

# Training on business agreements

## Criteria to assess biomethane projects

- Project checklist -

# Content

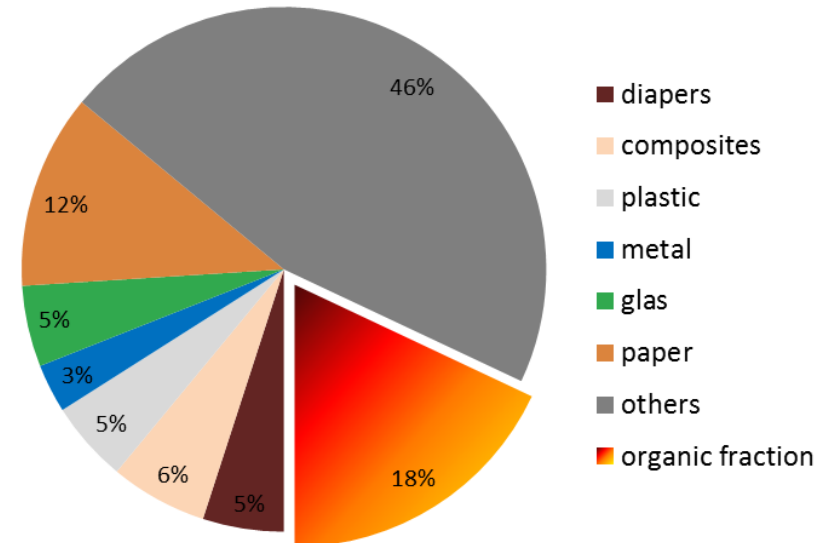
- Survey of available feedstock
- Product biomethane
- Biogas production and upgrading plant
- Stakeholder
- Recommendations for a successful biomethane production



# Survey of available feedstock

## ■ Municipal solid waste, organic fraction in target city and vicinity

- annual quantity, annual variation
- average quality, annual variation
- current form of disposal
- current and future costs of disposal
- Mid to long term contracts possible?  
Escalation clauses?



# Survey of available feedstock

- Industrial organic residues in target city and vicinity
  - annual quantity, annual variation
  - average quality, annual variation
  - current form of disposal
  - current and future costs of disposal
  - Mid to long term contracts possible? Escalation clauses?



# Survey of available feedstock

- Agricultural energy crops in vicinity of target city (alternatively)
  - annual quantity, annual variation
  - average quality, annual variation
  - current form of land use, agricultural products
  - current and future costs of production
  - Mid to long term contracts possible? Escalation clauses?



# Product biomethane



- Calculation of prospective biogas and biomethane yield
- Prospective demand, set targets
- Comparison of biomethane production and demand
- Prices and security of supply of competitive products
- Prices and revenues from biomethane production
- => conclusions for your investment

# Biogas Production and Upgrading Plant

## ■ Technology

- best practice plants
- foreign supplier
- locally available technology
- preferences of technology, manufacturer and/or equipment
- legal and technical standards/requirements

## ■ Plant location

- available area
- road access, water ways
- sufficient electrical power supply
- access to low to medium pressure natural gas grid
- neighbourhood; noise, odour, lights, traffic volume, intractable citizens



# Biogas Production and Upgrading Plant

## ■ Economy

- Investment; project development, area, infrastructure, plant technology ...
- Costs; plant, staff, infrastructure, supplements, waste, energy, insurances, depreciation ...
- Product costs
- Financing; public/private investors, funding schemes regional/national/EU, revenues, tax exemptions, tax optimising
- Sales concept; supply agreements, contracts



## ■ Operation

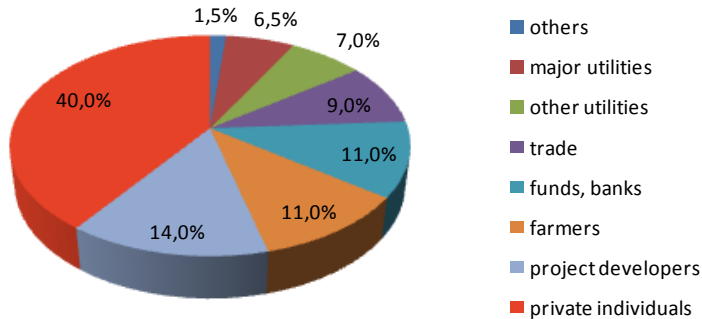
- Service time; x hours per day, y days a week, z days per year
- Staff qualification; number of staff
- Contracted sub suppliers for auxiliaries and maintenance and repair
- Administration and Public Relation





# Stakeholder

## Investors in Renewable Energies, Germany 2010, total 53 GWel



## Investors/owner

- Public/private investors
- Bank
- Share based funds
- corporate form

## Additional parties involved

- regulatory authorities; building authority, environment, waste, water, energy, commerce ...
- local authority, political parties and NGOs
- citizens' committee
- utilities
- waste disposal services
- filling stations



# Recommendations for a successful biomethane production

- Essentials:
  - Good and stable legislative framework
  - Easy and transparent permitting procedures
  - Access to financing sources
- Creating and maintaining a sustainable demand for biomethane
- Inspiring investors
- Convincing authorities and oppositional groups
- Safeguarding a sound plant operation



# Good luck for your projects!



Contact:

Uwe Hoffstede  
Fraunhofer IWES  
Division Bioenergy System Technology  
Königstor 59  
34 119 Kassel, Germany  
[uwe.hoffstede@iwes.fraunhofer.de](mailto:uwe.hoffstede@iwes.fraunhofer.de)