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French Environment and Energy Management Agency
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Decree WWTP sludge published in June 2014
- Possibility to feed-in the biomethane from WWTP sludge is open
- Tariff calculated as following:
  - Basis: 6.4 to 9.3 c€/kWh
  - + Bonus (flow rate): 0.1 to 3.9
  - + The year of start of the AD plant

“Energy, Anaerobic Digestion and Nitrogen” Action Plan, Still in operation with target of 1000 units built in 2020 another new target is “1 500 projects of AD plant in 3 years”
**AD plants in operation** (estimated by ADEME, December 2013):

- On-farm ≈ 140  (average of 190 kWe)
- Centralized ≈ 20  (av. of 1.2 MWe)
- Industrial ≈ 80
- WWTP ≈ 85
- MSW : 11 (4 biowaste & 7 grey waste)
- Landfill ≈ 245 including 110 with energy recovery

On-farm and centralized AD plant development forecast until 2020

EMAA
1000 units by 2020

MWe

0     50    100   150   200   250   300   350   400   450

number of plant  electricity power (Mwe)  goals of EMAA plan

estimation
AD Investment costs (2012)

- on-farm: 5610 €/kWe
- centralized: 6520 €/kWe

results of studies

- technical, economical and environmental monitoring of 10 plants (on farm, centralized, industrial, and WWTP production (2011-2013))
- economics data for 50 plants: investment, benefits and costs (2014)
- estimation of the biomethane potential from WWTP sludge

studies in progress

- technical, economical and environmental monitoring of biomethane production and injection facilities (2013-2016)
- technical, economical and environmental monitoring of small scale and innovative on-farm AD plants (2013-2015)
- Estimation of different Emissions from AD Plants
- Benchmark on European biogas production and policy
2009 - Claye-Souilly (MSW, landfill)
V = 60 Nm³/h
PSA + membranes (Cirmac)

2010 – Labessière-Candeil (MSW, landfill)
V = 40 Nm³/h
PSA (VerdeMobil - Xebec)

2011 – Lille (biowaste, 108,000 T/y)
V = 700 Nm³/h
water scrubber (Greenlane-Flotech)

2013 – Morsbach (biowaste, 45,000 T/y)
V = 50 Nm³/h (→ 100)
membranes (Air Liquide)

2013 – Chaumes-en-Brie (on-farm, 12,000 T/y)
V = 100 Nm³/h
membranes (Air Liquide)

2014 – Mortagne-sur-Sèvre (agro waste, centralized, 21,000 T/y)
V = 65 Nm³/h
PSA (VerdeMobil - Xebec)

2014 – La Roche-sur-Foron (WWTP, 5,000m³/d)
V = 60 Nm³/h
membranes (Evonik)

2014 – Sourdun (intermediate crops, 10,500 T/y)
V = 120 Nm³/h
membranes (Evonik)

2014 – Ussy-sur-Marne (intermediate crops, 10,500 T/y)
V = 120 Nm³/h
membranes (Evonik)
- **Technical, economical and environmental monitoring of biomethane production and injection facilities (2013-2016)**
  - Started in October, 2013 – end in December, 2016
  - Feed-back on the first 10 biomethane injection units (technical parameters, costs, recommendations for construction and upgrading/injection)

- **Evaluation of biomethane potential from WWTP sludge**
  - Completed in September, 2014
  - 85 WWTP with DA / 19,521
  - Potential 2020: 0,4 TWh
  - Potential 2050: 1,8 TWh