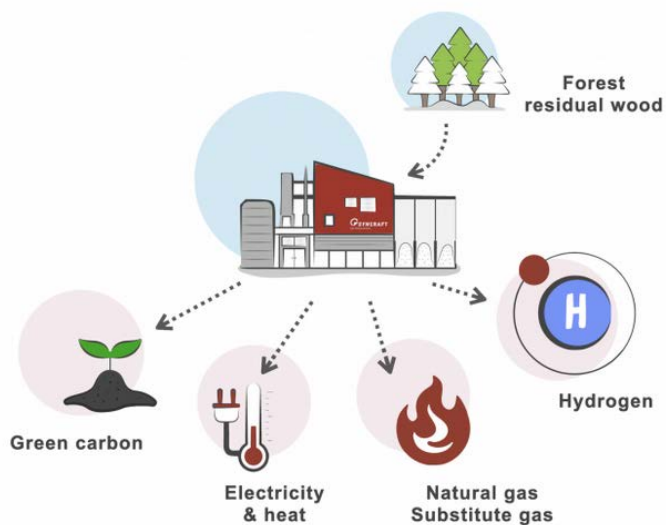




**IEA Bioenergy**  
Technology Collaboration Programme



# Country Report Austria

## Update

Dr. Jitka Hrbek, Prof. Christoph Pfeifer

03.06.2021, IEA Bioenergy Task 33 meeting

Source: SynCraft

*The IEA Bioenergy Technology Collaboration Programme (TCP) is organised under the auspices of the International Energy Agency (IEA) but is functionally and legally autonomous. Views, findings and publications of the IEA Bioenergy TCP do not necessarily represent the views or policies of the IEA Secretariat or its individual member countries.*

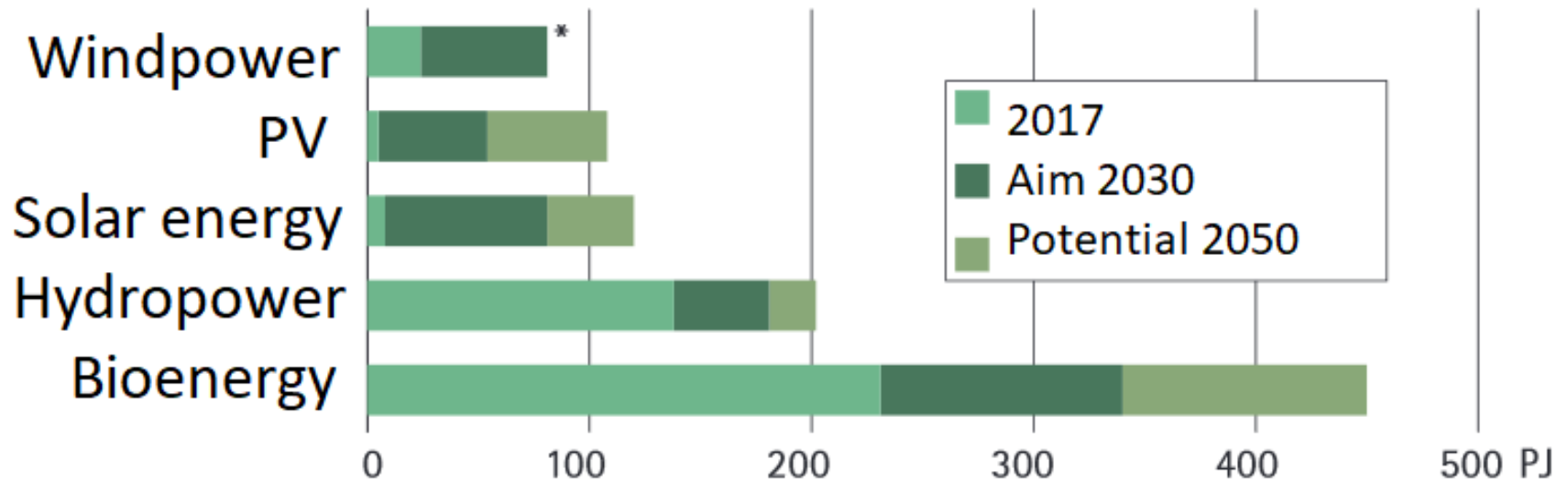
**Technology Collaboration Programme**

by **iea**

# Outline

- Renewables in Austria
- Research on gasification
- Industry
- Implementations

# Renewable energy in 2017, 2030 and 2050

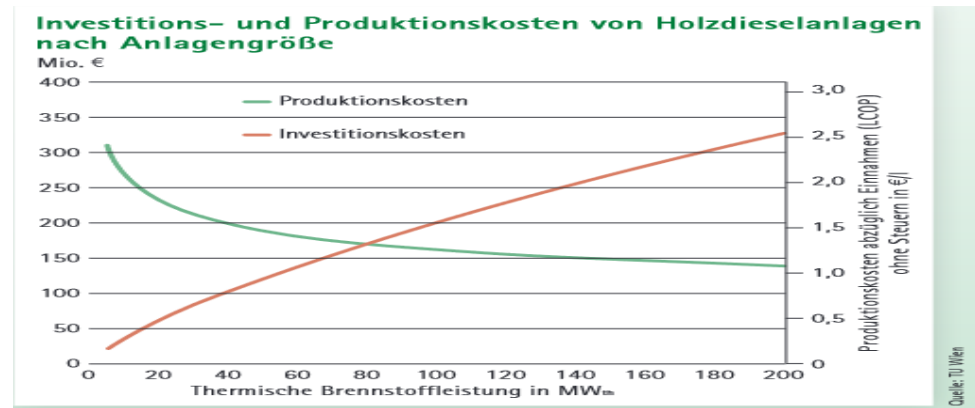


\*data available only till 2030

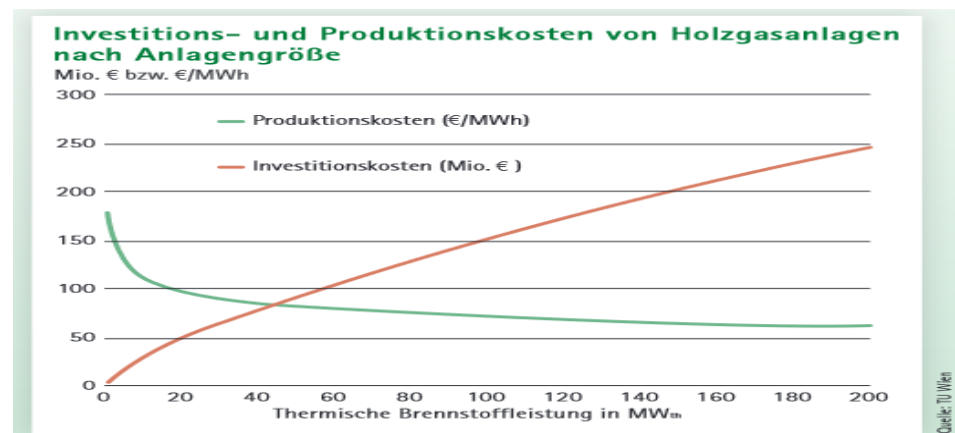
Source: Biomasseverband Österreich

# Austrian Biomass Association - new publication on gasification (December 2020)

Biodiesel - costs



SNG - costs



# CHP facilities in Austria

CHP facilities in Austria - overview	CHP facilities							
	Input (kW)	kWel.	kWth	Feed into grid	Local green gas	Biodiesel	Green hydrogen	Bio-char
<b>Producer</b>								
Burkhardt GmbH		50-180	110-270					
Entrenco GmbH		25-50	60-120					
Fröling Heizkessel- und Behälterbau GmbH		46-56	95-115					
GLOCK Ökoenergie GmbH		18-50	44-110					
Hargassner GmbH		20	60					
Holzenergie Wegscheid GmbH		65-133	130-270					
LiPRO Energy GmbH & CO. KG		30-50	60-90					
Polytechnik Luft- und Feuerungstechnik GmbH	400-1.500							
ReGaWatt GmbH	1.600-8.000	420-2.300	870-5.600			○	○	
Spanner Re <sup>2</sup> GmbH		9-600	22-1.200					
Stadtwerke Rosenheim GmbH & Co. KG		50-180	110-380					
Syncraft® GmbH	700-3.000	200-1.000	155-1.540		x		○	x
URBAS Stahl- und Anlagenbau GmbH	500-2.000	120-600	250-1.000					
Windhager Zentralheizung GmbH	7-100							
Xylowatt S.A.	2.800-7.300	750-2.000	1.500-4.000				○	x
<b>Design/planning</b>								
BEST – Bioenergy and Sustainable Technologies GmbH <sup>1)</sup>	100-35.000		x		x	○	○	
GET – Güssing Energy Technologies GmbH			x	x	x	○	○	x
Güssing Renewable Energy GmbH	4.500-45.000	1.200-2.400	1.400-24.000			○	○	
Pörner Ingenieurgesellschaft mbH	500-45.000		○	○	○	x	○	○
Repotec/Aichernig Engineering GmbH			x	x	x	○	○	x
Ing. Leo Riebenbauer GmbH		18-540	44-810		x	○	○	x
SMS group Process Technologies GmbH	1.000-20.000		○	○	○	○	○	

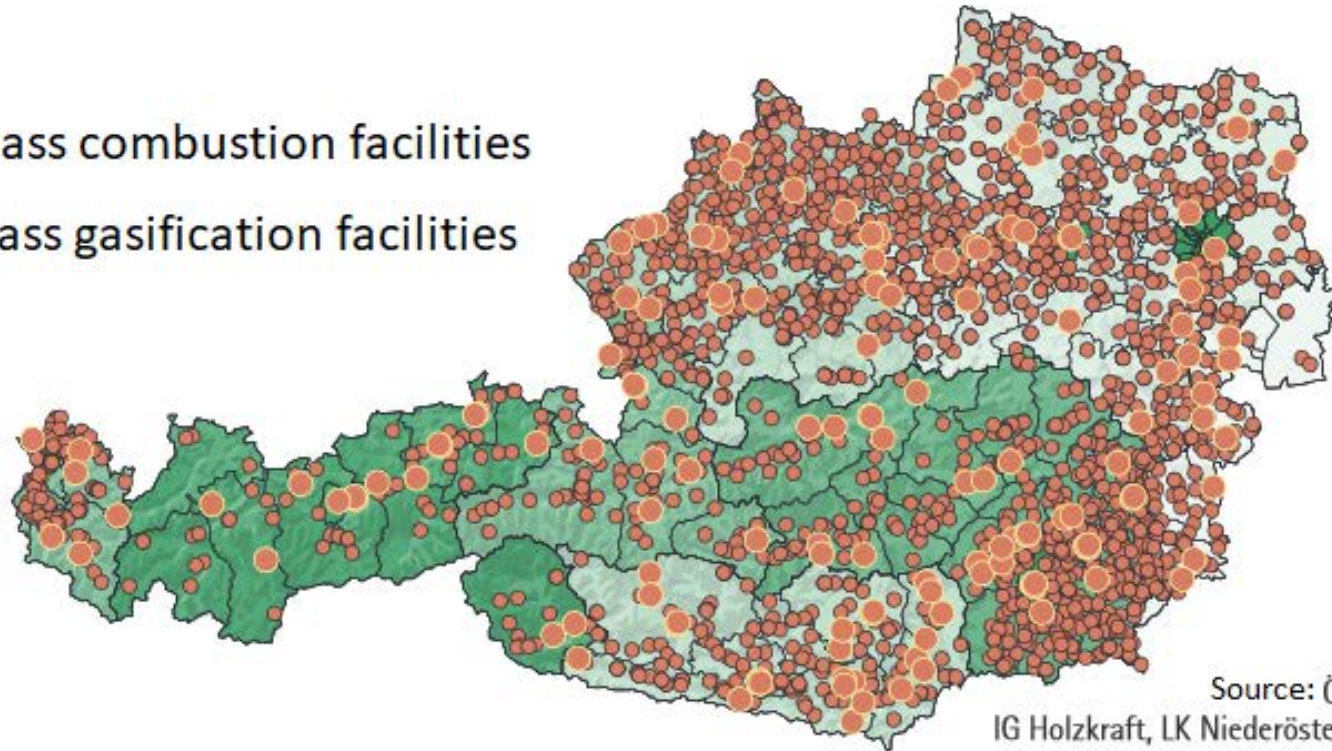
1) - Research centre, 2) - information per modul  
Information based on data from companies

x - realised commercial facilities  
o - no commercial facilities at the moment

# Bioenergy in Austria

Source: Biomasseverband

- Biomass combustion facilities
- Biomass gasification facilities



About 2 400 biomass boilers and more than 140 CHP gasification facilities

# Research in Austria

## University of Natural Resources and Life Sciences Vienna (BOKU Wien)

- Installation of a 20kW bubbling fluidized bed combustor/gasifier
- Installation of 10 kW pyrolysis facility

### Other activities

#### ISGA conference

(scientific committee)



#### Journal - Carbon Resources Conversion (associated editor)



# Research in Austria

University of Natural Resources and Life Sciences  
(BOKU Wien)

SEEP Conference 2021

<https://seepconference.com/>



"Important: Due to COVID 19 the conference is transformed to an online event"

101 DAYS	22 HOURS	16 MINUTES	29 SECONDS
-------------	-------------	---------------	---------------

**13TH INTERNATIONAL CONFERENCE  
ON SUSTAINABLE ENERGY &  
ENVIRONMENTAL PROTECTION  
SEEP2021**

13 September–16 September 2021

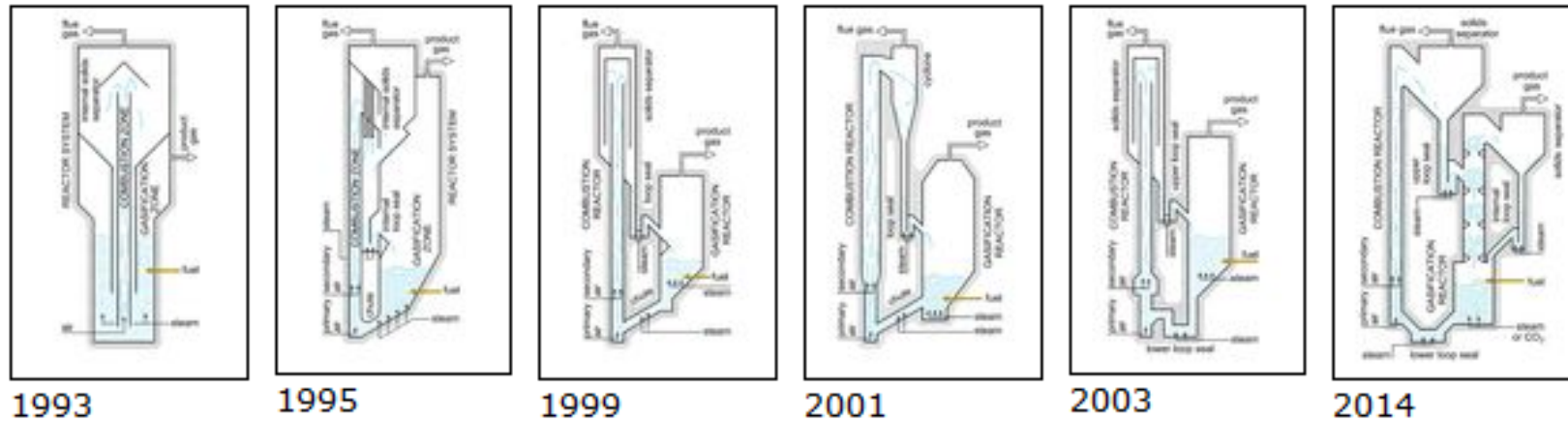
The banner features a background image of a wind farm at sunset. The sky is a mix of orange, yellow, and blue. The wind turbines are silhouetted against the bright sky. The text is overlaid on the image in white and blue. The countdown timer is positioned in the upper middle section of the banner.



# Research in Austria

Vienna University of Technology (TU Wien)

Institute of Chemical Engineering



Figures: Development of Dual Fluidized Bed Steam Gasification at the Vienna University of Technology (Schmid J.C. 2016)

## Actual projects:

[FCTRAC](#) (Fuel cell tractor fuelled with biogenic hydrogen)

[Regas4industry](#) (Renewable gases for industry)

[ADORE-SNG](#) (Comprehensive Automation, Digitalisation & Optimization of Renewable & Sustainable SNG-production)

[Waste2value](#)

# Research in Austria

Graz University of Technology

Institute of Thermal Engineering



## Projects areas:

- Combustion and gasification
- CFD-simulations
  - reactive fluid flows
  - solar thermal processes
  - extrusion and injection molding (polymers)
  - thermal Management
- Thermo-dynamical process simulation
- Fluidized bed combustion
- Second Generation Fuels and fuel cells
- CO<sub>2</sub>-free gas- and coal-burning power plant

# Research in Austria

## MCI

University of Applied Sciences for Environmental-,  
Process- and Biotechnology, Innsbruck

### Projects areas:

- Multi-staged fixed bed gasification systems
- Valorization of biomass
- Biomass to power and heat
- Engine & emissions
- Energy distribution and storage

# Research in Austria



## Competence area - gasification:

- Product gas production/treatment/utilization
- Process development and optimization
- Measuring and analysis technology
- Fundamental R&D on ashes and bed materials
- 1<sup>st</sup> and 2<sup>nd</sup> generation biofuels
- Representative of Austria in IEA Bioenergy Task 39 liquid biofuels
- Secretary of IEA Advanced Motor Fuels

# Austrian companies

## **Aichernig Engineering GmbH (former REPOTEC)**

(<http://www.repotec.at>)

Engineering of FICFB gasifiers for CHP, BioSNG and other synthesis (Güssing, Ulm, Göteborg)

## **GET- Güssing Energy Technologies**

([get.ac.at](http://get.ac.at))

Research, consulting and engineering, education centre

## **Güssing Renewable Energy**

(<http://www.gussingrenewable.com>)

## **GE Jenbacher Energiesysteme AG**

(<https://information.jenbacher.com/index.php>)

## **GRESKO Power**

<https://gresco-power.com/>

# Austrian companies

Small scale gasification - overview



Output kWel	Output kWth
18/55	44/120
20	60
50	107

# Austrian companies

Small scale gasification - overview

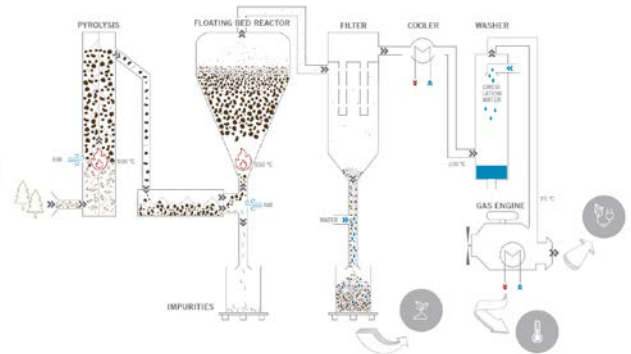


Output kWel	Output kWth
200-500	320-770
300/500	500/800
120-550	280-880

# Austrian companies

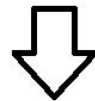
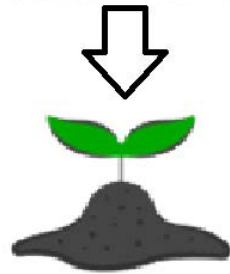


**SYNCRAFT®**  
Das Holzkraftwerk.

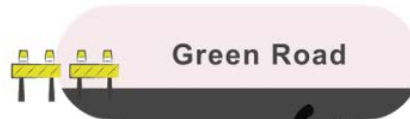


Floating fixed bed technology

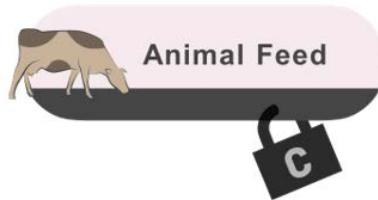
1kg charcoal  
is an eq. to  
3 kg CO<sub>2</sub>



Terra Preta



Green Road



Animal Feed



Watertreatment



**Mission**

negative CO<sub>2</sub> footprint



# Austrian companies



## **SynCraft and INNIO Jenbacher intensify collaboration for the energetic use of biomass**

- INNIO is supplying Jenbacher gas engines for two new SynCraft wood gas power plants in Upper Austria
- New joint projects planned for Germany and outside Europe

## **Project Bioenergy Frauenfeld (CH)**

- Power for 8000 household (30 mil. kWh/year) with beginning of June 2022 and heat (45 mil. kWh/year) for sugar factory in Frauenfeld
- Saving 9000 tons of CO<sub>2</sub>/year
- Gasifier from SynCraft + 4 gas motors
- Including production of biochar (3 000 tons/year)

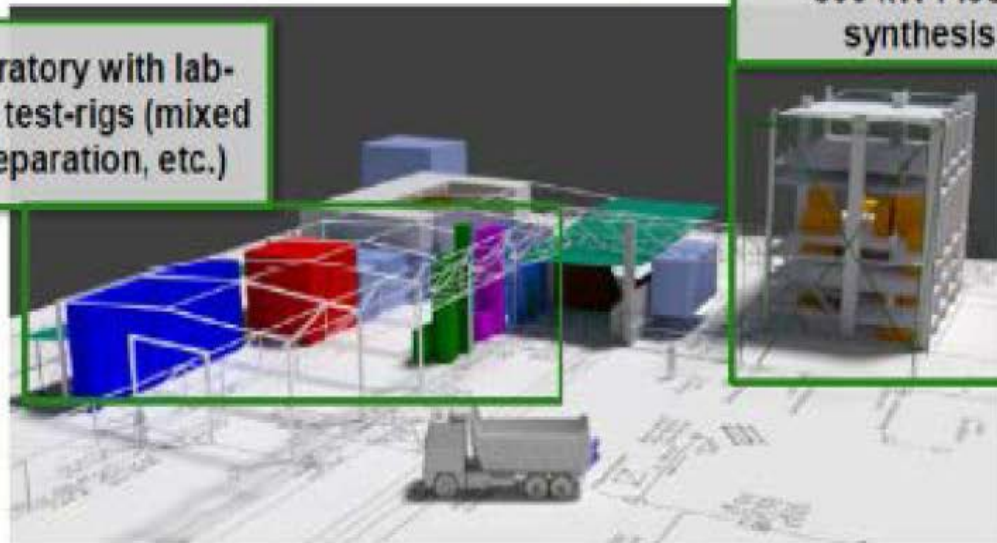
# Project Waste2Value

## 1 MW DFB gasification + synthesis: Waste2Value

New research location at industrial site *Simmeringer Halde*

1 MW DFB gasification demonstration plant (improved reactor design) + 300 kW Fischer-Tropsch synthesis pilot plant

Research laboratory with lab-scale synthesis test-rigs (mixed alcohols, H<sub>2</sub> separation, etc.)



COMET  
Competence Centers for  
Excellent Technologies

# Project Waste2Value

RDF gasification, FT synthesis, SNG production, etc.



**Start up in Fall 2021**

Thanks for your attention

Dr. Jitka Hrbek

[jitka.hrbek@boku.ac.at](mailto:jitka.hrbek@boku.ac.at)

Univ.Prof. Christoph Pfeifer

[christoph.pfeifer@boku.ac.at](mailto:christoph.pfeifer@boku.ac.at)



**IEA Bioenergy**

*Technology Collaboration Programme*

[www.ieabioenergy.com](http://www.ieabioenergy.com)