IEA Bioenergy
Technology Collaboration Programme

BEST
Bioenergy and
Sustainable Technologies



Activities on Biochar within the Framework of IEA Bioenergy

Direct Thermochemical Liquefaction

Manuel Schwabl
IEA Task 34 – National Task Delegate, Austria

9th Biochar Day, 01. October 2026, Vienna

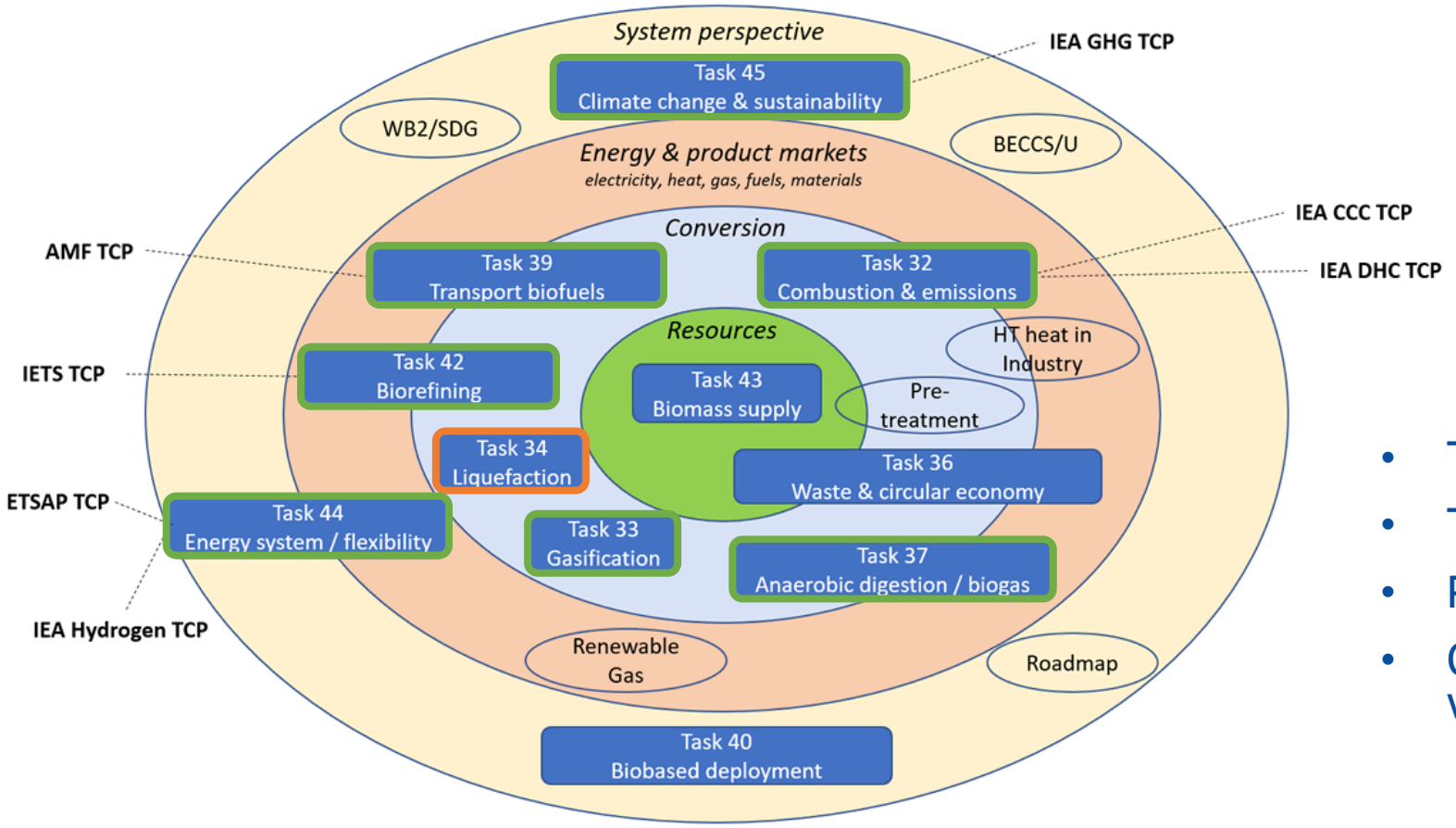
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IEA TCP Bioenergy



- TCP under the IEA – est. 1978
- Neutral knowledge platform
- 24 countries + EU Commission
- RD&D: research, industry, policy
  - commercialisation of sound, competitive bioenergy
  - Platforms for collaboration & exchange
  - Austria: visibility · networking · joint R&D

IEA TCP Bioenergy



- Thematic "Tasks"
- Triennium 2025–2027
- Per Task: leader, experts, budget
- Outputs: reports, workshops, webinars

Biochar in the IEA TCP Bioenergy World

… not for energy

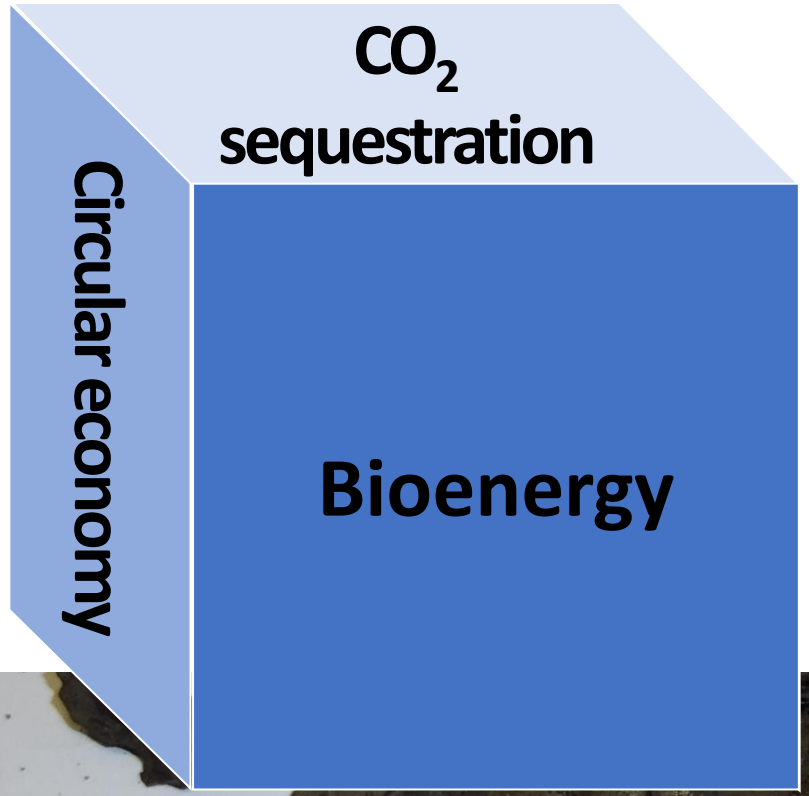


Biochar in the IEA TCP Bioenergy World



- Co-production
- Carbon storage potential
- Valorisation of residual streams

Biochar in the IEA TCP Bioenergy World

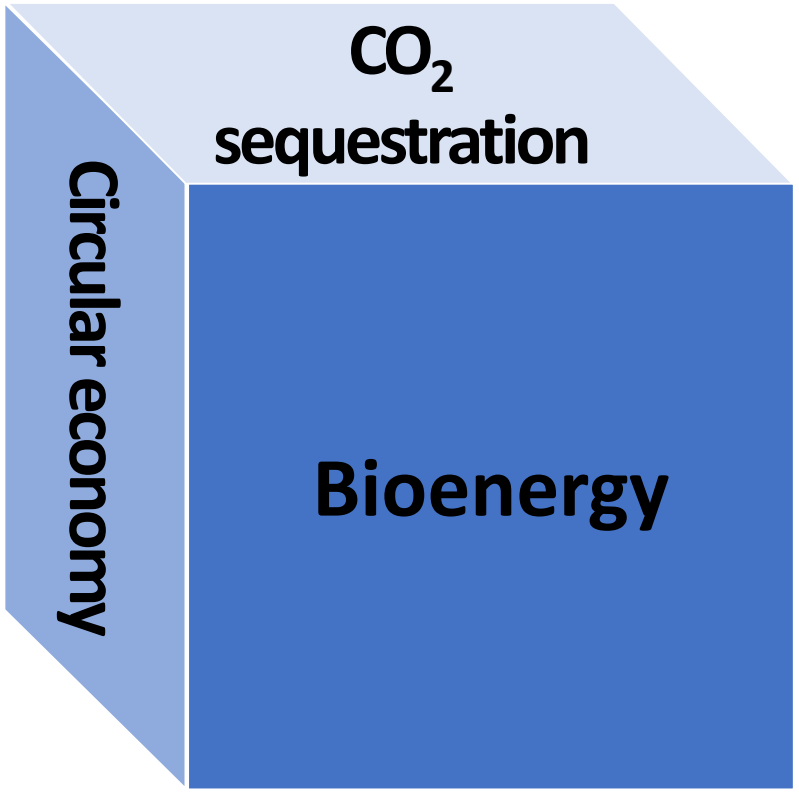


- Co-production
- Carbon storage potential
- Valorisation of residual streams



Biochar in the IEA TCP Bioenergy World

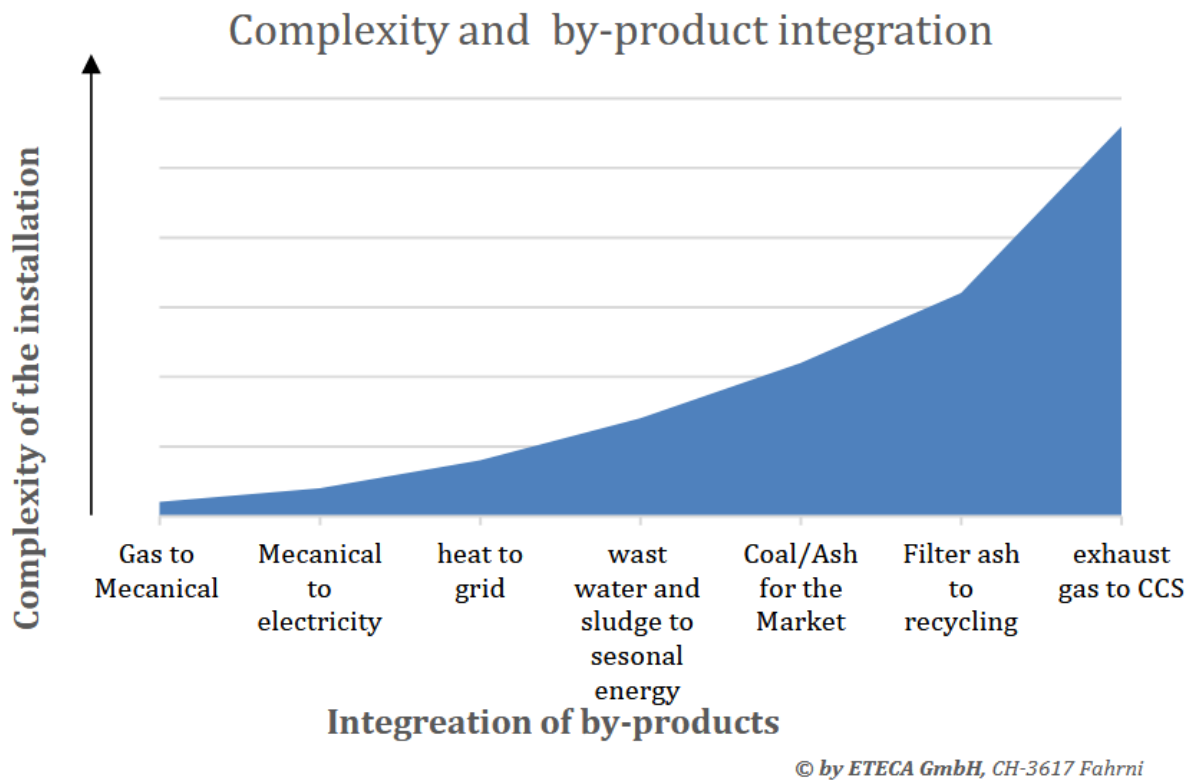
Overview of current contributions



- **Co-production**
  - **IEA Task 32** - Combustion
  - **IEA Task 33** - Gasification
  - **IEA Task 34** – Direct Thermal Liquefaction
- **Carbon storage potential**
  - **ITP BECCUS3.0**
- **Valorisation of residual streams**
  - **IEA Task 36** - Material and Energy valorisation
  - **ITP** Expanding the resource base for energy and products

Available reports

IEA Bioenergy Task 33 - Gasification





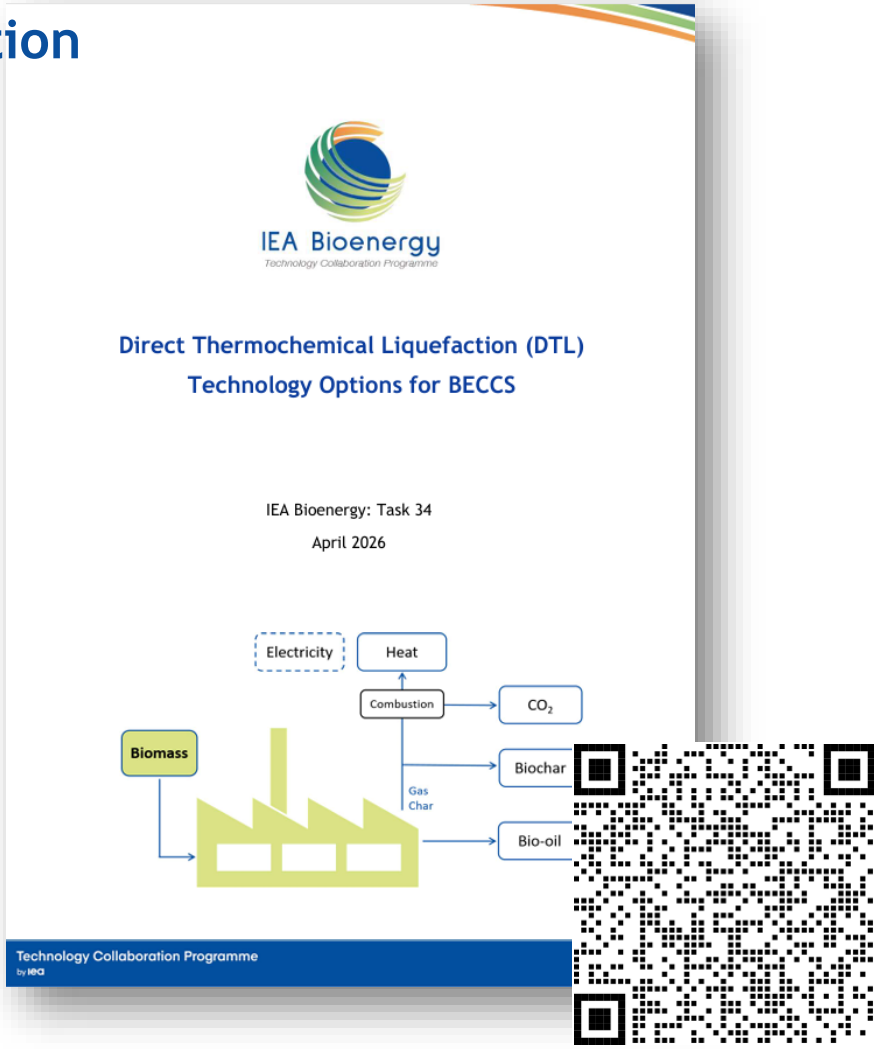
https://task33.ieabioenergy.com/wp-content/uploads/sites/33/2022/07/Valorisation-of-byproducts.pdf

Available reports

IEA Bioenergy Task 34 - Direct Thermochemical Liquefaction

	Mass (kg/h)	Energy (MW)	Carbon (kg/h)
Biomass	5421.7	25.0	2320.5
FPBO	1664.1	9.2	832.0
AC	751.5	0.8	32.6
Gas	1342.0	6.1	508.2
Char	1664.1	8.3	832.0
Sum Out	5421.7	24.4	2204.9

Carbon sequestration potential through biochar co-production in Fast Pyrolysis process

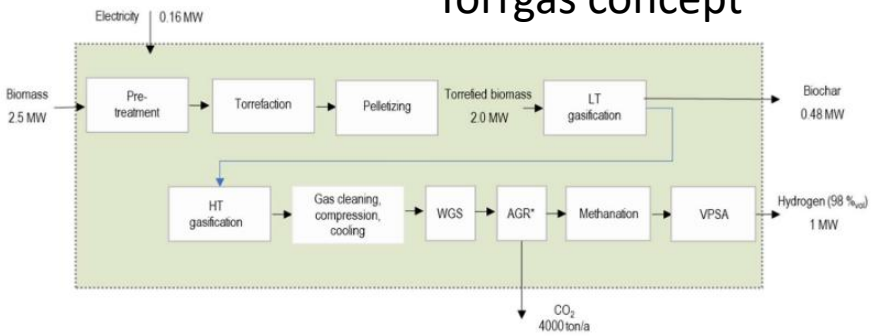


Available reports

ITP - Synergies of green hydrogen

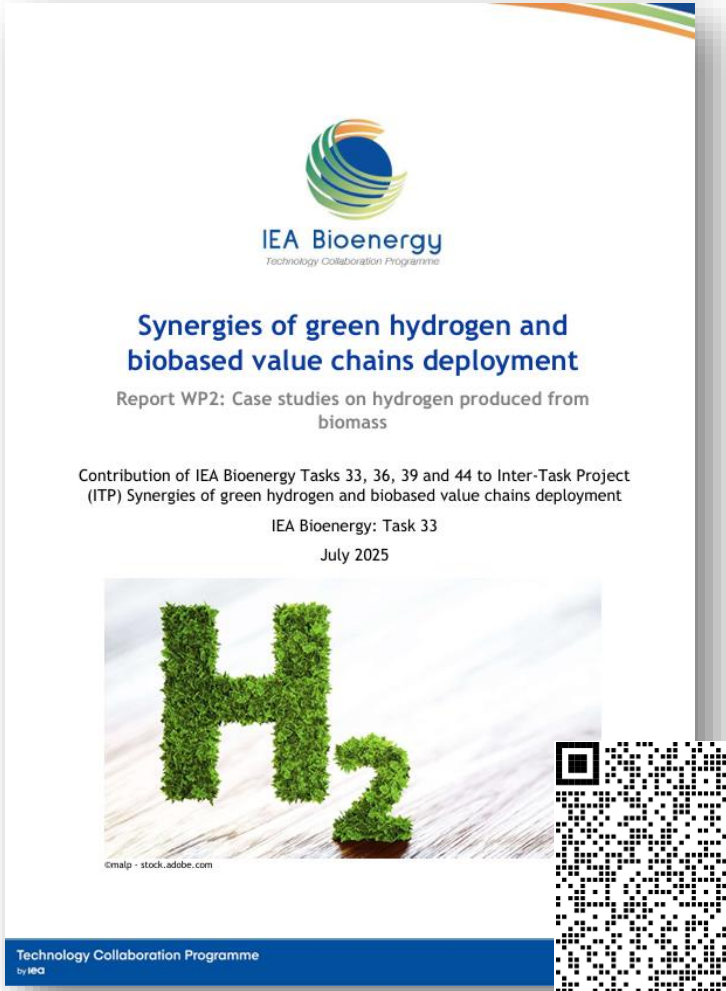
- 2 use cases with biochar co-production
- Carbon storage potential
- Application not investigated

Torrgas concept



Cortus concept





https://task44.ieabioenergy.com/wp-content/uploads/sites/12/2025/08/IEA-Bioenergy_ITP-Synergies_WP2_Report_final_for-publication.pdf

Available reports

IEA Bioenergy Task 36 - Material and Energy valorisation of waste in a Circular Economy

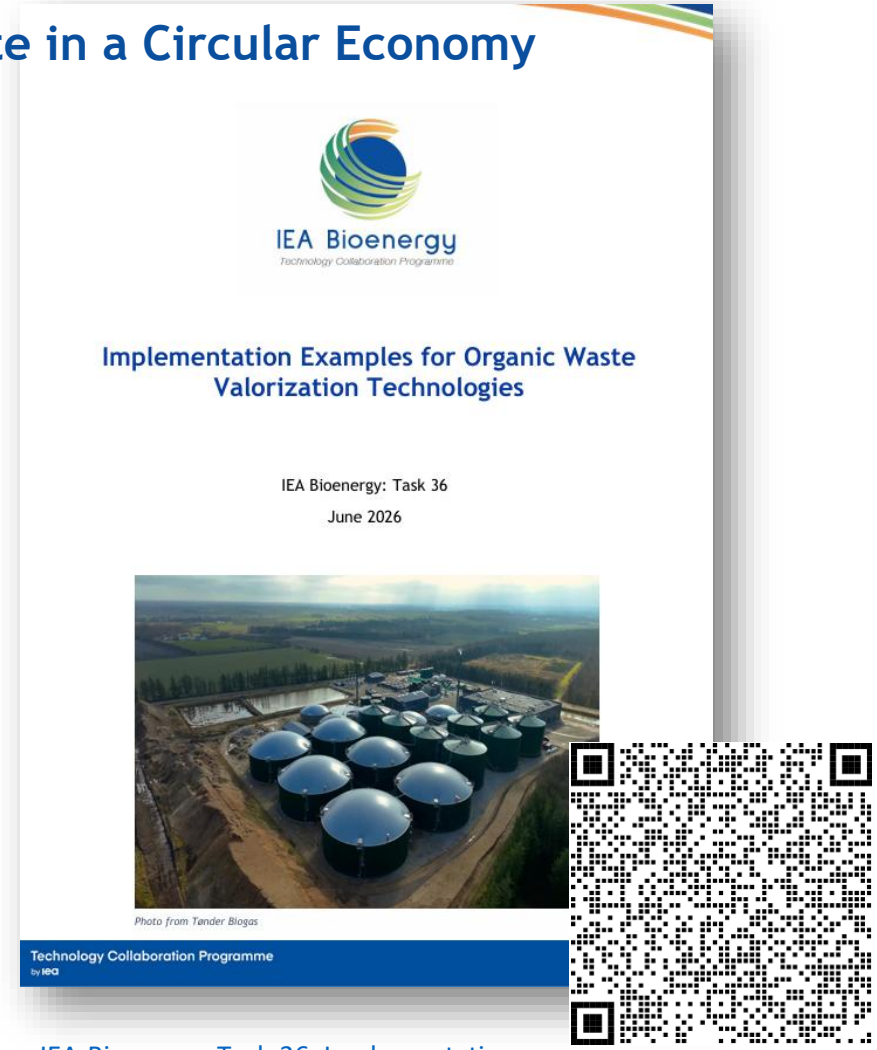
Pyrolysis as valorisation route for waste water sludge

Pyrolysis of Wastewater Sludge to Biochar

SILICON VALLEY CLEAN WATER—REDWOOD CITY, CALIFORNIA, USA



Photo from Bioforcetech Corporation



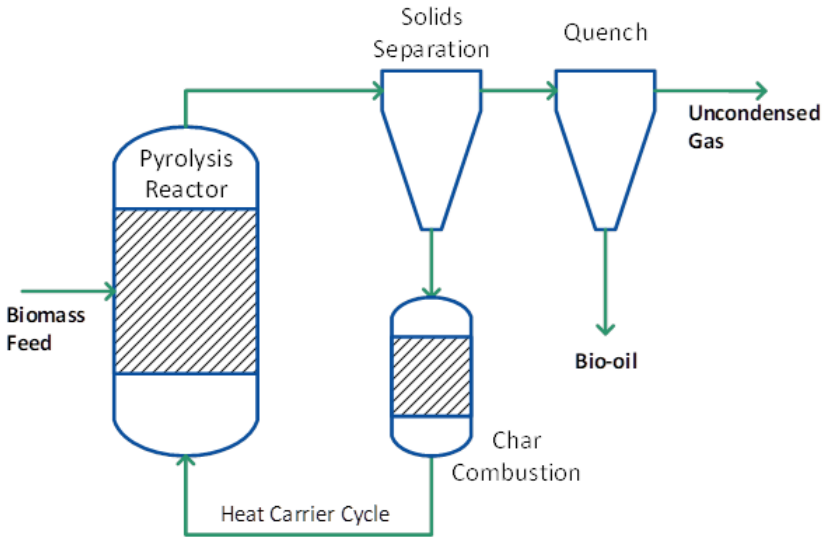
IEA-Bioenergy-Task-36_Implementation-Examples-for-Organic-Waste-Valorization-Technologies.pdf

Ongoing activities

IEA Bioenergy Task 34

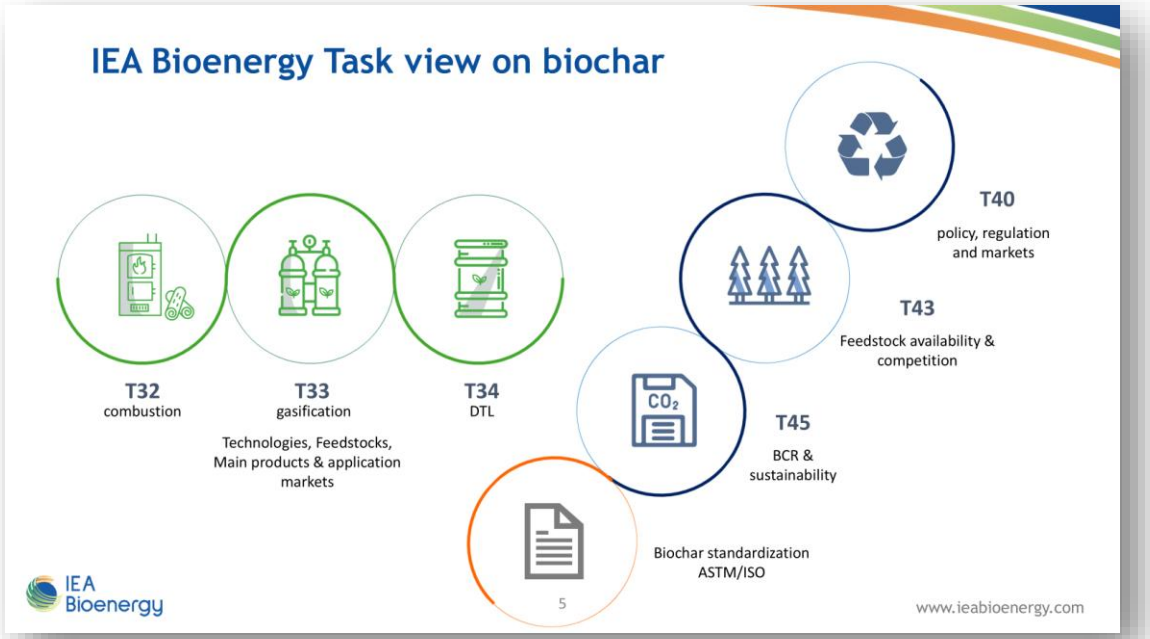
Report on „Use of byproducts from DTL“ in elaboration

- solid and gaseous byprodcuts
- Fast Pyrolysis & HTL
- comparison of char properties
- application
- influence on processes



Ongoing activities

BECCUS3.0 – WP4 Biochar



Kick-Off workshop WP4 at CEBC 2026 in Graz

- Inter-task project „Management of biogenic CO2" phase 3 (2025-2027)
- Led by Task 40 with Tasks 32, 33, 34, 36, 37, 39, 43, 44, 45
- Workpackage 4 Biochar (Task 34)
  - Report
  - Policy Brief

Ongoing activities
BECCUS3.0 - WP4 Biochar - Report Q2-2027

Objective
fundamental perspective on biochar with link to BECCUS

Sources
(slow) pyrolysis, combustion, gasification, liquefaction

Linking
sources and characteristics to applications

Latest Developments
in biochar standardisation + CO2 Credit accounting

Policy & Regulation
country level + EU

Summary
of applications + negative-emissions characteristics

Summary & Outlook



- Biochar is firmly embedded in IEA Bioenergy's work programme 2025-2027
- Through Task 34 coordinate biochar work; other Tasks contribute via BECCUS 3.0
- Two reports coming: D1.2 (DTL by-products) + BECCUS 3.0 WP4 (overview)
- Open to receive Use-Cases for new/emerging RD&D biochar production facilities
- Questions & discussion – happy to share drafts and contacts

Thank you for your attention

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manuel.schwabl@best-research.eu

Sign up for the PyNe newsletter of Task 34

www.ieabioenergy.com