tender and will each have a signed concession. Smart H&U already has a promising pipeline of projects and continues to strengthen it.

Key figures

Type of investment: Junior funds (equity and shareholder loan)	Total project size (€m): 22.0	Maturity 12 years
	eeff investment size (€m): 7.0	Estimated tCO ₂ e emission savings (p.a.): 8,292
Financial close: 21.12.2018		

Italy

University Hospital S. Orsola-Malpighi

► **Project video link:** www.eeef.lu/video-bologna.html

The project entity Progetto ISOM signed a concession agreement with the University Hospital S. Orsola-Malpighi, one of the biggest hospitals in Italy (1,758 beds). The eeef provided a project and VAT bond facility of EUR 31.8 m.

The project comprises a number of initiatives which improve the energy efficiency of the entire fluid production and distribution system and reduce energy consumption. Such measures include the adoption of energy-efficient equipment such as centrifugal chillers and absorbers, the reconstruction of the heat distribution networks, the renova-

tion of heat exchange substations and the inclusion of an underground tri-generation plant for the combined production of cooling, heat and power (CCHP), based on the energy consumption of the hospital facility, which is fuelled by methane gas.

In 2018, carbon savings were 32% compared to baseline, and primary energy savings were at 28%.

This upgrade of the entire energy system of the university hospital has been the biggest energy efficiency upgrade in Italy completed as part of a PPP.

Key figures

Type of investment:	Senior funds	Total project size (€m):	41.0	Maturity	20 years
Financial close:	08.05.2013	eeef investment size (€m):	31.8	Observed tCO ₂ e* emission savings (p.a.):	16,153

* Numbers based on contracted conversion factors.



Sector:
*Energy efficiency/upgrade
of entire energy system*





Netherlands City of Venlo

► Project video link: www.eeef.lu/video-venlo.html

The city of Venlo and the eeef signed a long-term financing contract for EUR 8.5 m. The city's existing public lighting is the biggest consumer of electricity on its electricity bill. The city therefore prioritised upgrading its street lighting in order to reduce its energy consumption and CO₂e emissions as well as to save costs for the public budget. By the end of 2018, 1,674 lighting poles were replaced and 17,169 luminaires were replaced with LED technology. The project is further proof of the city's commitment to achieving environmental sustainability.

This street lighting project is linked to preparation works resulting from technical assistance. Venlo benefitted from funding from the European Commission

Technical Assistance Facility (ECTAF). This enabled the city to tender and select the equipment manufacturer for the provision of the LED equipment.

Sector:
*Energy efficiency/
street lighting*



Key figures

Type of investment:	Senior debt	Total project size (€m):	9.1	Maturity	15 years
Financial close:	03.04.2014	eeef investment size (€m):	8.5	Observed tCO ₂ e emission savings (p.a.):	974

Portugal CIMAC

The eeff entered into a 12-year forfaiting facility of EUR 12 m with I-Quattro LDA (an ESCO company) to implement its first aggregated street lighting infrastructure transaction, with the mission to upgrade over 56,000 luminaires within 14 municipalities, including the UNESCO World Heritage site of Évora, represented by Comunidade Intermunicipal do Alentejo Central (CIMAC). The project will realise 74% in primary energy (of 40,655 MWh) and carbon savings (of 5,192 t CO₂e) annually compared to baseline consumption. Furthermore, it will result in EUR 7.1 m in economic savings for the municipalities over the 12-year concession.



Sector: *Street lighting*

In December 2018, I-Quattro signed a forfaiting facility with the eeff to fund EUR 12.14 m of the upfront costs for renovation. The facility will have been fully repaid within the concession period of 12 years.

Key figures

Type of investment:	Forfaiting facility	Total project size (€m):	16.6	Maturity	12 years
Financial close:	27.12.2018	eeff investment size (€m):	12.1	Estimated tCO ₂ e emission savings (p.a.):	5,516

Portugal Wattosun

The eeff signed a memorandum of understanding (MoU) with Wattosun, Portugal, for a EUR 5 m equity facility to finance a portfolio of self-consumption PV installations. The agreement encompasses seven subprojects estimating ca. 21,100 of 1.68 m² solar panels (PV). When compared to baseline (the Portuguese electricity grid), the combined subprojects should annually save 2,650 tonnes of CO₂ and 20,736 MWh of primary energy.

The electricity is for self-consumption and would provide municipalities, state-owned companies and other public authorities with a financially attractive and environmentally friendly way to lower effective

electricity costs and reduce their exposure to the volatile energy market.

Two different business models are being considered to attract public clients:

- UPAC model: the public entity receives electricity for self-consumption and in turn pays rent for the new PV set-up.
- UPP model: the small subproject owns the new PV set-up on public properties and receives a payment from the utility company for energy fed into the grid.

Currently, the Fund is evaluating individual self-consumption subprojects submitted by Wattosun that would deliver benefit to public authorities. The construction of the subprojects will be performed under a fixed-price turnkey energy performance contract (EPC) with a qualified EPC and operations and maintenance (O&M) partner. The selected O&M contractor will comply with all industry best practices and follow international standards. The subprojects are intended to have long-term tenors to ensure economic feasibility.



Key figures

Type of investment:	Junior funds (equity and shareholder loan)	Total project size (€m):	10.0	Maturity	15 years
Financial close:	29.12.2017	eeff investment size (€m):	5.1	Estimated tCO ₂ e emission savings (p.a.):	2,726

Romania Banca Transilvania

The eef provided Banca Transilvania (BT), one of the largest banks in Romania in terms of assets, a facility for a green on-lending programme to support energy efficiency and renewable energy investment, by the public sector in Romania. Via this investment, the eef has gained a strong local partner with a history of financing several energy efficiency projects and which has a solid footprint in financing SMEs. This cooperation is helping to strengthen the Romanian banking sector by providing financing to energy efficiency and small-scale renewable energy projects. BT is using eef funding to give financial support to public and private building owners, homeowner/condominium associations, municipalities, public sector entities and private sector companies acting on behalf of the public sector.

It is the first cooperation between the eef and a financial institution as well as being the first investment into Eastern Europe. The eef is supporting BT in sourcing and evaluating underlying



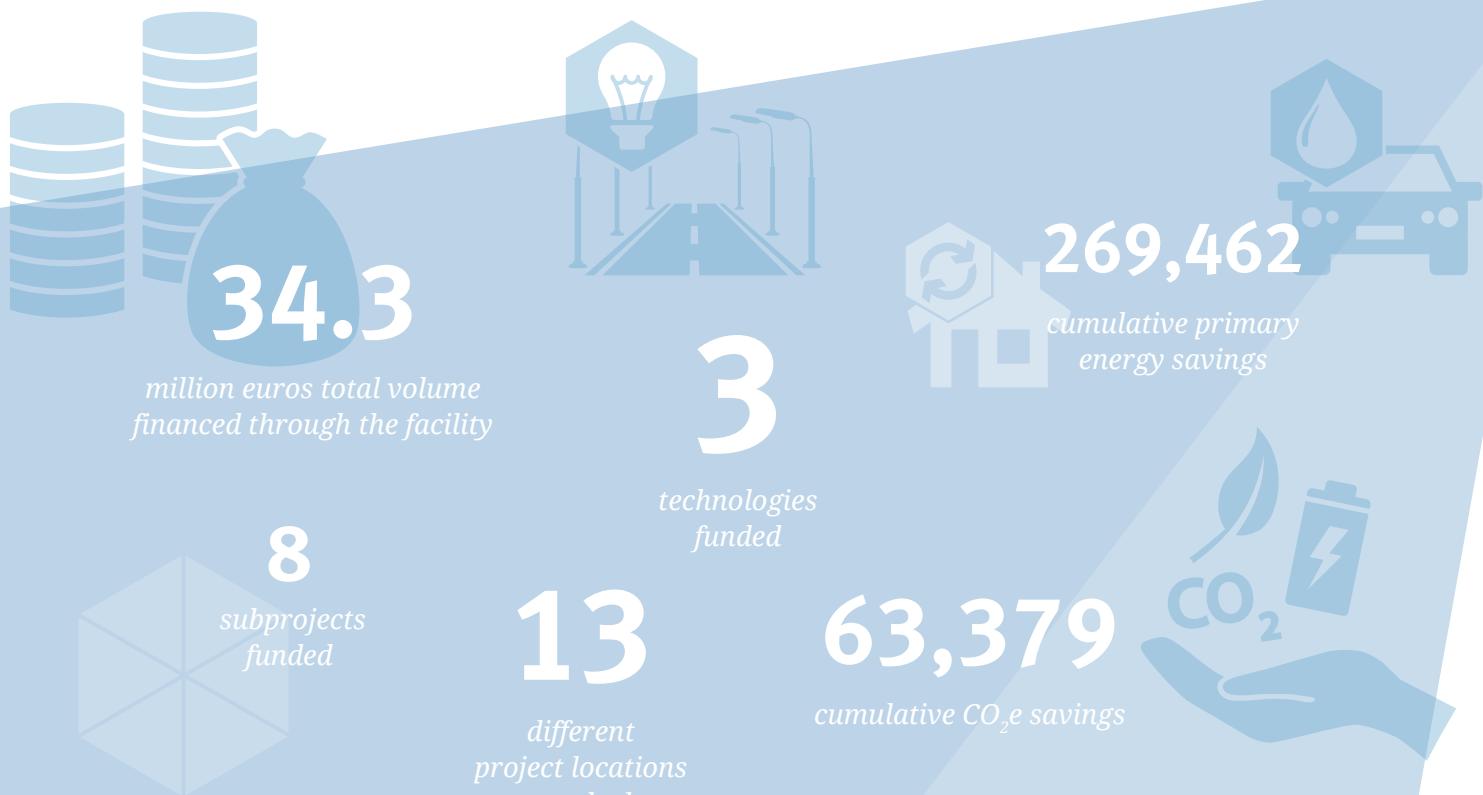
Sector:

Energy efficiency/renewable energy/clean urban transport

projects where needed, and the latter ensures that the financed projects comply with the eef's requirements with respect to a CO₂e emission/primary energy consumption reduction of at least 20%. Furthermore, the eef can jointly finance projects with BT if larger financing amounts are required. At the end of 2018, BT had financed and enabled eight projects. The to-date cumulative savings of the projects are 269,462 MWh in primary energy savings.

Key figures

Type of investment:	Subordinated debt	Total project size (€m):	25.0	Maturity	10 years
Financial close:	26.09.2013	eef investment size (€m):	25.0	Observed tCO ₂ e emission savings (p.a.):	63,379



* Cumulative savings are based on subprojects loan maturity

Portfolio facts

Spain

Universidad Politécnica de Madrid

Following directive 2012/27/UE of the European Parliament, in June 2015, Universidad Politécnica de Madrid (UPM) invited energy service companies (ESCOs) to present their proposals to improve the heat and water supply systems across the campus and to reduce CO₂e emissions by switching to a cleaner fuel source. In August 2015, the project was awarded to Enertika (Ingeniería y Servicios de Eficiencia Energética S. L.), an engineering company specialising in energy generation, energy efficiency and remote management services.

The project replaced 63 gas oil boilers, consuming on average 946,479 litres of gas oil per year, with 66 natural gas boilers in all 32 campus buildings.

The recent 2018 annual energy audit validated that carbon and primary energy savings were above 20% compared to baseline.



Sector:

Energy efficiency/building retrofit

Key figures

Type of investment:	Forfaiting loan	Total project size (€m):	2.8	Maturity	9 years
Financial close:	18.11.2015	eeef investment size (€m):	2.5	Estimated tCO ₂ e emission savings (p.a.):	1,225

Spain Municipality of Santander

The municipality of Santander is located in the Cantabria region in Spain. It benefitted from funding from the European Commission Technical Assistance Facility (ECTAF) managed by the eeef in order to conduct feasibility studies and, subsequently, launch the ESCO tender for the renovation works. The tender was awarded to Elecnor S.A., an international company from Bilbao with 60 years of experience in developing, building and maintaining infrastructure assets and in renewable energy and energy efficiency projects.

The eeef provided a forfaiting facility to Elecnor S.A., where the latter received EUR 9.2 m to finance the works. The facility will be fully repaid within the concession period.

The project is to upgrade 22,700 lighting points to LED luminaires. Each luminaire will also have wireless connectivity to the municipality's digital communication network and control system. In addition, it will result in EUR 5.4 m in monetary benefits for the municipality over the 15-year period of concession. The municipality plans to sign the final acceptance of the renovation works in February 2019.



Sector:

Street lighting

Key figures

Type of investment:	Forfaiting facility	Total project size (€m):	9.2	Maturity	13.88 years
Financial close:	18.08.2017	eeef investment size (€m):	9.2	Estimated tCO ₂ e emission savings (p.a.):	4,224



United Kingdom

Ore Valley Housing Association

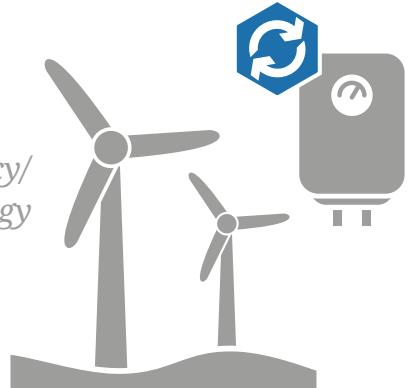
► Project video link: www.eeef.lu/video-edinburgh.html

The eeef has closed its first community-based transaction in the UK in cooperation with Cardenden Heat and Power (CHAP), a subsidiary of the Ore Valley Housing Association (OVHA), which received funding from two external financing parties for their small-scale renewable energy and building retrofit project. The eeef co-financed the project alongside the Scottish Investment Bank, the investment arm of Scottish Enterprise, through their Renewable Energy Investment Fund.

The project (total volume EUR 5.5 m) is a combination of a small-sized on-shore wind turbine and boiler replacements in social housing. The wind turbine is located at Cardenden close to the housing association's main office sites in Fife and was provided by market leader Enercon. Operations commenced during 2017 and the project secured a guaranteed feed-in tariff for 20 years from the Office of Gas and Electricity Markets (Ofgem); however, to increase project returns, the CHAP entered into a two-year power purchase agreement with EDF to secure a better tariff than the feed-in tariff for electricity sale to the national grid.

The OVHA was one of the first technical assistance (TA) beneficiaries under the eeef European Commission TA Facility. Since deploying TA funds, the eeef has worked closely with the OVHA by providing guidance to support project development to realise investments. The eeef supported the OVHA in the development of a new project scope for a on-shore wind turbine and the replacement of over 170 outdated gas boilers in residential buildings owned by the housing association in the Fife council area in Scotland.

Sector:
*Energy efficiency/
renewable energy*



Key figures

Type of investment:	Senior debt	Total project size (€m):	5.5	Maturity	16 years
Financial close:	04.11.2016	eeef investment size (€m):	4.3	Estimated tCO ₂ e emission savings (p.a.):	582

The eeff's matured investments

France SPL – Région Rhône-Alpes

► Project video link: www.eeff.lu/video-lyon.html

The Société Publique Locale d'Efficacité Énergétique (SPL) benefitted from funding from the European Commission Technical Assistance Facility (ECTAF) managed by the eeff for the initial preparation works and the finalisation of the project scope. Subsequently, the SPL signed a loan agreement of EUR 5.0 m to manage the short-term financing needs to refurbish public buildings during their construction phase and to pave the way for raising further long-term financing.

During 2018, the SPL fully repaid the debt facility as all 10 building retrofit projects were fully completed and commissioned, fulfilling the purpose of the project. Aligning with carbon accounting standards, the project will continue to contribute to the eeff's carbon balance until the end of its economic maturity.



Sector:
*Energy efficiency/
building retrofit*

Key figures

Type of investment:	Senior debt	Total project size (€m):	25.0	Maturity	5 years
Financial close:	03.04.2014	eeef investment size (€m):	5.0	Estimated tCO ₂ e emission savings (p.a.):	992
Repayment:	12.02.2018				

SPL

The SPL states that the real estate sector accounts for 40% of the regional primary energy consumption, of which 15% comes from public buildings, so local authorities have a duty of distinguished nature. However, for local authorities it is difficult and costly to renovate a range of public infrastructure, and thus financial assistance is invaluable for them.

The Auvergne-Rhône-Alpes region proves a good example of a public entity looking to promote sustainable practices. The region has put into place substantial means for the refurbishment programme of public buildings in order to reduce the region's energy consumption.

'The eeff provided a flexible financing scheme for energy refurbishment projects. With this start-up financing, the eeff was key in getting things started. The Fund created awareness in the field of energy refurbishment and assisted in creating a great momentum in the region Auvergne-Rhône-Alpes.'

Eric Fournier,
Vice President of the Auvergne-Rhône-Alpes region



Currently, 25 energy conservation measures have been implemented by the region and local authorities, contributing to the development of renewable energy production, to the use of bio-sourced materials, to the dynamism of local industries as well as to significant reduction in greenhouse gas emissions. By renovating high schools, the region aims to reduce their energy consumption by 40%.

According to the vice president of high schools in the Auvergne-Rhône-Alpes region, Béatrice Berthoux, renovating public high schools is very important for the region. By doing so, they pursue three goals:

- i.) Improving the comfort and the quality of the ‘users’, hence improving the attractiveness of the schools.
- ii.) Supporting the essential movement towards sustainable development.
- iii.) Allowing for pedagogical actions by letting the students engage in the projects.

The SPL OSER – Société Publique Locale d’Efficacité Énergétique – of which the region Auvergne-Rhône-Alpes is the majority shareholder, has been assigned to implement these energy-efficient refurbishment projects and renewable energy installations in public buildings (mainly schools) in the region. The company provides technical engineering and financial support to accompany developers throughout their projects. The results of the projects are very promising, as the renovations significantly reduce energy consumption, which improves the users’ experience and comfort and also gives these buildings a new lease of life. It

is hoped that the SPL’s project is catalytic for future public refurbishments and can be used as a blueprint.

The European Energy Efficiency Fund (eeef) played a key role in starting this important energy refurbishment programme. Initially, the SPL benefitted from funding from the European Commission Technical Assistance Facility, managed by the eeef, for the initial preparation work and for the finalisation of the project scope. The company demonstrated that each euro spent on TA was able to generate over 22.3 times as much in long-term investments and thus met and exceeded the leverage ratio initially required of 1:20. Subsequently, the SPL OSER signed a loan agreement of EUR 5.0 m to manage the short-term financing needs to refurbish public buildings during their construction phase and to pave the way for raising further long-term financing. The terms of the construction facility were very flexible. The constructional loan was issued with a five-year maturity including a repayment option without penalties at any time after three years, which corresponds to a planned completion of the first wave of projects.

After one year in the start-up phase, the SPL OSER has initiated the renovation programme, which at the end of 2015 covered 10 buildings owned by the municipalities of Bourg-en-Bresse, Cran-Gevrier and Montmélian and by the Région Rhône-Alpes, totalling investments of EUR 25.1 m. This was the first construction bridge loan structure provided by the eeef. In 2018, the SPL fully repaid the facility, as the entire project had been successfully commissioned. This enables the eeef to support the realisation of new projects in the near future.

2018 ACTIVITIES REPORT: FUNDING

'The early repayment of the eef's funding has been beneficial for the SPL OSER because it has facilitated the successful "design" and implementation of the energy refurbishment programme.'

Philippe Truchy,
Managing Director of the SPL OSER

97

*million euros capital
provided by the European
Commission*

Funding situation

The European Energy Efficiency Fund S.A., SICAV-SIF, was initiated by the European Commission in cooperation with the European Investment Bank.

The initial capital provided by the European Commission (EUR 125.0 m) was increased by contributions from sponsors comprising the European Investment Bank (EUR 75.0 m), Cassa Depositi e Prestiti (EUR 59.9 m) and the Fund's Investment Manager, Deutsche Bank (EUR 5.0 m).

The eef has initiated its fundraising activities, ready to ensure constant investor commitments from the private and public sectors to grow the Fund sustainably.

Shareholder structure based on called amounts



Current division of investments committed to the eef



97.0 m (69.3%)
European Commission (EC)



21.2 m (15.1%)
European Investment Bank (EIB)



16.9 m (12.1%)
Cassa Depositi e Prestiti S.p.A. (CDP)



5.0 m (3.6%)
Deutsche Bank (DB)

140.1
million euros total

Current division of share classes according to called amounts and remaining commitments

	Total commitment in €	Drawn in €	Undrawn in €
Notes	—	—	—
A shares	32,881,080	32,881,080	—
B shares	10,166,319	6,602,445	3,563,874
C shares	97,044,383	97,044,383	—
Total	140,091,782	136,527,908	3,563,874

The eef funds itself across three different share classes: class C shares, which represent the Fund's first loss piece and how shares are referenced; class B shares, which rank senior to the class C shares; and class A shares, which rank senior to the other two share classes but junior to all of the Fund's other creditors. All these share classes bear voting rights.

While class C shares are essentially designed to correspond to the expectations of governments, the other two share classes are of a more commercial nature and are currently held by development banks and the Investment Manager, Deutsche Bank. The Fund can issue notes designed for private investors. Private investors are senior to all share investors but bear no voting rights.



TECHNICAL ASSISTANCE SUPPORT

'The eeeef's TAF will facilitate the renovation of public street lighting and public buildings in the Ferrara area. The awarded tender will generate relevant energy savings and in turn significant CO₂ emissions reduction, which is one of the main aims and values of energy performance contracts for public authorities willing to concretely move towards low-carbon economies.'

AESS in the role of TA Consultant for Ferrara province

The eeff's technical assistance facility

EUR 389,500 approved to Ferrara Province

EUR 400,000 approved to the city of Gijón

EUR 340,000 approved to Italian Ministry of Defence

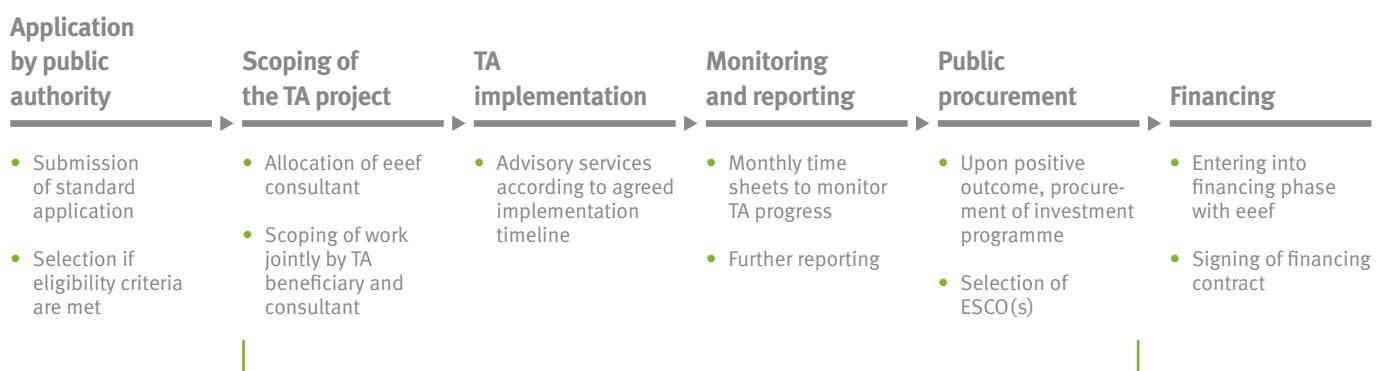
EUR 180,000 approved to Kaunas District Municipality

Following the European Commission TA Facility managed by the eeff, the Fund set up the **eeef TAF** to support ambitious public beneficiaries in developing bankable sustainable energy investment programmes. These projects shall relate to the energy efficiency sector, renewable energy and/or public urban transport. The eeff TAF aims to bridge the gap between sustainable energy plans and real investments by supporting all activities necessary to prepare investments into sustainable energy projects. Eligible applicants are regions, city councils, universities, public hospitals, public-owned water companies and other public entities located in the member states of the European Union.

On average, the development of an energy efficiency project in the public sector requires around 4.5 years from the conceptual phase to implementation. The eeff TAF efficiently reduces this time frame to 1.5–2 years by directly allocating consultancy services to the TA beneficiaries (tender of these consultancy services completed by the eeff). This means that the eeff selects appropriate experts with the required know-how and expertise via a tender process (completed entirely by the eeff) and assigns them to the relevant investment programmes. The TA beneficiaries can use the consultant services to, for example, carry out feasibility studies and energy audits and evaluate the economic and financial viability of their investments. Legal support for the investment programmes to draft the PPP tender documents is also included in the TA while costs can be covered by the eeff.

The eeff has selected a pool of consultants who will work closely with the public authorities during the preparation of feasibility studies, energy audits, public tender processes, etc., as well as providing legal support.

The eeff TAF has received funding from the ELENA facility under the Horizon 2020 Programme of the European Union. The first call for proposal of the eeff TAF was successfully closed on 1 March 2017. The recently launched facility attracted interest among various public authorities seeking support to develop their sustainable project plans. In addition to numerous early-stage TA enquiries, the eeff has so far received six TA applications from public authorities, four of which are already approved.



Maximum two years

Eligibility criteria and application procedure

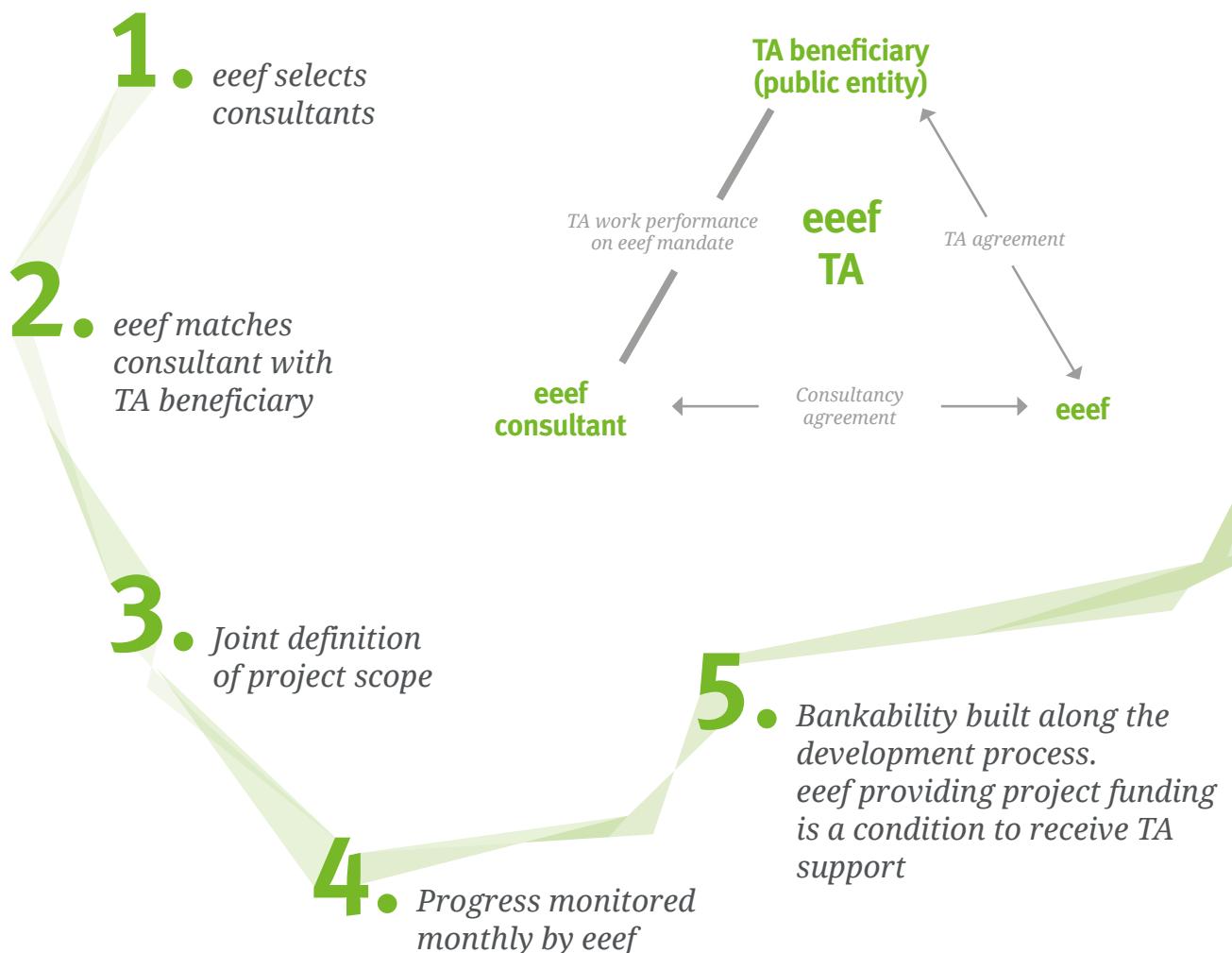
A request for technical assistance has to meet the following eligibility criteria:

- Beneficiary has to be a public authority (municipal, local, regional or national) or a public-owned company
- Primary energy savings of at least 20% on an annual basis (20% reduction of CO₂ equivalents for certain other technologies, i.e. renewable energy)
- Minimum leverage factor of 20 (final investment volume of the project divided by TA support amount)
- Financing of the project to be provided by the eeef (EUR 5 – EUR 25 m)

A first call for proposals for TA beneficiaries planning sustainable investment programmes was initiated end of 2016 and successfully closed in Q1 2017. The newly launched facility attracted interest among various public authorities seeking support to develop their sustainable project plans. The remaining funding is available on a first come, first served basis by applying directly to the Fund.

New applications can be submitted to:
technical_assistance@eeef.eu

Further details:
<http://www.eeef.eu/eeef-ta-facility.html>





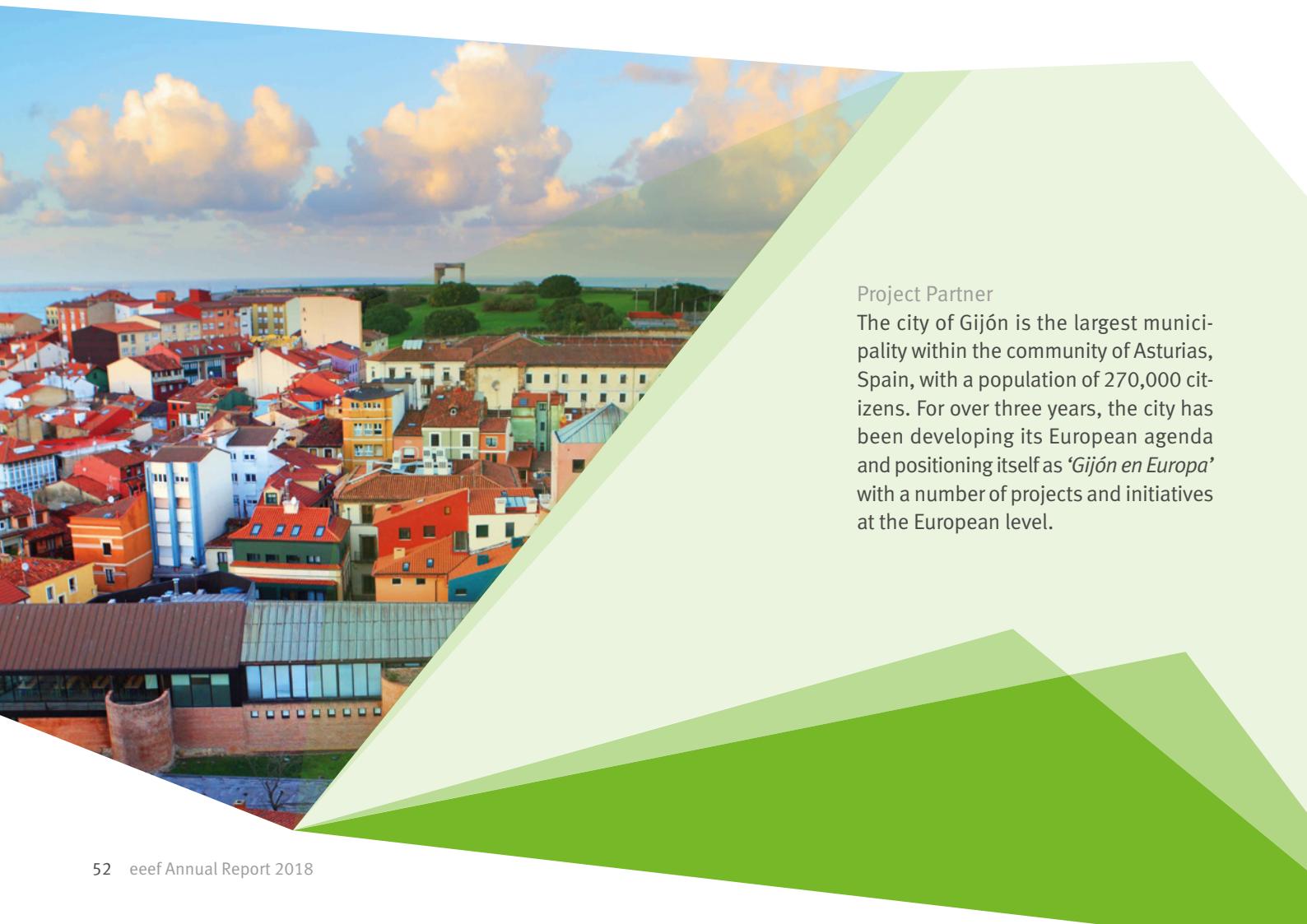
Gijón is the first city to join the eeff to collaborate on the new eeff Technical Assistance Facility

Ayuntamiento de Gijón was the first public authority to participate in the new eeff Technical Assistance Facility

With the full commitment of its mayoress, the city of Gijón embarked on an ambitious journey to finalise energy audits for 98 public buildings and 40,000 street lighting points, identifying a set of energy efficiency and/or renewable energy related interventions as well as publishing the tendering documentation to launch a EUR 15–20 m investment programme (estimated) in renovation works and selecting an ESCO company to realise the measures within a two-year time frame. The eeff has been accompanying the city during the whole process by collaborating with the management

team proposed by the city. The majority of the feasibility studies have been completed and the street lighting upgrade part of the project is almost ready to be tendered.

The eeff is confident of being the right partner for small and medium-sized European cities which have the drive and willingness to develop and implement investment programmes and as a result offer their citizens cleaner, more sustainable and more liveable environments.



Project Partner

The city of Gijón is the largest municipality within the community of Asturias, Spain, with a population of 270,000 citizens. For over three years, the city has been developing its European agenda and positioning itself as '*Gijón en Europa*' with a number of projects and initiatives at the European level.



Street
lighting



Building
upgrades

The Province of Ferrara is the second public authority to join the eef to collaborate on the new eef Technical Assistance Facility

Ferrara Province (Italy) was the second public authority, following in the footsteps of the city of Gijón, to participate in the Fund's new technical assistance facility

Joining forces with SIPRO (Agenzia Provinciale per lo Sviluppo) – a development agency with a 40-year track record – the circa EUR 32 m investment programme of the Province of Ferrara is aimed at addressing the implementation of energy efficiency measures in several municipalities to reduce energy consumption and heat loss going forward.

The Province of Ferrara has a total of 24 municipalities, of which 22 have adopted sustainable energy action plans (SEAPs) but are in need of support to boost the implementation of their projects. Municipalities directly involved in this TA project are Ferrara, Cento, Argenta, Bondeno, Mesola, Copparo and Voghiera. These municipalities are leading the way and encouraging further public authorities to pursue their sustainable investment paths.

The investment programme includes deep energy retrofitting measures (in 13 buildings such as schools, offices, town halls and sport facilities) and the replacement of over 27,000 public lighting points with LED technology in the cities of Ferrara and Voghiera. The tender for the LED replacement in Ferrara is planned to be launched in March 2018. SIPRO, as the TA beneficiary, has coordinated and managed the whole development phase of the involved municipalities and collaborated closely with the consultant team assigned by the eef to perform the TA works. Clustering a number of municipalities in one mutual project is enabling valuable synergies and optimising the implementation rate of the projects.

Project Partner

Located in the Emilia-Romagna region, the Province of Ferrara has a total of 354,000 inhabitants living throughout the 24 municipalities. The province's partner in this project is SIPRO, a development agency with a 40-year track record deeply rooted in the Province of Ferrara and experienced in the promotion of local development, in particular with focus on:

- i) sustainable development,
- ii) external investment attraction and
- iii) identification of incentives and financing instruments.





The Italian Ministry of Defence is the third public authority to join the eef to collaborate on the new eef Technical Assistance Facility

The Ducal Palace in Modena (Italy) is owned by the Italian government and is currently used by the Italian Ministry of Defence (MoD). The Ducal Palace houses the headquarters of the Military Academy, where military students are trained. Additionally, part of the Eastern Tower of the palace houses the University of Modena and Reggio Emilia's (UNIMORE) geophysical/meteorological observatory, and the first floor is used as a museum where guided tours are offered by the municipality of Modena.



The MoD is the beneficiary of the eeff. The technical assistance facility (TAF) set up a task force to elaborate on energy efficiency and renewable energy measures for retrofitting the palace under an EPC model.

The total project volume is EUR 8.1 m, which includes EUR 5.0 m to upgrade thermal systems and EUR 3.1 m to renovate the building's envelope. Planned measures include the following:

- Upgrade of the thermal system: installation of new pipes for the network distribution plus improvements to existing ones, installation of advanced climate control systems, replacement of old radiators, installation of high-efficiency boilers, retrofitting of the entire hot water system by disconnecting it from the central plant through new heat pumps.
- Building envelope: (i) reduce thermal losses from the building envelope by installing thermal insulation in internal opaque walls with innovative materials and (ii) reduce the amount of air infiltration by improving window fittings.

The project site is in the city of Modena in the Italian region of Emilia-Romagna. The Ducal Palace of Modena is one of the most important historical buildings in Italy. The palace was the residence of the Este dukes of Modena for more than two centuries.

The eeff TAF provided consultancy services to complete fully fledged feasibility studies within the palace to clearly identify the current infrastructure and propose appropriate improvement measures within a building of such historical value. All of the recommendations have been in compliance with the architectural constraints required by law to protect the historical heritage of the palace. The proposed measures will help to maintain one of the most historical buildings in Italy according to the latest energy standards and promote energy efficiency. It is almost ready for public tender.

Recent developments

In August 2018, TA works were completed with energy audits of the Ducal Palace and energy retrofit planning was finalised. According to the estimated saving calculations, the project will provide positive environmental impact. Additionally, the financial model for the project has been finalised, and it appears bankable. A project plan was developed. The TA consultant is now finalising the public tender documentation review. The tender is envisaged to be published by Q1/2019.





The Kaunas District Municipal Administration is the fourth public authority to join the eeff to collaborate on the new eeff Technical Assistance Facility

The Kaunas District Municipal Administration, Lithuania, is planning the implementation of an ambitious investment programme to enhance the energy efficiency of the public street lighting infrastructure in several elderships. There is a total of 25 elderships directly involved in this project including: Akademija, Alšėnai, Babtai, Batniava, Čekiškė, Domeikava, Ežerėlis, Garliava, Garliai parish, Kačerginė, Karmėlava, Kulautuva, Lapės, Linksmakalnis, Neveronys, Raudondvaris, Ringaudai, Rokai, Samylai, Taurakiemis, Užliedžiai, Vandžiogala, Vilkija, Vilkija parish and Zapyškis.

This project supports The Kaunas District Municipal Administration through their eldership structure to initiate a multitude of smaller projects which all fall under the same financing umbrella and therefore benefit from reduced investment cost.

The project site is located in the Kaunas District Municipality, one of the biggest and most densely inhabited municipalities in Lithuania. It is one of the 60 district municipalities in the country and has a population of nearly 100,000 inhabitants. The Kaunas District Municipal Administration seeks to become an attractive centre of tourism services and infrastructure. Furthermore, it is trying to attract private investments to increase the district's attractiveness for business, citizens and tourists. The Kaunas District Municipality has identified

that renovating the current public lighting infrastructure would support the transition towards a more desirable community whilst improving public energy consumption.

The envisaged total project volume is between EUR 5 m and EUR 10 m – dependent upon different investment scopes. The final project design is one deliverable by the eeff TAF.

With this TA project, the eeff is expanding its activities to Eastern Europe, facilitating the dissemination of its high-quality implementation standards for the development of these kinds of energy efficiency projects as well as reaching several elderships and counties in Lithuania, joining forces to succeed in attracting interest from the private sector.

The eeff's Technical Assistance Facility

An overview

The eeff Technical Assistance Facility (eoeff TAF) was set up to catalyse investments for public entities within the energy efficiency and small-scale renewable sectors.

To date, the eoeff has approved four beneficiaries, which are currently receiving consultancy services in various forms with the common aim of bringing the projects to fruition. The eoeff TAF's scope of work ends once the public beneficiary has launched the tender. However, the Fund's support is not limited to provide technical assistance services; it also targets to provide project financing through a variety of different financial instruments to ensure that the projects materialise. It is the eoeff's intention that the TAF remains active for the foreseeable future, with the mission to turn public sector climate mitigation projects into reality.



CARBON, ENVIRONMENT & IMPACT MANAGEMENT



***Fund criteria: for all projects to save at least
20% CO₂ e and /or primary energy compared to baseline***

Project assessment and monitoring

Eligible projects

The eef can invest in a range of energy efficiency, clean urban transport and small-scale renewable energy technologies, providing the carbon or primary energy savings investment criteria are met. Each project must achieve at least 20% primary energy and/or carbon savings compared to baseline. The Fund may only invest when savings are in addition to other investment criteria.

Project Assessment and Monitoring

As the eef can finance a variety of technologies, the initial technical assessment and ongoing monitoring of investments must strike the correct balance between accuracy and practicality of implementation.

How the eef evaluates technical eligibility is based on the project's technology and loan size; for example, small standard (e.g. street lighting) project savings can be calculated using validated calculations from the Investment Manager's carbon environment impact management (CEIM) tool, greenstem™ (greenstem). For projects with higher investment volumes and/or more complex technologies, detailed energy analyses are required in the form of third-party validated reports.

As part of the Fund's due diligence process and for the duration of the loan, the eef evaluates and monitors the project's savings performance in alignment with the International Performance Monitoring and Verification Protocol (IPMVP), which requires every project to establish a baseline energy consumption and then conduct a post-project implementation assessment.

The Investment Manager's CEIM team reviews the technical details of all eef investments and works with project managers to enter relevant data points into greenstem. The Fund provides guidance to project partners on how to conduct project analysis via third-party validated annual audit templates. This ensures the entire portfolio reports using a consistent methodology.

greenstem™

All of the eef portfolio reported impact indicators are tracked in greenstem, a proprietary web-based tool from the Investment Manager which automatically and consistently calculates anticipated and realised energy, primary energy and carbon savings. For small loans and standard technologies, greenstem completes calculations based on project-specific data inputs and project location/technology conversion factors. The tool stores up-to-date energy and emission conversion factors to ensure a consistent reporting approach across the portfolio. Factor sources include the Chartered Institution of Building Services Engineers for technology benchmark data and the Intergovernmental Panel on Climate Change for the conversion of energy data into greenhouse gas emissions. Electricity emission factors are sourced from the International Energy Agency and are updated annually in line with ISO 14064-2, the carbon accounting standard followed. All calculations and data sources used within the tool have been validated by a third-party engineering company.

greenstem provides comprehensive, timely and accurate reporting charts and dashboards that have been configured specifically for eef user groups. The tool is flexible and can be customised to include additional technologies in the portfolio.

Social and environmental management system (SEMS)

The eef aims to conduct its operations in line with the highest expectations regarding social and environmental responsibility. The eef's social and environmental management system (SEMS) defines the respective roles and responsibilities of the Fund and its partner institutions in promoting social and environmental sustainability.

In general, these are in accordance with the European Investment Bank Statement on Environmental and Social Principles and Standards. For both types of investments – direct and financial-institution investments – the eef SEMS has specific performance requirements and procedures which are applied.

Compliance with these is assessed during the due diligence process and monitored later on throughout the lifetime of the project.

The environmental and social (E&S) screening checks areas such as the following, as well as other E&S issues and reputational risk:



1. *General environmental and social issues:*

EU policy, legal context and compliance, environmental impact assessment process, E&S principles and standards

2. *Environment, biodiversity and climate change:*

Environmental/transboundary impacts, protected areas, critical habitants, biodiversity, forestry, cultural heritage, vulnerability to climate change, climate change mitigation



3. *Social:*

Social assessment, involuntary resettlement, vulnerable groups, indigenous people, labour standards, etc.



Primary energy and greenhouse gas emissions **savings 2018**

The eef's projects aim to achieve at least 20% primary energy savings on an annual basis (higher for the building sector) and a 20% reduction of CO₂ equivalents for transport and renewable energy projects. The quality of the methodology used to calculate the expected savings of projects is crucial. This allows the eef to ensure its projects satisfy international standards regarding CO₂e and primary-energy-saving reporting. Due to the wide variety of technologies included in the eef's portfolio, the Investment Manager has developed a standardised approach to calculating the project energy, primary energy and carbon savings for the eef's most common project technologies.

Carbon emission savings and primary energy savings were reported for the entire portfolio of 16 investments/signed commitments for a range of energy efficiency and renewable technologies including CHP biomass, small-scale wind and electric vehicles. Once a project has been in operation for a full year, the eef receives annual audits stating its actual energy consumption.

Year-on-year consumption variances are expected due to a number of factors, such as weather advances in static data, and therefore project savings can change annually. As shown below, these projects achieved total accumulated savings of 389,743 t CO₂e and 367,401 MWh of primary energy savings through the end of 2018.



Key technologies

currently included in the portfolio:



*Building
upgrades*



*Street
lighting*



*Wind and
solar*



*Combined heat
and power*



*Electric
cars*

Project Name	Reporting as of Q4 2018 ¹⁻⁶			
	Cumulative Primary Energy Savings (MWh)	Primary Energy Savings (%)	Cumulative Carbon Savings (t CO ₂ e)	Carbon Savings (%)
Bolloré	32,750	15	45,375	93
City of Orléans	-195,059	-44	102,018	62
City of Rennes	-248,313	-49	76,191	47
Jewish Museum Berlin Foundation	53,018	78	12,008	82
University of Applied Sciences Munich	12,240	30	503	17
Illuminated Cities	11,190	56	1,623	56
Smart H&U	16,154	55	2,073	46
University Hospital S. Orsola Malpighi	249,846	28	58,369	32
City of Venlo	22,095	60	4,437	60
CIMAC	10,164	74	1,379	74
Wattosun	25,116	100	3,540	100
Banca Transilvania	283,083	50	66,605	50
Universidad Politécnica de Madrid	7,429	15	3,386	36
Municipality of Santander	59,772	80	6,738	80
Cardenden Heat and Power	11,288	99	1,530	96
SPL Région Rhône-Alpes	16,628	42	3,968	58
Total	367,401	56	389,743	62

1 All project savings are calculated following international protocols, including the International Performance Measurement and Verification Protocol (IPMVP) for energy accounting and ISO 14064 for carbon accounting. All methodologies used by the eef are validated by a global engineering company. Currently, all projects with concrete data are reporting in alignment with these guidelines, and all new projects are aligned with these frameworks. Project savings represent total project investment volumes. The eef uses up-to-date and project-specific conversion factors from sources including the International Energy Agency and the Greenhouse Gas Protocol. For some projects within the portfolio, factors cannot be updated due to project specifics, so they continue to report on factors issued within the loan documentation. All cumulative numbers are based on investments loan maturity. Cumulative primary energy savings totaling only energy efficiency and clean urban transport projects is 810,773 MWh.

2 The cumulative BT savings represent 8 subprojects. The portfolio's percentage savings are calculated based on all subproject savings. Projects contribute to cumulative savings until the subloan has matured from the portfolio – i.e. at loan maturity.

3 For carbon, percentage savings are based on the entire portfolio and use the average. For primary energy, percentage savings are calculated using the average but only include projects from the portfolio which provide primary energy savings. Matured investments are included within the total.

4 Cumulative data include calculations from financial close to loan maturity, based on estimations for projects under construction and with 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. eef and non-eef investments).

5 Wattosun, Smart H&U and Illuminated Cities are based on/partially based on signed commitments.

6 SPL matured in Q1 2018.

investments/signed commitments achieved CO₂e and primary energy savings

FINANCIAL STATEMENTS



*million euros total income**

* Data have been adjusted to exclude changes in fair value of investments in subsidiaries as well as unrealised profit and loss on derivative instruments. For full details, please refer to the income statement.

Balance sheet

Statement of financial position (in €)

	31 December 18	31 December 17
Assets		
Loans and receivables	113,193,163	118,617,404
Investments in subsidiaries	6,303,741	4,256,138
Interest receivable	816,300	812,796
Prepaid expenses and other receivables	–	20,189
Cash and cash equivalents	23,460,528	18,243,683
Total assets	143,773,732	141,950,210
Liabilities		
Derivative financial instruments	1,371,565	1,254,516
Payable on eef Technical Assistance Facility	276,575	555,159
Accounts payable and accrued expenses	1,433,475	1,264,967
Distribution to holders of redeemable ordinary shares	548,875	587,680
Net assets attributable to holders of redeemable ordinary A shares	32,881,080	32,881,080
Net assets attributable to holders of redeemable ordinary B shares	6,602,445	6,602,445
Net assets attributable to holders of redeemable ordinary C shares	100,659,717	98,804,363
Total liabilities	143,773,732	141,950,210

Income statement

Statement of profit or loss and other comprehensive income (in €)

	31 December 2018	31 December 2017
Income		
Interest income on loans and receivables measured at amortised cost	4,056,686	4,369,974
Interest income on loans and receivables measured at fair value through profit and loss	435,699	–
Change in unrealised fair value of investments in subsidiaries	2,039,603	929,329
Commission and fees income	2,871	8,753
Realised gain on exchange	–	2,466
Realised and change in unrealised gain on derivative instruments	–	154,849
Reversal of loans and receivables loss allowance	13,797	–
Total income	6,548,656	5,465,371
Expenses		
Change in unrealised fair value of investments in subsidiaries	(593,742)	–
Direct operating expenses	(2,220,332)	(2,288,657)
Realised loss on exchange	(6,807)	(3,240)
Change in unrealised loss on derivative instruments	(117,050)	–
Change in unrealised loss on exchange	(19,449)	(64,823)
Performance fees	(472,710)	(362,964)
eeef Technical Assistance Facility	(276,576)	(273,435)
Interest expenses	(517,418)	(314,368)
Total operating expenses	(4,224,084)	(3,307,487)
Operating profit	2,324,572	2,157,884
Distribution to holders of redeemable ordinary A shares and B shares	(548,875)	(587,680)
Complementary dividend attributable to holders of redeemable ordinary C shares	(459,345)	(551,624)
Allocation attributable to holders of redeemable ordinary C shares	(1,316,352)	(1,018,580)
Total comprehensive income for the period	–	–

Statement of changes in net assets

Statement of changes in net assets attributable to holders of redeemable ordinary shares (in €)

	Net assets attributable to shareholders
As of 31 December 2016	136,717,684
Issue of redeemable shares	–
Redemption of redeemable shares	–
Increase in net assets attributable to shareholders from transactions in shares	–
Complementary dividend attributable to holders of redeemable ordinary C shares	551,624
Increase in net assets from operations attributable to holders of redeemable ordinary C shares	1,018,580
As of 31 December 2017	138,287,888
Issue of redeemable shares	–
Redemption of redeemable shares	–
Increase in net assets attributable to shareholders from transactions in shares	–
Complementary dividend attributable to holders of redeemable ordinary C shares	459,345
Increase in net assets from operations attributable to holders of redeemable ordinary C shares	1,316,352
Loans and receivables reclassified to FVPL (IFRS 9 impact)	200,903
Loans and receivables loss allowance (IFRS 9 impact)	(121,246)
As of 31 December 2018	140,143,242

Supplementary information

	31 December 2018	31 December 2017	31 December 2016
Number of shares outstanding			
Class A shares – tranche 1	328.8108	328.8108	328.8108
Class B shares – tranche 1	132.0489	132.0489	132.0489
Class C shares – tranche 1	1,569,960.9156	1,569,960.9156	1,569,960.9156
Net asset value per share class (€)			
Class A shares – tranche 1	32,881,080	32,881,080	32,881,080
Class B shares – tranche 1	6,602,445	6,602,445	6,602,445
Class C shares – tranche 1	100,659,717	98,804,363	97,234,159
Net asset value per share (€)			
Class A shares – tranche 1	100,000.00	100,000.00	100,000.00
Class B shares – tranche 1	50,000.00	50,000.00	50,000.00
Class C shares – tranche 1	64.12	62.93	61.93

Cash flow statement

Statement of cash flows (in €)

	For the year ending 31 December 2018	For the year ending 31 December 2017
Operating profit after distributions to holders of redeemable ordinary A shares and B shares	1,316,352	1,018,580
Net changes in operating assets and liabilities		
Adjustments for non-cash items	(1,451,658)	(929,329)
(Increase) / decrease in prepaid expenses and other receivables	20,189	11,160
(Decrease) / increase in accounts payable and accrued expenses	168,507	(1,071,332)
(Decrease) / increase in unrealised loss on derivative financial instruments	117,050	(154,849)
(Decrease) / increase in contribution to the Technical Assistance Facility	(278,584)	273,436
(Increase) / decrease in interest receivables	(3,504)	68,559
Distributions paid to holders of redeemable ordinary shares	(38,805)	(56,770)
Complementary dividend attributable to holders of redeemable ordinary C shares	459,345	551,624
Net cash flow (used in)/from operating activities	308,892	(288,921)
Cash flows used in investing activities		
Decrease / (increase) in loans and receivables financial assets	4,915,953	(7,977,487)
Acquisition of subsidiaries	(8,000)	–
Net cash flow (used in)/ from operating activities	4,907,953	(7,977,487)
Net increase/(decrease) in cash and cash equivalents	5,216,845	(8,266,408)
Cash and cash equivalents at beginning of the year	18,243,683	26,510,091
Cash and cash equivalents at end of the year	23,460,528	18,243,683

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