

#### IEA Bioenergy - Task 37 "Energy from Biogas"

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### Country Report Norway

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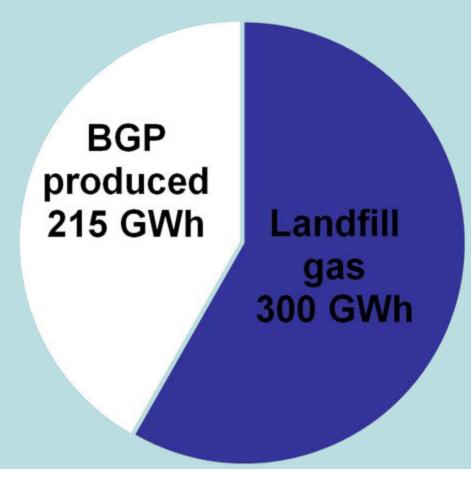
# Framework and tools for stimulating Bio orsk the development of biogas in Norway

The Norwegian Government aims that 30% of livestock manure in combination with 600 000 tons of food waste to be treated in biogas plants within 2020

In Report to Parliament. No. 39 (2008 -2009), Climate change - part of agriculture solution), it is stated that biogas is the single measure that holds the greatest potential to reduce emissions of greenhouse gases in the agricultural sector



#### Biogas production 2012 - estimation

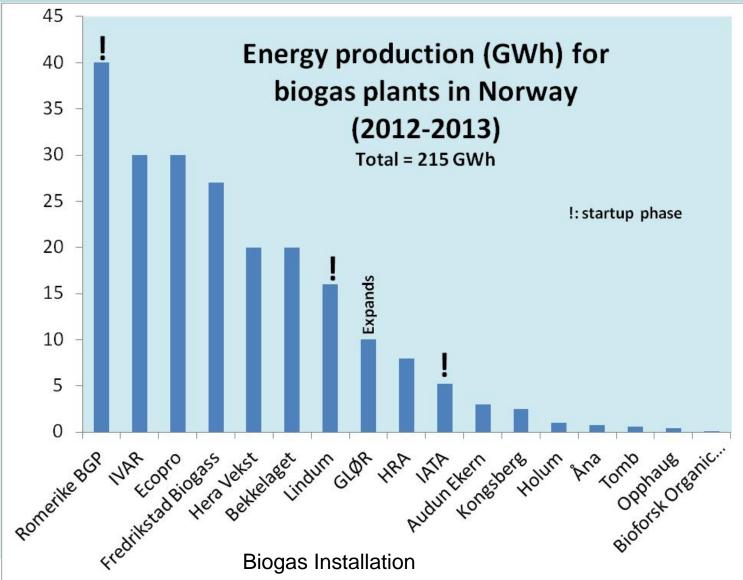


Modified after: Potensialstudie for biogass i Norge, 2008. Raadal, H.L, Schakenda, V. & Morken, J. Report, 55 p.

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#### Biogas production in Norway





## Initiatives Green certificates introduced in 2012



- A joint certificate marked between Norway and Sweden
- Producers of green energy
  - Awarded with a green certificate corresponding to the amount of green energy produced
- Electricity suppliers are obliged to by a certain number of green certificates (approx 30€/MWh)
- Goal: A demand for green energy is created!



### Initiatives Manure into BGP

- Farmers receive 15 NOK/m³ manure
  - One cow =  $9 \text{ m}^3/\text{yr} = 135 \text{ NOK} = 18 \text{ Euro}$
  - Price of fuel: 13-15 NOK/L diesel

Transport distance to BGP of more than 40 km = not affordable

#### Biogas utilization - the future



- Large biogas plants are planning to upgrade the biogas to fuel
  - EL-production is still dominating
  - Large biogas plants uses landfill gas for energy, selling biogas produced as fuel
- Small biogas plants utilizes the biogas on farms
- Digestate
  - a valuable fertilizer in agricultural and horticultural production
  - 10.000 m<sup>3</sup> was used in 2009
  - New regulation on the use in progress (2013)