

I4CE

INSTITUTE FOR
CLIMATE
ECONOMICS

Une initiative de la Caisse des Dépôts et
de l'Agence Française de Développement

Landscapes of Domestic Climate Investment & Finance

Experience from five years of tracking in France

10/18/2018

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In partnership with :



I4CE – Institute for Climate Economics

A think tank

providing public and private decision-makers with expertise on economic and financial issues related to the energy and ecological transition

Agriculture, Forest and Climate
Industry, Energy and Climate
Cities, Infrastructure and Climate
Finance, Investment and Climate



I4CE is an initiative of Caisse des Dépôts and Agence Française de Développement and is also supported by Morocco's Caisse de Dépôts et Gestion.

Presentation Structure

- **What are landscapes of domestic climate investment and finance?**
- **How has this been applied in France?**
- **How can this be of use for different stakeholders and policy discussions?**

What is a landscape of domestic climate investment and finance?

Tracking investment and financial flows in domestic low-emission tangible assets

4-step methodology

1. Measure capital expenditure in low-emission projects
2. Identify the project managers involved
3. Understand which financial tools they used
4. Map public and private channels supporting these tools from capital source

5 key low-carbon domains



From reporting to decision-making why keep track of domestic climate finance?

- Reporting to decision-makers on the status of climate-related investment and financial flows in a coherent manner;
- Measure the gap between current financial flows and investment needs to achieve climate objectives
- Identify policy factors behind investment successes and setbacks, recommend solutions to reduce the investment gap
- Provide national strategies with a tool to plan how to raise and reorient public and private flows towards climate investment

From I4CE and EEA policy brief [*Landscapes of domestic climate finance in Europe : supporting and improving climate and energy policies for a low-carbon, resilient economy*](#) (2016)

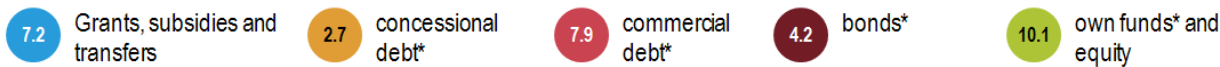
Landscape of domestic climate finance

Landscape of climate finance in 2016

Sources and intermediaries



Financing instruments

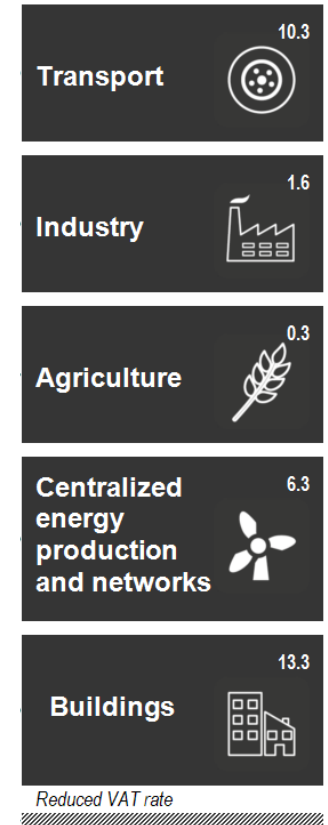


* including balance-sheet financing in companies

in billion current euros

I4CE - Institute for Climate Economics (2017)

Sectors



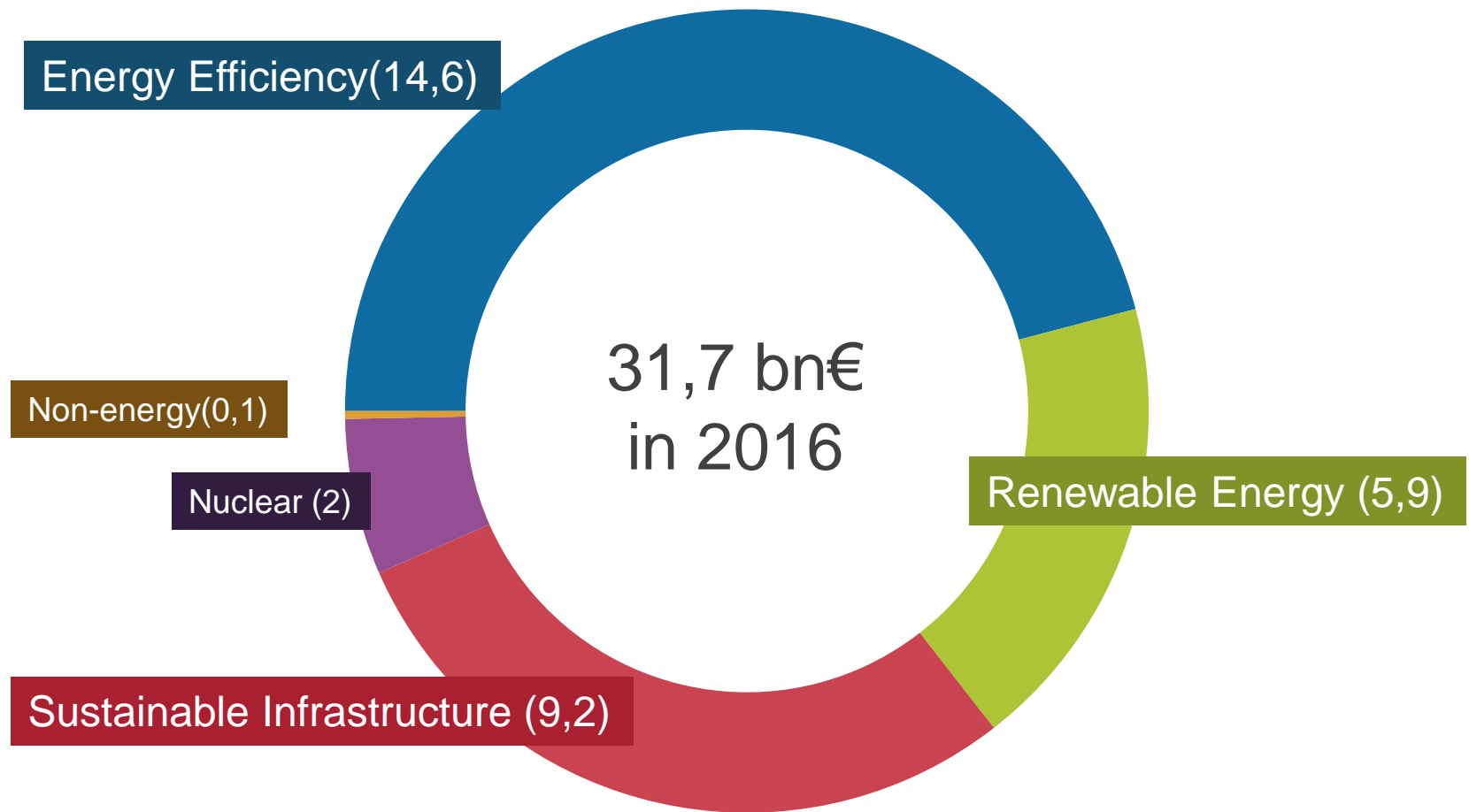
Investments



What is a landscape?

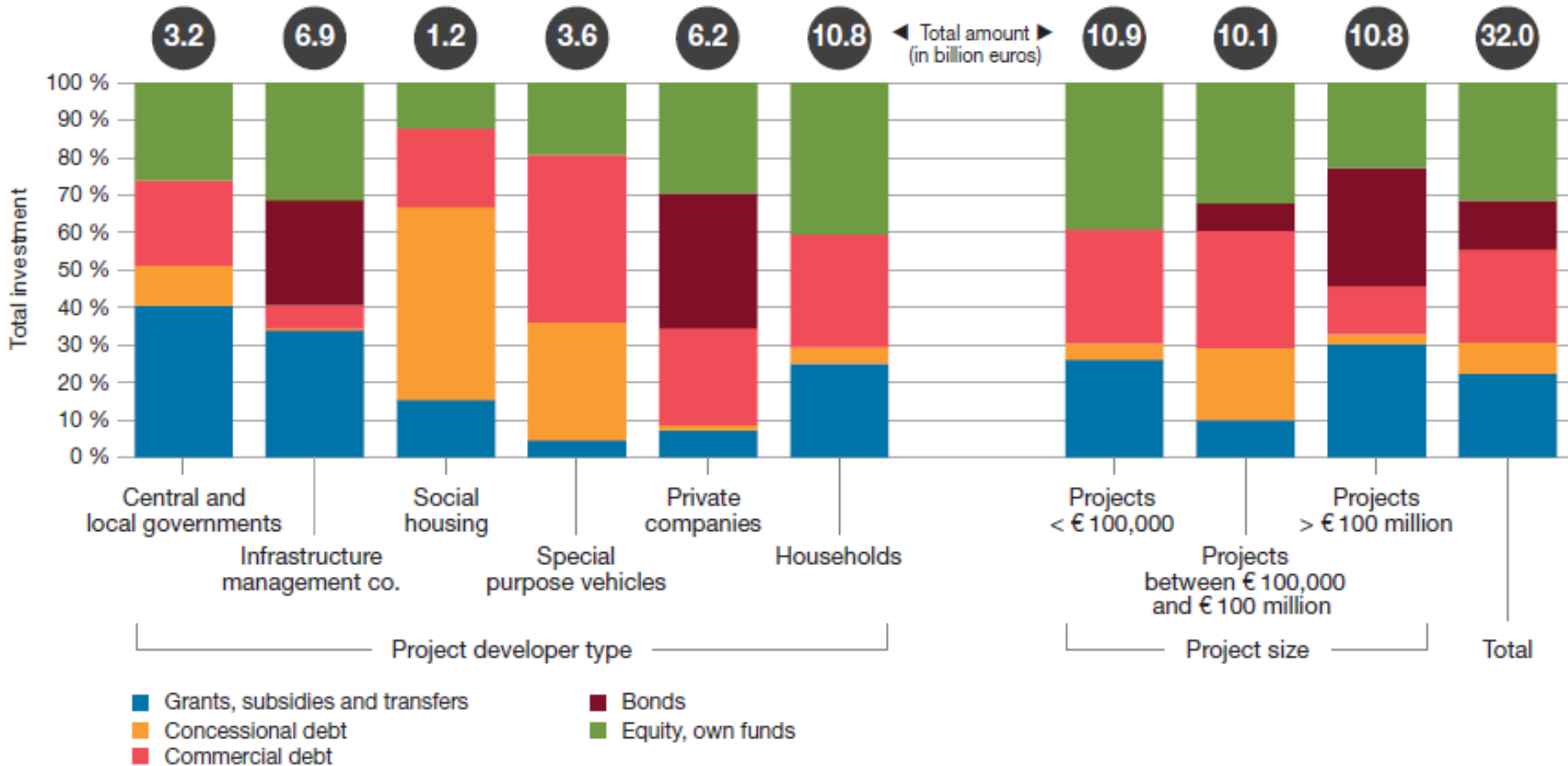
31,7 billion euros invested in low-emission areas in France in 2016

Climate investments in France by end use
In billion euros, in 2016



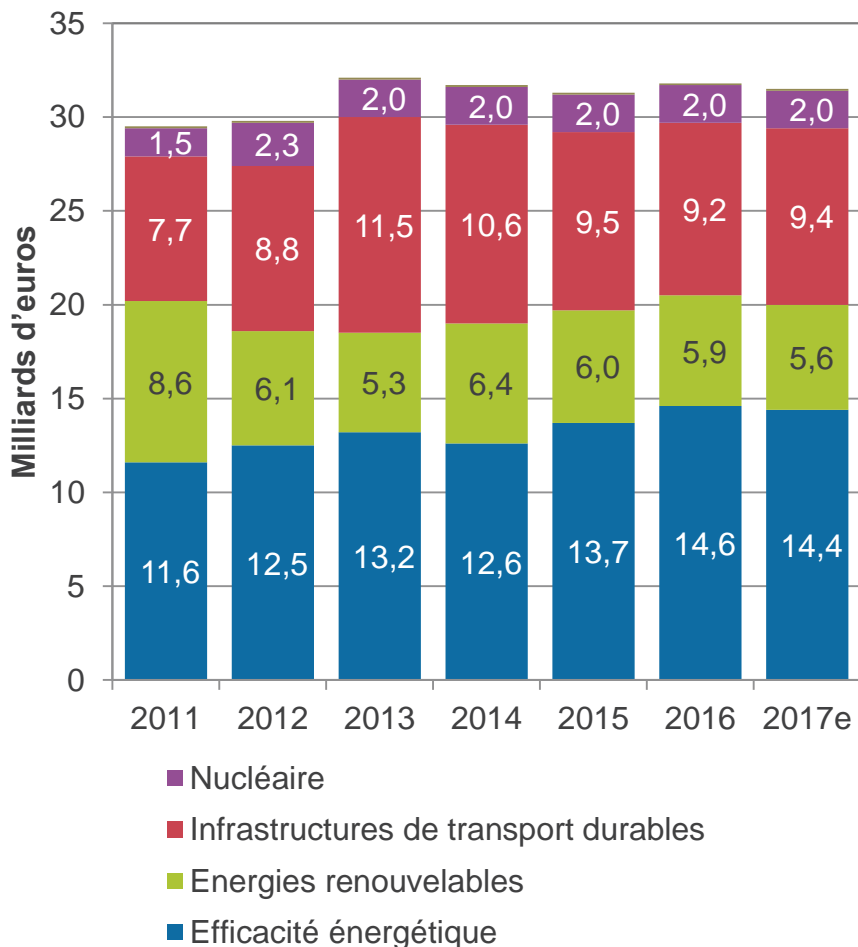
Funding instruments vary depending on project developer and project size

LOW-CARBON INVESTMENT FUNDING INSTRUMENTS BY PROJECT DEVELOPER AND PROJECT SIZE, 2016

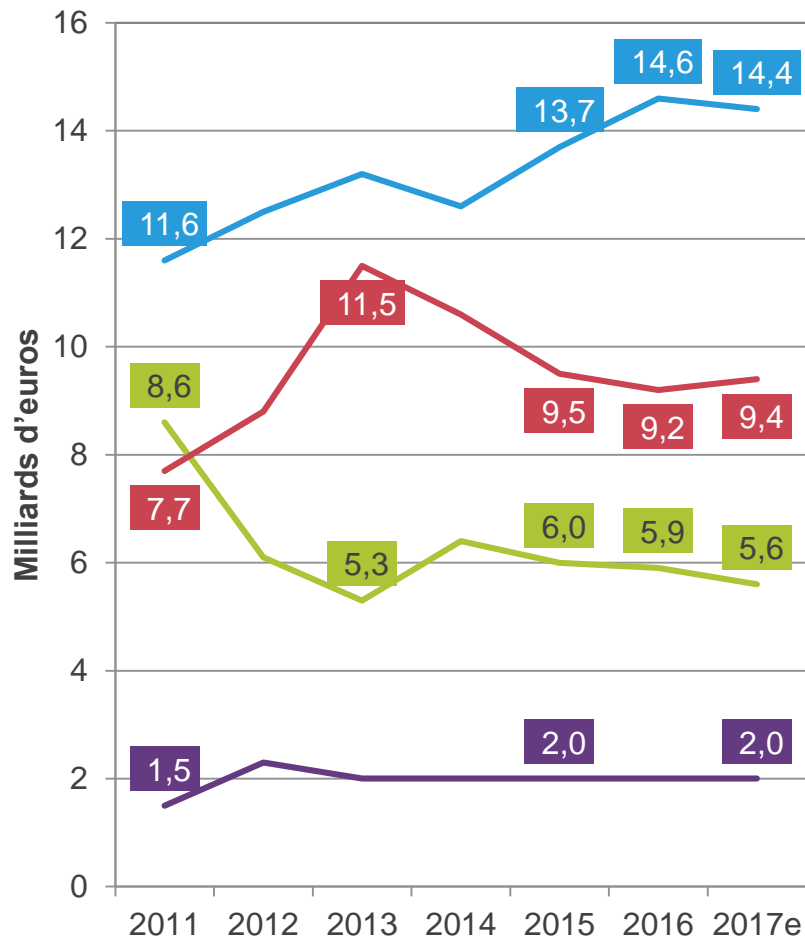


Overall results: stable investments since 2013, but variations across end investment areas

Vue d'ensemble



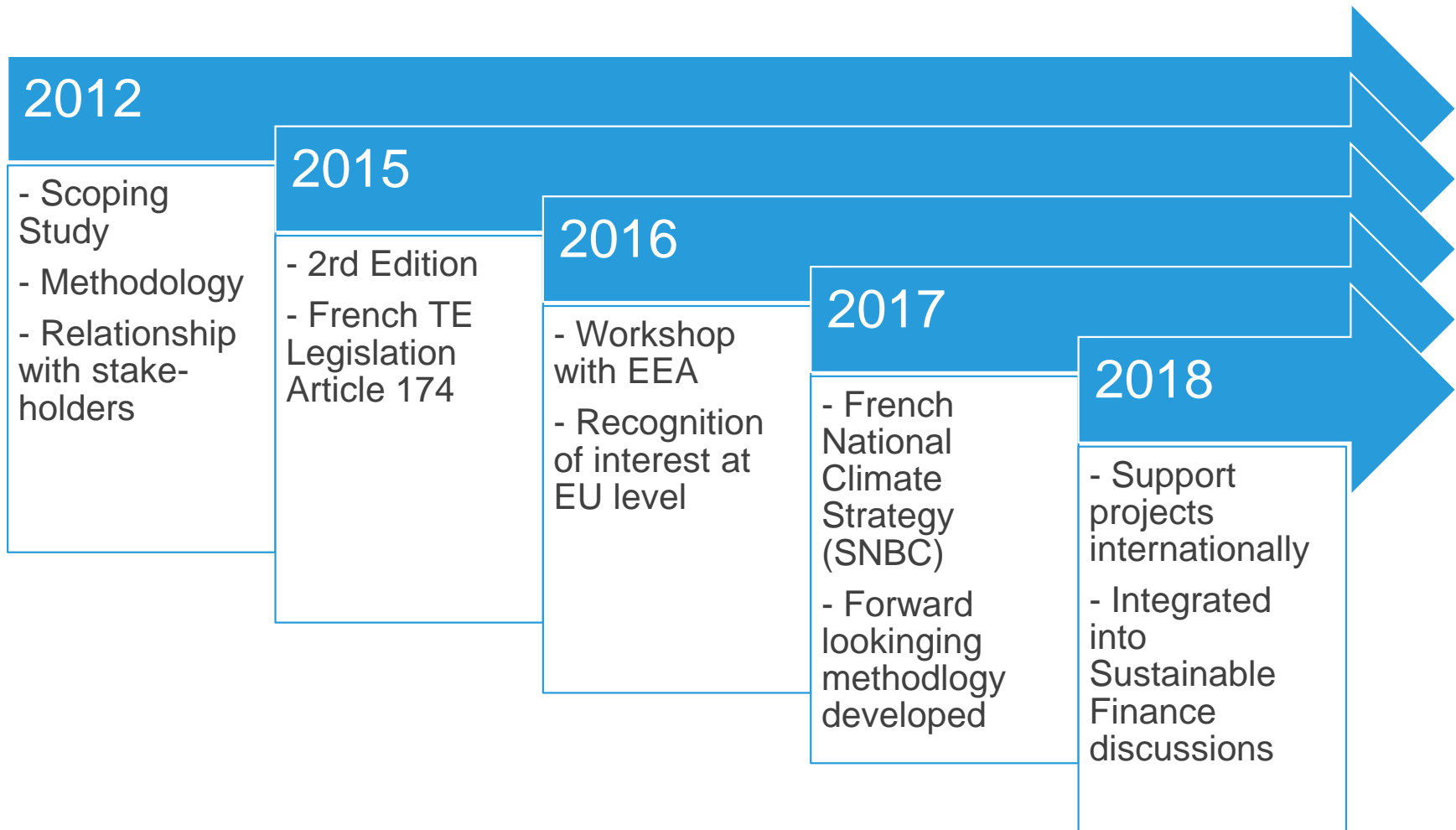
Détail par domaine



Note: dans cette édition, l'année 2017 fait l'objet d'estimations (e)

How has the work in France been conducted?

Timeline of French Project



Key Project Stakeholders in France and beyond.

Avec le soutien de:

ADEME



Agence de l'Environnement
 et de la Maîtrise de l'Energie



**European
 Environment
 Agency**



bpifrance

CAN-France; European Climate
 Foundation; IDDRI; CPI; Climate-
 KIC; CBI; ...



Business: SER; EPE; French
 Banking Association

Among others...

The results of the Landscape correspond to the needs of French decision makers

France's energy transition act mandates tracking and mapping climate finance flows

The government is to present an annual report to the Parliament which “**quantifies and analyses public finance, assesses private finance, and measures their adequacy with the financial requirements** to achieve the objective and transition pace of the law”.

Art. 174 of the Energy transition for green growth act (LTECV, 2015)

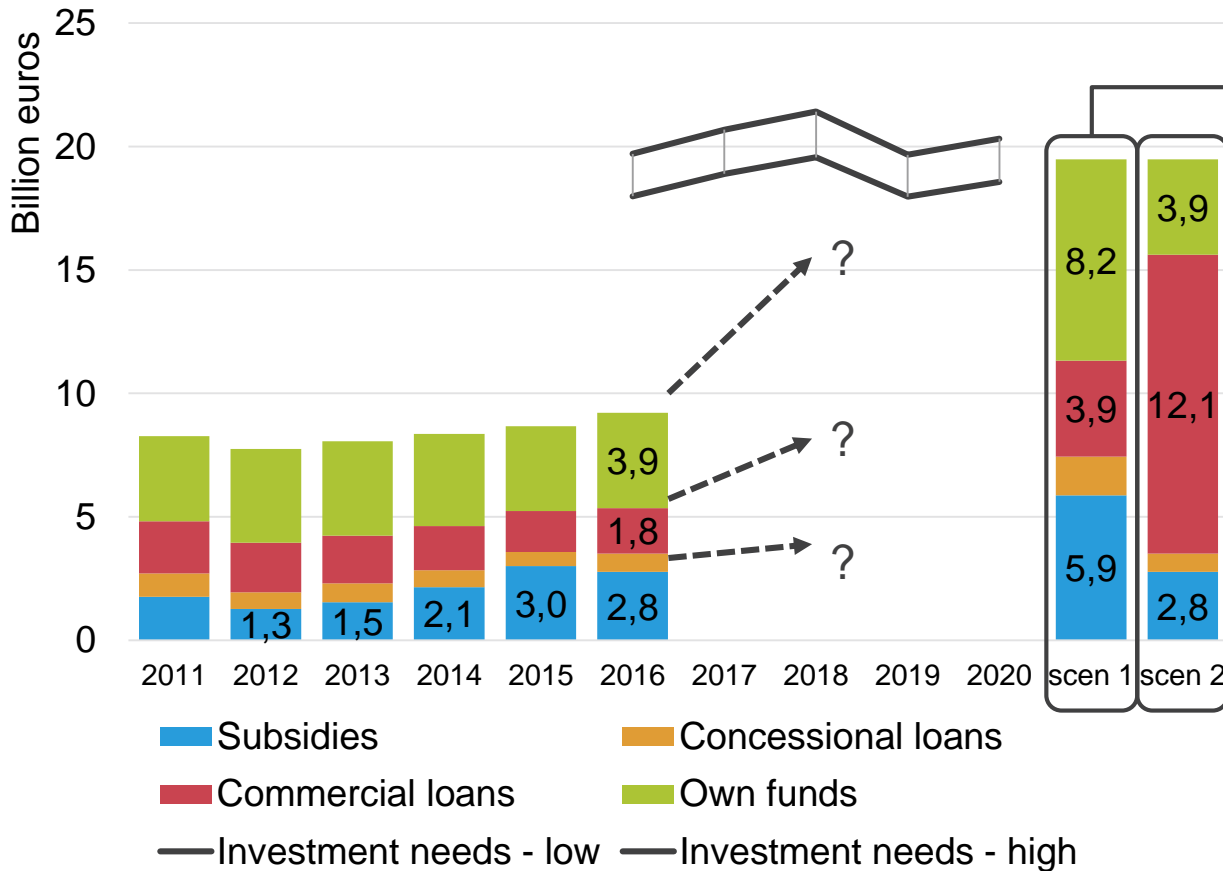
- Energy Transition Act: Article 174
- Contributions to Finance Bills (PLF): DPT Climate and Energy transition draft budget
- Reports for French Strategy on green finance: defining the "business plan" for the energy transition
- Economic, Social and Environmental Council: opinion on the energy transition of February 2018
- CGDD and Eurostat: national climate change mitigation expenditure account
- French National Energy and Climate Plan (SNBC)

French National Energy and Climate Plan

- **National Energy and Climate Plans (NECPs)** are the new framework within which EU Member States have to **plan**, in an integrated manner, their **climate** and **energy** objectives, targets, policies and measures to the European Commission.
 - All Member States to submit by end 2018
 - Final plans due 31 December 2019
- **Stratégie National Bas Carbone (SNBC) in France**
 - First SNBC published in 2017
 - Second version in 2018
- **Gap analysis: Embodied investments and financing plan**

In France, in 2016 and 2017, the gap between current investment and needs reaches €20 to €40 billion

Current climate investment and climate investment needs in the building sector in France



Scenario 1

- No significant change in project profitability or cost
- Investment objectives achieved through increase public funding with matching private cofunding
- Constant leverage

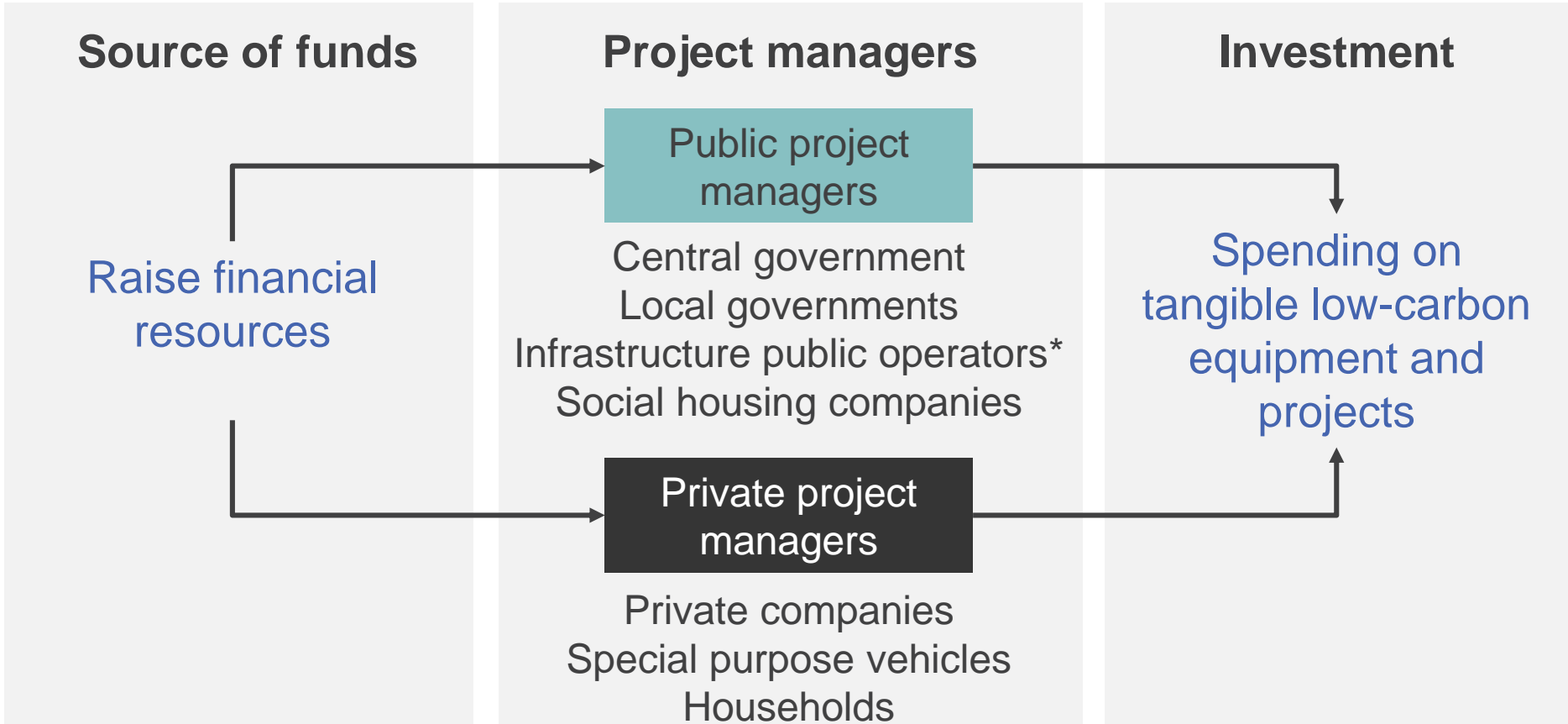
Scenario 2

- Increase in project profitability and reduced costs and risks
- Involvement of third party private finance (loans)
- Increased leverage
- Constant public funds

How can this be of use for different stakeholders and policy discussions?

Project managers raise funding to cover their low-emission investment spending

Project managers = direct owners of the equipment into which investment is made



* Operating in regulated markets to manage and upgrade publicly-owned infrastructure such as rail, electricity or gas networks

Better understand public support for project managers

- **Household** paying for thermal retrofitting of their house
- **Municipality government** conducting a project to create a tramway line (AOT)
- A **special purpose vehicle** (SPV) created to fund the construction of a wind farm
- **Industrial company** acquiring more energy efficient machinery
- **Service company** buying electrical vehicles
- **Central government** paying for the retrofitting of one of its buildings

National Context: transparency to improve policy choices to fight climate change

Significant investments are made each year in the sectors affected by the climate

50 bn€ Private Housing Maintenance and Improvement Expenditures in 2016⁽¹⁾

287 bn€ Annual market for real estate transactions (new and old homes) in 2016⁽¹⁾

40 bn€ Annual market for the acquisition of passenger cars in 2016⁽³⁾

371 bn€ All fixed capital investments in France in 2016⁽⁶⁾

It is a question of redirecting certain flows today away from carbon intensive areas

4 bn€ Missed opportunities: maintenance-improvement without energy efficiency in 2013⁽²⁾

13 bn€ Negative environmental tax expenditures in 2015, including gasoline-diesel⁽⁴⁾

71% Share of vehicles sold in CO2 classes greater than or equal to B (> 100gCO2 / km) in 2016⁽⁵⁾

3 bn€ Fossil energy subsidies in France, in 2014⁽⁷⁾

(1) Comptes du logement 2016 ; (2) Enquête OPEN 2013, travaux sans impact énergétique sur postes liés à la thermique (isolation, chauffage, ventilation) ; (3) Comptes des transports 2016 ; (4) Cour des Comptes, Efficience des dépenses fiscales relatives au développement durable, 2016 ; (5) SDES ; (6) INSEE, Comptes du patrimoine, (7) OCDE-AIE

Transparency on Domestic Climate Investment & Finance

COMPARISON OF THE SCOPE AND RESULTS OF LANDSCAPES OF DOMESTIC CLIMATE FINANCE IN EUROPE

	Germany	France	Belgium
Authors	Climate Policy Initiative (CPI, 2012)	I4CE (CDC Climat, 2014; I4CE, 2015c)	Trinomics, Ernst & Young (Trinomics, 2016)
Partners	-	MEEM, ADEME	Federal Public Service for Health, Security of the Food Chain and Environment
Year covered	2010	2011 to 2015	2013
Scope			
Mitigation	<i>covered</i>	<i>covered</i>	<i>covered</i>
Adaptation	<i>not covered</i>	<i>not covered</i>	<i>partial coverage</i>
Investment	(in 2010)	(in 2014)	(in 2013)
Total	€37 billion	€32 billion	€6.4 billion
% of GDP	1.4%	1.4%	1.6%
% of GFCF ⁽²⁾	7.3%	6.4%	7.3%
Financing	The study indicates that 95% of finance comes from private sources, of which half is in the form of concessional loans issued by government-owned institutions.	The public sector supported more than half of finance (55% in 2014). The main instruments are direct grants and subsidies to project developers.	The principal financial tools are equity capital and bank debt. Concessional debt represented only 3% of total finance. However, public investments represented 34% of the total

Source: I4CE, CPI, Trinomics, according to comparison Table designed by I4CE for the EEA workshop "Domestic Landscapes of Climate and Green Finance in Europe" of 25 October 2016, Eurostat

(1) Separate coverage in the context of this edition: the amounts invested in R&D are not included in total investments.

(2) Gross fixed capital formation (GFCF) is a national accounting indicator that describes the investment expenditures during a given year. The GFCF takes into account for investment expenditures on some intangible capital.

Further documents and readings

France 2017 Results Executive Summary

Landscape of Climate Finance in France
2017 Edition – Executive Summary
December 2017
Authors: Hadrien Hansaut | Liza Gouffée | Jan Cochran
4CE - Finance, Investment and Climate Research Program

Between 2013 and 2016, up to €32bn of investment contributed each year to climate mitigation in France.

In 2016, the investments are divided between 14.3 billion euros for energy efficiency, 9.8 billion euros for the development of renewable energies and 8.2 billion euros for construction and upgrading of sustainable transport and network infrastructure. Investments in the development and renovation of the country's nuclear capacity, in new energy processes and the reduction of emissions of other GHGs than CO₂ are estimated at 2.1 billion euros.

THE STUDY IN BRIEF

The Landscape of Climate Finance is a comprehensive study of domestic financial flows in favour of climate and the broader energy transition in France. The study maps the flows supporting investments leading to greenhouse gas mitigation across the French economy.

Findings are compared from year to year and assessed in comparison to pre-announced investment needs to achieve national GHG reduction targets and other energy transition objectives.

The principal objective of the study is to support public debate on the role and relevancy of public and private financial flows in support of climate-related investments.

The Landscape of Climate Finance is based on the aggregation of a large number of publicly available sources. All results reflect explicit methodological choices made by the authors and should thus be understood as estimates of the order of magnitude of flows, with varying degrees of accuracy. Results are updated annually and revised according to the availability of new sources and evolutions in the methodology.

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[\[LINK\]](#)

Full report Five years of application in France

Landscape of domestic climate finance
Lessons from five years of application in France
September 2018
Hadrien Hansaut | Jan Cochran | Liza Gouffée | Jason Deschamps | Alice Rubinet

64% of investment is made by households and private companies

Household spending totalled 10.8 billion euros, or 33% of climate investment in France in 2016. The majority of these investments were in the building sector. To finance these investments, households mainly used their own funds (8.4 billion euros) or commercial bank loans (2.3 billion euros). They benefited from a total of 2.7 billion euros of public grants and subsidies.

Companies and project developers invested 9.8 billion euros in favour of climate, 21% of climate investment in 2016. They made the majority of these investments in centralized power generation and networks, including renewable electricity generation (2.3 billion euros).

Whether using project finance or balance sheet financing, companies mostly mobilize bank and bond financing (0.5 billion euros) or their own equity (2.3 billion euros).

As project developers, the national government, local governments, social housing authorities and public infrastructure managers (such as SNCF, Air France and RATP) made 11.4 billion euros in investments in 2016. Their principal source of the funds for these investments came from public sources, totalling 3.8 billion euros. Social housing authorities also borrowed from Caisse des Dépôts (1 billion euros) for energy efficiency works.

[\[LINK\]](#)

Article on Methodology in International Economics

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International Economics
Volume 155, October 2018, Pages 69-83
The Landscape of domestic climate investment and finance flows: Methodological lessons from five years of application in France
Hadrien Hansaut & Jan Cochran
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https://doi.org/10.1016/j.inteco.2018.06.002
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Abstract

The transition to a low-carbon and climate-resilient economy requires an unprecedented redirection and scaling-up of investment and finance to adapt economic and societal systems. In comparison with these investment needs, the tracking of current domestic investment levels has been patchy in both developed and developing countries. This article details the methodology developed by 4CE – Institute for Climate Economics and its results in measuring domestic climate investment and finance flows in a coherent, sound and replicable fashion into a single ‘Landscape’. Applied for the last five years in France, the results allow the assessment of the share of climate investment in domestic gross fixed capital formation. It also tracks financial instruments used by project developers to cover their capital expenditures. The 2017 French Landscape identified climate investment reaching €32bn in 2016, with variations in sources of capital and uses of financial instruments across sectors and types of project developers. These results support decision-makers in France and allow comparative assessments when contrasted with similar studies conducted in other E.U. countries.

Previous article in issue Next article in issue

[\[LINK\]](#)

Annex comparing low-carbon asset taxonomies

Sector	Item	Landscape 2017 Edition (exclusion criteria)	SNBC National low-carbon strategy (in French)
Centralised energy production and networks	Solar	Projects that generate electricity from solar energy through photovoltaic processes are considered in the Landscape. We were able to track annual installations by power category as reported by the ADEME. The power categories provided by the ADEME are: residential (<9 kWc) roof-based (9 to 250kWc) ground-based power stations (>250kW).	p.87 L'argumentation des bénéfices climatiques en faveur de l'énergie photovoltaïque n'est pas développée dans la SNBC, qui cite « en raison de la structure du mix électrique, la production d'électricité est historiquement carbonée. » p.88 Cependant, elle porte l'objectif indicatif à 2050 de réduire de 9 les émissions liées à la production d'énergie par rapport à 1990, à un « facteur 20 ». p.133 L'intensité matérielle de l'énergie photovoltaïque, relativement élevée par rapport à d'autres technologies de production d'électricité est mentionnée par la SNBC.
	Wind	Projects that generate electricity	p.87

[\[LINK\]](#)

Questions for discussion

- How could a better information on climate investment and finance support Polish policy making?
- As a Stakeholder, how could this type of analysis be of interest for your institution?
- Where might data already exist that could support this process?
- What might be the conditions of success for such a project in Poland (stakeholders, focus, timeline, etc.)?

Thank you for your attention!

Questions and comments
welcome at

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ian.cochran@i4ce.org

**I4CE aims to support methodological convergence
 and provide insights from our experience in France**

Open invitation to discuss how we could support
 similar assessments in other countries

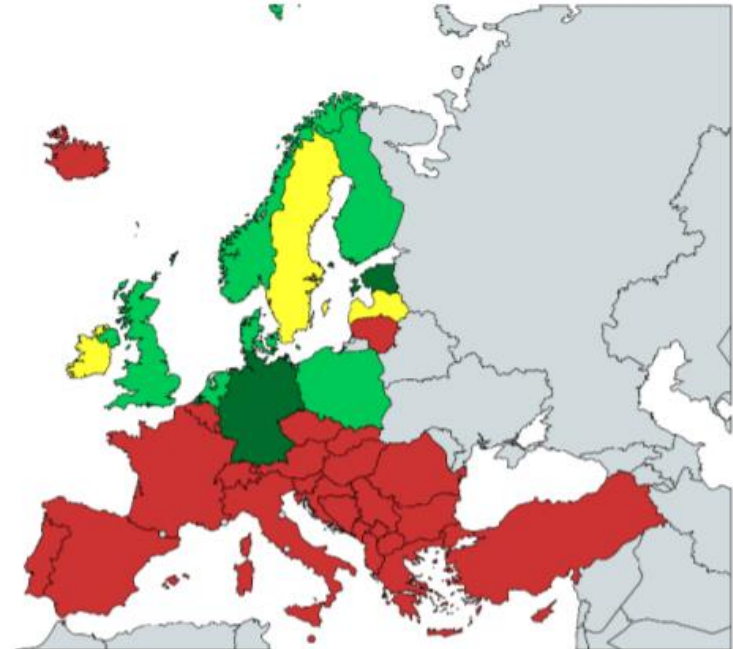
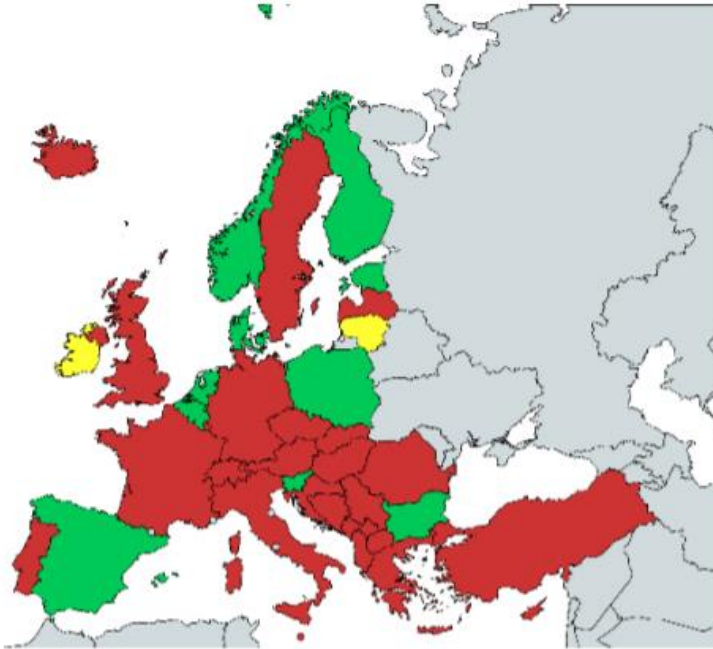
<p>Develop methodological guidance</p> <p>Workshop held with the EEA, bringing together researchers and government representatives interested in Landscapes (2016)</p>	<p>Connect green finance with the real economy</p> <p>HLEG, EU Sustainable Finance Action Plan and Observatory</p>	<p>Support similar work engaged in other countries</p> <p>Morocco (CDG/I4CE) Germany (IKEM), Poland (Wise Europa, NCI, I4CE) Latvia and Czech Republic (IKEM)</p>
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EU: Data climate investment & finance remains partial

MITIGATION

ADAPTATION

Planned expenditure



Legend:

- Comprehensive data availability
- Partial data availability
- Potential data availability
- No identified data availability

Source: EEA 2017

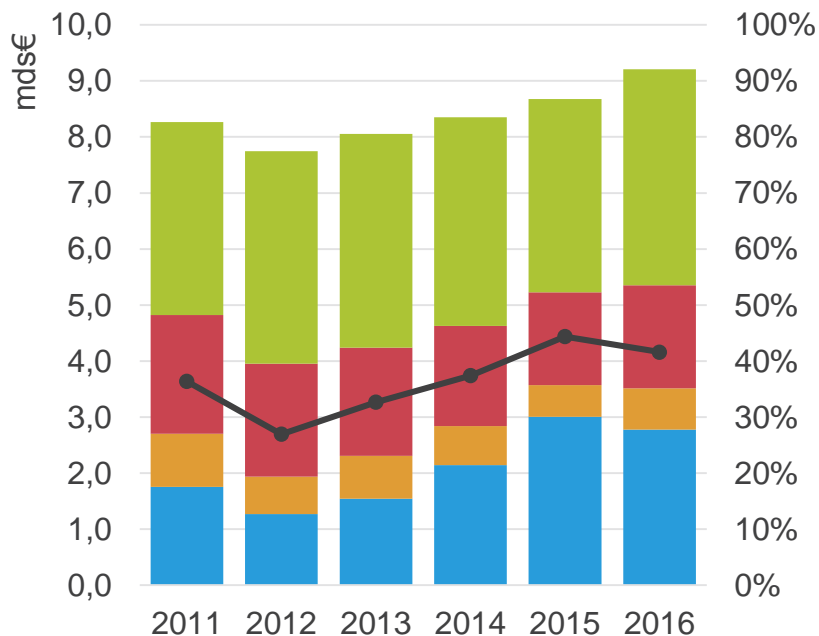
EU: Policy Inputs

- Sustainable Finance Discussions
 - The **High Level Expert Group** (HLEG) convened by the European Commission concluded in 2017 the need "to establish a European Observatory on Sustainable Finance to support evidence-based decision-making".
 - The May 2018 legislative proposal included the Observatory, even if it is not mentioned in the Commission's Action Plan
- National Energy and Climate Plans
 - Finance and investment not systematically addressed across areas of focus
 - French experience can help support better investment and 'capital raising' to achieve their implementation

Annexes

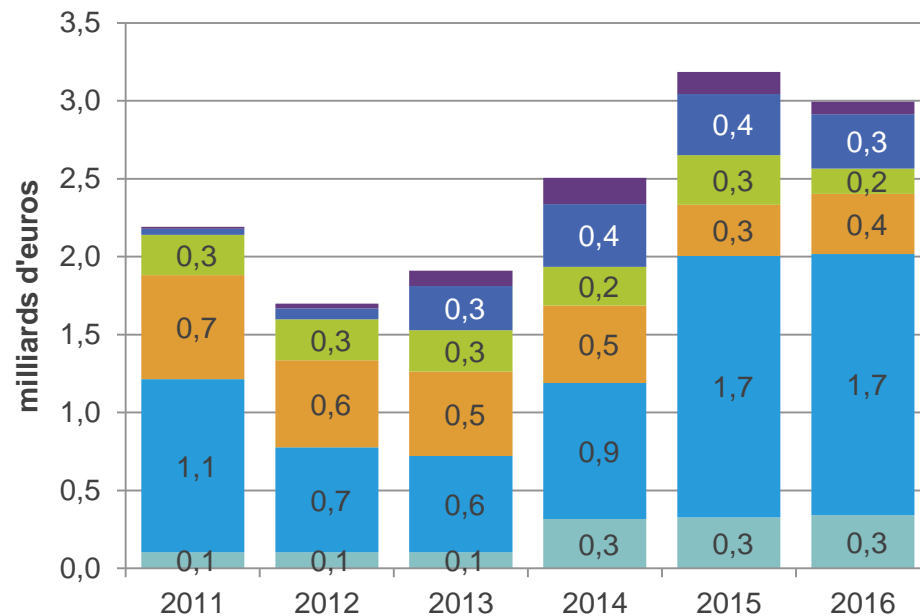
Rénovation des logements : hausse des investissements et de la part des financements conduits par le public

Financement des investissements dans la rénovation des logements



- Fonds propres, autofinancement
- Dette commerciale
- Dette concessionnelle
- Subventions, aides et versements
- part des financements conduits par le public (en %)

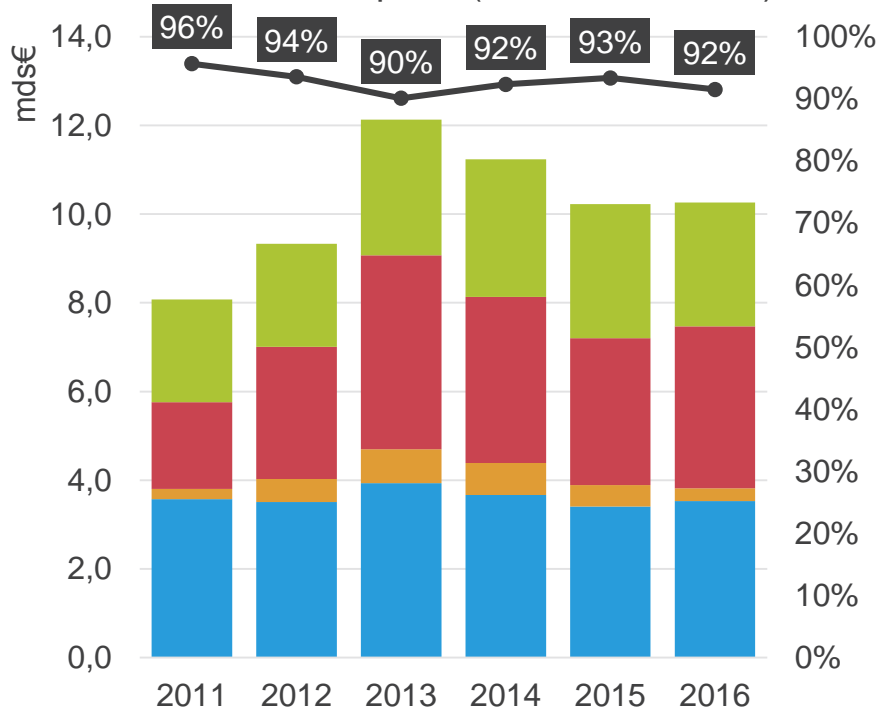
Les aides publiques pour le financement de la rénovation des logements privés



- Fonds d'Aide à la Rénovation Thermique
- Aides de l'ANAH
- Certificats d'économie d'énergie
- Eco-prêt à taux zéro
- Crédit d'impôt (CIDD/CITE)
- TVA taux réduit

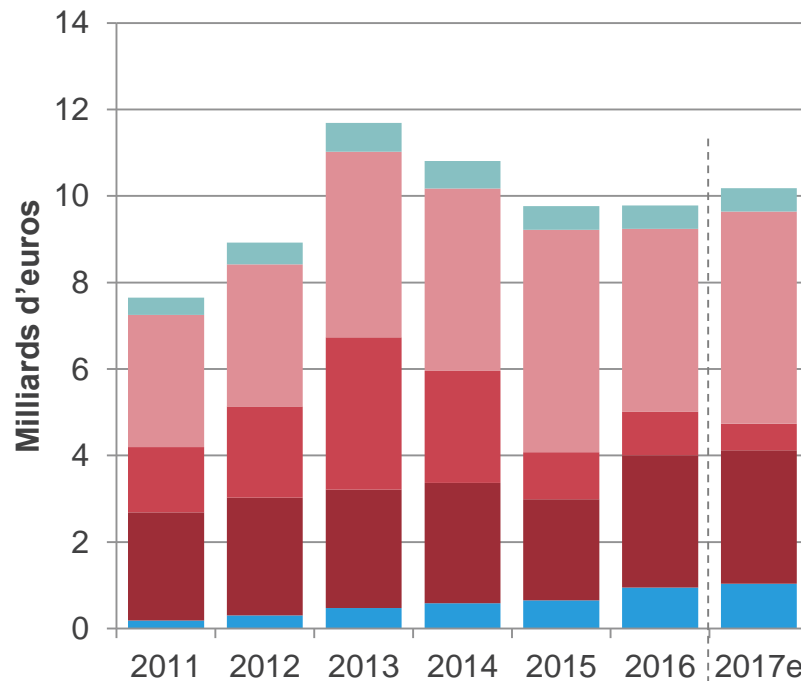
Baisse des investissements dans les infrastructures de transport et hausse des dépenses d'acquisition de véhicules

Financement des investissements dans le secteur des transports (infra. + véhicules)



- Fonds propres, autofinancement
- Dette commerciale
- Dette concessionnelle
- Subventions, aides et versements
- part des financements conduits par le public (en %)

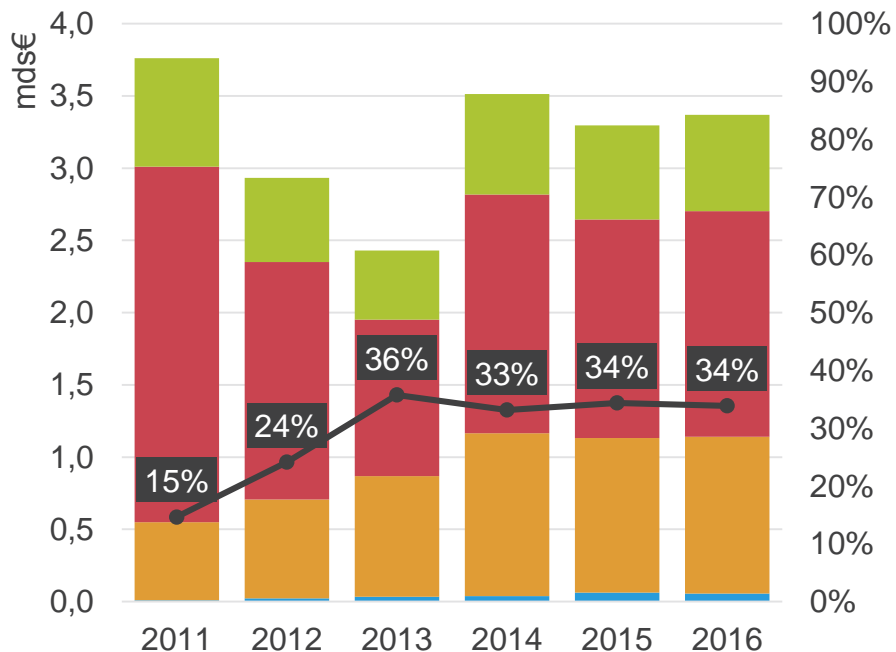
Evolution des investissements en faveur du climat secteur transports



- Fluvial et maritime
- Ferroviaire - hors LGV
- Ferroviaire - LGV
- Transports en commun urbains
- Véhicules bas-carbone

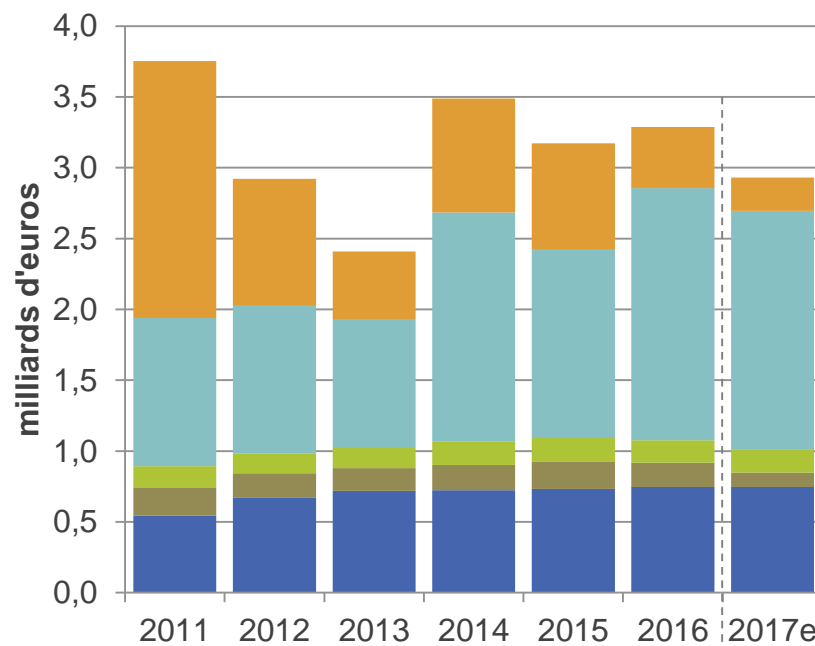
Production d'électricité renouvelable* : stabilisation des investissements et du rôle des institutions financières publiques

Financement des investissements dans la production d'électricité renouvelable centralisée



- Fonds propres, autofinancement
- Dette commerciale
- Dette concessionnelle
- Subventions, aides et versements
- part des financements conduits par le public (en %)

Investissements dans la production d'électricité renouvelable, par filière



- Hydraulique
- Biomasse
- Biogaz & Déchets
- Eolien
- Photovoltaïque

* Hors PV sur toitures

EU: Sustainable Finance Observatory

- Commission's Action Plan and legislative proposal must be seen in light of: « greening » the financial sector, without generating a new pipeline of investments, will not necessarily contribute to achieving climate objectives.
- Financial instruments, such as green bonds, have important « informational » roles to play, however an ESG checklist approach to labeling is not appropriate to ensure 'climate-coherence' (not to mention 'Paris').
- A holistic approach is needed to thinking about investment – and how it is financed – to understand how the financial system can support the low-carbon resilient real economy. I4CE has piloted an approach in France to assist in doing this.

Current scope leaves room for further extension on key sectors and topics

Difficulty of coverage increases for diffuse sectors

Scope	
<p>Gap analysis Landscape + investment needs</p>	<ul style="list-style-type: none"> • Energy efficiency, renewable energy, infrastructure and other GHG reductions... • ... in buildings, transport and energy production (small scale and large scale) ;
<p>Tracking Landscape only</p>	<ul style="list-style-type: none"> • Energy efficiency and renewable energy in industrial processes and the agricultural sector ; • GHG mitigation in the forestry sector • Research and development with climate applications
<p>Upcoming extensions in 2018/2019</p>	<ul style="list-style-type: none"> • Other GHG mitigation actions in the agricultural sector • Better coverage of industrial energy efficiency
<p>Key sectors and topics For possible further development</p>	<ul style="list-style-type: none"> • Adaptation to climate change • Mapping investment needs in the <i>upstream</i> industrial sector⁽¹⁾ • Investments for energy security, in energy networks

(1) : Investments in the upstream machinery required to produce low-carbon equipment, e.g. solar panel factory

Combining approaches to estimate low-carbon investment needs

Top-down or « macro » In France : SNBC-1's economic assesment	Bottom-up or « micro » I4CE's Landscapes
Macroeconomic modelling	Low-carbon investment mapping
In a simulation of the economy as a whole, a set of climate policies and measures results in private agents re-allocating labour, capital and energy along their production functions.	Tracking investment needs from public and private developers in a set of low-carbon equipment. Analysing for each item how investment was financed through public and private channels.
Best suited to compare between two future scenarios	Best suited to compare between current situation and near to medium future
<ul style="list-style-type: none"> • Allows observations on GDP, employment, trade balance, capital availability • Takes into account overall changes in wages, productivity, cost of capital, etc. 	<ul style="list-style-type: none"> • Allows closer monitoring of policy factors leading to investment successes or setbacks; • Finer description of financing structures, of specific or innovative equipment and of shifts in capital stocks of specific sectors
<ul style="list-style-type: none"> • Simplified production functions may over or under-estimate the investment challenge • Little sectorial or item disaggregation may mask important transformations 	<ul style="list-style-type: none"> • Intensive in data collection • Sensitive to the definition of low-carbon assets

Distinguish climate investment and climate finance, today and in the future

I4CE Landscape		National Plans
Application in France : 2011-2017		In France : SNBC-1 to 2030
Climate investment	<p>Tracking capital expenditure in material low-carbon equipment e.g. residential retrofitting, low-carbon vehicles, etc.</p> <ul style="list-style-type: none"> Made by households, companies and public institutions Projects that emerge current economic and regulatory conditions (expected gains and losses) 	<p>Mapping investment needs to achieve national objectives e.g. deploy X thousand electric vehicles by 2025, etc.</p> <ul style="list-style-type: none"> Made possible and profitable through new policies and measures (e.g. carbon pricing)
Climate finance	<p>Funds used by project developers to cover their investment expenditure</p> <ul style="list-style-type: none"> Provided by public institutions (subsidies), banks and financial markets (loans, bonds) or project developer's own funds Third-party private finance is often attracted by the project's expected revenues and risks 	<p>Projecting which public and private resources could be mobilised</p> <ul style="list-style-type: none"> Possible increase of private finance reflecting improved economic and regulatory conditions for low-carbon projects Resources can be additional or redirected

I4CE's bottom-up gap analysis : tracking of current flows + mapping of investment needs

Sector	Current and past climate investment covered in the Landscape of climate finance, 2017 Edition		
	Excluded from gap analysis	Investments needs documented from SNBC and PPE	
		Included in gap analysis	Excluded from gap analysis
Buildings	Biomass in multi-unit housing and tertiary buildings	Energy efficiency in new buildings (housing & tertiary) Energy retrofitting of existing buildings (housing & tertiary)	Complete construction cost of new buildings (outside of energy efficiency)
Transport	Electric light-goods vehicles Electric and hybrid heavy-duty vehicles Electric, hybrid and NGV buses	Electric and hybrid cars NGV heavy-duty vehicles Railways (infrastructure) Urban public transport (infrastructure)	-
Industry	Energy efficiency*		Energy efficiency*
Agriculture	Energy efficiency Forestry	Power generation from biogas (anaerobic digestion)	-
Centralized energy production and networks	Nuclear (EPR and retrofitting of current plants) Geothermal electricity Biomethane injection	Renewable power generation (onshore wind, solar PV, biomass, biogas, small hydro). Extension of heating networks	-

* In the industrial sector, even though both current and required climate investment can be estimated, scope and sources differ too widely to allow a direct comparison

Illustration: list of selected actions (1/3)

BUILDINGS	
Energy efficiency in new buildings	Buildings complying with « low consumption » (BBC) label
	Buildings complying with « positive energy » (BEPOS) label
	Buildings complying with 2012 thermal regulation
Thermal retrofitting of existing buildings	High efficiency gas boiler (>95%)
	Wood stove & biomass boiler
	Insulation of internal & external walls
	Insulation of doors and windows
	Insulation of roofs, ceilings
	Heat pumps (air / water / geothermal)
	Thermal solar in individual homes
	Other retrofitting spending, in multi-house buildings and in the social housing sector

Illustration: list of selected actions (2/3)

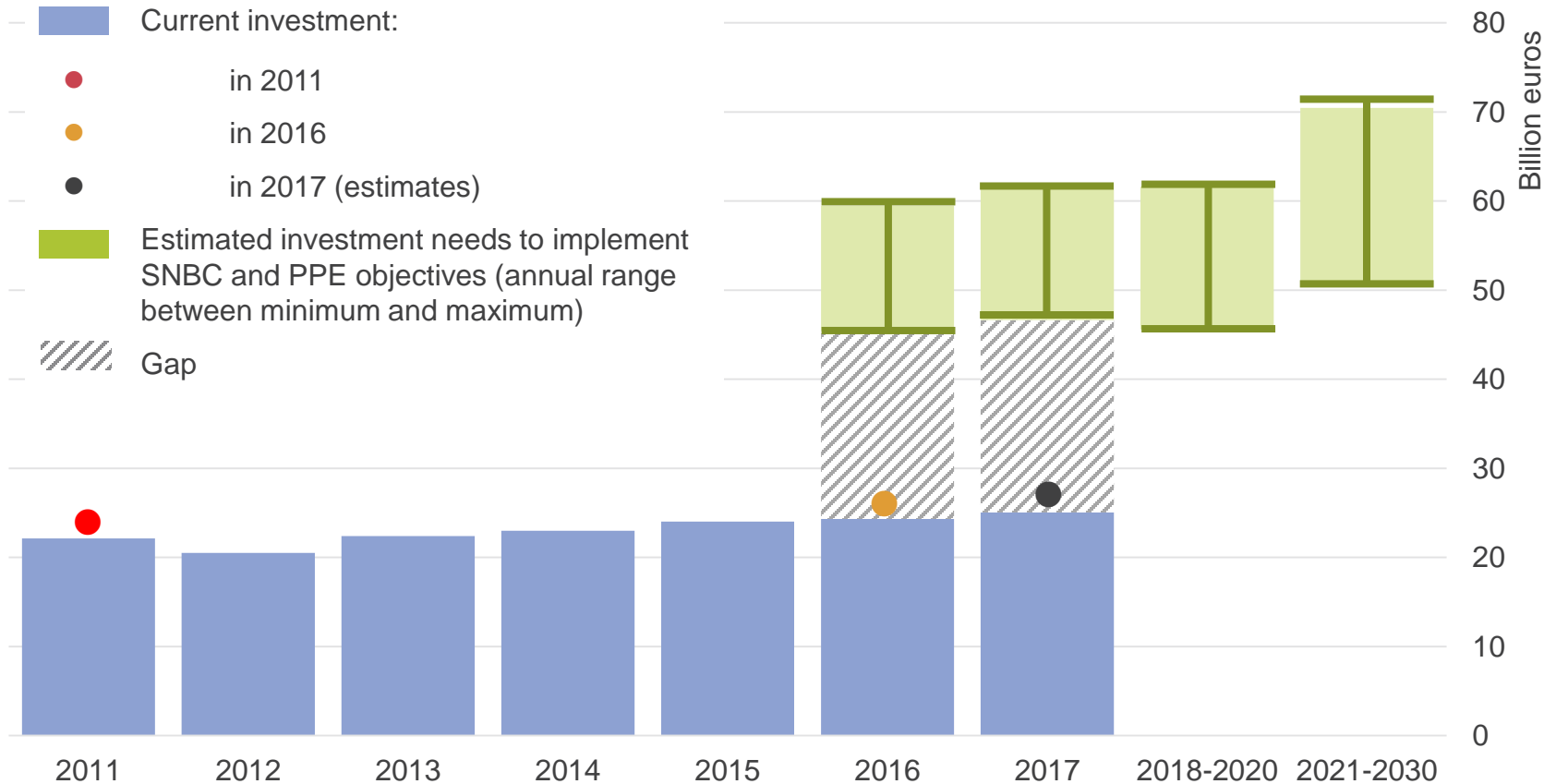
TRANSPORT	
Low-carbon vehicles	Acquisition of low-carbon vehicles, including fully-electrical vehicles and plugin hybrid vehicles (<60gC02/km)
Installation of recharge infrastructure for electrical vehicles	
Railway infrastructures	Major high-speed rail construction works (5 projects ongoing from 2011 to 2015)
	Investment spending in maintenance and upgrade of existing infrastructure (done by SNCF Réseau, public company)
Waterways infrastructure: investment spending by VNF	
Sea port infrastructure: investment spending by major public port authorities	
Urban transport infrastructure	In Ile-de-France region: investment spending by RATP
	In other towns: investment spending by transport authorities

Illustration: list of selected actions (3/3)

CENTRALIZED ENERGY PRODUCTION & NETWORKS	
Renewable electricity generation	Construction of biogas units
	Construction of biomass units
	Construction or upgrade of waste incineration plants
	Onshore wind (no offshore wind as of 2015)
	Construction or upgrade of geothermal plants
	Maintenance and upgrade of hydro electrical equipment
	Utility-scale photovoltaics (solar farms)
Fossil fuel	Fuel switch : removal of coal and oil-fired plants with replacement within the same year with gas-fired plants
Nuclear	New nuclear plant : EPR works
	Energy production upgrades of existing nuclear plants
Networks	Extension of heat distribution networks (district heating)
	Connecting renewable electrical capacity to networks

In France, in 2016 and 2017, the gap between current investment and needs reaches €20 to €40 billion

Annual gap between current investment (tracked in the Landscape of Climate Finance) and estimated investment needs to implement SNBC and PPE objectives



A « project-oriented » approach

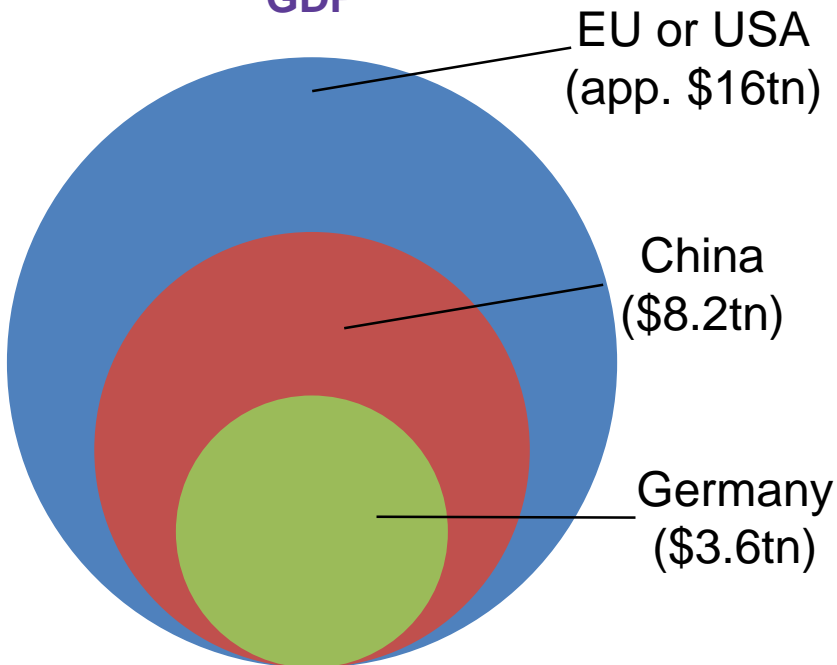
- We look for **new low-carbon tangible** equipment is installed during a given year (= capital formation)
- We then estimate:
 - How much was spent « overnight » for this equipment
 - How the owners gathered the funds to support this spending
- This is different from:
 - A “contributor-oriented” approach, asking banks or public bodies how much they contributed to projects;
 - A “financial asset-oriented” approach, asking investors to tell how much outstanding green assets (equity, debt) they own

International Climate Finance

Annual issuance of bonds (\$70tn)

Sources: IMF, IEA, UNCTAD, BIS

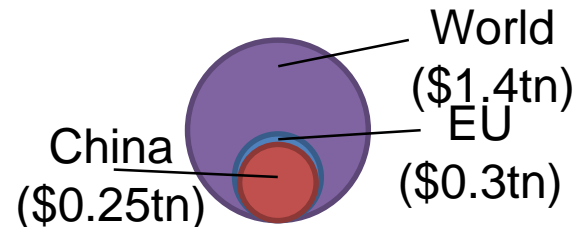
GDP



Annual Needs in the 2DS scenario

World (\$2tn)

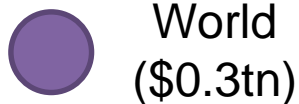
FDI received



Gross fixed capital formation

World (\$16.2tn)

Annual investment in low-carbon technologies



Subsidies for fossil fuels



Fossil-fuel import bills

