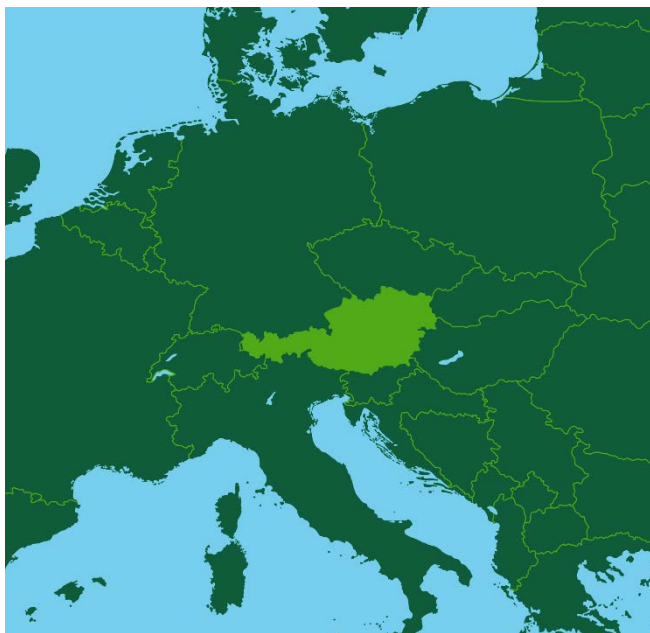




IEA Bioenergy
Technology Collaboration Programme



Country Report Austria

Update

Dr. Jitka Hrbek, Prof. Christoph Pfeifer

18.10.2022, IEA Bioenergy Task 33 meeting

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.

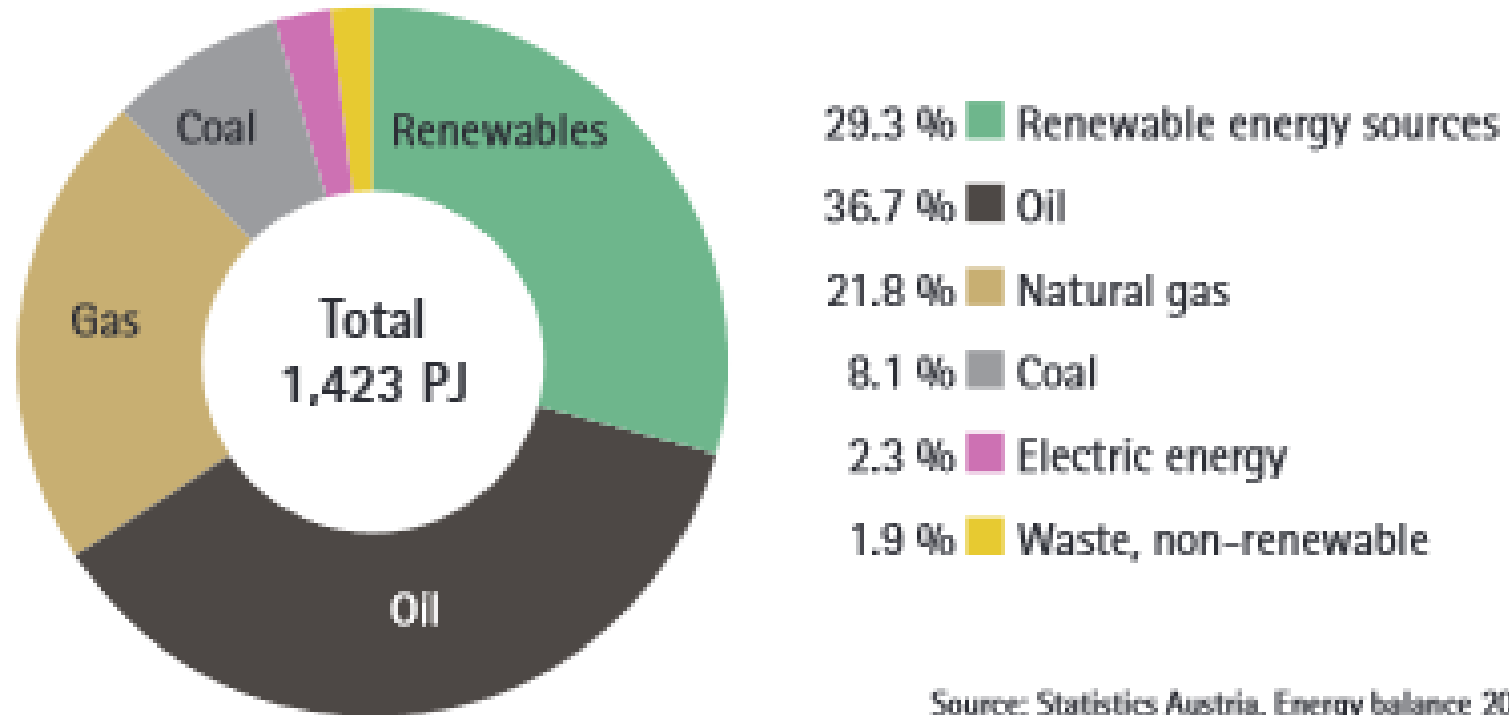
Technology Collaboration Programme

by **iea**

Outline

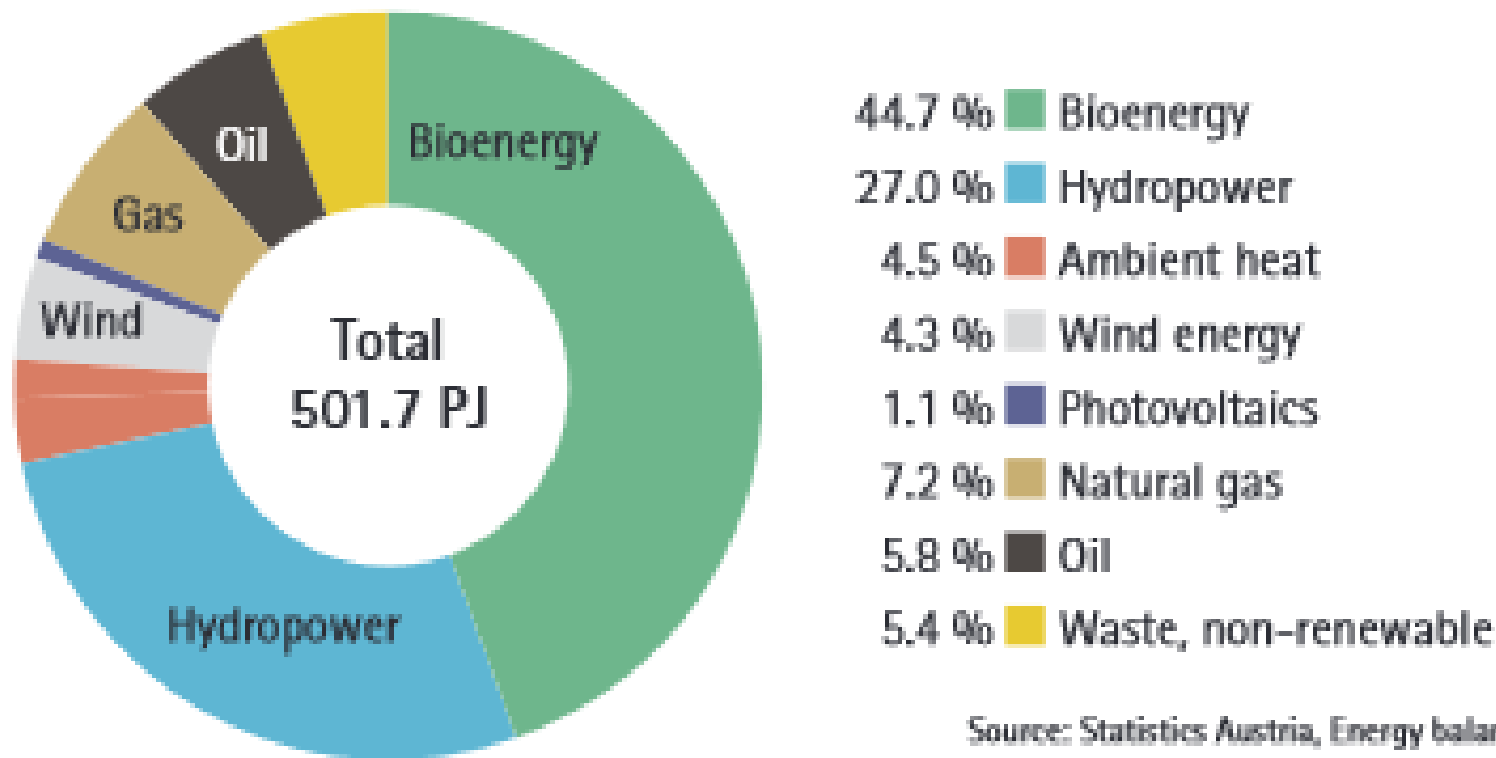
- Energy consumption and generation in Austria
- Bioenergy in Austria
- Research on gasification
- Industry
- Implementations

Gross inland energy consumption



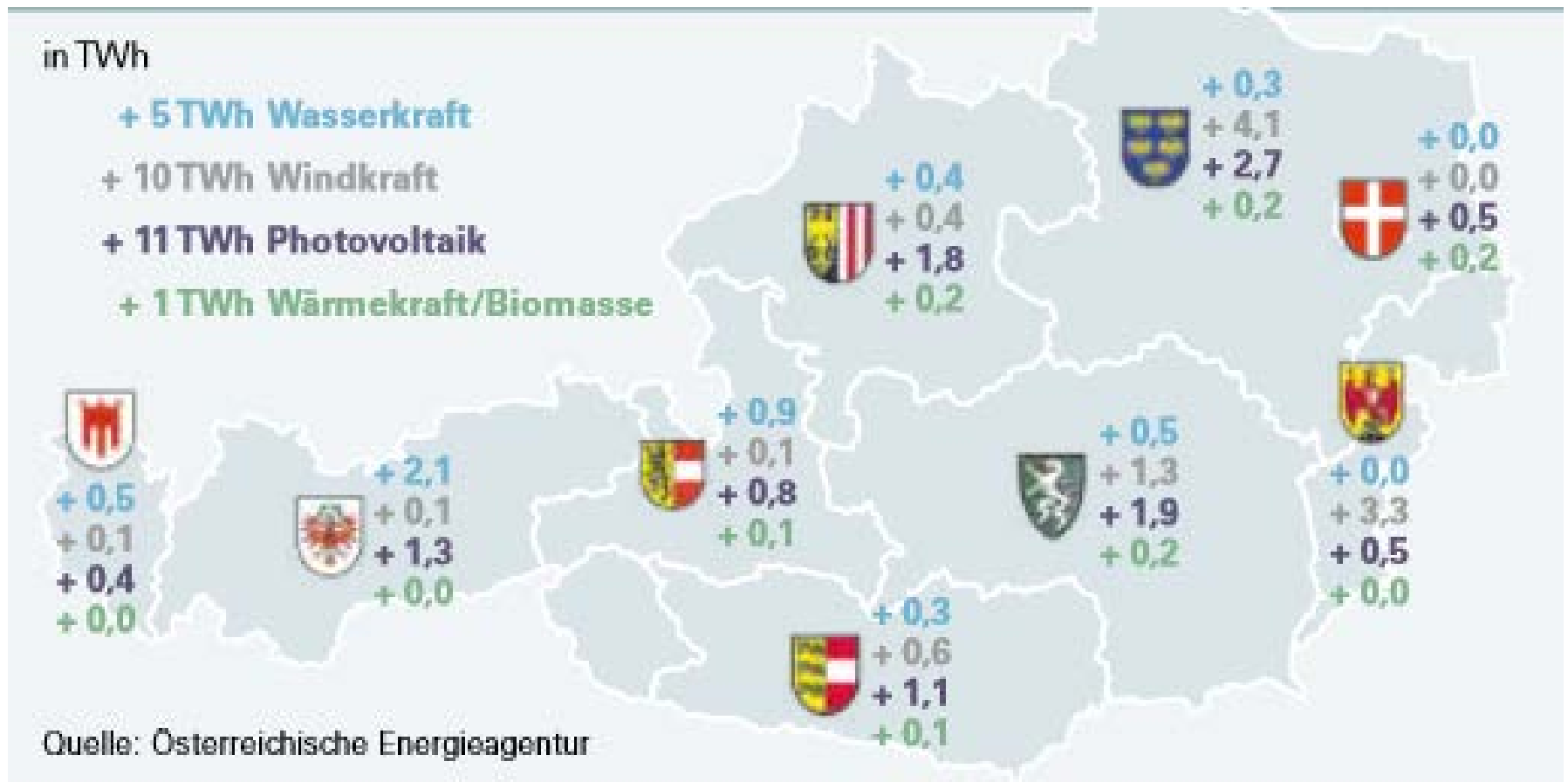
In Austria, energy consumption is covered by around two thirds by mostly imported fossil fuels.

Domestic energy generation

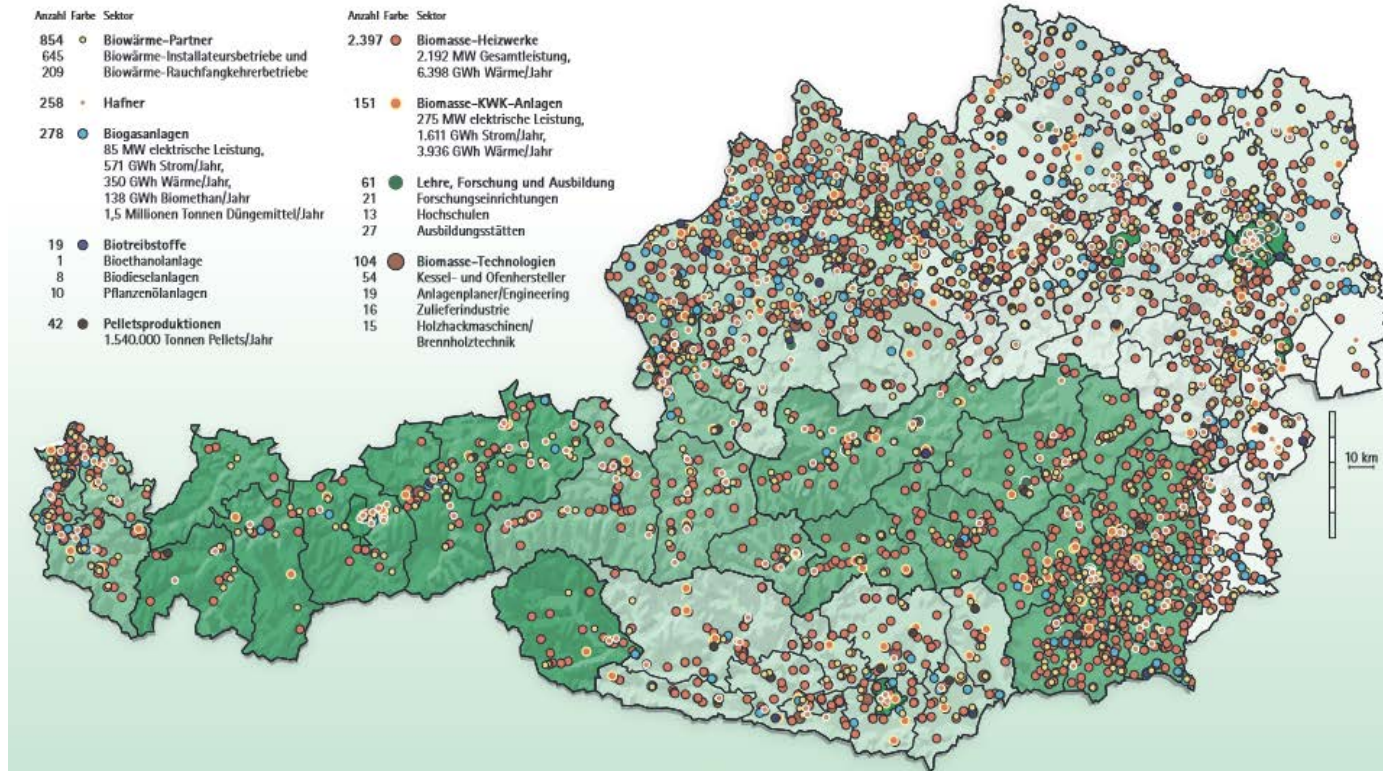


Contrary to imports, renewable sources predominate in domestic energy production with a share of around 82 %.

Demand on renewable power generation in federal states of Austria till 2030



Bioenergy branche in Austria 2020/21



Gasification CHP facilities
(output)

151 facilities
275 MW el
1 611 GWh power/y
3 936 GWh heat/y

CHP facilities in Austria

Overview wood gas systems

Plant manufacturer	Rated thermal input gasifier kW from-to	Wood gas CHP plants		Feed-in of wood gas into gas network	Local green gas	Wood diesel	Hydrogen	Biochar
		Electrical power kW from-to ²⁾	Thermal power kW from-to ²⁾					
Burkhardt GmbH		50-180	110-270					
Entrenco GmbH		25-50	60-120					
Fröling Heizkessel- und Behälterbau GmbH		46-56	95-115					
GLOCK ecotech 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 ² GmbH		35-600	79.5s-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
System designer								
BEST – Bioenergy and Sustainable Technologies GmbH ¹⁾	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							
Repotec/Aichernig Engineering GmbH			x	x	x	○	○	x
ERNEUERBARE ENERGIE – Ing. Leo Riebenbauer GmbH		18-540	44-810		x	○	○	x
SMS group Process Technologies GmbH	1,000-20,000							

x = implemented commercial plants; ○ = no commercial systems available yet; ¹⁾ research facility; ²⁾ given information applies to one module. Company information, table makes no claim to completeness.

Research in Austria

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

Actual project:

Carbon neutral LNG

Trully Carbon Neutral electricity enhanced Synthesis of Liquefied Natural Gas (LNG)
from biomass

Project coordinator:

Friedrich-Alexander-Universität Erlangen-Nürnberg

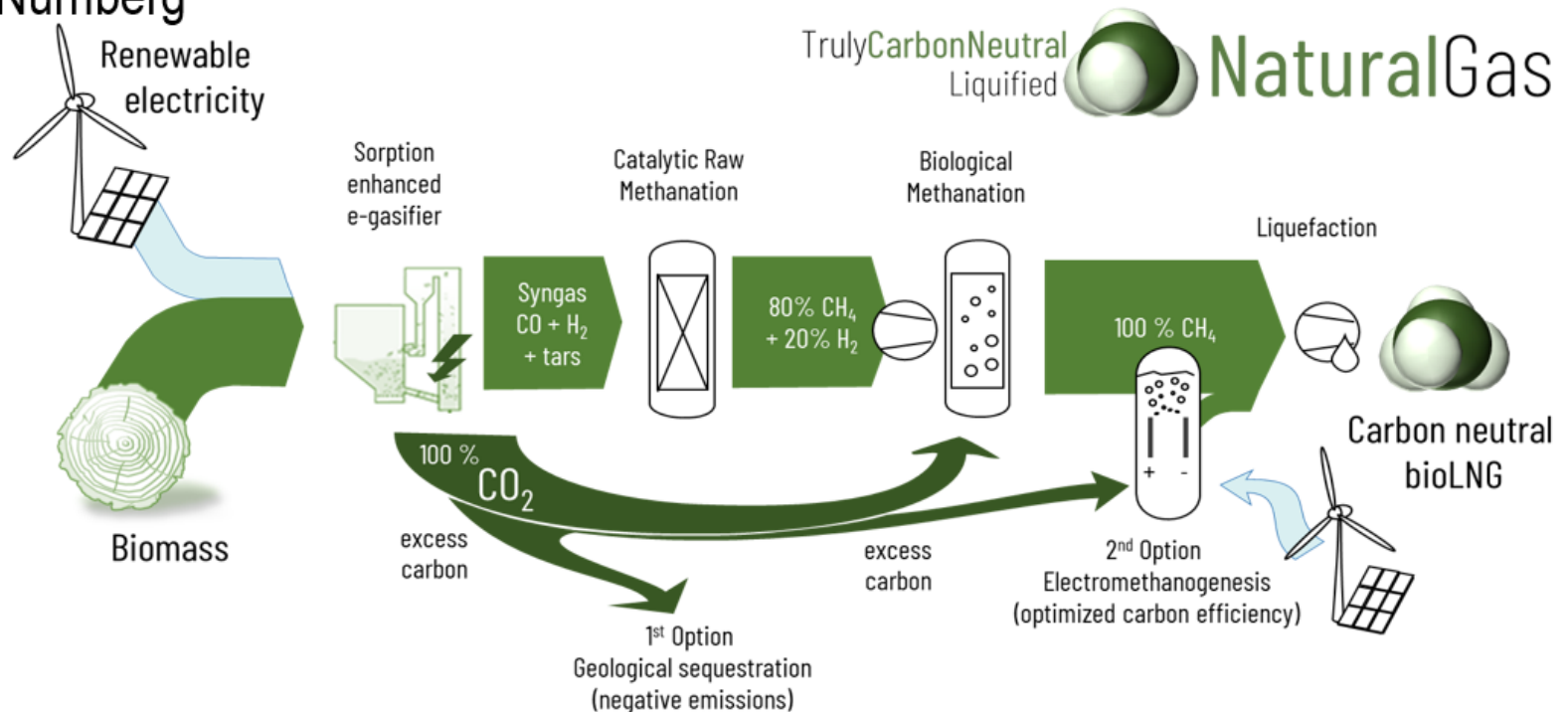
BOKU – EU Project: CarbonNeutralLNG

Truly Carbon Neutral electricity enhanced Synthesis of Liquefied Natural Gas (LNG) from biomass

Coordinator: Friedrich-Alexander-Universität Erlangen-Nürnberg



Universität für Bodenkultur Wien
Department für Materialwissenschaften
und Prozesstechnik



Institute of Chemical and Energy Engineering

BOKU – EU Project: CarbonNeutralLNG

- Decarbonisation of industrial processes with efficient fluidized bed systems
- 100kW dual fluidized bed pilot plant
- 9m riser with innovative design for better gas solid contact
- Gasification or biomass CLC operation possible



Universität für Bodenkultur Wien
Department für Materialwissenschaften
und Prozesstechnik



Institute of Chemical and Energy Engineering

Research in Austria

Vienna University of Technology (TU Wien)

Institute of Chemical Engineering



Presentation tomorrow

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
- CO₂-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

MCI - Josef Ressel Zentrum

Presentation tomorrow



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
- 1st and 2nd generation biofuels
- Representative of Austria in IEA Bioenergy Task 39 liquid biofuels
- ExCo vice-chair
- Secretary of IEA Advanced Motor Fuels
- *Project partner Waste2Value - **Presentation tomorrow***

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)

Research, consulting and engineering, education centre

Güssing Renewable Energy

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

GE Jenbacher Energiesysteme AG

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

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

Presentation tomorrow



Target	Production of syngas from biomass and waste and downstream synthesis
Scale	1 MW DUAL FLUID gasification 250 kW Fischer-Tropsch synthesis
Operation	Campaigns for research operation
Fuel	wood chips, sewage sludge, plastic waste, sorted waste, agricultural residues

Thanks for your attention

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IEA Bioenergy

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