

# Challenges in the integration and implementation of biochar projects

8. Österreichischer Biochar-Day  
October 6, 2025


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 Federal Ministry  
Innovation, Mobility  
and Infrastructure  
Republic of Austria

 Federal Ministry  
Economy, Energy  
and Tourism  
Republic of Austria



 For the  
City of Vienna





# Agenda

- Introduction to BEST
- Networkproject act4value
- Considerations and stakeholder output on integration and implementation

# BEST in a nutshell

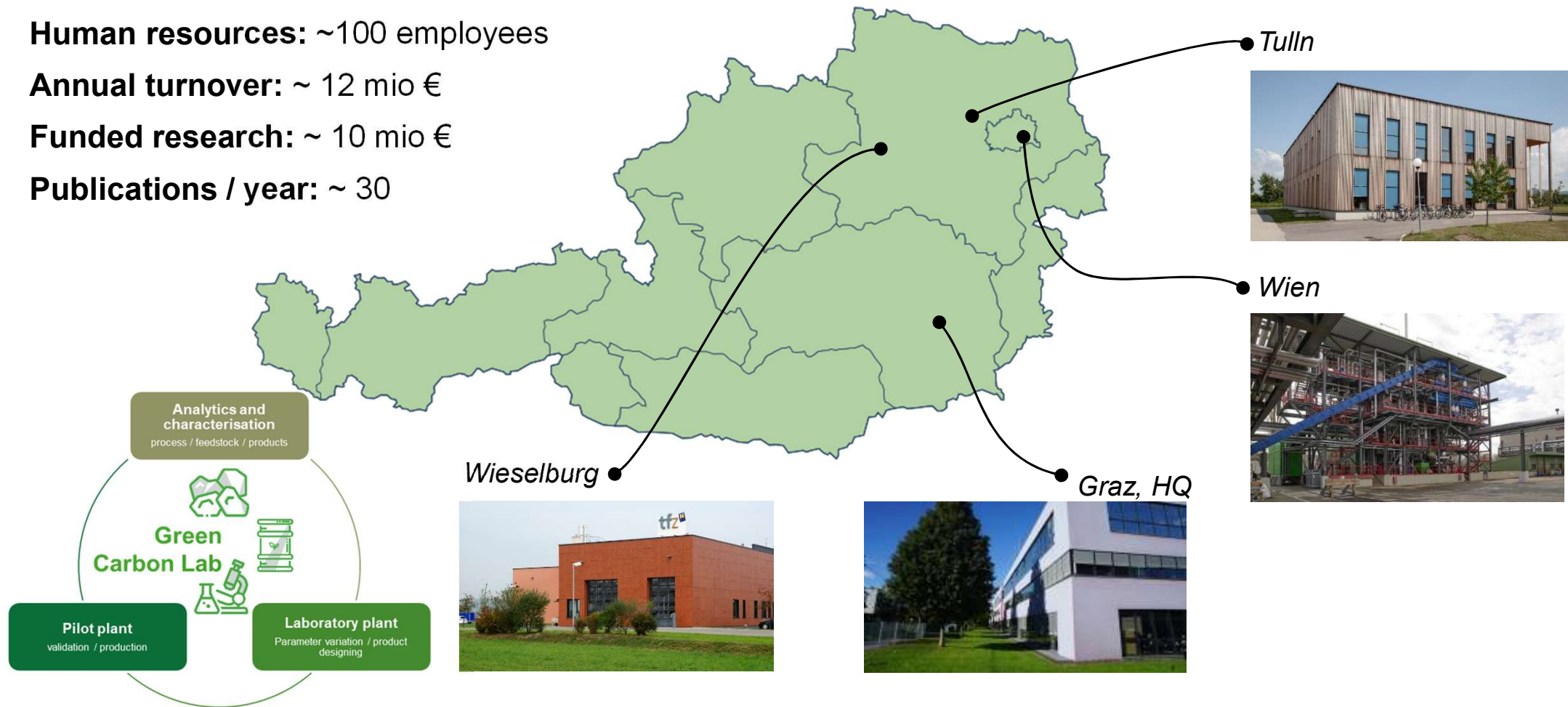


**Human resources:** ~100 employees

**Annual turnover:** ~ 12 mio €

**Funded research:** ~ 10 mio €

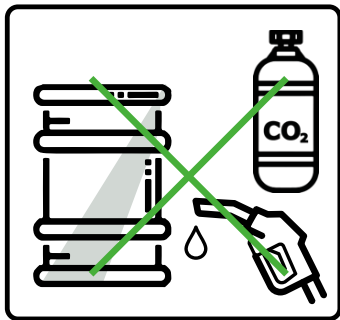
**Publications / year:** ~ 30





# Changing the Carbon game

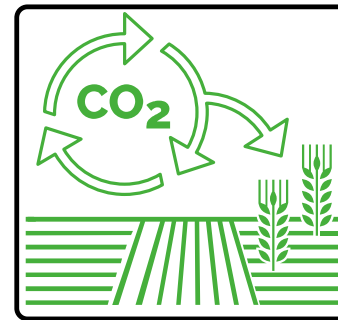
SHAPING the TRANSITION to a SUSTAINABLE  
and CLIMATE FRIENDLY CIRCULAR ECONOMY



fossil carbon free  
heat, power, gas and  
transportation fuels



low value feedstock  
to high value  
products



CO<sub>2</sub>-negative  
technologies


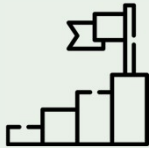


economic and  
efficient renewable  
energy systems

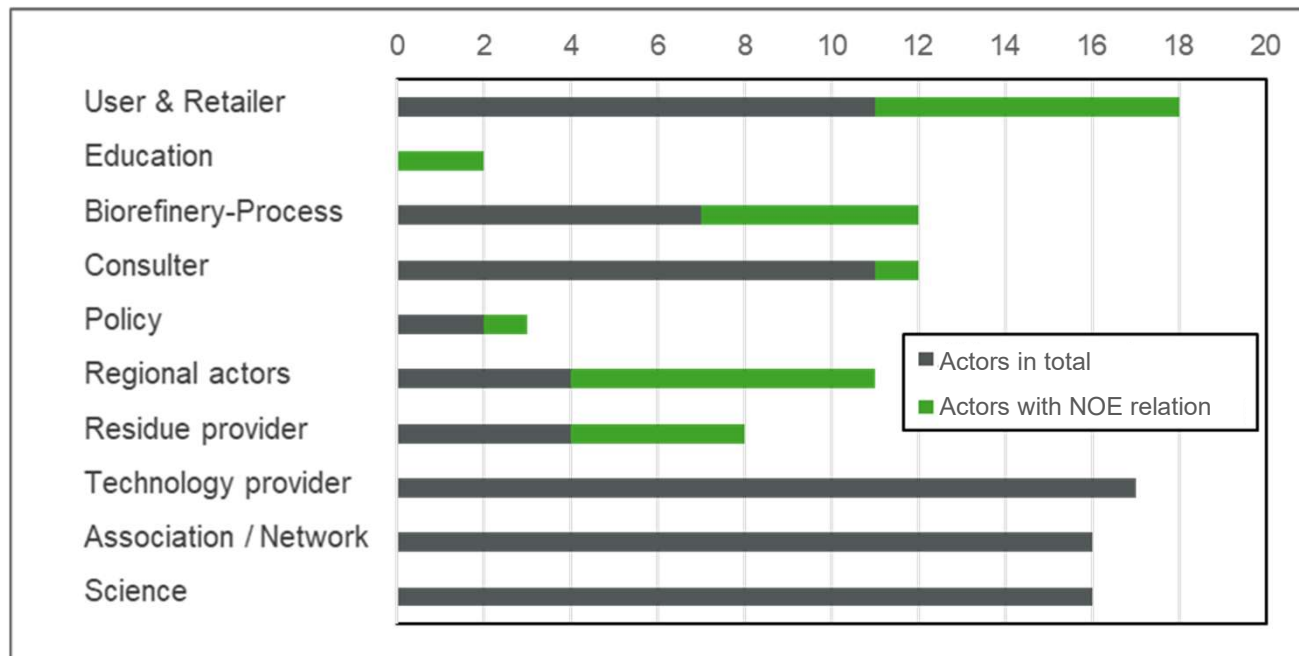


**Digitalization as enabling technology for competitiveness**



 <p>activities</p>	<p><b>Knowledge exchange</b> with different <b>stakeholders</b></p> <p>Foster <b>dialogue</b> between <b>research and practice</b></p> <p><b>Disseminate topic</b>-relevant contents</p> <p>Targeted <b>networking</b></p> <div data-bbox="1137 639 2085 951" style="background-color: orange; border: 2px solid brown; padding: 10px; transform: rotate(-2deg);"> <p><b>Networking project</b></p> <ul style="list-style-type: none"> <li>➤ push the topic</li> <li>➤ overview the industry status quo (NOe/A/EU)</li> <li>➤ identify necessary measures to implement and roll out organic circular economy concepts</li> </ul> </div>
 <p>objectives</p>	<p>(Further) <b>develop network</b></p> <p>Initiate and prepare innovative <b>R&amp;D-projects</b> (A &amp; EU)</p> <p>Investigate and describe <b>value creation concepts for the utilization of biogenic residue materials</b></p> <p>Derive necessary <b>measures to further develop such concepts</b></p>

# Gathering different perspectives and opinions... ...through interviews, workshops and conferences



Österreichischer Verein für Biomasse-Karbonisierung –  
ÖBIKA  
- Austrian Biomass Carbonisation Society -

+ numerous representatives  
from industry & authorities



IEA Bioenergy  
Technology Collaboration Programme



Verein  
Kreislaufregion  
Melk-Scheibbs



GREEN  
TECH  
VALLEY



BODEN  
LEBEN

Klima- und Energie-  
Modellregionen  
Wir gestalten die Energiewende



BIOCHAR  
EUROPE



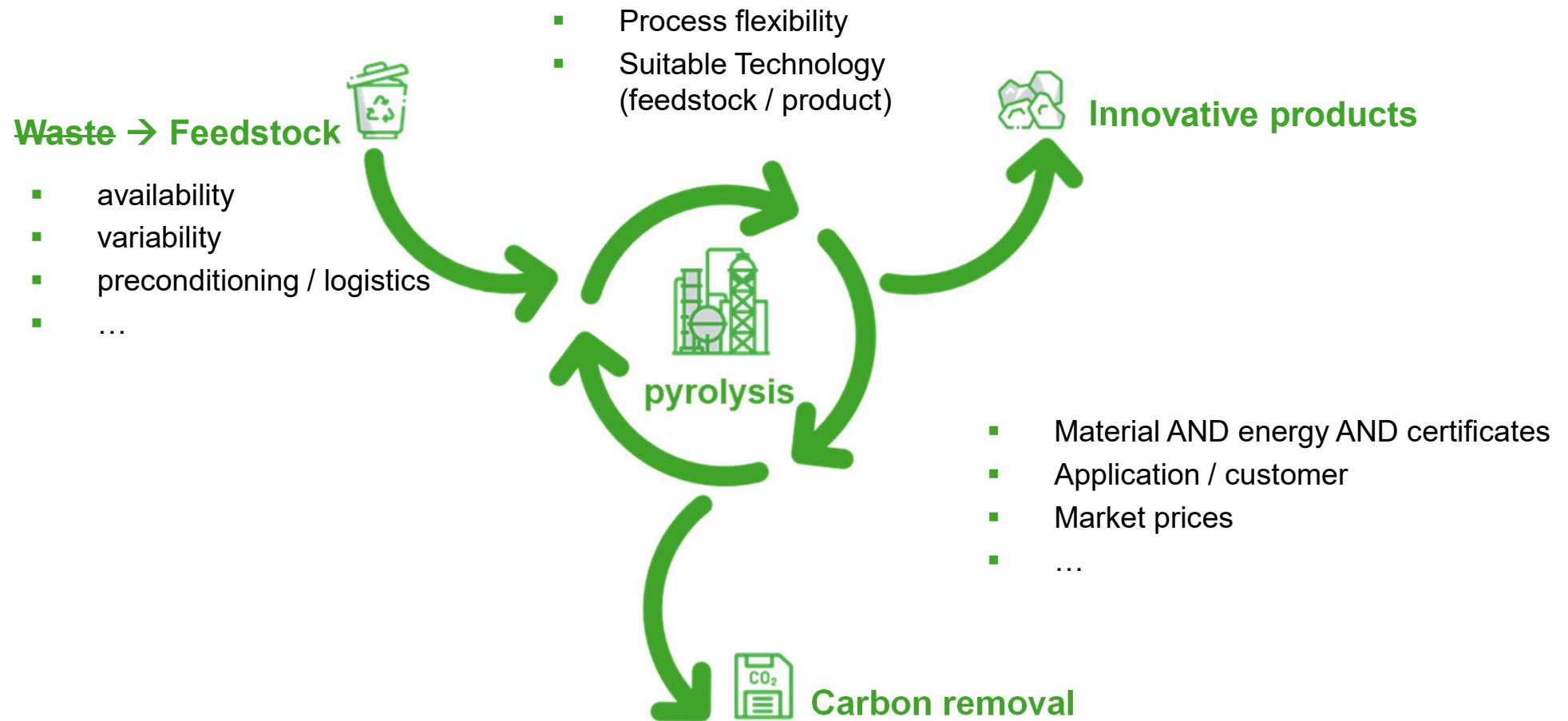
GERMAN  
BIOCHAR



ÖSTERREICHISCHER  
BIOMASSE-VERBAND  
AUSTRIAN BIOMASS ASSOCIATION

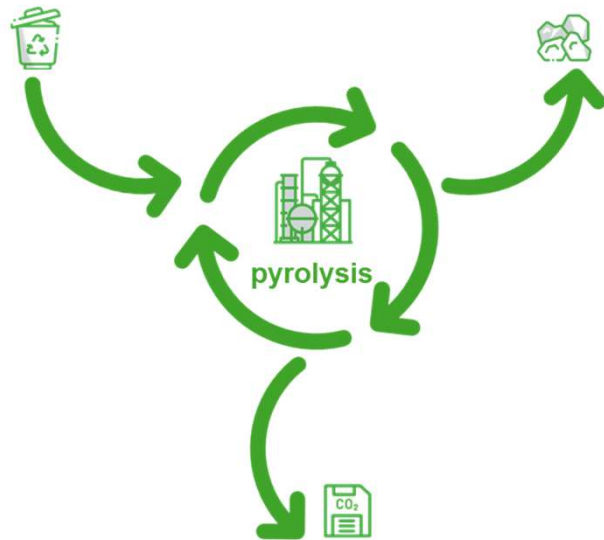


# Integration – from technology to business concept





# Integration – from technology to business concept



Complexity because of interdependencies:  
Feedstock ↔ technology ↔ product

## Project's main focus?

- Material / residue valorization
- Energy provision
- Product commercialization

## Business concept

- Value chain?
- Number of (by) products?
- Markets?
- Partners?
- Framework (permitting procedures, legislative framework, certification, acceptance etc.)?





## Production focus (1/2)

19 technologies for intermediate pyrolysis

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
biochar																			
Pyrolysis oil																			
Wood vinegar																			
Pyrolysis gas																			
Heat																			
Power																			

← Focus for developments

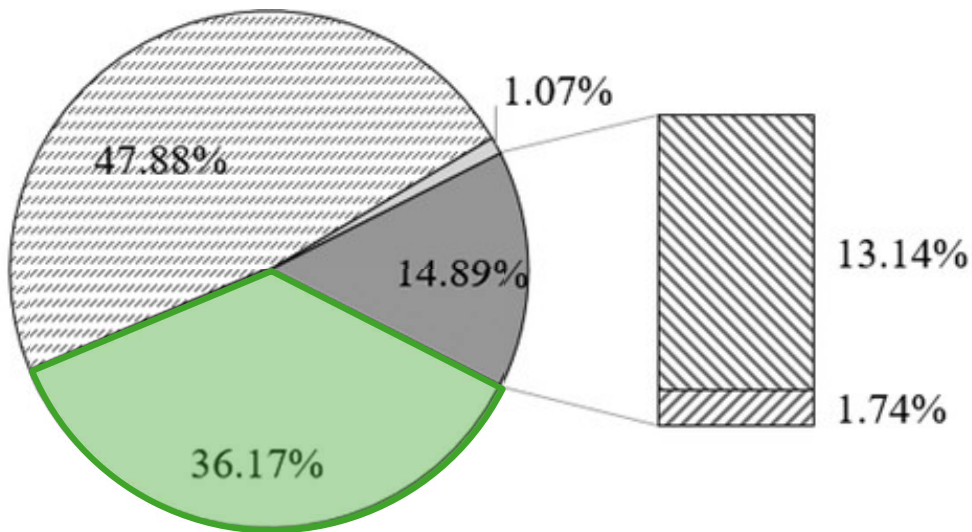
*Pyrolysetechnologien in Europa:*

<https://nachhaltigwirtschaften.at/de/projekte/pyrolysetechnologien-europa.php>



## Production focus (2/2)

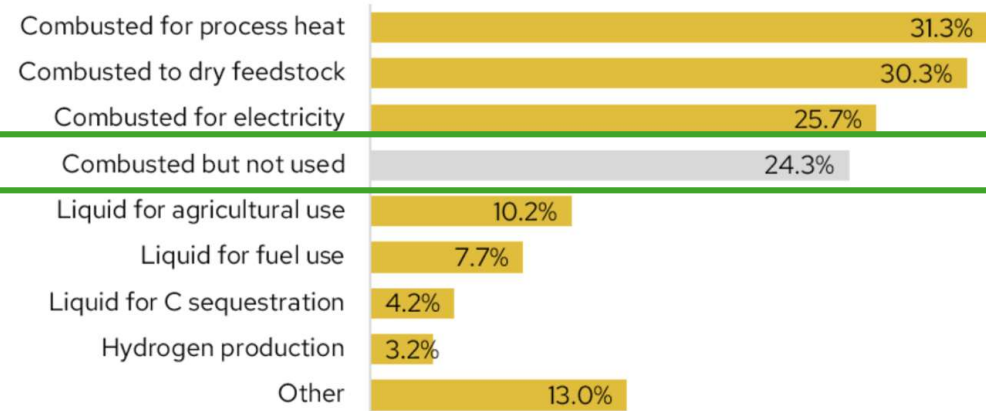
Energy share of pyrolysis products:



□ Pyrolysis gas   ▨ Biochar   □ Vinegar   ▩ Wood tar   ▤ Light oil

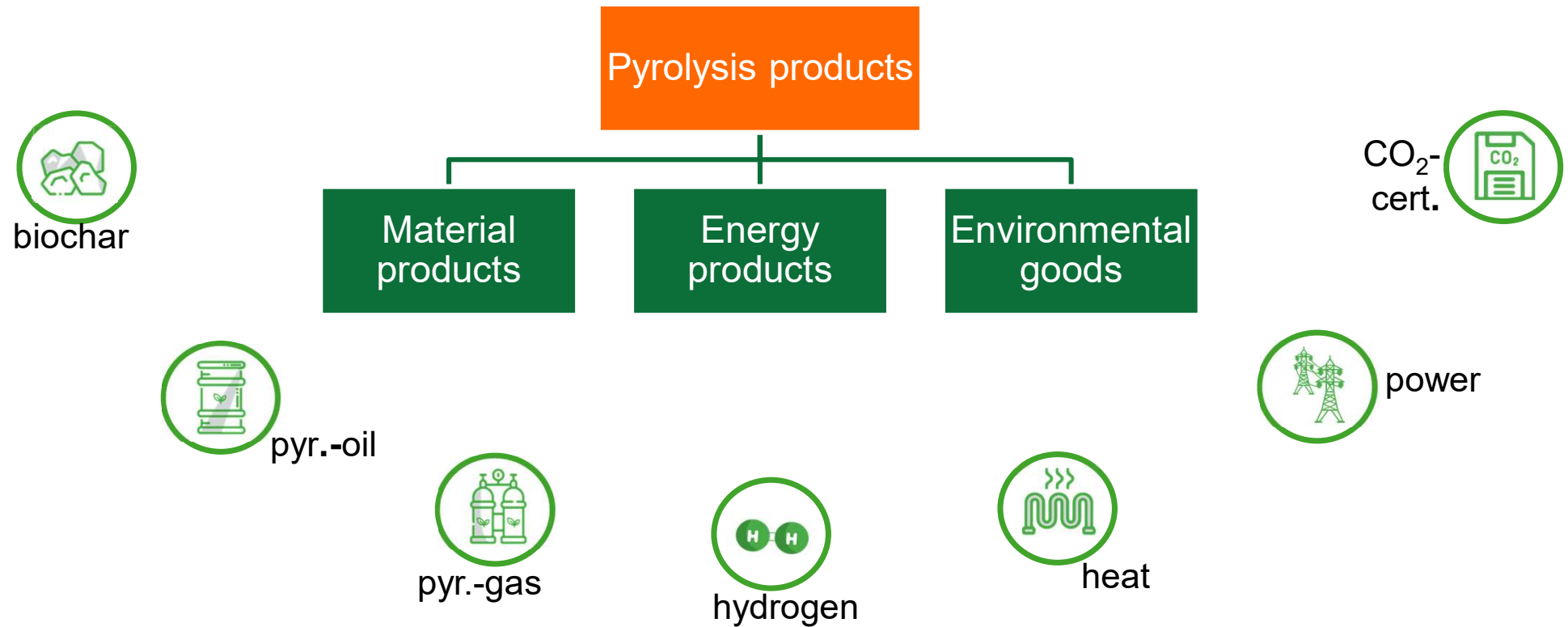
Cong et al, 2018: Slow Pyrolysis Performance and Energy Balance of Corn Stover in Continuous Pyrolysis-Based Poly-Generation Systems. <https://pubs.acs.org/doi/full/10.1021/acs.energyfuels.7b03175>

End-use of pyrolysis gas:



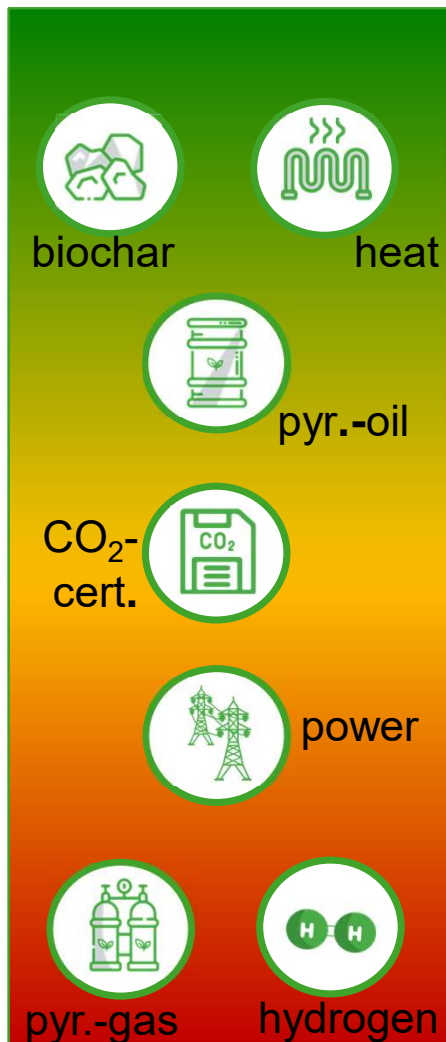
IBI, USBI (2024): Global Biochar Market Report, <https://biochar-international.org/wp-content/uploads/2024/06/Global-Biochar-Market-Report-2023-%E2%80%93-Public.pdf>

# Product variety (1/2)



low ← use of pyrolysis products → high

## Product variety (2/2)



Source: [www.sonnenerde.at](http://www.sonnenerde.at)



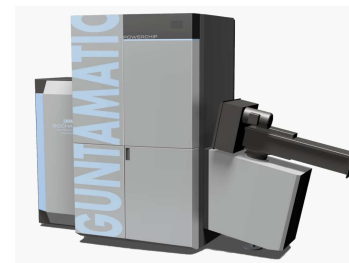
Source: [www.char-line.com](http://www.char-line.com)



Source: [sfbiochar.com](http://sfbiochar.com)



Source: [www.corigin.co](http://www.corigin.co)



Powerchip Biochar  
Source: [www.guntamatic.com](http://www.guntamatic.com)



T:Cracker – PyroDry  
Source: [www.nge.at](http://www.nge.at)



Rückwärtskraftwerk  
Source: [www.syncraft.at](http://www.syncraft.at)

## Carbon Removal and Carbon Farming (CRCF) Regulation

[https://climate.ec.europa.eu/eu-action/carbon-removals-and-carbon-farming\\_en](https://climate.ec.europa.eu/eu-action/carbon-removals-and-carbon-farming_en)



Source: [www.carbonfuture.earth](http://www.carbonfuture.earth)

puro • earth

Source: [puro.earth/](http://puro.earth/)







## Conclusions

- Operator`s **main goal must be integrated into comprehensive concepts** including feedstock availability to product marketing.
- Parallel commercialization of **material AND energy products** is crucial for economic success.
- Optimize / establish **framework conditions for product interfaces**
  - Product standards for individual applications
  - Product retailer
  - Logistic processes
- Reasonable duration for **commissioning procedures**
- Interdisciplinary network & representation for national tasks important





Österreichischer Verein für Biomasse-Karbonisierung –  
ÖBIKA

- Austrian Biomass Carbonisation Society -

und



laden ein zum

## Österreichischen Branchenvernetzungstreffen Biochar

25. November 2025 (nachmittags)  
Reallabor Fassfabrik  
Lastenstraße 19, 1230 Wien

save the date!



Ein Projekt von





Thank you for your attention

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**WOPIENKA**  
Elisabeth



**SEDLMAYER**  
Irene



**SCHWABL**  
Manuel



**KLAUSER**  
Franziska