

## Public Finance Institutions & the Low-Carbon Transition Case Study: European Investment Bank

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This case study has been prepared by CDC Climat Research based on publically-available information and data shared by the institution studied. It was prepared as a working document as part of the joint OECD-CDC Climat study on the role of public financial institutions (PFI) and the low-carbon transition. The study analyses the role of five PFIs in fostering the low-carbon energy transition through domestic climate finance activities.<sup>3</sup> It the key tools and instruments currently used by these institutions to mobilise private sector investment, principally in OECD countries.

Public financial institutions (PFIs) are well-positioned to act as a key leverage point for governments' efforts to mobilise private investment in low-carbon projects and infrastructure. Between 2010-2012, these five institutions have provided over 100 billion euros of equity investment and financing for energy efficiency, renewable energy and sustainable transport projects. They use both traditional and innovative approaches to link low-carbon projects with finance through enhancing access to capital; facilitating risk reduction and sharing; improving the capacity of market actors; and shaping broader market practices and conditions.

The final report of the study is available at: <http://www.cdcclimat.com/Public-financial-institutions-OECD.html?lang=en>

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## Executive Summary

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### **Key Figures**

Country	European Union Member States														
Created	1958														
Rating	<table><tr><td></td><td>Long-term</td><td>Short-term</td></tr><tr><td><b>Fitch</b></td><td>AAA</td><td>F1+</td></tr><tr><td><b>Moody's</b></td><td>Aaa</td><td>P-1</td></tr><tr><td><b>Standard &amp; Poor's</b></td><td>AAA</td><td>A-1+</td></tr></table>				Long-term	Short-term	<b>Fitch</b>	AAA	F1+	<b>Moody's</b>	Aaa	P-1	<b>Standard &amp; Poor's</b>	AAA	A-1+
	Long-term	Short-term													
<b>Fitch</b>	AAA	F1+													
<b>Moody's</b>	Aaa	P-1													
<b>Standard &amp; Poor's</b>	AAA	A-1+													
Capitalization and Balance Sheet (2012) <sup>4</sup>	<ul style="list-style-type: none"><li>• Own funds: EUR 55 billion</li><li>• Uncalled subscribed capital: EUR 220 billion</li><li>• Balance Sheet: EUR 508 billion</li></ul>														
Investment in Low-Carbon Areas <sup>5</sup>	2010-2012: Total estimated at EUR 52 billion or 28% of total lending over the same period <sup>6</sup> <ul style="list-style-type: none"><li>• Renewable Energy: EUR 15 billion or 8% of lending</li><li>• Energy efficiency: EUR 4.6 billion or 3% of all lending</li><li>• Sustainable transport: EUR 21.5 billion or 12% of lending</li></ul>														

### ***The European Investment Bank's Contribution to the Low-Carbon Energy Transition***

#### ***Mandate***

The European Investment Bank (EIB) was created in 1958 under the treaty of Rome establishing the European Community. The EIB is the long-term lending institution of the European Union: the EIB exists to support the policy objectives of the European Union through the historical and continued financing of integration, sustainable growth and economic and social cohesion within and outside the EU. The EIB is committed to acting as a catalyst for investment in the following climate-related

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<sup>4</sup> (EIB 2013i) The EIB has borrowed EUR 46.7 billion from the international capital markets to support its activities. (EIB 2013a)

<sup>5</sup> Please note that this table only includes investment activities in sustainable transport, renewable energy and energy efficiency. A number of PFIs studied are also involved in other sectors - such as RDI, forest and waste and water – which are beyond the scope of this study.

<sup>6</sup> Calculated based on data provided by the European Investment Bank and described in detail in Section II of this case study.

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sectors: energy<sup>7</sup>, transport, water, wastewater, solid waste, forestry, as well as research and development and innovation. Throughout its actions, the EIB is able to deploy a range of financial instruments – whether through debt, equity, guarantees or fund-based models – dependent on the location sector, issue area and financial environment of the program in question. Furthermore, the EIB uses its substantial expertise to support project development and to catalyse other financial partners.

The principal beneficiaries of the EIB's programs are public actors (national agencies, sub-national governments), financial intermediaries, large-scale project developers as well as small- and medium-sized companies. The EIB, however, has limited interaction contact within individual households except for intermediated lending. The EIB has a mandate from European Union member countries to support projects that make a significant contribution to growth and employment, regional cohesion and sustainability in Europe and beyond. The EIB supports the EU's goal of low-carbon and climate-resilient growth both within and outside the Union. The European Investment Bank's strategy in the area of climate change and energy is aligned *inter alia* to the EU targets in the Climate-Energy Package of 20-20-20.<sup>8</sup> The EIB has set for itself quantified objectives in terms of sectors for investment: at least 25% of lending per year should be labelled as contributing to GHG mitigation or climate change adaptation.<sup>9</sup>

In 2013, the EIB completed a comprehensive review of its energy lending criteria. This review has taken into consideration the projected investment needs, the EU's current policies for investment, global energy market changes and specifically the issue of climate change. While already active in many low-carbon projects given current EU objectives, this review has reiterated and strengthened its support for investments in three sectors – energy efficiency (EE), renewable energy (RES) and energy networks – with an estimated need of EUR 200 billion per year to achieve the European Union's objective of a secure, competitive and sustainable energy supply (EIB 2013d). This has led to the publication of new screening and assessment criteria for energy projects prioritizing investments in renewable energy, energy efficiency and low-carbon transport.<sup>10</sup>

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<sup>7</sup> More broadly, in the energy sector, the Bank's activities contribute to broad EU policy objectives such as environmental sustainability; competitiveness in energy supply; and security of supply, reducing and diversifying Europe's dependence on external energy. As described below, the EIB has recently concluded a revision of its energy lending policy and the introduction of an emission performance standard.

<sup>8</sup> In 2008, the European Union set targets of by 2020 reducing EU greenhouse gas emissions from 1990 levels by 20%; raising the share of EU energy consumption produced from renewable resources to 20%; and a 20% improvement in the EU's energy efficiency.

<sup>9</sup> While these actions are beyond the scope of this study, the EIB supports the fight against climate change beyond the EU's borders. Between 2008 and 2012, the Bank has financed over EUR 80 billion of climate action projects of which EUR 9 billion of climate action projects outside Europe.

<sup>10</sup> The EIB's new project evaluation criteria will equally have an impact on the EIB's lending for hydrocarbon production as well as fossil-fuel based electricity generation plants. The EIB has substantially reduced its financing for sectors of hydrocarbon production - representing less than 1% of EIB loans in the energy field since 2005. What is more, in the refineries sector the Bank's financing concentrates on energy efficiency and conversion projects, and virtually excluding capacity expansion. The EIB has also adopted a selective approach to financing carbon-intensive electricity generation. While taking a "technology neutral" approach, the EIB will also adopt a "no regrets" approach to ensure that fossil fuel projects financed do not "lock in" carbon

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Since its creation, the EIB has focused on covering the gap in the financing markets in terms of providing long-term debt.<sup>11</sup> With its ability to leverage funds on international capital markets, support public policy goals, partner with and accompany private actors as well as interact with national financial institutions, the EIB is active in fostering a low carbon, climate resilient transition:

- The EIB's AAA rating allows the institution to borrow at advantageous rates and thus offer advantageous terms to its clients. The EIB is a not for profit institution. Financing conditions depend on the investment type and the security offered.
- The EIB is able to use its subscribed capital of EUR 243 billion from EU member countries to be financially autonomous and does not depend on the EU budget to finance its activities.
- While EIB overall follows a conservative risk policy consistent with its AAA status, it is able to take single risks of a size that other market actors may not be able to absorb given the large size of its balance sheet and thus contribute to a large project being successfully financed.
- While the majority of the EIB's financial activity has focused on the provision of Senior Debt, the EIB has a historical role in developing and experimenting with new investment and finance instruments that are able to draw in additional sources of financing and is in many instance already using this to finance low-carbon projects.

*Funding*

The European Investment Bank was capitalized by the EU Member States. Historically most of its own capital has been generated organically, although in 2012 the EU provided a EUR 10 billion increase to allow EIB to sustain higher lending volumes in response to the on-going economic crisis. Today, its subscribed capital stands at EUR 243 billion (August 2013)<sup>12</sup> with a balance sheet of EUR 522 billion. The EIB uses this capitalization to be financially autonomous and does not depend on the EU budget to finance its lending activities. Traditionally the EIB has taken a conservative risk and asset model to its investment practice and thus leverages a large portion of the funds used in lending through bond issuance on the international capital markets. Benefiting from its strong credit rating, the EIB has been able to maintain a capital leverage ratio of 1:2.5 – typically higher than other bilateral and multilateral financial institutions such as the World Bank (1:1).

In recent years the EIB has applied its knowledge of bond markets to raise additional capital for renewable energy and energy efficiency projects. The EIB's *Climate Awareness Bonds* raise funds from fixed income investors to support EIB lending. This gives investors with the opportunity to channel funds into projects contributing to climate protection, with the added reassurance of the credit quality of the EIB as an issuer. As of May 2014, Climate Awareness Bonds have raised EUR 5.6

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emissions above levels consistent with EU climate targets. As such, the EIB applies since July 2013 a carbon footprint benchmark or "Emission Performance Standard in gCO<sub>2</sub>eq/kWh, currently set at 550g/kWh. Further, fossil fuel plant operators will need to demonstrate compliance with the EU Carbon Capture and Storage Directive (EIB 2013d; EIB 2013e). <http://www.eib.org/about/partners/cso/consultations/item/public-consultation-on-eibs-energy-lending-policy.htm?lang=en&>

<sup>11</sup> The tenor of an EIB loan does not exceed the economic life of the project.

<sup>12</sup> As of August 2013, the EIB's total subscribed capital totals EUR 243.3 billion after the most recent capital increase and accession of Croatia. The EIB has a paid-in capital of EUR 21.7 billion and a callable capital amount of EUR 221.9 billion. (EIB 2013g)

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billion in seven currencies. The EIB launched a EUR 2.6 billion *Climate Awareness Bond* due in November 2019, which is currently the largest outstanding climate-themed bond from a supranational issuer (EIB 2013e; EIB 2014).

***Current Levels of Investment in the Low-Carbon Economy:***

As seen in **Erreur ! Source du renvoi introuvable.**, between 2010-2012 climate-related lending at the EIB made up approximately 28% of total lending. In general, fluctuations in the volume of climate-related funding has closely followed the volumes of total EIB lending.<sup>13</sup>

**Table 1: EIB Climate-Related Lending between 2010-2012**

	2010		2011		2012		2010-2012	
	%	EUR bn		EUR bn		EUR bn		EUR bn
Sustainable Transport	11%	7,7	13%	8,1	11%	5,7	12%	21,5
Renewable Energy	8%	6,0	9%	5,7	7%	3,3	8%	15,0
Energy Efficiency	3%	2,2	2%	1,3	2%	1,1	3%	4,6
RD&I	6%	4.0	3%	1.7	3%	1.7	4%	7.5
Other	0.3%	0.2	3%	2.1	0.8%	0.4	1.5%	2.7
CA adaptation					2%	1,1	0.6%	1.1
<b>Total Climate-Related Lending*</b>	<b>28%</b>	<b>20,2</b>	<b>31%</b>	<b>18,9</b>	<b>26%</b>	<b>13,3</b>	<b>28%</b>	<b>52,3</b>
<b>Total Lending</b>		<b>72</b>		<b>61</b>		<b>51</b>		<b>184</b>

*\*Total includes lending for Research & Development and Innovation as well as Other Climate-related investment. International climate-related lending is equally included in these totals (EUR 9 billion between 2008-2012).*

*Source: Annual volume and percentages calculated based on data communicated by the EIB.*

The EIB only invests in financial viable projects – often bringing high-volumes of funds at long-tenors not easily secured on the capital markets. It also has a track record of supporting the development of innovative low-carbon projects. Such projects are often perceived as having technology and other project-based risks that make them unattractive to many investors. Furthermore, both mitigating greenhouse gas emissions and adapting to climate change are increasingly part of all EIB activities.

Within the areas that the EIB has identified for investment, the EIB focuses on a number of means of intervention:

- Catalyse and stimulate additional public and private investment in projects and sectors;
- Provide access to financing for capital-intensive up-front investments;

<sup>13</sup> The EIB's annual lending activities as a whole, climate included jumped by 40% after 2008 jump to peak at EUR 79 billion in 2010. This volume, however, was not deemed as sustainable indefinitely based on the Bank's traditional capital model. A progressive return to annual investments of around EUR 55 billion in 2012-13 was expected. However, when the economic crisis has not occurred as rapidly as expect, EU Member States provided EUR 10 billion in additional capital at end 2012 to support higher volumes of lending. (Knowles 2013)



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- Refinancing guarantees and related instruments when needed to bridge the gap between construction and operational phases to assure liquidity for initial project financiers.

***Renewable Energy – EUR 15 billion 2010-2012 or 8% of all lending***

Currently, the majority of its renewable energy loans go to wind and solar power generation. However, given the objective of supporting market development, the EIB does not limit funding to selected “mature” renewable energy technologies, such as onshore wind farms, hydropower, geothermal and solid biomass; it also strongly encourages the expansion of early-stage or evolving technologies such as offshore wind, photovoltaic and concentrated solar power and second-generation biofuels (EIB 2013o). In 2012, renewable energy lending made up 30% of all EIB support for energy projects.<sup>14</sup>

***Energy efficiency – EUR 4.6 billion 2010-2012 or 3% of all lending***

The majority of the Bank’s energy efficiency investments are in buildings (50%), the energy sector, notably CHP (30%) and industry (15%) (EIB 2013n). The EIB has a wide range of financial instruments and capacity building tools to assist in the development and deployment of energy efficiency projects. Given that energy efficiency project often involved a large number of actors and investments being relatively small in size, the EIB uses both direct and intermediated instruments. The EIB also helps support expertise-sharing on project development such as the dedicated European Local Energy Assistance (ELENA) facility described below. Finally, given the diffuse nature of energy efficiency, the EIB has mainstreamed energy efficiency considerations across all its activities.

***Sustainable transport projects (rail and public transport) - EUR 21.5 billion 2010-2012 or 12% of lending***

In the transport sector, the European Investment Bank’s lending contributes to European Union policy objectives concerning the environment, regional development, the knowledge economy, Trans-European Networks,<sup>15</sup> connections with neighbouring countries and development. As such, climate and energy preoccupations are among the policy priorities and objectives in this area of investment. Nevertheless, as is the case for all of the EIB’s activities, climate change considerations are mainstreamed into all transport projects. These considerations aim to direct support towards “sustainable transport modes,” such as rail, urban public transport, and water-borne transport. Projects financed included the Ile-de-France transport network upgrade involving four tramway lines in Paris, the first tramway in Tours (France) and the Nottingham (UK) tram network extension, and the extension of metro lines in Rome, Prague, Bucharest and Helsinki. The EIB-backed sustainable transport projects promote a shift from private to public transport and investing in lower-carbon transport of goods and people.

***Other climate-related lending activities***

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<sup>14</sup> (EIB 2013o)

<sup>15</sup> Trans-European Networks are transport projects deemed to contribute to the integration of the European Union. In 2012, the EU recognises 30 priority TEN projects, 21 of which are rail schemes, while the rest consist of road, port, inland waterway and airport projects.

Beyond the support of renewable energy, energy efficiency and sustainable transport projects, the EIB has over the last decade supported carbon finance and different market-based tools. More recently, the EIB is equally investing in adaptation to climate change (EUR 1.1 billion in 2012) and afforestation and reforestation projects. Finally, EIB provides credit lines and facilities providing financing to SMEs to conduct internal energy efficiency projects.

***Climate Finance Tools and Instruments supporting low-carbon infrastructure projects***

The EIB is able to support low-carbon projects in a number of ways. Using its high credit rating to leverage capital from the international financial markets, it is able to bring low-cost big-ticket amounts to large-scale, long-term projects. It supports smaller projects through a range of intermediaries. Furthermore, it is able to assume late-development and construction risk which deter other long-term financiers such as the institutional investors. It is equally able to use a number of fund structures and other instruments combined with its institutional reputation to attract other investors. These structures can equally serve to aggregate smaller-scale projects and different types of investors with different risk-return profiles.

- ***Provision of long-term capital, principally through senior debt***

The EIB provides direct senior debt financing for projects that are over 25 million euros in size and is often in a unique position to be able to provide large-ticket amounts of financing to big projects e.g, offshore wind. The EIB equally uses intermediated or “on-lending” financing models through local banks to provide finance for smaller-scale infrastructure projects.

Furthermore, the EIB participates in a number of fund structures. These funds, whether managed internally by the EIB itself or by an external structure, often invest world-wide. Funds may provide either debt or equity for projects. Through its involvement in fund structures, the EIB is able to blend its capital with other public and private flows. Additionally, the EIB contributes capital (equity or debt) in a number of other funds and programs that combine resources - at times from both public and private sources - to support climate-related investments.

- ***Derisking***

The EIB uses a number of instruments ranging from guarantees for senior and subordinate debt to structuring financial products that contribute to the sharing of risks between entities involved in and the transferring of risks between different phases of a project.

Across its activities, the EIB selectively guarantees large and small projects to make them more attractive to other investors. It provides guarantees for senior and subordinated debt, either in a standard form or as a debt service guarantee similar to that offered by monoline insurers (EIB 2013j). Through standard guarantees, the EIB pledges to pay off senior debt or subordinated debt issued by the project if the project defaults, and thus encouraging private investors to buy that debt.

In some instance, the EIB can use debt service guarantees in the form of a contingent credit line provided to a project company (CPI 2013). This occurs principally through the EU-sponsored Europe 2020 Project Bond Initiative. The objective of this program is to stimulate capital market financing for large-scale greenfield infrastructure projects in the areas of trans-European networks in transport and energy, and broadband telecommunications. The program uses “credit enhancement”

techniques to improve the credit rating of bonds issues by projects companies to finance infrastructure.

The EIB equally provides refinancing guarantees for some types of projects. For example, the EIB has committed to provide approximately EUR 550 million for the Rennes- Nantes high speed rail project. This financing will become available at the end of the construction period in order to refinance a portion of the initial debt contracted with the commercial banking sector. Given the liquidity concerns of commercial banks and similar financial actors, commitments to provide or assist in securing refinancing for projects post-construction phases can help attract finance during early stages.

Layered-debt fund structures are used by the EIB to overcome a number of investment barriers linked to climate-related projects. This type of structure is used not only to aggregate small- and medium-sized projects, but can equally “aggregate” different investor types with different risk-return profile appetites, allowing for each investor to support a differ part of the projects risks. These two characteristics can allow, in turn, funds to invest in what today are seen as sub-investment grade products: project-level risks are aggregated at the scale of the portfolio and divided into tranches for investment corresponding to the risk-return profiles appetite acceptable to a variety of investor types (EIB 2013I).

The European Investment Bank plays a role in developing and fostering public-private partnership models across the European Union. In terms of low-carbon development, this model is often used for transport projects. For example, high-speed rail line between Tours and Bordeaux in France will be constructed through a public-private partnership between *Réseau Ferré de France* (RFF) and VINCI with debt provided in part by the EIB.

- **Filling the capacity gap: provision of expertise and consultancy services**

The European Investment Bank provides expertise and facilitates capacity building. In addition to the technical and financial expertise that the EIB brings to each of the projects and initiatives that it participates in, the EIB also has a number of dedicated facilities. While these programs are not necessarily focused only on climate- and energy-specific topics (with the exception of the ELENA facility), climate and energy issues are often addressed.

To facilitate the mobilisation of funds for investments in sustainable energy at local level, the European Commission and the EIB established the ELENA technical assistance facility, financed through the Intelligent Energy – Europe programme. ELENA support covers a share of the cost of the technical support needed to prepare, implement and finance the sustainable energy investment programme, to make it ready for EIB funding.

To support new and future EU Member States to prepare major infrastructure schemes financed by the Structural and Cohesion Funds, the EIB and the EU has created the *Joint Assistance to Support Projects in European Regions* (JASPERS). This program provides technical expertise for any stage of the project cycle, covering technical, economic and financial questions. While this support can cover a broad range of activities, guidance has been developed on climate-related topics such as a recent staff working paper on “Calculation of GHG Emissions of Waste Management Projects.”

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The Joint European Support for Sustainable Investment in City Areas is an initiative of the European Commission developed in co-operation with the European Investment Bank (EIB) and the Council of Europe Development Bank (CEB). It supports sustainable urban development and regeneration through financial engineering mechanisms.

**Table 2: The EIB's roles and financial instruments to finance the low-carbon transition**

Detailed functions	Energy Efficiency	Transport	Renewable Energy
I. Access to long-term financing: capital provider and facilitator			
1. Provider	<ul style="list-style-type: none"><li>• Direct debt to projects over 25 million;</li><li>• Intermediated debt through local finance institutions</li></ul>		
2. Facilitator	<ul style="list-style-type: none"><li>• Limited equity investment through fund structures</li><li>• Pooling/ aggregation through fund structures</li><li>• Leveraging capital through bonds (such as <i>Climate Awareness Bonds</i>)</li></ul>		
II. De-risking			
1. Reducing financial risk (financing and re-financing across project phases)	<ul style="list-style-type: none"><li>• Bond enhancement</li><li>• Refinancing guarantees</li><li>• Subordinated (junior) debt/Mezzanine financing</li><li>• Standard guarantees</li><li>• Credit enhancement</li><li>• Layered debt fund structures</li><li>• Public-private partnerships (principally transport)</li></ul>		
2. Reducing project risks between the different project participants			
III. Filling the capacity gap			
Expertise Capacity building and training	<ul style="list-style-type: none"><li>• Internal expertise</li><li>• Dedicated ELENA Facility</li><li>• JESSICA Facility (urban)</li><li>• EPEC EE</li></ul>	<ul style="list-style-type: none"><li>• Internal expertise</li><li>• JESSICA Facility (urban)</li></ul>	<ul style="list-style-type: none"><li>• Internal expertise</li><li>• Dedicated ELENA Facility</li></ul>

***Mainstreaming Climate and Energy across all Activities:***

The EIB has taken steps, as many corporate and public actors, to reduce its direct and indirect GHG emissions from daily operations<sup>16</sup>. More importantly, the EIB has integrated climate and energy

<sup>16</sup> Between 2007 and 2012, the EIB reduced its per capita (employee) carbon dioxide emissions stemming from its internal operations by 37%, thus outperforming its initial objective of a 20% reduction by 2020. (EIB 2013h)

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issues into its financing and investment activities.<sup>17</sup> As such, the Bank has set portfolio-wide targets to support climate-related projects, has integrated climate change into project analysis across activities to only support best available technologies, and has equally introduced a shadow carbon price when evaluating the economic case for a project which emits GHGs.

The EIB has established a quantified climate action target as part of its performance indicators. This indicator quantifies the annual lending of projects contributing to climate action (billions of euros) compared to total investments. With the implementation of the 2012-2014 Corporate Operational Plan, the annual target has been increased to 25% from 20% in 2010. Historically, the EIB has consistently outperformed this target.

Since 2009, the European Investment Bank has been developing a methodology and guide for EIB Project Directorate staff for the calculation of the carbon footprint of projects financed by the Bank (EIB 2012c). The Bank has carried out a 3-year pilot phase from 2009-2011 to measure the impact in GHG emissions from the projects it finances. The most recent carbon footprint of the EIB's project portfolio included 63 projects, representing a total investment of EUR 50 billion, of which 27% has been financed by the EIB. These projects are expected to emit an estimated 16 million tonnes of CO<sub>2</sub> equivalent per year. Emissions savings calculated by estimating emissions that would have occurred if the project had not been built are estimated at 4 million tonnes of CO<sub>2</sub> equivalent per year. (EIB 2012a)

Finally, the EIB has taken steps to mainstream climate and energy concerns into lending practice through setting a price on carbon used in the economic appraisal of investments, the development of sectoral guidelines, and the creation of an adaptation screening tool. Most recently, the EIB has also adopted a selective approach to financing carbon-intensive electricity generation. The EIB has adopted a carbon footprint benchmark or "Emission Performance Standard in gCO<sub>2</sub>eq/kWh that it uses to evaluate fossil fuel-based projects compared to the EU climate targets.<sup>18</sup> This information is included in pre-approval screening of projects and final reports upon which investment and financing decisions are based.

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<sup>17</sup> All projects must comply with the EIB's Statement of Environmental and Social Principles and Standards. This Statement sets out the Banks requirements for a project to be acceptable in environmental and social terms.

<sup>18</sup> The EPS has been set at 550g CO<sub>2</sub>/kWh to screen the Bank's investments in fossil fuel generation projects (EIB 2013).

[http://www.eib.org/attachments/consultations/elp\\_methodology\\_emission\\_performance\\_standard\\_20130624\\_en.pdf](http://www.eib.org/attachments/consultations/elp_methodology_emission_performance_standard_20130624_en.pdf)

## **1 The role of the European Investment Bank in the low-carbon transition**

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The European Investment Bank (EIB) was created in 1958 under the treaty of Rome establishing the European Community.<sup>19</sup> The EIB is the long-term lending institution of the European Union: thus the EIB exists to support the policy objectives of the European Union through the historical and continued financing of integration, balanced development and economics and social cohesion of the EU member states. The EIB operates as a banking institution: it uses its capital endowment from its shareholders – the EU member States – to raise funds on the international capital markets to lend typically on preferential terms for projects contributing to EU policy objectives. Today, European Investment Bank and the European Investment Fund (EIF)<sup>20</sup> make up the EIB Group. This case study focuses on the activities of the European Investment Bank, looking at both its existing investment activities to foster the low-carbon energy transition. With its ability to leverage funds on international capital markets, support public policy goals, partner with and accompany private actors and interact with national financial institutions, the EIB has a strong potential – and is in many instances already active – to foster a low carbon, climate resilient transition.

### **1.1 Europe's bank supporting EU policy objectives through long-term financing**

The EIB has a mandate from European Union member countries to support projects that make a significant contribution to economic growth, employment, regional cohesion and environmental sustainability in Europe and beyond. To fulfil its mission, the EIB offers a range of financial products and services that can be grouped between **lending** (principally through loans, but also using guarantees, microfinance, equity investment), **“blending”** or leveraging additional financial sources, and **“advising”** service to aid with investment project and program preparation.

The EIB is committed to acting as a catalyst for investment in the following climate-related sectors: energy,<sup>21</sup> transport, water, wastewater, solid waste and forestry, and research and development and innovation. Throughout its actions, the EIB is able to deploy a range of financial instruments – whether through debt, equity, guarantees or fund-based models – dependent on the location sector, issue area and financial environment of the program in question. Furthermore, the EIB uses its substantial expertise to support project development and to bring in other financial partners.

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<sup>19</sup> Unless otherwise cited, information for this annexe has been drawn from the EIB's institutional website, annual reports and personal interviews with EIB staff.

<sup>20</sup> The EIF focuses on innovative financing for SMEs. The EIB is the majority shareholder with the remaining equity held by the European Union (represented by the European Commission) and other European private and public bodies.

<sup>21</sup> More broadly, in the energy sector, the Bank's activities contribute to broad EU policy objectives such as environmental sustainability; competitiveness in energy supply; and security of supply, reducing and diversifying Europe's dependence on external energy. As described further below, the EIB has recently concluded a revision of its energy lending policy and the introduction of an emission performance standard.

**1.1.1 An institution mandated to support long-term policy objectives, including climate change and low-carbon energy**

The European Investment Bank's sectors and types of activities eligible for financing are based on EU policy objectives and programs. These objectives are translated into a 3-year Corporate Operational Plan<sup>22</sup> approved by the governing bodies of the institution.

Currently, the EIB's top priorities include economic and social cohesion, growth and employment, environmental sustainability and climate action through projects tested under its environmental, social and governance responsibility (EIB Group 2012).<sup>23</sup> The EIB uses the financial instruments and services at its disposal to leverage maximum impact, thus lending to sound projects, blending EU funds with loans and advising on technical aspects. It focuses on innovation, strategic infrastructure, and resource efficiency, with smaller businesses receiving particular support. In principle its activities are spread across Europe, however economically weaker regions receive particular attention. While beyond the scope of this analysis, the EIB also undertakes operations outside the EU in support of EU external cooperation policies, either based on a mandate from the EU (referred to as the external mandate), or at its own risk using dedicated regional or sectoral facilities.<sup>24</sup>

The EIB supports the EU's goal of low-carbon and climate-resilient growth both within and outside the Union. The European Investment Bank's strategy in the area of climate change and energy is aligned *inter alia* to the EU targets in the Climate-Energy Package of 20-20-20<sup>25</sup>. Since 2007, the EIB has expanded its climate financing to include renewable energy and energy efficiency, and set itself specific targets in order to achieve concrete results. As explored in Section 4, the EIB has set for itself quantified objectives in terms of sectors for investment: at least 25% of lending per year should count towards climate action (i.e. mitigation and adaptation), which in turn is defined based on an

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<sup>22</sup> EIB Group's COP set out objectives that are being followed, including a focus on climate-related activities and resource efficiency. This has been reinforced by the 2013-2015 Operational Plan which has reconfirmed the EIB Group's commitment to climate-related areas. This second plan was issued in response to the continued European economic slowdown and as a means of framing the use of recent increase in paid in capital by EU Member States. (EIB Group 2012)

<sup>23</sup> As defined by its 2012-2014 Operational Plan, the EIB has six investment and financing priorities: Small and medium sized enterprises & mid-caps: the creators of 80% of new jobs; Regional development: to address economic and social imbalances; Environmental sustainability: including both climate action and investment in the urban and natural environment; Innovation: promoting skills and innovation at every level; Trans-European Networks: linking Europe's infrastructure, principally in transport; and Energy: building competitive and secure supply

<sup>24</sup> The European Investment Bank supports EU development and cooperation policies in partner countries. Current policy mandates include: Southern and Eastern Europe; Neighbourhood policy including the Mediterranean neighbourhood and the Russian and the Eastern neighbourhood; as well as Development and cooperation countries such as Africa, Caribbean and Pacific (and Overseas Countries and Territories), South Africa and Asia and Latin America. (EIB 2012d)

<sup>25</sup> In 2008, the European Union set targets of by 2020 reducing EU greenhouse gas emissions from 1990 levels by 20%; raising the share of EU energy consumption produced from renewable resources to 20%; and a 20% improvement in the EU's energy efficiency.



agreed list of sectors and thresholds.<sup>26</sup> As discussed in detail in Section 2, 28% of the EIB's lending activities between 2010-2012 are classified as contributing to climate action (see Section 4 for a list of eligible projects).

Furthermore, both mitigating greenhouse gas emissions and adapting to climate change are increasingly part of all EIB activities. The EIB addresses climate action as a key priority in its 2013-2015 operational plan. It explicitly states the objective of mainstreaming climate change into its core business. The Operational Plan outlines the EIB's focus on "the activities with intrinsically high and rapid economic multipliers such as renewable energy and sustainable transport infrastructure. The support of low-carbon growth will also include intelligent investment in energy efficiency of industrial infrastructure, transport, conventional energy generation, transmission and distribution and water efficiency and sustainable waste management solutions leading to reductions in greenhouse gas" (EIB Group 2012, pp.19–20).

### ***1.1.2 A finance institution working under both public and corporate governance principles***

Given that the EIB is at the same time a European Union body and a bank, it is governed by both public governance and corporate governance principles. The governance of the European Investment Bank takes the form of four committees playing different, but essential roles, in the development and implementation of the bank's investment strategy.

The EU Member States play an important role in setting the investment mandates and influence the operational activities of the EIB through the Board of Governors and the Board of Directors. Nevertheless, the management of the EIB follows corporate governance principals through the activities of the Management and Audit Committees. As such, the EIB functions in most ways as other market actors to ensure that investments are economically sound.

- **The Board of Governors**, made up of the Finance Ministers of the 28 Member States of the European Union, lays down credit policy guidelines, approves the annual accounts and balance sheet, and decides on the Bank's participation in financing operations outside the European Union and on capital increases.
- **The Board of Directors** consists of 28 Directors – one named by each of the EU Member States and one by the European Commission. The Board of Directors has sole power to take decisions in respect of loans, guarantees and borrowings. As well as seeing that the Bank is properly run, it ensures that the Bank is managed in keeping with the provisions of the Treaty and the Statute and with the general directives laid down by the Governors. The Board of

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<sup>26</sup> While these actions are beyond the scope of this study, the EIB supports the fight against climate change beyond the EU's borders. In 2011, it signed major framework loans to help finance key climate investments in China, India, Brazil and South Africa. In terms of climate action, each region has a slightly different emphasis, on energy efficiency, promotion of renewables, sustainable transport, forestry and research and development. In all regions there is growing emphasis on ensuring projects are more resilient to anticipated climate change as well as identifying opportunities to promote overall adaptation capacity, for example in water and natural resource management. Since the beginning of 2007, the Bank has financed EUR 8.3 billion of climate action projects outside Europe. (EIB 2013b)



Directors approves the 3-year Operational Plan which lays out the EIB's operational strategy over that period and provides oversight for the Management Committee.

- **Management Committee** is the Bank's permanent collegiate executive body. It has nine members made up of the President of the bank and the 8 sector-specific vice-presidents. It oversees the day-to-day running of the EIB, prepares decisions for Directors and ensures that these are implemented. The members of the Management Committee are responsible solely to the Bank; they are appointed by the Board of Governors, on a proposal from the Board of Directors.
- **Audit Committee** is an independent body answerable directly to the Board of Governors and responsible for verifying that the operations of the Bank have been conducted and its books kept in a proper manner.

The Management Committee has quantitative objectives in terms of sectors for investment in line with the EIB's Operational Plan corresponding to the policy objectives of the European Union. For example, they ensure that the objective of at least 25% of annual investments is dedicated to climate-related projects. Nevertheless, within the approved sectors for investment<sup>27</sup> and in line with the EIB's operational guidelines and strategy, the logic applied to the analysis and acceptance of individual projects is that of a commercial bank. As such, approval by the Management Committee and, subsequently, the Board of Directors, is based on the financial and economic viability of the project in addition to fulfilling EU policy goals.

## **1.2 Characteristics to support a low-carbon, climate resilient transition**

### ***1.2.1 Leveraging low-cost finance from the international capital markets for both large- and medium- sized projects***

The European Investment Bank was capitalised by the EU Member States. Historically most of its own capital has been generated organically, although in 2012 the EU provided a EUR 10 billion increase to allow EIB to sustain higher lending volumes in response to the on-going economic crisis.<sup>28</sup> Today, its subscribed capital stands at EUR 243 billion (August 2013)<sup>29</sup> with a balance sheet of EUR 522 billion. The EIB uses this capitalisation to be financially autonomous and does not depend on the EU budget to finance its lending activities.

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<sup>27</sup> Coherent with European policy and objectives, the EIB is excluded from investing in a number of sectors such as alcohol, arms, drugs, etc., or as described below has set thresholds upon the conditions upon which its investment in certain sectors (such as coal fired power plants) occurs.

<sup>28</sup> The capital increase has strengthened the EIB balance sheet, allowing for a EUR 60 billion or 43% expansion in the lending targets for 2013-2015 compared to the pre-capital increase figures announced in the Operational Plan 2012-2014 and with overall lending for 2013-2015 targeted at EUR 200 billion. (EIB Group 2012)

<sup>29</sup> As of August 2013, the EIB's total subscribed capital totals EUR 243.3 billion after the most recent capital increase and accession of Croatia. The EIB has a paid-in capital of EUR 21.7 billion and a callable capital amount of EUR 221.9 billion. (EIB 2013g)

Since its creation, the EIB has focused on covering the gap in the financing markets in terms of providing long-term debt.<sup>30</sup> While the majority of the EIB's financial activity has focused on the provision of Senior Debt, the EIB has a historical role in developing and experimenting with new investment and finance instruments that are able to draw in additional sources of financing and is in many instance already using this to finance low-carbon projects.

Traditionally the EIB has taken a conservative risk and asset model to its investment practice and thus leverages a large portion of the funds used in lending through bond issuance on the international capital markets.<sup>31</sup> Benefiting from its strong credit rating, the EIB has been able to maintain a capital leverage ratio of 1:2.5 – typically higher than other bilateral and multilateral financial institutions such as the World Bank (1:1) (Knowles 2013). The EIB's AAA rating allows the institution to borrow at advantageous rates and thus offer advantageous terms to its clients. The EIB is a not for profit institution. Financing conditions depend on the investment type and the security offered. Furthermore, while EIB overall follows a conservative risk policy consistent with its AAA status, it is able to take single risks of a size that other market actors may not be able to absorb given the large size of its balance sheet and thus contribute to a large project being successfully financed.

In recent years and as described in detail in Section 3, the EIB has applied its knowledge of bond markets to raise additional capital for renewable energy and energy efficiency projects. The EIB's *Climate Awareness Bonds* raise funds from fixed income investors to support EIB lending. This gives investors with the opportunity o channel funds into projects contributing to climate protection, with the added reassurance of the credit quality of the EIB as an issuer. Since 2007, Climate Awareness Bonds have raised EUR 3.4 billion in seven currencies. In July 2013, the EIB launched a EUR 650 million *Climate Awareness Bond*, which was further increased by a total of EUR 500 million and is currently the largest outstanding climate-themed bond from a supranational issuer (EIB 2013e; EIB 2014).

### ***1.2.2 With a broad toolbox of instruments to support projects and draw in additional financing***

While the EIB is most active through debt, grants are in some cases available to finance technical assistance through dedicated programs. The EIB equally participates in externally managed fund structures offering equity/risk-capital and co-funding options for commercial and non-commercial investors. The EIB also is involved in providing guarantees and underwriting the risks on certain projects. Since 1970s and 1980s, the EIB has increasingly been involved different forms of project finance, particularly through the development of public-private partnership projects in the United Kingdom and elsewhere in the EU.

With its EU Member State shareholders looking for new ways to finance development, the EIB has increasingly expanded its toolbox. Since the early 2000s, it has been exploring Junior Debt forms of financing – including mezzanine debt, stand-by facilities and corporate lending. It has equally been exploring a number of equity and quasi-equity products, principally through different fund structures.

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<sup>30</sup> The tenor of an EIB loan does not exceed the economic life of the project.

<sup>31</sup> In 2011, the Bank borrowed EUR 76 billion from the international capital markets.

Finally, the EIB capitalises (and described below) on existing joint instruments such as the European Local Energy Assistance Facility (ELENA), the Global Energy Efficiency and Renewable Energy Fund (GEEREF), the Green for Growth Fund and the European Energy Efficiency Fund, and seeks to develop new initiatives with the European Commission to further improve the leverage effect of European Union's budgetary resources on EIB lending supporting climate action.

### **1.2.3 The added value of expert knowledge to grow new market areas**

With more than 50 years' experience in investment project financing, the EIB is not just an important source of capital and financing for projects. It has become a market expert and pioneer, developing and sharing expertise at the service of the larger market. Headquartered in Luxembourg, the EIB has a network of local and regional offices in Europe and beyond. Through its corps of over 300 engineers and economists, the EIB is continuously developing both screening and analysis techniques to apply to its projects and share with other market players – including climate-related screening tools as described below. This experience has led to the development of a unique knowledge base on economic, technical, environmental and social standards and its application to investment decision-making.

Furthermore, given its mandate to invest in sectors in which investments are often accompanied by high technology or other informational risks, the EIB plays a role in demonstrating and developing financial models for new market areas. This information is shared both through cooperation with market players and the different facilities that the EIB has developed in partnership with the European Union, such as ELENA and JASPERS described in Section 4.

## **2 Current activities related to the low-carbon energy transition in the European Union**

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The European Investment Bank's activities related to the low-carbon energy transition are intrinsically linked to the European Union's climate and energy policies. The European Council in March 2007 announced the "3x20" climate targets for 2020. These aimed to:

- Increase the share of renewable energy in final energy consumption to 20%
- Improve energy efficiency by 20%,
- Reduce GHG emissions by 20% compared to 1990.

The Energy/Climate legislative package of March 2009 established specific policies to reach these goals through four measures: reform of the EU Emissions Trading System; national targets for non-EU ETS emissions; national renewable energy targets; and the creation of a legal framework for carbon capture and storage technologies. The EU policy framework for energy efficiency was subsequently put into place through the 2011 Energy Efficiency Plan and the 2012 Energy Efficiency Directive.<sup>32</sup> All illustrated below, the European Investment Bank has played an important role in supporting this larger policy framework.

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<sup>32</sup> The EU Energy Efficiency Directive includes legally binding measures to increase EU Member States' efforts to use energy more efficiently – from the transformation and generation to distribution and final consumption. This includes the legal obligation for Member States to establish energy efficiency schemes or policy measures.

This section will look at their full range of the EIB's activities in relation to the low-carbon energy transition, focusing principally on project investment. The individual tools and instruments identified in this section are explained in detail in Section 3.

## 2.1 Quantifying the current role of the European Investment Bank

As seen in **Erreur ! Source du renvoi introuvable.**, between 2010-2012 climate-related lending at the EIB made up approximately 28% of total lending. In general, fluctuations in the volume of climate-related funding has closely followed the volumes of total EIB lending.<sup>33</sup> The EIB only invests in financial viable projects – often bringing high-volumes of funds at long-tenors not easily secured on the capital markets. It also has a track record of supporting the development of innovative low-carbon projects. Such projects are often perceived as having technology and other project-based risks that make them unattractive to many investors. Furthermore, both mitigating greenhouse gas emissions and adapting to climate change are increasingly part of all EIB activities. Given the range of different financial instruments available to the EIB, the financing of each project is adapted to the sector in question, credit worthiness of the counterparty and project size.

**Table 3: EIB Climate-Related Lending between 2010-2012**

	2010		2011		2012		2010-2012	
	%	EUR bn		EUR bn		EUR bn		EUR bn
Sustainable Transport	11%	7,7	13%	8,1	11%	5,7	12%	21,5
Renewable Energy	8%	6,0	9%	5,7	7%	3,3	8%	15,0
Energy Efficiency	3%	2,2	2%	1,3	2%	1,1	3%	4,6
RD&I	6%	4.0	3%	1.7	3%	1.7	4%	7.5
Other	0.3%	0.2	3%	2.1	0.8%	0.4	1.5%	2.7
CA adaptation					2%	1,1	0.6%	1.1
<b>Total Climate-Related Lending*</b>	<b>28%</b>	<b>20,2</b>	<b>31%</b>	<b>18,9</b>	<b>26%</b>	<b>13,3</b>	<b>28%</b>	<b>52,3</b>
<b>Total Lending</b>		<b>72</b>		<b>61</b>		<b>51</b>		<b>184</b>

*\*Total includes lending for Research & Development and Innovation and Other Climate-related investment. International climate-related lending is equally included in these totals (EUR 9 billion between 2008-2012). Source: Annual volume and percentages calculated based on data communicated by the EIB.*

As part of its annual reporting, the European Investment Bank tracks the funds invested in the three categories treated in this report: renewable energy, energy efficiency and sustainable transport.

No comprehensive data is currently available concerning the calculation of the leveraging of private assets. The EIB has estimated that its 10% participation in a fund structure can lead to 90% additional

<sup>33</sup> The EIB's annual lending activities as a whole, climate included jumped by 40% after 2008 jump to peak at EUR 79 billion in 2010. This volume, however, was not deemed as sustainable indefinitely based on the Bank's traditional capital model. A progressive return to annual investments of around EUR 55 billion in 2012-13 was expected. However, when the economic crisis has not occurred as rapidly as expect, EU Member States provided EUR 10 billion in additional capital at end 2012 to support higher volumes of lending. (Knowles 2013)

funds raised (1:10), which then on average provides 25% of the capital needed for a given project. Thus, some structures appear to allow an on-the-ground leveraging effect of 1:40 (Knowles 2013). Across all its activities, the EIB has estimated that it has been able to maintain a capital leverage ratio of 1:2.5 (EIB 2013b).

The EIB's Operational Plans lay out annual targets for investment. Within the 2013-2015 Operational Plan, a portion of the recent capital increase is planned to support EU Resource Efficiency actions (EUR 15-20 billion over three years) through credit enhancement products for renewable energy projects as well as increased RSFF coverage of innovative climate action projects.<sup>34</sup> This plan equally includes an increase in planned funding for the EU Strategic infrastructure (EUR 10-15 billion), principally through the Project Bond Initiative in support of the infrastructure finance market in energy<sup>35</sup>, transport and telecommunications as well as direct support of PPPs and private investments. (EIB Group 2012)

The EIB's 2013-2015 Operational Plan thus calls for, on average, at total of EUR 6.5 billion lending per year for energy efficiency and renewable energy and EUR 4 billion per year for sustainable transport. Totally annual lending over this period is predicted to be on average 63.2 EUR billion. (EIB Group 2012, p.16)

## **2.2 Sectors of investment in low-carbon projects**

The EIB is involved in the financing of low-carbon projects in the areas of renewable energy, energy efficiency and sustainable transport. The EIB provides technical and financial expertise and blends funds from additional public and private sources to finance different climate-related areas including:

- Renewable energy generation and promotion
- Rational energy use
- Energy efficiency technology
- Sustainable public and private transport
- Water: efficient supply and management
- Recycling
- Forestry: acting as carbon sinks and combatting soil erosion
- Research, development and innovation

The EIB's investment approach has evolved in 2013 following the completion of a comprehensive energy policy review. In July of 2013, the EIB published new screening and assessment criteria for energy projects in line with the European Union's objective of a secure, competitive and sustainable

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<sup>34</sup> Environment e.g. protection, improvement and management of terrestrial and marine natural resources (incl. landscape, habitats & biodiversity, forestry, fisheries, rehabilitation of contaminated land and freshwater resources); Water and waste management, agro-industries, flood control; Other climate action (including mitigation and adaptation); "Smart grids", renewable energy production and infrastructure and equipment required to connect new generation capacities to transmission grid; Sustainable and resource efficient transport; Energy efficiency and – more generally – investments to reduce resource consumption. (EIB Group 2012)

<sup>35</sup> Including the development and expansion of energy networks to improve the EU's security of energy supply, deployment of "smart grids", electricity storage, and development of offshore grids. (EIB Group 2012)

energy supply (EIB 2013d). This study has taken into consideration the projected investment needs, the EU's current policies for investment, global energy market changes and specifically the issue of climate change. Given current EU objectives<sup>36</sup> and future energy investment needs, it is estimated that three sectors – energy efficiency (EE), renewable energy (RES) and energy networks – will account for roughly 90% of total needs (EUR 200billion per year) (EIB 2013d). The criteria introduced in 2013 build upon a previous policy introduced in 2007 on Clean Energy for Europe, which highlighted support to renewable energy and energy efficiency and introduced restrictions on the finance of coal and lignite plants. The EIB has previously conducted similar policy reviews with respect to the transport sector and the water sector.

As described in detail below and in Section 3, within these areas for investment, the EIB has identified a number of means of intervention:

- Catalyse and stimulate additional public and private investment in projects and sectors;
- Provide access to financing for capital-intensive up-front investments;
- Limited use of refinancing guarantees and related instruments when needed to bridge the gap between construction and operational phases to assure liquidity for initial project financiers.

### **2.2.1 Scope, Range and Beneficiaries of Activities of Low-Carbon Investment Activities**

The EIB is involved to a varying degree across the renewable energy, energy efficiency and sustainable transport sectors. Furthermore, as seen in **Erreur ! Source du renvoi introuvable.**, the EIB is equally involved at multiple stages of a project's life – from development through studies and expertise to operational stages through refinancing assistance for certain project types – particularly in the transport sector. Nevertheless, the entry point of EIB's financing activities is concentrated principally during the late development and construction phase – providing the necessary debt, structured finance and guarantee to draw in additional financing and get projects off the ground. Having entered the financing of a project the EIB does not sell or trade its participation but remains for the long term.

The principal beneficiaries of the EIB's programs, seen in **Erreur ! Source du renvoi introuvable.**, are public actors (national agencies, sub-national governments), financial intermediaries, large-scale project developers and small- and medium-sized companies. The EIB, however, has limited contact within individual households with the principal exception of intermediated lending.

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<sup>36</sup> As described above, the EU has an objective of renewable energy sources making up 20% of total energy consumption in 2020.

**Table 4: Principal Sectors, Project Types and Instruments of Intervention of the EIB**

	Renewable Energy		Energy Efficiency					Transport
	Small Scale	Large-Scale	Small Scale		Large Scale			
			Residential	SMEs	Commercial/ Industrial	Public Buildings	Social housing	
Access to Capital	<ul style="list-style-type: none"> <li>- Intermediated Lending</li> <li>- External &amp; Internally-Managed Funds</li> </ul>	<ul style="list-style-type: none"> <li>- Direct Debt</li> <li>- External &amp; Internally-Managed Funds</li> </ul>	<ul style="list-style-type: none"> <li>- Externally-managed funds</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediated Debt</li> <li>- Externally-managed funds</li> </ul>	<ul style="list-style-type: none"> <li>- Intermediate Lending</li> <li>- Dedicated programmes (Green Initiative )</li> </ul>	<ul style="list-style-type: none"> <li>- Direct Lending</li> <li>- Externally-managed funds</li> </ul>	<ul style="list-style-type: none"> <li>- Direct lending</li> <li>- Intermediated lending</li> </ul>	<ul style="list-style-type: none"> <li>- Direct Lending</li> </ul>
Derisking		<ul style="list-style-type: none"> <li>- Guarantees</li> <li>- Layered debt funds</li> </ul>			<ul style="list-style-type: none"> <li>- Structured finance</li> </ul>	<ul style="list-style-type: none"> <li>- Structured finance</li> </ul>		<ul style="list-style-type: none"> <li>- Structured finance</li> <li>- Guarantees</li> <li>- PPPsNER</li> </ul>
Capacity/ Expertise	<ul style="list-style-type: none"> <li>- Internal expertise</li> <li>- Dedicated ELENA Facility</li> <li>- JESSICA Facility</li> </ul>							<ul style="list-style-type: none"> <li>- Internal expertise</li> <li>- JESSICA Facility (urban)</li> </ul>

**Table 5: Principal phases of project involvement and principal forms of intervention**

	Phases of Involvement		
	Development:	Construction:	Operational:
Renewable Energy	<ul style="list-style-type: none"> <li>- Technical assistance programs (ELENA)</li> <li>- Technical assistance programs available (JESSICA)</li> </ul>	<ul style="list-style-type: none"> <li>- Debt financing</li> <li>- Guarantees</li> <li>- Equity through fund structures</li> </ul>	<ul style="list-style-type: none"> <li>- Limited use of refinancing guarantees (principally for large-scale transport projects)</li> </ul>
Energy Efficiency			
Sustainable Transport	<ul style="list-style-type: none"> <li>- Technical assistance programs available (JESSICA)</li> </ul>		

**Table 6 : Principal Beneficiaries of Intervention from the EIB1**

	Public	Private		
	Agencies, Sub-national governments	Utilities /Large Corporations	SMEs	Households
Renewable Energy	X	X	X	No Activity
Energy Efficiency	X	X	X	
Sustainable Transport	X	X (PPPs)		No Activity



### 2.2.2 *Renewable Energy*

The power sector is a priority area of investment for the European Investment Bank with an identified need of over a trillion euros over the next 10 years in the European Union. EIB has responded by substantially increasing lending to EU energy projects from EUR 9 billion worth of loans signed in 2008 to more than EUR 11bn in 2011 (EIB 2013o). Today, energy-related financing accounts for 20% of total EIB lending in Europe. This includes lending and support for:

- **Energy networks:** (including electricity transmission and distribution grids and natural gas transport infrastructure), accounting for EUR 4bn in 2011
- **Power generation:** in the EU reached EUR 4.6bn in 2011, with 80% supporting renewable energies while 16% helped to finance gas generation and 1% coal or oil power generation.

Between 2010 and 2012, lending for renewable energy totalled EUR 15 billion, or 8% of all EIB lending over this period. In 2011, the EIB funded more than 10% of all renewable investments in Europe and in 2012, renewable energy lending made up 30% of all EIB support for energy projects (EIB 2013o).

Stemming from the 2013 review of its support for energy project, the EIB will continue to prioritize investment in renewable energy projects. Over the medium-term, the EIB's aim is to foster a continued decrease in renewable energy costs to allow these projects to become increasingly financially competitive with fossil fuels.<sup>37</sup>

The 2013 review confirms the Bank's approach towards prioritising support towards renewable energy projects. The Bank continues to focus on the economic justification of RES projects to ensure that the projects it finances are viable in the long term, and take account of the long term cost of carbon, the expected generation profile of the project (intermittent or not), and the full system costs associated with the project (capacity) (see Section 4 for more information). Currently, the majority of its renewable energy loans go to wind and solar power generation. However, given the objective of supporting market development, the EIB applies more stringent cost thresholds in the analysis of investments in "mature" renewable energy technologies, such as onshore wind farms, hydropower, geothermal and solid biomass. Working to foster the development of less-mature technologies, the EIB strongly encourages the expansion of early-stage or evolving technologies such as offshore wind, photovoltaic and concentrated solar power and second-generation biofuels.

The EIB's new project evaluation criteria will equally have an impact on the EIB's lending for hydrocarbon production and fossil-fuel based electricity generation plants. The EIB has substantially reduced its financing for sectors of hydrocarbon production - representing less than 1% of EIB loans in the energy field since 2005. What is more, in the refineries sector the Bank's financing

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<sup>37</sup> It should be noted however that ensuring access to secure supplies of oil and gas at competitive prices is an important EU objective. Further, even with weak or negative consumption growth, EU hydrocarbon import dependency is expected to increase with gas imports forecast to reach 80% of demand in 2030. As such, the EIB will consider investment in unconventional hydrocarbon production. However this will depend on EU policy and the development of appropriate and acceptable environmental and operational safeguards by the EC and Member States, and on these reserves being economically recoverable.

concentrates on energy efficiency and conversion projects, and virtually excluding capacity expansion. The EIB has also adopted a selective approach to financing carbon-intensive electricity generation. While taking a “technology neutral” approach, the EIB will also adopt a “no regrets” approach to ensure that fossil fuel projects financed do not “lock in” carbon emissions above levels consistent with EU climate targets (EIB 2013*EIB and Energy*). As such, the EIB will apply a carbon footprint benchmark or “Emission Performance Standard in gCO<sub>2</sub>eq/kWh.”<sup>38</sup> Furthermore, fossil fuel plant operators will need to demonstrate compliance with the EU Carbon Capture and Storage Directive (EIB 2013*EIB and Energy*). The EPS has been set at 550g CO<sub>2</sub>/kWh to screen the Bank’s investments in fossil fuel generation projects.<sup>39</sup>

**Table 7: Renewable energy Investment by the EIB**

<b>Government Engagement</b>	<ul style="list-style-type: none"> <li>- EU Energy objectives of providing a secure, competitive (inexpensive) and sustainable energy supply</li> <li>- EU Climate &amp; Energy Objective of renewable energy sources making up 20% of total energy consumption in 2020.</li> </ul>
<b>EIB Commitment</b>	<ul style="list-style-type: none"> <li>- 25% of total investment contribute to climate-related areas</li> <li>- Prioritize lending to renewable energy projects</li> </ul>
<b>Identified Need</b>	<ul style="list-style-type: none"> <li>- Policy stability</li> <li>- Availability of high-volume, long-term capital for projects in this sector</li> </ul>
<b>Phases of involvement</b>	<ul style="list-style-type: none"> <li>- Development: limited R&amp;D financing; some technical assistance programs available (ELENA – see Section 3)</li> <li>- Construction: provision of debt financing, guarantees and some equity through fund structures</li> </ul>
<b>Financial Instruments</b>	<p>Principally debt (direct or intermediated) to:</p> <ul style="list-style-type: none"> <li>- Construction financing of large-scale mature renewable projects (renewable energy technologies, such as onshore wind farms, hydropower, geothermal and solid biomass);</li> <li>- Development and construction financing for encourage the expansion of early-stage or evolving technologies such as offshore wind, photovoltaic, concentrated solar power and second-generation biofuels</li> </ul>
<b>Risk sharing / transfer</b>	<ul style="list-style-type: none"> <li>- Use of guarantees to attract additional finance, including refinancing guarantees</li> <li>- Public Private Partnerships</li> <li>- Structured finance instruments for sub-investment grade projects and risks</li> </ul>
<b>Capacity support</b>	<ul style="list-style-type: none"> <li>- Dedicated ELENA facility</li> </ul>
<b>Current levels of Investment</b>	2010-2012 - EUR 15 billion 2010-2012 or 8% of all EIB lending over the period

<sup>38</sup> The EIB’s energy policy allows two possible exemption to the EPS – one for isolated energy systems (e.g. small islands), and one for the poorest countries outside the EU.

<sup>39</sup> EIB (2013) EIB Emission Performance Standard. *European Investment Bank*. Accessed October 16 2013 [http://www.eib.org/attachments/consultations/elp\\_methodology\\_emission\\_performance\\_standard\\_20130624\\_en.pdf](http://www.eib.org/attachments/consultations/elp_methodology_emission_performance_standard_20130624_en.pdf) (EIB 2013f)

### 2.2.3 Energy efficiency

The European Investment Bank invests in energy efficiency projects not only to foster energy savings, but to improve the competitiveness of the EU economy and foster local job creation. Its investment occurs within the framework of the European Union's goal of increasing energy efficiency by 20% by 2020. The EU Commission estimate that overall up to EUR 85 billion a year should be invested in energy efficiency to achieve the targeted 20% reduction by 2020. The largest share of these investments is in the buildings sector, where an estimated EUR 60 billion is needed per year in investments in order to realize the economic energy efficiency potential (EIB 2013d).

EIB financing for energy efficiency totaled EUR 4.6 billion between 2010-2012, or approximately 3% of all EIB lending over the same period. Projects typically include retrofitting and expansion of existing social and urban infrastructure and services. The majority of the Bank's energy efficiency investments are in buildings (50%), the energy sector, notably CHP (30%) and industry (15%) (EIB 2013). EIB financing for such projects covers both the supply side (such as combined heat and power and district heating) and the demand side (mainly insulation of public and private buildings).

Given the diffuse nature of energy efficiency, the EIB has mainstreamed (explored further below) energy efficiency considerations across all its activities. It applies the highest EU standards in terms of cogeneration and the energy performance of buildings. Energy audits are often undertaken to assess whether investments are in line with its standards.

The EIB has a wide range of financial instruments and capacity building tools to assist in the development and deployment of energy efficiency projects. Given that energy efficiency project often involved a large number of actors and investments being relatively small in size, the EIB uses both direct and intermediated instruments (see Section 3).

- Direct financing of large-scale projects (above 50 million euros), the EIB has expanded its intermediated lending through local finance institutions and banks, public authorities, energy service companies or public-private partnerships.
- Blending EIB and European Commission funds to support for energy efficiency projects under 25 million euros by small and medium sized enterprises (SMEs) in new EU Member States and pre-accession countries through the *Green Initiative*;
- Providing financing to EE projects through the provision of equity to fund structures (see Section 3 for more details) such as the *Green for Growth Fund* and the *European Energy Efficiency Fund*.
- The *Special Action Facility* (previous *Structure Finance Facility*) and the *Risk Sharing Finance Facility* both provide financing for sub investment-grade transactions.
- The EIB also helps support expertise-sharing on project development through a number of the programs described above (such as the *Green Initiative*) and through the dedicated ELENA facility. ELENA support covers a share of the cost of the technical support needed to prepare, implement and finance the sustainable energy investment program of municipal and regional governments, to make it ready for EIB funding.

**Table 8: Energy Efficiency Investment by the EIB**

<b>Government</b>	EU Climate-Energy Objectives: goal of increasing energy efficiency by 20% by
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<b>Engagement</b>	2020
<b>EIB Commitment</b>	<ul style="list-style-type: none"> <li>- Integrated into all lending practices: 25% of investments to mitigate GHG emissions and improve adaptation to climate change; “mainstreaming” of energy efficiency to ensure that appropriate EE measure have been considered in all projects financed across the institution;</li> <li>- Direct lending and the development of specific programs to target priority areas including buildings, transport and industry;</li> <li>- Support to promoters and financial intermediaries to develop the market for energy efficiency projects.</li> </ul>
<b>Identified need:</b>	<ul style="list-style-type: none"> <li>- Capacity development at level of project preparation and financial intermediaries</li> <li>- Availability of capital for often small projects using new technologies</li> <li>- Financial structuring of projects to facilitate risk sharing and draw in external capital</li> <li>- Aggregation of small-scale projects</li> </ul>
<b>Phases of involvement</b>	<ul style="list-style-type: none"> <li>- Development: limited R&amp;D financing; dedicated technical assistance programs available (ELENA) and technical facilities integrated into individual programs (Green for Growth, the Green Initiative)</li> <li>- Construction: provision of debt financing, guarantees and some equity through fund structures</li> </ul>
<b>Financial Instruments</b>	<p>Mix of instruments, principally debt</p> <ul style="list-style-type: none"> <li>- Direct debt – projects over 50 million euros</li> <li>- Blending of debt lending with EU Commission resources for projects under 25 million euros in new EU Member States through the <i>Green Initiative</i></li> <li>- Intermediated debt – partnering with local finance institutions and banks, public authorities, energy service companies or public-private partnerships</li> </ul>
<b>Risk sharing / transfer</b>	<ul style="list-style-type: none"> <li>- Use of guarantees to attract additional finance, including refinancing guarantees</li> <li>- Public Private Partnerships</li> <li>- Structured finance instruments for sub-investment grade projects and risks</li> </ul>
<b>Capacity support</b>	<ul style="list-style-type: none"> <li>- Internal expertise and program-based technical assistance</li> <li>- Dedicated ELENA facility</li> </ul>
<b>Current levels of Investment</b>	2010-2012 - EUR 4.6 billion 2010-2012 or 3% of all EIB lending

### 2.2.4 Sustainable Transport

In the transport sector, the European Investment Bank's lending contributes to European Union policy objectives concerning the environment, regional development, the knowledge economy, Trans-European Networks<sup>40</sup>, connections with neighbouring countries and development. As such, climate and energy preoccupations are one of a number of policy priorities and objectives in this area of investment. Nevertheless, as is the case for all of the EIB's activities, climate change considerations are mainstreamed into all transport projects.<sup>41</sup> These considerations aim to direct support towards "sustainable transport modes," such as rail, urban public transport, and water-borne transport. (Anon 2013)

Between 2010-2012, the EIB lent EUR 21.5 billion 2010-2012 or 12% of EIB lending over the same period. To illustrate the scope of their activities in this sector, in 2011, the EIB supported a total of 37 transport infrastructure projects in 13 countries in the EU. Rail projects accounted for more EIB finance than investment in roads, with EUR 4.3 billion and EUR 3.4 billion respectively. In 2011, support for sustainable transport amounted to EUR 8 billion (EIB 2012a). Projects included the Ile-de-France transport network upgrade involving four tramway lines in Paris, the first tramway in Tours (France) and the Nottingham (UK) tram network extension, and the extension of metro lines in Rome, Prague, Bucharest and Helsinki. The EIB-backed sustainable transport projects promote a shift from private to public transport and investing in lower-carbon transport of goods and people. This in turn supports the development of low-carbon transport modes, improvements in energy efficiency and limits greenhouse gas emissions, while often improving air quality and reducing noise pollution.

The Bank's support of low-carbon transport ranges from:

- the construction, extension or rehabilitation of sustainable transport infrastructure (for example railway, light rail, metro and tramway systems, short-sea shipping, inland waterways and bus rapid transit systems)
- the acquisition of its associated vehicles/rolling stock,
- the promotion of cycling and pedestrian networks,
- deployment of electro-mobility;
- traffic management systems.

The EIB also promotes the development of cleaner and safer vehicles by supporting research and development for energy-efficient and low-emission transport solutions.

The EIB's support for these different types of projects takes a number of forms:

- **Direct financing** of projects;

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<sup>40</sup> Trans-European Networks are transport projects deemed to contribute to the integration of the European Union. In 2012, the EU recognises 30 priority TEN projects, 21 of which are rail schemes, while the rest consist of road, port, inland waterway and airport projects.

<sup>41</sup> All projects must comply with the EIB's Statement of Environmental and Social Principles and Standards. This Statement requires the EIB to optimize the balance between environmental and social costs and other project benefits. (EIB 2009). [http://www.eib.org/attachments/strategies/eib\\_statement\\_esps\\_en.pdf](http://www.eib.org/attachments/strategies/eib_statement_esps_en.pdf)

- **Public private partnerships**, representing almost a third of the EIB's transport financing;<sup>42</sup>
- **Project Bonds Initiative** (described in detail below in **Section 3**), a joint program between the European Commission and the EIB, which aims to boost the funding of long-term infrastructure projects by attracting capital from institutional investors, such as pension funds and insurance companies. The EIB will play a role in the credit enhancing of the project bonds issued by the special purpose vehicles (SPVs) to foster a broader participation of financial actors.
- In the urban transport sector, the EIB's direct lending is complemented by the EIB-managed **JESSICA (Joint European Support for Sustainable Investment in City Areas)** program that assists with the allocation of EU Structural Funds to projects forming part of an integrated plan for sustainable urban development and regeneration (described further in **Section 3 below**).

**Table 9: Sustainable Transport Investment by the EIB**

<b>Government Engagement</b>	<ul style="list-style-type: none"> <li>- European Union policy transport policy objectives regarding the environment, regional development, the knowledge economy, Trans-European Networks, connections with neighbouring countries and broader development;</li> <li>- Energy efficiency and renewable energy use in the transport sector stemming from the 3x20 objectives</li> </ul>
<b>EIB Commitment</b>	<ul style="list-style-type: none"> <li>- the construction, extension or rehabilitation of sustainable transport infrastructure (for example railway, light rail, metro and tramway systems)</li> <li>- the acquisition of its associated vehicles/rolling stock,</li> <li>- the promotion of cycling and pedestrian networks,</li> <li>- deployment of electro-mobility;</li> <li>- traffic management systems.</li> </ul>
<b>Identified need:</b>	<ul style="list-style-type: none"> <li>- Capital provision to large-scale projects of European interest</li> <li>- Supporting investment in railways, inland waterways and maritime projects</li> <li>- Fostering development (capacity building) and financing of public transport, particularly in urban areas</li> </ul>
<b>Phases of involvement</b>	<ul style="list-style-type: none"> <li>- Development: R&amp;D financing; technical assistance programs (ELENA &amp; JESSICA)</li> <li>- Construction: provision of debt financing, guarantees</li> <li>- Operational: assistance with refinancing (guarantees)</li> </ul>
<b>Financial Instruments</b>	<ul style="list-style-type: none"> <li>- Principally debt through direct lending (senior debt)</li> </ul>

<sup>42</sup> For example, the EIB is providing EUR 600 million in debt (of which EUR 400 million is guaranteed by the French State) to the public private partnership vehicle (LISEA) selected for the construction and operation of the Tours – Bordeaux high speed rail project signed in France in 2011 (VINCI 2011).

<b>Risk sharing / transfer</b>	<ul style="list-style-type: none"> <li>- 1/3 of financing occurs through public-private partnerships</li> <li>- Guarantees and refinancing guarantees</li> <li>- Bond enhancement through the Project Bonds Initiative</li> </ul>
<b>Capacity support</b>	<ul style="list-style-type: none"> <li>- ELENA facility: supports increased energy efficiency and integration of renewable energy sources also in urban transport.</li> <li>- JESSICA facility: assistance for urban public transport development</li> </ul>
<b>Current levels of Investment</b>	<p>2010-2012: EUR 21.5 billion or 12% of all EIB lending</p> <p>2011: the EIB supported a total of 37 transport infrastructure projects, connecting people in 13 countries in the EU.<sup>43</sup></p> <p>Rail: 4.3 billion</p> <p>Road: 3.4 billion</p> <p>Sustainable transport: EUR 8bn.</p>

## 2.3 Supporting carbon finance and market-based tools

While marking up only a small portion of its climate-related activities, the European Investment Bank has historically played an important role in supporting carbon finance. The EIB has been involved in a number of programs to help not only EU Member States implement its GHG emission reduction commitments, but equally encourage developing economies' engagement by developing market-based instruments. Several instruments aimed at reinforcing the carbon markets and supporting the development of green technologies were launched, the first of which beginning in 2006. All funds below are closed or are in the process of closing:

- **Multilateral Carbon Credit Fund** - A joint project with the European Bank for Reconstruction and Development (EBRD), the Multilateral Carbon Credit Fund (MCCF) is a EUR 208.5 million fund designed to assist private and public companies and EBRD and EIB shareholder countries to purchase carbon credits from emission reduction projects financed by the EIB or EBRD to meet their mandatory or voluntary greenhouse gas (GHG) emission reduction targets.
- **Carbon Fund for Europe** – Developed in partnership with the World Bank, the CFE is a trust fund established by the World Bank, in cooperation with the European Investment Bank (EIB), is designed to help European countries meet their commitments to the Kyoto Protocol and the European Union's Emissions Trading Scheme (EU ETS). The fund purchases greenhouse gas emission reductions through the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation (JI) from climate-friendly investment projects from either bank's portfolio and self-standing projects.
- **EIB-KfW Carbon Programme I & II** - The EIB-KfW Carbon Programmes I and II purchase carbon emission credits according to the Clean Development (CDM) and Joint Implementation (JI) Mechanisms set up by the Kyoto Protocol and for credits to be regulated under their post- 2012 successor(s). The target of the Fund are potential sellers of CERs or ERUs who are preparing CDM and JI projects and wish to enter into a emission reduction purchase agreement (ERPA) with KfW.

<sup>43</sup> EIB, 2012. Activity Report 2011. European Investment Bank. (EIB 2013b)

- **Post 2012 Carbon Credit Fund** – in partnership with four national development banks, the EUR 125 million fund was the first of its kind to exclusively purchase and trade carbon credits generated in the post Kyoto period, potentially up to 2022. By assuming the inherent regulatory risk, the Fund gives a clear signal to the market of the EIB and its partners' confidence in the development of a post Kyoto regime while directly supporting environmental projects.
- **Fonds Capital Carbone Maroc** – Established in partnership with Morocco's Caisse de Dépôts et de Gestion (CDG), the objective of the fund is to support investment in clean technology projects in Morocco through the purchase of carbon credits.

## 2.4 Investment in adaptation activities and the forestry sector

The European Investment Bank has equally made adaptation to climate change a priority in its investment practices. In 2011, the EIB supported 16 projects, of which 14 in the water sector, that contribute to increasing climate-resilience and adaptation to changing weather conditions. These projects were located both inside and outside the EU, and amounted to a total of 1.2 billion euros.

The EIB has been active in the forestry sector through its activities in afforestation and reforestation in the EU for thirty years. Its activity in this area occur through direct financing of projects (EUR 200 million loan for afforestation and forest management measures in Hungary; EUR 75 million for forest fire prevention in Spain). The EIB is also active in this area through a number of global private equity funds. This includes EUR 30 million invested in the Dasos Timberland Fund<sup>44</sup>, and up to EUR 25 million in the Althelia Climat Fund.<sup>45</sup> (Lang 2013)

## 2.5 Supporting R&D and specialized SMEs to foster a low-carbon offer on the market

The European Investment Bank is active in supporting the creation and growth of small- and medium-sized companies and providing financing for research and development. The EIB and the European Investment Fund (EIF) provides targeted products – loans, equity and guarantees – which represent close to 20% of its total activity, and support the entire life cycle of enterprise creation, from the earliest stages until the later development stages. This helps entrepreneurs to invest in new opportunities, secure and create new employment and expand economic activity across the European Union.

This support occurs principally through improving access to finance for SMEs by working with an established network of local partner banks. The Bank signed EUR 9.6 billion worth of loans for SMEs in 2011, of which EUR 8.8 billion in the EU. Using an “onlending,”<sup>46</sup> model, the EIB and the European Investment Fund provide banking intermediaries with credit lines to finance SMEs at favourable rates (EIB 2012a). The local banking intermediaries, in turn, provide matching funds. Consequently, every

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<sup>44</sup> This fund aims at investing in forestry projects in member states and candidates that have a positive impact on carbon emissions, soil and freshwater conservation and biodiversity. It has an investment period of four years and is expected to reach a total fund size of €300m.

<sup>45</sup> A public-private partnership that will deliver multi-benefit greenhouse gas (GHG) reductions, with a focus on sustainable land use and payment for ecosystem services (including forest carbon, or REDD+).

<sup>46</sup> The process of borrowing funds by a local financial institution from the EIB to lend to third-parties.



euro made available by the EIB triggers a multiple in finance provided to SMEs. Furthermore, the intermediaries through which the EIB lends must conform to the European Investment Banks's environmental and social standards of due diligence.

As described above, the EIB does provide credit lines and facilities providing financing to SMEs to conduct internal energy efficiency projects. However, no dedicated investment programs were identified that support the development SMEs specialized in providing the types of services necessary for the energy-transition and low-carbon development (such as energy service companies, low-carbon information technology developers, etc.).

These types of companies may nevertheless be financed through the existing programs focusing on research, development and innovation. The EIB provides financing and support for research, development and innovation, ranging from fundamental research through to prototyping and commercialization, and process innovation. The EIB is active in financing the larger “Knowledge Economy” through support for: public and private universities and institutes; incubators, science and technology parks and clusters; information and communication technology infrastructure, including broadband; promoting the adoption of innovative new technology in public and private sectors; and technology transfer between academia and the business sector. In 2011, the EIB invested some EUR 10bn in the EU's “knowledge economy.”

Acting as an agent for the European Commission, the EIB is raising financing through the sales of 300 million EU Allowances and providing project appraisal expertise for the NER300 initiative, which is one of the world's largest funding programmes for carbon capture and storage demonstration projects and innovative renewable energy technologies. The monetisation is now completed and more than EUR 2 bn has been raised.

While not fully explored by this report, the different instruments and facilities used to support these activities are described in **Erreur ! Source du renvoi introuvable..**

**Table 10: The European Investment Bank's activities in R&D support**

Instrument	Action	Description
Loans	EIB RDI Investment Loans	<ul style="list-style-type: none"> <li>- RDI Investment Loans support specifically investments in knowledge economy, whereby priority is given to key technology areas in which Europe risks falling behind other regions in the world. This includes (i) private sector projects that aim to strengthen the competitiveness of European companies and enhance Europe's position as a major technology provider, and (ii) lending to public sector R&amp;D programmes that allow promoters to invest in staff training in the area of science and technology.</li> <li>- EIB RDI Investment Loans are typically provided to either (i) investment-grade rated corporates or (ii) public sector entities.</li> </ul>
Loans, Guarantees, Mezzanine	Risk Sharing Finance Facility	<ul style="list-style-type: none"> <li>- The Risk Sharing Finance Facility (RSFF) provides access to debt/mezzanine financing for lower rated (sub-investment grade) companies and public institutions undertaking RDI projects.</li> <li>- While EIB addresses mainly larger innovative mid-caps (GFI) and large corporate RDI programs with transaction sizes &gt; EUR 7.5m directly, the EIF focuses on innovative SMEs and smaller mid-caps (loan sizes &lt; 7.5m) indirectly (RSI).</li> <li>- Under RSI, EIF issues guarantees and counter-guarantees to financial intermediaries, thus allowing them to provide loans, financial leases and loan guarantees to eligible counterparts.</li> </ul>
Equity	Venture Capital Mezzanine Funds Technology Transfer Business Angels	<ul style="list-style-type: none"> <li>- The European Investment Fund (EIF), has supported over 1 million SMEs over 15 years in more than 30 different countries. Especially in the context of the economic crisis, European SMEs are in need of better access to finance.</li> <li>- EIF has been investing in SME equity through 400+ venture capital and growth equity funds, in line with its mission to promote entrepreneurship and job creation in small and medium-sized enterprises (SME) and foster innovation and growth in Europe.</li> <li>- The European Angels Fund (EAF) is an initiative advised by the EIF which provides equity to Business Angels and other non-institutional investors for the financing of innovative companies in the form of co-investments.</li> <li>- Technology Transfer is also a strategic area for EIF. It can be defined as the process of transforming the results of research and development into marketable products and services. This transformation can take place through a number of means, in particular the collaboration between research organisations and industry, the licensing of intellectual property rights, and the creation of start-up businesses or university spin-out companies..</li> </ul>
Technical assistance		<ul style="list-style-type: none"> <li>- The EIB and the Commission have piloted an RDI Advisory programme in 2013 which is expected to rolled out under H2020.</li> <li>- RDI Advisory's role is to improve the investment readiness and access to appropriate financing of a wider range of high quality RDI projects by offering upstream project –related advisory services.</li> <li>- RDI Advisory will also facilitate the exchange of information, learning and best practices by way of targeted network and other horizontal activities to improve the overall framework conditions for investments in RDI projects.</li> </ul>

### 3 Climate financial tools and instruments supporting project finance

The European Investment Bank characterises its role in financing climate-related projects as having a number of advantages, including:

- **Flexibility** in terms of broader eligibility of expenditure and in the use of funds for equity, debt investment and guarantees;
- **Leverage effect** - encouraging private and public sector commitment of investment and project implementation and management experience;
- **Catalytic effect** - enhancing the investment market complements other initiatives and additional sources of funding;
- **Expertise and creativity** - expertise and rigorous due diligence help meet the highest standards.

The EIB is able to support low-carbon projects in a number of ways. Using its high credit rating to leverage capital from the international financial markets, it is able to bring low-cost big-ticket amounts to large-scale, long-term projects. It supports smaller projects through a range of intermediaries. Furthermore, it is able to assume late-development and construction risk which deter other long-term financiers such as the institutional investors. As described below, it is equally able to use a number of fund structures and other instruments combined with its institutional reputation to attract other investors. These structures can equally serve to aggregate smaller-scale projects and different types of investors with different risk-return profiles.

As with other Public Finance Institutions, the EIB plays a role in providing and facilitating access to long-term financing, de-risking instruments and filling the capacity gap.

**Table 11: The European Investment Bank's Range of Tools to Support Low-Carbon Project Investment**

Role	Detailed functions	EIB Tools and instruments
I. Access to long-term financing: capital provider and facilitator	1. Provider	<ul style="list-style-type: none"> <li>• Direct debt to projects over 25 million;</li> <li>• Intermediated debt through local finance institutions</li> </ul>
	2. Facilitator	<ul style="list-style-type: none"> <li>• Limited Equity investment through fund structures</li> <li>• Pooling/ aggregation through fund structures</li> <li>• Leveraging capital through bonds (including <i>Climate Awareness Bonds</i>)</li> </ul>
II. Derisking	1. Reducing financial risk (financing and re-financing across project phases)	<ul style="list-style-type: none"> <li>• Bond enhancement</li> <li>• Refinancing guarantees</li> <li>• Subordinated (junior) debt/Mezzanine financing</li> <li>• Standard guarantees</li> <li>• Credit enhancement</li> </ul>
	2. Reducing project risks (operation, construction) between project	

	participants	<ul style="list-style-type: none"> <li>• Layered-debt fund structures</li> <li>• Public-private partnerships</li> </ul>
III. Filling the capacity gap	Expertise Capacity building and training	<ul style="list-style-type: none"> <li>• Internal project appraisal and technical assistance expertise</li> <li>• Dedicated facilities</li> </ul>

### 3.1 Provision of, and facilitating access to, long-term financing

The European Investment Bank's principal role in project development is to foster the access of project developers to, and local provision of, capital. This occurs principally through lending, but equally occurs through equity investments making up approximately 10 to 15% of all of the EIB's activities, climate included. The EIB invests principally in greenfield (new) projects. However, it is able to bring additional capital to brownfield (existing) projects.

#### 3.1.1 *Financing Principally through Debt Provision*

The EIB provides direct senior debt financing for projects that are over 25 million euros in size and is often in a unique position to be able to provide large-ticket amounts of financing projects. The EIB equally uses an intermediated or "onlending" financing models through local banks to provide finance for smaller-scale projects.

- **Senior debt:** The EIB directly finances projects costing over 25 million euros through direct loans. Lending is available to public sector bodies and private companies. The EIB works on a non-profit basis and lends at a rate close to its cost of borrowing for the institution on the international capital markets. As such, it lends at rates typically (depending on the current market rates) below those of the financial markets and commercial banks depending on fluctuations and trends. This form of concessional lending does not occur through subsidies, but rather through reduced rates and lower expectations in terms of returns on investment given its non-profit outlook.
- **Intermediate lending or "onlending":** Small and medium-scale projects are financed through intermediated lending through local partner banks or fund structures. Projects are generally financed up to one-third of total costs, but it can be as much as 50%. This long term supportive financing often encourages private and public actors to make investment that otherwise would not be possible.

#### 3.1.2 *Facilitating and leveraging through funds structures and dedicated programs*

The European Investment Bank participates in a number of fund structures. These funds, whether managed internally by the EIB itself or by an external structure or in some combination of the two, can invest world-wide.<sup>47</sup> Funds may provide either debt or equity for projects. For examples, the EIB is involved in the following climate-related externally-managed fund structures. Through its

<sup>47</sup> In many instances, an external investment adviser is appointed for the fund, however the EIB and other investors have significant impact on the operational decisions of the fund through a Board of Directors made up of investors as well as an Investment Committee. This is differentiated from external management, where management is fully outsourced, and investors may be involved in an oversight role, but not in any executive capacity.

involvement in fund structures, the EIB is able to blend its capital with other public and private flows. The involvement of external fund managers equally fosters capacity building within the private sector.

- **Dasos Timberland Fund II:** Managed by Dasos Capital SA, the EIB has proposed to contribute up to EUR 30 million of the total EUR 300 million of the funds. This fund targets sustainable forestry and biomass mainly in Europe through equity investments. The fund aims to make a commercial return whilst contributing to climate change and other environmental objectives.
- **HgCapital Renewable Power Partners 2:** The EIB has proposed to finance upward of EUR 50 million of the total EUR 500 million of the fund. The fund targets investment fund targeting the renewable energy sector (primarily solar and wind) in the United Kingdom and Europe.

Additionally, the EIB contributes capital (equity or debt) in a number of other funds and programs that blend resources - at times from both public and private sources - to support climate-related investments. Often, these programs operate both within the borders of the European Union and in countries worldwide.

- **European Energy Efficiency Fund** - In order to reach its 2020 goals, the European Union has established in partnership with the EIB the European Energy Efficiency Fund (EEEF). The aim of the fund is to support the goals of the European Union to promote a sustainable energy market and climate protection (see **Erreur ! Source du renvoi introuvable.**).
- **Global Energy Efficiency and Renewable Energy Fund** – The GEEREF provides risk capital in developing and transition economies. GEEREF aims to accelerate the transfer, development, and use of environmentally sound technologies for the world's poorer regions. The target funding size for GEEREF is €200-250 million and as of March 2013, GEEREF has secured a total €112 million. The EIB has a proposed contribution of EUR 10 million.
- **Green Initiative** – Support for energy efficiency projects by small and medium sized enterprises (SMEs) in EU new Member States and pre-accession countries through: EIB loans at attractive rates channelled through participating intermediaries; Grants from the European Commission (EC) up to 15% and EUR 150,000 of the EIB loan amount and Administration fees paid with EC grants to encourage intermediaries to lend for energy efficiency. The program equally provides technical assistance through independent experts to SMEs and intermediaries to support project identification, planning and implementation.
- **Green for Growth Fund** - The Green for Growth Fund Southeast Europe (GGF) is a specialized layered debt fund to advance energy efficiency (EE) and renewable energy (RE) in Southeast Europe, including Turkey. Initiated by the European Investment Bank and KfW Entwicklungsbank, GGF uses public private partnership to reduce energy consumption and CO<sub>2</sub> emissions. GGF provides refinancing to financial institutions to enhance their participation in the energy efficiency and renewable energy sectors and also makes direct investments in non-financial institutions with projects in these areas. The activities of GGF are supported by a Technical Assistance Facility.
- **Marguerite Fund** –The 2020 European Fund for Energy, Climate Change and Infrastructure ("Marguerite") was established with the backing of six major European financial institutions to make capital-intensive cross-border infrastructure and renewable energy investments and targets attractive long-term and stable risk-adjusted returns.

**Box 1: European Energy Efficiency Fund**

The European Energy Efficiency Fund (EEEF) targets investments in the member states of the European Union. The final beneficiaries of EEEF are municipal, local and regional authorities and public and private entities acting on behalf of those authorities such as utilities, public transportation providers, social housing associations, energy service companies etc.

The EEEF contributes through the use of a layered risk/return structure to enhance energy efficiency and foster renewable energy. This structure is in the form of a targeted private public partnership in which EIB provides dedicated financing via direct finance and intermediated financing through partnerships with financial institutions. Investments should contribute significantly towards energy savings and the reduction of greenhouse gas emissions. The EEEF facilitates investments in the public sector where projects are often hindered or decelerated due to budget restrictions and lack of experience with this kind of investment. The Fund observes the principles of sustainability and viability, combining environmental considerations and market orientation. It does so by financing economically sound projects, allowing for a sustainable and revolving use of its means. The EEEF aims to attract additional capital into climate financing.

*Direct Investments*

These comprise projects from project developers, energy service companies (ESCOs), small scale renewable energy and energy efficiency service and supply companies that serve energy efficiency and renewable energy markets in the target countries.

- Investments in energy efficiency and renewable energy projects in the range of €5m to €25m
- Investment instruments include senior debt, mezzanine instruments, leasing structures and forfeiting loans (in cooperation with industry partners)
- Also possible are equity (co-)investments for renewable energy over the lifetime of projects or equity participation in special purpose vehicles, both in cooperation directly with municipalities, or with public and private entities acting on behalf of those authorities.
- Debt investments can have a maturity of up to 15 years, equity investments can be adapted to the needs of various project phases
- The Fund can (co-)invest as part of a consortium and participate through risk sharing with a local bank

*Investments through Local Financial Institutions*

These include investments in local commercial banks, leasing companies and other selected financial institutions that either finance or are committed to financing projects of the Final Beneficiaries meeting the eligibility criteria of EEEF.

- Selected partner financial institutions are lent to with a maturity of up to 15 years
- These instruments include:
  - senior debt
  - subordinated debt
  - guarantees
- No equity investments in financial institutions
- Financial institutions onlend to the beneficiaries of the Fund meeting the eligibility criteria to finance energy efficiency and/or renewable energy projects

Source: (EEEF 2013)

**3.1.3 Leveraging funds through bond issuance: Climate Awareness & Covered Bonds**

The EIB finances itself through the issuance of bonds on the international financial markets. In recent years, the EIB has applied its knowledge of the bonds markets to develop a new market offer in the

form of Climate Awareness Bonds. The funds raised by the issuance of these bonds are restricted to supporting lending for renewable energy and energy efficiency. Since 2007, Climate Awareness Bonds have raised EUR 3.4 billion in seven currencies. In July 2013, the EIB launched a EUR 650 million Climate Awareness Bond, which was further increased by a total of EUR 500 million and is currently the largest outstanding climate-themed bond from a supranational issuer. The EIB is playing a role in developing a market for climate bonds, notably by taking initiatives to enhance liquidity and regularity of supply, and by offering credibility through a high level of transparency on use of proceeds. (EIB 2013e; EIB 2014) In its first Climate Awareness Bond transaction of 2013, the EIB reports that market interest has stemmed principally from Scandinavian investors, taking almost half the issue, with Asian and other European accounts also providing significant demand. Demand for these bonds has been split between fund managers and bank treasuries (EIB 2012b).

The EIB is also exploring how to foster and develop a market “covered bonds,” or those bonds that are backed by the physical assets of the investment project itself. These bonds hold a potential to allow project developers to finance its projects through bonds rather than loans, thus opening opportunities for new classes of investors. Covered bonds offer a possibility to provide both initial financing and refinancing. However a number of regulatory, rating and technical questions remain to ensure market confidence (Ranaivoson 2012).

### **3.2 Risk transfer & sharing**

The EIB is involved overcoming the barriers to leverage other investors linked to real and perceived risks which have been identified as a major barrier to investment and financing for low-carbon projects. The EIB is involved in both:

- **Risk sharing** can help attract new investors to projects with certain fund structures, allowing investors with different risk-return profiles to invest in the same project or aggregation of projects.
- **Risk transfer**, or providing ways to assign risk at different stages of the project to those who can best bear risk, and thereby provide a bridge between early-stage and long-term operations.

The EIB uses a number of instruments ranging from guarantees for senior and subordinate debt to structuring financial products that contribute to the sharing of risks between entities involved in and the transferring of risks between different phases of a project. Within the 2013-2015 Operational Plan, the EIB’s guarantee activities are planned to mainly target corporates and public entities, but also include trans-boundary transport infrastructure project financing. The plan explicitly notes that for guarantee beneficiaries (banks, institutional investors) these instruments would provide credit enhancement and potential capital relief, while obligors (corporates, public sector, SPVs under project finance) would more easily attract other financiers.

#### **3.2.1 Guarantees for senior and subordinated debt as well as refinancing**

The EIB guarantees large and small projects to make them more attractive to other investors. It provides guarantees for senior and subordinated debt, either in a standard form or as a debt service guarantee similar to that offered by monoline insurers (EIB 2013j). Through standard guarantees, the EIB pledges to pay off senior debt or subordinated debt issued by the project if the project defaults, and thus encouraging private investors to buy that debt. Debt service guarantees may take the form

of a contingent credit line provided to the project company by the EIB (CPI 2013). This is described in further detail below in the context of the Europe 2020 Project Bond Initiative. In both cases, beneficiaries can be large private and public projects or partner intermediaries providing SME financing (EIB 2013j).

The EIB equally provides **refinancing guarantees** – particularly for transport projects. Given the liquidity concerns of commercial banks and similar financial actors, commitments to provide or assist in securing refinancing for projects post-construction phases can help attract finance during early stages. This can assist in scaling up investment for capital-intensive projects with steady future returns, such as low-carbon projects such as renewable energy, sustainable transport and energy efficiency. This aids in crowding in other sources of finance through reducing capital lock-up risks and ensuring liquidity for investors with shorter time horizons. For example, the EIB has committed to provide approximately EUR 550 million for the Rennes- Nantes high speed rail project. This financing will become available at the end of the construction period in order to refinance a portion of the initial debt contracted with the commercial banking sector. This amount corresponds to approximately 54% of the estimated senior debt to be serviced during the operational phase of the project (EIB 2011).

### **3.2.2 Europe 2020 Project Bond Initiative: credit enhancement through subordinated debt**

The EIB is involved in the EU-sponsored Europe 2020 Project Bond Initiative. The objective of this program is to stimulate capital market financing for large-scale greenfield infrastructure projects in the areas of trans-European networks in transport and energy, and broadband telecommunications. The program uses “credit enhancement” techniques to improve the credit rating of bonds issues by projects companies to finance infrastructure. It aims at structuring projects that deliver “A” credit rated senior bonds and other similar senior debt, thus making such projects more attractive for private investors, in particular for institutional investors. The initiative’s pilot phase (2012-14) will cover 5-10 projects, using a EUR 230 million contribution from the EU budget (including EUR 200 million for TEN transport projects – see **Erreur ! Source du renvoi introuvable.**).

Within the framework of the program, bonds are issued by the project companies themselves, not the EIB or the EU Member States. Project companies are generally public-private partnership (PPP) established to build, finance and operate an infrastructure project. This program is a response to a reduction in issuance of project bonds due to the disappearance of guarantees by monoline insurance companies which uprated bonds to investment grade needed by many institutional investors and tightened regulatory requirements (Basel I, II and III) on bank lending.

The EIB provides credit enhancement in the form of a subordinated debt instrument (either a loan or contingent facility) to support the senior debt issued by the project company. The mechanism for improving the credit standing of projects is based on the separation of the debt of the project company into tranches: a senior and a subordinated tranche. The provision of the subordinated tranche increases the credit quality of the senior tranche to a level at which the EIB estimates that most institutional investors are comfortable holding the bond for a long period. The subordinated tranche – named the *Project Bond Credit Enhancement (PBCE)*, provided by the EIB with EC support – can take the form of a loan, which is given to the project company from the outset, or a contingent credit line which can be drawn upon if the revenues generated by the project are not sufficient to



ensure senior debt service. The support will be available during the lifetime of the project, including the construction phase. (EIB 2013q).

In December of 2013, the Greater Gabbard offshore transmission link was one of the first UK based infrastructure project to attract finance from institutional investors using the Project Bond Credit Enhancement initiative. Bonds with a value of GBP 305 million were issued to finance the new transmission link to connect the 140 turbine wind farm off the Suffolk coast with the UK mainland electricity and have been successfully placed with a broad range of investors. The European Investment Bank has provided a GBP 45.8 million guarantee, representing 15% of the bond issued, as a credit support under the Project Bond Credit Enhancement model that allows a one notch upgrade in the project's rating provided by Moody's. The A 3 Moody's rating of the bonds issued for the Greater Gabbard OFTO includes a rating uplift of one notch from the stand alone credit quality due to the presence of the European Investment Bank's Project Bond Credit Enhancement (PBCE). Under the PBCE model additional liquidity will be provided for the project if required, allow enhanced recovery for senior lenders by reducing outstanding debt and act as a first- loss piece in the financing structure. The Greater Gabbard OFTO bonds have a maturity of 2032. (EIB 2013m)

### **3.2.3 Layered debt funds: specialized risk-return tranches**

The European Investment Bank acts through layered-debt fund structures that can be used to overcome a number of investment barriers linked to climate-related projects, particularly for small- and medium-sized projects.

- **Aggregation of projects:** Fund structures can be used to aggregate small- and medium-scale projects into a single asset portfolio. This portfolio can combine projects with different risk profiles and include projects financed through intermediated or direct methods by the fund.
- **Layered debt tranches:** Layered funds can “aggregate” different investor types with different risk-return profile appetites, allowing for each investor to support a differ part of the projects risks.

These two characteristics can allow, in turn, funds to invest in what today are seen as sub-investment grade products: project-levels risks are aggregated at the scale of the portfolio and divided into tranches for investment corresponding to the risk-return profiles appetite acceptable to a variety of investor types. See **Erreur ! Source du renvoi introuvable.** for examples of the layered debt funds with which the EIB is involved.

#### **Box 2: Layered Debt Funds at the EIB**

Debt funds allow the construction of different tranches, providing different levels of risk and return to suit investors with different risk-return profiles. They thus can channel finance and technical assistance (in some cases) to transactions that are too small to be handled on a case-by-case basis.

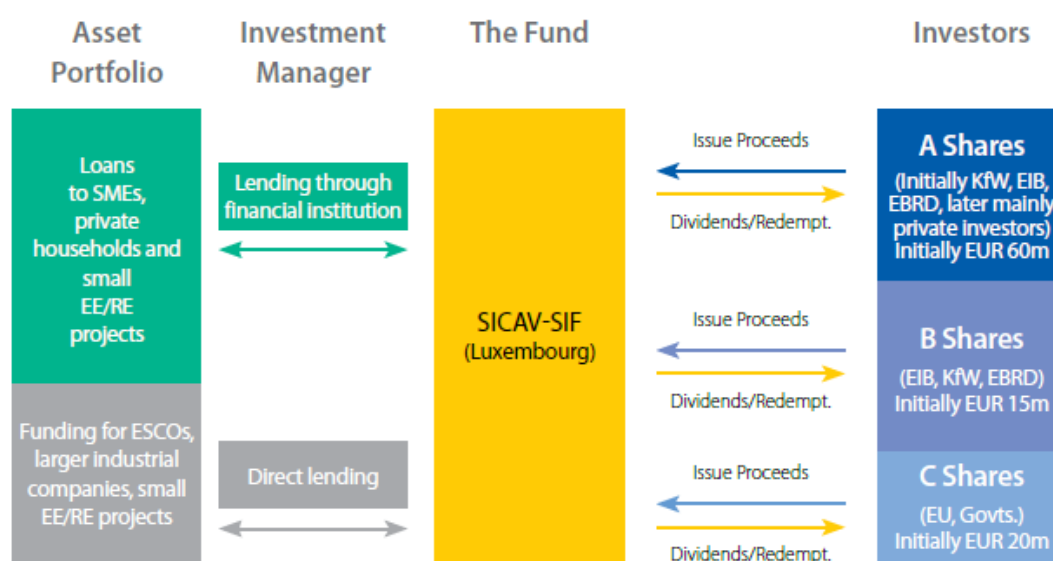
The EIB currently is active through the two debt funds with a layered structure:

- **European Energy Efficiency Fund:** With a layered risk/return structure and a size of EUR 265m, it provides eligible commercially viable public energy efficiency and renewable energy projects within the European Union with fast and flexible financing thanks to both debt and equity instruments.
- **Green for Growth Fund:** Initiated by the EIB and KfW and supported by the European

Commission, GGF works predominantly through the provision of dedicated financing to businesses and households directly or through partnerships with financial institutions. As of end-2012, the committed funds from investors had reached EUR 194.2m. This fund aims to enhance energy efficiency and foster renewable energy investments in the South-East Europe region and Turkey, in the form of a public private partnership.

To date, these structures has been used effectively to leverage the involvement of EU or donor governments.

**Figure 1: Layered-Debt Fund Model**



Source: (EIB 2013I)

### 3.2.4 Contextualising instruments by project: Special Activity (ex-Structured Finance Facility)

The EIB can give additional support for priority projects using instruments with a higher risk profile than normally accepted through traditional senior lending instruments. These priority areas include trans-European transport and energy networks and other infrastructure, the knowledge economy, energy and SMEs (see **Erreur ! Source du renvoi introuvable.** for an example of the Loan Guarantee Instrument for TEN-T projects). This support is provided by the EIB's Special Activity (ex-Structured Finance Facility - SFF) using a mix of instruments tailored to a projects risk profile and context such as:

- Senior loans and guarantees incorporating pre-completion and early operational risk
- Subordinated loans and guarantees ranking ahead of shareholder subordinated debt
- Mezzanine finance, including high-yield debt for SMEs experiencing high-growth or are undergoing restructuring
- Project-related derivatives

The Special Activity is authorized to generated an estimated EUR 3.6 billion in 2012 and the 2010-2013 period, the EIB has slated EUR 6 billion annually for higher risk “Special Activities,” including approximately EUR 2 billion per year for risk sharing and credit enhancement instruments. (EIB Group 2012)

**Box 3: Loan Guarantee Instrument for TEN-T**

The EU Trans-European Transport Network (TEN-T) is one of the EU’s Trans-European Networks (TEN) established by the 1993 Maastricht Treaty. Comprised of 30 corridors, TEN-T aims to secure free movement of goods and passengers by developing intermodal transport infrastructure network. TEN-T prioritises railways (and inland waterways) projects with stable and strong cash flows. Amongst 30 strategic TEN-T projects, 18 are rail projects, three are mixed rail-road projects, two inland waterway projects and one is for Motorways of the Sea.

As part of its goal to establish the Trans-European Transport network (TEN-T) the Loan Guarantee Instrument for TEN-T (LGTT) was set up in 2008 by the EIB and the European Commission to link the debt capital market to the financing of TEN-T greenfield projects subject to revenue risks. Managed by the EIB, the LGTT transfers demand risk - inherent to transport PPP concessions - to the EIB during the first operational years of the project. The LGTT typically guarantees a maximum of 10% of senior debt (20% in exceptional instances) up to a maximum of EUR 200m per project, following EIB Structured Finance Facility rules. Once the EIB has become a creditor, amounts due under the LGTT will rank junior to other debt. This support substantially enhances credit quality, thereby encouraging a reduction of risk margins applied to senior project loans. These savings should surpass the cost of the guarantee to the borrower. This support is available for as much as five to seven years after project completion. The EIB and European Commission have jointly contributed EUR 1bn in capital which could support up to EUR 20bn of senior loans.

*Sources:* (Ang & Marchal 2013; EIB 2013k)

### **3.2.5 Public- Private Partnerships<sup>48</sup>**

The European Investment Bank plays a role in developing and fostering public-private partnerships models across the European Union. In terms of low-carbon development, this model is often used for transport projects (see **Erreur ! Source du renvoi introuvable.**). For the EIB, ‘Public-Private Partnership’ is a generic term for the relationships formed between the private sector and public bodies often with the aim of introducing private sector resources and/or expertise in order to help provide and deliver public sector assets and services.<sup>49</sup>

EIB’s role is to support this increasing drive in Member States towards the improvement of public services through increased private sector participation, structuring its own participation in PPP projects in ways that optimise the ability of the public sector to meet EU policy objectives. A number

<sup>48</sup> Source: [http://www.eib.org/attachments/thematic/eib\\_ppp\\_en.pdf](http://www.eib.org/attachments/thematic/eib_ppp_en.pdf)

<sup>49</sup> The term PPP is, thus, used to describe a wide variety of working arrangements from loose, informal and strategic partnerships, to design build finance and operate (DBFO) type service contracts and formal joint venture companies.

of fundamental principles underlie the EIB's approach to PPP projects<sup>50</sup>. These have been designed to achieve the overall policy objectives, whilst promoting competition and ensuring that the benefits of EIB involvement are, to the maximum possible extent, passed to the public sector. (EIB 2004)

**Box 4: A PPP for the High-speed rail between Tours and Bordeaux**

The high-speed rail line between Tours and Bordeaux in France will be constructed through a public-private partnership between *Réseau Ferré de France* (RFF) and VINCI. A 50-year concession contract signed between RFF and LISEA, the concession company created for the project VINCI, the project is world's biggest rail concession contract at a total investment of €7.8 billion includes €6.2 billion of construction works.

The contract covers the financing, design, construction, operation and maintenance of the Tours–Bordeaux high-speed rail line. Financing for the Tours–Bordeaux SEA HSR will come from both public and private sources.

LISEA is providing €3.8 billion of the financing, with:

- €772 million of equity contributed by LISEA shareholders, pre-financed by commercial banks and the European Investment Bank;
- €1,060 million of bank debt guaranteed by the French government;
- €612 million of non-guaranteed bank debt;
- €757 million provided by *Fonds d'Epargne*, managed by the Caisse des Dépôts and guaranteed by RFF;
- €400 million of EIB credit guaranteed by the French government;
- €200 million of non-guaranteed EIB credit.

The EIB is contributing €1.2 billion via the combination of the senior debt, the portion of the equity bridge loan financed by the EIB and the Loan Guarantee on TEN-T projects (LGTT), an instrument put in place jointly with the European Commission. This is the largest loan ever awarded in France by the EIB.

This financing is also the first to benefit from the French government guarantee mechanism put in place under the 2009 French stimulus package designed to encourage PPP financing for large priority projects. The concession financing also includes public subsidies made by the French government, local communities and the European Union for a total amount approaching €3 billion plus a contribution from RFF of around €1 billion.

Source: (VINCI 2011)

<sup>50</sup> These principals include: 1) all PPP projects supported by it are financially robust, economically and technically viable, meet the EIB's environmental requirements and are competitively tendered in accordance with EU procurement rules; 2) providing complementarity with other funders (both commercial banks and the capital markets) is maintained in PPP structures; the credit quality of the Bank's PPP portfolio is underpinned by the public sector support for the payment streams to many PPP projects.

[http://www.eib.org/attachments/thematic/eib\\_ppp\\_en.pdf](http://www.eib.org/attachments/thematic/eib_ppp_en.pdf)

### **3.3 Filling the capacity gap: provision of expertise and consultancy services**

The European Investment Bank provides expertise and facilitates capacity building. In addition to the technical and financial expertise that the EIB brings to each of the projects and initiatives that it participates in, the EIB also has a number of dedicated facilities. While these programs are not necessarily focused only on climate- and energy-specific topics (with the exception of the ELENA facility), climate and energy issues are often addressed.

#### **3.3.1 *European Local Energy Assistance (ELENA)***

To facilitate the mobilisation of funds for investments in sustainable energy at local level, the European Commission and the EIB established the ELENA technical assistance facility (European Local Energy Assistance), financed through the Intelligent Energy – Europe programme. ELENA support covers a share of the cost of the technical support needed for municipal and regional authorities to prepare, implement and finance the sustainable energy investment programme, to make it ready for EIB funding. ELENA funds can be used to structure programs, business plans, perform energy audits, prepare tendering procedures and contracts, and pay for project implementation units. EU contributions can cover up to 90% of eligible costs.

The aim is to generate bankable investment projects that can attract outside finance, for example from local banks or other financial institutions, such as the EIB. These projects can also be implemented by energy service companies (ESCOs), which are service providers that guarantee future savings made on energy bills and can fund projects upfront that are refinanced through the savings achieved. It is projected to mobilize more than EUR 1.6 billion in investments over the next few years: technical assistance commitments to beneficiaries under ELENA amounted to EUR 17 million in 2011.

#### **3.3.2 *Joint Assistance to Support Projects in European Regions***

To support new and future EU Member States to prepare major infrastructure schemes financed by the Structural and Cohesion Funds, the EIB and the EU has created the *Joint Assistance to Support Projects in European Regions* (JASPERS). This program provides technical expertise for any stage of the project cycle, covering technical, economic and financial questions. It is geared to providing advice, ensuring coordination, developing and reviewing project structures, removing bottlenecks, filling gaps and identifying problems. This helps increase the quantity and quality of requests for EU funding. The total investment cost of the more than 550 projects supported so far is more than EUR 60bn. While this support can cover a broad range of activities, guidance has been developed on climate-related topics such as a recent staff working paper on “Calculation of GHG Emissions of Waste Management Projects.”

#### **3.3.3 *Joint European Support for Sustainable Investment in City Areas***

The Joint European Support for Sustainable Investment in City Areas (JESSICA) is an initiative of the European Commission developed in co-operation with the European Investment Bank (EIB) and the Council of Europe Development Bank (CEB). It supports sustainable urban development and regeneration through financial engineering mechanisms. In addition to working with Member State and regional governments in the financial structure of projects, the EIB is involved in both evaluation and thematic studies. The evaluation studies look at the country or regional level to analyse the

market gap for financial engineering instruments for the support of sustainable urban development in the regions.

EIB involvement in JESSICA is threefold: Advising and assisting national, regional and local authorities in implementing JESSICA; Promoting the use of Urban Development Funds and best practice across Europe; Acting as a Holding Fund, when requested by Member States or managing authorities. A range of sophisticated financial tools are used including equity investments, loans and guarantees, offering new opportunities for the use of EU Structural Funds.

The EIB's 2012-2015 Operational Plan includes further efforts in the areas of energy efficiency, renewable energy and sustainable transport: investments, on a utility level, such as the integration of renewable power generation and "smart metering" will also be targeted as will investments to reduce resources consumption (EIB Group 2012).

### **3.4 The European PPP Expertise Centre (EPEC)**

The European PPP Expertise Centre (EPEC) is a joint initiative of the EIB, the European Commission and European Union Member States and Candidate Countries. It helps strengthen the capacity of its public sector members to enter into Public Private Partnership transactions. The EPEC Energy Efficiency mandate funded by DG Energy aims to raise the awareness of national authorities on the EU legislation and financing framework related to Energy Efficiency (EE) and Renewable Energy (RE) in buildings and on the use of Structural Funds for investment in EE and RE, with a special focus on public buildings and street lighting. As of October 2012 EPEC's work became one of the pillars of DG Energy's Energy Performance Contracting Campaign (EPCC) which promotes and encourages country-specific discussion and capacity building around the instrument of Energy Performance Contracting, to address issues such as balance sheet treatment and grant/loan blending. This serves to increase the confidence of stakeholders regarding the reliability and effectiveness of the EPC model and help Member States in establishing and enabling the legal and financial framework for the energy services market. (EPEC 2012)

## **4 Mainstreaming and integration across activities**

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As the European Investment Bank's investment activities exist to support European Union policy, the EIB is mandated to address a broad range of considerations, ranging from employment, to social impacts, to the environment. This priorities influence not only what sectors the EIB is involved with, but equally how projects are selected in individual sectors of activity to support the EIB's transversal objectives. The EIB subscribes strongly to the development and implementation of corporate responsibility and governance.

Given the European Union's commitment to tackle climate change and support the energy transition through energy efficiency and the deployment of renewable energies, the EIB have integrated these as an important part of the institution's mandate across activities. The EIB has taken steps, as many corporate and public actors, to reduce its direct and indirect GHG emissions from daily operations<sup>51</sup>.

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<sup>51</sup> Between 2007 and 2012, the EIB reduced its per capita (employee) carbon dioxide emissions stemming from its internal operations by 37%, thus outperforming its initial objective of a 20% reduction by 2020. (EIB 2013h)

More importantly, the EIB has integrated climate and energy issues into its financing and investment activities. As such, the Bank has set portfolio-wide targets to support climate-related projects, has integrated climate change into project analysis across activities to only support in many cases best available technologies, and has equally introduced a shadow carbon price when evaluating energy-related projects.

#### 4.1 Integrating Climate and Energy into the Broader CSR and ESG activities at the EIB

The integration of corporate social responsibility and environmental, social and good governance (ESG) standards is both a centralised and decentralised process. These issues have been directly integrated into operational practice and activities across the institution. This includes reporting to the Management Committee responsible for approving the EIB's participation in projects.

**Table 12: Corporate Responsibility Performance Indicators of the EIB**

Theme	Indicators	2011	target 2012	2012	target 2013
Corporate Responsibility (CR) Strategy	Independent EIB performance assessment score	61	↗	Best in class	→
Minimising our own imprint	Energy emissions (Tonnes of CO <sub>2</sub> e per staff member)	0.38	↘	0.39	↘
	Mobility-related emissions (Tonnes of CO <sub>2</sub> e per staff member)	8.62	↘	7.10	↓
	Paper consumption emissions (Tonnes of CO <sub>2</sub> e per staff member)	0.053	↘	0.04	↘
	Waste emissions (Tonnes of CO <sub>2</sub> e per staff member)	-0.0007 <sup>2</sup>	↘	-0.0026	↓
	Purchased electricity (100% green electricity) (kWh per staff member)	8 296.82	↘	8 042.94	↘
	Water consumption (m <sup>3</sup> per staff member)	29.88	↘	24.17	↘
	Paper consumption (Tonnes per staff member)	0.04	→	0.04	↘
Being an employer of choice	Number of staff members	1 948	→	1 964	↗
	Women in management positions (%)	18.7	20	19.9	↗
	Women in professional positions (%)	43.4	44	44.2	↗

Theme	Indicators	2011 <sup>4</sup>	target 2012	2012 <sup>5</sup>	Orientations 2013
Responsible finance for growth and employment (signatures € billion)	Environmental and sustainable communities <sup>6</sup>	26.9	13.5	-	-
	Environmental sustainability <sup>7</sup>			10.6	16.5
	Knowledge economy	10.4	8.4	9.3	11.5
	SMEs and midcaps	10.5	11	12	14.1
	Trans-European networks (including transport and energy) <sup>8</sup>	10.77	6.0	-	-
	Trans-European networks (transport)			6.3	8.5
	Environmental and social assessment of EIB investment loans	100%	→	100%	→
Climate action (signatures of projects contributing to)	(signatures € billion)	18	→	11.9	→
Convergence		19.6	18.0	15.4	-
Committed to transparency and engagement with stakeholders	Admissible complaints on projects	46	↘	52	↘

Source: (EIB 2013c)

## 4.2 Integration at the scale of the portfolio: performance indicators

At the scale of its broader portfolio, the European Investment Bank has established a number of performance indicators to track a broad range of ESG and CSR criteria. This includes an externalised annual review of the Corporate Responsibility strategy and performance and a number of indicators related to the impacts and footprint of operational activities and investments. The performance indicators include minimising the organisation's own operational imprint<sup>52</sup> and its contribution to climate action, convergence and employment.

### 4.2.1 A quantified climate performance indicator across the portfolio

The EIB has established a quantified climate action target as part of its performance indicators. This indicator quantifies the annual lending (signatures) of projects contributing to climate action (billions of euros) compared to total investments. The 2012-2014 three-year Corporate Operational Plan set an annual target at 25%. This target has been reconfirmed in the 2013-2015 Operational Plan. Historically, the EIB has performed above this target as in 2011 when climate related investment accounted for 33% of total 2011 investment across activities. Over the 2010-2012 period, lending classified as contributing to climate action accounted for 28% of all lending, or EUR 52.3 billion.

#### **Box 5: Classification of Projects Contributing to Climate Change by the European Investment Bank**

The classification of projects into climate/non-climate is done at project identification stage according to the list below. Carbon Footprint is calculated at project appraisal.

##### ENERGY EFFICIENCY

All projects meeting the energy efficiency definition of the Bank that result in:

- An increase in energy efficiency of at least 20% from the baseline;
- An increase in energy efficiency of less than 20% from the baseline<sup>5</sup> provided that the energy savings justify at least 50% of the investment cost; or
- Investments in cogeneration (CHP) provided they meet the energy efficiency criteria defined in Directive 2004/8/EC.
- Examples of eligible projects would include CHP plants and district heating systems, and energy efficiency investments in buildings and industrial facilities.

*Comment: The definition of Energy Efficiency reflects the 20/20 goals (20% reduction until 2020) set out in the EU energy policy and clearly distinguishes between business as usual improvements and projects driven by energy efficiency considerations.*

##### RENEWABLE ENERGY

- Projects from renewable non-fossil sources such as wind, solar, aero-thermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases – and related component manufacturing facilities and infrastructure subject to EU policy definition;
- Hydro above 20 MW, biomass and biofuels may not be considered as climate action projects when its

<sup>52</sup> The methodology and reporting of the carbon footprint of the EIB's operational activities (excluding investments) is available at: <http://www.eib.org/infocentre/publications/all/carbon-footprint-2011.htm> In 2013, the EIB has decided to adopt GHG Protocol as the "best practice" methodology for calculating its carbon emissions.



relative carbon balance is to be presumed positive (i.e. resulting in a net increase in emissions of GHGs) at the time of appraisal.<sup>5</sup>

*Clarification: Larger hydro power projects may result in positive net GHG emissions due to potentially large quantities of methane (a powerful GHG) emitted by the decaying biomass in the area flooded by the plant reservoir. The net carbon balance of biofuel projects may also be positive depending on the biocrop used (e.g. studies show that bioethanol from corn or biodiesel from crops planted in deforested areas may result in net positive footprints). Generating power using biomass from unsustainable sources is also considered harmful to the global environment.*

#### NUCLEAR ENERGY

Nuclear power plants (excluding nuclear enrichment facilities) and related projects (e.g. energy efficiency in nuclear fuel processing plants).

#### TRANSPORT

All transport projects that contribute to reducing road and air traffic emissions. Examples of eligible projects would be metro, tramways, bus rapid transit, rail, inland waterway and short sea shipping, and investments in rolling stock, vessels, and associated equipment.

#### FORESTRY AND LAND USE

Biological sequestration projects that sequester or conserve at least 20.000 tons / year of CO<sub>2</sub>-e. Examples of eligible projects would be afforestation, reforestation, forest and cropland management, avoided deforestation, reduced tillage, and revegetation.

#### RDI

Innovative low-carbon technologies in early stages of commercialization and related manufacturing processes, goods and services, and research and development. Examples of eligible sectors would be photovoltaic, off-shore wind, concentrated solar power, second generation biofuels, low-emission engines, all projects currently under ECTF and carbon capture and storage.

*Comment: ECTF ends in 2010 but RDI on low-carbon technologies will continue to be supported by the Bank and count for in the Climate Action indicator.*

#### ADAPTATION

Adaptation projects, intended primarily as measures taken specifically to anticipate climate change, when these measures either exceed €20 m in value or account for at least 50% of the total project cost. Examples of eligible projects would be flood control and drought management measures, and measures to increase the climate resilience of vulnerable infrastructure or areas (e.g. coastal areas).

#### OTHER

- Methane capture or avoidance projects when they reduce emissions by at least 20% from the baseline;
- Carbon funds and other funds that promote energy efficiency, renewable energy, or biological carbon sequestration.
- Projects that eliminate or substantially reduce emissions of greenhouse gases other than CO<sub>2</sub> and methane (i.e. N<sub>2</sub>O, PFC, HFC, and SF<sub>6</sub>);
- Examples of eligible projects would be landfill gas flaring, composting and other methane capture or avoidance projects from solid waste treatment facilities and waste water treatment plants; other projects that reduce methane emissions. Industrial plant modernisation projects, including projects that eliminate or

substantially reduce emissions of N<sub>2</sub>O, PFC, HFC, and SF<sub>6</sub>.  
Source: after (EIB 2010)

#### 4.2.2 Quantification of the EIB portfolio

Since 2009, the European Investment Bank has been developing a methodology and guide for EIB Project Directorate staff for the calculation of the carbon footprint of investment projects financed by the Bank (EIB 2012c). The Bank has carried out a 3-year pilot phase from 2009-2011 to measure the impact in GHG emissions from the investment projects it finances (see **Erreur ! Source du renvoi introuvable.** for description of its approach and the projects and emissions included in this analysis). This process has led to the development of methodologies that can be integrated into the economic assessment of projects under study. The methodologies allow for the estimation of two measures of GHGs from projects financed by the Bank:

- the absolute GHG emissions of the project;, and
- the variation in emissions compared to a baseline, referred to as the relative emissions, which can be either positive or negative.

Given the potentially resource-intensive nature of the GHG quantification of the entire project portfolio<sup>53</sup>, the EIB focuses on what it has identified as the most important information needed to move towards a low-carbon portfolio. As such, only projects with significant emissions are to be included in the GHG footprint exercise, as follows: absolute emissions should be greater than 100 000 tCO<sub>2</sub>e and relative emissions (either positive or negative) greater than 20 000 tCO<sub>2</sub>e. The EIB does not quantify the GHG impact of its RDI investments nor of its investments in SMEs. Nevertheless, its methodology is estimated to capture 95% of the GHG emissions of the EIB's portfolio of investment loans (see **Erreur ! Source du renvoi introuvable.**). However, their analysis focuses on operational emissions, excluding those stemming from construction.

The most recent carbon footprint of the EIB's project portfolio included 63 projects, representing a total investment of EUR 50bn, of which 27% has been financed by the EIB. These projects are expected to emit an estimated 16 million tonnes of CO<sub>2</sub> equivalent per year. Emissions savings calculated by estimating emissions that would have occurred if the project had not been built are estimated at 4 million tonnes of CO<sub>2</sub> equivalent per year. (EIB 2012a)

#### Box 6: The European Investment Bank's Assessment of Project GHG emissions and Emissions Variations

The EIB has developed its methodology in coherence with the *International Financial Institution Framework for a Harmonized Approach to Greenhouse Gas Accounting*.<sup>54</sup> The methodologies developed by the EIB allow for the estimation of two measures of GHGs from projects financed by the Bank:

- the absolute GHG emissions of the project;, and
- the variation in emissions compared to a baseline, referred to as the relative emissions, which can be either positive or negative.

The EIB has based its methodological approaches upon the internationally recognised IPCC Guidelines and the

<sup>53</sup> The EIB's GHG quantification focuses on its project within which it has provided loans or invested through equity.

<sup>54</sup> [https://www.nib.int/filebank/a/1358516702/86247517d51b1706d7963cecbe5421ea/2792-IFI\\_CO2\\_framework.pdf](https://www.nib.int/filebank/a/1358516702/86247517d51b1706d7963cecbe5421ea/2792-IFI_CO2_framework.pdf)

WRI GHG Protocol. In the absence of project specific factors, the methodologies adopt an IPCC factor applicable at the global or trans-national level (termed tier level 1 in IPCC). The development of the methodologies has also been informed by ISO14064 parts 1 and 2 and the Verified Carbon Standard which provide guidelines for the development of greenhouse gas inventories at the corporate and project levels.

The EIB approach attempts to include those projects that have significant emission for inclusion in the project portfolio analysis. As such, not all of the Bank's projects are included in the GHG footprint with only projects with significant emissions are to be assessed. The minimum project thresholds for inclusion in the GHG footprint exercise are as follows:

- Absolute emissions greater than 100, 000 tCO<sub>2</sub>-e
- Relative emissions (either positive or negative) greater than 20,000 tCO<sub>2</sub>-e

These thresholds capture approximately 95% of the absolute and relative GHG emissions from investment projects and are in line with those set by other financial institutions for its GHG accounting. Hence projects below these thresholds will not be included in the footprint exercise since they are not considered significant. Examples of projects that typically are not included in analysis are: telecommunications services; civil construction projects; drinking water supply networks; small scale industrial waste water treatment and municipal waste water treatment ; agricultural processing / Food manufacturing facilities; property developments; and R&D activities.

#### ***Emissions & Project boundaries:***

The EIB's methodology includes the 7 gases included in Kyoto Protocol, namely: carbon dioxide (CO<sub>2</sub>); methane (CH<sub>4</sub>); nitrous oxide (N<sub>2</sub>O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs);sulphur hexafluoride (SF<sub>6</sub>); and nitrogen trifluoride (NF<sub>3</sub>).

The quantification of greenhouse gas emissions includes ***Scopes 1 & 2 with some Scope 3*** depending on project type. For the majority of projects financed by the Bank Scope 1 and 2 emissions (ie emitted by the project itself, or the electricity used by the project) are the most significant emissions associated with the projects. However, for certain physical infrastructure links such as road, rail and public transport, indirect emissions resulting from the use of the project, i.e. scope 3 emissions, are included since they are the most significant emissions associated with these project types and can be estimated on parts of the network.

***Carbon leakage*** is not considered in the carbon footprint calculations. Leakage normally occurs as a result of climate policies of one country leading to a shift in emissions sources to another but may also occur as the result of a EIB financed project for example when an old technology is replaced and sold on to be used elsewhere.

Scope 1 and Scope 2 emissions associated with the ***commission / construction and decommissioning phases of projects are excluded.***

#### ***Baseline comparison emissions:***

The project baseline scenario is by default the 'without project' scenario must be defined for each project analysed. The baseline scenario must therefore propose the likely alternative to the proposed project which (i) in technical terms can meet required output; and (ii) is credible in terms of economic and regulatory requirements. The choice of baseline should normally be coherent with the alternative scenario is determined for the project economic analysis.

#### **The assessment of intermediated projects**

The quantification of the carbon footprint for multi-investment intermediated projects (e.g. Framework Loans, Global Loans, Funds,) poses challenges. Information of large numbers of sub-projects is highly limited, which does not permit a reasonable assessment of sub-projects, especially smaller ones and those targeting SMEs. Intermediated lending through these types of vehicles is not currently included in the carbon footprint exercise, except for large allocations of Framework Loans which are subject to individual appraisals. These are be treated

as Investment Loans and included in the footprint exercise if emissions are above the thresholds, in the year the allocation is approved by the Bank.

Source: (EIB 2012c)

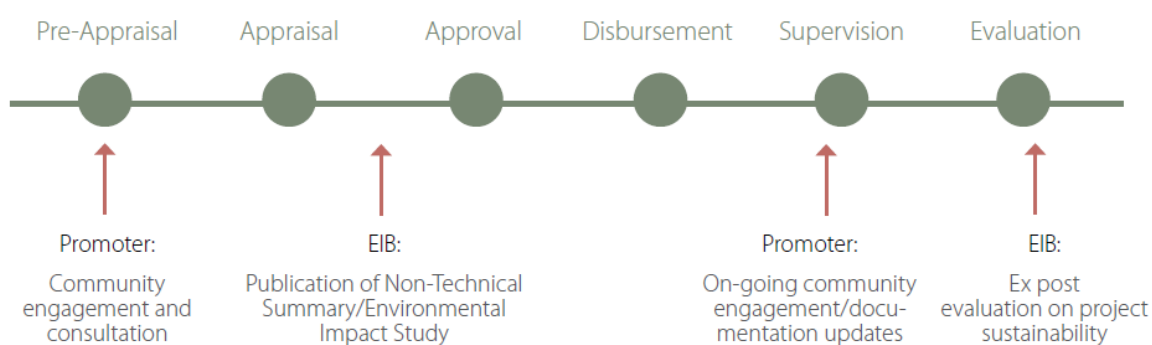
### 4.3 Project appraisal and analysis: quantified tracking climate-related investment

The EIB produces a rigorous review of the non-financial performance, including economic and technical performance combined with an assessment of environmental, social and governance performance of potential investments. Whenever the EIB appraises a project for financing, it compares economic costs and benefits in order to reach a decision on whether to support the project. Unlike most commercial banks, the EIB relies on a wide range of non-financial experts – consisting of engineers, sector economists and environmental and social specialists -- in addition to financial experts to screen each and every investment project. The Bank requires the projects it finances to be economically viable and to contribute to growth. Projects must not only be bankable, they must also comply with strict environmental and social standards.

The EIB has taken steps to mainstream climate and energy concerns into lending practice through setting a price on carbon used in the economic appraisal of investments, the development of sectoral guidelines, and the creation of an adaptation screening tool. This information is included in pre-approval screening of projects and final reports upon which investment and financing decisions are based.

**Figure 2: The European Investment Banks ESG Due Diligence Process**

#### ESG due diligence



Source: (EIB 2013c)

#### 4.3.1 Integration into economic appraisal: a “shadow” carbon price

The European Investment Bank conducts an “*Economic Appraisal of Investment*” for each of its projects within which it invests. Given the broad range of sectors within which the Bank invests, it

uses an array of different methodologies.<sup>55</sup> This analysis plays a role in the EIB's determination of the suitability of the project for financing. In order to assure consistent use within the EIB, it has developed standardised means of integrating a broad range of issues into economic analysis beyond financial returns. These include: environmental externalities; land acquisition and resettlement; wider economic impacts; social discount rate; and sector-specific topics such as the value of time in transport, security of energy supply, and risk-reduction analysis in water. The EIB's philosophy stresses that by accounting for environmental costs and benefits, economic appraisal ensures that any impact on the environment considered in the investment decision, while giving full credit to the benefits of environmentally efficient technologies. (EIB 2013p)

Climate change and more specifically the value of carbon is integrated into the analysis of external costs within EIB's economic appraisals (EIB 2013p). The values, presented in **Erreur ! Source du renvoi introuvable.**, consist of a central estimate for the damage associated with an emission in 2010 of EUR 25 per tonne of carbon dioxide equivalent.<sup>56</sup> These values are integrated in both the cost-benefit analysis for projects and the cost-effectiveness analysis, particularly for energy projects.<sup>57</sup>

**Figure 3: Value of Carbon in EIB appraisals (2006EUR/tCO<sub>2</sub>e)**

	Value 2010 emission	Annual adders 2011 to 2030
High	40	2
Central	25	1
Low	10	0.5

Source: (EIB 2013p)

The EIB thus incorporates what it calls a "shadow price of carbon" in the economic appraisal of all investment projects in the same way as any other cost or benefit. Future emissions related to the

<sup>55</sup> The Bank uses standard economic appraisal techniques, including Cost-Benefit Analysis, Cost-Effectiveness Analysis and, more recently, Multi-Criteria Analysis, taking into account the evolving circumstances of each sector.

<sup>56</sup> Reflecting a common finding that the marginal damage of emissions increase in function of the atmospheric concentrations of carbon, annual "adders" are applied after 2010 – i.e. an absolute increase in value per year (measured in constant 2006 prices). Hence an emission in 2030 under the central estimate equals 25+(20x1) = EUR45 (in 2006 euros). (EIB 2013p)

<sup>57</sup> The Bank also employs cost-effectiveness analysis, notably for some energy projects. Where the output (electricity or heat) is homogenous, the analysis for mature technologies focuses on the relative cost per unit of energy produced. Environmental externalities are included as a cost and hence penalise relatively polluting or carbon-intensive generation technologies. This methodology can be applied both to renewable and conventional power generation projects. For instance, when assessing a loan for a mature renewable energy project within the Union, the Bank appraises it against the alternative marginal plant on the system, which in many cases may be a combined-cycle gas turbine. Whilst the exact results are project specific, for a simple example the external cost of carbon can comprise 13-20% of the levelised cost for a combined cycle gas turbine, depending on whether the central or high value of carbon value is used. For a coal/lignite plant, in this particular example, the external cost comprises 30 to 45% of the levelised cost. (EIB 2013p)

project are estimated in terms of the direct emissions of the project during the operation phase. This total is compared to an estimation of emissions without the project using a scenario including the most likely alternative<sup>58</sup>. In its calculations, the EIB includes 100% of a project's emissions, even if the Bank contributes only a portion of the total project investment costs. The aim is to encourage sound projects that will lead to a drop in carbon emissions. The shadow price of carbon is critical in placing renewable energy investments on equal footing with traditional investments. In general, the EIB will finance mature renewable energy projects which are competitive with conventional sources, once accounting for the shadow cost of carbon, the generation profile and the wider system costs of renewables. The case for emerging technologies rests on potential for future learning (and hence cost reduction).

#### **4.3.2 Sector specific guidelines**

The EIB has also produced sector specific guidelines, as mentioned previously, for conducting a GHG analysis of projects. For example, the JASPERS program has produced a working paper on the GHG Emissions in Waste and Waste-to-Energy Projects (Teichmann & Schempp 2013).

#### **4.3.3 Adaptation Screening**

Adaptation is an important climate-change related topic for the EIB. It is included within the calculation of the EIB's target of 25% of funding to contribute to climate-related projects. Furthermore, the EIB is working with a number of other multilateral development banks and public finance institutions in developing indicators to integrate adaptation and vulnerability assessment into practice. Both in the European Union and globally countries are becoming more aware of the potential for increased extreme weather events and changes in average rainfall, and in some cases risk assessment is being introduced into planning permission processes.

While not fully deployed, the EIB is exploring how to integrate future impacts over the lifetime of a given project through vulnerability assessment. It is currently piloting a screening tool focusing on the sectors that are potentially the most vulnerable to climate change – for example the impacts of rainfall patterns on hydropower installations and other critical infrastructures (transport, energy). This pilot process is expected to lead to the development of a larger review system to evaluate and record vulnerability assessments. In developing its system, the EIB is paying close attention to what type of review is appropriate given that it often becomes involved in during construction or in final planning stages – particularly in the European Union. As such, it hopes to both find means of improving existing projects in terms of its vulnerability through feasible actions and be a catalyst for project developers to learn how to improve the development process in terms of climate-related vulnerability in future projects. (Saich 2013)

#### **4.3.4 Uptake by the Board of Directors: the Board Report**

In addition to quantifying and assessing climate-related aspects of projects – whether GHG emissions or vulnerability assessment – the EIB continues to review how to best integrate climate impacts into decision-making. At the pre-appraisal screening stages of a project, both climate mitigation and

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<sup>58</sup> The baseline scenario must propose the likely alternative to the proposed project which (i) in technical terms can meet required output; and (ii) is credible in terms of economic and regulatory requirements. The choice of baseline should normally be coherent with the alternative scenario is determined for the project economic analysis. (EIB 2013p)

adaptation issues are integrated into initial decisions to conduct a full appraisal of a candidate project. A more detailed review, including both the pilot screening tool as well as the quantified carbon footprint are conducted if thresholds are met.

The results are incorporated into the Board Report used by the Board of Directors to approve EIB financing of projects. Since January of 2013, the carbon footprint is included within the *Environmental and Social Data Sheet* for the project. The role of the project in achieving the EIB's commitment of 25% of financing going to climate-related projects is included in the *Value-Added Sheet*. (EIB 2013p)

#### **4.4 Liquidity portfolio: limited levels of integration into “paper” asset management**

The EIB has made substantial progress in integrating climate and energy criteria in the analysis of its physical and project-based investments. Available information indicates that climate and energy criteria, however, are not currently involved in how the EIB invests in the financial markets as an asset manager. The EIB manages a liquidity portfolio of financial (i.e. “paper”) assets. For example, total treasury assets stood at 65 billion euros at the end of 2012 (EIB 2013a) and were principally composed of short-term money market and operational money market assets and government bonds and an investment bond portfolio. Given that the vast majority of the overall treasury portfolio is kept in very liquid and short term investments, there may only be a limited opportunities in integrating climate and energy criteria. However, the EIB is assessing the benefits of integrating SRI criteria into the management of the Treasury's medium/longer-term bond portfolios.

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