

# France Report

Moss, Norway, April 2012

*French Environment and Energy Management Agency*

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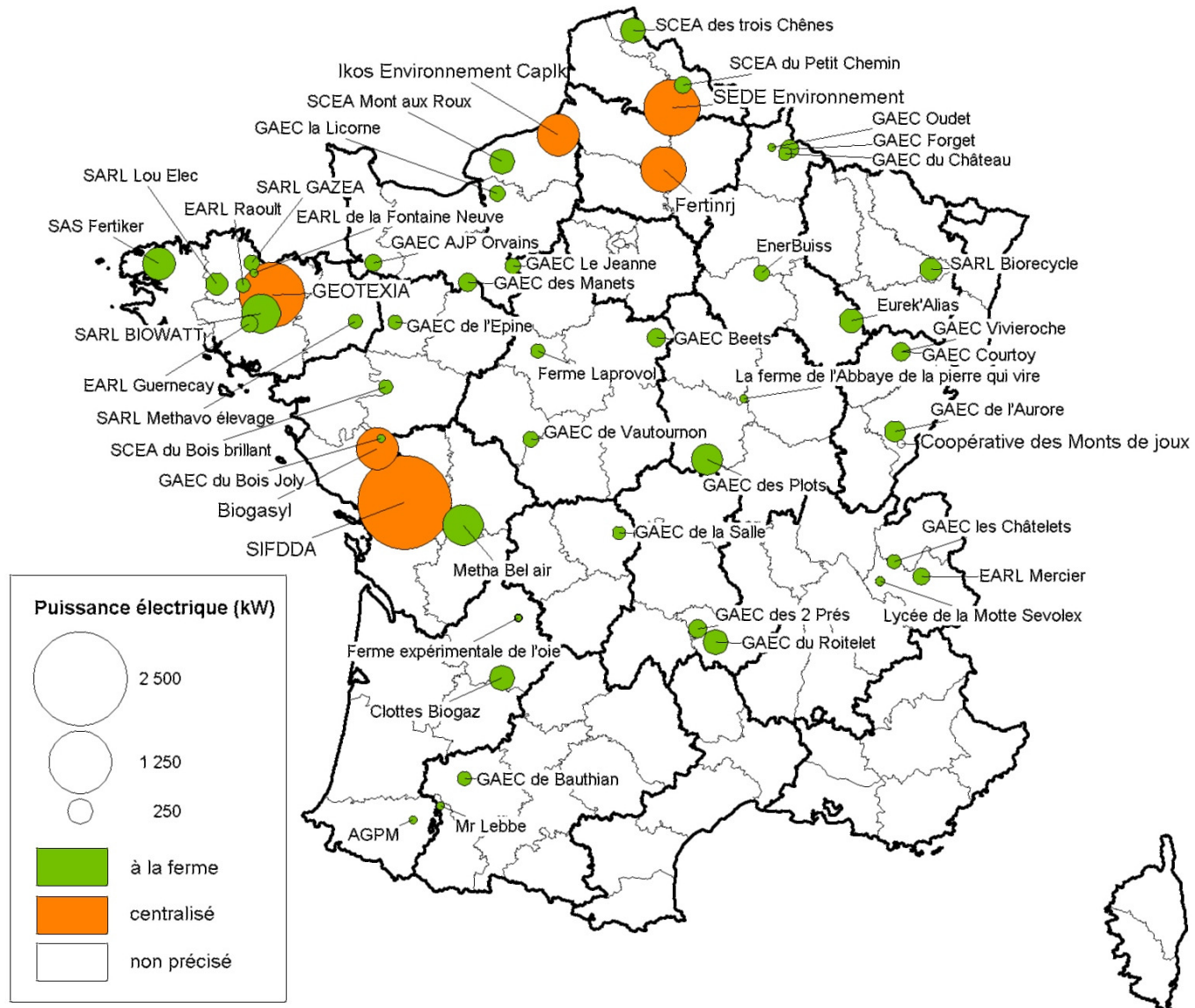
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### AD plants in operation (ADEME, 2011) :

- On-farm : 40
- Centralised : 7
- Industrial : 80
- Sewage sludge : 60
- MSW : 10 (4 biowaste & 6 grey waste)
- Landfill : 243 inc. 71 with energy valorisation (to be updated)

# On-farm and centralized AD, November 2011



- 1 landfill (Claye Souilly) :
  - 100 m<sup>3</sup>/h of biomethane (PSA and membrane)
- 2 biowaste
  - Lille : water scrubber 700 m<sup>3</sup>/h
  - Forbach : membrane (starting)
- 1 municipal sludge (Lille-Marquette) : 100 m<sup>3</sup>/h (stopped temporarily)

- *Investment costs*
  - on-farm AD and centralised :  
8 600 €/kWe for 100kWe  
5 600 €/kWe for 500 kWe  
5 200 €/kWe for 1MWe
  - MSW AD : 540 €/t treated
- *Up-grading*
- *Operating Costs*

- **Electricity tariffs : new regulation published on may 2011**

- landfills from 8.121 to 9.745 on basis
- AD plants from 11.19 to 13.37 c€/kWh on basis
- CHP bonus from 0 to 4 c€/kWh
- manure use bonus from 0 to 2.6 c€/kWh (*except landfills*)

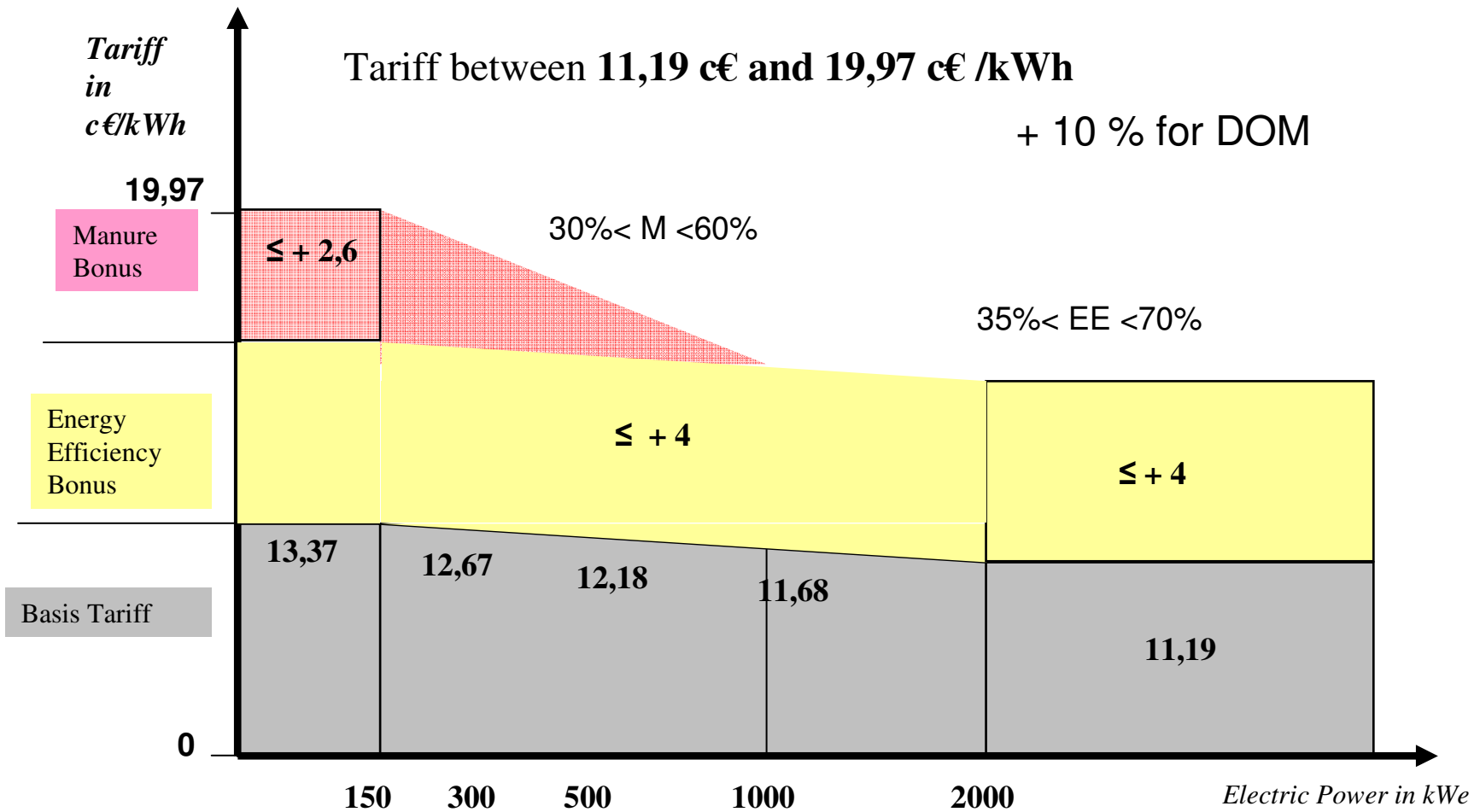
Min : 8.121 – Max : 19.97 c€/kWh

- **Up grading tariffs : new regulation published on november 2011**

- biomethane from landfills from 45 to 95 €/MWh depending of volume
- AD tariff : basis from 64 to 95 €/MWh depending of volumen and feedstock material
- biomethane from AD plants from 69 to 125 €/MWh

- **Investment grants**

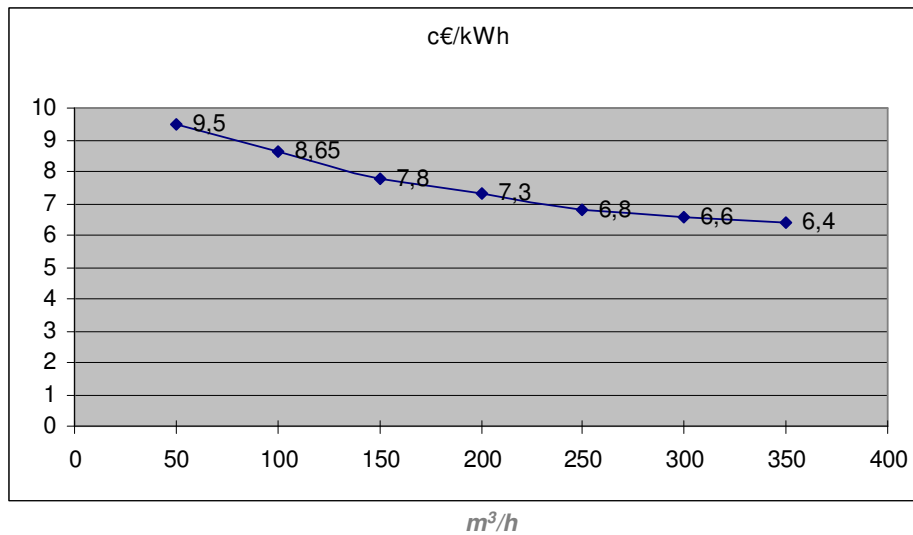
No change since the last meeting



**Tariff = Basis tariff + bonus feedstock materials (en c€/kWh PCS)**

**T Base**

$$PI = Pi1 * p1 + Pi2 * p2$$



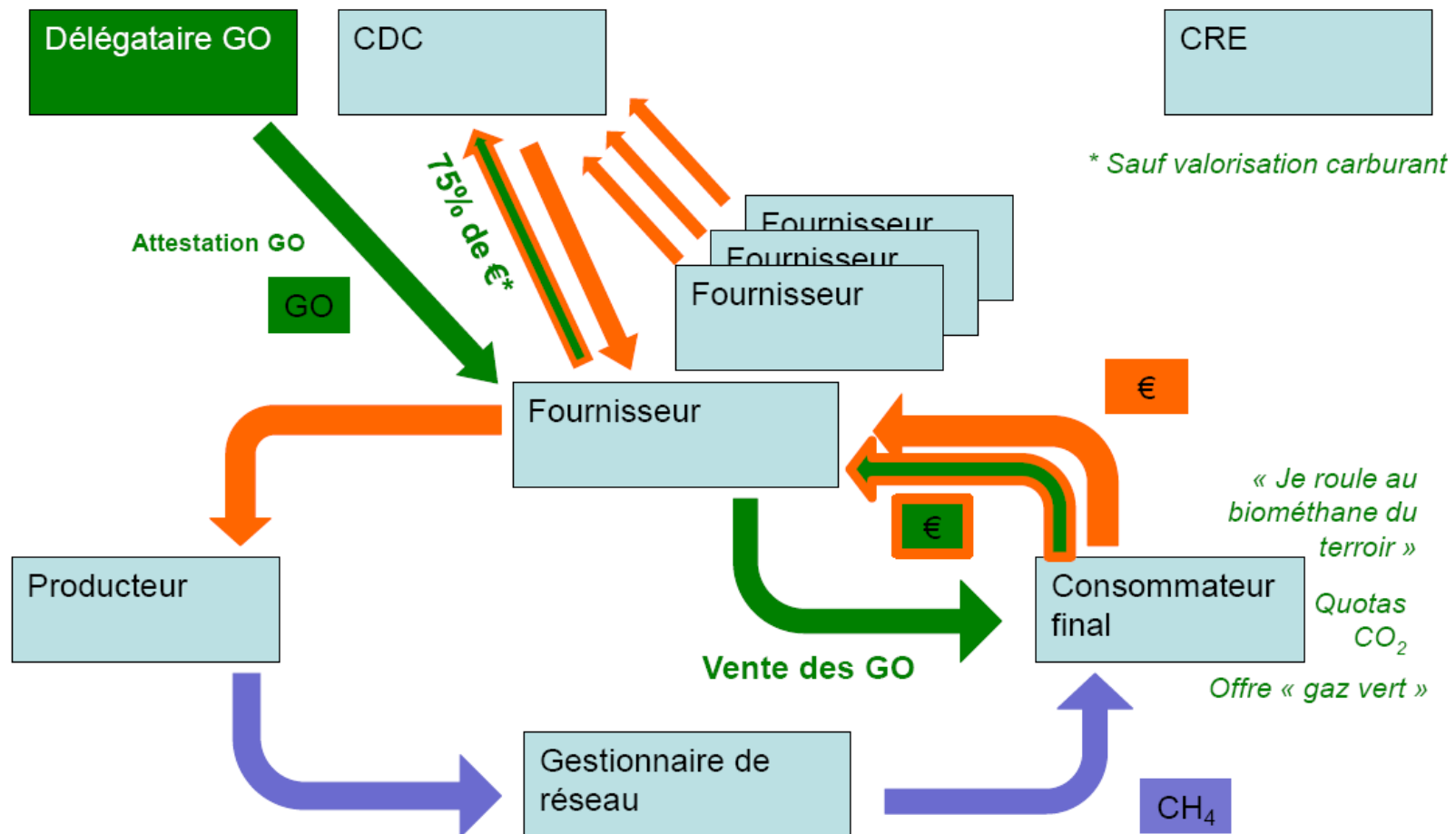
Biomethane flow rate	Pi1(en c€/kWh PCS)	Pi2 (en c€/kWh PCS)
< 50 m³/h	0,5	3
50 < c < 350 m³/h	0,5	Linear interpolation
> 350 m³/h	0,5	2

**Pi1: MSW (except sewage sludge), restaurant and canteen waste**  
**p1 : quantity of Pi1**

**Pi2: cover crops ; agricultural, wood and food processing feedstock materials**  
**p2 : quantity of Pi2**



- **national WG on up-grading and grid biomethane injection**
  - leaders : French Environment and Energy Agency and GrDF (DSO)
  - definition of technical specifications to inject biomethane into the grid  
Ex.: standardization of feasibility studies; content limit in O<sub>2</sub> ; control quality of biomethane; standard contracts;
  - creation of a web site [www.injectionbiomethane.fr](http://www.injectionbiomethane.fr) in January 2012
- **status quo on injection projects**
  - up than 280 projects
  - 72 % are technically possible
  - 80 % with a flow rate > 100 m<sup>3</sup>/h biomethane
  - 81 % from agricultural or food processing feedstock materials
- **new regulation and tariffs**

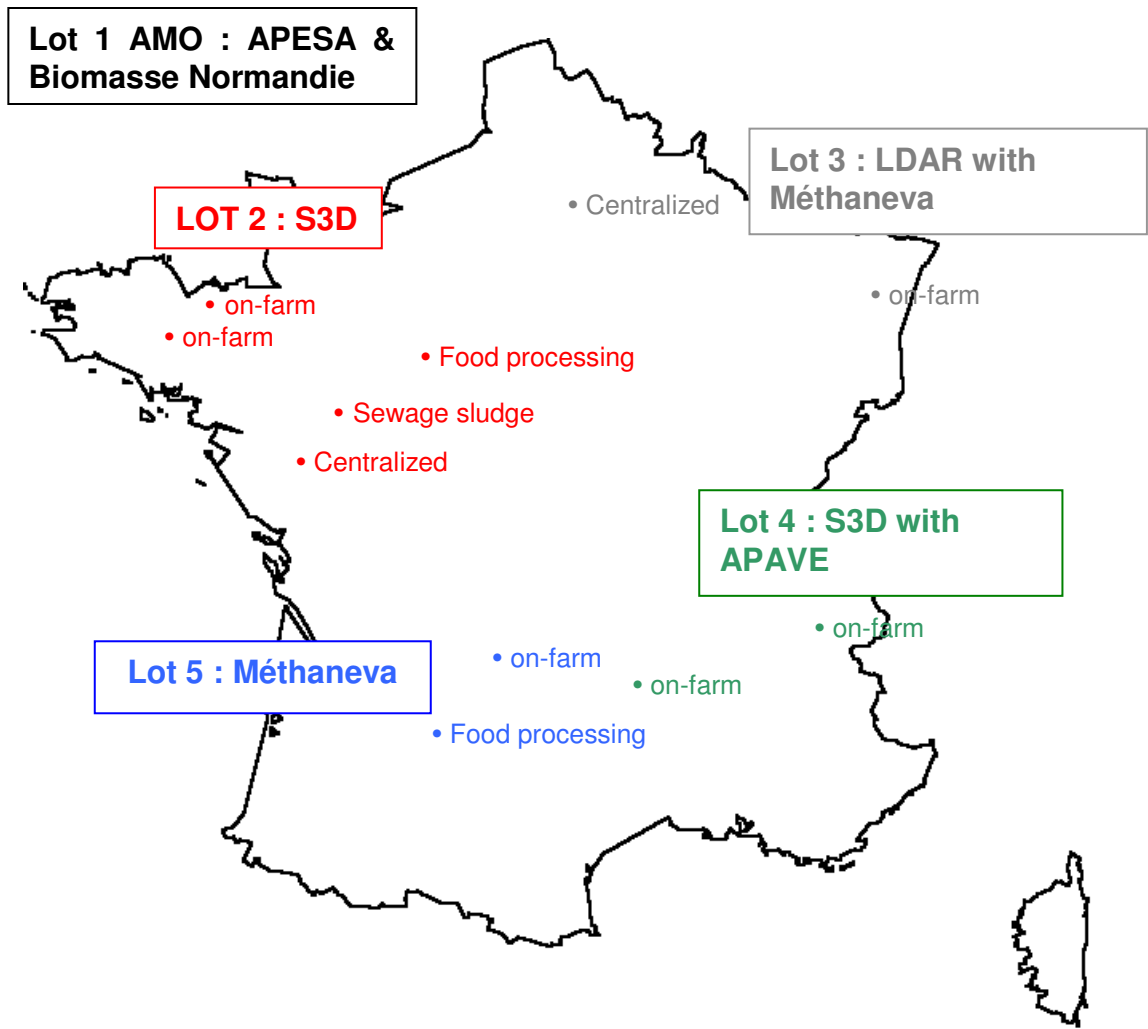


Source : Solagro

- **Agronomic quality and sanitary aspects of digestate (Report, October 2011)**  
<http://www2.ademe.fr/servlet/getDoc?cid=96&m=3&id=79519&p1=30&ref=12441>
- **Complete process monitoring of 11 on-farm, centralized, food processing and sewage sludge AD plants (in progress)**
  - Optimizing process
  - Measure of technical and environmental performance (establish ratios and indicators)
  - Economical results
  - Social impact (measured by specific indicators)
  - Measure of digestate properties
  - Establish success stories for following projects
- **Complete process monitoring of 5 MSW AD plants (in progress)**

## On farm, centralized and food processing AD plant monitoring

- Coordinated by a consortium of two engineering societies
- Monitoring by 4 consulting firms or monitoring specialists
- 6 on-farm
- 2 centralized
- 2 food processing
- 1 urban sewage sludge



## MSW AD plant monitoring

- Coordinated by an engineering society
- Monitoring by 6 consulting firms or monitoring specialists

- Lot 1 : project coordination
- Lot 2 : feedstock management, economic data, energy balance
- Lot 3 : mass balance, compost quality

- Biowaste (Carribean Sea)

3 biowaste  
 2 grey waste & biowaste

