

An aerial photograph of a city, likely Paris, showing a river (the Seine) winding through the urban landscape. The image is characterized by a mix of green spaces, including parks and tree-lined streets, and dense urban development with buildings and roads. The overall scene is a blend of nature and urban infrastructure.

# Energy Efficiency in Cities : the role of government in France

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## **Role of State for sustainable cities in France**

- **1) Mobilization of cities, recognition of good practices**
- **2) Development of tools (GHG diagnostics, urban planning, climate and energy action plan...)**
- **3) Supporting innovative experimentations and initiatives in France (demonstrators)**
- **4) Promoting a global offer at international level with private companies (Vivapolis)**

## Mobilization of cities, recognition of good practices (1/2)

- **Launching of a “ Sustainable city plan”** (October 2008)
- Program "**Eco Quartiers**":
  - 2 calls for projects in 2009 and 2011
  - 160 Eco-district (July 2013)
  - 11 categories (water,waste,biodiversity,etc...)



### National Award :

### **GRENOBLE, the city of innovation and research**

#### **Bonne district :**

Former barracks were transformed into 850 new housing(8,5 ha),8 cogeneration plants ,solar thermal and photovoltaic plants, operational social integration, accessibility for persons with handicap





## Mobilization of cities, recognition of good practices (2/2)

**The “Eco City” Program:**  
National support for forward-looking vision at the level of urban territories:

- 1 billion euros for the “City of tomorrow” Fund
- 13 eco cities eligible (Nantes, Marseille, Nice, etc.)
- 93 projects financed by CDC\* **with ADEME support for expertise**



### **Marseille EcoCity «EuroMéditerranée»**

- Renovation of 480 ha in the heart of the city with 30 000 new inhabitants and 20 000 new jobs.
- Heating and cooling energy networks based on marine geothermal energy

\*Caisse des dépôts & consignations

## ADEME's role to promote tools for sustainable cities

- **Formulating practical integrated approaches for the development of tools/methodologies for cities :**
  - Example of “AEU®”: **Environmental approach to urban development** is a tool dedicated to local authorities and urban planners aiming at sustainable development integration in urban planning. 900 AEU have been supported by ADEME between 2001-2013. Training for professional (Stakeholders, consultancy...) are implemented (more than 400 professionals trained).
  - **Carbon balance for urban authorities** and territorial climate energy plans, urban mobility plans, etc.
  - **Territorial Climate and Energy Plan (TCEP)** mandatory in France for cities > 50 000 inhabitants
  - Identifying **indicators of sustainability** for urban decision-makers

## ADEME role : developing tools for urban decision-makers

### Tools :

- A TCEP methodology guidebook
- European Energy Award (Cit'ergie in France)
- A GHG emissions assessment tool: Bilan Carbone® (V7)
- Impact' Climat : tool on adaptation

### Technical / theme tools to take action:

- Energy audits
- The AEU<sup>2</sup> (Environmental Approach to Urban Development)
- Waste prevention plan



### Trainings :

- Elected representatives
- Project leaders
- Consultants
- Civil Servants of French administration

### Information, raising awareness and capitalizing on:

- Web site : [www.pcet-ademe.fr](http://www.pcet-ademe.fr)
  - ↳ TCEP Observatory
  - ↳ Best practice information sheet

## Example of international implementation of TCEP in Rio Grande do Sul, Brazil (2010 – 2012)

**The State of Rio Grande do Sul is the first local authority in another country to adopt TCEP methodology elaborated by ADEME.**

The tool was adapted to the regional political and environmental context by Enviroconsult firm, and at the request of the local authorities the project was extended to include improvement of air quality, Plan for Air, Climate and Energy (PACE)

**Climate Air Energy regional director scheme, an integrated territorial strategy: air quality management and GHG emissions reduction  
Metropolitan region of Porto Alegre and industrial zones of Caixas & Rio Grande**

- **Context:**
  - Country of the “gauchos” (cattle) = 33,37% of the State’s emissions
  - Agriculture = 34,34% of the emissions
  - 1<sup>st</sup> Brazilian mine resource (coal) = 80% of national carbon resources ⇒ strong pollution
  - 4<sup>th</sup> economy of Brazil



- **Number inhabitants : 11 millions, Area : 1/3 of France**
- **15 millions of cows**

## Innovation & experimentations in France within « Investment for the Future » Program managed by ADEME

- Refurbishing blocks of existing buildings toward zero energy buildings : **refurbishing at best performances through industrialization of construction**
- Smart grid at the scale of the city.  
Objective : **integration of 20% renewable into the grid and demand response with smart counters.**
- **Sustainable mobility** : urban mobility services and interoperability of transport modes, **infrastructure for electromobility**





## 9 projects for innovative solutions in buildings (1) : 70 M€ investments and 22 M€ ADEME funding

- 3 demonstrators on renovation of existing buildings (social housing) with wood materials. Industrial prefabrication of components.
- Experimentation of new organic materials for external insulation of buildings and industrialization (30 demonstrators).
- Demonstrator of energy mutualization at block level



Innovation platform (incubator)



## Smart Grids experimentation

- 17 projects funded (315 M€ and 100 M€ ADEME support).
- Experimentation of decentralized renewable integration in the grid (9 projects), technologies for grid management (9 projects), DSM and Demand Response of consumer : 35 000 households involved in DSM projects (12 projects)
- Collaborative projects with utilities, TSO and DSO, equipment manufacturers, ICT, local authorities, final consumers



Shows how you are doing against your daily budget



Indicates the current cost of electricity per hour (does not include standing charge and VAT)

Indicates price at peak (red), day (orange) and night (green) rates

Indicates how much your electricity has cost this month (does not include standing charge and VAT)

# Smart grids experimentations : examples

Renewable energy  
integration

Final consumer actor of the  
system

Storage, demand response and grid management

Consumer/producer

## SMART ZAE

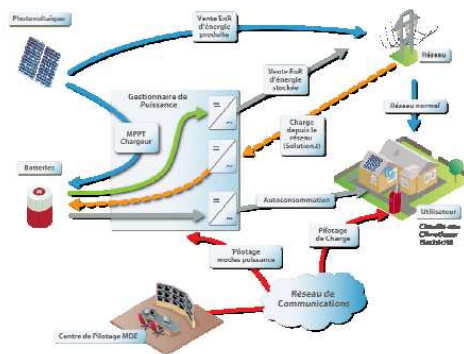
Optimization of energy production (renewable) and consumption with storage (flywheel) and DC network in an industrial zone



SCLE, LEVYSIS, ...

## NICEGRID

1500 households and companies involved in grid local management



ERDF, EDF, ALSTOM, SAFT, RTE, ...

## GREENLYS

Large experimentation : Renewable energy, smart counters, 1000 households, 40 commercial sites in Lyon and Grenoble.



ERDF, ALSTOM, ATOS, CEA, Schneider Electric...

## 5 urban sustainable mobility projects funded by ADEME

- **BMA, Bretagne Mobilité Augmentée** : optimizing mobility of persons and goods at the scale of a territory for companies, collectivities and citizens
- **Optimod'Lyon**, most advanced mobility project for a large large city duplicated at the European level on other cities.
- **Au-dace**, involvement of insurance company MAIF : car sharing between households with new insurance product in Niort and Bordeaux



• ...

- 48 M€ of investments for the 5 projects and 18 M€ aids
- 32 companies involved (13 SBC), 15 collectivities and 15 research organisms
- Almost 1 million mobility users involved



# Experimentation of advanced urban sustainable mobility

## Electrical vehicles charging

International standards

Universal tarification



CROME

Transfrontier demonstrator (France & Germany) for charging electrical vehicles experimentation and common standards



## Intermodality

Mobility central operation



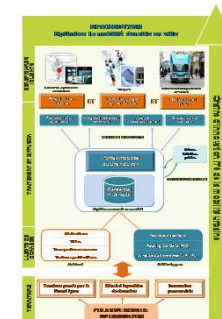
OPTIMOD'LYON

Experimentation of new urban mobility services for passengers and goods : 1 hour traffic forecast system, smart phone applications, goods delivery optimization
















## Mobility services

Personal mobility assistant and data access



## Sustainable cities sectoral demonstrators for different scale of territories

District level	City	Regional	National
<ul style="list-style-type: none"> <li>▪ <b>SMART ZAE</b> Smart grid at the level of an industrial zone</li> <li>▪ <b>CRIBA</b> Building block renovation-extension</li> <li>▪ <b>GRHYD</b> Experimentation of hydrogen injection in natural gas grid at the scale of an <b>éco-quartier (district)</b> </li> <li>▪ <b>CROME</b> Franco-German transfrontier demonstration of innovative EV charging infrastructure</li> <li>▪ <b>Solar Thermal Smart grid</b> Thermal solar energy integration in heat network in Toulouse <b>éco-quartier</b> </li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>GREENLYS</b> Optimization and management of grid and experimentation of DSM for households of <b>Lyon &amp; Grenoble</b> </li> <li>▪ <b>EVER</b> Ecosystem of electric vehicle charging in la <b>Rochelle</b></li> <li>▪ <b>ECO2CHARGE</b> Deployment of charging electric vehicle infrastructure at the scale of a city</li> <li>▪ <b>OPTIMOD LYON</b> Multimodal information platform for commuters and goods transporters in <b>Lyon</b> </li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>MILLENER</b> Grid optimization with supply/demand equilibrium in <b>Corsica, La Réunion, Guadeloupe</b> </li> <li>▪ <b>VERT</b> Deployment of charging systems for EV supplied by renewable sources at <b>la Réunion</b> </li> <li>▪ <b>SMART VENDEE GRID</b> Smart grid at the scale of a region (renewable energy and DSM)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>ENRPOOL</b> Valorization of electricity demand flexibility potential in industry at national level. </li> </ul>
<ul style="list-style-type: none"> <li> Smart grid</li> <li> Positive energy buildings</li> </ul>	<ul style="list-style-type: none"> <li> Hydrogen &amp; fuel cells</li> <li> EV charging infrastructure</li> </ul>	<ul style="list-style-type: none"> <li> Mobility</li> <li> Solar energy</li> </ul>	



## VIVAPOLIS : Promotion of French experience on sustainable cities at international level

### **What is VIVAPOLIS ?**

- French umbrella brand to promote French sustainable development at the international level .
- Process being developed and supported by French public authorities and private actors.

### **Why VIVAPOLIS ?**

- Responding to an increasing demand for sustainable cities, particularly from emerging countries.
- Bringing together companies from different sectors (architecture and planning, public utilities, ICT, transport, finance..) to build a collective offer in urban development.
- Promoting French experience and know-how at the international level.

**First implementations and prospects : Sheniang eco-district (China), Gaziantep (Turkey), Indonesian cities...**



## Development of 3D City Simulator : 2 case studies in Santiago (Chile), Astana, Kazakhstan

- Promote French technological know-how in sustainable planning, drawing inspiration from the concept of « French sustainable city ».
- Establish a model of entire value chain, upstream to downstream, including all sectors (water, energy, waste , transport...).
- Integrate product, service and technological solutions into a visual, interactive, didactic digital tool, in order to facilitate decision-making for cities



**An innovative tool and offer for cities**

**Integrated offer** of French urban solutions for sustainable cities

Decision-making tool for urban planning and services

Replicability of approach & methods to other urban projects worldwide

**A collective urban challenge !!**

3Dairable City  
La ville du futur.

vivapolis



**Thank you for your attention**

For more information on projects :

[www.ademe.fr](http://www.ademe.fr)

<http://www2.ademe.fr>

[www.vivapolis.com](http://www.vivapolis.com)