

Public Finance Institutions & the Low-Carbon Transition Case Study: Caisse des Dépôts

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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.³ 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>

This working document should be taken as indicative and for informational purposes only: it may not fully reflect the scope or scale of action of the institution studied and was last updated at the end of 2013. The authors accept full and sole responsibility for any errors. The opinions expressed in these papers are the sole responsibility of the author(s) and do not necessarily reflect those of the OECD, the governments of its member countries, nor the public financial institution in question.

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Executive Summary: Caisse des Dépôts

Key Figures

Country	France
Created	1816
Rating	<ul style="list-style-type: none">• Fitch Ratings : AAA• Moody's : Aa1• Standard & Poor's : AA+
Assets under management (2012 unless noted)	<ul style="list-style-type: none">• Own-Assets: EUR 23 billion• Banking Services: EUR 47.9 billion, including EUR 32.6 billion in funds entrusted by the legal profession and EUR 3.7 billion in escrow accounts• Regional and Local Development and Network Division (DDTR): EUR 388.9 million invested in public interest projects (2011)• Savings Funds (DFE): Centralized deposits from passbook savings accounts (LA, LDD, LEP): EUR 222.5 billion (31/12/2011)
Investment in Low-Carbon Areas	2010-2012 : <ul style="list-style-type: none">• Renewable Energy – EUR 131 million (equity)⁴• Energy efficiency (<i>Eco-prêt Réhabilitation Logement Social</i>) – EUR 1 billion (loans)⁵• Sustainable transport projects (rail and public transport) – EUR 5 billion (loans)⁶

The Caisse des Dépôts' Contribution to the Low-Carbon Energy Transition

Mandate

Created in 1816, the public institution *Caisse des dépôts et consignations* (CDC) is one of the oldest public financial institutions in France. Today, it and its twenty subsidiaries make up the *Caisse des Dépôts Group*. CDC is involved in a broad range of social and economic sectors, with a network of regional offices in mainland France, the overseas French territories and globally through a number of subsidiaries activities in key development-related sectors (transport, real-estate, engineering consulting, urban planning etc.). It is equally an important financial and asset manager – entrusted with multiple programs funded by the French government and with the investment of mandatory deposits from the legal profession. Furthermore, it plays an administrative role in a number of pension funds as well as

⁴ Between 2006-2012, EUR 247 million was invested, resulting in a total installed capacity of 823 MW of which 409 MW is connected (CDC-DDTR 2013, p.30).

⁵ (CDC 2012c) The values presented here include only the portion of the lending dedicated to the energy-efficiency component of the operation. Each *EcoPret* was, in general, accompanied by a loan from the CDC of a similar value to cover other components of the renovation project. See Section 3 for a full description.

⁶ Authors' estimate after (CDC 2012c)

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invests in the development of companies through newly-created *Banque Publique d'Investissement* (BPIfrance).⁷

The historical partners of CDC are local governments, public entities as well as small- and medium-sized companies. Today, CDC has limited direct interaction with private households; partnerships with large corporations and utilities are typically limited to public-private partnerships of national importance (high-speed rail projects, etc.) or through equity stakes held by different parts of the Group.

The mission of CDC has evolved over almost two centuries with a strong focus on serving the general interest of the nation as set out in the legislation guiding its activities. CDC has a long-standing mandate to support and invest long-term in “public goods” as well as manage the substantial financial assets entrusted to it by the State, including household savings in national savings programs (*Livret A*).

Since 2008, sustainable development has been added to its formal mandate as set out by the *Loi de la modernisation de l'économie*. While these issues have been integrated into CDC's strategic plan (Box 1), to date there is no over-arching mandate from the government for CDC to prioritize low-carbon investments over others. Nevertheless, as a recognized partner of both public and private sector actors as well as a mission to support long-term lending, CDC has the potential to play an important role in financing the transition to a low-carbon economy, either directly or through leveraging private sector participation:

- CDC's business model allows it to take into consideration the added "societal" value of its actions.
- As a public finance institution with a policy mandate, CDC is less concerned than commercial banks in the liquidity of its assets, and is more focused on the continual enhancement of its portfolio than on its capacity to immediately switch its assets.
- While a public entity is legally charged with a number of public interest missions, CDC has much autonomy in setting its strategic objectives and portfolio policy. CDC has adopted climate change, and more recently the energy transition, as parts of its pluriannual Strategic Plan that guides the CDC group's daily investment and finance activities.

Box 1: The group CDC's Strategic Plan

⁷ This study focuses specifically on the activities of the CDC Public Institution as well as those subsidiaries involved in infrastructure and climate-related investment: CDC Climat, CDC Infrastructure.

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The CDC group's 2007 Strategic Plan focuses on four areas: housing and urban development, business, universities and the knowledge economy and sustainable development. As such, historically, CDC's activities focusing on climate change fit within its larger commitment to sustainable development. Approved in mid-2013, the Group's new strategic plan has positioned energy, climate change and related low-carbon sectors as key area of intervention in the French economy. In addition to focusing on business development, the enlargement of its entrusted fund management activities, the financing of social housing, the deployment of the digital economy, and supporting infrastructure development, the strategic plan specifically cites CDC's role in:

- *Serving as a catalyst for the energy and environmental transition, mobilizing private finance and creating innovative tools and service offers;*
- *Assisting local governments in the development of sustainable transport policies tailored to the needs of their territory.*

As such, it is expected that the CDC group's activities in supporting the low-carbon energy transition will expand as this new strategic plan is put into place.

Source: (CDC 2012b)

Funding

The financing of CDC's investment activities are disconnected from the State budget and taxes. There are four principal sources of funding for CDC:

- the CDC group's own assets of approximately 23 billion euros
- Household savings through national passbook savings accounts (*Livret A, LDD, LEP*).⁸ CDC is entrusted with the management of 65% of the funds from these accounts, totalling approximately EUR 255.5 billion at the end of 2012. All profits – beyond overhead costs – are returned to the State after remuneration of the individual households savings. The French government establishes the guidelines for the allocation of these funds, historically targeting social housing urban renewal projects and network infrastructures.
- The funds and dedicated programs entrusted to CDC by the French government (*Investissements d'Avenir*);
- The management and investment of deposits of the legal profession and other economic actors (EUR 47 billion in 2012).

Current Levels of Investment in the Low-Carbon Economy:

While official data was not available on the levels of investment in the low-carbon economy across its different subsidiaries and the main institution, authors' estimates indicate that the majority of CDC's investments relevant to this study occur are in the following sectors: Public and rail transport projects; Energy efficiency renovation projects in social housing; Renewable energy. CDC is also active in supporting the development of low-carbon technologies and businesses.

⁸ *Livret développement durable, livret d'épargne populaire*

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Table 1: The CDC's Low-Carbon Investment between 2010-2012 (millions EUR)⁹

	2010		2011		2012		2010-2012	
	Volume	%	Volume	%	Volume	%	Volume	%
Renewable Energy (Equity) ¹⁰	40	12%*	38	12%*	53	16%*	131 ¹¹	13%*
Energy Efficiency (Loans) ¹²	233	2%**	380	3%**	453	4%**	1,066 ¹³	3%**
Sustainable Transport (Loans) ¹⁴	548	72%***	3,660	84%***	1,500	55%***	5,708	73%***
Million EUR	2010		2011		2012		2010-2012	
Total Annual Equity Investment ¹⁵	337		318		324		978	
Total Lending for Social Housing and Urban Programs ¹⁶	13,698		12,657		12,362		38,723	
Total Lending for Sustainable Infrastructure ¹⁷	757		4,365		2,727		7,849	
* As compared to total annual equity investment.								
** As compared to total lending for social housing and urban programs								
*** As compared to total lending for sustainable infrastructure								

Source: Authors calculations based on the annual reports of the Caisse des Dépôts

- Sustainable transport projects (rail and public transport) – EUR 5.7.billion between 2010-2015¹⁸

CDC and its subsidiaries have long been active in financing transport infrastructure investment in France. While historically CDC has been a substantial actor in the development of the national highway system, CDC has reduced its role for this sector and has more recently become a major investor in both public and national rail transport systems, including the financing of the high-speed rail lines. Today, concessional loans are principally used to finance public transport infrastructure, with limited equity investment in completed projects made by CDC's subsidiary CDC Infrastructure (EUR 225 million).¹⁹ CDC

⁹ Due to difficulties in aggregation and a lack of data, these totals do not include CDC Infrastructure's equity investment in transport and renewable energy projects; the investments of CDC Climat in industrial energy efficiency; the activities of *ExterImmo* in public building energy efficiency; nor the *Ville de Demain* grant programs managed by the CDC for the French Government. It is estimated that the exclusion of these investments does not change the order of magnitude of the values presented.

¹⁰ (CDC-DDTR 2011, p.53) (CDC-DDTR 2012, p.39)

¹¹ 2006-2012: EUR 247 million for a installed capacity of 823 MW, of which 409 MW is already connected (CDC-DDTR 2013, p.30)

¹² *Eco-prêt Réhabilitation Logement Social*: The values presented here include only the portion of the lending dedicated to the energy-efficiency component of the operation. Each EcoPret was, in general, accompanied by a loan from the CDC of a similar value to cover other components of the renovation project.

¹³ (CDC 2012c)

¹⁴ (CDC 2012c, p.13)

¹⁵ (CDC-DDTR 2013)

¹⁶ (CDC 2013c)

¹⁷ (CDC 2013c)

¹⁸ (CDC 2012c)

¹⁹ Between 2010-2013, CDC Infrastructure has invested EUR 225 million in sustainable transport projects and EUR 55 million in renewable energy. At the moment of creation, they were equally mandated with EUR 165 million in existing sustainable transport investments held by the CDC.

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is also involved in the administration of public subsidies for public transport as well as supporting large-scale public-private partnerships, principally through the provision of debt for high-speed rail.

- Energy efficiency – EUR 1 billion (2010-2012 *Eco-prêt Réhabilitation Logement Social*)²⁰

In partnership with the French government, CDC supports energy efficiency renovation in social housing through the concessional-rate loan *Eco-prêt Réhabilitation Logement Social*. CDC has also explored structured finance methods to overcome barriers to energy efficiency in industrial installations, as well as Public-Private Partnerships for energy efficiency in the public sector. In September 2013, CDC was entrusted by the French President François Hollande with the creation and management of a guarantee fund for the energy-efficient renovation of residential properties. This fund is currently under development.

- Renewable Energy – EUR 147 million 2010-2012 (cumulative total of EUR 247 million 2006-2012)²¹

CDC signed an agreement with the French government to finance up to 10% of the planned investments in renewable energy of the, multi-year investment programme in energy (*Programmation pluriannuelle des investissements*). Investments in renewable energy occur principally through equity stakes in small- and medium-sized companies. As in the case of transport projects, CDC also takes equity shares in large scale projects, both through its subsidiary CDC Infrastructure (EUR 55 million 2010-2013) as well as external funds structures.

Finally, the Caisse des Dépôts group is active in supporting the development of low-carbon technologies and those businesses involved in the development of the services needed to support the energy transition. To date, these activities remains a small portion of the total activities of CDC (*consolidated estimates are not available*).

Climate Finance Tools and Instruments supporting project finance

- **The provision of long term capital, through concessional debt and to a lesser extent equity**

CDC's only climate-related dedicated program of equity investment supports renewable energy: CDC takes minority direct equity stakes alongside other public and private investors in small- and medium-sized project companies and special purpose vehicles developing renewable energy projects.²² It also provides equity through externally-managed investment funds, such as its participation in Marguerite Fund²³ as well as CDC Infrastructures participation in a fund dedicated to equity investments in

²⁰ Due to a lack of data, this total excludes the activities of *ExterImmo* as well as the CDC Climat's energy efficiency investments in the industrial sector.

²¹ This value excludes the equity of CDC Infrastructure in wind projects as well as the EUR 100 million investment of the CDC in the Marguerite Fund.

²² For example, in 2011 CDC invested €6.7 million in the SAS ECOGI special purpose vehicle that will construct and exploit a 24 MW geothermal plant that will provide superheated water for the Roquette Frere industrial site in Alsace (CDC 2012b).

²³ This fund brings together Europe's largest financial institutions (Caisse des Dépôts, KfW, ICO, PKO, Cassa Depositi e Prestiti) alongside the EIB and the European Commission to promote investments in clean energy and transport infrastructure projects in the 27 EU Member States. The Marguerite fund will deploy its capital equally

operational (brownfield) solar installations (*ForVEI*) as well as offshore wind projects under development (Butendiek).²⁴

The bulk of CDC's intervention occurs through the use of the national passbook savings accounts funds entrusted for management to provide concessional debt for projects. Historically, the use of these funds has been limited by the French government to social housing and homes for populations at risk, urban renewal, high-speed railway lines, tramways, the modernization of hospitals and the renovation of university buildings or the upgrading of wastewater treatment plants.²⁵ This lending occurs at interest rates based on the State-established interest rate for passbook savings accounts. Thus, dependent on broader market conditions, these lending activities can occur at concessional levels.

- **Derisking**

CDC offers a limited number of risk transfer and sharing instruments. CDC rarely provides guarantees for the projects it finances: typically, local governments must provide counterparty guarantees for loans using the national passbook savings accounts.

Today, CDC is exploring two types of innovative instruments for risk transfer: first, the subsidiary *ExterImmo* has developed a public-private partnership model through which local governments can outsource the management of a given building. This outsourcing has been increasingly developed to support small-scale energy-efficiency renovation projects. Second, CDC Climat is pioneering a means of aggregating and financing energy efficiency and emission reduction projects in industries through equity or quasi-equity investment in special purpose vehicles. Through the use of a holding fund, number of projects and individual dedicated special purpose vehicles are grouped into a single structure, thus facilitating risk sharing as well as reducing per project transaction costs. To date, an initial project has been established in partnership with Solvay Energy Services and Marubeni.

In 2014, CDC will be developing a guarantee fund to support energy efficiency projects in homes and residential buildings that aims to incentivise third-party investment and private sector involvement.

- **Filling the capacity gap: provision of consultancy services and public-interest research**

The CDC group provides consultancy services and expertise related to low-carbon development. Many of the subsidiaries of CDC have developed a market offer for low-carbon and adaptation services as well as providing research in the public interest on these topics. Furthermore, CDC is also active in research around innovative instruments to finance the transition to a low-carbon economy, providing financing for *CDC Climat Recherche*, a think-tank dedicated to producing public-interest research on these topics.

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

Detailed functions	Energy Efficiency	Sustainable Transport	Renewable Energy
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across three core sectors: (i) transport, (ii) energy and (iii) mature renewable energy technologies. The CDC has invested EUR 100 million in this fund.

²⁴ (CDC Infra 2012)

²⁵ At the end of 2013, the French State has lifted the sectoral-based limitations on the projects that the savings account funds can be used to finance all long-term financing projects proposed by local governments.

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I. Facilitate access to capital			
<ul style="list-style-type: none"> • Long-term capital provider • Facilitate access to private capital 	<ul style="list-style-type: none"> - Concessional debt to social housing companies - Marguerite Fund 		<ul style="list-style-type: none"> - Direct equity investment in small- and medium-sized project companies - Participation in the (ForVEI) Equity Fund
II. De-risking			
<ul style="list-style-type: none"> • Risk sharing • Credit enhancement mechanisms 	<ul style="list-style-type: none"> - National fund for energy efficiency (<i>under development</i>) - Structured finance for industrial energy efficiency²⁶ 	<ul style="list-style-type: none"> - PPP structures (<i>ExterImmo</i>, CDC Infrastructure) 	
III. Filling the capacity gap			
<ul style="list-style-type: none"> • Aid project development • Reducing project risk 	<ul style="list-style-type: none"> - Advise to the French government on how to foster and finance energy efficiency investments 	<ul style="list-style-type: none"> - Market offer for project appraisal and technical assistance 	
	<ul style="list-style-type: none"> - Public interest research on the low-carbon economy (<i>CDC Climat Recherche</i>) 		

Mainstreaming Climate and Energy across all Activities:

At the scale of the Group, the CDC has not established GHG reduction targets nor a systemic assessment of its impact on climate change. The CDC does quantifying the GHG impacts of a number of different

²⁶ CDC Climat has invested alongside Solvay Energy Services and Marubeni have created a joint venture to finance and operate an energy efficiency project at Solvay's Rare Earth plant in La Rochelle, France. The joint-venture will finance the revamping of a gas turbine and the replacement of a fuel-oil boiler by a new efficient heat recovery steam generator.

types of investment decisions (particularly in the case of infrastructure projects - the *EvalInfra*²⁷ tool or the *Energy Audit of buildings wholly owned by CDC*²⁸). Furthermore, energy and GHG-related issues are taken into consideration in the institution's asset management activities (equity stakes in companies, bonds, etc.) as part of a larger ESG approach. CDC is currently working on how to best integrate the impact of a future carbon price or impact of decisions on GHG emissions into project-level cost-benefit analysis or other financial and risk-related studies.

²⁷ CDC Infrastructure and Egis has developed with the Caisse des Dépôts a tool for assessing the environmental impacts (water, energy, carbon, biodiversity) of infrastructure projects under investment study. This tool helps CDC Infrastructure to manage asset allocation (balanced portfolio of assets for low carbon) as well as discussions with the project partners to fully take into account environmental impacts in the development of the project and its governance.

²⁸ The CDC holds a portfolio of EUR 5.4 billion of real-estate assets, including industrial, commercial, office and residential. In light of the national objective of reducing energy consumption by at least 38% by 2020, the real estate management division of the CDC launched in 2011 a detailed audit of the energy performance of buildings owned 100% by the CDC. This has helped the CDC to develop a long-term (2020-2030) plan to identify energy-efficiency renovation projects to conduct within its portfolio of buildings as well as to identify inefficient buildings that could be sold (CDC 2012e).

1 The role for Caisse des Dépôts in the low-carbon transition

Caisse des Dépôts (CDC) is one of the oldest public financial institutions in France dating from the beginning of the 19th century. Created in 1816, the mission of CDC has evolved over almost two centuries with a strong focus on serving the general interest of the nation. Today, the mandates of the CDC group,²⁹ composed of the public financial institution as well as a number of wholly- and partially-owned subsidiaries, are set out in legislation dating from 2008. CDC is involved in a broad range of social and economic sectors, with a network of regional offices in mainland France, the overseas French territories as well as globally through a number of subsidiaries activities in key development-related sectors (transport, real-estate, engineering consulting, urban planning etc.). As a trusted³⁰ actor and through its long and tested experience in supporting French economic and social development, CDC has the potential to influence investment in low-carbon infrastructure projects and the broader low-carbon economy.

1.1 An autonomous public institution investing for the public interest while respecting market forces

Caisse des Dépôts (referred to below as *CDC*, as opposed to the *CDC group*, which refers to the both the public institutions and its subsidiaries) is a public finance institution charged a mandate to support and invest in the public interest (*intérêt général*) as well as entrusted with the management of substantial financial assets from both households as well as from the French government.

"Caisse des dépôts et consignations is a special institution in charge of administering deposits (including compulsory ones), providing services related to the funds it has been entrusted to manage and carrying out the other missions legally attributed to it. It is in charge of protecting popular savings, financing social housing and managing retirement bodies. It also contributes to local and national economic development, particularly in the areas of employment, town policy, fight against banking and financial exclusion, creation of businesses and sustainable development." Loi de la modernisation de l'économie, 2008

While a public entity legally charged with a number of public interest missions, *Caisse des Dépôts* has much autonomy in both its internal governance and investment practices. As such, it plays a role leveraging the financing, expertise and partnership with local and private sector actors to achieve French development objectives.

1.1.1 An autonomous governance of public mandates

As a public institution, *Caisse des Dépôts* has a number of publically-mandated missions legally attributed to it by the French government, particularly in the areas of savings, pension funds, financing social housing and banking services to the French judicial and social security system. However, as an autonomous institution, CDC has relative freedom in achieving the objectives it has been entrusted with.

²⁹ It is important to differentiate between the *Caisse des dépôts* and the the Group CDC group. The *Caisse des dépôts* (CDC) refers to the Public Institution created by the French State and is the focus of this case study. The CDC Group CDC refers to the ensemble of the CDC and its twenty subsidiary companies. A number of the 100% held and controlled subsidiaries, such as CDC Climat and CDC Infrastructure have been analysed for this study.

³⁰ The CDC has built close relationships with the French State, sub-national governments as well as with the private sector over the last two centuries. It is seen as an actor working towards the public interest rather than pure financial returns.

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Caisse des Dépôts is a legal entity under public law *sui generis*. The actions of CDC are under the tutelage of a Supervisory Board comprising 13 members³¹ with the mandate of monitoring Caisse des Dépôts' major decisions, strategic directions, shareholding initiatives, savings fund management and audit accounts. The Supervisory Board is accountable to French Parliament: the President and the Director General of CDC are heard by the Finance Committees of the National Assembly and the Senate.

The Director of Caisse des Dépôts is appointed by the President of France for a term of five years. The Director General takes an oath "to defend the autonomy of the institution and to ensure the inviolability of funds that are returned to custody." While the Supervisory Board recommends actions, it is the Director General who has final decision-making power over the institution's activities.

Box 2 Acting in the *Intérêt Général* or Public Interest

Caisse des Dépôts has been created to protect the private savings and other funds entrusted to its management as well as to assist the French government in the implementation of projects and policies supporting the public interest (*intérêt général*). CDC does not define what is considered to be in the public interest, but rather adheres to the policy priorities established by the French government, its interpretation of European policy, as well as the policy programs defined by local governments in France. The role of CDC is to use its capacities as a long-term investor to support public policy objectives.

1.1.2 An *Investisseur "Avisé"* respectful of market forces

Caisse des Dépôts has a mandate to act in the public good, using its investment activities to support public policy and development objectives. As such, CDC pays close attention to the added "societal" value of its actions. Nevertheless, CDC takes a "financial approach" to its public service investments and thus paying close attention to the financial and economic viability each project in addition to the potential social and environmental benefits.

Given its mandate and its focus on long-term investment, CDC can apply financial criteria that differentiate it from a number of other economic actors on the market:

- The capacity for long-term financial analysis and projection, and the ability to accept future rather than immediate returns on investment;
- Acceptance of moderate risk premiums, allowing CDC to accept risk/return ratio that conventional investors would not typically consider due to their a business model which is more risk-averse and/or more focused on the short-term;
- An at times lower concern for liquidity than the rest of the market, as Caisse des Dépôts is more focused on the continual enhancement of its portfolio than on its capacity to immediately switch its assets.

Nevertheless, Caisse des Dépôts's public service investments are made in strict compliance with legal requirements and competition rules: this includes European rules with activities declared to Community authorities wherever necessary.

³¹ This includes five representatives of the French Parliament (meeting of the Senate and the National Assembly), a representative of the State Council, two representatives the Court of Auditors, the Governor of the Bank of France, the Director General of the Treasury and three qualified persons (two appointed by the Speaker of the National Assembly and the President of the Senate).

This combination of social and financial objectives and criteria allows Caisse des Dépôts to act as a "sensible investor" (*investisseur avisé*): while focusing on the public interest, CDC respects market forces and ensures that it does not favour any actor over another when acting on the basis of an explicit public mandate. In practice, this means that CDC may accept to invest at lower rates of return, over longer-durations or at increased levels of project risk than typical private sector market actors might take. When its public service investments are made at the request of government authorities, it is done in the framework of a contractual arrangement which stipulates the shared goals to be achieved, such as in the case of renewable energy financing described below.

1.1.3 A focus on stimulating private sector involvement in targeted sectors

As explicitly defined by CDC, the public interest missions "are intended not to supplant private sector initiatives but to stimulate these when they are insufficient or totally absent" (CDC 2012b). CDC has identified a number of shortcomings in private sector involvement in sectors deemed as priority by the French government. These include: geographical disparities (investments to boost economic activity in targeted regions); sector-based insufficiencies (investments to structure markets such as the energy sector with nascent businesses and a restricted number of market players); and social inequalities (CDC devises investment solutions where it is difficult to attract investment from the for-profit sector). Many of these existing rationales for investment correspond to the barriers to private sector involvement within low-carbon investment sectors.

1.2 Characteristics to support a low-carbon and climate resilient transition

In addition to its commitment to investing in the public interest and supporting national policy objectives, Caisse des Dépôts has a number of characteristics that make it an ideal actor in financing the low-carbon economy. This includes its focus on providing long-term finance, its accesses to consistent funding to support these activities in terms of asset-liability matching, as well as fulfilling a number of broader support roles throughout the French economy. Thus, CDC is in a strategic position to help foster the low-carbon transition.

1.2.1 An investment philosophy focused on the provision of long-term finance and investing in the public interest

Caisse des Dépôts focuses principally on long-term investments that take two forms. Firstly, CDC invests its own substantial assets as well as those assets under its management in a diversified portfolio of bonds, shares, real-estate, other capital investments, and infrastructure projects. Secondly, a portion of the profits generated by the management of its own capital and the funds entrusted to its management are used for long-term *public interest investments*. These investments aim to bring solution to respond to national development needs and priorities – focusing typically territorial development and the financing of small and medium enterprises (SMEs).

As such, on the one hand CDC acts both as a traditional asset manager tending to its extensive portfolio of assets accumulated over two centuries – known for both its conservative position (focus on the financial viability of projects, moderate risk-taking), its high credit rating, and its trusted reputation and expertise. On the other hand, the Public Institution acts as a domestic public finance institution providing the long-term financing for projects – principally through equity investments with its own resources and through debt with funds under management from the State to targeted sectors as laid out by the government.

1.2.2 Access to consistent funding dedicated to supporting the public interest

As seen in Figure 1, there are numerous mandates, programs and subsidiaries consolidated into the Caisse des Dépôts group. The total assets under management, including those of the subsidiaries' over which CDC has limited control, totalled over 260 billion euros in 2012. In terms of direct activities, Caisse des Dépôts (Public Institution) uses three principal sources of funding to finance its general-interest activities, giving it both substantial financial means and autonomy to dedicate funds to support missions designated as being within the public interest.

Firstly, CDC is able to auto-finance the majority of its direct equity investment activities independent from the State budget or taxes using the capital it has accumulated over two hundred years totalling approximately 23 billion euros³² at the end of 2012 (CDC 2013d). Each year, a portion of CDC's consolidated net profits are transferred to the French State in lieu of income tax payment.³³ The remainder of the consolidated profits is either reinvested in public-interest development projects or is used to increase the capital reserves of CDC.

Secondly, CDC is mandated with the management of multiple programs funded by the State, such as the national passbook savings account and the *"Investments for the Future" program* (see Box 3). The principal mandate is the management of a large portion of the national passbook savings accounts (*Livret A, LDD, LEP*³⁴) totally 222.5 billion euros in 2012. These funds are used to finance long-term loans for projects serving the public interest as described below. The types of projects that can be financed using these funds are set by the French government with social housing as the historical and current principal priority. The management of these funds is conducted at cost, without making any profit from them. The State reimburses CDC only for its management costs. Any profit or remaining funds from these missions is returned to savings funds contributors or to the State.

Thirdly, CDC is the legal depository of funds from the legal profession as well as other deposits from the legal system. In 2012, these funds totalled nearly EUR 48 billion, including EUR 32.6 billion in funds entrusted by the legal profession and EUR 3.7 billion in escrow accounts (CDC 2013e). Any revenues generated from the management of these funds are used to support CDC's public interest investment mandates.

Given that CDC is a separate legal entity from the State, the debt leveraged by CDC does not count as part of the debt of the French State under Maastricht calculation methods.

Box 3: Managing National Investment Programs – the *Investments for the Future*

Launched in 2009, the *"Investments for the Future" program (Programme d'investissements d'avenir-PIA)* was created by the French State as part of the French Grand Loan (*Grand emprunt national*) to reinforce long-term competitiveness of the French economy. In 2010, Caisse des Dépôts was entrusted with managing multiple programs within the scope of the Investments for the Future Program representing a total amount of EUR 7.4 billion. The Group manages EUR 3.1 billion out of the total of EUR 3.5 billion dedicated by the French government to equity financing, making it the

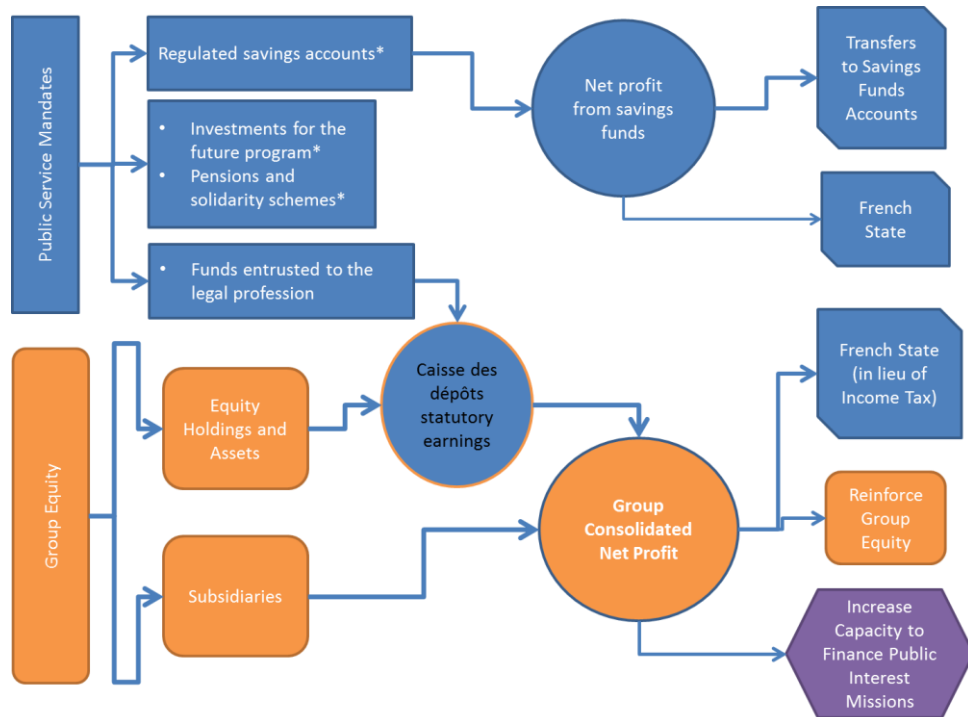
³² Excluding minority shares of approximately 15 billion EUR.

³³ From 2009, concerning the payments of the Group to the State: the payment will be equal to 50% of the attributable net profit without exceeding 75% of the Caisse des Dépôts net profit.

³⁴ *Livret développement durable, livret d'épargne populaire*

main manager for the capital investment part of the program.

Figure 1: The Caisse des Dépôts group Financial Flows



*Managed on a cost price basis (no profit made by Caisse des Dépôts).

Source: After (CDC 2012d)

1.2.3 Combining broad range of activities from a custodian of public funds to a direct service provider

The broader Caisse des Dépôts group plays a number of roles within the French financial sector and broader economy through its ten fully-controlled³⁵ and ten other subsidiary³⁶ companies. As such, the Caisse des Dépôts group is active as a custodian of public funds, an agent implementing multiple public mandates, an investor, a lender as well as a direct service provider. While this annex will focus principally on the activities of the “Public Institution” or the CDC, the subsidiaries of the CDC Group carry out market activities coherent with larger long-term social objectives in adhering strictly to EU regulations on competition. This occurs through direct activities of the companies (such as *BPIfrance* and its investment in SME business development, or *Transdev* and the provision of public transport services) as well as indirectly through the reinvestment of shareholders profits in development and general-interest projects. As such, the CDC group is in a position to facilitate the low-carbon energy transition through a number of functions supporting a broad range of socio-economic activities.

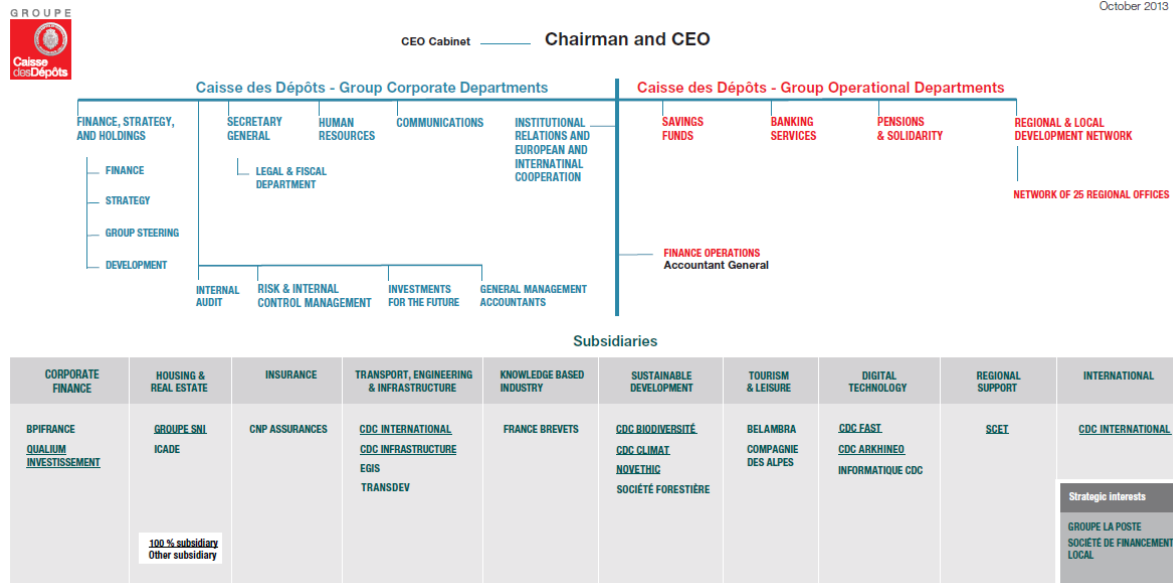
Figure 2: Organization of the Caisse des Dépôts group

³⁵ SCET, CDC Infrastructure, CDC Climat, CDC Arkhinhéo, CDC Fast, CDC International, Groupe SNI, Qualium Investissement, Novethic, CDC Biodiversité

³⁶ BPIFrance, CNP Assurances, ICADE, Transdev, EGIS, Compagnie des Alpes, Belambra, Informatique CDC, Société Forestière, France Brevets

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Source: <http://www.caissedesdepots.fr/en/the-group/organisation.html>

Caisse des Dépôts, or the “Public Institution,” houses the management activities of the Group (general secretariat, communication, finance, etc.) as well as four principal operational divisions: Banking Services, Pensions & Solidarity, Regional & Local Development & Network (DDTR) and Savings Funds (DFE).

- **Banking Services Division:** is charged with the management of legally protected funds entrusted to CDC³⁷. Banking services therefore form an integral part of the trust placed in it to provide transparent, secure management of deposits and escrow accounts.
- **Pensions & Solidarity Division :** CDC is equally charged with providing administrative services to a number of pension and social security funds.³⁸
- **Regional & Local Development & Network Division (DDTR):** DDTR(*Direction du développement territorial et du réseau*) works with national and local actors to devise development solutions in line with long-term objectives. This investment activity occurs principally through direct equity stakes in companies and project companies.
- **Saving Funds Division:** Charged with the management of the funds from the national passbook savings accounts, bring together a significant portion of the savings of French households.

Table 3: Key Figures of CDC Divisions

Banking Services	<ul style="list-style-type: none"> • Average annual cash deposits: EUR 47.9 billion, including EUR 32.6 billion in funds entrusted by the legal profession and EUR 3.7 billion in escrow accounts. • Number of customers: 44,182.
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³⁷ Professionals (solicitors, administrators and legal representatives, commercial court clerks, bailiffs, etc), persons under the guardianship of the State, and also for social security and general interest bodies.

³⁸ While the CDC may provide expertise, it is not directly involved in the investment and financial management of the different funds’ assets.

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	<ul style="list-style-type: none"> • Portfolio securities: EUR 10.2 billion.
Pensions & Solidarity	<ul style="list-style-type: none"> • Number of funds administered: 47. • Fund profile: 7.3 million active employees, 3.4 million retirees, 75,000 employers
Regional and Local development and Network (DDTR)	<ul style="list-style-type: none"> • EUR 388.9 million invested in public interest projects in 2011. • A portfolio of 837 companies, including 471 private-public partnerships. • 932 employees working on local and regional initiatives.
Savings Funds (DFE)	<ul style="list-style-type: none"> • Centralized deposits from passbook savings accounts (LA, LDD, LEP): EUR 222.5 billion. • Portfolio of financial assets: EUR 101 billion. • Outstanding loans: EUR 133 billion. • New loans signed in 2011: EUR 22.1 billion.

Source: (CDC 2013a)

1.3 A definition of the “Public Interest” increasingly including climate change and the energy transition

The Caisse des Dépôts group is involved in a broad range of activities in which the Caisse des Dépôts and its subsidiaries are involved across the French economy. As such, the CDC group is in a position to influence not only investment and financing of low-carbon and climate resilient projects but equally finance the development of technologies and services companies that can contribute to the low-carbon energy, and more broadly, the energy and ecological transition. Today, a number of programs do exist to foster investments and activities that contribute to the low-energy transition. However, to date there is no formal directive from the French government to prioritize these investments over others across all of its activities. Nevertheless, CDC included climate and energy issues in its definition of sustainable development over the last decade. Furthermore, it has most recently integrated supporting the low-carbon energy transition into its strategic plan (2013-2018).

To guide its day-to-day activities, CDC develops a five-year strategic plan. Between 2007 and 2013, the strategic plan set out the Group four key priorities: housing and urban development, businesses, universities and the knowledge economy, and sustainable development. To date, the Caisse de Dépôts group’s actions on climate and energy issues have stemmed from its mandate to incorporate sustainable development into its activities. The definition of sustainable development used by CDC includes not only promoting renewable energy and fighting against climate change, but equally protecting biodiversity and more broadly developing responsible investment.

In June 2013, climate-related issues have been integrated directly within the strategic objectives of CDC. In addition to supporting financing small- and medium-sized companies and the financing needs of the aging population and information technology, CDC has included supporting the ecological and energy transition within its priorities for 2013-2018. Within the new plan, the energy and ecological transition has been made a principal focus of the Group’s activities. The plan specifically states CDC’s potential and future role in supporting renewable energy production and distribution and thermal renovation of housing and public buildings (CDC 2013b). As part of this process, a transversal “Group Head” has been named to optimize the Group’s expertise and activities in supporting the “ecological and energy transition.” Furthermore, during the Environmental Conference in September 2013, French President François Hollande announced that Caisse des Dépôts will be entrusted with the management of a guarantee fund for the energy-efficient renovation of residential properties (under development).

2 Current activities related to the low-carbon energy transition in France

For over a decade, the French government has set and reconfirmed its ambition to meet a number of emission-reduction and energy-use targets. In 2003 French government set the “Facteur 4” objective which aims at dividing national greenhouse gas emissions by four by 2050. In 2007, the “Grenelle de l’environnement” public debate, bringing together actors from the public and private sectors and civil society, reconfirmed this ambitious target in 2007. Since then, intermediate targets have been set in terms of reducing GHG emissions by 23%, increasing energy efficiency by 17% and increasing the share of renewable energy to 20% of gross internal energy consumption by 2020. The 2013 “Débat national sur la transition énergétique” (national debate on the energy transition) demonstrated the need to identify how public financing can be best used to leverage and engage the private sector to finance this “transition”. To assist in the financing of these objectives and in engaging private financial flows, the French State has often turned to the Caisse des Dépôts. The below section charts CDC’s current involvement and support for low-carbon investments

2.1 Quantifying the current role of Caisse des Dépôts

Many of CDC’s intrinsic investment missions go hand in hand with sustainable development. However, to date, consolidated tracking of the activities of CDC that contribute to the low-carbon energy transition are not publicly available. Using available data, however, it is clear that over the last few years CDC has invested millions of euros in equity and lent billions of euros to projects coherent with France’s low carbon objectives.

Table 4: The CDC’s Low-Carbon Investment between 2010-2012 (millions EUR)³⁹

	2010		2011		2012		2010-2012	
	Volume	%	Volume	%	Volume	%	Volume	%
Renewable Energy (Equity) ⁴⁰	40	12%*	38	12%*	53	16%*	131 ⁴¹	13%*
Energy Efficiency (Loans) ⁴²	233	2%**	380	3%**	453	4%**	1,066 ⁴³	3%**
Sustainable	548	72%***	3,660	84%***	1,500	55%***	5,708	73%***

³⁹ Due to difficulties in aggregation and a lack of data, these totals do not include CDC Infrastructure’s equity investment in transport and renewable energy projects; the investments of CDC Climat in industrial energy efficiency; the activities of *ExterImmo* in public building energy efficiency; nor the *Ville de Demain* grant programs managed by the CDC for the French Government. It is estimated that the exclusion of these investments does not change the order of magnitude of the values presented. (texte déjà présent sur la note 35). Between 2010-2013, CDC Infrastructure has invested EUR 225 million in sustainable transport projects and EUR 55 million in renewable energy. At the moment of creation, they were equally mandated with EUR 165 million in existing sustainable transport investments held by the CDC.

⁴⁰ (CDC-DDTR 2011, p.53) (CDC-DDTR 2012, p.39)

⁴¹ 2006-2012: EUR 247 million for a installed capacity of 823 MW, of which 409 MW is already connected (CDC-DDTR 2013, p.30)

⁴² *Eco-prêt Réhabilitation Logement Social*: The values presented here include only the portion of the lending dedicated to the energy-efficiency component of the operation. Each EcoPret was, in general, accompanied by a loan from the CDC of a similar value to cover other components of the renovation project.

⁴³ (CDC 2012c)

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Transport (Loans) ⁴⁴							
Million EUR	2010	2011	2012	2010-2012			
Total Annual Equity Investment ⁴⁵	337	318	324	978			
Total Lending for Social Housing and Urban Programs ⁴⁶	13,698	12,657	12,362	38,723			
Total Lending for Sustainable Infrastructure ⁴⁷	757	4,365	2,727	7,849			
* As compared to total annual equity investment. ** As compared to total lending for social housing and urban programs *** As compared to total lending for sustainable infrastructure							

Source: Authors calculations based on the annual reports of the Caisse des Dépôts

As seen in Table 4, between 2010 and 2012, CDC invested approximate EUR 131 million in equity in renewable energy projects, EUR 1 billion in energy efficiency and EUR 5.7 billion in urban, regional and high-speed rail projects. In addition to these estimates,⁴⁸ between 2010-2013 CDC Infrastructure has invested EUR 225 million in sustainable transport projects and EUR 55 million in renewable energy. At the moment of creation, they were equally mandated with EUR 165 million in existing sustainable transport investments held by CDC.

Today, the CDC group does not have a publicly-communicated formal portfolio / group-wide target in terms of low-carbon financing. Nevertheless, specific objectives have been set for some sectors and activities - rehabilitation of buildings, installed capacity of renewable energy. Official data was not available on the levels of investment in the low-carbon economy across its different subsidiaries and the main institution. Using available information, the authors have estimated that between 2010-2012 - when compared to the total equity investments and lending in relevant sectors - these activities make up 13% of all equity investment and approximately 15% of all lending. As seen in Table 4, the major portion of this activity was dedicated to transport infrastructures.

The below section looks sector by sector at the CDC's involvement in low-carbon projects (renewable energy, energy efficiency, sustainable transport), how the CDC's policies support R&D activities and the development of low-carbon service companies. Section 3 below looks at each financial, derisking and capacity support instrument in turn.

Box 4: CDC Climat: the creation of a subsidiary dedicated to climate change

Created in 2011, CDC Climat is a 100%-owned subsidiary of Caisse des Dépôts dedicated to furthering the energy and environmental transition. At its create, CDC Climat brought together a number of existing activities at CDC –

⁴⁴ (CDC 2012c, p.13)

⁴⁵ (CDC-DDTR 2013)

⁴⁶ (CDC 2013c)

⁴⁷ (CDC 2013c)

⁴⁸ Due to difficulties in aggregation and a lack of data, these totals do not include CDC Infrastructure's equity investment in transport projects and renewable energy; the investments of CDC Climat in industrial energy efficiency ; the activities of *ExterImmo* in public building energy efficiency ; nor the *Ville de Demain* grant programs managed by the CDC for the French Government. It is estimated that the exclusion of these investments does not change the order of magnitude of the values presented.

particularly those related to the European Emission trading system, investment in carbon funds and the development of domestic offset project in France.

Today, CDC Climat is active in three main areas. Firstly, it houses an “Impact Investment” team managing a number carbon assets as well as developing financing solutions for energy-efficiency in buildings, industry and the agricultural sector. This team manages a high-quality carbon asset portfolio used to CDC Climat offers voluntary carbon offset services to the Caisse des Dépôts group and its partners, such as GeoPost (La Poste Group). It also monitors investments in five carbon funds, where it is actively involved in the governance process, including: the European Carbon Fund, the Post-2012 Carbon Allowance Fund, the Moroccan Carbon Capital Fund, the Forest Carbon Partnership Fund, and the Livelihoods Fund.

Secondly, as described in Section 2, CDC Climat has a team dedicated to investment in low-carbon service companies through risk-capital. These activities are in the process of being transferred to the newly-created BPIfrance (see Box 5).

Thirdly, CDC Climat Research, is a think tank fully funded by Caisse des Dépôts dedicated to providing independent expertise on climate change and the low-carbon energy transition. Its aim is to help public and private decision-makers to improve the way in which they understand, anticipate, and encourage the use of economic and financial resources aimed at promoting the transition to a low-carbon economy. To do so, it has brought together an international team of economists and engineers is involved in launching innovative research programmes and research clubs that aim to pool knowledge around specific issues.

In partnership with Proparco, a subsidiary of *Agence France Development* (AFD), CDC Climat equally housed CDC Climat Asset Management. This team was active in investment in emission-offset projects through the Clean Development Mechanism in developing countries, particularly in priority areas (Africa and the Mediterranean Region, etc.). However, this activity was closed and phased out at the end of 2012.

2.2 Sectors of investment in low-carbon projects

Investment in territorial development projects is one of the principal public-interest missions of Caisse des Dépôts. This activity occurs with a focus on avoiding subsidies and creating confidence in projects to foster private sector involvement. These actions occur principally across three parts of the CDC group: the Territorial development division (DDTR), the Savings Funds division (DFE) and the subsidiary CDC Infrastructure. While a number of different subsidiaries are equally involved in different forms of project finance, most notably ICADE and SNI, these subsidiaries are involved as developers and operators rather than as investors.

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

While official estimates were unavailable regarding the investment and financing activities of CDC to each of the sub-sectors identified in Table 5. However, the available data show that the majority of CDC’s activities related to the low-carbon transition stem from its lending to public and rail transport projects followed by lending to energy efficiency renovation projects in social housing. As seen in the table and as described in detail below in Section 3, CDC’s interventions in these areas tends to occur through the provision of debt and to a lesser extent equity focusing on providing access to capital high-volumes of long-term capital at concessional rates. CDC is involved in limited de-risking activities with a limited use of Public-Private Partnerships. Finally, while CDC has developed substantial internal capacity on these subjects, they do not have to date developed dedicated programs to support project development and implementation.

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Caisse des Dépôts takes equity shares and provides financing in the “finance and construction” phase of the projects and companies that it finances (greenfield). While no data was available to quantify what percentage of activity was divided between the development, construction and operational phases of projects, CDC is less involved in the developmental stages beyond financing initial studies. Furthermore, while no information was available in terms of when CDC tends to de-invest itself of shares through its equity investment through the DDTR activities, CDC Infrastructure actively invests through equity in operational (brownfield) operational stages of the project cycle.

The historic partner of local governments for financing their long-term investments, Caisse des Dépôts (as seen in Table 7) provides financing and investment to public entities, private companies managing social housing estates (*Sociétés anonymes d’HLM*) as well as to other small- and medium-sized companies. The SMEs financed by CDC (excluding the activities of *Bbifrance* – see Box 5) tend to be companies established to support projects and may often have public shareholders. No financial transactions occur directly with private households. Furthermore, in terms of its project- and infrastructure-investment activities, CDC in general is less directly involved with large corporations and utilities except through public-private partnerships of national importance (high-speed rail projects, etc.) or through the equity stakes held by CDC Infrastructure. It nevertheless invests through its financial and own portfolio management activities (Banking Services) in a broad range of large companies as shareholders.

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Table 5: Principal Sectors, Project Types and Instruments of Intervention of CDC

	Renewable Energy		Energy Efficiency					Transport
	Small-Scale ⁴⁹	Medium- to large scale ⁵⁰	Small Scale		Large Scale			
			Residential	SMEs	Commercial/ Industrial	Public Buildings	Social Housing	
Access to Capital		- Equity		- Equity	- Equity - Funds	- Debt	- Concessional Debt	- Debt - Equity
Derisking			- Guarantee fund (in development)			- PPP (Exter-Immo)		- PPP
Capacity/ Expertise		- Internal Expertise		- Internal Expertise	- Internal Expertise	- Internal Expertise	- Internal Expertise	- Internal Expertise

Table 6: Phases of project involvement and principal forms of intervention

	Phases of Involvement		
	Development:	Construction:	Operational:
Renewable Energy	- Financing of Studies	- Equity financing - Equity through fund structures	Equity holdings (CDC Infrastructure)
Energy Efficiency	- Financing of Studies	- Debt financing - PPPs - Equity through fund structures	

⁴⁹ Decentralized, small-scale installation principally for retail customers (residential, small commercial interventions, etc.).

⁵⁰ Renewable energy-based power plants and industrial installations.

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Sustainable Transport	<ul style="list-style-type: none"> - Financing of Studies - Equity holding (CDC Infrastructure) 	<ul style="list-style-type: none"> - Debt financing - Equity financing - PPPs 	Equity holding (CDC Infrastructure)
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Table 7 : Principal beneficiaries of Intervention from the CDC in infrastructure and EE projects

	Public	Private		
	Local govts./ social housing authorities*	Utilities /Large Corporations	SMEs / Project Companies	Households
Renewable Energy	X	No Activity	X	No Activity
Energy Efficiency	X	Limited	Limited ⁵¹	No Activity
Sustainable Transport	X	Limited (CDC Infrastructure)	No Activity	No Activity
* Includes both fully public social housing authorities (<i>Offices Publics de l'Habitat</i>), private companies providing this service (<i>Sociétés anonymes d'HLM</i>), as well as mixed public-private companies (SEMs).				

2.2.2 Investments in Renewable Energy:

Caisse des Dépôts's involvement in financing the development of renewable energies stems principally from its agreement to assist the State to achieve national objectives in this area. In 2008, the countries of the European Union committed to increase the production of renewable energy, setting the objective that renewable energy should account for 20% of gross internal energy consumption by 2020. Estimated cumulative investment in this area is estimated at € 50 million.⁵² CDC's intervention in this area occurs principally through the provision of financing during the construction phases of projects with limited equity participation in completed and operational projects.

- **Equity participation for small- and medium-sized project companies:** Caisse des Dépôts signed an agreement with the French State to finance up to 10% of the planned investments in renewable energy called for in the State's national plan. The initial agreement was extended in 2011 to cover the period 2011-2013 with CDC committing to spend 135 million euros for the deployment of 500 MW of new capacity in the areas of biomass, wind, micro-hydro and solar. This support occurs principally through minority equity stakes (~30%), focusing on assisting "small- and medium-sized" project companies active in this sector.
- **Equity participation in large-scale projects through external fund structures:** CDC is equally involved in investments in renewable energy through the Marguerite Fund in which it has invested EUR 100 million.⁵³ At the end of 2011, the Marguerite fund signed it's a number of

⁵¹ While the Bpifrance (see **Box 5**) does provide financing for energy efficiency improvements to SMEs through the activities of the former OSEO, it does not however run a dedicated program to low-carbon investment in this area.

⁵² Due to a lack of date, this value excludes the equity of CDC Infrastructure in wind projects as well as the EUR 100 million investment of the CDC in the Marguerite Fund. (CDC 2012d)

⁵³ This fund brings together Europe's largest financial institutions (Caisse des Dépôts, KfW, ICO, PKO, Cassa Depositi e Prestiti) alongside the EIB and the European Commission to promote investments in clean energy

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investment commitments concerning renewable energy.⁵⁴ CDC invests in the development phases of offshore wide project through equity participation projects under development.

- **Equity participation in operational projects:** CDC Infrastructure is exploring investment opportunities in brownfield (existing), mature solar installations and offshore wind projects (7.5% in 2013 of the Butendiek project). It has invested 9 million euros (24% of total capital) in the *ForVEI* joint venture currently purchasing equity stakes in operational solar power plants in Italy (CDC Infra 2012). Their investments between 2010-2013 totalled EUR 55 million.

Table 8: Support for Renewable Energy at Caisse des Dépôts

Government Engagement	2008: EU commitment to have renewable energy account for 20% of gross internal energy consumption by 2020.
CDC Commitment	Finance 10% of the planned investments in renewable energy in France, or: <ul style="list-style-type: none"> - 500 megawatts of power deployed between now and 2010 - 1000 megawatts of power deployed between now and 2020. Technologies: wind power, biomass, solar power and hydropower
Principal Needs Identified	<ul style="list-style-type: none"> - Decentralize energy production throughout the national territory - Foster competition in a largely centralized industry (the large European energy companies) - Strengthen French sectors in the context of strong international competition.
Phases of involvement	<ul style="list-style-type: none"> - Development: <i>no activity identified</i> - Construction: equity participation in small- and medium-sized companies; participation in the Marguerite Fund; CDC Infrastructure investment in offshore wind projects - Operational stages: CDC Infrastructure's investments in brownfield projects
Financial Instruments	<ul style="list-style-type: none"> - Equity: Minority interests (~30%) in small and medium-sized project companies (SMEs) whose activity is linked to the production of renewable energy (electricity and heat).

and transport infrastructure projects in the 27 EU Member States. The Marguerite fund will deploy its capital equally across three core sectors: (i) transport, (ii) energy and (iii) mature renewable energy technologies.

⁵⁴ C-Power offshore wind farm project in Belgium (€1.3 billion) - Thornton Bank Offshore Wind Farm Project consists of a 326 MW greenfield offshore wind farm 28 km off the coast of Belgium; ToulRosière 115 MW photovoltaic power plant in France (€430 million); Massangis Solar project consists of five fixed ground-mounted PV solar plants with a total capacity of 56 MWp; Chirnogeni Wind project consists of 2.5MW wind turbines for a total installed capacity of 80MW in the South-East of Romania; Tychowo&Kukinia wind farms: combined 100MW wind farms in Poland; Butendiek Offshore wind project is a 288 MW greenfield offshore wind farm located in the North-Sea in the German exclusive economic zone. (Marguerite 2013)

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	- Equity: equity holdings in operational, mature installations solar and wind projects under development
Risk sharing	<i>No Dedicated Activity Identified</i>
Capacity support	<i>No Dedicated Activity Identified</i>
Current levels of Investment	<ul style="list-style-type: none"> - Small- medium-scale (DDTR): EUR 131 million (2010-2012) / EUR 247 cumulative total 2006-2012⁵⁵ - Large-scale (Marguerite Fund): EUR 100 million - Operating brownfield installations through CDC Infrastructure: EUR 55 million

2.2.3 Investments in Energy Efficiency

Caisse des Dépôts activities in financing energy efficiency are principally limited to social housing. However, in the past year CDC is increasingly exploring how to support actions both in the industrial and residential sectors. While data is not available on each program, between 2010 and 2012, CDC has provided a little over EUR 1 billion in loans through the *Eco-prêt Réhabilitation Logement Social* program (CDC 2012c). Each of the tools used in these programs are described in further detail in Section 3.

- **Concessional debt for energy efficiency in social housing:** CDC has developed the *Eco-prêt Réhabilitation Logement Social* to help the State achieve its target of reduce by 2020 energy consumption in buildings by 38%. This concessional loan gives local governments and housing authorities an incentive to integrate energy efficiency investments into the wider rehabilitation of existing social housing stock.
- **Public-Private Partnerships for public-sector energy efficiency:** *ExterImmo*, a subsidiary of Caisse des Dépôts, is involved in enabling energy efficiency projects with local governments.
- **Partnership Contract for Energy Performance:** CDC has signed two *Contrats de Partenariat en performance énergétiques* (equity). Developed with local governments, CDC provides an equity investment in the project company. The *Ecolya* project will result in the renovation of 14 high schools in the Alsace region while the *Nov-Ecoles* project targets 100 elementary schools in Paris. (CDC-DDTR 2013, pp.27–28)
- **Structured finance for energy efficiency in industrial installations:** CDC Climat is currently exploring means of aggregating and financing energy efficiency for industrial actors through equity investment in special purpose vehicles.

Table 9: Support for Energy Efficiency at the Caisse des Dépôts

Government Engagement	National objective of the thermal renovation of 100,000 social housing units in 2009-2010 then an annual rate of 70,000 units renovated from 2011 to be
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⁵⁵ (CDC-DDTR 2013, p.30)

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	increased to 400,000 units per year in 2013.
CDC Engagement	Agreements were signed in 2011 and 2012 between the State and the Caisse des Dépôts to finance a subsidized loan program and establishing the eligibility criteria for the <i>Eco-prêt Réhabilitation Logement Social Bonifié</i> . More recently, the CDC has been entrusted with a guarantee fund for the energy-efficient renovation of residential properties
Identified need:	Incentives for energy efficiency in the rehabilitation of social housing
Phases of involvement	<ul style="list-style-type: none"> - Development: no dedicated activity has been identified - Construction: financing for energy efficient renovation in social housing, and more recently public housing and industry. - Operational: no dedicated activity identified, although the CDC does have a substantial portfolio of real-estate (see below)
Financial Instruments	<ul style="list-style-type: none"> - Debt provision - Equity & structured finance
Risk sharing	<ul style="list-style-type: none"> - Public-private partnerships - In development: guarantee fund for the energy-efficient renovation of residential properties
Capacity support	- No dedicated activity identified
Current levels of Investment	- Social housing: EUR 1 billion 2010-2012; (2012: EUR 453 million; 2011: EUR 380 million; EUR 233 million) ⁵⁶

Finally, Caisse des Dépôts does not currently have a mandate to directly intervene in the residential sector beyond social housing. However, President François Hollande has set an ambitious objective of 400,000 energy-efficiency renovations of residential units per year starting in 2013. As such, CDC received a *Letter of Mission* from the French Ministry of the Environment to explore this topic looking at issues of capital availability, payback and the roles of third-party financing. As mentioned above, it was announced in September 2013 that CDC has been entrusted with the management of a guarantee fund for the energy-efficient renovation of residential properties. The fund is currently under development.

2.2.4 Investments in Sustainable Transport

The source of close to 30% of all energy-related emission in France, the State has adopted a number of objectives to reduce GHG emissions in this sector. These actions have focused principally on developing local and national rail infrastructures. As such, an objective has been set to build 1,500km of grade-separated public transport lanes (bus, tramway) as well as 2,000 km of new high-speed rail lines by 2020. While historically CDC has been a substantial actor in the development of the national

⁵⁶ (CDC 2012c)

highway system, it today plays greatly reduced role in this sector and has more recently become a major investor in both public and national rail transport systems, including the financing of the high-speed rail lines. Today, this investment occurs principally through the debt finance activities of the Savings Funds division (DFE) and CDC Infrastructure – a subsidiary of the CDC specialized in equity investments in infrastructure projects. In 2012, CDC loaned EUR 1.5 billion to transport projects, down from EUR 3.6 billion in 2011. In 2012, one-third of this lending went to high-speed rail projects.⁵⁷

- **Loans for public transport infrastructure:** As part of their mandate to use the different passbook savings account funds to finance general interest development projects, the Savings Funds division fulfilled its mandate to issue 7 billion euros in debt financing between 2009 and 2013 in public transport infrastructure. This funding is to be used only to support “sustainable modes”, and not for road and airport projects.
- **Equity investment in completed projects:** CDC Infrastructure, a 100% controlled subsidiary of CDC, is a major actor in equity investment in existing (brownfield) and operational transport infrastructure projects. Investing principally through public-private partnerships in brownfield projects, CDC Infrastructure’s 1 billion euro portfolio contains both “traditional” (roadway companies, gas networks, etc.) as well as “sustainable” transport modes (high-speed rail lines, Eurotunnel). Between 2010-2013, they have invested EUR 225 million and at their creation were mandated with the management of EUR 165 million in existing assets.
- **Administration of public subsidies for public transport:** Third, CDC has financed sustainable transport through its management of the framework of the Future Cities (*Ville de Demain*) project and part of the larger *Investments for the Future* program. Through an envelope of 200 million euros, subsidies were distributed to 12 projects resulting in the construction of over 90km of transport lines.
- **Supporting large-scale public-private partnerships:** CDC provides debt and equity for large-scale public-private partnerships for the construction of two new high-speed rail lines in France: the LGV SEA Tours-Bordeaux project as well as the LGV Bretagne-Pays de la Loire. In 2011, CDC signed an agreement to provide 757 million euros in debt from the Savings Funds department (DFE) with a guarantee from *Réseau Ferré de France* for the LGV SEA project (LISEA 2013) and 250 million euros in debt (DFE) for the LGV Bretagne project (RFF 2013). Furthermore, CDC Infrastructure has taken a 200 million euro equity stake within the LISEA – the company created to build and operate the LGV SEA line for the next 50 years.

Table 10: Support for Sustainable Transport at Caisse des Dépôts

Government Mandate	Objective has been set to build 1,500km of grade-separated public transport lanes (bus, tramway) as well as 2,000km of new high-speed rail lines by 2020
Identified need:	- Provision of capital for projects to local governments and engage private finance
Phases of involvement	- Développement: <i>no dedicated programs identified</i> - Construction: Loans for public transport infrastructure; administration of subsidies

⁵⁷ (CDC 2012c)

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	<p>for public transport; large-scale PPP loans</p> <ul style="list-style-type: none"> - Operational : equity investment in completed projects (high speed rail)
Financial Instruments	<ul style="list-style-type: none"> - Debt financing of : public transport infrastructure ; construction and renovation of train stations; port infrastructures; rolling stock purchase - Equity investments: minority investor of reference from 20 to 49%
Risk sharing	<ul style="list-style-type: none"> - Local governments guarantee the loans
Capacity support	<ul style="list-style-type: none"> - Internal expertise
Current levels of Investment	<ul style="list-style-type: none"> - Loans: Envelope of EUR 7 billion over the 2008-2013 period: EUR 105 billion in 2012; 3.6 billion in 2011 - Equity : CDC Infrastructure: 2010 – 2013 – EUR 225 million

2.3 Development of Low-Carbon Technologies and Services

In addition to providing finance and support for infrastructure and energy efficiency projects, the Caisse des Dépôts group supports the development of low-carbon technologies as well as the related service providers needed to support the energy transition. To date, this form of investment and financing remains a limited portion of the total activities of CDC (*consolidated estimates are not available*).

As seen in Table 11, investment in low-carbon technologies and service companies is conducted by Caisse des Dépôts (Public Institution) as well as by a number of its subsidiaries. Few dedicated programs currently exist. The actions of CDC are equity investments within the larger *Investments for the Future* program. Furthermore, a number of subsidiaries, including CDC Entreprises (now part of Bpifrance) and CDC Climat have dedicated investment programs in this area.

- *CDC Entreprises* – the implementation of the *Fonds Ecotechnologies*, *Emertec*⁵⁸ and *Demeter* programs providing equity, debt and seed capital for companies involved in the development of green technologies, eco-industry and other related sectors. These programs have been transferred to Bpifrance.
- DDTR within the framework of the *Investments for the future - digital program* focusing on companies developing software to better manage energy use in buildings and at the scale of neighbourhoods and urban areas; software related to smart grid deployment; and software related to low-emission transport and logistics.
- DDTR equally takes equity stakes within a large number of local “mixed-economy” companies created by local governments (SEM⁵⁹) in relation to social housing, energy services, territorial development, etc. While climate and energy issues are not integrated into investment decision

⁵⁸ It is important to note that *Emertec*’s investment scope may go beyond green-related mandates to include non-sustainable forms of transport.

⁵⁹ A SEM is a semi-public/private company in which at least 15% of shareholders are not public entities.

making and remain opportunistic, a number of these companies are directly or indirectly involved in services areas related to the energy transition. For example, CDC has an equity share in the Région Ile de France's SEM *Energie Positif*.⁶⁰ DDTR is equally investing in companies focusing on electric mobility.

- DDTR and DFE – DDTR equally works with the savings funds division in equity investment in long-term research and R&D projects. However, information on the extent to which this supports low-carbon technologies and development was not available.
- CDC Climat – risk-capital makes investment in companies fostering the low-carbon transition.

CDC's investment activities concerning small- and medium-sized enterprises is currently evolving with the recent creation of the Bpifrance. Bpifrance is a public bank that will regroup together the activities of CDC Entreprises with two other national investment programs supported by the French State and the CDC in this area: the Strategic Investment Fund (*Fonds Stratégique d'Investissement* - FSI),⁶¹ OSEO⁶² and the risk capital investment team of CDC Climat. The mandate to support the ecological and energy transition has been given to this new institution created to support innovation and business development, however this will occur in practice has yet to be announced.

Box 5: The creation of the Banque Publique d'Investissement

The *Banque Publique d'Investissement* or Bpifrance is a French public investment and financing bank created in 2012 to support businesses and their expansion in France. The institution results from the merging of a number of existing government-programs as well as the subsidiaries of Caisse des Dépôts currently active in this area. Targeting on regional economic development and with resources totalling approximately EUR 42 billion, it is expected to focus on the revitalization of the economy, restoring competitiveness and creating jobs, renewing industrial activity.

Bpifrance is a "bank" with specific mandates from the French State to: Accompany very-small, small- and mid-sized companies throughout their life cycle in the domestic market and for export; It will be a long-term investor, seeking profitability over the long term, guaranteeing the sustainability of the company; It will promote innovation starting with support for R&D to strengthen capital for innovative companies; In addition to its financing, Bpifrance brings a wide range of local services and support for entrepreneurs and the means to articulate business development with local stakeholders.

Bpifrance interventions take several forms: The financing of innovation from funds provided by the State and the Regions in the form of grants and repayable advances (approximately € 745 million in 2012 to 2500 cases); loan guarantees and, if applicable, equity investments (€ 3.5 billion of secured financing in 2012); co-financing alongside local banks, bank loans to medium and long term to finance development (investment, development for export, etc.). SMEs and ETI (EUR 4.7 billion of financing in 2012 for 5000 projects);

⁶⁰ An energy services company, created in April 2013, the SEM aims reduces the vulnerability of residents today 98% dependent on non-renewable energy by developing a range of energy renovation programs in collective housing (condominiums and social housing) and supporting the development of projects of renewable energy (RE) in heat and green electricity development.

⁶¹ With over 20 billion euros for investment, the FSI SIF was initiated by the government responding to the need for capital to businesses to foster growth and competitiveness of the French economy.

⁶² OSEO is a public-sector institution dedicated to economic development — and a key source of financing and other support for SMEs. Through sharing risks, they facilitate SMEs' access bank and private-equity financing. OSEO has been active since its creation in the financing of renewable energy, energy efficiency and transport-related companies and projects through loans, guarantees.

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investment in equity, and quasi-equity, directly and through partners funds in SMEs, large companies and ETI (approx. EUR 1.5 billion in 2012 invested in 1,000 companies); the distribution of all financial support for export.

Source: Bpifrance 2013

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Table 11: Examples of Caisse des Dépôts' support for R&D and Low-Carbon Service Companies

Actor	Instrument	Target	Action
Bpifrance Investissement*	Equity	Innovation - R&D	With EUR 150 million, the <i>Environmental Technologies Fund</i> focuses on innovative SMEs dedicated to green technologies, was launched July 5, 2012 as part of the implementation of the actions of future investment program (AIP) assigned to ADEME.
Bpifrance Investissement*	Equity / Seed Capital	Transport, environment, energy	The EUR 140 million <i>Emertec</i> fund provides seed capital and venture capital in the areas of energy, environment and mobility. Through Bpifrance, CDC
Bpifrance Investissement*	Loans	Eco-industry, eco-services	Demeter finances the development of high potential companies in the field of eco-industries and eco-energies in France and Europe.
DDTR	Equity	Energy efficiency - software	Investments for the future - FSN: investing in companies developing digital services for better energy efficiency by users of different places (at the district, building, house) and to improve the energy performance of buildings, neighbourhoods, housing (system modelling and simulation, etc.).
DDTR	Equity	Energy distribution - smart grids	PIA FSN: investment in innovative companies providing digital services for smart grids (counters, services for network operators.
DDTR	Equity	Low-emission transport	PIA FSN: investment in innovative companies offering intelligent transportation systems (information and ticketing multimodal information systems for the freight terminal, digital devices of innovative sensors, digital devices for communicating vehicles), shared mobility services.
DDTR-DFE	Equity	Long-term research and development projects	PIAFSN: support for R&D for companies and research laboratories (envelope of EUR 850 M), as well as support the development of enterprises, especially SMEs (envelope of EUR 1.4 Bn).
CDC Climat	Equity	Service companies - climate	Equity investments in innovative climate-related service companies (merged into Bpifrance at the end of 2013).
* Before 2012, these programs were run by CDC Entreprises			

3 Climate finance tools and instruments supporting project finance

Applying the framework developed by the authors, CDC deploys different tools in its mission to provide access to direct finance and crowd in private-sector finance.

Table 12: The Caisse des Dépôts' Range of Tools to Support Low-Carbon Project Investment

Role	Detailed functions	CDC Tools and instruments
I. Access to long-term financing: capital provider and facilitator	1. Provider	<ul style="list-style-type: none"> • Direct equity investment; • Direct debt to projects;
	2. Facilitator	<ul style="list-style-type: none"> • Pooling/ aggregation through international fund structures
II. Derisking	1. Reducing financial risk (financing and re-financing across project phases)	<ul style="list-style-type: none"> • <i>No example to date, however the CDC has recently been entrusted with the creation of National Guarantee Fund for thermal renovation of residential properties</i>
	2. Reducing project risks (operation, construction) between project participants	<ul style="list-style-type: none"> • PPP structures (ExterImmo, CDC Infrastructure) • Structured finance for industrial energy efficiency
III. Filling the capacity gap	Expertise Capacity building and training	<ul style="list-style-type: none"> • Ad-hoc project appraisal and technical assistance, although no dedicated programs were identified)

3.1 Provision and Facilitating access to long-term financing

CDC's investment and financing for low-carbon projects occurs principally through equity stakes in related companies and special purpose vehicles or through loans by the Savings Fund department using the passbook savings entrusted to them. As described above, different divisions of CDC and its subsidiaries have mandates and investment purposes that have, in turn, direct impacts on to how and in what sectors, companies and projects they invest and provide financing. In general, the French State has a strong role in channelling the activities of the CDC into the sectors deemed "in the public interest."

3.1.1 Direct Equity Stakes

The majority of the equity investments to low-carbon development projects made by CDC occur through the Territorial Investment Division (DDTR). As described above, while DDTR is active in providing equity investment for sustainable development projects on an ad-hoc basis, the only dedicated program concerns renewable energy. As detailed above in Table 8, DDTR provides equity investment for small- and medium-sized companies involved in the deployment of renewable energy. CDC invests alongside of other commercial and private actors, providing up to 30% of equity investment needs typically during the construction phase of project development. CDC's own equity is used for these investments, however in some instances funds stemming from State funds

entrusted to CDC for management are used – this is the case for the *Investissements d'avenir– Ville de Demain*⁶³.

Secondly, CDC's subsidiary CDC Infrastructure was created specifically to take non-majority equity shares in large-scale infrastructure projects. While information concerning the full nature of the subsidiary's investment portfolio is not publically available, CDC Infrastructure invests both during construction and operational phases (brownfield) – either directly or through externally-manage fund structures. This investment occurs principally through equity stakes as the minority investor of reference from 20 to 49% of the total value of the infrastructure holding company. CDC Infrastructure does not currently exclude project types from their portfolio – stating rather that they seek to have a preponderance of low-carbon assets. As such, as explored below, they have set an quantified objective of reducing the greenhouse gas footprint of their portfolio between 2010 and 2020.

Finally, as further detailed below in the risk mitigation section, CDC's subsidiary CDC Climat is also exploring fund structures to facilitate private-sector investment in industrial energy efficiency. A recent initiative, only one project has been signed to date (September 2013).

3.1.2 Providing Equity through External Investment Funds

Caisse des Dépôts invests in low-carbon projects through its participation in a number of externally-managed fund structures – both dedicated to this type of projects as well as in an ad-hoc fashion. As described above in the case of renewable energy, CDC's participates in equity investments through the Marguerite Fund in (i) transport, (ii) energy and (iii) mature renewable energies (CDC contribution of EUR 100 million).

Second, through CDC Infrastructure, CDC is involved in funds focusing on operational solar installations as well as offshore wind projects under development. Most recently, it has invested 9 million euros (24% of the funds total subscription) in the *ForVEI*, which is currently purchasing equity stakes in operating solar power plants in Italy (CDC Infra 2012).

3.1.3 Leveraging national savings through lending

The Savings Funds division provides the bulk of CDC's contribution to low-carbon projects through the provision of debt. Within the eligible project types established by the French State, the Savings Funds division has historically provided financing for high-speed railway lines, tramways, the modernization of hospitals and the renovation of university buildings or the upgrading of wastewater treatment plants. At the end of 2013, the French State lifted the sectoral-based limitations on the projects that the savings account funds can be used to finance. Thus, today all long-term financing projects proposed by local governments are now eligible for lending. This lending occurs at interest rates based on the State-established interest rate for passbook savings accounts. Thus, dependent on broader market conditions, these lending activities can occur at concessional levels. Financing for

⁶³ Financing a new urban development model (promoting resource-efficient, adaptable, robust, manageable and attractive cities). Initial budget: €1 billion – reduced to 850 million 105 projects selected (13 eco-friendly neighbourhoods) €244 million invested EX: Supporting Clermont-Ferrand's project to add 1.7 km to the city's tramway Line A which will serve 7,500 people and create 2,100 jobs. Financing arrangements for the city's eco-friendly neighbourhood are currently being approved. Investments take the form of investment subsidies (EUR 600 million) and equity investments (EUR 400 million).

these projects occurs principally through the provision of debt provided for the most part at an interest rate 130 points in addition to the current rate of the *Livret A*, the principal passbook savings account.

While the Savings Funds division does provide financing to climate-related projects, the only dedicated program today is lending for energy efficiency in social housing projects (*Eco-prêt Réhabilitation Logement Social Bonifié*). National mandates instruct CDC to provide loans to local governments for social housing, no matter the energy performance of buildings. While new construction in France must adhere to increased energy efficiency standards, renovation projects have no such obligation. As such, CDC has developed in partnership with the State a subsidized loan targeting the least-efficient social housing stock. Described in detail in Table 13, this concessional loan gives local governments and housing authorities an incentive to integrate energy efficiency investments into the wider rehabilitation of existing social housing stock.

The *Eco- Prêt Réhabilitation Logement Social* is granted to social housing authorities and organizations that are committed to increase the energy efficiency of housing units in the national energy performance categories E, F or G (greater than 151 kWh/m² per year) to level A, B or C. This must be equal to a minimum energy savings of 80 kWh / m² per year per unit. The amount of the loan is linked to the estimated gain in energy efficiency (ranging from 9 000 to 16 000 € per housing unit): as the ambition of the project increases, the portion of the total amount eligible for the loan equally increases.

An independent expert measures the improvement in energy efficiency prior to the rehabilitation, although no ex-post analysis to verify the quality of the construction currently occurs even if CDC has the right to request this. The loans themselves are granted using the Savings Funds (DFE) financing stemming from national passbook savings accounts (*Livret A*). As such, instead of lending at the typical for DFE lending at the rate of the *Livret A* + 60 basis points, the *Eco-Prêt* is indexed to the national rate of the *Livret A* with a subsidy corresponding to the lending period:

- Loans with a maturity of less than 15 years will be granted at 75 below the rate of the *Livret A* (0.50% as of August 2013).
- Loans with a duration between 15 and 20 years at the current *Livret A* rate minus 45 basis points (0.80% as of August 2013).
- Finally, those with a duration between 20 and 25 years will be granted at the current *Livret A* rate minus 25 basis points (1.0% as of August 2013).

The renovation projects funded by the current *Eco-Prêt* cost an average of EUR 38,000 per unit. Of this total, it is estimated that EUR 15,000, or 40%, is used for purely energy efficiency improvements. On average, CDC has estimated that the *EcoPrêt* issued totals EUR 12,000 per unit or 30% of overall cost and 80% of the cost of energy alone work.⁶⁴ Typically, a second loan to cover the non-energy-efficiency component of the renovation project is provided for the projects.

The annual cost of subsidizing this loan is subtracted from the net profit from the investment of Savings Funds division entrusted to CDC transferred to the State annually.

⁶⁴ (Sanchez 2013)

Table 13: Energy efficiency financing for Social Housing: Eco-prêt Réhabilitation Logement Social Bonifié

Identified need:	Incentives for energy efficiency in the rehabilitation of social housing
Phases of involvement	Construction : provision of finance
Financial Instruments	Current program: Provision of debt at indexed to the <i>Livret A</i> rate, with an increase depending on duration. The scope of total project costs valid for this loan is dependent on the ambition of energy efficiency improvement taken. Loan provided over a 25 year period.
Risk sharing	As with all DFE lending, the local government must provide the guarantee for the loan
Capacity support	CDC provides expertise, however no dedicated technical advisory service
Current levels of Investment	2010-2012: EUR 1 billion ⁶⁵

3.2 Risk transfer & sharing

CDC offers a limited number of risk transfer and sharing instruments. CDC does not usually provide guarantees for the projects it finances. Typically, local governments must provide counterparty guarantees for loans from the Savings Funds Division.⁶⁶ However, CDC has developed a number of different public-private partnership structures to draw in additional financing.

3.2.1 Public- Private Partnerships: ExterImmo

ExterImmo, a small subsidiary of Caisse des Dépôts, is involved in fostering energy efficiency projects of local governments. *ExterImmo* has developed a public-private partnership model through which local governments can outsource the management of a given building. This outsourcing has increasingly occurred to support small-scale energy-efficiency renovation projects. Within this structure, the local government pays a fixed rate over the lifetime of the management agreement to *ExterImmo*, which assumes the risk and upfront capital costs related to the renovation and management of the building. *ExterImmo* currently undertakes approximately ten small-scale operations per year (less than 5 million euros per project), although this number is increasing over time.

3.2.2 Risk-sharing through fund & holding structures

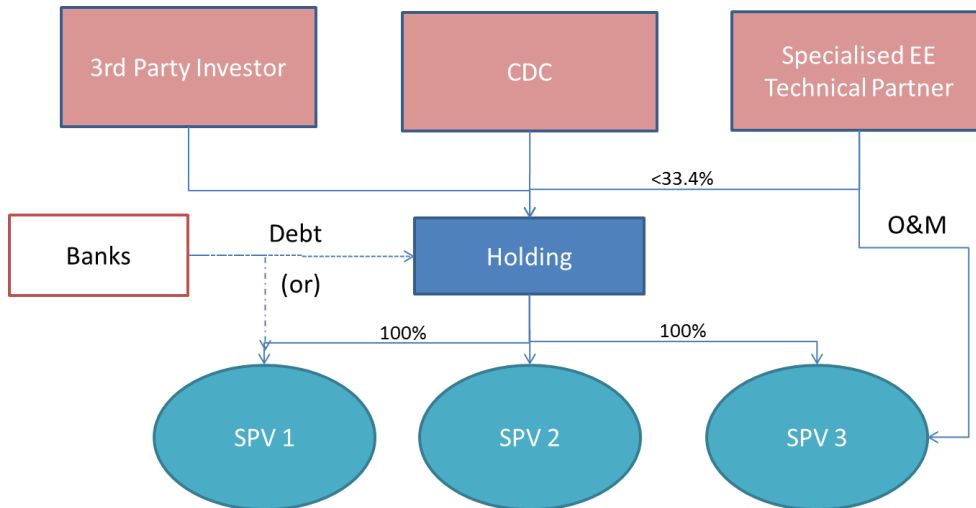
CDC's subsidiary CDC Climat is exploring means of aggregating and financing industrial energy efficiency and emission reduction projects through equity or quasi-equity investment in special purpose vehicles (SPVs). When fully operational this approach aims to use of a holding to group together several projects developed through SPVs into a single structure, thus facilitating risk sharing as well as reducing per project transaction costs. Currently, projects focus on energy efficiency

⁶⁵ CDC 2013c

⁶⁶ All loans granted by the Savings Funds Division using the passbook savings account (*Livret A*) funds must be guaranteed by the recipient local government or to the local authority on which the beneficiary depends (local governments, local government bodies or to *société d'économie mixtes*). In some instance, a guarantee from a commercial credit institution can equally be used.

investments at the end of which the SPVs own the EE equipment. Part of the energy savings from the industrial plant are paid to the SPV based on a fixed rate. Additional returns are based on variable flows and are dependent on the amount of use and performance of the efficient equipment. An intensive use of the equipment will generate higher energy savings and higher revenues for holding. Projects are expected to have a 5-10 year lifetime.

Figure 3: CDC Climat's Investment Industrial Energy Efficiency Holding Structure



Source: Author after CDC Climat

To date, CDC Climat is a shareholder in a single pilot project,⁶⁷ along with another financial partner (Marubeni) and a technical partner (Solvay Energy Services). The energy efficient renovation of a gas turbine at Solvay's rare earth mineral processing factory at LaRoche is estimated to significantly reduce energy use and GHG emissions. (Solvay 2013) The objective of this new form of financing for energy efficiency projects is to demonstrate to other investors that this type of project can offer acceptable risk-return profiles as well as significant environmental benefits. The objective under study is to create a holding company with the partners in order to finance other EE projects in the Eurozone. National SPVs will be created to implement several projects within a same country. All SPVs will be hold 100% by Holding.

3.3 Filling the capacity gap: provision of consultancy services and public interest research

The Caisse des Dépôts group also provides consultancy services and public interest research related to low-carbon economy. As seen in Table 14, many of the subsidiaries of CDC have developed a market offer for low-carbon and adaptation services as well as providing research in the public interest on these topics. CDC equally works with the French government in developing new means of financing low-carbon investment: in 2012-2013 CDC was mandated by the French government to produce a report on different means of financing thermal renovation of buildings. Furthermore, CDC actively supports the development of innovative instruments to finance the transition to a low-carbon economy, providing financing for *CDC Climat Recherche*, a think-tank dedicated to producing public-interest research on these topics. To date CDC has not developed any dedicated programs

⁶⁷ In future investments, it is expected that CDC will directly invest in the Holding.

(such as the European Investment Banks's ELENA Facility) to support the conception, development and implementation of low-carbon projects.

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Table 14: Examples of the Group CDC's Expertise and Technical Assistance Actions

Actor	Theme	Action
CDC Climat Recherche	Climate change economics	Research in Climate Change Economics: the research team of CDC Climat has a public mandate to produce research on the economics of climate change and the energy transition. The team produces a number of publications for the general public, decision-makers, economic actors as well as the academic community.
CDC Climat Recherche	Climate change economics	Research Clubs: Management and développement of four clubs : <i>Club Villes, Territoires et Changement Climatique (ViTeCC)</i> ; <i>Club Tendance Carbone</i> ; <i>Club Climat Agriculture</i> ; <i>Club Carbone Forêt-Bois</i> . The clubs bring together sectoral actors to discuss the economics of climate change, regulations, policies as well as foster capacity building.
DDTR	Urban development	Barometre Carbone tool – The Ile de France direction of DDTR in partnership with the Sustainable Development Division have developed the <i>Barometre Carbone</i> , a free tool for decision-making support for urban planning. The objective of the tool is to allow local decision makers to integrate consideration of greenhouse gas emissions (GHG) in development contracts signed between the State and local governments within the larger framework of the Grand Paris urban development project. The tool assists local actors in establishing an ex-ante GHG profile of their jurisdiction as well as the possibility to simulate different development scenarios.
DDRT	Urban development	Diagnostic Carbon PRU: the CDC has developed a tool for calculating the impacts of urban redevelopment projects. While the CDC does not fully manage the <i>Agence Nationale de Rénovation Urbaine</i> ANRU's projects, they provide financial and technical expertise as well as assistance with subsidies and other forms of financing. The Diagnostic Carbon PRU is a tool provided by DDTR to help the ANRU's project managers take into consideration and address the GHG emissions of their project at all stages of the project (development, construction, operation)
DfE	Energy Efficiency	CDnergy tool: The Savings Funds division has developed the tool CDnergy to provide public housing authorities with a means of managing and tracking their actions that have an impact on the French white certification program (CEE). The CDnergy tool simplifies and centralizes the management of certificates.
EGIS	Urban development	Consulting and Studies on: modelling GHG emissions; p urban planning and urban logistics; master planning; evaluation of carbon development scenarios and projects.
EGIS	Renewable energy	Sustainable Energy Buildings project management: integration of renewable energy sources; Modelling (MWh/ year); studies of technical, economic and financial feasibility. Project deployment: regional and national production studies; feasibility analysis; network connection studies; project management and auditing.
EGIS	Energy Efficiency	Energy Audits: modelling of energy consumption in future constructions;; Simulations of energy efficiency measures to be implemented in new construction.; Technical Assistance to the building owner for high environmental quality; Monitoring of energy consumption and monitoring of energy savings generated.
EGIS	Urban development	Studies on adaptation to climate change including : identifying vulnerabilities of territories; strategies for adapting to climate change; GERICI modelling tool for impacts on transport infrastructures.
ICADE	Urban development	Planning studies: urban design, routes, traffic; redevelopment of industrial land holdings, urban development across large sites
SCET	Energy Efficiency	Energy and environmental audits of existing buildings, modelling and simulations of projects, energy efficient feasibility studies, management of white certificates,
SCET	Renewable Energy	Assistance with the financial and legal planning for the creation and development focused on the production of renewable energy structures; Feasibility study for renewable energy supply development projects and construction.
SCET	Urban planning	Strategic planning : energy efficiency, sustainable cities

4 Mainstreaming and Integration Across activities

CDC has increasingly addressed the issues of sustainable, responsible investment by trying to minimize negative externalities in its investments as well as reducing exposure to “ESG” (environmental, social and governance) risks. Over the last decade, CDC has worked closely with other large institutional investors and the United Nations to develop the PRI or *Principles for Responsible Investment*. As with many institutional investors, the mainstreaming or integration of climate change criteria into investment decision-making will be an important part of assuring coherence in terms of supporting the energy transition across all activities. Most recently, through the newly announced strategic priority “Energetic and ecological transition” (see Section 1), CDC aims to harmonize and develop a systematic and rigorous analysis (cost-benefit analysis, screening, etc.) of climate- and energy-related issues for all investment decisions. Both corporate social responsibility and sustainable investment principles have been integrated in asset management activities, including an analysis in terms of climate and energy that occurs along a number of sector-specific practices.⁶⁸ In the oversight of subsidiaries, energy and climate change issues have been integrated in the scope of discussion since 2008, and precise objectives have been assigned to several subsidiaries of Caisse des Dépôts.

4.1.1 A framework for investment: the responsible investment charter

CDC has been active in integrating environmental, social, and governmental issues into its investment strategy, cementing its commitment through the approval of its Charter for Responsible Investment in 2011. This document sets out the overarching principles that guide Caisse des Dépôts and its subsidiaries as accountable financial actors and calls for the integration of issues directly related to the low-carbon energy transition. The issues specifically relating to energy and climate are the following:

- **Investments in real-estate :**
 - Favour the acquisition of highly energy-efficient and environmentally-friendly buildings, as well as the renovation of its existing portfolio assets such as to respect these characteristics and obtain the relevant certifications.
 - Particular attention is paid to projects that may be affected by changes in regulation, notably thermal regulations and those relating to greenhouse-gas emissions.
 - The goal by 2020 is for each asset in the portfolio to achieve: • generate energy if a new building; • low-energy consumption if a renovated existing properties; and, for all assets, proximity to public transport services.
- **Investments in infrastructure projects :** Direct investments in infrastructure projects are made based on the following cumulative components:
 - carrying out of an asset-specific impact analysis for energy, CO2, biodiversity, and water criteria;
 - prioritization of projects emitting the least greenhouse gases.
- **Investments in regional development:** In particular, Caisse des Dépôts lends comprehensive support to urban and regional projects fitting into the framework of its “sustainable cities and regions” approach, consistent with national or local strategies. Its investments also target

⁶⁸ See CDC’s 2013 *Responsible Investment Report* for a more detailed description of their ESG activities

- the development of renewable energies and energy efficiency

4.1.2 Implementation: inclusion of climate change and energy issues

To date, climate and energy issues have been treated as part of a holistic analysis in view of the investment decision and integrated through CDC's existing ESG management process. The inclusion of energy and climate criteria into investment analysis has taken steps forward. In terms of investment and financing of physical assets, different tools are used to quantify the impacts of investment decisions in terms of GHG emissions - both for territorial development activities as well as in the management of the real-estate portfolio of the CDC. In the management of its portfolio of stocks and bonds, CDC currently integrates climate and energy considerations with other ESG and financial criteria in its analysis.

CDC continues to work on how to integrate the potential impact of future prices on carbon or levels of GHG emissions into its analysis. In this area, CDC is seeking to balance how to integrate these issues will minimizing constraints on daily investment operations.⁶⁹

4.1.2.1 An analysis of some physical assets and projects...

The CDC has developed and implemented three tools to quantify the climate and energy impacts of investments – principally in terms of physical assets and projects.

- **Individual infrastructure project assessment- EvalInfra:** CDC Infrastructure and Egis has developed with Caisse des Dépôts a tool for assessing the environmental impacts (water, energy, carbon, biodiversity) of infrastructure projects under investment study. This tool helps CDC Infrastructure to manage asset allocation (balanced portfolio of assets for low carbon) as well as discussions with the project partners to fully take into account environmental impacts in the development of the project and its governance. The energy and CO₂ components of the tool are based on the *Agence Française de Développement's* tool developed by consulting company *Carbon 4*.
- **Energy Audit of buildings wholly owned by CDC:** CDC holds a portfolio of 5.4 billion euros of real-estate assets, including industrial, commercial, office and residential (CDC 2013e). In light of the national objective of reducing energy consumption by at least 38% by 2020, the real estate management division of CDC launched in 2011 a detailed audit of the energy performance of buildings owned 100% by CDC. This has helped CDC to develop a long-term (2020-2030) plan to identify energy-efficiency renovation projects to conduct within its portfolio of buildings as well as to identify inefficient buildings that could be sold.

4.1.2.2 ...and a risk analysis linked to an “engagement” approach on stocks and bonds

CDC's asset management activities are linked to the investment of the different deposits managed by CDC – including EUR 32.6 billion from the legal professions in France – as well as the portion of the passbook savings account funds invested to ensure overall liquidity needs. This amounts to two portfolios: one of approximately EUR 35 billion in bonds and EUR 14 billion in stocks managed by the

⁶⁹ For example, the inclusion the elasticity of returns on investment in respect to a future price of carbon in the financial analysis of investments has been discussed internally. However, a number of individual division managers have voiced concern in terms of the potential constraints on their ability to fully and efficiently place the capital under their management due to a lack of corresponding investment opportunities.

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Finance division and the EUR 120 billion invested in the financial markets by the Savings Funds division. These financial and asset management activities aim at providing safe and recurring revenues while contributing to the resilience of the asset and liability management. They are operating under an internal investment mandate different from “general interest” activities but equally long-term.

While the latter partially contribute to the financing of low-carbon technologies (transport, renewable energy, energy efficiency), portfolio investment activities strive to systematically integrate environmental considerations in the mainstream economy provided they impact long term investment performance. With an objective of preserving the long-term value of their assets, CDC Portfolio managers are implementing a holistic approach of responsible investment, encompassing environmental, social and governance analysis and active dialogue. For its stock and bond investments, they perform an ESG analysis prior to any risk allocation and engage companies in a high-level dialogue to improve corporate performance with regards to specific ESG issues and targets (encompassing issues such as GHG emissions quantitative targets, pollution prevention and management, water management and resource efficiency, the integration of sustainability considerations in corporate governance).

For example, in the analysis of its investments in companies, the CDC actively examines at least annually the climate and energy strategy –or a relevant environmental performance indicators - of each of the approximately 100 companies in which it currently invests. For listed equities, this information is integrated into the core investment documentation for each company, in addition to other social, environmental and financial analysis used by the investment teams.

Concerning the one-third of the CDC’s bond investment activities made up of corporate debt (the other two-thirds comprising principally sovereign-debt), the investment teams take a sector-based approach. Each company is compared within its sector on a range of ESG criteria – including GHG emissions and energy efficiency – using the data currently available through Bloomberg, MSCI and the CDP (ex-Carbon Disclosure Project). Through a scoring system, this analysis is used to track a company’s evolution and improvement in terms of the different categories as well as the overall changes in the larger investment portfolio.

In both instance, work on methodological obstacles is occurring focusing in particular on removing data-related constraints.

Furthermore, CDC has an active dialogue with the companies in which it invests using its listed equity portfolio. Through this dialogue, CDC works to foster discussion on how to improve energy and climate performance rather than place stringent exclusion criteria. Thus, CDC aims to incentivize major economic players towards greater resource efficiency in their strategies, business models and operations; [and indicated to be working on setting up tools to measure such contribution.](#)

4.1.3 Integration into the activities of its subsidiaries

Beyond the investments of the subsidiaries of CDC that are reviewed by the Investment Committee,⁷⁰ Caisse des Dépôts has taken steps to integrate climate and energy objectives into general activities. As part of the management of its investment within its subsidiaries, CDC works to ensure that the subsidiaries and companies in which it invests follow ESG practices similar to its own. Each year, the Director General establishes an annual letter of objectives for the subsidiaries (CDC 2012a). While, in practice today, energy and climate are not systematically integrated, CDC has indicated these issues are nevertheless treated when pertinent.

As such, climate-related topics are being increasingly addressed by CDC's subsidiaries. Currently, SNI and ICADE integrate carbon and energy criteria into their management practices. Each has produced internal GHG inventories, although no GHG reduction objectives have been publically disclosed. CDC Infrastructure, a recent creation held 100% by CDC, has produced a GHG inventory of its portfolio, developed and implemented the *EvalInfra* tool, and set an objective to reduce its carbon footprint by 2020 compared to 2010 levels. CDC has also worked with the *Société Forestière* to take adaptation to climate change into consideration to a greater extent. Finally, in terms of the subsidiaries involved in expertise and consulting activities, CDC through both unofficial (ongoing dialogue) and official (annual letter of objectives) has worked with both EGIS and the SCET to take up sustainable transport, energy efficiency and other related subjects in order to develop a market offer.

⁷⁰ The *Comité d'engagements* (the Investment Committee) *de la CDC* reviews all investment decisions of its subsidiaries greater or equal to EUR 150 million. (CDC 2012a, p.8)

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