Das große Plus für alle

Public policy for deploying power-to-gas

Insights from the debate in Germany

Dr. Christian Friebe, Brussels, 27th June 2019

Cooperation creates added value – this conviction allows the Thüga Group to master any challenge

Partnership Model

Responsibilities of our Partners

- Provide market proximity
- Management and operation of energy supply systems
- Local sales and customer service
- Promotion of the local brand

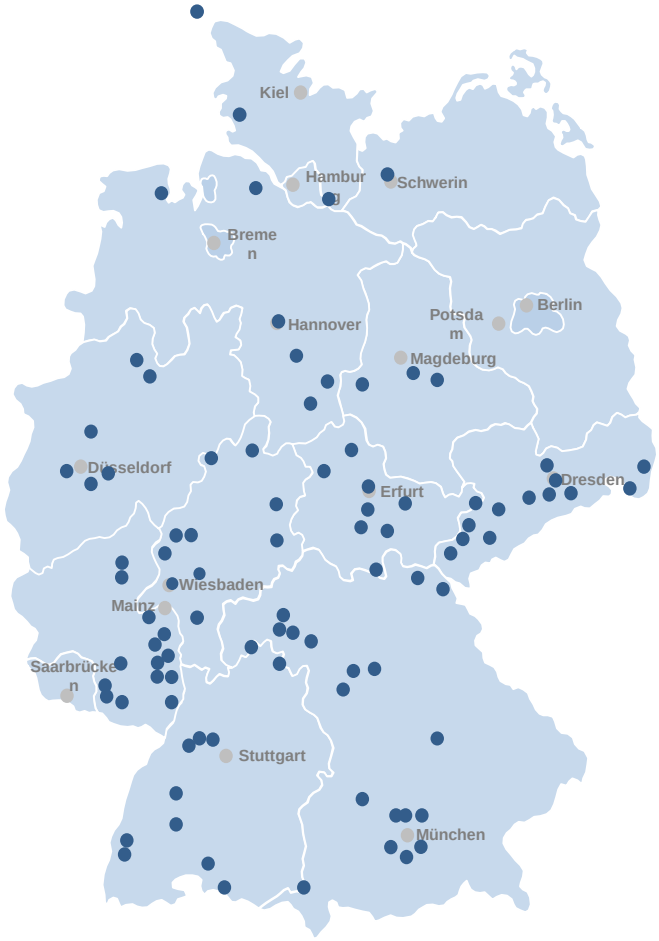
Thüga Business Activities

Investment partner for cities and towns. Minority shareholder with consulting and shared services. Adds value by

- providing guidance as to how invest funds and manage risks
- coordinating cooperation
- benchmarking

The Thüga Group constitutes the largest alliance of municipal utilities in Germany

Key Figuren 31.12.2017



Turnover **€ 20.0 billion**	Employees **19.300**
Gas sales **120.9 billion kWh**	Gas customers **1.9 million**
Electricity sale **53.2 billion kWh**	Electricity customers **4.0 million**

13 companies of the Thüga Group build a pilot PtG plant in 2013 in Frankfurt – the technology is not the problem any more

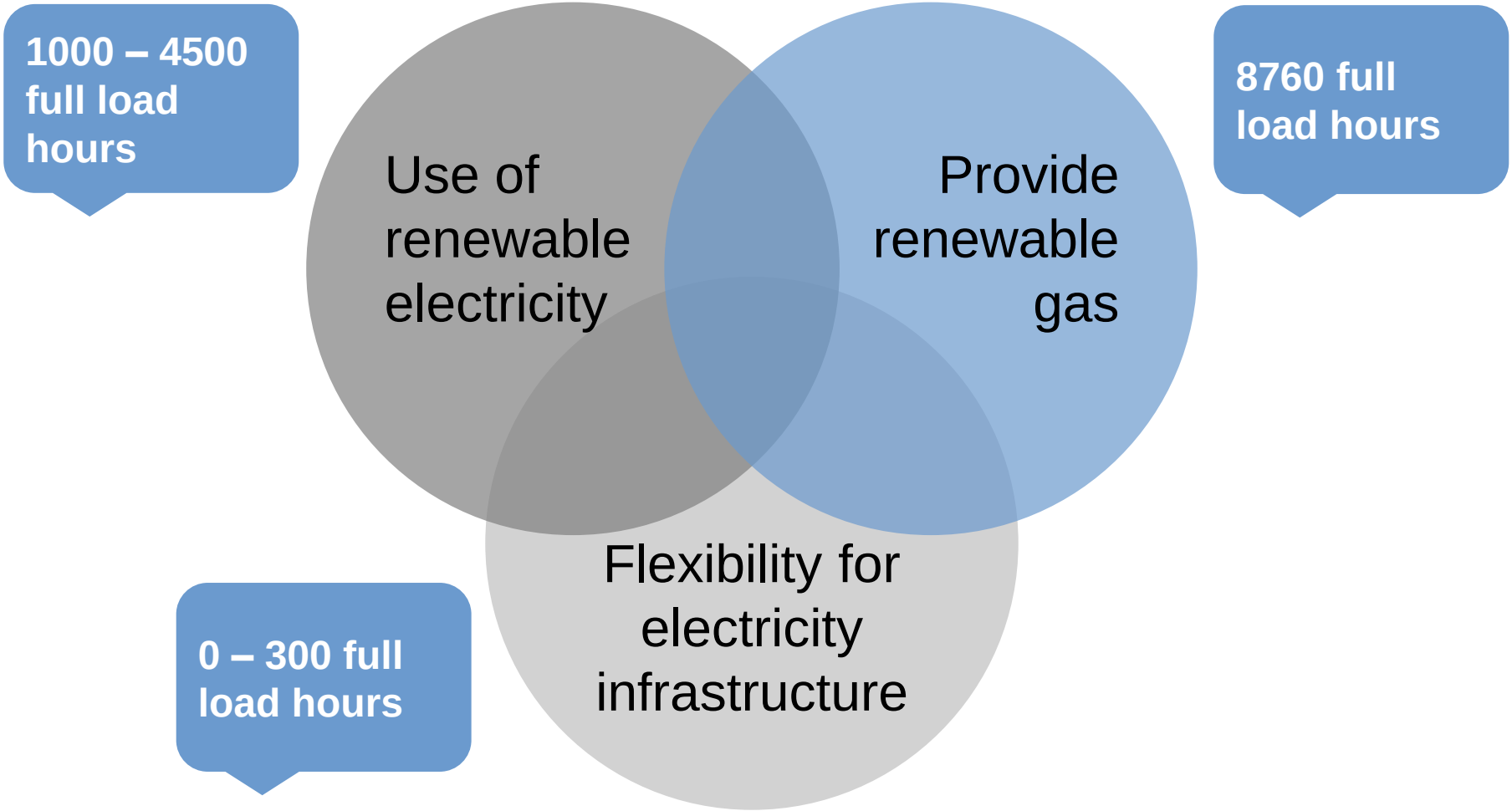
Technology: PEM – Electrolyser
Electric power input: 300 kW
Hydrogen production: 60 Nm^3/h

Comprehensive test of different operation modes over a period of 3 years

- Offer flexibility for electricity grid – both secondary and primary reserve
- Link PtG operations to renewable power generation
- Understand the technology itself and how to integrate it with the electricity and gas infrastructure

How to design a policy framework for Power-to-Gas that integrates electricity and gas infrastructure perspectives?

Conflicting targets for public support systems for power-to-gas



How to design a policy framework for Power-to-Gas that integrates electricity and gas infrastructure perspectives?

Conventional solutions for a support system often create strange results

Options for policy support	Full load hours of the PtG-plant
Reduce CAPEX: ▪ Direct investment support ▪ Power-to-Gas as a regulated asset	0 full load hours
Reduce OPEX: ▪ No taxes and levies for PtG	0 full load hours or 8760 full load hours
Generate demand for H_2: ▪ Quota for H_2 from PtG ▪ Feed-in tariff for H_2 from PtG ▪ Consumers benefit from H_2 use	8760 full load hours

In April 2019 the PtX-Allianz proposed an idea for building 5 GW of PtX in Germany within the next 5 years

Power to X Allianz

Renewable Electricity (PPA + GOA)

Exemption from taxes and levies only when the grid operator requires flexibility

Public support limited to a maximum of 4380 full load hours per year over a period of 12 years

Elektrons → **Power to X plant** → Hydrogen

Tender for public support:
- PtX before the meter
- PtX between infrastructures
- PtX behind the meter

Consumers benefit from the use of renewable hydrogen and are willing to pay more

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