Eco-innovation in France

EIO Country Profile
2014-2015
The Eco-Innovation Observatory functions as a platform for the structured collection and analysis of an extensive range of eco-innovation information, gathered from across the European Union and key economic regions around the globe, providing a much-needed integrated information source on eco-innovation for companies and innovation service providers, as well as providing a solid decision-making basis for policy development.

The Observatory approaches eco-innovation as a persuasive phenomenon present in all economic sectors and therefore relevant for all types of innovation, defining eco-innovation as:

“Eco-innovation is any innovation that reduces the use of natural resources and decreases the release of harmful substances across the whole life-cycle”.

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Any views or opinions expressed in this report are solely those of the authors and do not necessarily reflect the position of the European Commission.
Eco-Innovation Observatory

Country Profile 2014-2015: France

Authors: Olivier Mallet, Carlos Hinojosa - Technopolis Group

Coordinator of the work package: Technopolis Group Belgium
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Michel Franz, Head of Eco-technologies and Competitiveness office, Ministry of Ecology, Energy and Sea (MEEM)

Hélène Barthelemy, Innovation Deputy Director, Ministry of Ecology, Energy and Sea (MEEM)

A note to Readers

Any views or opinions expressed in this report are solely those of the authors and do not necessarily reflect the position of the European Union. A number of companies are presented as illustrative examples of eco-innovation in this report. The EIO does not endorse these companies and is not an exhaustive source of information on innovation at the company level.

This brief is available for downloaded from https://ec.europa.eu/environment/ecoap/france
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Summary

France is a major European player in the field of eco-innovation, and possesses a strong track record in environmental regulation and support schemes – targeting both public and private actors (including individuals). This is illustrated by its strong ranking in the 2015 Eco-Innovation Scoreboard (seventh among the 28 EU Member States). However, France still falls behind a number of front-runners such as Denmark, Ireland or Finland, particularly due to limited energy and water productivity and limited green early-stage investments.

The main environmental challenges France is facing relate to the quality of water and air, and the management of biodiversity. Increasing levels of resource efficiency, particularly energy efficiency, in key sectors such as transport and building are also key priorities.

The most important eco-innovation areas in France are linked to network and network management industries, and more specifically water management and sanitation, waste management, and environmental engineering. These sectors are well organised around very large international firms that are also major aggregators of innovations.

However, eco-innovation in France does not come only from these international firms. Since 2010, a group of clusters, focusing on environmental technologies, have supported the creation of innovative local networks of SMEs and large companies based around different eco-innovation-related issues, such as water management, waste management, energy efficiency, renewable energies, smart cities and smart transport. These clusters act as a major testbed for the emergence of eco-innovations, and help bring together public and private partners around common issues.

In addition to these clusters, national and regional support to eco-innovation and the circular economy is strong. At the national level, a number of dedicated calls for projects have been set up in recent years, complementing existing support measures such as eco-innovation equity funds or tax incentives focusing on the demand side of eco-innovation. At the regional level, 20 out of the 22 (former) metropolitan regions have at least one strategic domain of their Regional Smart Specialisation Strategy directly related to eco-industries.

The main barrier for eco-innovation in France has to do mainly with public procurement: existing rules do not encourage public and government organisations to purchase highly innovative solutions, even though public procurement would be a major market for these solution providers. There is a very strong reliance on the public sector to act as a driver of innovation, as well as a provider of opportunities for demonstration of innovations. Public authorities are aware of the situation and are working towards more innovation-friendly public procurement rules.
Introduction

France is a major European player in the field of eco-innovation, and has a strong track record in environmental regulation and support schemes – targeting both public and private actors (including individuals). Due to the large share of nuclear and hydraulic electricity production, France has one of the lowest per capita CO\textsubscript{2} emission rates in Europe. However, in spite of shrinking levels of greenhouse gas (GHG) emissions (-11\% between 1990 and 2013), the total carbon footprint caused by the French population is not declining, mainly because of the reliance on imported goods and energy sources such as oil and gas (MEEM, 2015d). Moreover, the rate of reduction of GHG emissions was only approximately -8Mt per year between 2005 and 2013, while a rate of 9-10Mt per year is needed over the 2015-2050 period for the country to reach its intended target of a 75\% reduction of its total emissions by 2050.

France faces a number of challenges that have to be overcome in order to reach its environmental targets\(^1\) (MEEM, 2015d), as presented in the following table:

<table>
<thead>
<tr>
<th>Sector</th>
<th>Share of national GHG emissions</th>
<th>Main Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>28%</td>
<td>In order to reduce the footprint of this sector, technology eco-innovation is needed (energy efficiency of vehicles, low emission vehicles) as well as organisational innovation (reduction of the demand for mobility).</td>
</tr>
<tr>
<td>Building</td>
<td>20%</td>
<td>Eco-innovation is needed to retrofit out-dated buildings as well as to develop competitive new eco-designed buildings with a zero-carbon footprint.</td>
</tr>
<tr>
<td>Agriculture and forestry</td>
<td>19%</td>
<td>The challenge here is to sustain the uptake of environmentally-adapted farming and forestry techniques and practices.</td>
</tr>
<tr>
<td>Industry</td>
<td>18%</td>
<td>The challenge is to reduce the demand for imported energy and for raw materials, thanks to material and energy efficiency solutions.</td>
</tr>
<tr>
<td>Energy</td>
<td>12%</td>
<td>The core objective is to increase the share of renewable energy in the national energy mix.</td>
</tr>
<tr>
<td>Waste</td>
<td>N/a</td>
<td>The main objective is to find innovative solutions to reduce the production of waste and to increase resource recovery through recycling.</td>
</tr>
</tbody>
</table>

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\(^1\) 40\% reduction of its total greenhouse gas emissions by 2030 and 75\% reduction by 2050 (in comparison to 1990); 50\% reduction of its energy consumption by 2050 (in comparison to 2012); 32\% of energy consumption and 40\% of electricity production coming from renewable energy by 2030; 50\% only of electricity production coming from nuclear plants by 2025; 50\% reduction of waste put in landfill sites by 2025 (MEEM, 2015d)
Apart from these sectors, France also faces a number of more global environmental challenges (MEEM, 2014), as presented in the following table:

<table>
<thead>
<tr>
<th>Area</th>
<th>Main challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Surface waters and groundwater are polluted by numerous products, especially by nitrates coming from agricultural pollution. Indeed, France is one of Europe’s biggest consumers of pesticides. Marine waters are also at risk, with 80% of sea pollution originating from the land. A key challenge is to support alternative farming practices.</td>
</tr>
<tr>
<td>Air</td>
<td>Although French emissions of atmospheric pollutants are down over the period 1990-2012 for the majority of substances, numerous problems with air quality persist, especially in cities, due in particular to emissions from transport and homes.</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>Human activities threaten numerous habitats and species now in decline. France is especially concerned, as it is one of the 10 countries with the highest number of species under threat, mainly due to the pressures placed on biodiversity in the French Overseas Territories (Département et Région d’outre mer &amp; Territoire d’outre-mer – DROM &amp; TOM) and Mediterranean area.</td>
</tr>
</tbody>
</table>

The overarching challenge from a policy perspective is to support the development and uptake of all these innovations in order to reach France’s objectives, but also to support the development of French-based eco-innovative companies, by helping them to grow – i.e. gain access to private funding and international markets (Barthelemy & Franz, 2016).
1 | Eco-innovation performance

The analysis in this section is based on the EU-28 Eco-innovation scoreboard (Eco-IS) for the year 2015. Via its composite Eco-innovation index, produced by the Eco-Innovation Observatory (EIO), Eco-IS demonstrates the eco-innovation performance of a country compared with the EU average and with the EU top performers. Eco-IS is based on 16 indicators, aggregated into five components: eco-innovation inputs, activities and outputs, environmental and socio-economic outcomes.

Figure 1 EU-28 Eco-innovation scoreboard 2015, composite index

![Composite EI Scoreboard 2015](image)

Source: EIO, 2016

France is one of the EU-28 eco-innovation leaders, as illustrated in the overall 2015 Eco-IS (Figure 1). The country ranks seventh overall in the ranking of eco-innovative countries (scoring 115, with 100 representing the European average). Compared to the 2013 Eco-IS results (a score of 108), the country has gained ground. This can be interpreted as a reflection of the priority that is given to eco-innovation in France in terms of regulation, policy and support measures. However, France still falls considerably behind the top 3 EU-28 eco-innovative players: Denmark, Finland and Ireland.

Figure 2 below shows the performance of France in each of the five components of the Eco-IS composite index. France exceeds the EU average in every component of the index: eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency outcomes and socio-economic outcomes.
In comparison to 2013, France has made progress in two components – eco-innovation activities and eco-innovation outputs – where the country is now above the EU average:

- The **eco-innovation activities** index of the Eco-IS is based on the statistics of ISO 140001 certified companies and of business innovation activities aimed at material efficiency and energy saving. While France scores below the EU-28 average (56 compared to 100) for ISO 140001 certified companies, it scores well above the EU-28 average (143 and 132 respectively) for business innovation activities aimed at material efficiency and energy savings. This is mainly the product of the influence of regulations and tax incentives as major eco-innovation drivers in France – more than standardisation. As a result, France has now moved above the European average in this field as opposed to its situation in 2013;

- The **eco-innovation outputs** index is based on eco-innovation-related patents, publications and media coverage. France scores well below the EU-28 average for eco-innovation-related publications, showing the relative weakness of the French academic fundamental research community on these issues. However, France performs well above average for eco-innovation related patents, reflecting the innovation potential of French actors – particularly industrial ones – for eco-innovation.

The country remains a firm front-runner in terms of socio-economic outcomes, as illustrated by its third place ranking just behind the Czech Republic and Slovenia. France comes in second in terms of employment in eco-industries (share of total employment across all companies). This is mainly due to the strong position of major French companies in the following sectors: water management and sanitation, waste management and environmental engineering (Barthelemy & Franz, 2016).
France exceeds the EU average for eco-innovation inputs, thanks to the significant share of its GDP dedicated to energy and environment R&D and a significant number of R&D personal and researchers. It also exceeds the EU average for resource efficiency outcomes, mainly because of its relatively low GHG emissions intensity.

2 | Selected circular economy and eco-innovation areas and new trends

The most important eco-innovation areas in France are linked to network and network management industries, and more specifically water management and sanitation, waste management and environmental engineering. In these specific fields, France holds a strong international position, thanks to the existence of several major international firms such as Veolia (water management, waste management and energy services), Suez (water, electricity and natural gas supply, and waste management) or Saint-Gobain PAM (water management and waste management). These firms represent a very large share of eco-industry production in France (Barthelemy & Franz, 2016), and benefit from a very strong presence throughout the entire French territory.

However, despite the fact that these sectors are structured around a small number of very large players, eco-innovation appears to come from a much broader range of both large and small firms. Indeed, large companies often rely on a strong network of SMEs as a source of innovation. These networks tend to be organised around national “competitiveness” clusters – such as Hydrea, EAU or DREAM (focusing on water management), or Axlera or Team2 (focusing on waste management, recycling and recyclability) – or regional clusters such as the Cd2e cluster located in the northern Hauts-de-France region (MEEM, 2012). This has helped strengthen the position of French companies and filières at the national and international level; e.g. exports in secondary raw materials underwent a 4% yearly increase between 1999 and 2015 (MEEM, 2016).

Eco-innovation is gradually transforming what are generally perceived as “traditional” sectors (e.g. water management) into smarter and more cutting-edge industries. This is illustrated for example by the integration of Information and Communication Technologies (ICTs) – such as sensors for pollution measurement or the use of climate-related big data for water management (Barthelemy & Franz, 2016). Innovation is no longer only about developing more robust and efficient infrastructure, but it is also about generating information and data that allows for better management of these systems and networks.

In addition to water management and sanitation, waste management and environmental engineering, additional noteworthy innovation trends include the following:

• Thanks to major European energy providers (such as EDF or Engie) as well as infrastructure companies (e.g. Alstom) and new innovative SMEs, the share of renewable energy within the national energy production mix has steadily increased – from 7.5% in 2011 to 9.4% in 2014 (CGDD, 2015). In 2014, the total national production of renewable energy was up to 22.4 Mtoe (million tonnes of oil equivalent – MEEM, 2015a). This has led to growth in the
turnover of the renewable energy industries to €15,400 million in 2012, an increase of +6.9% in one year (MEEM, 2015).

- The sector of low-impact buildings is also strong in France, with international companies in the construction sector, such as Vinci, Bouygues or Saint-Gobain, which are working to develop new solutions for low-impact building and retrofitting activities. The 2015 “Energetic Transition for Green Growth” Law has set very ambitious objectives in this area: it targets 500,000 housing retrofitting projects on a yearly basis and establishes an obligation for all new buildings to comply with the BBC standard (for ‘Low Energy-Consumption Buildings’) by 2050 (MEEM, 2015b). In this context, the newly created RDI Institute for Energy Transition (INEF4) is supporting open-innovation programmes in the field of eco-building and retrofitting activities and should support the development of these eco-activities and eco-companies (INEF4, 2016). It brings together a Technology Institute focusing on wood and building (Institut Technique FCBA: Forêt, Cellulose Bois-construction Ameublement – FCBA), large multinational companies (Engie, EDF, Vinci), private R&D centres such as Nobatek, and public HEIs (Higher Education Institutions) and PROs (Public Research Organisations).

- Equity investments in cleantech show emerging new trends in France: between 2010 and 2015, investments have shifted from the renewable energy sector to the circular economy (industrial biotechnologies, waste and industrial ecology, and water and biodiversity) and energy efficiency (AFIC, 2015).

In the field of the circular economy, French stakeholders’ activities mostly target science and technology activities in the field of recycling. Activities regarding other aspects of the circular economy, such as organisational innovation or business model innovation are more limited and should be addressed in the short term. Most of the innovative projects in this area are channelled through the national “Investment for the Future” programme (Programme d’Investissements d’Avenir – PIA) and clusters’ R&D projects (Barthelemy & Franz, 2016).

Qarnot Computing

Qarnot Computing is a French company that provides an innovative cloud-based high-performance computing (HPC) service. The eco-innovation comes from the location and form of the data centres: Qarnot Computing has developed mini data centres that can be installed in any building (including individual households). These data centres are called digital heaters, as they are also used to provide heating – thus preventing the waste of the heat created by data centres. Qarnot Computing’s cloud service distributes HPC workloads on the digital heater farm and provides a state-of-the-art cloud service for companies. This provides an eco-innovative solution for smart buildings and eco-buildings and contributes to the development of the circular economy in the digital sector.

The company was incubated at Telecom ParisTech, a Paris-based Engineering School. In 2013, Qarnot Computing won the European Climate-KIC Venture Competition for France.

Keywords: ICT, cloud computing, energy efficiency

Link: http://www.qarnot-computing.com/fr/about-us

Source: http://www.qarnot-computing.com/fr/about-us
The objective of the MONIGEP project was to develop new solutions for distant monitoring of green roofs. Green roofs are used as a solution to reduce the need for cooling systems for buildings, but also to manage rainwater and to improve biodiversity in urban areas.

MONIGEP led to the creation of a new system for distant monitoring of green roofs, based on weather and rain forecast data – hence allowing a smart use of natural resources and improving the efficiency of such roofs.

The project received the 2015 French National Institute for Intellectual Property’s (INPI) Design Award during the COP21 in Paris, in December 2015, as part of the COP21 “Solutions” Exhibition. The company leading the project, LE PRIEURE, is part of the DREAM competitiveness cluster, which focuses on smart water management.

Keywords: water management, green roof, resource efficiency, eco building


3 | Barriers and drivers to circular economy and eco-innovation in France

Eco-innovation and circular economy drivers

France benefits from a substantial regulatory and policy framework that supports and promotes eco-industries, eco-innovation and the circular economy. For instance, the 2015 “Energy Transition for Green Growth” Law complements existing support instruments (including RDI-support instruments) and regulations regarding environmental protection, in order to i) accelerate the reduction of France’s energy needs and ii) increase the share of renewable energy in the national energy mix. This law specifically targets eco-innovation, with measures aimed at increasing innovative green public procurements and taking into account eco-innovation in different public policy areas (transport, construction, etc.). It also introduces measures targeted at reducing planned obsolescence.

In recent years, France has heavily invested in RDI programmes, infrastructures and institutes with the intention of supporting the development of eco-innovative companies and solutions. The PIA programme, for example, targets the energy transition as one of its main priorities. Between 2010 and 2015, it dedicated €2,850 million to clean energy and circular economy (CGI, 2015). It has also put in place dedicated financial instruments in support of companies engaging in eco-activities, such as the Ecotechnology Fund, run by the French Public Investment Bank, Bpifrance. These complement existing measures supporting the development of public-private partnerships in research, development and innovation – RDI (such as 71 “competitiveness” clusters – with some fully dedicated to eco-innovation and circular economy) and fiscal schemes supporting investments in R&D. Competitiveness clusters and other public-private partnerships allow companies to join strong local networks (involving SMEs, young innovative companies and public research laboratories) to develop innovative products and gain access to international markets. They also provide a space to bring together SMEs, OEMs and other final clients of eco-innovations such as public authorities. The national industrial policy (Nouvelle France Industrielle – NFI) also sets priorities for both public and private actors, with the aim of concentrating public and private funding in support of the emergence of a set of innovative solutions within a five-year timespan. It includes a specific focus on eco-innovation and circular economy, such as use of new resources, sustainable cities and green mobility (DGE, 2015).

The country also benefits from a mature R&D system, with leading PROs, a good level of public and business R&D expenditures and large numbers of qualified experts (OECD, 2014). Private R&D comes from leading international firms with high innovation capacities (see Section 2), as well as from smaller high-growth firms. These companies use eco-innovative solutions both in France and internationally (COSEI, 2012).

In the field of circular economy, the main drivers for innovation are public RDI programmes (such as PIA and competitiveness clusters). These programmes mostly focus on technology-related issues, and less on the other aspects of innovation (regulation, acceptability, new business models, etc.), even though these dimensions are considered as central for the development of the circular economy (Barthelemy & Franz, 2016).
Eco-innovation and circular economy barriers:

A major barrier to the development of eco-innovation and the circular economy in France is the difficulty in modifying public procurement procedures and practices. The French Ministry in charge of the environment has identified this as a major issue, due to the strong reliance of eco-industries on public procurement and the public sector as the final destination of their products and services (waste management, water and other resource management, etc.). Public stakeholders are working on solutions that would provide legal security for public procurers to purchase innovative solutions and for solution providers to gain access to major public markets (MEDDE, 2016).

In the field of circular economy, two other barriers have been identified:

- Companies that use circular economy principles often face higher production costs, even though their products have a more limited impact on the environment. An ongoing reflexion at national level is addressing this issue, with the idea of reducing labour costs for such companies (Barthelemy & Franz, 2016);

- The ADEME (French Environment and Energy Management Agency) and the French Circular Economy Institute, a public-private think tank working on raising awareness on the issue (among others) are also working on the social acceptability of products based on circular economy principles (ADEME, 2015). There are still important issues to be dealt with when it comes to buying new products made out of recycled materials for instance.

France is also facing other barriers that are not specific to eco-innovation:

- France, in common with other European countries, is still recovering from the financial crisis and has to face high debt levels, which limit its capacity to finance major programmes – including in the fields of eco-innovation and circular economy. This adds to the more “traditional” difficulties of France and other European countries, where financial and regulatory systems have limited capacity to support and help grow a sufficient number of “young leading innovators” (France Stratégie, 2016);

- Another major barrier for (eco-)innovation is the complexity of the French innovation support system, with more than 60 support measures at national level – and more at regional or local level (France Stratégie, 2015).
4 | Policy landscape: towards the circular economy in France

The French central government has strongly supported the development of eco-industries, eco-innovation and the circular economy over the last decades, by deploying a number of policy initiatives and programmes, such as the following:

• **Support to a large public-private partnership** (COSEI) dedicated to identifying barriers to the development of French eco-industries and developing a strategy in support of eco-innovation – regulation, fiscal incentives, public procurements, etc. (MEDDE, 2015c)

• Adoption of **regulation, fiscal incentives and special tariffs** related to different eco-industries (building, transportation, water treatment, etc.), e.g. the General Tax on Polluting Activities (TGAP)

• Support to eco-innovation and R&D programmes, including circular economy.

At national level, the main policies are as follows:

• **Eco-tech competitiveness clusters**: 14 out of the 71 French competitiveness clusters are part of the “Ecotech network”. These clusters support private-public innovation partnerships and aim to develop solutions for the sustainable development of industries and society (MEEM, 2012). Even though these 14 clusters focus on different eco-technologies, they have common targeted sectors: eco-efficient cities, environmental impacts, sustainable mining, secondary raw materials and the circular economy, eco-efficient industry and metrology.

Over the last five years, these clusters have contributed to the development of new technologies and solutions – especially thanks to the use of ICT technologies for eco-industries (Barthelemy & Franz, 2016).

• **“Investment for the Future” Programme (PIA)**: one of the main priorities of the “**Investment for the Future**” Programme is the energy transition. The PIA finances RDI programmes (including demonstrators), infrastructures and institutes as well as financial instruments (mainly equity and loans) for innovative projects that target different eco-industry-related issues, with the objective of supporting companies’ growth. By 2015, the PIA had dedicated €2,850 million to clean energy and circular economy (CGI, 2015).

Among other things, the PIA has supported the establishment of several Institutes for energy transition. They gather a limited number of (mostly large) companies and public laboratories on a specific subject related to eco-innovation: bio-sourced materials, eco-buildings, energy efficiency, eco-technologies and biomass-based plant chemistry. They complement competitiveness clusters as they target more long-term innovation.

• **New Industrial France (Nouvelle France Industrielle)**: in May 2015, the government announced nine “French Industrial Solutions”, which conformed to France’s **industrial policy priorities**. Among these, some focus on new resources (new bio-based and recycled materials for industrial productions), sustainable cities (smart grids, building renovation, circular economy), green mobility (including electric cars, cars consuming less than
2 l/100km, electric charging stations, life-long batteries), transport for the future (faster trains, ecological ships and hybrid planes) etc. (DGE, 2015).

- **“Energy Transition for Green Growth” Law:** in 2015, the French Parliament passed the “Energy Transition for Green Growth” Law (2015b). This law set ambitious goals regarding CO₂ emission cut, energy consumption cut, fossil energy consumption cut and use of renewable energy. It targets the following sectors: (eco-)buildings, clean public and private transport, circular economy and renewable energies. It includes a mix of regulations, tax incentives (e.g. tax break for energy-related improvements in households), support to RDI programmes and dedicated green financial instruments (e.g. green private equity funds). This law does not only target companies, but also citizens (e.g. tax break for retrofitting activities at individual level) and public bodies (support to the development of green public procurement).

These policy measures complement existing support schemes, including schemes that are not fully dedicated to eco-innovation but target innovation as a whole. For instance, the Public Investment Bank (Bpifrance) is a major player for innovation support, with different dedicated financial instruments (grants, loans, equity funds, etc).

ADEME, the French Environment and Energy Management Agency, is placed under the authority of the Ministry in charge of the Environment. It plays a major role for supporting circular economy at national level, through the following activities (ADEME, 2015):

- Promotion and support to sustainable professional purchase in public and private sectors – such as national working group, tool boxes, support to local networks/ sector networks, etc.
- Eco-design: support to standardisation and regulation activities at national and international level, support in the form of studies to clusters and networks dedicated to eco-design, individual support to companies
- Resource-efficient industrial production: studies, awareness-raising communications, toolboxes and methods for energy audits in factories, training sessions, R&D support programmes, etc. – e.g. “Eco-efficient agriculture and industries”, focusing on two sectors: agriculture and wood industry;
- Industrial and territorial ecology: R&D programmes at regional level, development of toolboxes for regional and industrial stakeholders, etc.
- Recycling: R&D support programmes (ADEME is one of the main funding agencies supporting R&D in the field of recycling, through support to collaborative projects and doctoral studies.

At the regional level, local authorities are also supporting eco-innovation and circular economy. 20 out of the 22 French metropolitan regions that drafted a Regional Smart Specialisation Strategy have at least one Strategic Domain that is linked with eco-innovation (CGET, 2015): resource management, sustainable public transport, renewable energy, eco-construction, recycling, green chemistry, etc. These regions are thus dedicating European Regional Development Fund (ERDF) resources to supporting R&D and innovation projects in these fields. 2014-2020 ERDF Operational Programmes are also use in different regions to support financial instruments that specifically target eco-innovation (e.g. in Paris Region or in Nord Pas de Calais).
These new instruments complement existing ones. Over the years, most regions have indeed developed innovation and R&D support schemes, which encompass eco-innovation as well. Moreover, regional authorities are partners of the French ministries in supporting competitiveness clusters – including eco-tech clusters; and some regions also support local clusters dedicated to eco-innovation (such as the Eco Energies cluster in Rhône-Alpes, dedicated to eco-building or CD2E in Hauts-de-France, dedicated to eco-technologies).

City councils can also support eco-innovation. For instance, Paris is funding a programme that gathers incubated start-ups and large companies, with the idea of supporting the growth of innovative companies in the field of smart and sustainable cities (Paris&Co, 2016).

**Green Tech Incubator**

In February 2016, the Ministries in charge of the Environment and of the Digital Economy launched a new call for projects – the Green Tech. The idea is to support the development of start-ups that use ICT solutions for eco-innovation. 50 start-ups will be awarded with €150,000 – with up to €500,000 for the most promising – and will integrate the Green Tech Incubator, a business incubator focusing on helping eco-innovative companies to grow. These companies will benefit from a dedicated mentoring and access to different data sets produced by the Ministry in charge of the Environment.

The Ministries have identified the following themes as priorities for the first call: energy efficiency, renewable energy, eco-building, transports, risk management, circular economy, environment and health, and biodiversity.

**Keywords:** greentech, start-up, ICT-enabled eco-innovation, incubator

**Website:** [http://www.developpement-durable.gouv.fr/GreenTech-les-technologies-vertes.html](http://www.developpement-durable.gouv.fr/GreenTech-les-technologies-vertes.html)

**Call for projects – Circular Economy, recycling and waste transformation**

As part of the “Investments for the Future” Programme, ADEME launched in September 2015 a call for projects dedicated to circular economy, recycling and waste transformation. The objective is to support technology and/or organisational innovations, as well as innovative industrial solutions related to these issues, especially in relation to the following topics: eco-design, re-use,
recycling, transformation of recycled materials, recycling centres, recycling of plastic and composites, and waste from construction work.

This call for projects targets projects with a budget of at least €2 million, from individual companies or from consortia (with a company as a leader).

Support from ADEME comes as grants and repayable advances – in case of success of the project.

**Keywords:** research and innovation, circular economy, collaborative projects, recycling, waste management


**Source:** [http://www.ademe.fr/recherche-et-innovation](http://www.ademe.fr/recherche-et-innovation)
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Phone Interview, 2016, Michel FRANZ & Hélène BARTHELEMY 29/3/2016
# Annex: Policy measures addressing circular economy and eco-innovations in France

<table>
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<tr>
<th>Group of policy measures</th>
<th>Type of policy measure</th>
<th>Specific measure</th>
<th>Focus of policy measure (tick if relevant)</th>
</tr>
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<tr>
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<td><strong>Please provide reference to or brief summary of specific measures (national, regional)</strong> add cells if necessary</td>
<td><strong>Circular economy</strong></td>
</tr>
<tr>
<td>Equity/business support</td>
<td>Publicly co-funded venture capita funds</td>
<td>Ecotechnologies Fund (<a href="http://www.bpifrance.fr/Bpifrance/Nos-metiers/Fonds-propres/Fonds-directs-Bpifrance/Capital-Innovation/Ecotechnologies/FPCI-Ecotechnologies">http://www.bpifrance.fr/Bpifrance/Nos-metiers/Fonds-propres/Fonds-directs-Bpifrance/Capital-Innovation/Ecotechnologies/FPCI-Ecotechnologies</a>): this €150m fund invests (between €1m and €10m) in innovative SMEs that cover the following areas: new renewable energies, green chemistry, circular economy, smart grids, vehicle of the future.</td>
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<td></td>
<td>Public guarantee funds</td>
<td>GEODEEP: Guarantee fund for geothermal power plant projects (<a href="http://www.presse.ademe.fr/2015/03/geodeep-un-fonds-de-garantie-pour-accompagner-le-developpement-de-la-geothermie.html">http://www.presse.ademe.fr/2015/03/geodeep-un-fonds-de-garantie-pour-accompagner-le-developpement-de-la-geothermie.html</a>)</td>
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<tr>
<td>Support for R&amp;D in public sector and industry</td>
<td>R&amp;D funding</td>
<td>ADEME offers a range of R&amp;D funding schemes, on different eco-innovation subjects (<a href="http://www.ademe.fr/actualites/appels-a-projets">http://www.ademe.fr/actualites/appels-a-projets</a>)</td>
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<td>Collaborative grants</td>
<td>ADEME offers a range of R&amp;D funding schemes for collaborative projects, on different eco-innovation subjects (<a href="http://www.ademe.fr/actualites/appels-a-projets">http://www.ademe.fr/actualites/appels-a-projets</a>)</td>
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<tr>
<td>Fiscal measures</td>
<td>R&amp;D infrastructure</td>
<td>Tax incentives for R&amp;D and start-ups</td>
<td>Tax incentives for R&amp;D personnel</td>
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<tr>
<td>Technology platforms and innovation networks</td>
<td>Eco-tech competitiveness clusters (<a href="http://www.developpement-durable.gouv.fr/Le-reseau-Ecotech.html">http://www.developpement-durable.gouv.fr/Le-reseau-Ecotech.html</a>)</td>
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<tr>
<td>Foresight and common vision building</td>
<td>Institute for Circular Economy (<a href="http://www.institut-economie-circulaire.fr/">http://www.institut-economie-circulaire.fr/</a>): its activities encompass Foresight and common vision building COSEI (<a href="http://www.developpement-durable.gouv.fr/Le-comit%C3%A9-strat%C3%A9gique-des-eco.html">http://www.developpement-durable.gouv.fr/Le-comité-stratégique-des-eco.html</a>): it gathers, around the Ministry in charge of the Environment, companies that are active in the eco-industry. The objective is to build a common view and to find solutions on the following topics: internationalisation, access to funding, training, business relationships between large firms and SMEs.</td>
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<tr>
<td>Market intelligence and other forms of information sharing</td>
<td>Institute for Circular Economy (<a href="http://www.institut-economie-circulaire.fr/">http://www.institut-economie-circulaire.fr/</a>): its activities encompass market intelligence COSEI (<a href="http://www.developpement-durable.gouv.fr/Le-comit%C3%A9-strat%C3%A9gique-des-eco.html">http://www.developpement-durable.gouv.fr/Le-comité-stratégique-des-eco.html</a>): it gathers, around the Ministry in charge of the Environment, companies that are active in the eco-industry. The objective is to build a common view and to find solutions on the following topics: internationalisation, access to funding, training, business relationships between large firms and SMEs.</td>
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<tr>
<td>Regulations and standards</td>
<td>Regulations, targets, cap &amp; trade schemes</td>
<td>NF environment eco-label awarded by the AFNOR certification agency (<a href="http://www.ecolabels.fr/fr/la-marque-nf-environnement-qu-est-ce-que-c-est">http://www.ecolabels.fr/fr/la-marque-nf-environnement-qu-est-ce-que-c-est</a>)</td>
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<td>Performance standards, labelling, certification</td>
<td>Qualit’ENR association for the promotion of high-quality service provision of renewable energy systems (service provisions labels – <a href="http://www.qualit-enr.org/">http://www.qualit-enr.org/</a>)</td>
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<td>R&amp;D procurement</td>
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<td>Pre-commercial procurement</td>
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<td>Technology Transfer</td>
<td>Advisory support for technology adopters</td>
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<td>Financial or fiscal support for technology adopters</td>
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<tr>
<td>Support of private demand</td>
<td>(e.g. grants for purchasing new technology)</td>
<td>Tax incentives for consumers (e.g. for purchasing environmentally efficient products)</td>
<td>Tax reductions for individuals who are planning retrofitting activities targeting energy efficiency in buildings <a href="http://www.ademe.fr/sites/default/files/assets/documents/guide-aides-financieres-renovation-habitat-2016.pdf">http://www.ademe.fr/sites/default/files/assets/documents/guide-aides-financieres-renovation-habitat-2016.pdf</a></td>
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About the Eco-Innovation Observatory (EIO)

The Eco-Innovation Observatory (EIO) is the initiative financed by the European Commission’s Directorate-General for the Environment. The Observatory is developing an integrated information source and a series of analyses on eco-innovation trends and markets, targeting business, innovation service providers, policy makers as well as researchers and analysts.

Visit EIO and DG ENV Eco-innovation Action Plan (EcoAP) website and register to get access to more information and to access all EIO reports, briefs and databases.

[www.eco-innovation.eu](http://www.eco-innovation.eu)

[ec.europa.eu/environment/ecoap](http://ec.europa.eu/environment/ecoap)