



**WORLD
BIOENERGY
ASSOCIATION**



REVERSEPOWERPLANTS

Bioenergy for Flexibility in Energy Systems
WBA / IEA Task 44 Webinar, 2nd September

Reverse is the new forward.

About us



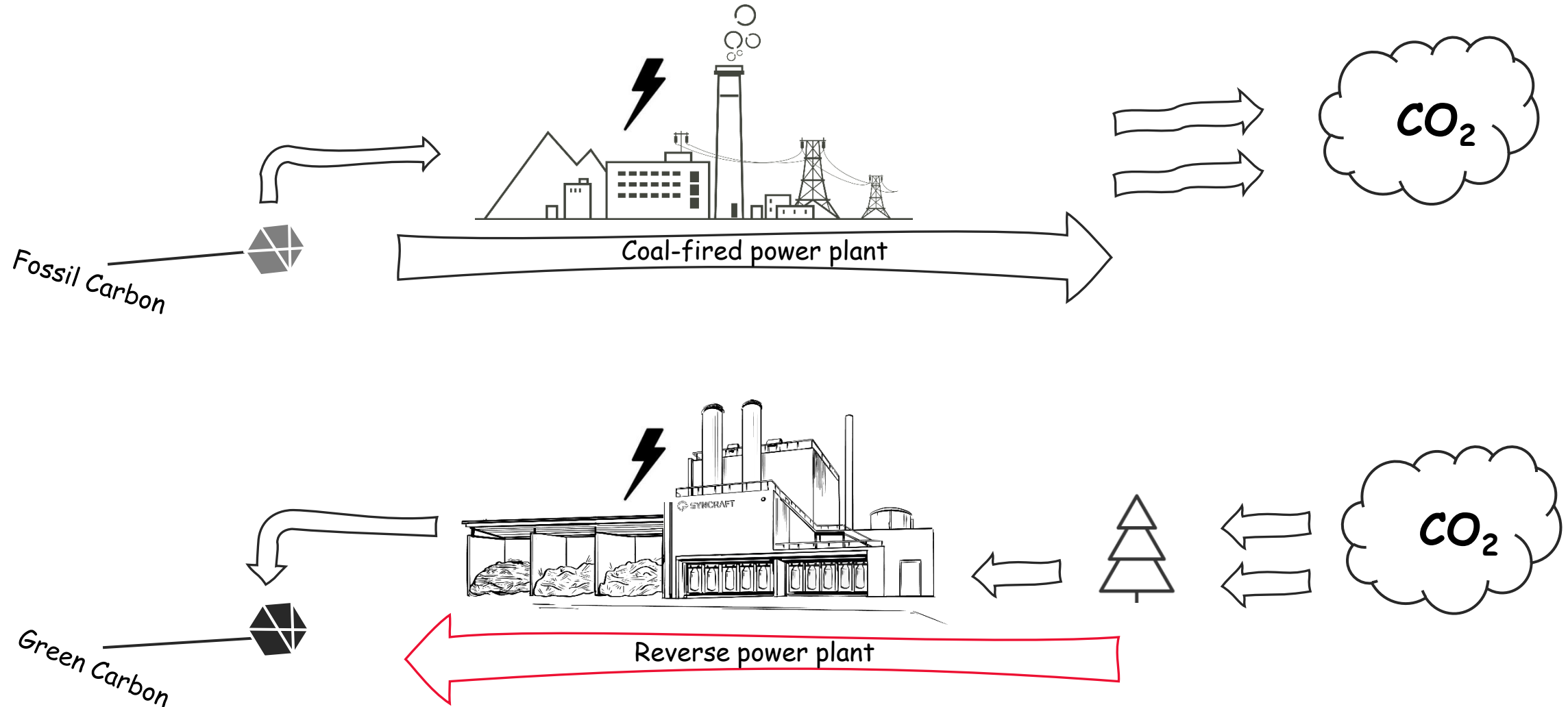
- **Greentech** company based in Tyrol / Austria
- **Founded** in 2009 as an MCI university spin-off
- Build reverse power plants for the generation of affordable, **green energy** and **negative CO₂ emissions**.
- Pioneer and leader in the field of climate-positive energy systems and **leading technology developer**.



Reverse power plant



What do we mean by that?



Reverse power plant



Flexible bioenergy plants for industry and cities

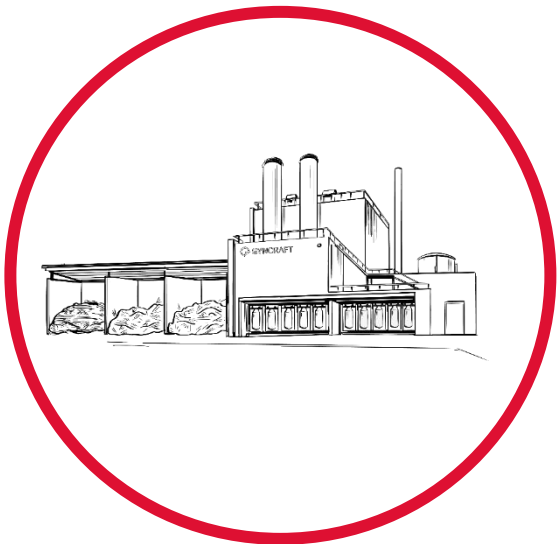
Different **variations**

Flexible operation mode

Cheap raw material



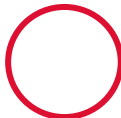
Forest residual wood



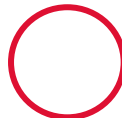
Energy
mode



Carbon
mode



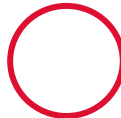
Green Gas
Green Carbon



Hybrid



Combined heat and power
Green Carbon



Green Carbon storage



Green Gas storage

References



Reverse power plant

Stöcken / Austria



STÖCKEN

Customer	ENERGIEWERKE ILG
System type	CW1800-500
Electrical power	500 kW
CO ₂ avoided (Compared to natural gas)	3.500 t/a
CO ₂ removed, green carbon	1.500 t/a
Utilization heat	District heating
Fuel demand (dry)	342 kg/h
Space	170 m ²
Commissioning	2019



Rückwärtskraftwerk

Shingu / Japan



SHINGU

Customer	FOREST ENERGY
System type	4xCW1800-400
Electrical power	1.600 kW
CO ₂ avoided (Compared to natural gas)	13.800 t/a
CO ₂ removed, green carbon	6.000 t/a
Utilization heat	Wood chip drying
Fuel demand (dry)	1.095 kg/h
Space	1.260 m ²
Commissioning	2020



Reverse power plant

Ternitz / Austria



TERNITZ

Customer	KWS Ökokraft
System type	CW 1200-400
Electrical power	400 kW
CO ₂ avoided (Compared to natural gas)	2.800 t/a
CO ₂ removed, green carbon	1.200 t/a
Utilization heat	District heating
Fuel demand (dry)	286 kg/h
Space	400 m ²
Commissioning	2020



Reverse power plant

Wahlstedt / Germany



Energie & Management
MEDIEN FÜR DEN ENERGIEMARKT



WAHLSTEDT

Customer	HANSEWERK NATUR
System type	CW1800x2-1000
Electrical power	1.000 kW
CO ₂ avoided (Compared to natural gas)	7.000 t/a
CO ₂ removed, green carbon	3.000 t/a
Utilization heat	District heating
Fuel demand (dry)	709 kg/h
Space	960 m ²
Commissioning	2024



Reverse power plants

SYNCRAFT Performance



43

Energy systems
worldwide

> 15 MW

Electrical
power

92 %

Plant
availability

> 150 kt

CO₂ avoided
and removed

> 500.000 h

Operating hours
Cumulative experience

> 80.000 h

Operating hours
first power plant

Industry

Industrial installation for
the highest standards

**Made in
Austria**

Technology



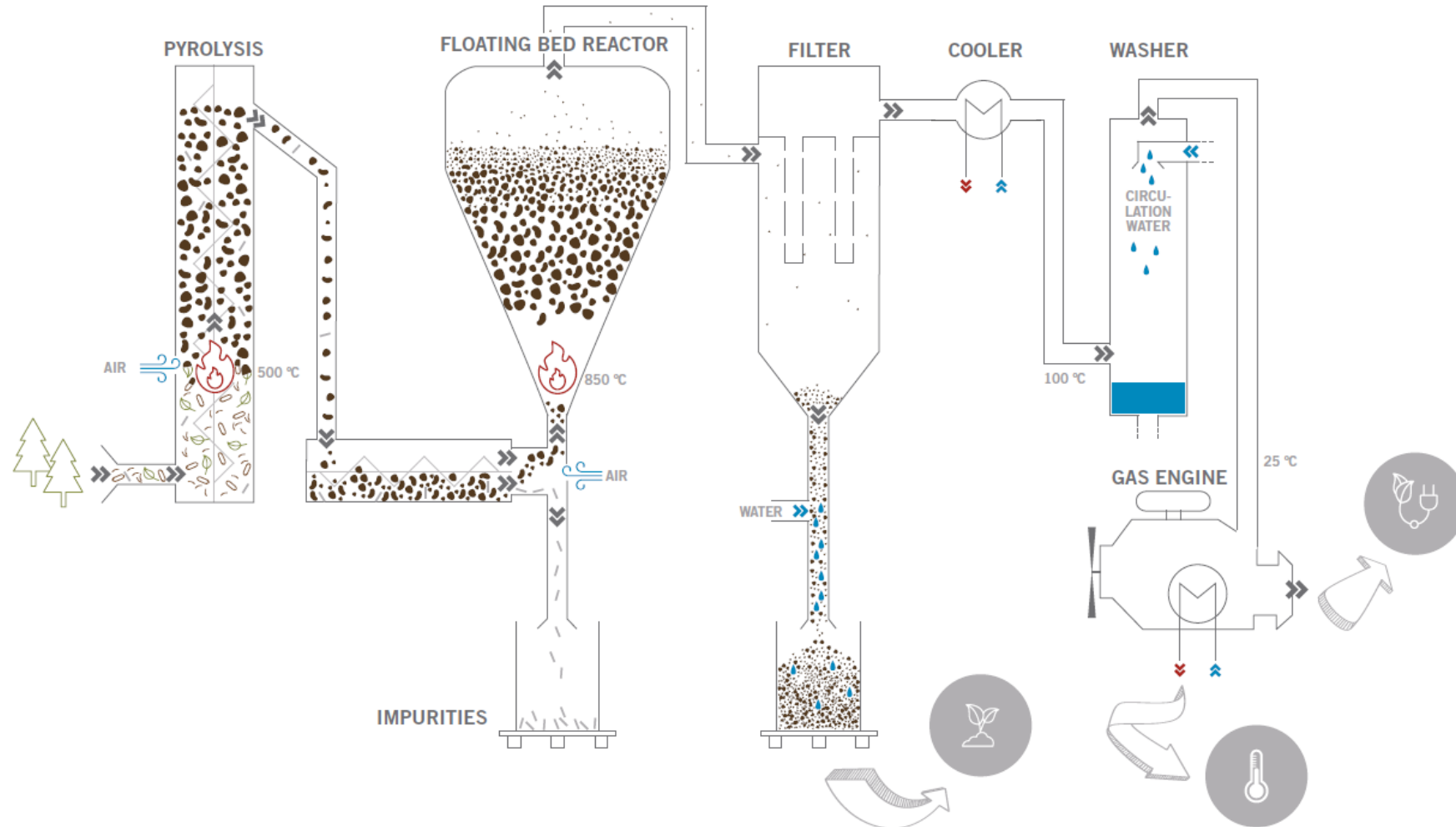
Innovative Technology

- Patented SYNCRAFT® Floating Bed Technology enables high **fuel flexibility**.
- Maximum fuel utilization through patented **condensing technology**.
- EBC-certified **green carbon** for industry and commerce, as a third product alongside electricity and heat
- **Negative emission technology** through green carbon in carbon-preserving applications, e.g., as a construction material additive (Biochar Carbon Removal)



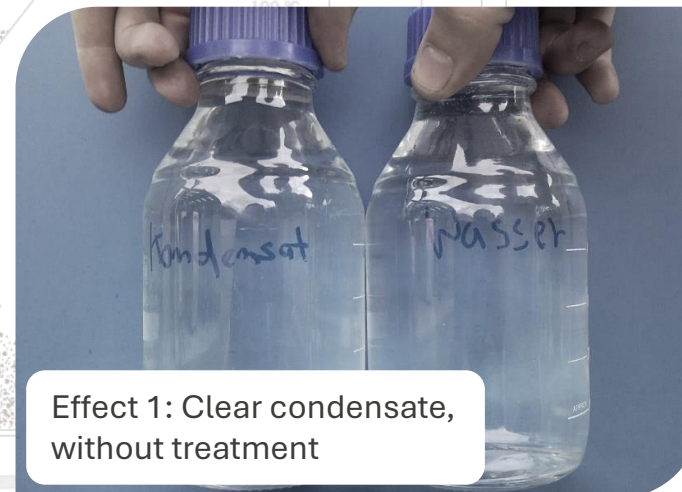
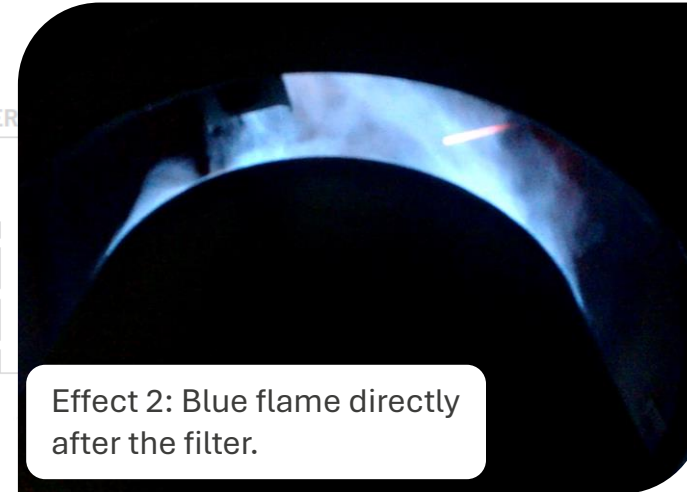
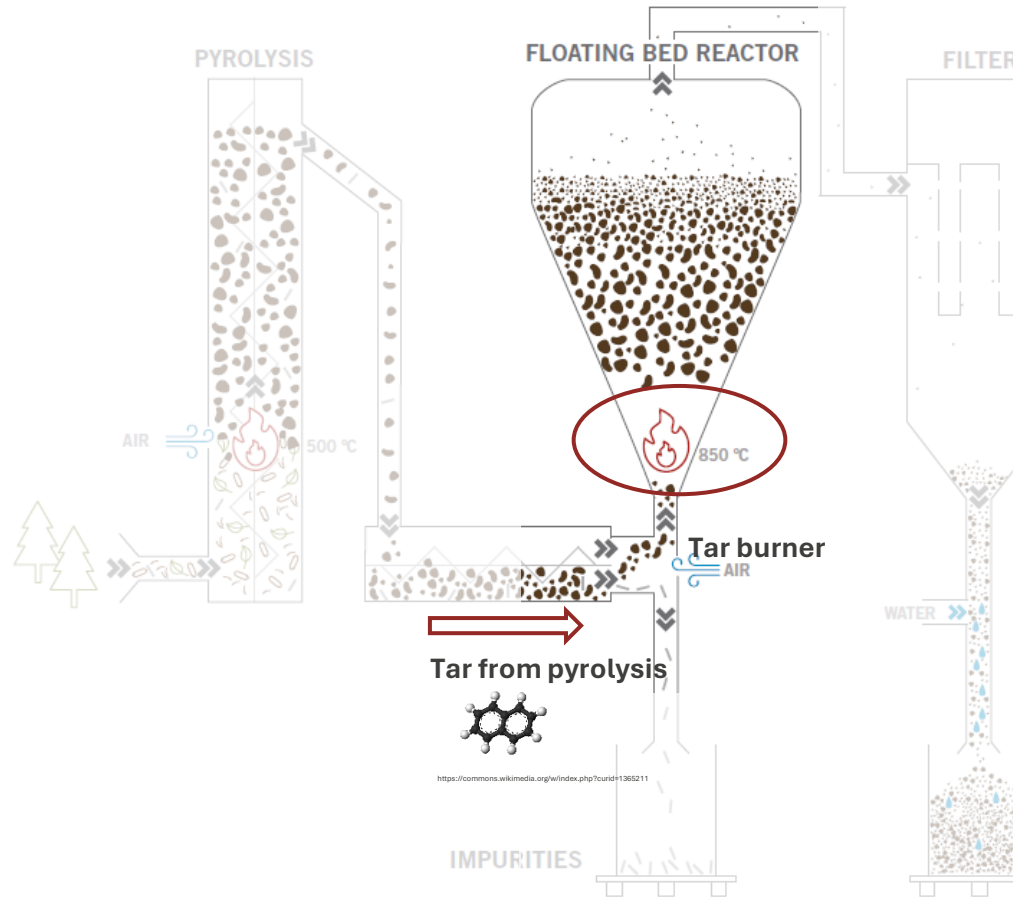
Technology.

What's behind it?



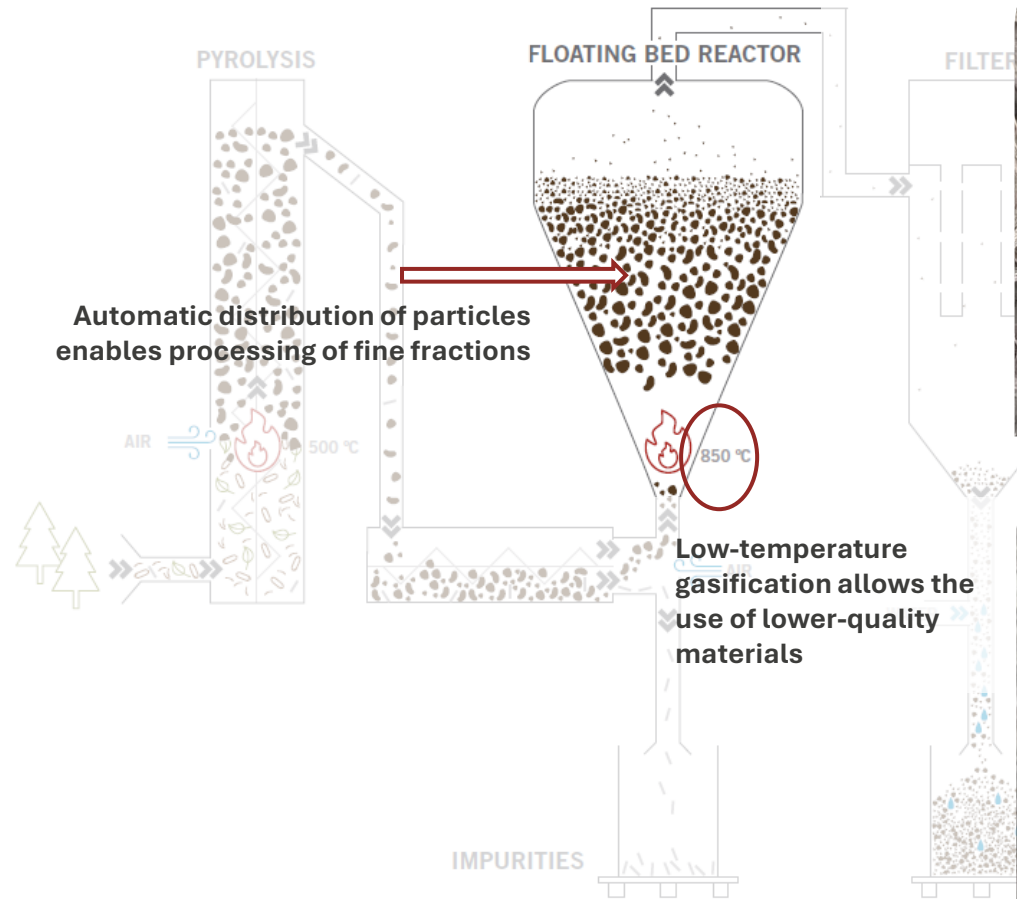
Technology.

Clean Gas. Anytime.



Technology.

High fuel flexibility.



Ash melting:
 $> 1.000^{\circ}\text{C}$



Fine fraction:
 $< 20\%$

The ultimate NET approach of bioenergy



A BIOENERGY LOVE STORY

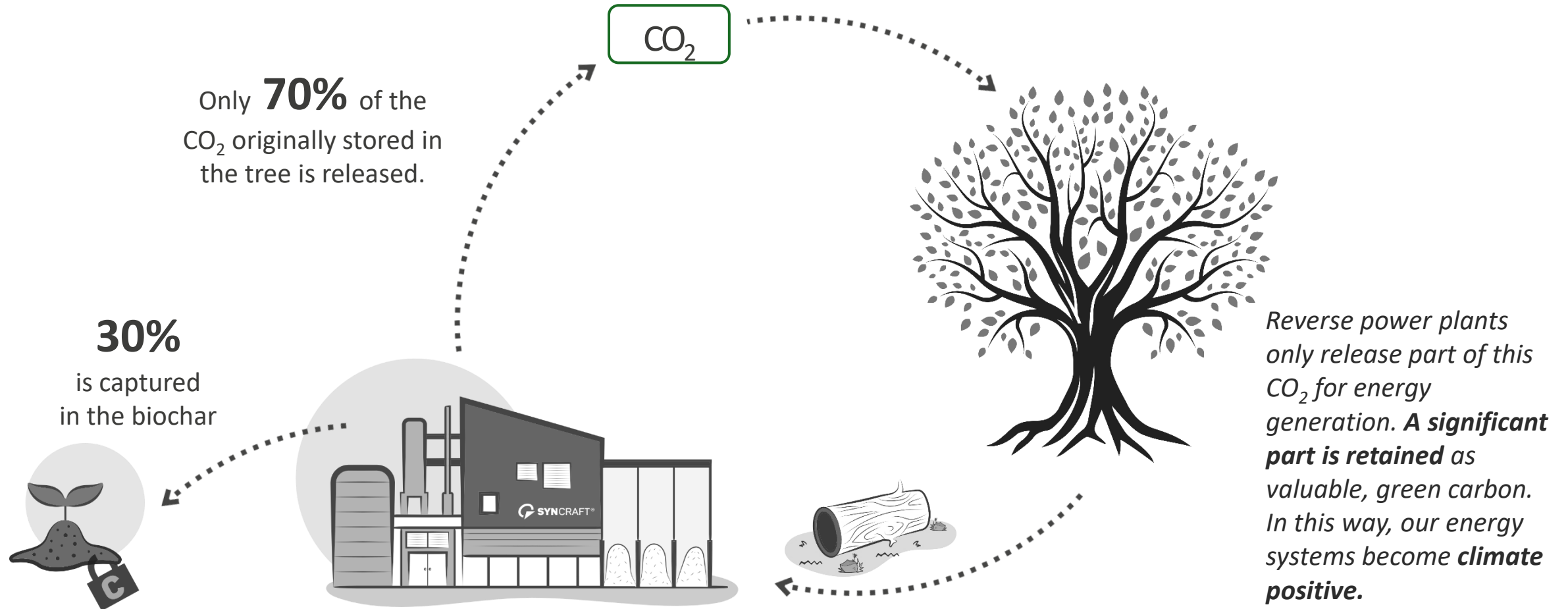
BIOCHAR >< CARBON CAPTURE



Bioenergy with Biochar (BCR)



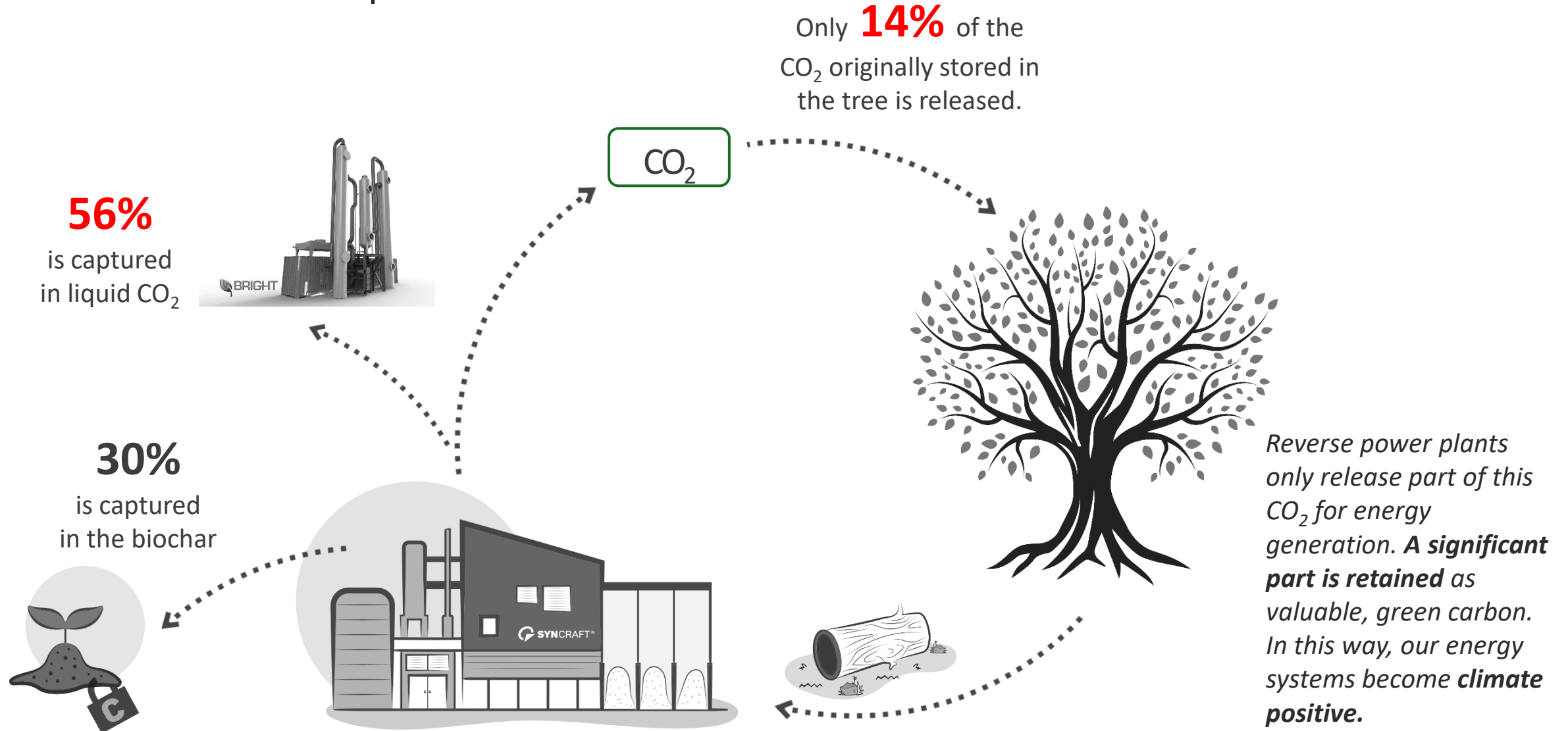
The climate positive circle



Bioenergy with BCR and BECCS



The **ultimate** climate positive circle



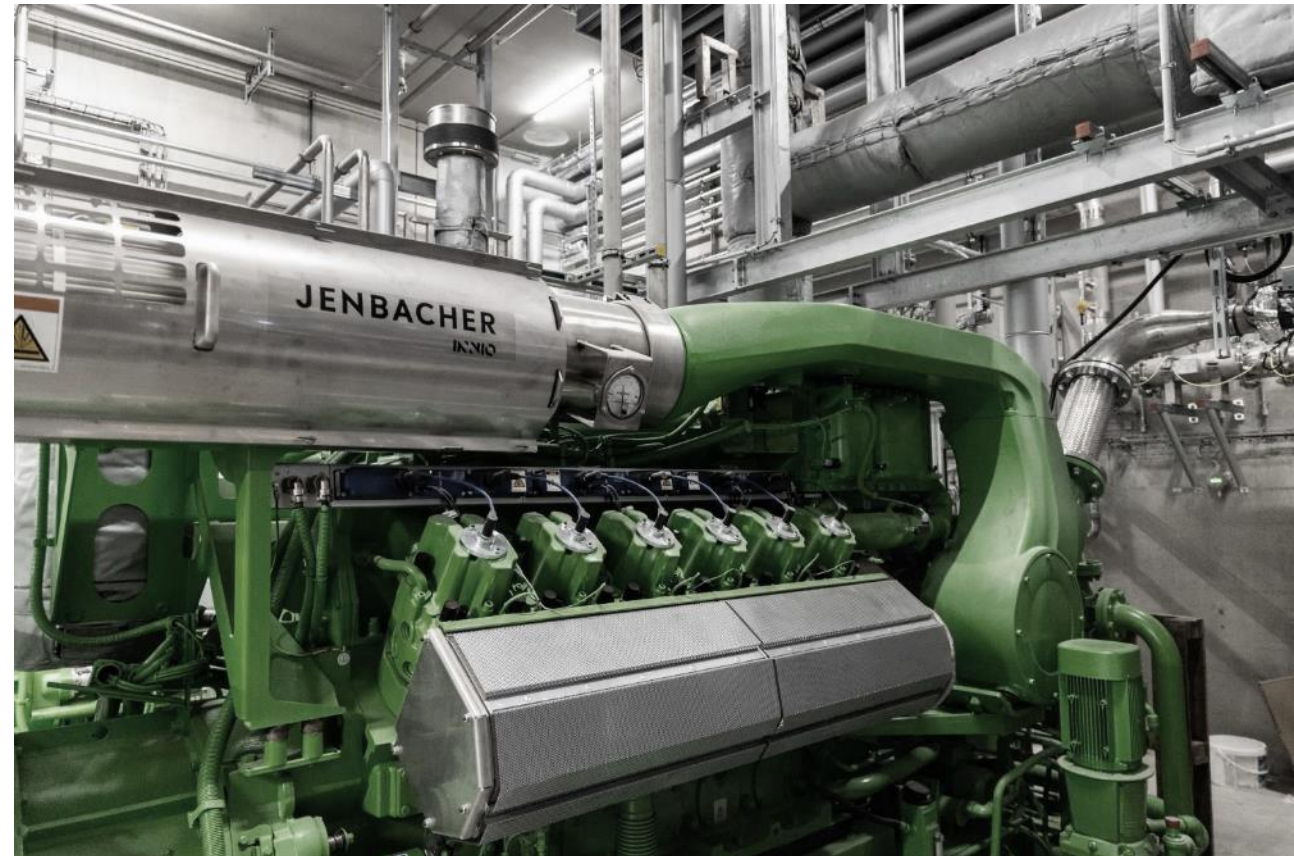
What we offer



What we offer



- Cost-effective **decarbonization solution** starting from 5 GWh of heat or gas demand
- Ideal for **combining** with heat pumps, combined heat and power units (CHP), and chip boilers
- Can be designed as a **base-load unit** or a daily sprinter
- Capable of decarbonizing remaining fossil systems on a balance sheet level through **negative-CO₂**.



What we offer



- Techno-economic **evaluation**
- Technical **support** during plant approval
- Implementation of the entire power plant technology as a **general contractor**
- **Facilitation of partnerships** for financing, plant operation, raw material procurement, and distribution of green carbon



#together for a climate-positive future