



# Highly efficient and cost-effective technology for the production of green hydrogen

Creating value - from any type of organic waste



We are a technology company and specialise in the following areas:

- Planning and construction of photovoltaic systems
- Highly efficient and cost-effective production of green hydrogen
- Filter systems (microfilters)
- Chemical-free, industrial water treatment

We design and plan customised solutions for our customers.

# Our Business model

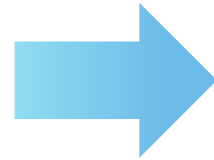


# Integration of energy and waste management into decentralised supply

Renewable energies  
from organic waste

## Organic residues:

- Sewage sludge
- Organic waste
- Organic waste
- Digestate
- Slurry (liquid)
- Stable manure (solid)
- Wood residues
- Food waste

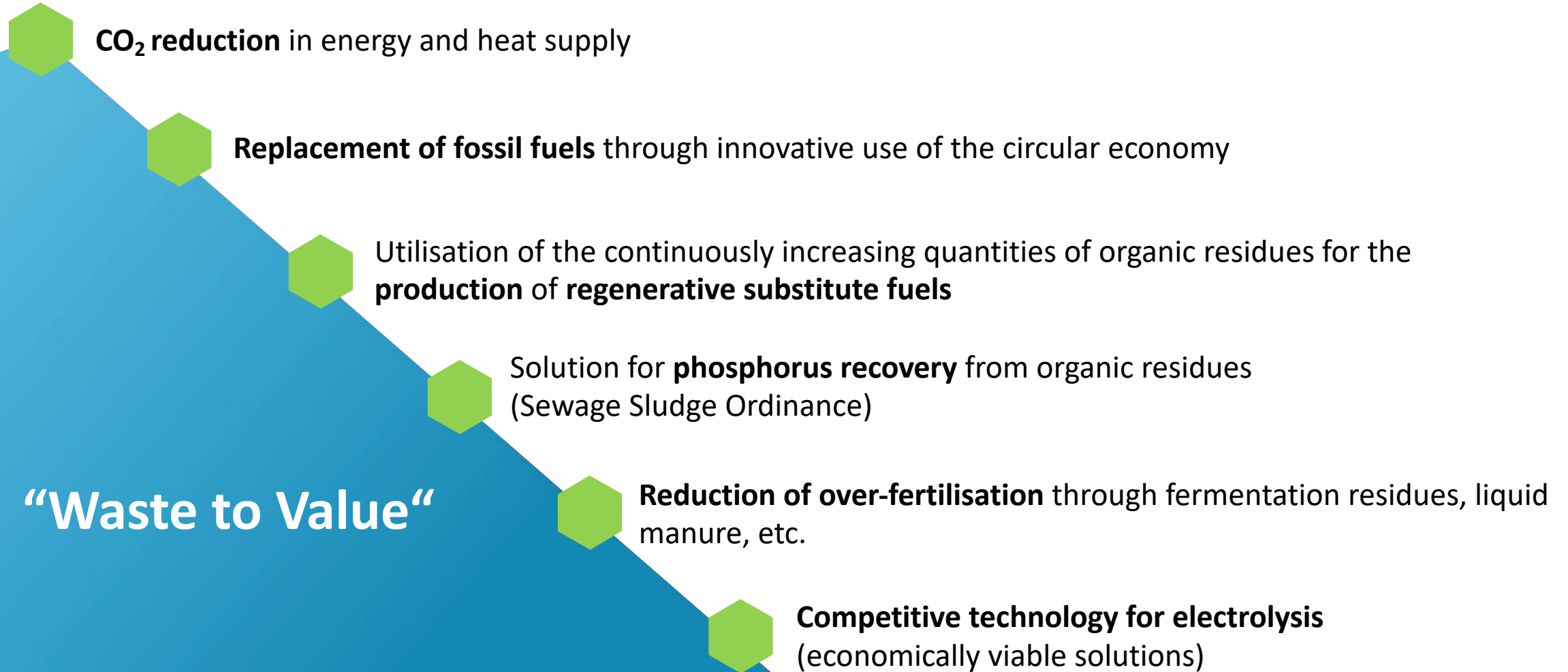


economical,  
sustainable,  
CO<sub>2</sub> neutral,  
storable



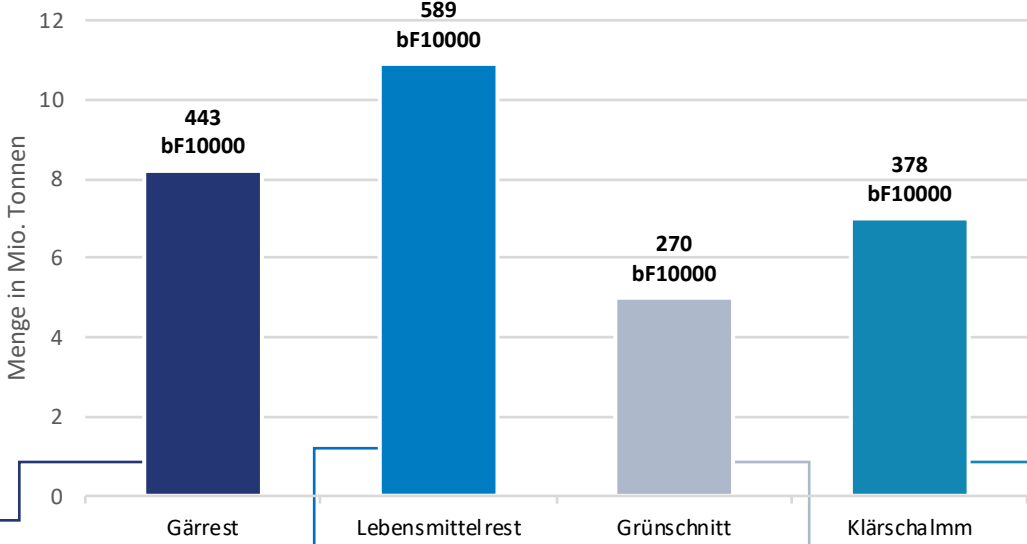
## Green energy:

- Synthetic coal
- Lean gas
- Syngas
- Hydrogen



# Double benefit through circular economy in Germany (Input)

Input material produced per year and plant potential



**Biogas plants**  
(approx. 9,000 in Germany)



**Sewage treatment plants**  
(approx. 17,500 in Germany)



**Biological waste (food & organic waste)**

Potential for 1,680 Plants only in Germany



**Waste disposal companies**  
(approx. 1,670 in Germany)

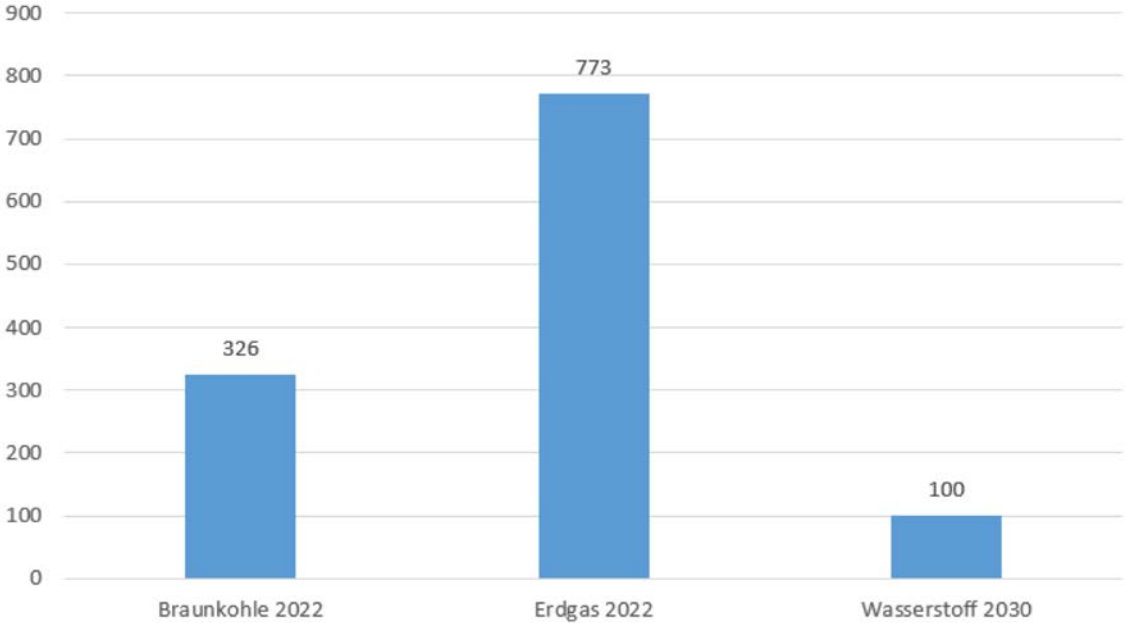


# Market potential in Germany (output)

## High energy consumption companies



### Energy demand in TW/h in Germany



## Energy supplier



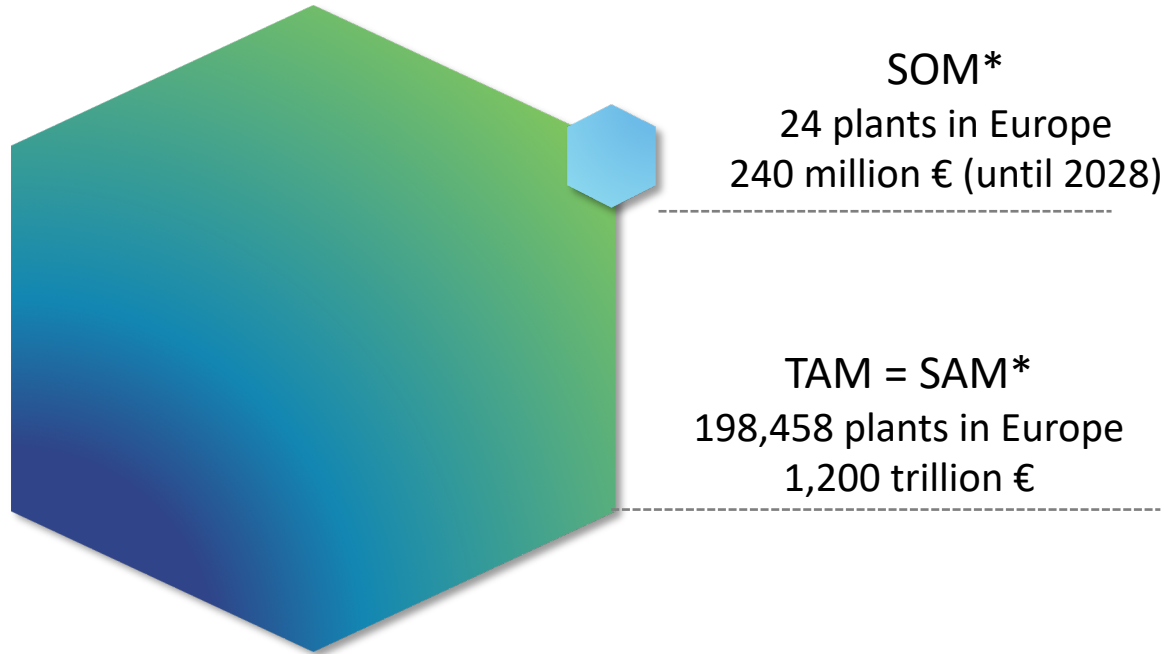
## Mobility



## Local authorities



# Market potential in Europe and regulations



\*TAM = Total Adressable Market

\*SAM = Serviceable Adressable Market

\*SOM = Serviceable Obtainable Market (till 2026)

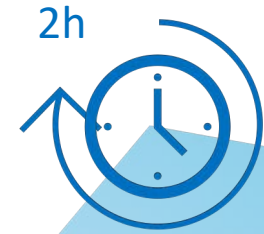
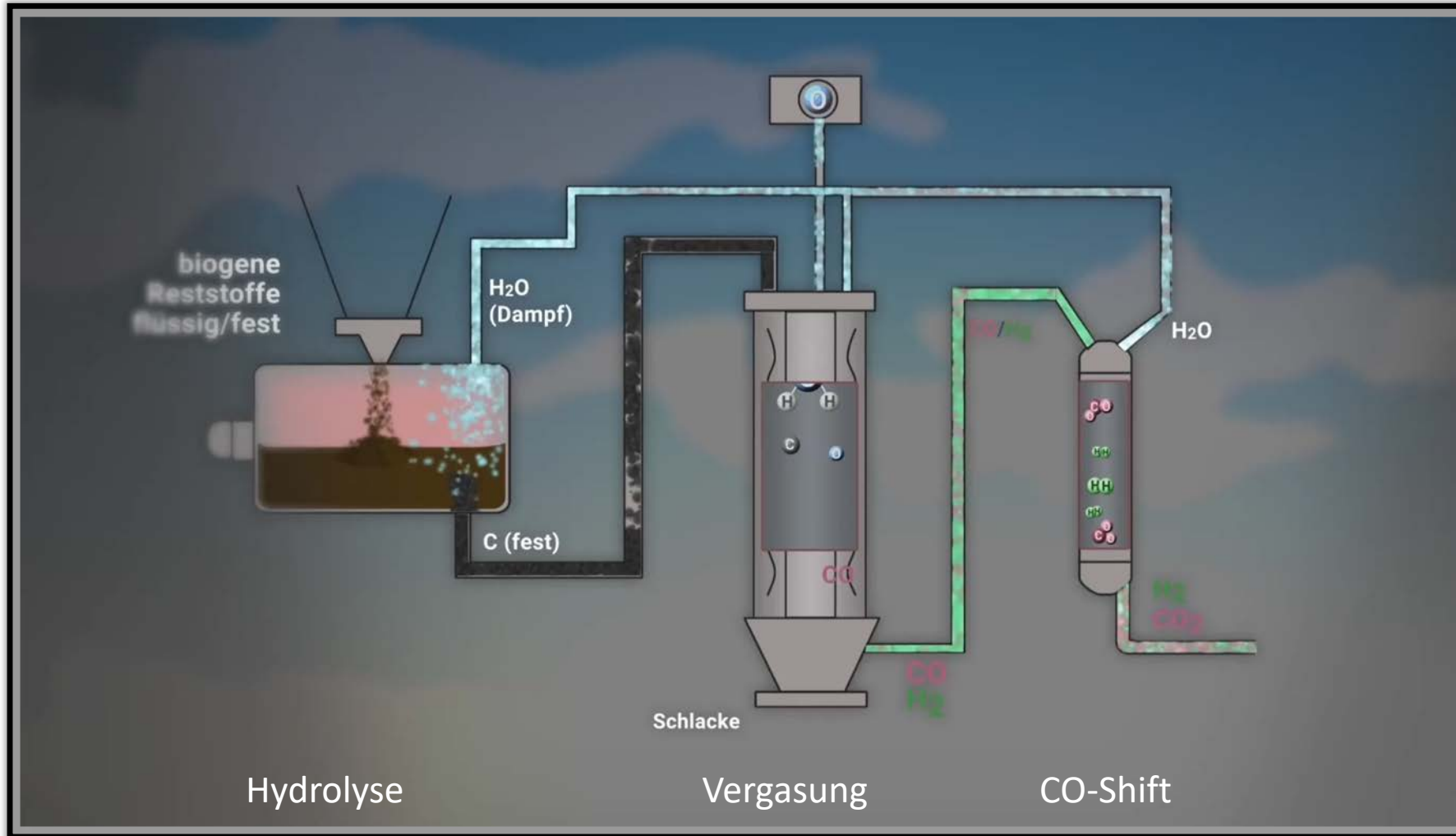
\* for a medium-sized blueFLUX system



- Hydrogen strategy (EU and DE)
- CO<sub>2</sub> tax
- Quota revenues for the use of green H<sub>2</sub> in mobility
- Lignite phase-out, nuclear phase-out
- Amendment to the Sewage Sludge Ordinance
- Fertiliser ordinance



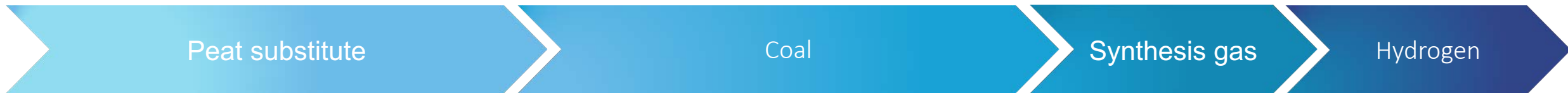
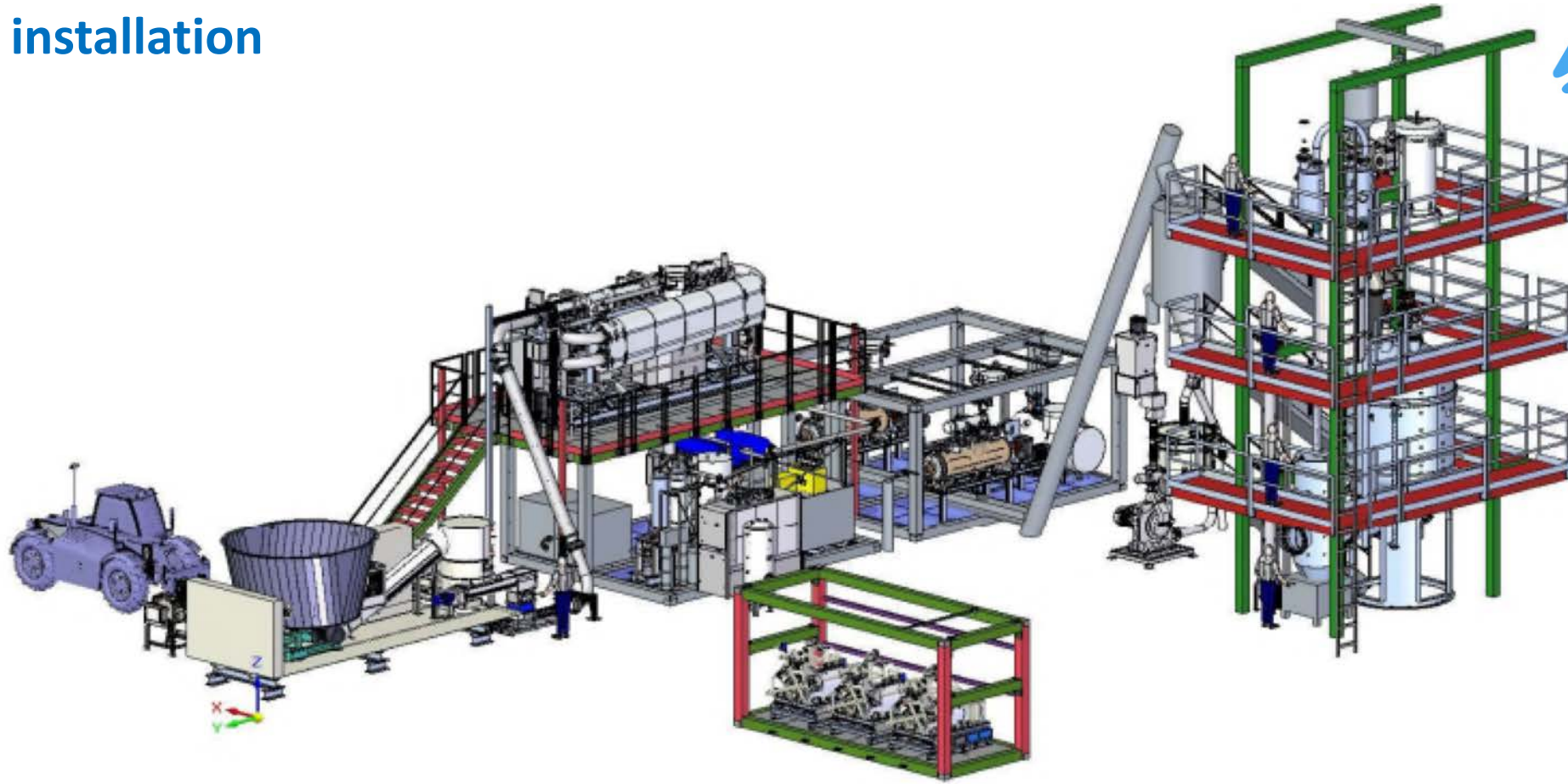
# The "SMI-blueFLUX" technology



Patented process & KDC reactor in Germany and Europe

Combination of pressure and temperature in water as a solvent

# Our plant installation



## Input and output of our system types



Plant size	bFK00600	bFH00600	bFK10000	bFS10000	bFH10000
Organic waste with 30% TS [t/a]	1.200	1.200	18.500	18.500	18.500
Electrical energy [GWh/a]		2,5		14,7	13,1
HTC coal* [t/a]	300	-	5.200	-	-
Synthesis gas* [GWh/a]	-	-	-	16,4	-
Hydrogen* [GWh/a]	-	1,1	-	-	18,7
Process residual heat* [GWh/a]				10	11,5

\*Output depending on the system configuration

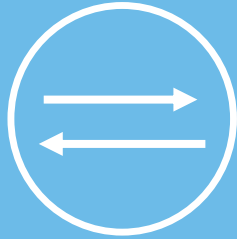
## Competitive advantages



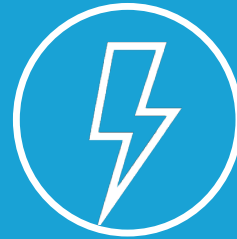
Technology as a game changer

**3-4 €/kg for green H<sub>2</sub> with standard plants**

< 4 €/kg with larger plants



Cost-effective replacement fuel for fossil lignite with **synthetic coal for €260/t\***



8 times **higher energy yield** based on the input material compared to biogas plants



Utilisation of **wet and dry materials - no drying of the primary material**, plastic content possible








"waste-to-value" without CO<sub>2</sub> pollution  
**GHG quota revenues**  
**CO<sub>2</sub> certificate trading**

\*Fossil pulverised lignite currently costs €200/t, customers accept up to €260/t for regeneratively produced pulverised coal as a substitute for lignite.

# Price environment for (green) hydrogen



Advantages of blueFLUX technology- Differentiation from other methods of waste utilisation

Examples of manufacturers	Sewage sludge incineration 	Biogas plants 	H2 -Production 	H2-Produktion 	SMI blueFLUX-Technologie 
Technology	<b>Mono-incineration</b> (pure disposal)	<b>Fermentation</b> for the production of methane & H2	<b>Electrolysis</b> for the production of synthesis gas/H2	<b>Pyrolysis</b> for the production of synthesis gas/H2	<b>Hydrolysis</b> for the production of coal, synthesis gas/H2
Input: Sewage sludge	✓	✗	✗	✗	✓
Input: organic waste	✗	✓	✗	✓	✓
Input: organic residues incl. plastic content	✗	✗	✗	✗	✓
Output: sustainable hydrogen, synthesis gas	✗	✓	✓	✓	✓
Output: Synthetic coal, Peat substitution products	✗	✗	✗	✓	✓
Conversion rate	✗	8-10 %	95 %	23 %	65 %
Production costs H <sub>2</sub>	✗	> 12 €/kg	4,50-12 €/kg	unbekannt	<= 2-4 €/kg

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