

PUTTING CLIMATE ECONOMICS TO THE TEST OF REALITY

ANNUAL REPORT 2018/2019

I4CE
INSTITUTE FOR
CLIMATE
ECONOMICS

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

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OUR MISSION



The Institute for Climate Economics is a think tank with expertise in economics and finance whose mission is to support action against climate change.

Through its applied research, the Institute contributes to the debate on climate-related policies. It also publicizes research to facilitate the analysis of financial institutions, businesses and territories and assists with the practical incorporation of climate issues into their activities.

OUR EXPERTISE

FOREWORD

“ECONOMIC EXPERTISE MUST BE GROUNDED IN REALITY. THE YELLOW-VEST PROTESTS SERVE AS A REMINDER OF THIS FACT”

PIERRE DUCRET, I4CE CHAIR
BENOIT LEGUET, I4CE MANAGING DIRECTOR



serve as a reminder of this fact: this economic tool, whatever its effectiveness in terms of the climate, has social impacts that lead to legitimate resistance. Resistance that should have been anticipated.

THE CHALLENGE FOR ALL CLIMATE-FOCUSED ECONOMICS and finance experts is to put their expertise into practice in the real world. Rather than being limited to general or theoretical considerations, they must instead work with the different actors of change, and understand and respond to their real problems.

THIS IS THE CHALLENGE THAT I4CE HAS BEEN MEETING each year, and the last twelve months has been no exception. The institute has learned from foreign carbon tax experiences to inform the French debate, and supported the launch of a low-carbon standard to financially compensate those who take action in the field. It has also supported financial institutions, their regulators and their supervisors, to help them operationalize their climate commitments.

OPERATIONALIZING, THE SHARING OF EXPERIENCES, supporting actors in the field... all phrases that are a translation of the same objective: putting I4CE's economic expertise into a real world context.

“ I4CE WAS BORN FROM A CONVICTION: economic expertise is essential for climate action. This is because the building of a carbon-neutral and climate-resilient society requires transition financing, the mobilization of economic instruments, and a transformation of the financial system. I4CE has been accumulating this economic expertise for more than 15 years, which constitutes I4CE's added value in the think tank landscape.

THIS EXPERTISE, however incisive, must be grounded in reality. Without which, it may be ineffectual or, at worse, lead to dead ends. In France, the yellow-vest protests, initiated by an increase in the carbon tax,

I4CE KEY FIGURES



25 
Team members

40+ 
Publications
annually

30+ 
Events annually

5000+ 
Twitter Followers

+6000 
newsletter
subscribers

OUR ADDED VALUE: ECONOMIC AND FINANCIAL EXPERTISE

CLIMATE INVESTMENT
AND TRANSITION FINANCING



PUBLIC FINANCE
INSTITUTIONS



PRIVATE FINANCE



FINANCIAL REGULATION FOR
THE CLIMATE



PUBLIC BUDGETS,
TAXATION AND CARBON TAX



EU ETS AND REGULATORY
CARBON MARKETS



VOLUNTARY CARBON CERTIFICATION
AND THE LOW-CARBON STANDARD



TERRITORIES AND LOCAL
AUTHORITIES



ADAPTATION AND RESILIENCE



AGRICULTURE AND FOOD



FORESTRY AND TIMBER INDUSTRY



BUSINESS AND INDUSTRY



▶ OUR EXPERTISE



CARBON PRICING

LEARNING FROM FOREIGN EXPERIENCES



SÉBASTIEN POSTIC
CARBON PRICING PROJECT MANAGER
I4CE



- 10/2018**
- I4CE publications on the functioning of the carbon tax in France, and on the use of tax revenues around the world
 - I4CE Conference at the National Assembly on carbon tax acceptability
- 02/2019**
- I4CE and Terra Nova publication on options to break the carbon tax deadlock
- 03/2019**
- I4CE Conference at the Senate on carbon tax and climate finance
- 05/2019**
- I4CE co-publication on the World Bank «Guide to Using Carbon Revenues»

For some time, economists have generally been in favour of carbon taxes. The principle is simple: putting a price on pollution will encourage households and businesses to change their behaviour, for example by using greener vehicles.

It is an effective tool: several studies have shown that a rise in energy prices reduces consumption. However, while improving home insulation, switching vehicle type, or moving away from car ownership altogether may be relatively straightforward for some households, others cannot adapt as quickly. For low-income households or those who live in rural areas, a carbon tax can feel more like a punishment than an incentive.

A KEY TO SUCCESS IS THE STRATEGIC USE OF REVENUE

When subjected to real world testing, the carbon tax generates legitimate resistance: in France it provided the trigger for the yellow-vest movement. However, such rejection is not inevitable: many countries have successfully

increased energy prices by taxing carbon or reducing fossil fuel subsidies. One of the keys to these success stories is the strategic use of the revenue they generate, and there are many possibilities: lowering other taxes, investment in mobility and low-carbon housing, debt repayment... Countries have made pragmatic choices, closely in line with national circumstances and priorities.

TWO REQUISITES: SOCIAL JUSTICE AND TRANSPARENCY

However, two constants emerge from all successful examples. Firstly is the need for social justice: support must be provided for low to moderate-income households, whether through targeted tax cuts or cash payments. Secondly, a major emphasis must be placed on transparency and communication regarding the use of tax revenue. This is a fundamental condition for the acceptability of a measure that affects taxpayers in a way that is as visible as it is unavoidable.

CLIMATE TAX: 10 TERRITORIES ANALYSED, 3 LESSONS FOR FRANCE



- LESSON 1**
Show transparency regarding revenue use
- LESSON 2**
Ensure benefits derived from rising energy prices are visible
- LESSON 3**
Adapt to move forward

©I4CE

Green budgeting is a valuable tool to support political decision-making



BÉNÉDICTE PEYROL
MP FOR L'ALLIER

“ Ecological taxation, through the Climate Energy Contribution, has often made the headlines in 2018 and 2019. I4CE’s work has helped shed light on the debate through numerous international comparisons. However, France is seeing a paradigm shift where taxes that were not considered as green at the time of their creation, are now regarded as such. This development, which is contributing to the greening of the French tax system, implies that ecological taxation, which is currently varied, scattered and misunderstood, should be taken seriously. This requires teaching at universities and high schools to be up to the task. Beyond taxation, the entire French budget must be in line with the Paris Agreement. The implementation of a green budget, announced last May, is a major step forward in this regard. This tool should enable the appraisal of all State expenditure and the evaluation of its environmental impact. It will identify where the State should prioritize its efforts. The green budget will provide a practical support tool for political decision-making, made possible by the technical work undertaken by the OECD and I4CE.



British Columbia AN EXAMPLE OF TRANSPARENCY

The Canadian Province of British Columbia spends the entirety of its carbon tax revenue on tax cuts for companies and households, particularly low-income households. This “neutrality” of the compulsory tax is accompanied by a major focus on transparency: every year, the Finance Minister gives a report to the Assembly on the use of tax revenues, and 15% of his salary is dependent on meeting

the neutrality commitment. The popular acceptance of this tax shows that it is possible to direct carbon tax revenues towards specific priorities, without having to sacrifice transparency or using a fund that is separate from the general State budget.



LOW-CARBON STANDARD

REWARDING THOSE WHO TAKE ACTION IN THE TERRITORIES



CLAUDINE FOUCHEROT

AGRICULTURE AND FORESTRY PROJECT MANAGER

I4CE

6

Many in the field want to participate in climate action. For instance, actors in the agriculture and forestry sectors are able to modify their practices to reduce greenhouse gas emissions and/or store more carbon in biomass and soils. However, to do so these actors must make financial commitments, and are rarely rewarded for their contributions to the fight against climate change. The emissions they avoid and the carbon they store have no economic value, making it difficult to establish a viable business model.

FUNDERS NEED GUARANTEES

Nevertheless, local authorities, businesses and even citizens are ready to fund these projects and emission reductions. But on one condition: the provision of guarantees. Have checks been carried out on the ground to verify whether a project has actually been implemented? Can I trust the method used to calculate avoided emissions? And how do I know for sure whether or not someone else has already paid for the same



04/2019

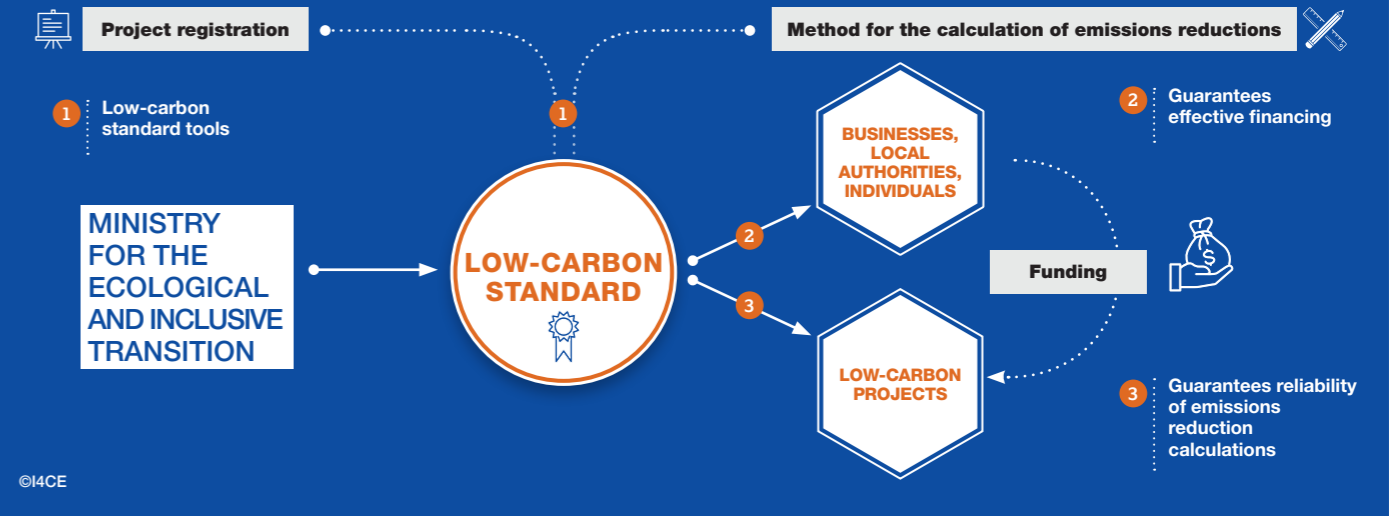
● Launching conference of the low-carbon standard, in presence of **Brune Poirson**, Secretary of State at the Ministry for the Ecological and Inclusive Transition

quantity of avoided or stored CO₂? To become fully engaged, potential funders need answers to all of these questions.

OFFICIAL ADOPTION OF A LOW-CARBON STANDARD IN FRANCE

I4CE made this observation several years ago, together with the Ministry for the Ecological and Inclusive Transition, and with the members of its Agriculture and Forestry Clubs. It is with these organizations, accompanied by the support of the European Union, ADEME and EIT Climate KIC, that the Institute has carried out carbon certification research projects. It was from these projects that the low-carbon standard was born. The standard, officially adopted in France in November 2018, guarantees the quality of projects and thus ultimately enables climate action to be rewarded and promoted within territories.

THE LOW-CARBON STANDARD IN OPERATION, A CARBON CERTIFICATION SYSTEM FOR FRANCE



Livestock farmers can access new types of funding



JEAN-BAPTISTE DOLLÉ
HEAD OF ENVIRONMENT
DEPARTMENT, FRENCH
LIVESTOCK INSTITUTE

“ Livestock sectors have been engaged in the fight against climate change since 2013, with more than 12,000 farms involved today. They use many technical levers to reduce greenhouse gas emissions, such as the management of animal waste or the adjustment of their feed. Farmers are also able to increase carbon storage, for example by planting and managing hedgerows and grasslands. Now, thanks to the low-carbon standard, livestock farmers who adopt climate-friendly practices can access new types of funding. It represents an opportunity that was seized on by the representatives of the livestock sector through the creation of the Carbon Agri association in France. It will link up innovative local projects, provide project engineering and administrative management, and mobilize new funders: several private and public financiers have already expressed an interest in contributing to national low carbon agricultural projects.



Lozère PILOT PROJECT

The low-carbon standard had to be tested in the field prior to its official launch. One of the pilot projects involves the ASLG des Forêts de la Terre de Peyre association in Lozère. With the support of the La Poste Group, the association launched an afforestation and reforestation project in 2015, which covered 36 ha of pine forest that had suffered storm and snow damage. It used several species in this project: Douglas fir, larch,

Scots pine, and various hardwoods. In addition to boosting biodiversity, the project will also support the local timber economy, and sequester several thousand tonnes of CO₂ over the coming decades.

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CLIMATE FINANCE

SUPPORTING FINANCIAL INSTITUTIONS TO MEET THE IMPLEMENTATION CHALLENGE



MICHEL CARDONA
FINANCE SENIOR ADVISOR
I4CE



“Financial institutions need to manage climate-related risks. To do so they need to overcome multiple challenges related to data, scenarios, risk propagation channels, uncertainty, long-term horizon and the modelling of financial impacts.”

HIGH EXPECTATIONS, BUT PRACTICAL IMPLEMENTATION IS COMPLICATED

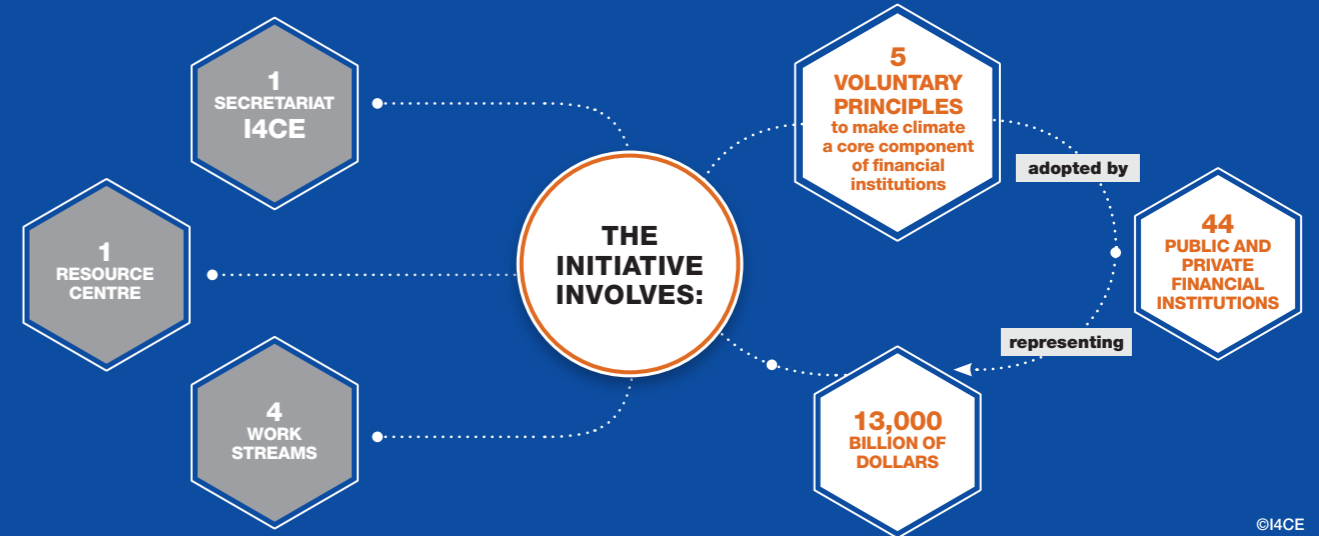
Given such great expectations, financial institutions are facing an operationalization challenge: an obstacle that is difficult to surmount. For example, those seeking to measure vulnerability to climate hazards lack data on the precise

location of financed activities, and on local climate change projections. While those seeking to assess alignment with a 2°C scenario discover a multitude of potential future economic and technological scenarios, and that currently available evaluation methodologies are not yet complete.

WE MUST ACCOMPANY FINANCIAL INSTITUTIONS

For financial institutions to meet expectations, they will need support on several fronts. One means of assistance is the provision of scenario analysis tools that will enable them to explore potential future developments and gain a better understanding of uncertainties. Another form of support would be to instigate, through sustained public and private R & D, robust and functional risk assessment and alignment methods for use in the field. It will also be necessary to encourage financial actors to extend the time horizon of their funding decisions, which by no means constitutes the least of the challenges.

“CLIMATE ACTION IN FINANCIAL INSTITUTIONS” INITIATIVE



Green Weighting Factor, a device for aligning financial flow with the Paris Agreement



KAREN DEGOUVE
HEAD OF SUSTAINABLE BUSINESS DEVELOPMENT,
NATIXIS

“At present, banks do not give sufficient attention to the environmental risks of financing activities, particularly the risks related to climate change. With the exception of project funding, for which the environmental impacts are systematically assessed, there is a lack of available data on other investment types, which makes it difficult to measure the transition and physical climate risks, and their integration into credit risk assessment tools. To meet the increasing expectations of supervisors regarding the exposure of banking portfolios to climate change, and to support their customers in the transition to a less carbon-intensive economy, this year Natixis has worked hard to set up an internal incentive mechanism for the long-term alignment of its funding with the Paris Climate Agreement objectives. This device, known as the Green Weighting Factor, enables transition risks and environmental impacts arising from financing operations to be determined. Our thought process was enriched by I4CE’s work on improving the transparency of the many and diverse existing methods.



Climate impacts FINANCE HAS NOT REALIZED THE SCALE

Financial institutions too often consider themselves immune to climate change impacts. They underestimate the consequences for the individuals and companies they finance. This outlook was put in perspective by the bankruptcy of the energy company PG&E in 2019, which followed in the wake of the devastating wildfires in California. Furthermore, it is expected that extreme weather events will be more frequent and

severe in the coming decades. It is imperative that financial actors take prompt action to take stock of climate impacts, to develop new tools and collect data that will enable them to measure their exposure to these new risks. To assist in this endeavour, I4CE is participating in a European project involving six research centres: the ClimINVEST project.



FINANCE

ESTABLISHING A NEW REGULATORY FRAMEWORK



JULIE EVAIN
FINANCE RESEARCH FELLOW
I4CE

Banks, insurance companies and investors must all be mobilized for climate action. However, while some of these actors have committed to the cause because they understand the financial challenges associated with climate change or for reputational concerns, for the majority the issues are too far removed. For this reason, the intervention of public authorities is necessary.



“ While France is positioned as one of the pioneers of green finance, there is still a long road ahead to achieve a regulatory framework that is completely in line with Paris Agreement goals. Advances made in some areas should not obscure the collective work that remains to be done.”

PUBLIC AUTHORITIES MUST TAKE ACTION

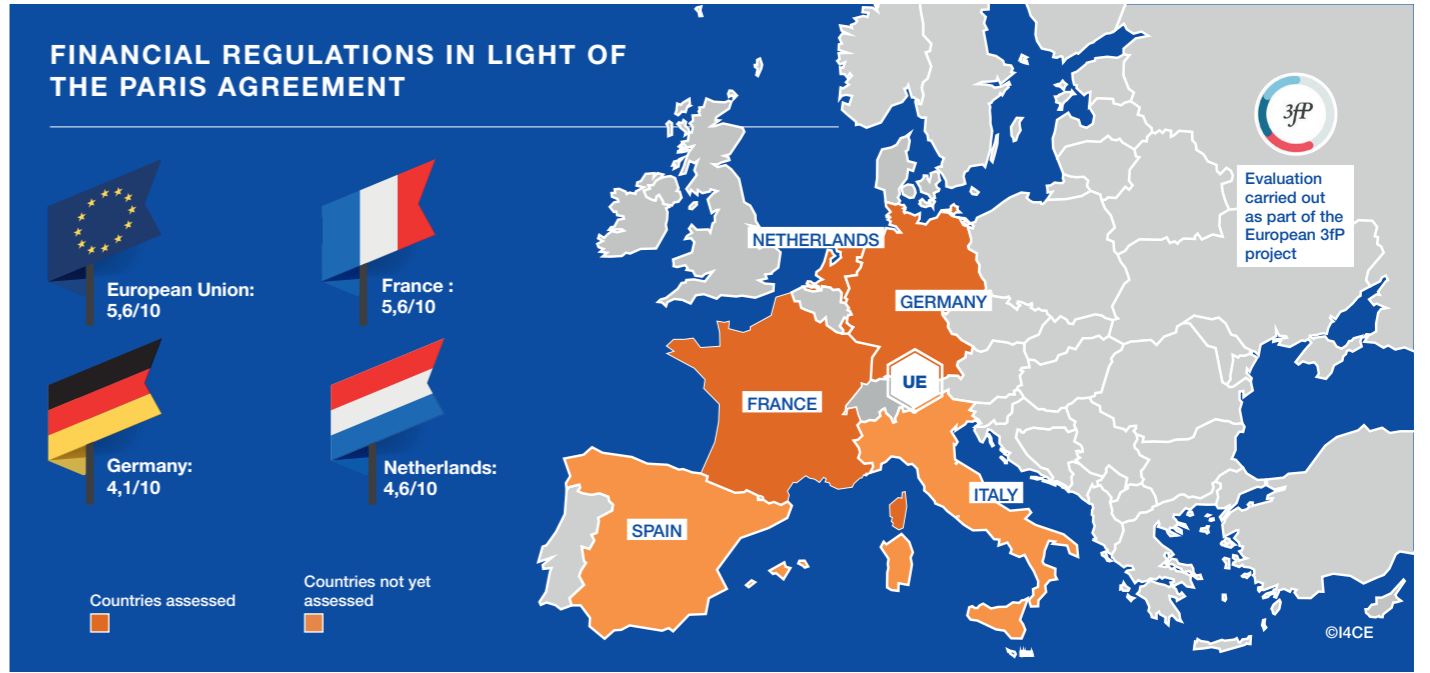
The French State has been a pioneer in this area. It set a global precedent in 2015 with Article 173-VI of the Energy Transition Law, which made climate reporting mandatory for investors. Financial regulators and supervisors such as the Banque de France, the Prudential Supervision and Resolution Authority and the Autorité des Marchés Financiers (Financial Markets Regulator) have also gradually increased their awareness of climate issues, and have started discussions with banks and insurers so they take them into account. These actions, although essential, face significant methodological challenges: how can climate-

related risks to the financial sector be measured? Which scenarios can be used to anticipate economic transformations and the impacts of climate change?

MAJOR METHODOLOGICAL CHALLENGES

Following in the footsteps of France, the European Union has continued this regulatory dynamic with its Action Plan on Sustainable Finance. However, this ambitious plan currently faces an operationalization challenge. This is illustrated in the complex “taxonomy” debates taking place in Brussels, which aim to compile a list of economic activities that can be regarded as green.

We are therefore witnessing the emergence of a regulatory framework designed to encourage investors to integrate climate issues, a development that is being hindered by many technical challenges that have not yet been solved. This technicality also poses an educational, if not a democratic, problem: civil society and the media are struggling to grasp the issue of financial regulation for the climate. Despite this, they have an important role to play in stimulating public debate.



Finance for the benefit of the climate



BENOÎT LALLEMAND
SECRETARY GENERAL,
FINANCE WATCH

“ Finance for the benefit of the climate is an imperative, a fact that is now understood by many, and France has made real political progress in this field - including regulatory advances on transparency and standards. However, there is still a long way to go in terms of a massive redirection of financial flows away from fossil fuels and towards “green” projects, we need a greater mobilization of political actors, along with those from public and private finance and also civil society. In this context, the work of I4CE is simply essential, combining a high level of expertise with an aspiration for education, networking among actors, and the creation of shared tools. The “Landscape of climate finance in France”, which has become indispensable, is exemplary in this regard.



Investors REVIEW OF REGULATIONS ON THE CLIMATE TRANSPARENCY

I4CE and WWF have reviewed Article 173-VI of the Law on Energy Transition that requires investor transparency on climate action. The study, which focused on the 17 major insurers and bancassurers in the French market, showed that reporting practices remain disappointing. Only a small number of committed pioneers are seeking to improve methodologies. The rest only conduct limited analyses and

submit information resembling compliance reports, moving away from the Law’s initial objective of increasing finance flows to the low-carbon economy. Regulatory changes along with pressure from regulators and the clarification of indicators will be essential to improve the effectiveness of the system.



FINANCING THE TRANSITION

PROVIDING INFORMATION ON CLIMATE INVESTMENTS



HADRIEN HAINAUT
INVESTMENTS PROJECT MANAGER
I4CE

Major investment in home insulation, clean vehicles, transportation networks, renewable energy and industrial processes is essential to reduce greenhouse gas emissions. What are the most straightforward and affordable solutions for financing these transformations? What contribution should public authorities make? How can we encourage and support businesses and households to accelerate their efforts?

MAINTAINING A CLEAR VISION OF THE TRANSITION'S CURRENT FUNDING AND ITS REQUIREMENTS

To answer these questions it is necessary to maintain a clear vision of investments made, of how they are currently being financed, and of the investment needs for the future. This is the purpose of the Landscape of Climate Finance project, a tool developed by I4CE. It shows that climate investments in France accounted for nearly 42 billion euros in 2017. Public authorities organise about half of their funding, while the rest was



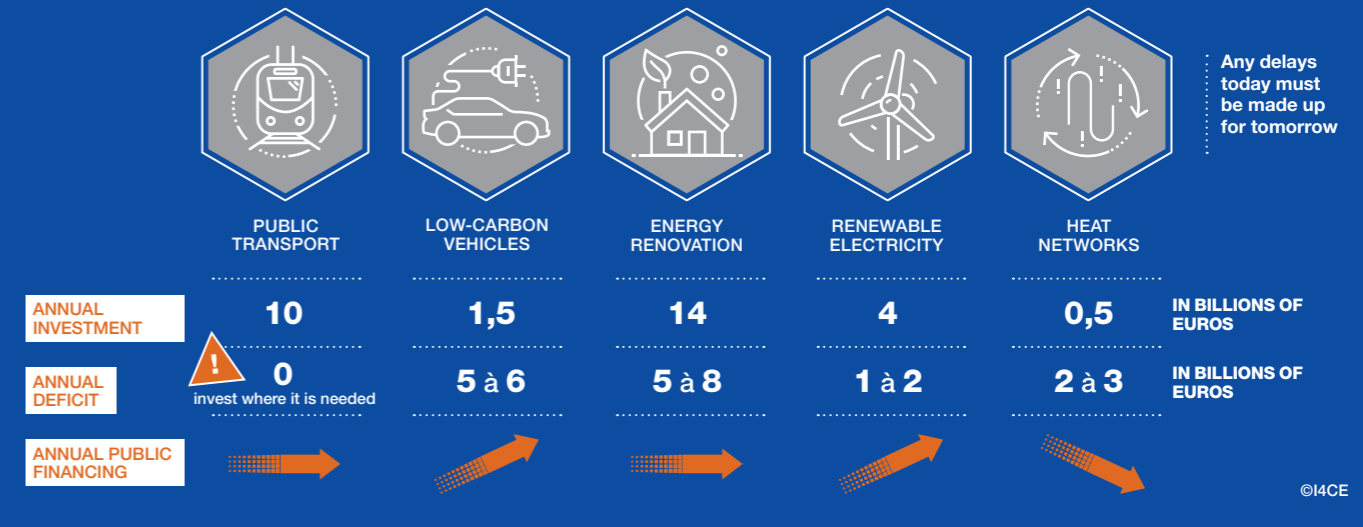
25 presentations of the 2018 edition of the Landscape of Climate Finance

initiated by households, businesses, banks and financial markets

IDENTIFYING PROBLEMS AND DEVELOPING NEW SOLUTIONS

The Landscape of Climate Finance results are presented annually to the National Assembly and the Senate. I4CE is involved in similar work elsewhere in Europe and in developing countries, the findings of which facilitate public debate. In addition, the Landscape provides a valuable framework for discussing solutions. New proposals are essential because current investments are insufficient in relation to what is needed. In France, according to the objectives set out in law, an additional annual investment of 10 to 30 billion would be necessary, half of which would be allocated to housing and household vehicles. Meanwhile fossil fuel investment, in internal combustion engines or low-performance boilers for example, continues to draw in more than 70 billion euros each year.

FRANCE: AN INVESTMENT DEFICIT BETWEEN 10 AND 30 BILLION EUROS PER YEAR



Social engineering is too often neglected



MICHEL COLOMBIER
IDDRI SCIENTIFIC DIRECTOR

“ We know that the energy transition requires the mobilization of capital to invest in infrastructure, renewable energy and energy efficiency. This is essential, but alone it is not enough. Investing also involves identifying opportunities, translating these opportunities into robust projects, raising funds, and ensuring sufficient project management. All these requirements represent multiple deterrents for transition investors, including private individuals, local authorities, SMEs and farmers. Development banks and countries aiming to join the European Union know that the most difficult problem is the mobilization and aggregation of the demand for financing. This requires a territorial presence to build networks, to appoint project leaders and to support them. For this we need people. And although the cost of this type of social engineering is low compared to the investments it would facilitate, it is too often neglected.



International THE CLIMATE FINANCE LANDSCAPE

France is not the only country to highlight the issue of financing the low-carbon transition, and the Landscape of Climate Finance is useful for all countries. For this reason, I4CE provides assistance to actors from around the world to help them make use of this tool. Such partnerships are currently ongoing in Poland with WiseEuropa and NewClimate Institute, and in Morocco with its Caisse de Dépôt et de Gestion

(Deposit and Management Fund). In addition, in 2019 I4CE and partners launched an informal European network on financing transition. This exchange forum between researchers and public decision-makers aims to support the dissemination of diagnostic tools such as the Landscape in other EU countries, and to contribute to the debate on European policies.



2018

KEY I4CE EVENTS

2018E

OCTOBRE

10/2/2018
I4CE Conference at the National Assembly on the acceptability of the carbon tax



NOVEMBER

11/21/2018
First I4CE study on climate-related financial regulation: an analysis of the effectiveness of the law on investor climate reporting

11/26/2018
Roundtable organized by I4CE at the Climate Finance Day with the Climate Action in Financial Institutions Initiative

11/27/2018
French President installs the High Council for Climate, composed of 12 experts including the Director General of I4CE

11/28/2018
Publication of the law creating the low-carbon standard. The culmination of many years of work by I4CE and its partners

LABEL BAS CARBONE

DECEMBER

12/2-14/2018
I4CE participates in the Katowice COP24, presenting its latest achievements at many side events



COP24 - KATOWICE 2018
UNITED NATIONS CLIMATE CHANGE CONFERENCE

2019

FEBRUARY

02/19/2019
Conference on financing the low-carbon transition with I4CE, France Stratégie, ADEME and the Ministry for the Ecological and Inclusive Transition



MARCH

03/04/2019
First meeting in Paris of the One Planet Lab, launched by the French President. I4CE and IDDRI provide the scientific secretariat



03/11/2019
I4CE conference at the Senate on carbon tax and climate finance

APRIL

04/23/2019
Conference for the launch of the low-carbon standard, organized by I4CE and the Ministry for the Ecological and Inclusive Transition



MAI

05/28/2019
I4CE conference to mark the publication of the first climate assessment of financial regulation in France



JUNE

06/06/2019
General assembly of the Climate Action in Financial Institutions Initiative, of which I4CE provides the scientific secretariat

Climate Action
in Financial Institutions

17/06/2019
I4CE conference on the state of the European carbon market



GOVERNANCE

BOARD MEMBERS

I4CE is a non-profit organization founded by the Caisse des Dépôts and the French Development Agency.



1

Pierre Ducret
Chair of the Board
– Climate Change
Advisor for the Caisse
des Dépôts Group

2

**Virginie
Chapron-du Jeu**
Secretary General of
the board of directors
– Director of the
Group Finances
Caisse des dépôts

3

Jean-Michel Beacco
Treasurer of the Board
– Managing Director,
Institut Louis Bachelier

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Nathalie Aufauvre
Managing Director
of Financial Stability
and Operations,
Banque de France

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Foresight and
Institutional Relationships
& Executive Management
Strategy, Partnerships
and Communication,
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and Public Policies &
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Développement,
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Dépôts et de Gestion
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8

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Deputy Head of
Economics and
Forecasting
Department, French
Environment and
Energy Management
Agency

9

Damien Navizet
Head of the Climate
Division, French
Development Agency

10

Joel Prohin
Head of the Fixed
Income Asset
Management Division,
Caisse des Dépôts



BUDGET

KEYS DATA

56

financial partners,
including **11** financial
institutions, **8** local
authorities, **31** companies,
14 European and **17** French
public bodies

2.9

million euro budget

64%

core funding, to explore
issues of universal interest



**budget transparency and our code
of conduct, see:
www.i4ce.org**

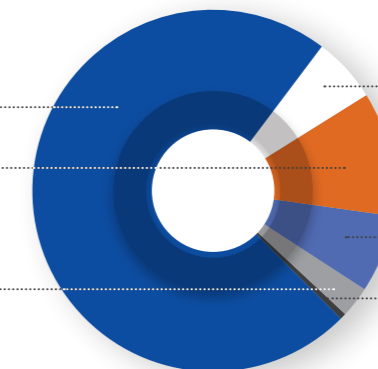
FUNDING DISTRIBUTION ACCORDING TO ORGANIZATION TYPE

Financial institutions
European public bodies
Foundations, Associations and Federations

73%

11%

3%



6%

7%

0,3%

French public bodies
Companies
Local authorities



TEAM



Thomas BONVILLAIN
Research fellow
Agriculture and Forestry



Malika BOUMAZA
Partnerships Manager



Michel CARDONA
Senior Advisor
Finance



Gabriella CEVALLOS
Research fellow
Agriculture and Forestry



Ian COCHRAN
Senior Advisor
Finance and Investment



Aurore COLIN
Research fellow
Territories



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Strategy and Communication
Director



Vivian DEPOUES
Project Manager
Adaptation



Marion DUPONT
Capacity Building Manager



Julie EVAIN
Research Fellow
Finance



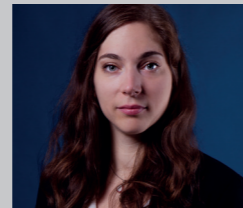
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Romain HUBERT
Project Manager
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Maxime LEDEZ
Research fellow
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Benoit LEGUET
Managing Director



Simon MORBOIS
Financial and Administrative
Director



Morgane NICOL
Director of Programmes



Alice PAUTHIER
Research Fellow
Finance and development



Quentin PERRIER
Project Manager
Taxation



Sebastien POSTIC
Project Manager Carbon
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