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# **Green OAT – Evaluation report**

## **« Investments for the future » program**

***Impacts assessment on climate change mitigation, pollution and biodiversity***

November 2021

# The Green OAT Evaluation Council

- In January 2017, France issued its first sovereign green bond (OAT 1.75% 25 June 2039) and committed to publishing several reports to the benefit of citizens, investors and the civil society:
  - An annual allocation and performance report (June 2018, July 2019 and July 2020);
  - Impact reports assessing the ex-post environmental benefits of expenditures associated to the Green OAT. The Evaluation Council of the Green OAT is in charge of supervising and publishing the latter reports.
- The Council is chaired by Mr. Manuel Pulgar-Vidal, former Minister of Environment of Peru, president of the COP20 and head of the WWF Climate and Energy Practice, with eight other independent members, experts in green finance or public policies evaluation.
- The French ministry of Ecological Transition and that of Economy, Finance and the Recovery are jointly in charge of the Council's secretariat.
- The first report (2018) evaluated the Energy Transition Tax Credit (CITE), the second one (2019) focused on the French Waterways and the third one (2020) on the National Forestry Commission of France.
- The present report, which deals with the « Investments for the Future » Programme, is the fourth report submitted to the Council.



## Evaluation process

- The evaluation of the Investments for the Future programme had to comply with the specifications set out by the Council, in March 2020, with the support of the Secretariat. These terms of reference are available for consultations on the AFT website. The Council discussed interim reports in June 2020 and November 2020.
- The Commissariat Général au Développement Durable was commissioned to carry out the evaluation study.
- The Council appointed two scientific personalities as independent referees. The final version of the evaluation report takes their comments into account.

➤ **Virginie Boutueil** is a researcher at Ecole des Ponts ParisTech. Her research in the field of mobility socioeconomics focuses on innovative mobility solutions (including electric mobility solutions and shared mobility solutions), digital transformation of mobility, and related public policies. She is the Deputy-director of the City Mobility Transport Lab (LVMT), the Deputy-director of the Sustainable Mobility Institute Renault-ParisTech (IMD), and a Member of the US Transportation Research Board's Standing Committee on Alternative Transportation Fuels and Technologies.



➤ **Patrick Criqui** is a senior researcher emeritus at CNRS, and works on the economics of energy transition and climate policies with the Grenoble Applied Economics Laboratory. He was a lead author in IPCC's Working Group 3 (collective Nobel Peace Prize in 2007). In the wake of the Paris Agreement, he is currently working on the monitoring of national Deep Decarbonisation Pathways. A member of the Economic Council for Sustainable Development by the French Minister of Ecology since 2008, he was an expert on Scenarios for the National Debate on Energy Transition (2013) and for the National R&D Strategy, on energy issues (2014). Since 2015, he has been a member of the Expert Committee for the Energy Transition, in charge of the monitoring of the National Low-Carbon Strategy (2015-2018) and Multi-Annual Energy Programme.



# « Investments for the Future » Programme (Programme d'Investissements d'avenir - PIA)

- The French State set up the “Investments for the Future” Programme (PIA – Programme d'Investissements d'Avenir) in 2009 to fund innovative and transformative business projects with a view to overhauling our growth model by improving competitiveness for France and driving the transition to a more sustainable model. Since 2009, the PIA has awarded €57bn to companies or entities in three successive rounds: PIA 1 from 2010 to 2014 (€35bn), PIA 2 from 2014 to 2017 (€12bn), and PIA 3 from 2018 to 2021 (€10bn).
- The French Secretariat General for Investment (SGPI – Secrétariat général pour l'investissement), a department of the Prime Minister's Office, is responsible for the overall management of the programme and reports quarterly to the French Parliament. The SGPI has delegated operational management to 12 public institutions.
- Among these 12 public institutions, the French Ecological Transition Agency (ADEME – Agence de la transition écologique) is the main operator in the field of environmental and energy transition. The PIA operated by ADEME from 2010 to 2019 has funded 705 projects during its three successive rounds, included 398 where funding has now been completed.

The “Investments for the Future” programme is broken down into a range of different initiatives forming part of France's priorities for its innovation-related public policies. This evaluation report focus on assessing the impact of two PIA initiatives operated by ADEME and eligible for Green OAT funding :

- The “Innovative pilot projects for the energy transition” and the “Vehicles of the future” initiatives from PIA 1 and PIA 2.
- These two initiatives were selected for assessment as the required data were readily available following on from an ex-post survey conducted by ADEME.

# Objectives of the evaluation

The objective of the study is to evaluate the impact of the “Investments for the Future” Programme contributions to :

- **climate change mitigation**
- **pollution reduction**
- **biodiversity protection.**

The climate change adaptation objective is not taken into account in this assessment, as ADEME stipulates that it is not an initial objective of the portion of the PIA that the institution manages.

<u>Initiatives</u>	Mitigation	Adaptation	Pollution	Biodiversity
Innovative pilot projects for the energy transition	X		X	X
Vehicles of the future	X		X	

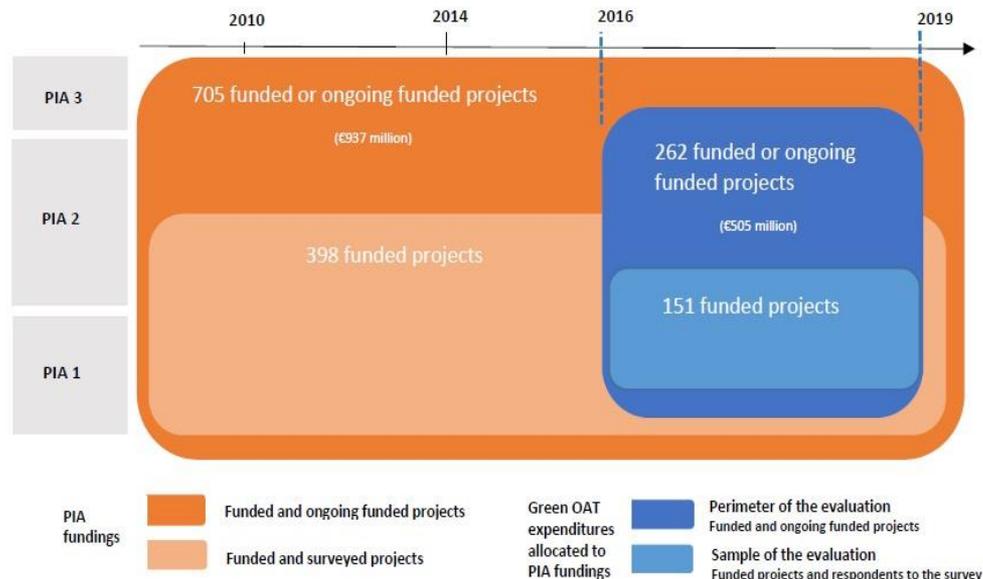
*Green OAT criteria assessed for each initiative*

## Data availability

This evaluation is conducted using data from **ADEME's ex-post survey** on projects funded, which was carried out in **2019**. This survey allows to collect financial, social, economic and **environmental data**. These data are based on the **project leaders' own statements and estimates of their potential future environmental impacts**, since many of them may not have completed the development and marketing of their innovation at the end of the PIA financing.

The 2019 ADEME online survey was submitted to the 398 projects funded from 2016 to mid-2019 and allows to **collect answers for 151 projects** representing:

- 57% of the projects in the two PIA initiatives operated by ADEME and matched to Green OAT expenditure.
- 36% of the amount allocated by the Green OAT to the PIA operated by ADEME.



**Green OAT expenditures evaluation scope for PIA**

# Assessment methodology

The methodologies chosen for this evaluation **are based on recognised methods** and a preliminary in-depth literature review of evaluation methods, performed by Mines Paris Tech in 2014, and thus validate the impact assessment, which is based on low data quality and a limited sample of projects assessed. In light of methodologies identified and enabled by data availability, the evaluation has defined **three key evaluative questions**:

- **the relevance** of the objectives of the PIA with national and European trajectories in terms of the ecological and energy transition evaluated, based on a qualitative comparison with French low-carbon national strategy (SNBC) and with the European Taxonomy for climate change mitigation objective, with air and water laws and with French Biodiversity plan.
- **the additionality** of the PIA, based on a comparison of projects environmental performance with their reference solution
- **the efficiency** of the PIA based on a cost-effectiveness analysis

The evaluation team provides evidence of the relevance and additionality of the PIA for the three environmental objectives: climate change mitigation, pollution reduction and protection for biodiversity. Additionally, as a result of higher data availability on climate change mitigation, the efficiency of the PIA can be assessed on this objective.

**The evaluation team has also developed a project typology with a view to better taking into account the broad diversity of projects** in this analysis and facilitate comparison between the impacts of the projects. The aim is to better identify the connection between the sectors or types of innovation and their contribution to each environmental objective, while also better understanding the variations in projects' quantitative impacts in terms of climate change mitigation. This typology backs up the assessment of the additionality and efficiency of the PIA's projects.

# Main conclusions of the report

Based on the above-mentioned methodology, it was possible to find that the « Investments for the Future » Programme has a positive effect on:

- **Climate change mitigation**, as:
  - The PIA's objectives align with the goals set out in the French National Low-Carbon Strategy.
  - It is not possible to fully assess whether projects are aligned with the EU Taxonomy for this objective. However, based on information provided by ADEME's, 79% of the PIA projects equate to activities that are covered by the EU Taxonomy. The fact that the remaining 21% of projects are not covered by the Taxonomy does not indicate that these projects cannot contribute to climate change mitigation, but rather that they are not related to the 88 economic activities responsible for 80% of the greenhouse gases covered by the Taxonomy.
  - According to project leaders' estimates, 77% of project are additional on this objective
  - Due to a lack of data and insufficient reliability for the quantitative results obtained, it is difficult to analyse the cost-effectiveness of the PIA. However, a small sample (17 projects) of the projects assessed shows that the projected average abatement cost (€72/tCO<sub>2</sub>-eq) is lower than the national climate change mitigation reference value (250€/tCO<sub>2</sub>-eq).
- **Pollution reduction**, as :
  - In terms of air and water pollution the PIA objectives comply with French legislation
  - According to project leaders' estimates, 50% of projects funded are additional in terms of air quality and 1/4 of the projects report a positive impact on water pollution while a large majority of projects are neutral in this respect.
- **Biodiversity protection**, for the the "Innovative pilot projects for the energy transition" initiative, as :
  - The objectives for this initiative align with the goals set out in the French national Biodiversity Plan
  - According to project leaders' estimates, 26% of funded projects are additional on this objective.

# Recommendations for ADEME's future programmes

The study identifies areas for improvement in the quality and quantity of data for the ADEME's future programmes, such as :

- Providing guidelines to project leaders on the required information, i.e. how to define the reference solution
- Integrating a multi-criteria methodology to analyse the various environmental objectives at the same time should also be defined.
- Exploring ways to ensure that quantitative impact data – and if possible independent data – are more systematically provided.
- Harmonising the ex-ante and ex-post survey methodologies
- Collecting information required by the Taxonomy from the project leaders and stored in an operable database. It should be noted that data required by the Taxonomy on these projects are not available in the current state of ADEME's data collection system and subsequently could not be made available for this assessment: the primary objective for ADEME's 2019 survey was to conduct a socio-economic assessment and not an analysis of the alignment of projects with the Taxonomy, which did not exist at the time the survey was conducted.

# Opinion of the Evaluation Council

- The Green OAT Evaluation Council welcomes the evaluation, and notably the qualitative estimate of the contribution of PIA actions to climate change mitigation, pollution reduction and biodiversity protection and the quantitative estimate of the contribution of these two initiatives to climate change mitigation. The general study is rounded out by four case studies that present four of the funding projects in detail.
- This evaluation is part of the general effort to improve reporting practices in the green bond market. It provides an analysis of the PIA projects' alignment with the European Taxonomy on the "climate change mitigation" objective and explores impact evaluation in the field of innovation, an area where very few impact reports have been published so far.
- The quality of the evaluation meets current academic standards. The Green OAT Evaluation Council is satisfied with the methodology of the report, despite sizable constraints in terms of data availability. The evaluation team used a set of up-to-date methodologies, notably using a study by Mines ParisTech, to assess as thoroughly as possible the environmental impact of the two initiatives. However, the Council took note of the lack of robustness of the data made available to the evaluation team: the validity of the data – collected ex-post and based on self-assessments by projects' leaders – is limited, as they have not been verified and validated by ADEME. Consequently, the Council approves the important recommendations made by the evaluation team to ADEME, with a view to improving data quality in future PIA evaluations.
- The transparency and independence of the evaluation process were verified by independent experts.
- The Green OAT Evaluation Council endorses the main results of the PIA evaluation and notes in particular that the associated expenditure contributes to the achievement of France's objectives in terms of climate change mitigation, pollution reduction and biodiversity protection.



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