Towards 32% renewable energy in 2030
French public policies for renewables

France's Climate Plan Seminar – 20th November 2017

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A few figures and charts

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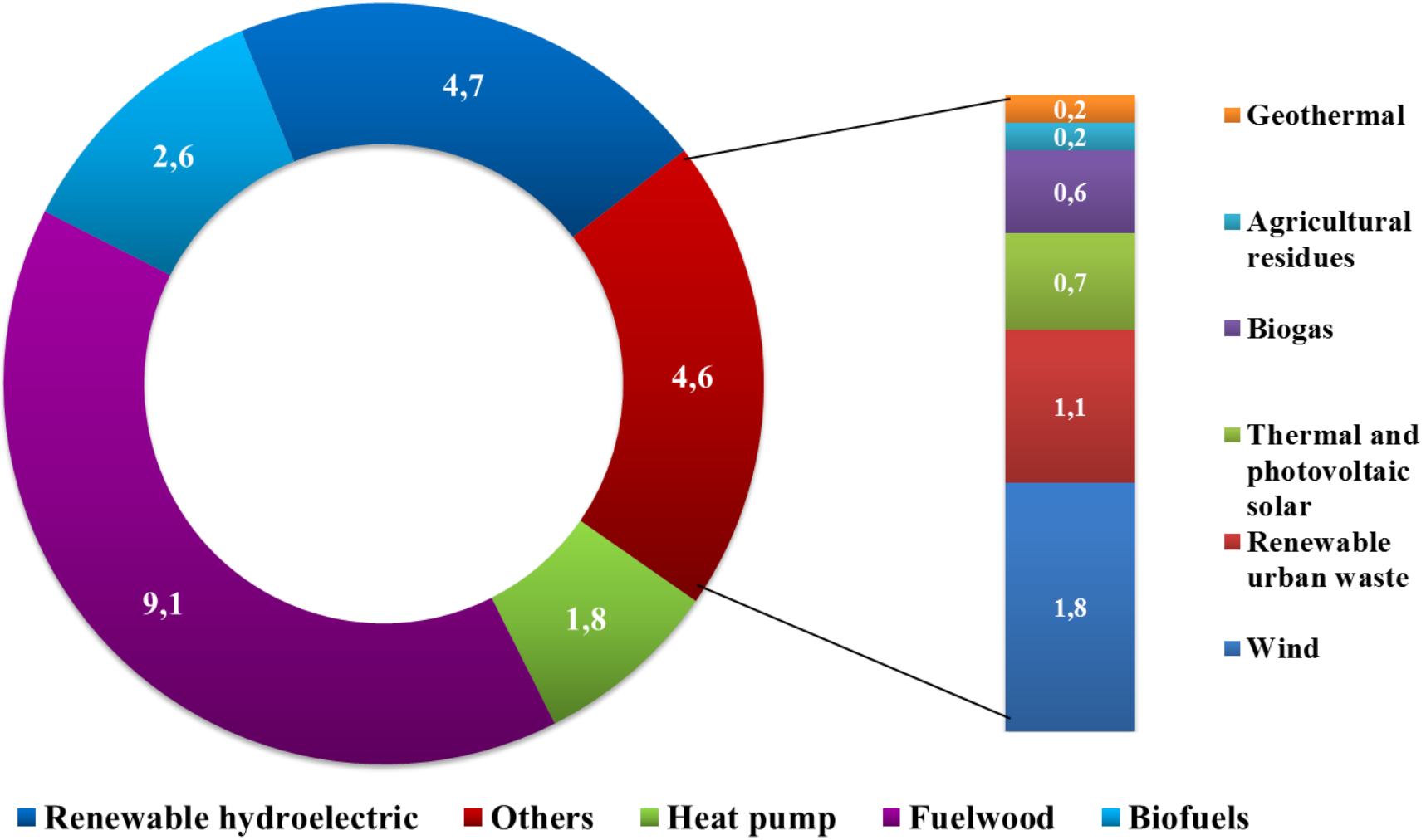
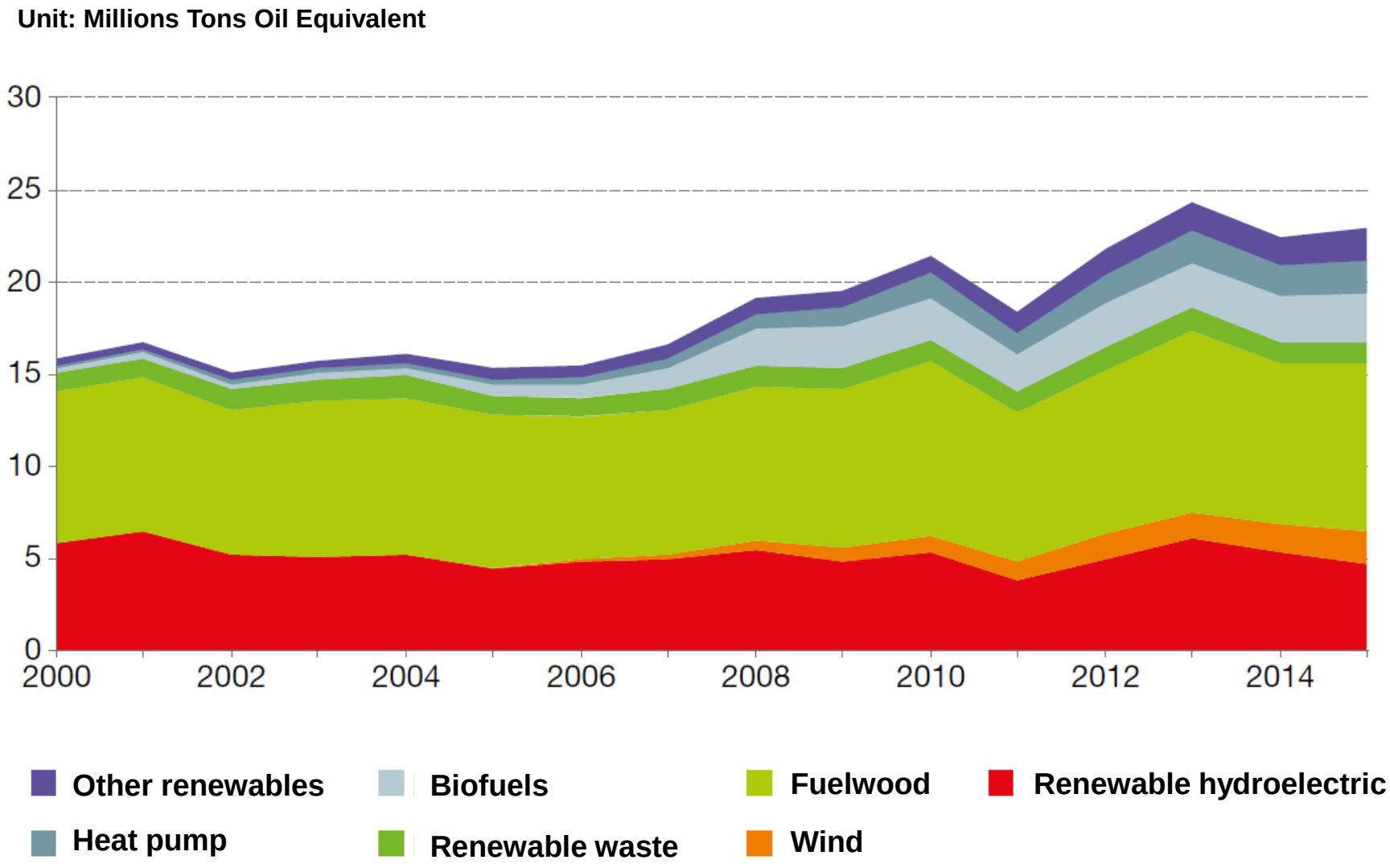
Wood and Hydropower represent more than 50% of renewables in France

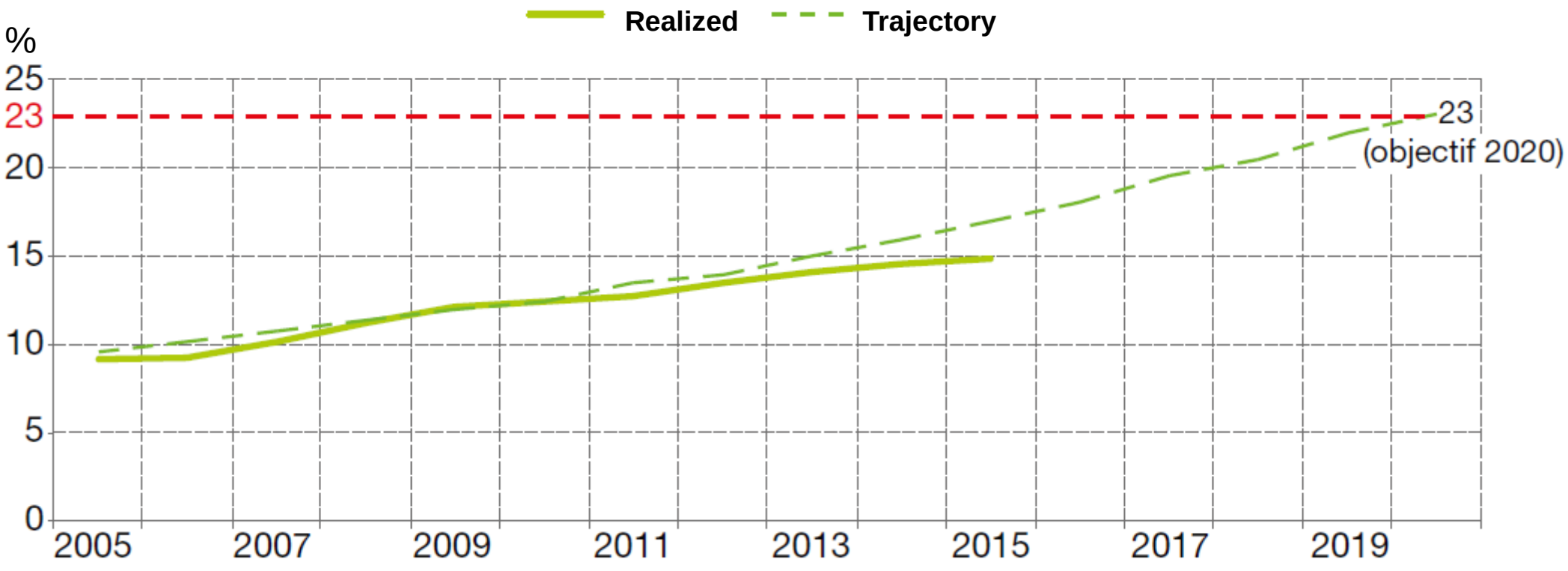


Unit: Millions Tons Oil Equivalent
Year 2015

Evolution of renewable energy production (by source)



Renewable share in energy consumption : on the way, but late



Objectives defined for the entire range of the energy package

Total target: 32% of renewable energies in 2030

- Objective in the field of **electricity** : 40% of renewable electricity in 2030
- Objective regarding **heat generation** : 38% heat generated from renewables in 2030
- Objective regarding **fuels in the transport sector** : 15% of renewable fuels in 2030
- Objective in the **gas sector** : 10% of renewable gas in 2030

Targets are gathered in the « Multiannual energy plan » that sets out the government's priorities for energy policies, and interim targets in 2018 and 2023

The Multiannual energy plan is compliant with French National Low-Carbon Strategy

French National Low-Carbon Strategy is compliant with French commitments towards the Paris Agreement for Climate

How do we intend to reach the target ?

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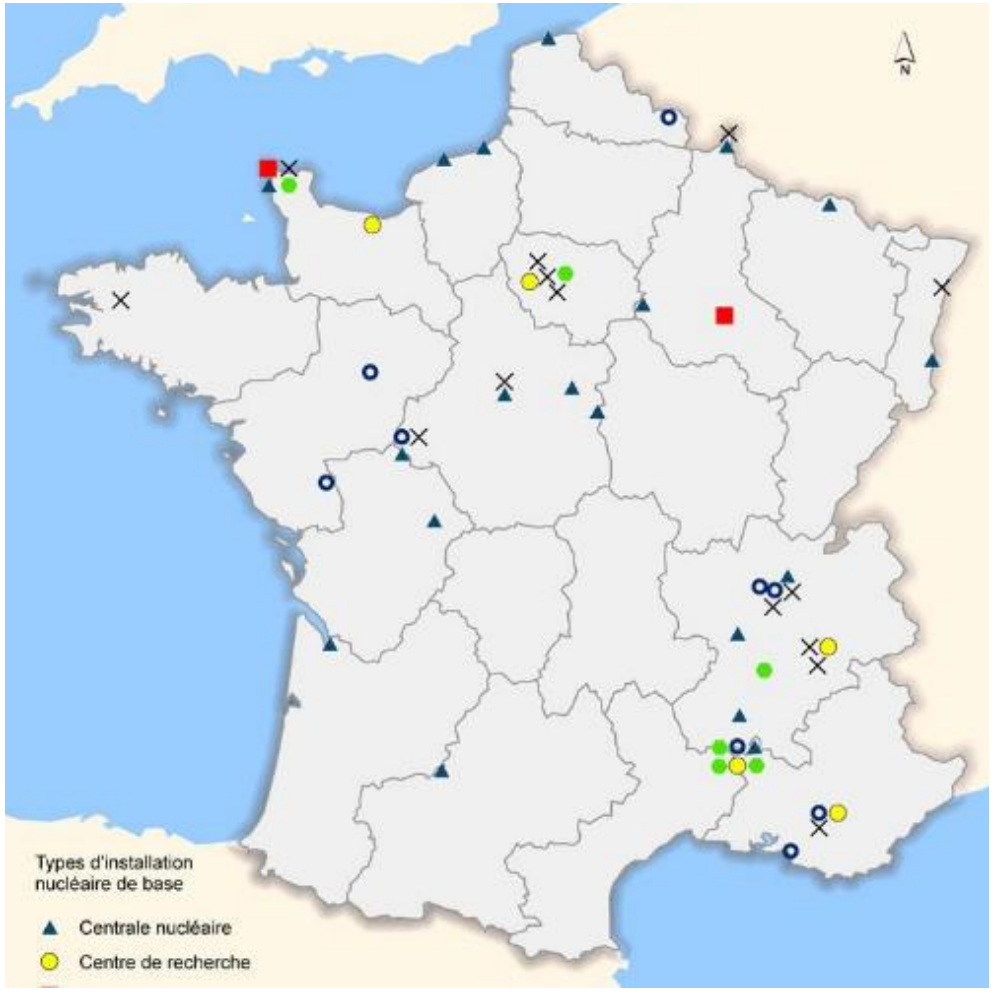
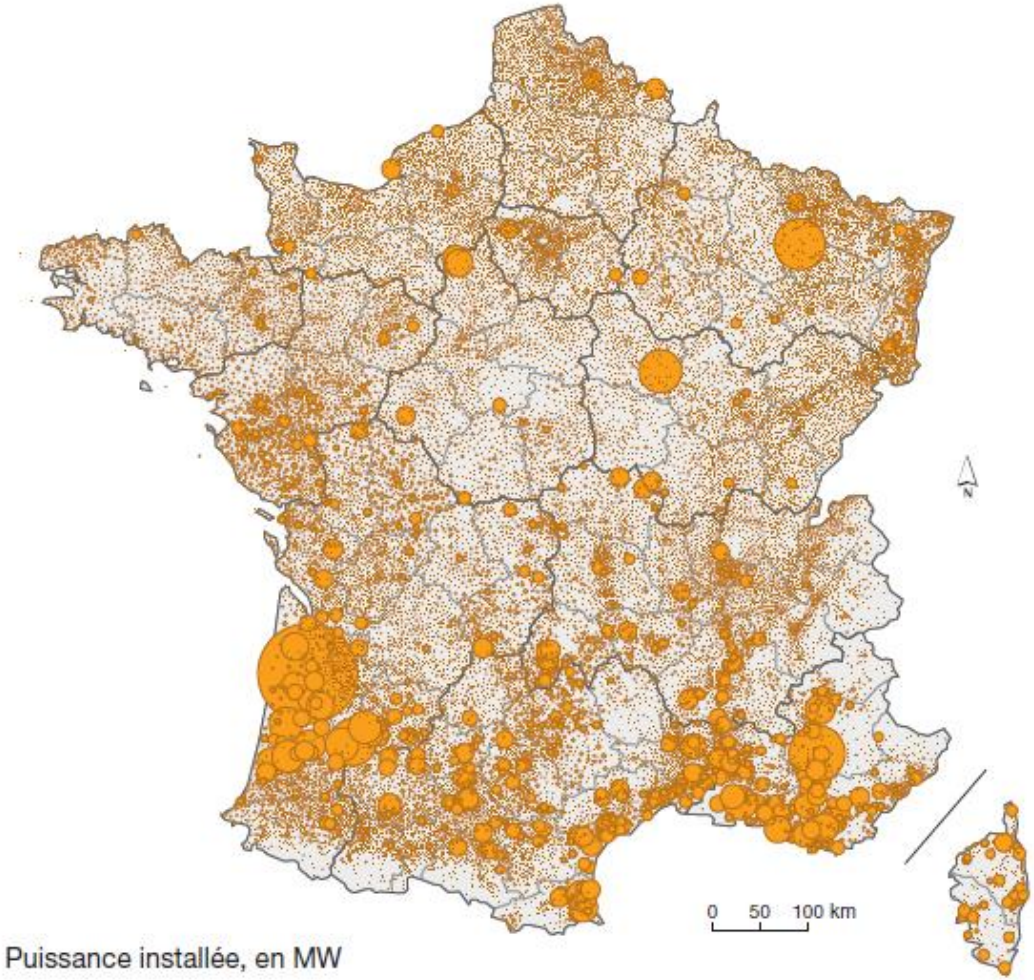
1. Empowerment of local governments
Renewables are local and decentralized

- **Nuclear installations**



- **Solar installations**



1. Empowerment of local governments
What can local governments do for renewables ?

- **Establish a local strategy for energy transition**
  - Mandatory climate-air-energy plan at regional level (focus on planning)
  - Mandatory climate-air-energy plan at city/metropolitan level (focus on management)
- **Invest in renewable energy projects**
  - Distict heating & cooling (networks and heat generation systems)
  - Renewable energy equipments on public buildings, public transport, public lighting, etc.

PLAN CLIMAT AIR ENERGIE DU DUNKERQUOIS
Je m'engage aujourd'hui pour mieux vivre demain

PLAN CLIMAT GRAND LYON

LE PLAN CLIMAT ÉNERGIE DE PARIS

1. Empowerment of local governments
What can local governments do for renewables ?

- **Integrate energy into urban planning tools and projects**
  - Introduction of renewable energy production and consumption in **Ecodistricts**
  - **Mandatory share of renewables for new buildings, per district :** delimitation of areas where construction is allowed only if a given % of renewables is used in the new building
  - **District heating/cooling can be made mandatory** for new buildings if sources are >50% renewable/recovery

Grenoble Urban Zoning Annex – Heat network

2. Adaptation of national regulations

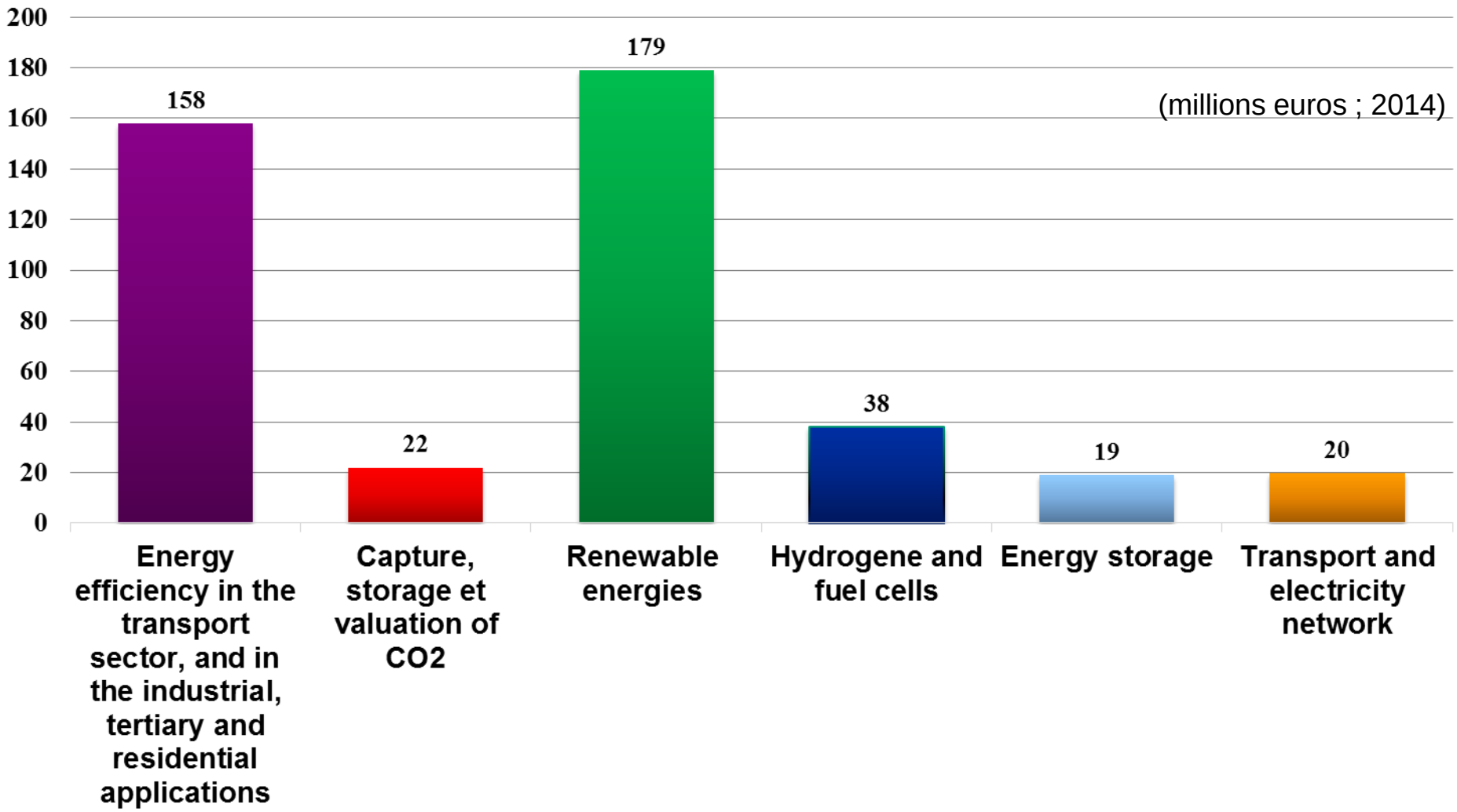
- **To make renewable projects easier**
  - *Ex.: crowdfunding for renewables recognized by the law*
  - *Plan Climate announces simplifications for marine energy and geothermal energy projects*
- **To make renewables more attractive compared to nuclear/fossil**
  - *Ex.: in Thermal Regulation for New Buildings, using renewable energy in a new construction allows a slightly less energy-efficient building (less expensive to build)*
- **To make some actions mandatory**
  - *Ex.: local energy plans mandatory for local governments*
  - *Ex.: feasability studies for renewable energy mandatory for new large buildings*

3. Financial support

- **Subsidies for renewable energy projects**
  - *Ex.: Renewable Heat Fund*
- **Tax reduction, tax credit**
  - *Ex.: tax credit for the purchase of solar water heating*
- **R&D funding**
  - *1 billion €/year for R&D in energy ; 42% for new energy technologies (ie. non nuclear, non fossil)*

3. Financial support

- **R&D funding for new energy technologies :**



4. Technical support from national agencies

- Many public agencies involved in energy transition : ADEME, CSTB, IFPEN, CEA, Cerema, etc.
- Many private/public research centers, such as France Energies Marines, Efficacity, INES…
- Providing :
  - R&D
  - Methodology, guidelines
  - Studies
  - Data (including geographic data)
  - Technical advice to local governments
  - Etc.

Example #1. Renewable electricity :

Can French electricity be 100% renewable in 2050?

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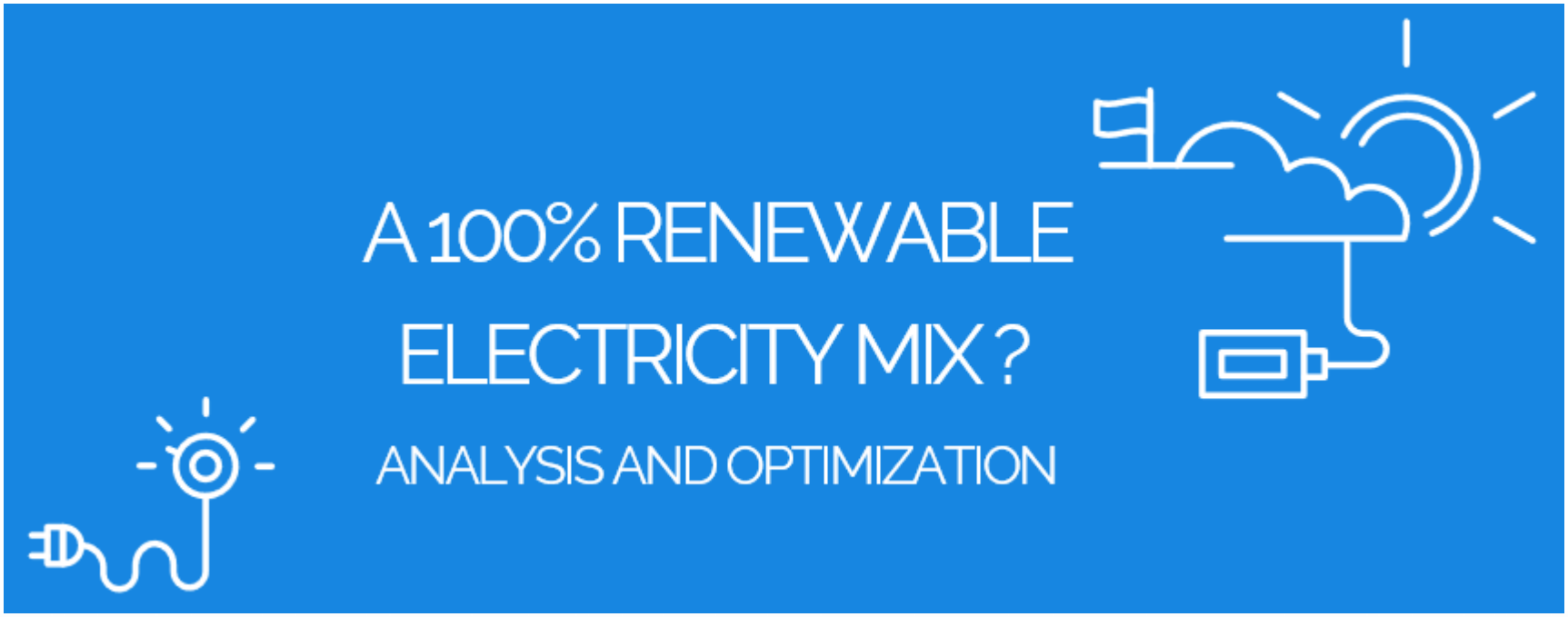
ADEME study : 100% renewable electricity in France ?

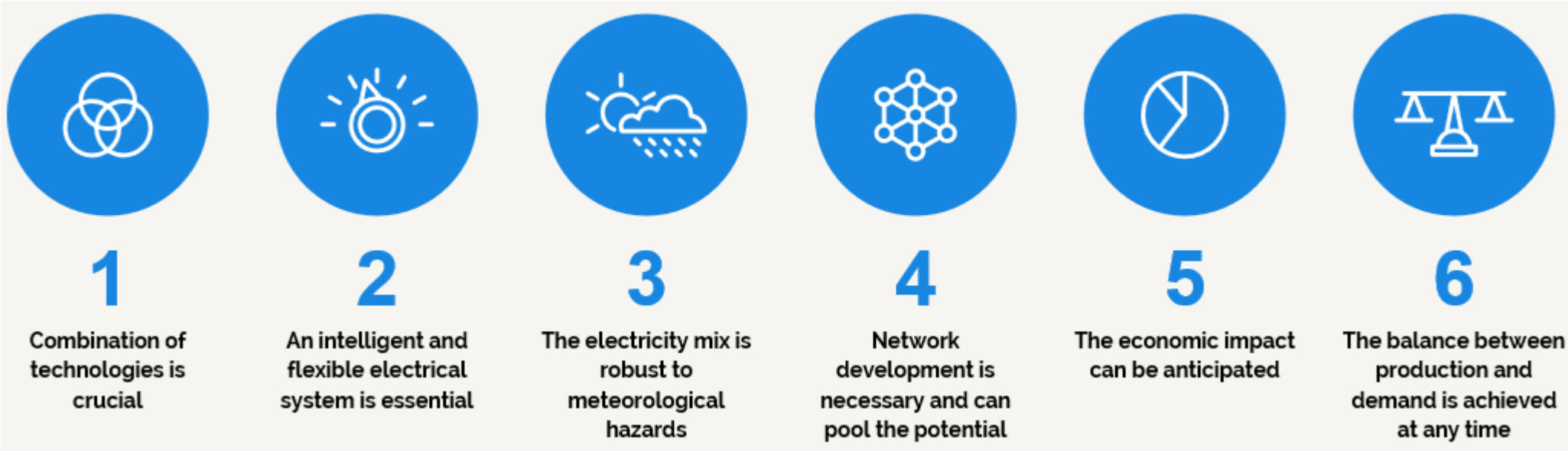
- ADEME is the national agency for energy transition and environment, working for two ministries (ministry of ecological transition and ministry of research)
- Missions : fund management, studies, methodology, communication…
- In 2016, ADEME published the following study :

ADEME

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



Main findings…



- **What can we learn from this study?**
  - That more than one electricity mix seems technically possible to achieve 80-100% renewable, with production matching demand on an hourly basis
  - That a 100% renewable mix can be reached thanks to profound changes in the whole electric system but at a total cost probably of the same range than a 40% renewable mix
- **Dedicated website (in English)** : http://mixenr.ademe.fr/en

Example #2. Renewable heat :
How district heating is used to leverage renewable energy in cities ?

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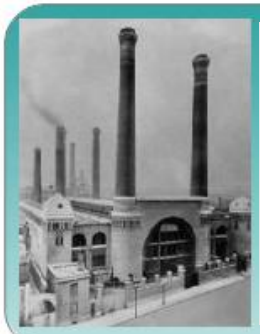
District heating

Source : Via Seva

History of district heating in France



Large cities with important heat demand (Paris, Grenoble, Strasbourg)

New networks using geothermal & heat from waste incineration

1950 1960 1970 1980 1990 2000 2010

District heating develops in line with post-war major urban policies

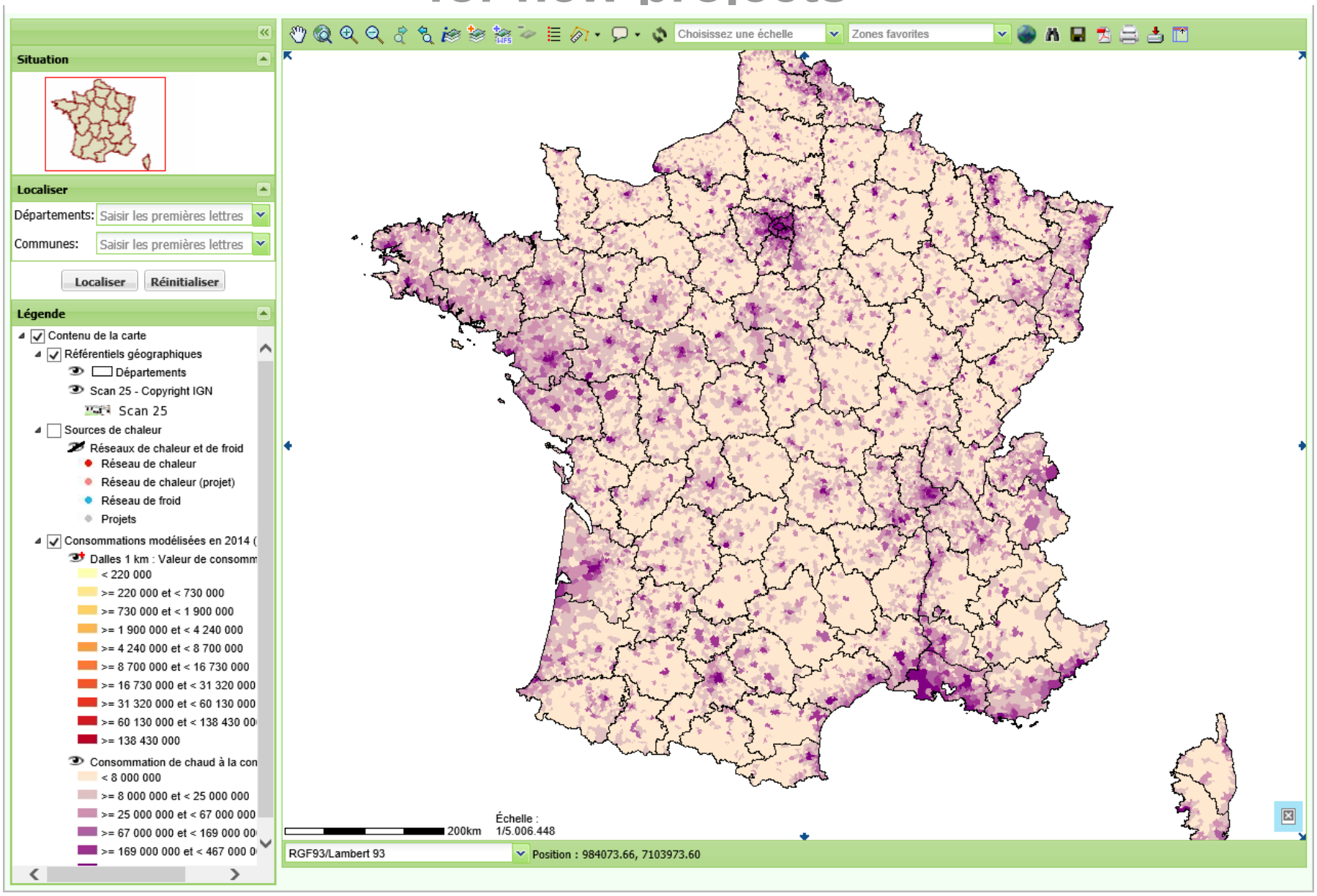
Energy transition : more and more renewable energy in district heating

Source : Cerema – Pôle Réseaux de Chaleur

Local actions & National support for renewable district heating projects

- **Local governments have the initiative**. Generally under PPP models, they choose to invest in :
  - Renewable heat generation systems (to replace fossile fuel systems)
  - Expansion and densification of existing networks
  - Creation of new district heating schemes (ecodistricts, rural areas…)
- **National government supports and regulates :**
  - Adaptation of regulatory framework to ease projects (thermal regulation, urban planning regulation, etc.)
  - Funding (subsidies, tax reduction)
  - Technical support from agencies (ADEME, Cerema)
  - (since 2010) Mandatory feasability study for district heating in new urban development zones
  - (since 2015) Mandatory masterplan for district heatings older than 2009

Interactive map to help locate potential for new projects



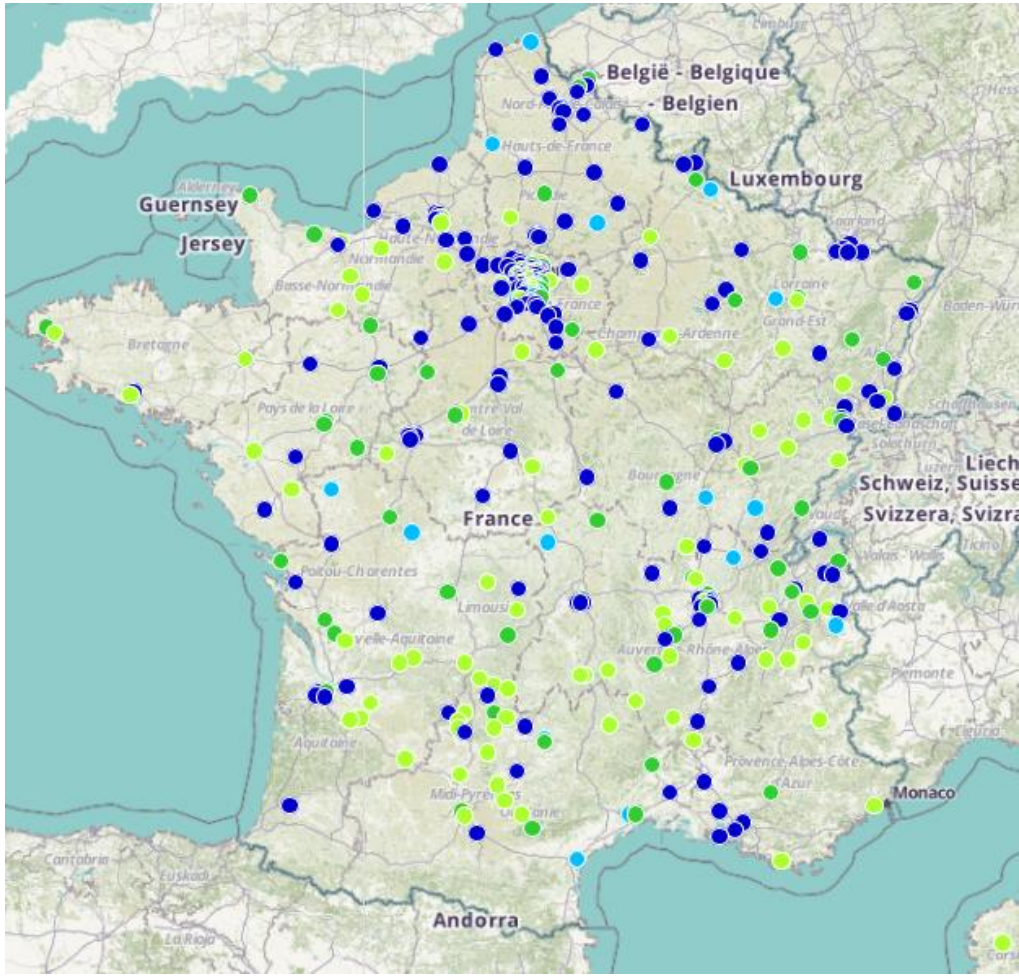
Results of this cooperation between national and local policies, over ten years

2005

- **400 district heating systems**
- **Renewable/recovery share: 25%**

2015

- **600 district heating systems**
- **Renewable/recovery share: 50%**

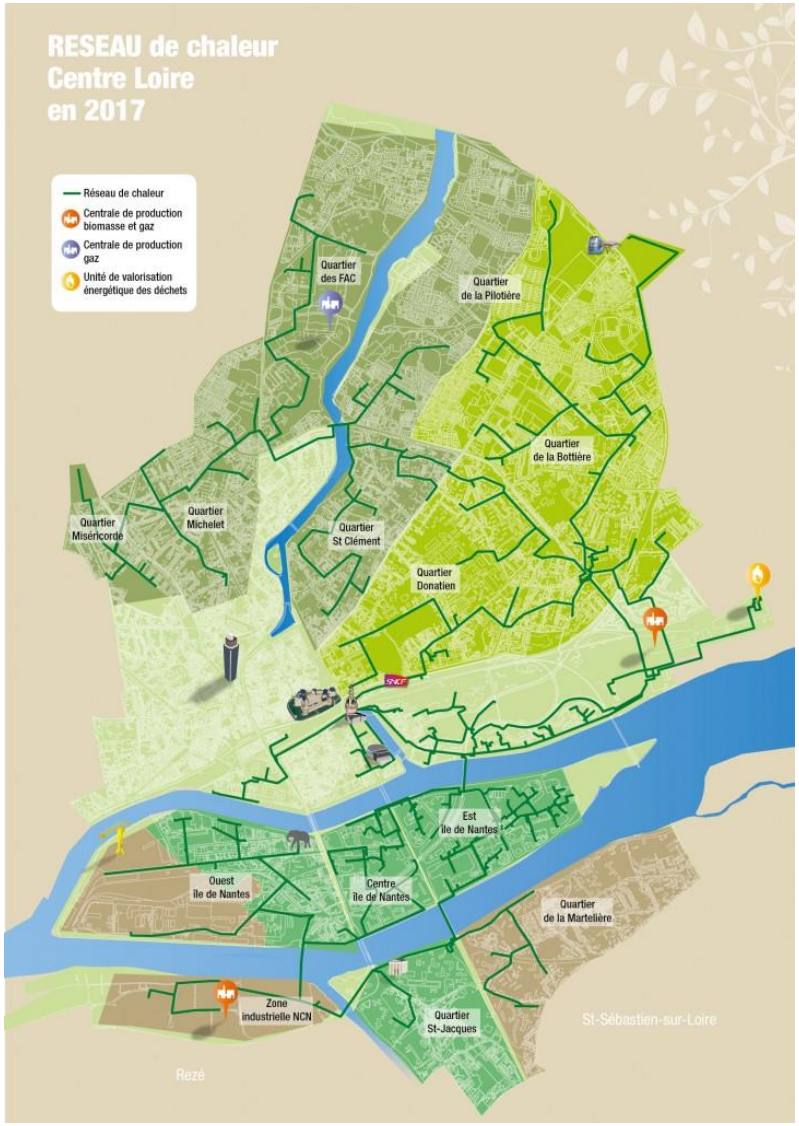


District Heating Systems in France (source : Cerema)

- Example –
District Heating development policy in Nantes

- Six district heating networks in Nantes Métropole
- “Nantes Centre Loire” is the largest one
  - Created in 1987, using fossil fuel and heat recovered from waste incineration
  - Between 2012 and 2017 :
    - Wood-fired heat production plant. Current renewable share: **84%**
    - Extension of network from 22km to 50km (final target: 85km)
    - +25000 connected housing units (from 16000 to 41000)

- **50% of social housing in Nantes Métropole will be connected to district heating**
  - Stable energy price, controlled by local government
  - Guaranteed, increasing renewable share in heating



Conclusion…

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Renewable energy in Climate Plan

- Approach 4. Making clean transport accessible to all, and developing innovation
- Approach 5. Working in the heart of territories
- Approach 6. Allowing all citizens to engage in responsible and inclusive consumption
- Approach 8. Decarbonising energy production and ensuring a controlled transition
- **Approach 14. Accelerating the deployment of renewable energies**

CLIMATE PLAN

1 planet, 1 plan

Ambitious target : 32% renewable energy by 2030 (we're a bit late…)

Acceleration pushed by Energy Transition Law (more sources, more sectors, more local initiatives) and **new measures to come**

Electricity + Heat + Gas + Fuel, all considered together in a national plan

Mobilization of all players : national and local, public and private

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