Energy Statistics in France
The French statistical system

National Council for Statistical Information (CNIS)

National Institute for Statistics (Insee)

Ministry of Agriculture
Statistical Service

Ministry of Health
Statistical Service

Ministry of Employment
Statistical Service

Ministry of Ecology, Energy, Sustainable Development and Sea
Service of Observation and Statistics (SOeS)

Ministry of Education
Statistical Service

Ministry of Justice
Statistical Service

Ministry of …
Statistical Service
Energy Statistics

Sous-direction of Energy Statistics : Bernard Nanot

Division of Energy Supply Statistics : Maurice Girault
* Electricity Surveys (Julie Boé, Christine Guibert)
* Gas & Electricity (Cécile Welter-Nicol)
* Oil and Coal Statistics (Bernard Korman, Jean Lauverjat, Marc Pfeiffer)
* Renewable Sources (Hélène Thiénard)

Division of Energy Demand Statistics : Frédéric Ouradou
* Industry, Transport, Climate (Sami Louati)
* Services, Households, Prices, Opinion (Yassine Chaïeb-Eddour)
* Survey with physical inspection of housing (Dominique François)
Missions

• Getting data from providers and distributors
• Statistics on capacities, production, consumption by great sectors, transformation of energy, analysis of evolutions

It means

Monthly

☐ Reports on the French energy situation and energy bill
☐ Monthly questionnaires to IEA and Eurostat
☐ Dashboard for electricity

Annually

☐ Energy balance and energy bill for France
☐ Surveys (oil, gas and electricity operators)
☐ Annual questionnaires to IEA and Eurostat
☐ Reports to the European Commission (renewable, CHP, indicators of electricity market opening, …)
☐ Other (key figures about energy in France, etc.)
Division of Energy Demand Statistics

Missions

• Understanding the changes in the demand of energy, in order to help the policies for saving energy and improving energy efficiency, consumption statistics by sector
• Statistics on prices and taxes, social aspects (inc. fuel poverty)
• Opinion surveys
• Connection between GHG inventories and the statistical system

It means

☐ European Survey on prices of electricity and gas
☐ Lobbying for surveys near energy consumers, and helping the conception: industry and transport (yearly), agriculture (2011), services (2012), households (2013), …
☐ Surveys: opinion and energy
☐ Key figures about climate
☐ Analysis of surveys from an “energetic” point of view
Getting data about electricity

- Simplified monthly questionnaire to the main producers (EDF, CNR), providers (1) and transport and distribution grids (2)

- Two annual statistic surveys

  ➔ All the producers (3 500), including autoproducers, CHP plants, etc. (except photovoltaic in households: we get the aggregated regional productions supplied to the grid thanks to the guaranteed prices)
  
  Questions about production, fuel, equipment… Special questions for the European directive on CHP plants.

  ➔ All the actors implied in transport and distribution (170)
  
  Origin of the electricity. Quantities provided by region, types of consumers.
Getting data about gas

- Simplified monthly questionnaire to the main providers (10) and to the managers of stocks (2), LNG terminals (3), transport network (2) and distribution network (1)

- Annual statistic survey to all the actors (80)

- Questions about importations (by origin), transit, flows at entry points, production, stocks, losses, consumption by sector, consumption by region, prices
Getting data about oil

- Oil companies have to declare monthly:
  - Importations and exportations of crude oil and of refined products (specific declarations that can be compared to international trade statistics)
  - Refineries activity: production, consumption, stocks
  - Sales by product
- Annual surveys near petrochemical plants (13), sales by region (no longer collected by the professional union)
Getting data about coal

- Monthly data: foreign trade statistics for importations and exportations, power plants, iron industry, coking (more than 80% of the whole consumption)

- Annual data: statistical survey about consumption in industry, professional union statistics for households and services
Getting data about renewable sources (non electric)

- The methodology has to be adapted to each source. The new installations can usually be known through the subsidies. The problems then are
  - To estimate the production of the installations, using the known characteristics (solar thermal systems, heat pumps),
  - To estimate the rate of out of use installations
- Annual survey for waste, inventories for geothermal energy, fiscal data for biofuels…
- Special problem for firewood (half of our renewable sources) : the only (more or less) reliable source is a survey near households every 5 years (we have nothing better than what the households declare). And we estimate an evolution.
- The new installations subsidized by the new «fonds chaleur» will have to declare their productions. Our problem is that these declarations will be statistically usable…
Collecting data

- Energy actors are agreed and controlled by the administration and have to report: imports, exports, production, stocks, sales...

- We have compulsory statistical surveys to collect electric productions, transport and distribution; imports, transport, distribution and sales of gas; activities of district heating; prices for gas and electricity.

- Many data about oil are collected by the oil professionnal union (CPDP)

- Surveys near samples of consumers help to check the data and to know the consumption for detailed sectors

- The answers to the questionnaires can be checked: ratios input/output for power plants, ratio production of iron/consumption of coal…
Checking quality

Consistency of the data is rather easy to check between the different steps

- For instance, for electricity
  - Production + imports – exports
  - Transport
  - Distribution
  - Final consumption

- Or for oil
  - Production + imports – exports of crude oil
  - Refineries + Exchanges of refined products + Changes of stocks
  - Sales
Global problems

- Few actors => confidentiality problems, specially at local level
- Strong policies in fields where statistics are not reliable (renewables, local policies, « bilan carbone »…)
- Need for a very fast and very simple dissemination : it needs time to be serious and easy to understand
- Many requests, with a lot of very urgent questions…

But,

- Having requests is tiring, but interesting
- Compared to the other areas, the global picture of energy statistics is really good
Main Features of the Energetic Situation of France
France in the world: needs but no resources

- Population: 1.0%
- Area: 0.1%
- GDP: 3.3%
- Consumption of primary energy: 2.6%
- Fossil resources: 0.01%

Source: d’après AIE, 2007

- Net Importations: 138 Mtoe
- Primary production: 137 Mtoe
- Climatic correction: 2 Mtoe
- Energy transformation (refineries, electricity plants, distribution...):
- Final uses (corrected): 175 Mtoe
- Increasing stocks: 1 Mtoe
- Uses for transformation, losses, international marine bunkers: 101 Mtoe

Source: SOeS
The main aggregates

Source: SOeS
Nuclear production as a response to the oil crisis

Primary production (Mtoe)

Source: SOeS
The recent development of renewable energy

![Graph showing the development of renewable energy from 1985 to 2007.](source: SOeS)
The end of the electric overcapacity?
Energetic independancy rate (%)
Imports of crude oil rather well distributed (Mt)

Source: SOeS
A mixture of gas
Net imports of gas (GWh)

Source: SOeS
The growth of primary electricity
Consumption of primary energy (after climatic correction)

Mtoe

Source: SOeS
3/4 of the consumption in diffuse sectors
(43% residential & services + 31% transport + 3% agriculture)
Consumption of final energy (after climatic correction - Mtoe)

Source: SOeS
CO₂ emissions linked with energy are stable MtC, after climatic correction.
Energetic intensity: pause during the crisis

Source: SOeS
Since 2002, the consumption per inhabitant decreases.

Primary consumption / inhabitant
Final consumption / inhabitant

Source: SOeS
The new trends since 2002
Final energy consumption by sector

- Industry, including iron
- Transport
- Residential & services

Source: SOeS