Bioeconomy in Central Germany

On the way to a European Model Region

June 23rd, 2020
2012: BioEconomy Cluster was founded by 23 members and organized as a regional network (BioEconomy e.V.)

Status 53 members (May 2020)

2013: Leading Edge Cluster of the German Federal Ministry of Research and Education & also supported by the Ministry of Sciences, Economic and Digitalization of the Federal State Saxony-Anhalt.

Core region: Saxony-Anhalt and Saxony (with Thuringia, Brandenburg and Lower Saxony)

European network 3BI with IAR (F), Biobased Delta (NL) and BioVale (UK)

Unique cross-linking of the core industries:
Biomass (timber), chemicals, new materials and energy

Infrastructure:
- Feedstock: 30% of Germany’s beech forest is located around the cluster region
- High density of universities and educational institutions (professionals potential)
- Important sites of the chemical and the woodworking industry
- Leading research institutes with pilot facilities
Strong Base: Expertise and infrastructure of the BioEconomy Cluster Germany

- **Chemical triangle**
  - Production
  - Plant construction

- **Scale up facilities**
  - Know-how
  - Think tanks

- **Cluster 3BI**
  - Project networks
  - Bilateral partnerships

- **Processors**
  - Consumers
  - Raw materials

- **R&D Scale-up**

- **cluster**
  - Members
  - Platform
  - Visibility

- **success stories**
  - IP, facilities
  - Process demo
  - Experiences

- **incubators**
  - Start-up networks
  - Start-up support

- **investors capital**
  - Fundings
  - Venture Capital
  - Investors

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*Bioeconomy in Central Germany – BioEconomy e. V. at POWER4BIO Symposium*
Development of high-quality, market-ready, innovative products through intelligent use of natural material properties and functionalities

**Technology Competence**
- Biotechnology chemistry
- Mechanical thermochemical

**Product Category**
- Fibres
- Packages
- Fine / specialty chemicals
- Materials
- New materials
- Food supplements
- Animal feed
- Pharmacy
- Cosmetics

**Target markets**
- Wood / Lignocellulose
- Sugar
- Starch
- Plant Oil
- Algae
- Residuals
Bioeconomy in Saxony Anhalt

Industrial Biotechnology

Biobased Products

Research & Development

Network
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- Sugar beets / Grain
- Wood
- Research Facilities
- Chemistry parks
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Industrial Biotechnology

- Basic chemistry
  - Fragrances
  - E-Fuels
  - Cellulosics-Lignin
  - Isobuten
- Bio-Pharma
  - malaria drug
  - vaccines
  - alzheimer's drug
  - chitosan
- Bioplastics
  - 3D print
  - Effimat
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- **Wood**
  - KosLigCel
  - WPC
  - pulp
  - Modern wood products

- **Plants**
  - Algae
  - Grain
  - Sugar Beets

- **Phytopharmaceuticals**
- **Oils and Fats**
Supply Chain for 500,000 t/a beech wood

Supply Chain for 4,000,000 t/a sugar beads

Supply Chain for 3,250,000 t/a grain

150,000 t/a (2022)
Bio-Monoethylenglykol Bio-
Monopropylenglykol and Lignin

bioethanol plant capacity of
660,000 m³/a bioethanol

bioediesel plant capacity of
600,000 m³/a biodiesel
Bioeconomy in Saxony Anhalt

Bioeconomy in Central Germany – BioEconomy e. V. at POWER4BIO Symposium

- 4 universities
- 4 extramural research institutions
- 10 Transfer and research infrastructures
- Pilot plants

- BioEconomy Cluster e. V.
- Polykum e. V.
- HIZ - Holzimpulszentrum Service UG Rottleberode
- Biozentrum Halle (Saale)
- TGZ - Technology and Start-up Centre Bitterfeld-Wolfen

Research & Development

Network
Examples for pilot- and demoplants in the BioEconomy Cluster region

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EW Biotech, Leuna

- Serving global customers, located in the Chemical Park Leuna, Germany
- Member in the BioEconomy Cluster Germany
- Extensive experience in delivering biotech products for applications in industrial markets, with food and feed perspective.
- Reliable and cost efficient, without compromising on quality and safety
- Flexible and transparent customer service
- Scale-Up up to 85 m³ Scale (lab, pilot, demo) – operated 24/7
- Data mining system
- Working in accordance to ISO 9001:2015
- HACCP in place
- Kosher and Halal certified
- Production capacity up to 1500 tpy
- Food / feed grade production line
Fraunhofer Center for Chemical-Biotechnological Processes - CBP: From laboratory to industrial scale

- microalgae
- technical enzymes
- lignocellulosic biorefinery
- fermentation
- thermal separation
- chemical conversion

Diagram:
- Feedstock
- Pretreatment disintegration extraction pulping
- Biotechnological transformation
- Chemical transformation
- Downstream processing
- Products

Scale-up and process development

Universities → R&D - laboratories → Fraunhofer CBP → Industry

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BIOECONOMY HUB
Modulares Plattform-Konzept zur Nutzung von Regenerativen Ressourcen für eine nachhaltige Chemie
Modular platform concept for using regenerative resources for a sustainable chemistry
Ausbauplanung
Formation ScienceCampus Central Germany
Objectives:
Model region of Bioeconomy

Objectives for strategy implementation

➢ New and marketable products
➢ opening up new markets
➢ Implementation of robust process technologies
➢ Stable raw material supply incl. supply logistics
➢ Provision of space and media; high-performance infrastructure
➢ Qualified employees
➢ Efficient research and development environment
Bioeconomy in Central Germany

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