



Characteristics and specific challenges in the construction of agricultural biogas plants in France

Dr. Simone Besgen



24. Oktober 2012 in Offenburg

www.rytec.com



Rytec Locations

Baden-Baden, Germany

—

Frankfurt am Main, Germany

—

Münsingen, Switzerland



Rytec presentation

Company founded in Switzerland, 1988 | 7 employees —

Company founded in Germany, 1998 | 30 employees —

Efficient and environmentally friendly solutions —

Many years of experience —

Motivated team of engineers, scientists and management experts

Our plants and projects



Biogas plants

—

Block heat and power plants / Incineration plants

—

Sewage treatment plants

—

Waste treatment and utilization

—

Photovoltaic plants / Wind energy

Our focuses

Feasibility study

—

Approval planning

—

Public tender

—

Delivery of components

—

Construction management,
commissioning and retrofit

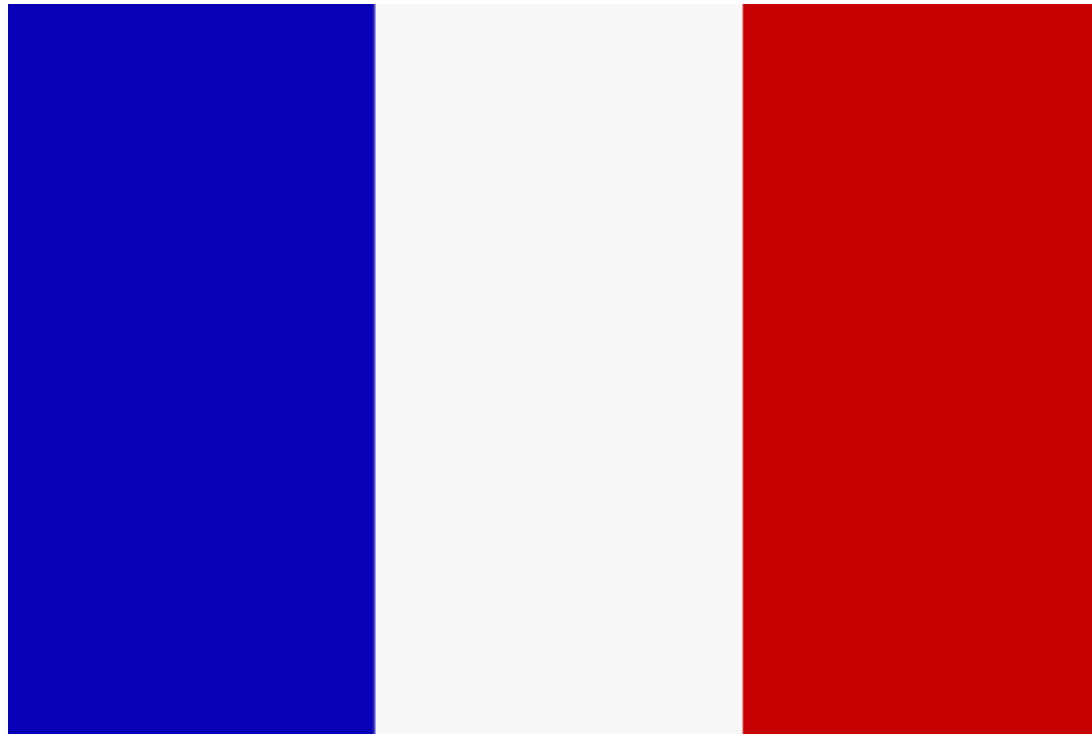
—

Landfill and co-generation unit operator





Challenges in France



Start: Biogas information event in June 2010

- Showcased three biogas plants in Achern
- French farmers participated
- Another information event in November with only Alsatians in the office in Baden
- Contract awarded in August 2012



Feed-in tariffs for electricity and heat in France

Basic rate (15 years)

Electric power kW	Landfill gas plants ct/kWh	Agricultural biogas plants ct/kWh
150	9,745	13,37
2 000	8,121	11,19

Bonus

Part of thermal use (%)	ct/kWh
35	0
70	4

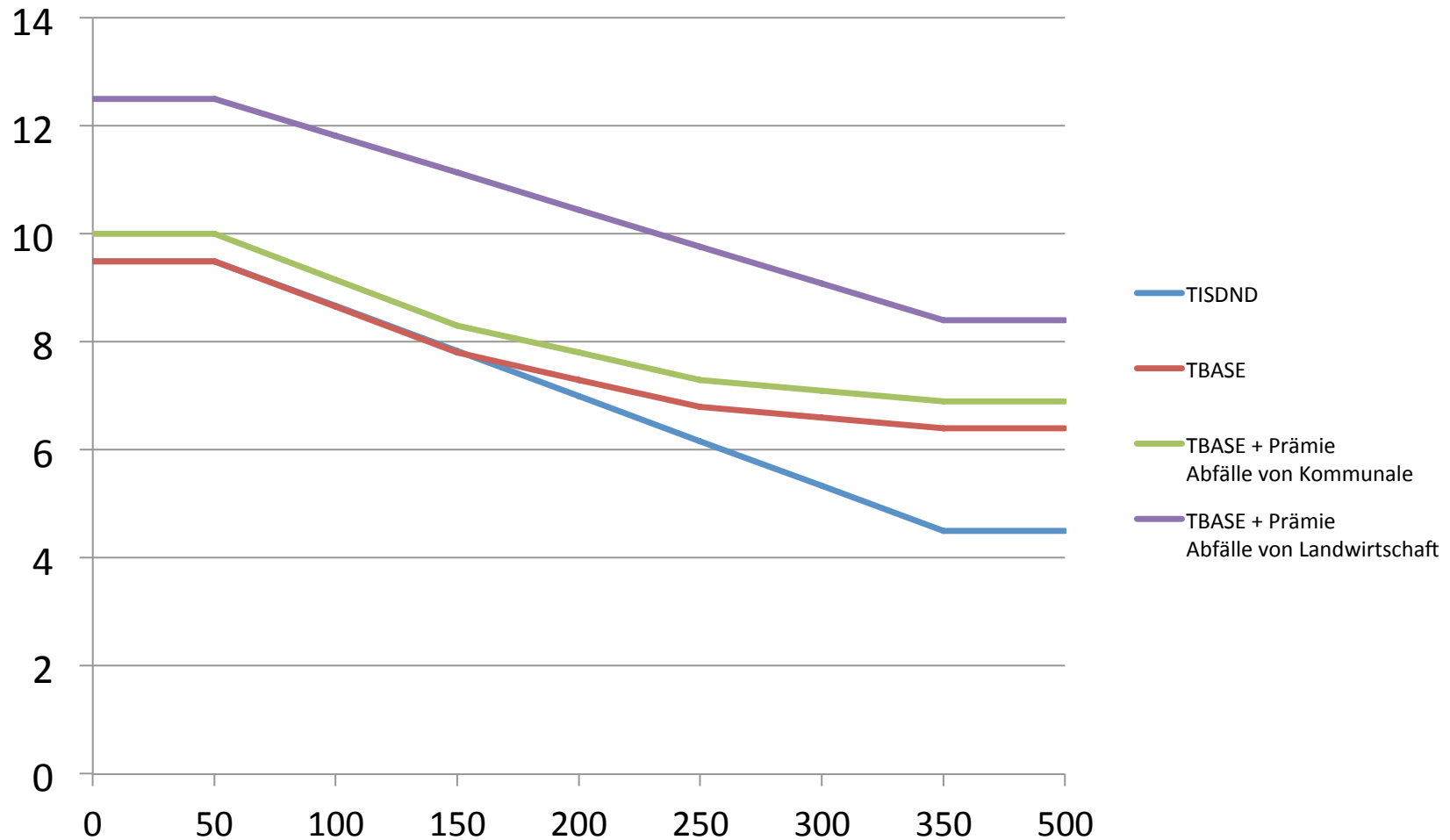
Part of manure (20-60 %)	
kW _{el}	ct/kWh
150	2,6
1 000	0

Feed-in tariffs for biomethane in France

Maximum biomethane production	Landfill gas plants	Agricultural biogas plants		
	Rate	Basic rate	Bonus for municipal wastes	Bonus for agricultural wastes
m ³ /h	ct/kWh PCS	ct/kWh PCS	ct/kWh PCS	ct/kWh PCS
50	9,5	9,5	0,5	3
350	4,5	6,4		2

PCS = Pouvoir Calorifique Supérieur (heat value)

Feed-in tariffs for biomethane in France



Approval in France

Substrate type	Substrate amount	Kind of approval	Length of approval
Plants, animal origin fertiliser, agricultural residues	> 50 t/d	„Autorisation“ (approval)	10 to 15 months
	30 to 50 t/d	„Enregistrement“ (registration)	max. 5 months
	< 30 t/d	„Déclaration“ (declaration)	3 months
Bio wastes, food residues	kein Einfluss	„Autorisation“ (approval)	10 to 15 months



Approval and limit values

- Approval for connection to the grid by the energy supplier – determining cost coverage
- Stipulations on notice of approval in France are hard to understand
- Germany → clear list
- France → ‘endless’ list of laws
- CHP and flare limit values

Decennale

- **Decennale**
 - Ten-year insurance
 - Required by customer's bank and insurance company
 - For the entire biogas plant
- **Rytec law firm contacted**
 - Specializes in biogas plants in France operated by German companies



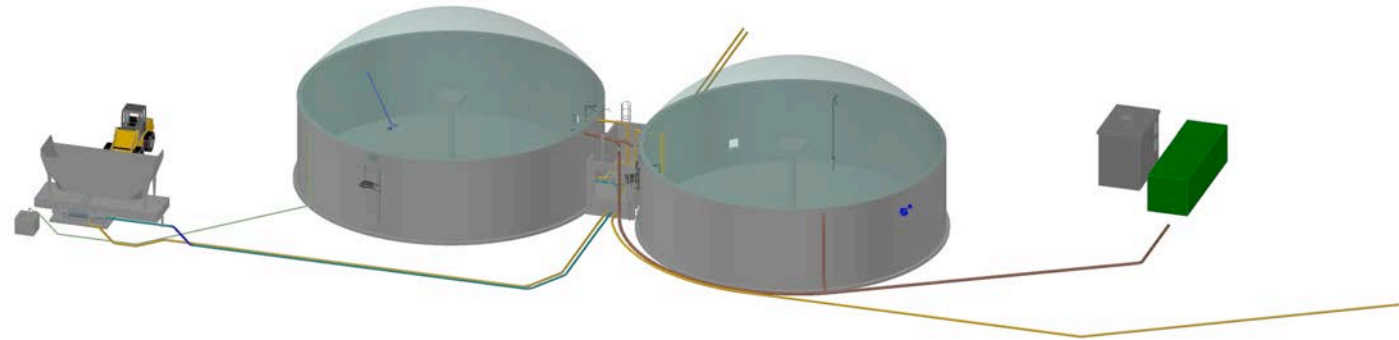
Regulations in France

- Help: Involvement of a cross-border insurance broker – no attorney
- Note: A German GmbH (limited liability company) was commissioned; no French subsidiary necessary
- A technical inspection to assess overall plant is recommended

Friesenheim biogas plant

Facts and figures

- Pig manure: ca. 6.400 t/a
- Corn silage: 4.000 t/a,
- Grain residue: 1.200 t/a
- Other organic residues
- Installed capacity: 530 kW_{el}
(470 kW_{el} + gas turbine 60 kW_{el})
pilot ignition engine



Friesenheim biogas plant

Facts:

- Digester and secondary digester made from ready-mixed concrete
- Wet fermentation operated at mesophilic temperatures
- Liquid intake
- 70% generated heat (approx. 3 MW/year) is used for:
 - Fermentation residue drying
 - Piggens
 - Adjacent residential buildings



Biogas plants in France

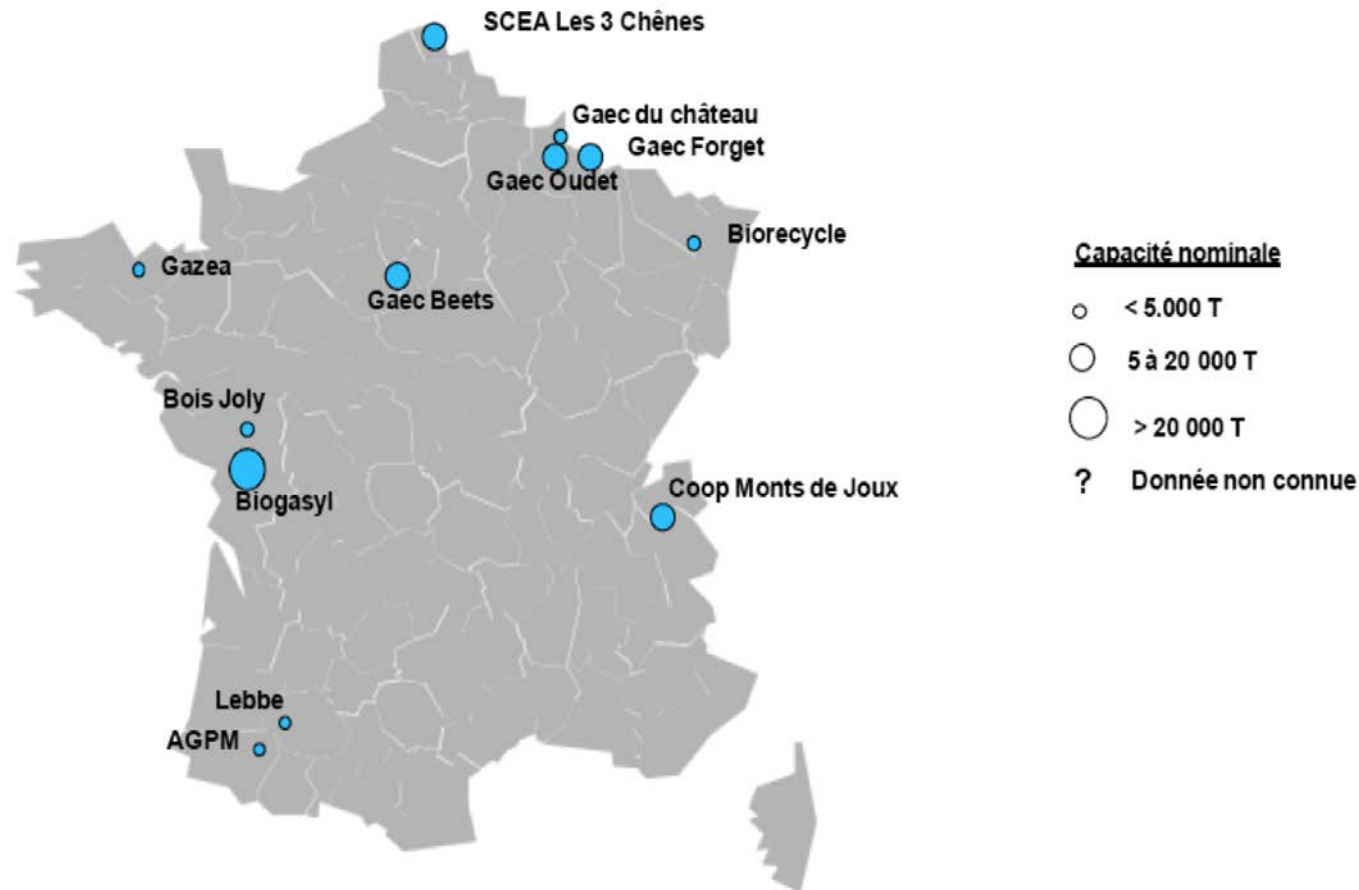
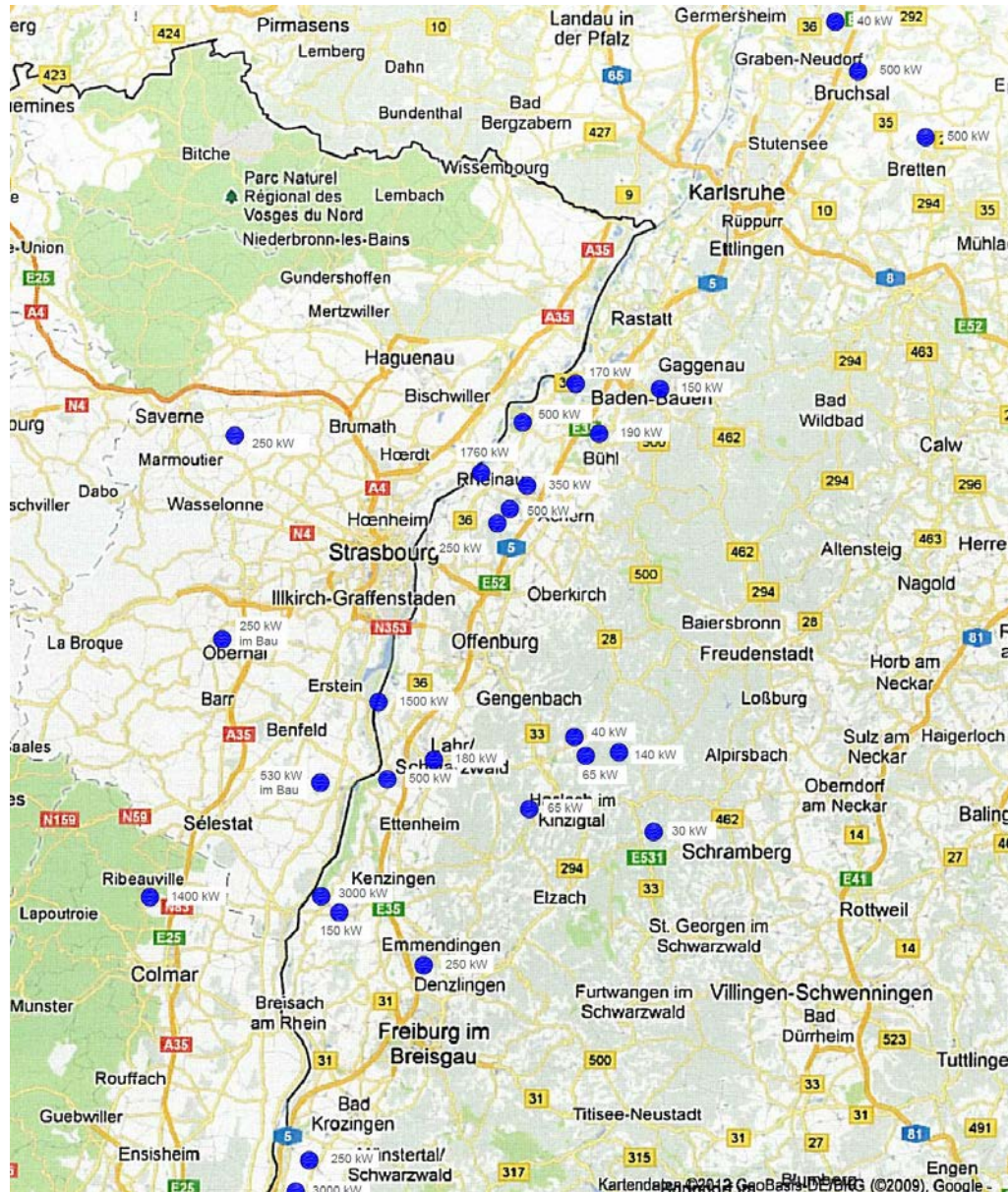



Figure 3: Twelve agricultural biogas plants before 2008,

Origin: EY 2009, SOLAGRO

Biogas plants near the upper Rhine in F and D





Please do not hesitate to contact us if you require any further information. Wir will be pleased to help you!

Rytec GmbH NL Baden-Baden
Biogas- und Energieanlagen
Pariser Ring 37

D-76532 Baden-Baden

Tel.: +49 - (0)72 21 - 3 77 60 0

Fax: +49 - (0)72 21 - 3 77 60 29

E-mail: bad@rytec.com, Simone.Besgen@rytec.com