MARKETS, EMPLOYMENT IN ACTIVITIES RELATING TO RENEWABLE ENERGY AND ENERGY EFFICIENCY: from 2006 to 2016
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About ADEME

ADEME is active in the implementation of public policy in the areas of the environment, energy and sustainable development. ADEME provides expertise and advisory services to businesses, local authorities and communities, government bodies and the public at large, to enable them to establish and consolidate their environmental action. As part of this work the agency helps finance projects, from research to implementation, in its areas of action.

Organisation

With its head office in Angers, ADEME has over 1,000 employees split between:
- 3 central departments sites in Angers, Paris and Valbonne;
- 17 regional divisions, 13 in metropolitan France and 4 in overseas France, which linked 26 implantations across the country;
- 3 representative bodies in overseas territories;
- 1 office in Brussels.

Areas of interventions

- Waste,
- land and polluted soils,
- climate and energy,
- air and noise,
- cross-functional action (sustainable production and consumption, sustainable cities and territories)

https://www.ademe.fr/en/about-ademe
An annual study to cover the markets linked to the energy transition

- Other opportunities for environmental employment dialogues: ONEMEV, outil TETE, projets with “Alliance Villes Emploi” and his territorial network of “houses of employments”...

The study

- Objectives
- Study done in June 2019 by In Numeri for ADEME

Scope of the study

- Sectors vs value chain
- Why 2016 in 2020? Next study should be ready immediately after the sanitary crisis.
SECTORS STUDIED

Transport sector
- Railway infrastructure and equipment
- Urban public transport infrastructure and equipment
- Individual mobility with low CO₂ emissions (urban bikes, new class A passenger vehicles, electric and non-rechargeable hybrids)

Residential building sector
- Renovation of residential housing (insulation of walls, replacement of openings, installation of Controlled Mechanical Ventilation); renewal of heating and domestic hot water equipment (condensing boilers, wood-burning appliances, PAC and CET, solar thermal); high-performance devices (appliances, heating control devices)

Renewable energy sector
- Electricity (PV, wind),
- domestic heat (wood appliances, heat pump and thermodynamic water heater, solar thermal)
- collective heat (collective energy wood, Household waste incineration plant, geothermal energy, heating networks) biofuels (biofuels of the gasoline sector) biogas;
For each sector,

- The domestic market is evaluated by a method \([\text{price} \times \text{quantity}]\);
- Exportations are included in the total market;
- Production is assessed by subtracting imports from the total market;
- The jobs are direct jobs measured in full time equivalent (1 FTE = 1600 hours/year).
  - Indirect and induced jobs are excluded

Data sources:

- Quantities sold: professional sources, public statistics
- Price: professional sources, study reports
- Imports-Exports: foreign trade data (Eurostat)
- Job ratios (FTE / production): specific studies, national data (National Accounts, “ESANE”)

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**METHODOLOGY**

**ADEME**

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

**in**

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Main results
The renewable energy and residential building sectors cover partially common sectors.

Buildings retrofitting includes equipments using renewable energies for heat production and domestic hot water: solar thermal, wood, heat pump and thermodynamic water heater.

The market for renewable energies in building retrofitting amounted to €3.8 billion.

Excluding this double account, the total markets monitored in the M&E study amounted to €81.2 billion in 2016.
Transport

- Direct Jobs: 91,010 FTEs
- A total market of €31.7 billion euros
- Exportations: 8,888 M€
- Evolution of market 2014-2016: 14.9%
Main facts in 2016:

- Vehicles with low CO₂ emissions: 59% of the total market; 37% of direct jobs
  - Class A VPN: 49% of the total market; 30% of direct jobs;
  - Registrations + 21.6% between 2014-2016 Hybrid vehicle registrations + 24.4% and electric vehicles + 106% between 2014-2016
  - Sales of urban bikes + 19.4% between 2014-2016 (sales of pedelecs + 72.9%)
- Infrastructures & équipements from Urban Collective Transport TCU: Market € M + 26.6% and FTE Jobs + 21.5% between 2014-2016
- Railway infrastructure & equipment: Market € M 16.3% and FTE Jobs 23.7% between 2014 2016
**MAIN RESULTS**

**Transport**

- Véhicules Particuliers Neufs Classe A: 27 230
- Infrastructures ferroviaires: 25 410
- Infrastructures des TCU: 13 820
-Equipements ferroviaires: 13 460
- Véhicules Hybrides non Rechargeables: 4 490
- Equipements des TUC routiers: 4 340
- Véhicules Electriques: 1 510
- Vélos Urbains: 740

Emplois totaux des transports AEE en 2016: 91 010 ETP
Transport

Distribution of jobs by activity in transport contributing to the Energetical Transition in 2006 and 2016

- Construction of infrastructure and installation of equipment: 52%
- Manufacture of equipment for the domestic market: 32%
- Distribution and sale of equipment: 8%
- Manufacturing of equipment for exports: 10%

Jobs in 2006: 38,250 FTEs

- Construction of infrastructure and installation of equipment: 50%
- Manufacture of equipment for the domestic market: 22%
- Distribution and sale of equipment: 11%
- Manufacturing of equipment for exports: 16%

Jobs in 2016: 91,010 FTEs
Residential building

- 204,820 Direct Jobs
- Exportations 508 Million €
- Total Market 29 Billion euros
- Market evolution 2014-2016: + 0.8%
Main facts in 2016:

- Energy renovation of the building (wall insulation, replacement of openings, VMC): 71% of the total market; 74% of direct jobs; Total market -2.2% & Jobs -2.5% between 2014-16

- Renewal of heating and DHW devices (thermal solar, wood, PAC / CET, condensing DC):
  - 21% of the total market; 22% of direct jobs; Total market + 12.8% & Jobs + 12.9% from 2014-16

- High-performance domestic appliances (household appliances, heating control devices): 8% of the total market; 4% of direct jobs; Total market -0.5% & Jobs -5.2% between 2014-16
Residential building: DIRECT JOBS (FTEs)

- Replacement of openings: 77,390
- Wall insulation: 71,201
- Condensing boilers: 22,447
- Domestic wood: 12,039
- Heat pump: 8,871
- High-performance household appliances: 8,175
- Controlled mechanical ventilation: 2,841
- Solar thermal: 1,019
- Heating control device: 837

Total direct jobs: 204,820 ETP in 2016.
Distribution of jobs by activity in residential building in 2006 and 2016 (FTE)

- **2006**
  - Wall insulation: 34%
  - Controlled Mechanical Ventilation: 1%
  - Condensing Boilers: 6%
  - Solar thermal: 2%
  - Domestic wood: 10%
  - Heatpump: 4%
  - High-performance household appliances: 3%
  - Replacement of openings: 39%
  - Total: 137,720 FTEs

- **2016**
  - Wall insulation: 35%
  - Controlled Mechanical Ventilation: 1%
  - Condensing boilers: 11%
  - Solar thermal: 6%
  - Domestic wood: 6%
  - Heat pump: 4%
  - High-performance household appliances: 4%
  - Replacement of openings: 36%
  - Total: 204,802 FTEs
Renewable energy & recuperation

- **80 780 Direct Jobs**
- **Total Market 24,2 Mds€**
- **Exportations 1,6 billion euros**
- **Market evolution 2014-2016 : +1,5 %**
Main facts in 2016:

- Electric renewable: 50% of the total market; 36% of direct jobs; Total market +1.5% & Jobs -5.9% from 2014-16
- Domestic heat: 22% of the total market; 40% of direct jobs; Total market + 0.6% & Jobs -3.7% from 2014-16
- Collective heat: 12% of the total market; 18% of direct jobs; Total market + 3% & Jobs + 2.7% from 2014-16
- Biofuels: 13% of the total market; 3% of direct jobs; Total market -1.7% & Jobs -7.8% from 2014-16
- Biogas: 2% of the total market; 3% of direct jobs; Total market + 27.5% & Jobs + 16.4% from 2014-16
Renewable Energy

**Jobs in 2006**

- Operation and maintenance: 37%
- Sale of energy: 20%
- Project building: 30%
- Distribution of equipment: 12%

Total: 60,020 FTEs

**Jobs in 2016**

- Operation and maintenance: 46%
- Sale of energy: 17%
- Project building: 2%
- Construction, installation: 26%
- Distribution of equipment: 9%

Total: 80,780 FTEs
Over the period 2006 to 2016,

- The markets related to improving energy efficiency and renewable and recovered energies (EnR & R) more than doubled (+ 132.3%);
- Direct jobs (FTE) increased by 64.4% (thanks in particular to the support of proactive public policies).

In 2016,

- These markets represent € 81.2 billion for nearly 355,000 FTEs;
- The residential building sector (excluding renewable en construction) is the largest provider of jobs (183,000 FTEs), against for transportation (91,000 FTEs) and for Renewables (81,000 FTEs).
Thank you!

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