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Biomethane framework conditions in Germany.

Paris, February 26th 2015

Agenda.

- Energy Policy and Goals
- Framework conditions
 - Standards and Regulations for Grid Injection and Transport
 - Renewable Energy Sources Act (EEG)
 - Greenhouse Gas Reduction Quota (BImSchG)
 - Renewable Sources Heat Act (EEWärmeG) and Renewable Heat Act (EWärmeG)
- Market Development

dena-Projects biomethane.

- biogaspartner (www.biogaspartner.com)
 - Platform for biogas injection in Germany and Europe with recent market data & events
- Biogasregister Germany (www.biogasregister.de)
 - Online register for standardised documentation of guarantees of origin for biomethane amounts and -qualities
- Biomass Policies (www.biomasspolicies.eu)
 - Project aims to develop integrated policies for the mobilisation of “resource efficient” indigenous bioenergy ‘value chains’ in order to contribute towards the 2020 bioenergy targets.

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biomasspolicies

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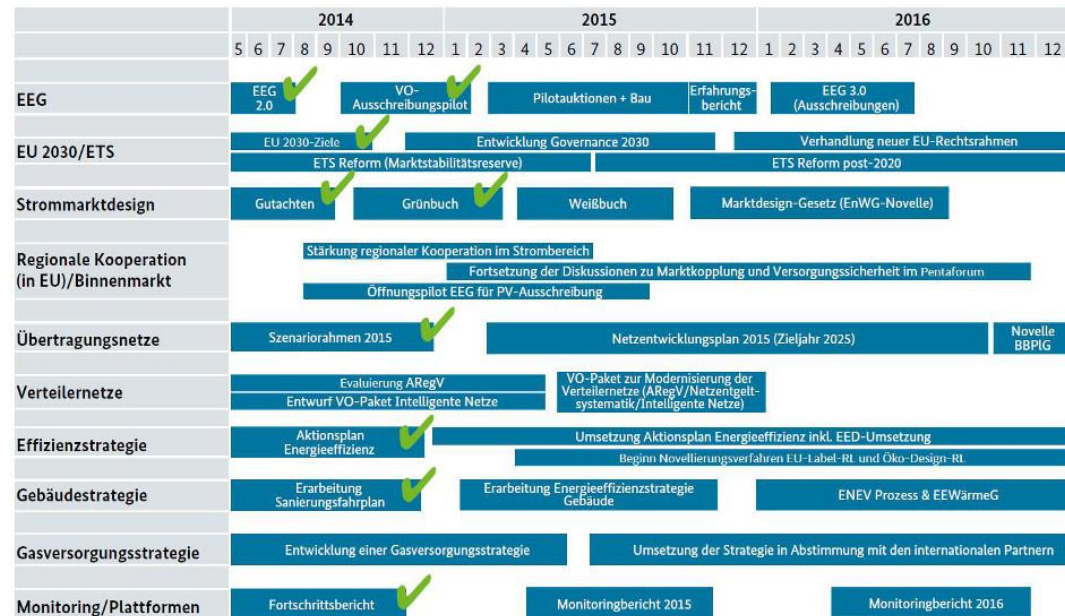
Energy Policy and Goals.

German Energy Goals.

- Reducing greenhouse gas emissions by 40% by 2020, and by at least 80% - 95% by 2050
- Taking the last nuclear power plant in Germany off-stream in 2022
- Increasing the share of renewable electricity up to 50% in 2030, and by at least 80% by 2050
- Increasing the share of renewable heat up to 14% by 2020
- Increasing the share of power generation in CHP up to 25% by 2020
- Increase the volume of high-pressure methane in the natural gas grid up to 6 billion m³ in 2020 and up to 10 billion m³ in 2030

Restructuring of the Energy System – Some Challenges.

- Cost-effective restructuring of the energy system
- Grid expansion both distribution and transmission grids
- Secure energy supply – reliably available capacity
- Market integration of renewable energy
- Energy efficiency
- Social acceptance



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Framework conditions.

Standards and Regulations for Grid Injection and Transport.

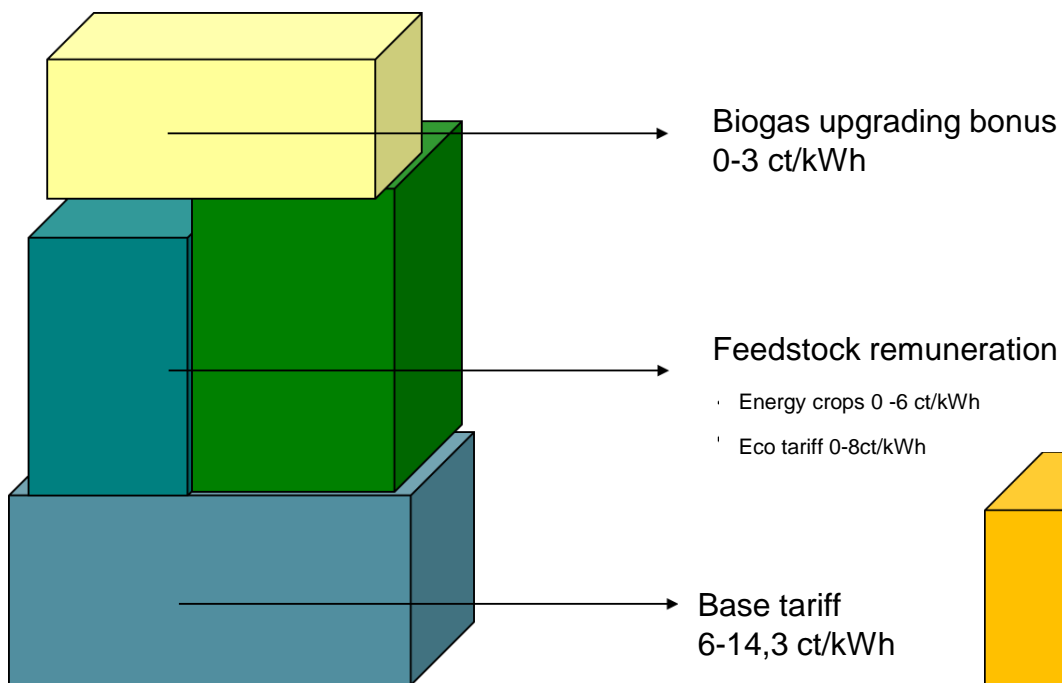
- Prior grid access for biogas feed-in (GasNZV)
- CAPEX distribution for grid connection between gas grid operator and biomethane producer 75%:25% (maximum amount is 250.000 Euro)
- gas grid operator fully responsible for OPEX of gas connection station
- Time schedule for realisation of gas grid access is limited to 18 month
- Gas grid transportation tariff is reduced for biomethane by 0.7€cent/kWh

Standards and Regulations for Grid Injection and Transport.

- 25% more flexibility in entry/exit system (balance group) in comparison to natural gas
- Gas quality is clearly defined by technical standards and thresholds (DVGW G260, G262): CO₂; O₂; H₂S; Wobbe-Index
- Maximum methane loss of injections plants is limited to 0.2% (under EEG)
- Track and trace biomethane from its withdrawal of the gas grid to its production site is required via mass balancing

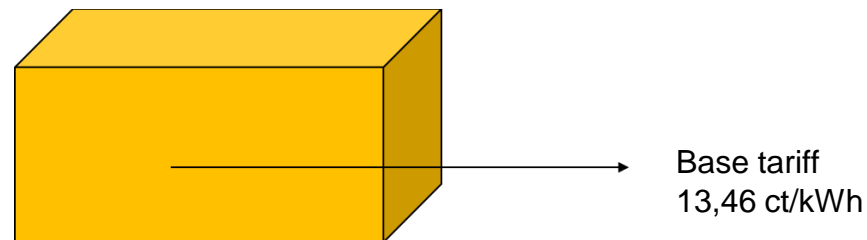
Renewable Energy Sources Act (EEG).

Remuneration EEG 2012:



Source: BBH 2014

Remuneration EEG 2014:



Renewable Energy Sources Act (EEG).

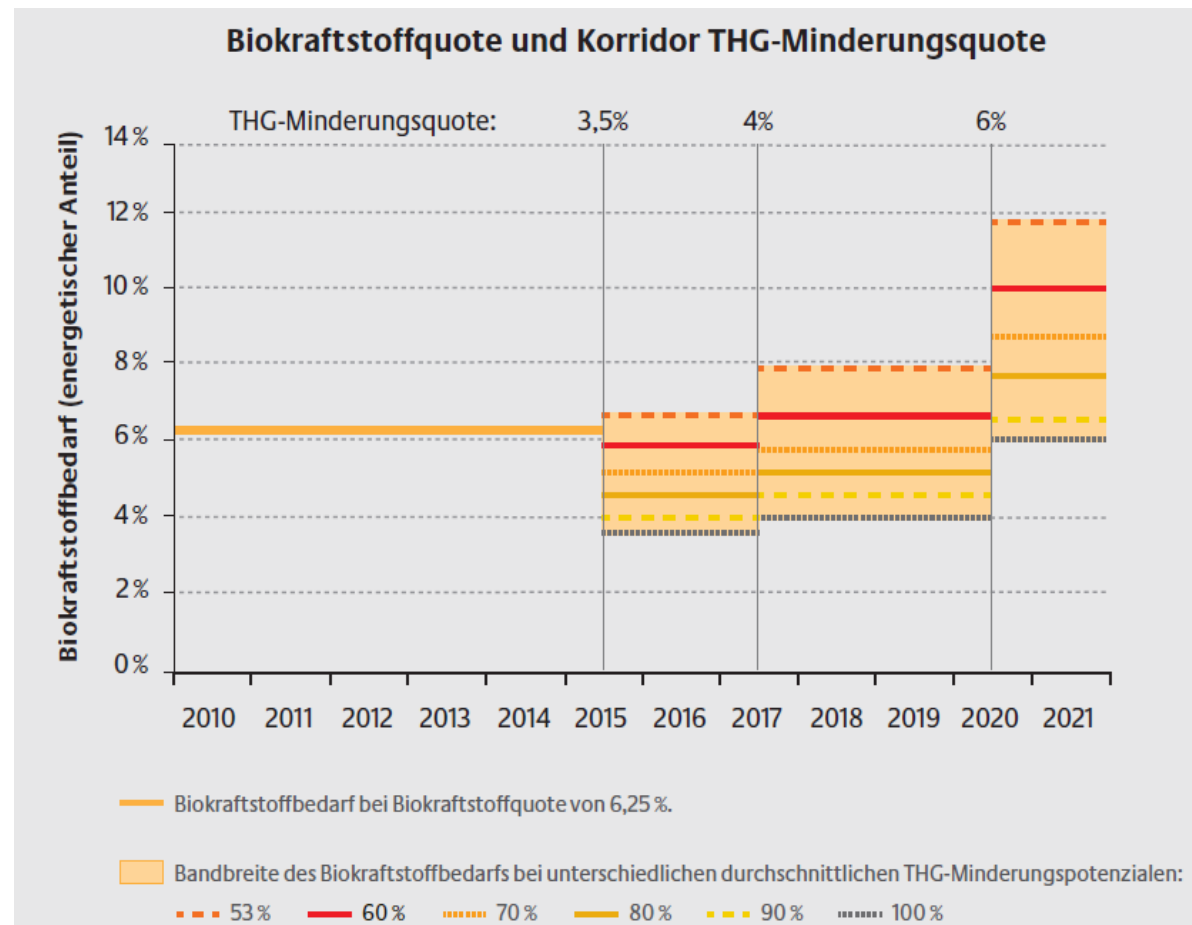
- **Feed-in tariffs** for new installations is limited to a volume of bioenergy capacity of 100 MW per year
- Obligatory direct selling for chp-plants larger than 100kW
- Plant operator is entitled to claim for supplemental financial support: market and flexibility premium
- **Market premium** is the difference between feed-in tariff and market value (ex post)
- **Flexibility premium** is paid to chp plant operators (>100kW) for providing additional installed capacity for power generation to be in line with demand
 - 40€/kW installed capacity
 - It's paid for 20 years

Greenhouse Gas Reduction Quota (BImSchG).

- Biofuel obligation (6.25%) based on energy content of fuels terminated 2014; double counting of biofuels from wastes and residues exists no longer
- From 2015 onwards oil companies are obliged to reduce the greenhouse gas emissions from liquid fossil fuels via biofuels according to the following shares
 - 3.5 % from 2015
 - 4 % from 2017
 - 6 % from 2020
- The tax exemption for biomethane (1,39 ct/kWh) terminates in 2015 (EnStG)

Greenhouse Gas Reduction Quota (BImSchG).

- High ghg avoidance potential of biomethane from wastes and residues in comparison to other biofuels
- Ghg reduction quota creates high uncertainty about the ghg avoidance potentials, volumes and prices of biofuels



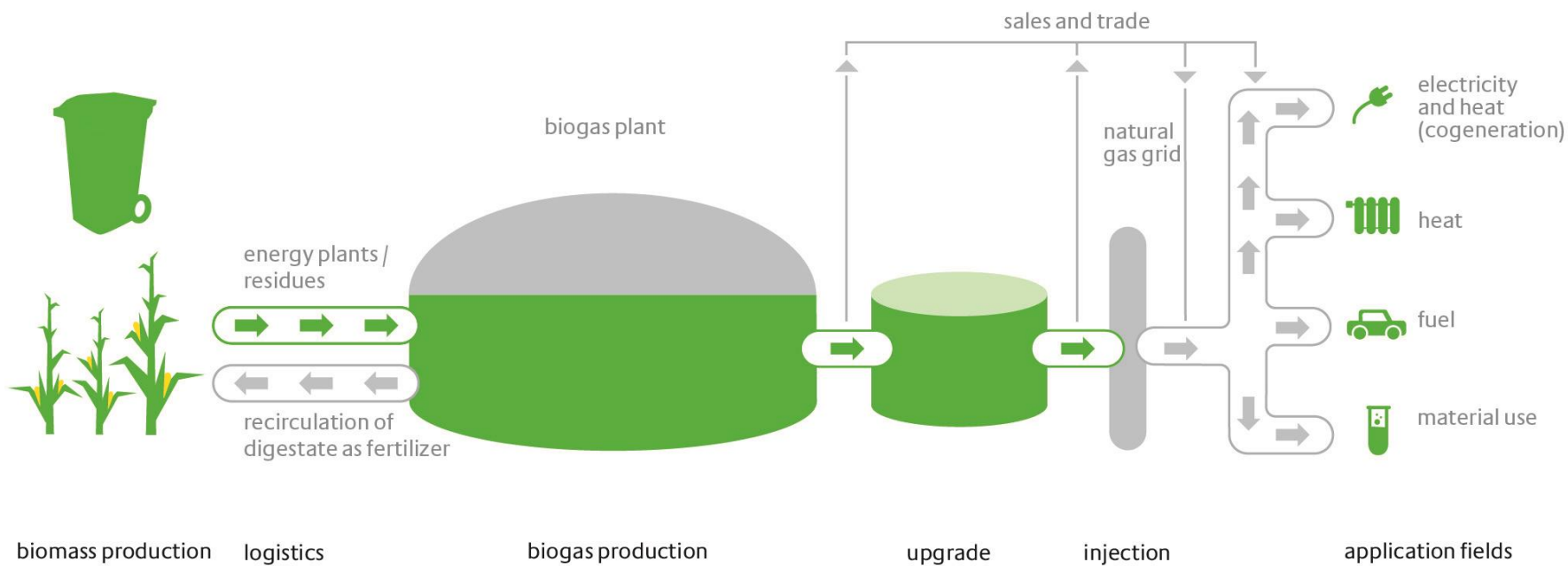
Renewable Sources Heat Act (EEWärmeG) and Renewable Heat Act (EWärmeG).

- Renewable Sources Heat Act (federal level)
 - Obligatory use of renewable energies or high energy efficiency measurements in **new buildings**, e.g. biomethane fired (micro-) CHP devices (30%), wood firing (50%), solar heating (15%), thermal insulation of buildings
 - Role model of public sector at **building restoration**: obligatory use of renewable energies and high energy efficiency measurements, e.g. biomethane in natural gas condensing boilers or chp-devices
- Renewable Heat Act (Baden-Württemberg)
 - Obligatory use of renewable energies or high energy efficiency measurements in case of **building restoration** (exchange of heating devices), e.g. 10% blending of biomethane
 - Amendment (not in force yet): renewable share shall be increased up to 15%; biomethane limited to 10% blending and 50kW maximum boiler capacity

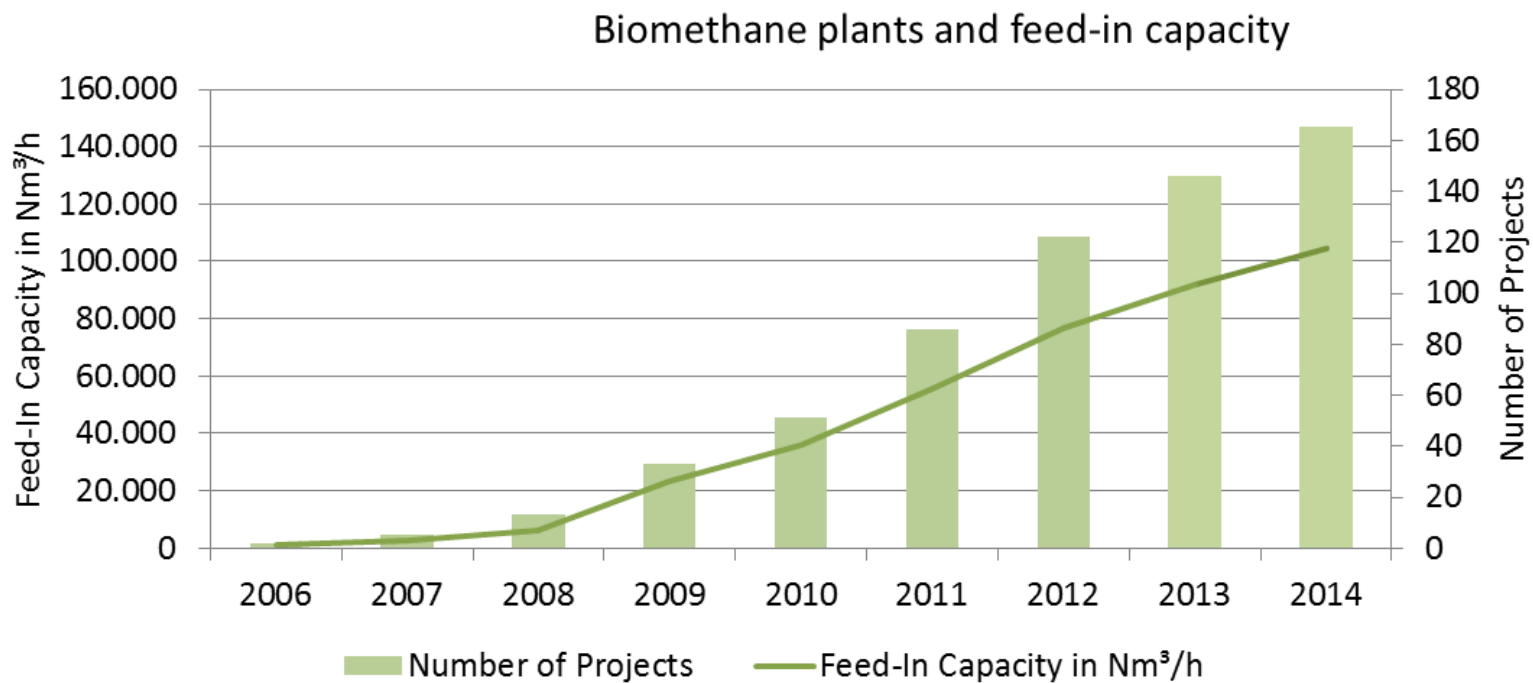
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Market Development.

Biomethane value chain.



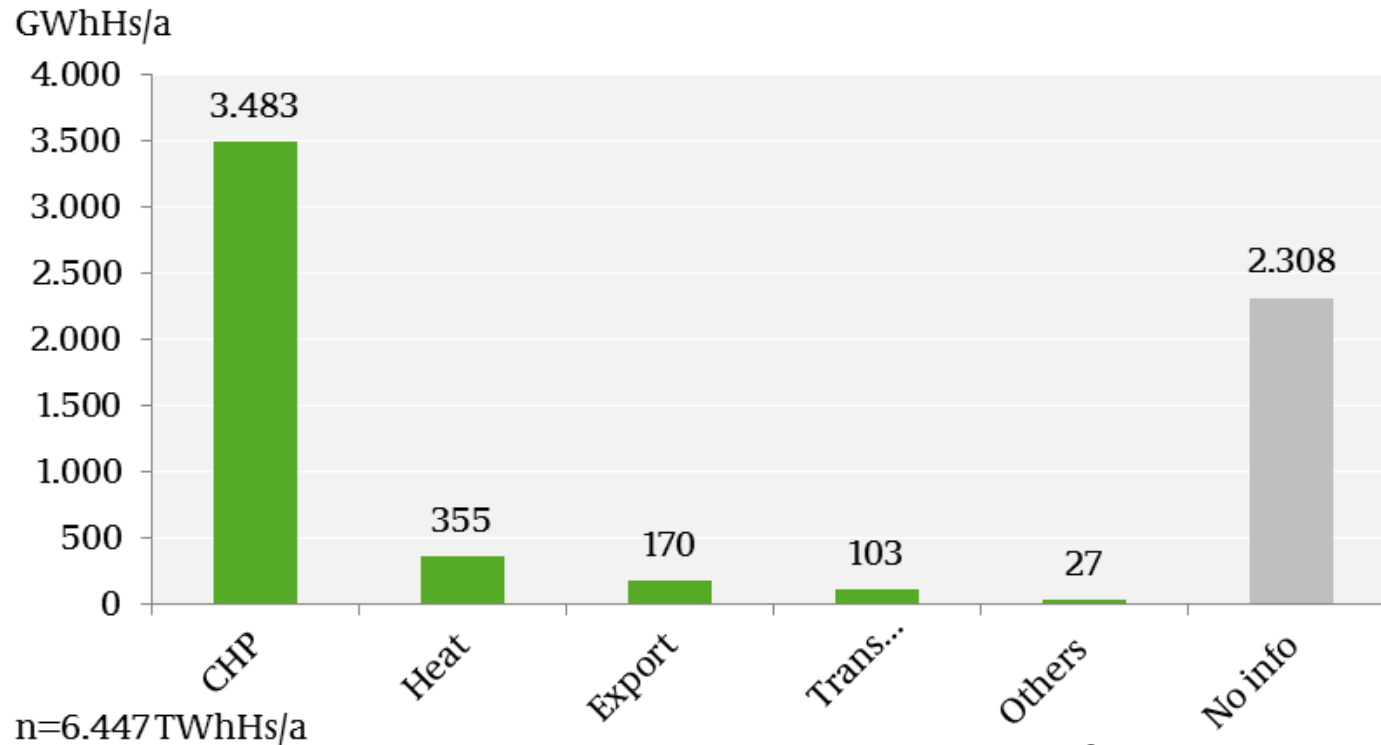
Review: Biomethane Feed-in Capacity.



Source: dena 2015

How is Biomethane utilized?

Biomethane utilization in 2013

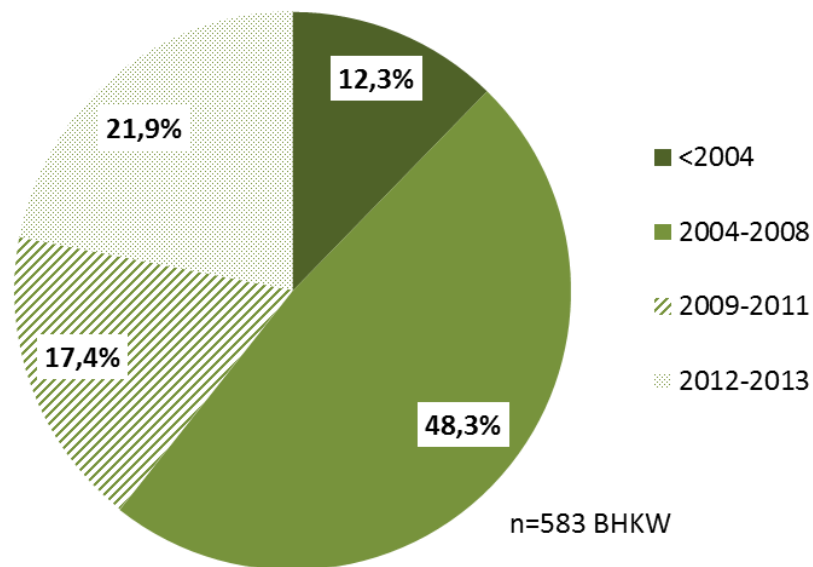


Source: dena 2014

Biomethane CHP-Plants.

- installed capacity of biomethane fired chp plants is about 240MW (2013)
- According to own analysis of 583 biomethane chp plants, more than half of the installed capacity was put into operation before 2009
- First half of 2014: no data available yet; but many activities were reported
- Second half of 2014: 8.6 MW additional capacity and 27.5 MW flexibility premium

Installed power capacity according to first operation of chp plant



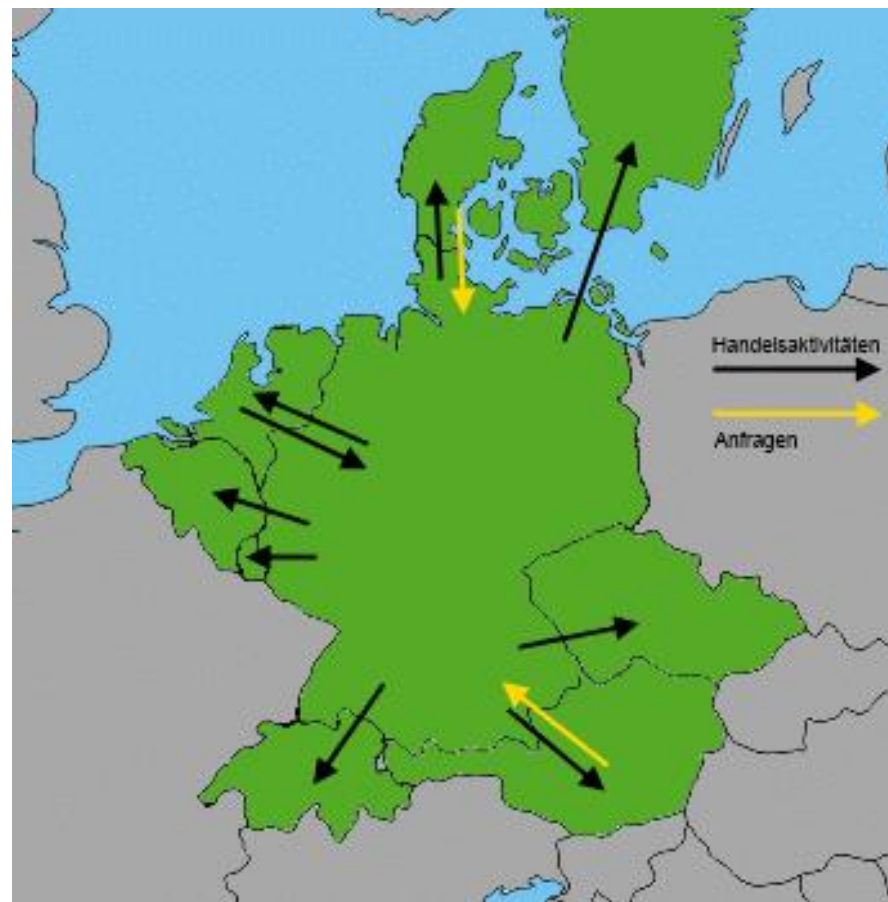
Source: dena 2014

Biomethane/ CNG market Germany.

- 98,000 CNG vehicles and 920 CNG gas stations
- 2,250 GWh CNG/Biomethane in 2013 (0.36 % of total fuel market)
- Biomethane contribution to quota obligation: 487 GWh in 2013
- Majority of biomethane counted twice towards the quota obligations (waste and residues only)
- About 60 GWh received tax exemptions
- In 2014 low prices for quotas are very likely to reduce the amount of biomethane

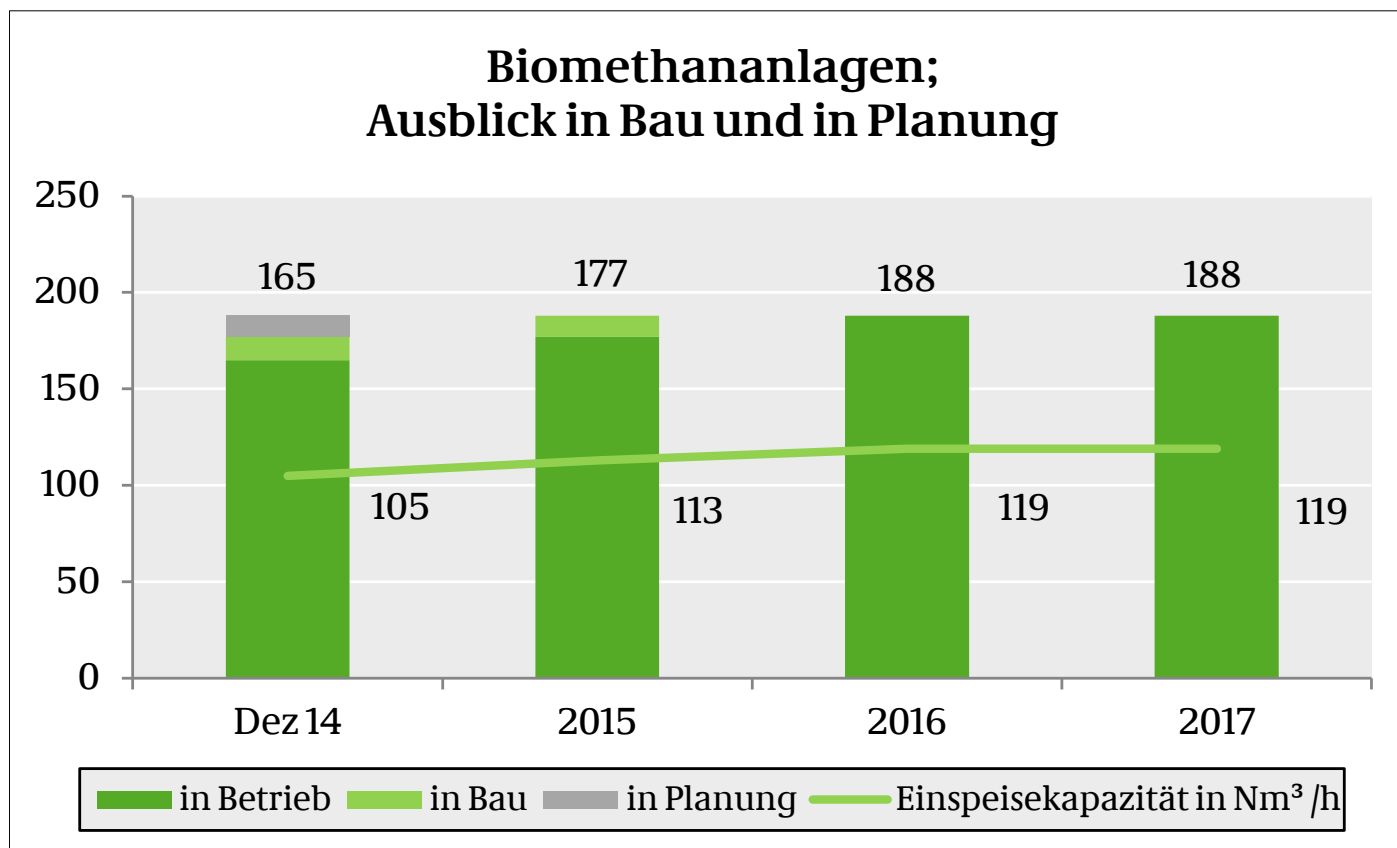
International Trade.

- Biomethane trade within Europe increases
- Framework conditions exclude imports to Germany for EEG and biofuel quota (last-mentioned: under discussion)
- Mass balancing is required



Quelle: dena 2014

Outlook: Biomethane Feed-in Capacity.



Source: dena 2014



Efficiency – our focus.

Thank you.

www.biogaspartner.com
www.biogasregister.de
www.biomasspolicies.eu
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