Urban Biogas Workshop "Biogas upgrading" - Introduction -

Michael Beil, Fraunhofer Institute for Wind Energy and Energy System Technology Urban Biogas Workshop, Riga/Latvia, 2012-10-25





Agenda

- 1. Introduction: Overview biomethane production
- 2. Biogas cleaning methods (H_2S , H_2O , Siloxanes, NH_3)
- 3. Biogas upgrading
- 4. Discussion



What's biomethane?

Biomethane is a cleaned (free of H₂S, water, etc.)

 \rightarrow mostly used activated carbon

and upgraded (nearly free of CO₂) biogas.

 \rightarrow The removing of CO₂ is the main task!



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Composition of biogas

- > Methane CH_4 (50 75 %)
- Main component of natural gas
- > Carbon dioxide CO_2 (25 45 %)
- \succ Water H_2O
- Nitrogen N₂
- Oxygen O₂
- Ammonia NH₃
- Hydrogen sulphide H₂S
- > Other trace gases (e.g. hydrogen, siloxanes, etc.)



Biomethane value chain





Development of biogas upgrading in Europe (Status: 2011)





Development of biogas upgrading capacity in Europe (Status: 2011)





Development of biogas upgrading in Europe (Status: 2011)





Overview biogas upgrading plants and technologies in Europe (Status: 2010)





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