Lusatia
your business location.

Lusatia region taking off – from coal-fired power plants to H_2-powered jet engines

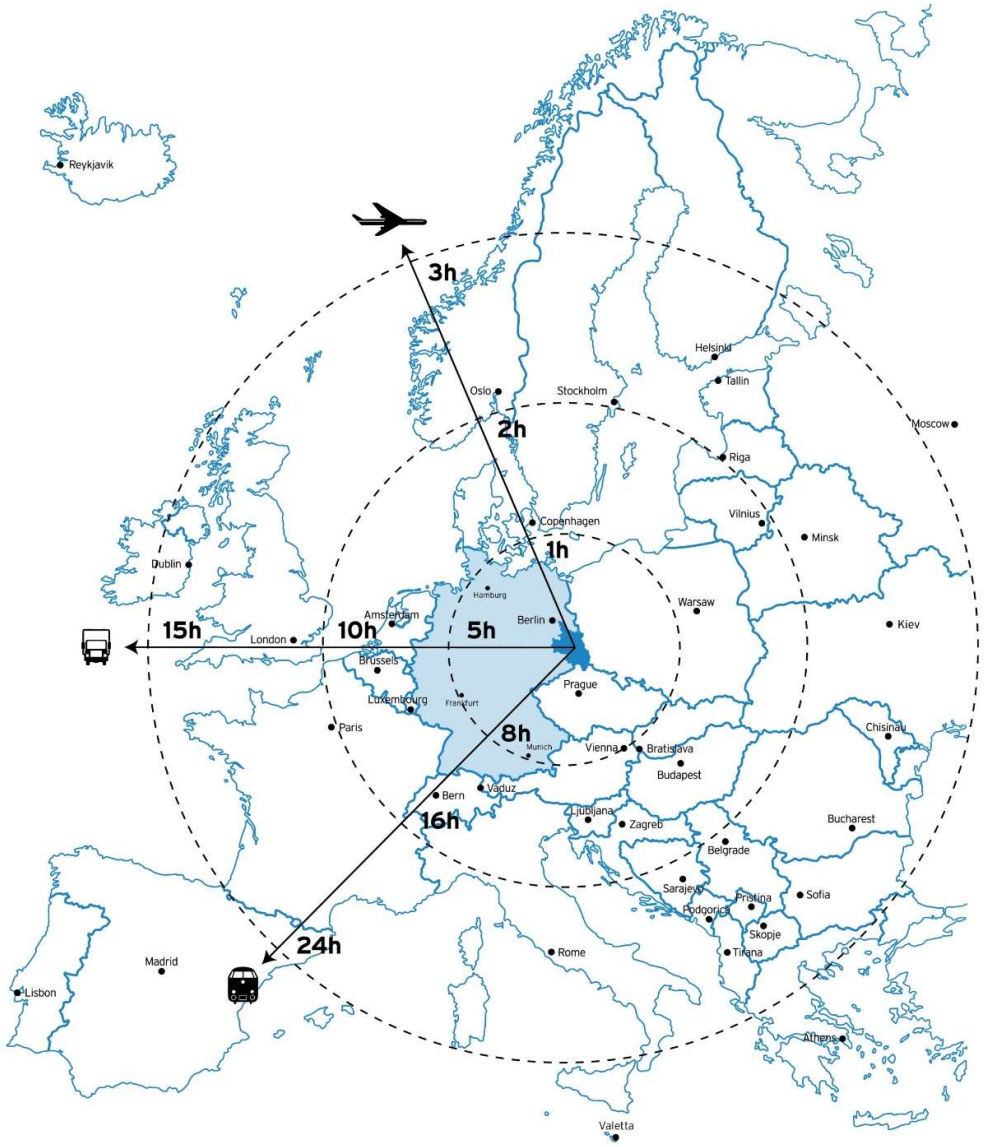
New business opportunities in the heartland of German Energy Transformation (Energiewende)

May 2021

Table of Contents

1. Overview of Lusatia

Geographical location of Lusatia



Lusatia is…

- the connective region „between“ Brandenburg and Saxony
- stretched between the centers Berlin/Potsdam, Leipzig and Dresden
- the Logistics Gateway between Eastern Europe and Western Europe
- the traditional German Coal Mining Area famous for open pit lignite mining
- populated by 1.1 million inhabitants
- 12,000 sqkm which is the size of Connecticut (USA) or the Fukushima Prefecture (Japan)

1. Overview of Lusatia

Logistics of Lusatia

Airports in proximity to Lusatia

BER: Capital Airport Berlin/Brandenburg. Germany‘s 3rd largest airport after Frankfurt (M) and Munich.

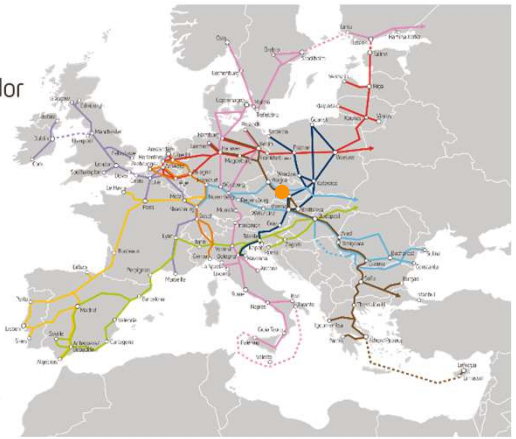
LEJ: Leipzig/Halle Airport, Europe‘s 5th largest cargo airport. 1.24 million tonnes of cargo in 2019.

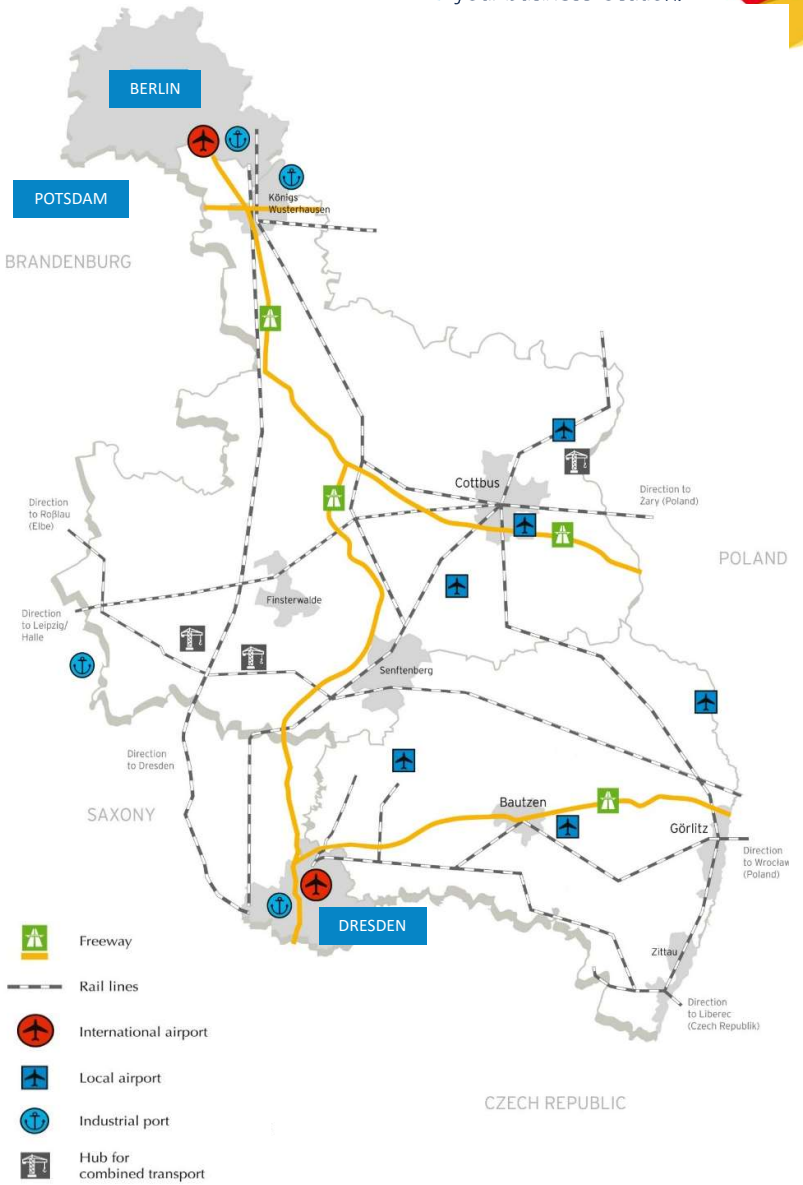
DRS: Dresden Airport, 1.7 million passengers p.a., maintenance location for A380 airplanes.

Road, rail and inland shipping:

European multi-modal logistics corridors linking Scandinavia with Southern, Western and Middle Eastern Europe.

- North Sea – Baltic Corridor
- Scandinavian – Mediterranean Corridor
- Atlantic Corridor
- North Sea – Mediterranean Corridor
- Mediterranean Corridor
- Rhine – Danube Corridor
- Rhine – Alpine Corridor
- Baltic – Adriatic Corridor
- Orient / East-Mediterranean Corridor





2. Lusatia: Opportunities at a glimpse

The political background setting

EU, Germany and Japan: Join hands in worldwide efforts to fight climate change

German coal phase-out: 13th August 2020 Federal legislation was enacted. „Kohleausstiegs-Gesetz“ will provide for all coal fired power plants and coal mining to be shut down by 2038 latest in all of Germany, Lusatia too

17 Billion EUR Government support package:
Dedicated only to foster the transformation process in Lusatia

> 1 billion EUR private sector investments:
More than 1 billion EUR already underway
(e.g. LEAG, BASF, Siemens, Deutsche Bahn etc.)

2. Lusatia: Opportunities at a glimpse

Opportunities for Market Entries and Cooperation

Top priority areas:

Energy technologies: Hydrogen, Battery Technologies, P2X, Sector coupling, Wind, Solar, Smart Grid etc.

Smart mobility: Electric mobility (cars, trains, planes, battery and H2), smart mobility etc.

New manufacturing technologies: New Materials, additive manufacturing, composites (bio-polymers etc.)

New R&D institutions:

DLR German Aerospace Center: 2 new institutes in Lusatia
Fraunhofer-Society: 3 new institutes in Lusatia
All established since 2019

Saxony & Brandenburg Joint Lusatia Project:

- No-red-tape-approach for joint project
- Transformation process with single stop multi level support structure
- From hightech to large scale energy intensive manufacturing

Lusatia = new energy + new interconnections + new business models + new markets

3. Energy Technologies in the Lusatia Region

- Lusatia: Energy region for more than 150 years
- Figurehead of Germany‘s Energiewende implementation and leading research area for energy generation, storage and application indifferent fields, public, private and in business
- Surplus electricity generated from renewable energy sources searching for efficient business models and innovative business partners
- Joint Strategy & Roadmap for Implementation of Hydrogen in areas like heating, transportation, manufacturing etc.

3. Energy Technologies in the Lusatia Region

Electricity Storage: Projects and Technologies

SIEMENS

H_2-Innovation Campus with Start-up Center at Siemens Görlitz. Cooperation between Siemens, Fraunhofer Institute, University of Technology Dresden, University of Applied Sciences Zittau/Görlitz and HHL Leipzig Graduate School of Management.

LEAG

BigBattery Lausitz: 25 million EUR investment. Primary control power capacity of 53 MW. One of Europe‘s biggest lithium-ion battery storage. Regular operation since summer 2020.

BASF
We create chemistry

500 million EUR investment in new production site for cathode material, enough for approx. 500,000 Battery-electric cars (Schwarzheide, Lusatia). New project: Battery recycling

ACCUMOTIVE
Ein Unternehmen der Daimler AG

ACCUMOTIVE: Competence center within Daimler‘s international battery production network. Annual output of 500,000 lithium-ion battery systems for SMART, Mercedes Benz and light transport vehicles.

3. Energy Technologies in the Lusatia Region

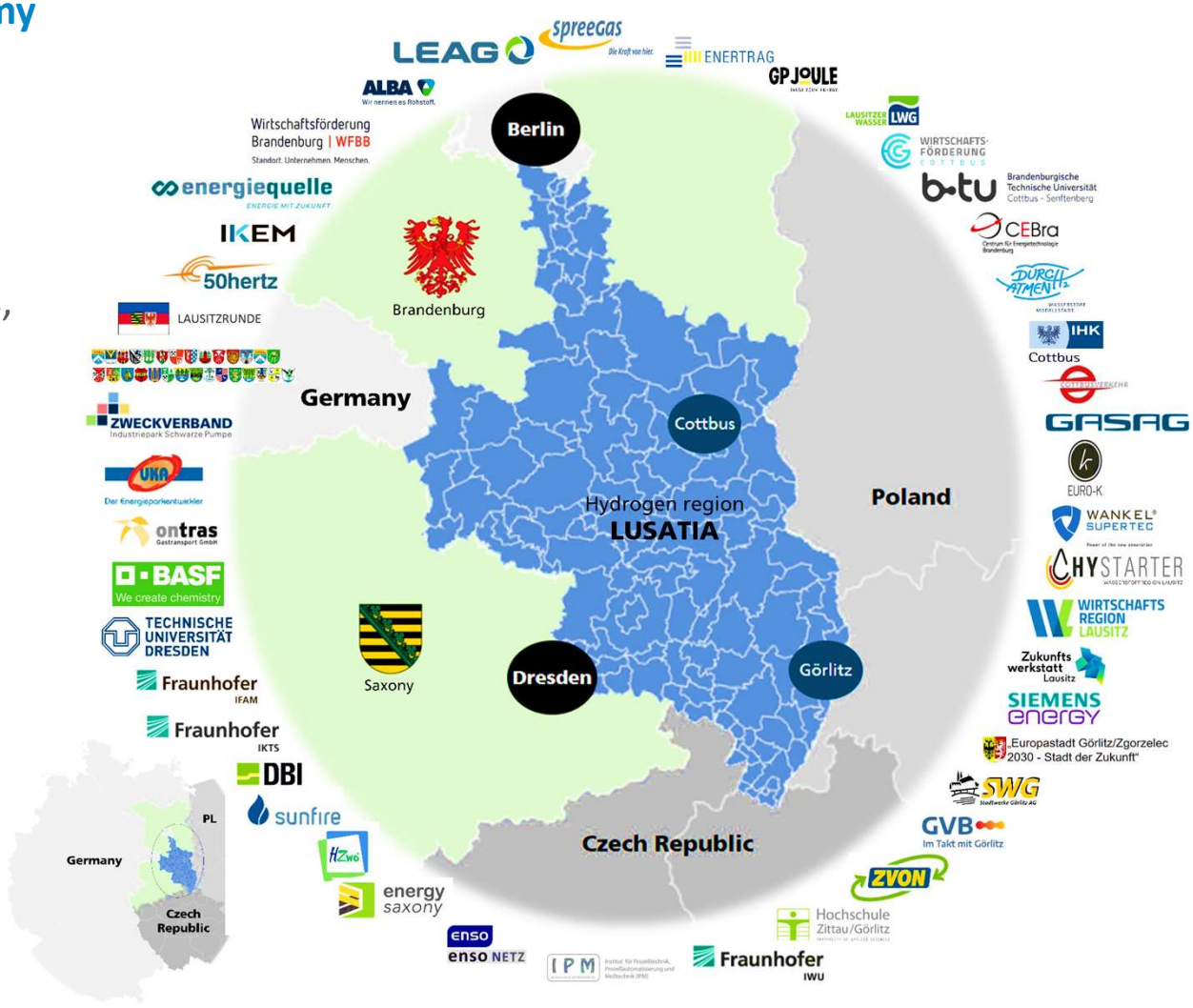
Hydrogen Region Lusatia

Optimal conditions for a hydrogen economy

- Numerous stakeholders and projects already active in the field of H_2
- Many opportunities for the production, storage and use of H_2 (strong future domestic market)
- Two Universities of Technology (Cottbus, Zittau/Görlitz) for joint research and staffing of young academics
- Strong push for innovation and transformation from politics, academia and society

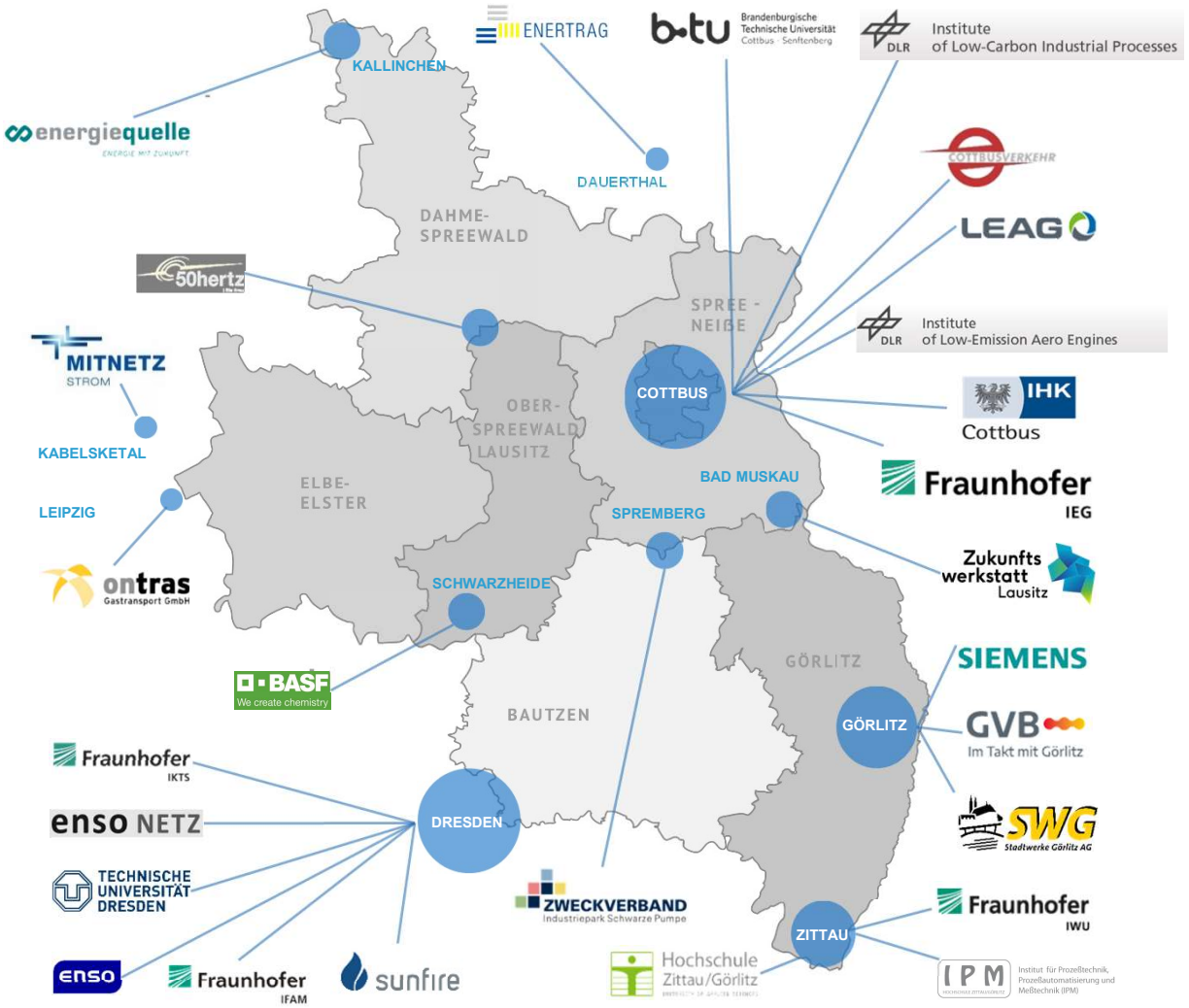
Innovation campus SIEMENS Görlitz

- Strong partner and driver for innovations in Lusatia
- Cooperation platform for decarbonization, digitization and new manufacturing technologies
- Infrastructure/machinery for future production of hydrogen technologies



3. Energy Technologies in the Lusatia Region

Recent H_2-Projects, Networks and Initiatives



Source: Wirtschaftsregion Lausitz GmbH, Projekt Zukunftswerkstatt Lausitz, 2020, WFS & WFBB 2020

HYSTARTER
WASSERSTOFFREGIONEN IN DEUTSCHLAND

- Lusatia was selected as **HYSTARTER Region** by German Federal Government
- Institutional funding from German Federal Government as part of coal phase-out
- **Aim:** to develop an action plan for implementing hydrogen technology and establishing stakeholder networks leading to 100% renewable energy

3. Energy Technologies in the Lusatia Region

Flagship Projects: Siemens Innovation Campus Görlitz

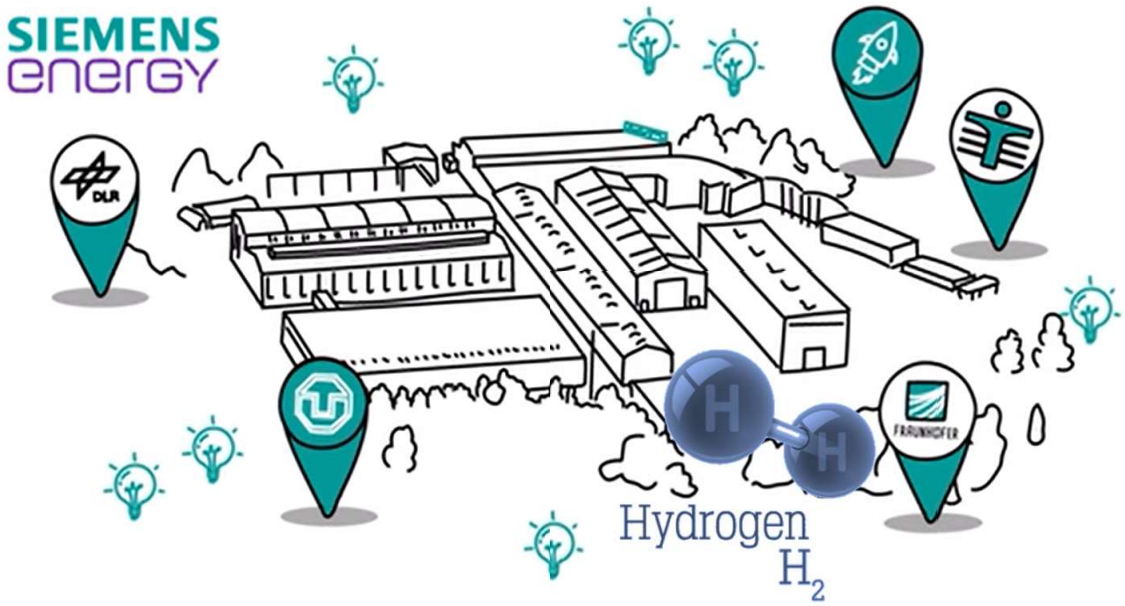
- Established in 1906 as turbine manufacturing plant in Görlitz
- Transformation into a technological innovation hub
- Cooperation platform with Fraunhofer Society and universities, regional, national and international
- Construction of hydrogen research lab with Fraunhofer Society
- Research on new manufacturing technologies and digitally networked processes
- Goals:
  - Reducing CO_2 emissions
  - Creating innovation lab to connect leading experts
  - Establishing start-up center to support young businesses

SIEMENS

Innovation Campus Görlitz

Fraunhofer

Hydrogen Lab Görlitz



3. Energy Technologies in the Lusatia Region

Hydrogen Lab Görlitz (HLG)

Science

Fraunhofer IWU

Fraunhofer IMWS

- **General coordination**
- **System operators HLG**
- Application and industry-related research along the hydrogen value chain
- Pooling know-how of partners involved in application-oriented system solutions in H_2 economy

Other

- **Other Partners from science and industry**

SWG Stadtwerke Görlitz AG

Hochschule Zittau/Görlitz University of Applied Sciences

MAIN MOTIVATION

Innovation driver for H2 and storage technologies

National testing and certification center for H_2 and storage technologies

Industry

SIEMENS energy

- **Contracting authority**
- Research services
- Construction and preparation of the building
- Innovative strength and expertise in the field of energy
- Favorable infrastructure boundary conditions

Politics

- **Free State of Saxony; District Görlitz**
- **Project funding**
- Support and network function, accompa-niment

3. Energy Technologies in the Lusatia Region

HLG Roadmap: Implementation and Outlook

- 2019: Signing of future pact, kickoff and conceptual design phase
- 2020-21: Planning of the factory
- 2021: 1. Realisation Phase
- 2025: 2. Realisation Phase
  - Detailed implementation of the research strategy
  - Capacity increase to 12 - 15 MW
  - Purchase of regional renewable electricity
- HLG: Driving force for Lusatian H_2- economy through initiation and participation in research projects, e.g.:
  - Supply of H_2 and O_2 for the Siemens project " H_2 - O_2 combustion" and for the steam generator of the turbine test stand
  - Research project for the use of H_2 in road transport - initiation of a hydrogen filling station together with relevant cooperation partners
  - Research project for the use of H_2 in rail transport - e.g. for the cross-border route: Görlitz - Zittau – Liberec
- Strengthening cross-border (CZ, PL) networking and project initiation as well as technology transfer in Lusatian companies
- Intensifying vocational and academic education (e.g. apprenticeships, internships, master theses) in the field of hydrogen in close cooperation with the University of Applied Sciences Zittau / Görlitz (HSZG)

4. Mobility in the Lusatia Region

Automotive & Rail transport technology

Saxony: Among four most prominent Automotive locations in Germany

BMW: i3, i8 in Leipzig

VW: e-Golf in Zwickau; 2021 new e-car mega factory

Porsche: Macan, Panamera chassis production in Leipzig

Supplying Industries: Bosch, Phoenix Contact etc.

Japanese companies like Toyota-Denso, Hitachi Automotive etc.

Source: BMW AG

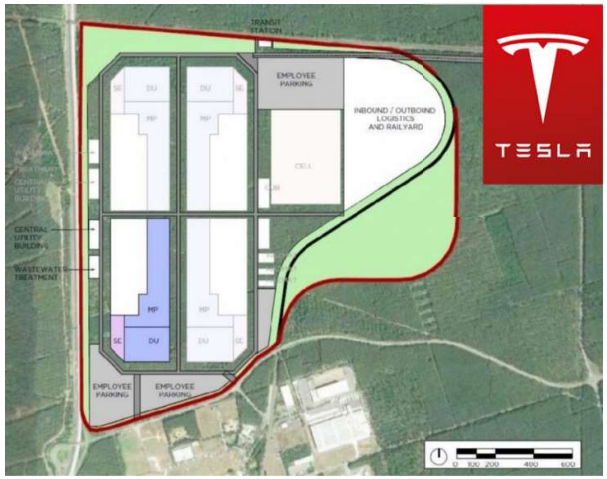
Brandenburg: Hidden Champion in the Capital Region

Mercedes Benz: Sprinter Logistics Van

VW Group: Design Center in Potsdam

BMW: Motorcycle Factory (Berlin)

Supplying Industries: ZF, Schaeffler, Gestamp, IAV (Berlin HQ) etc.



TESLA Giga Factory Europe in Brandenburg (Grünheide) underway, in vicinity of Lusatia. Capacity of 500,000 cars p.a.

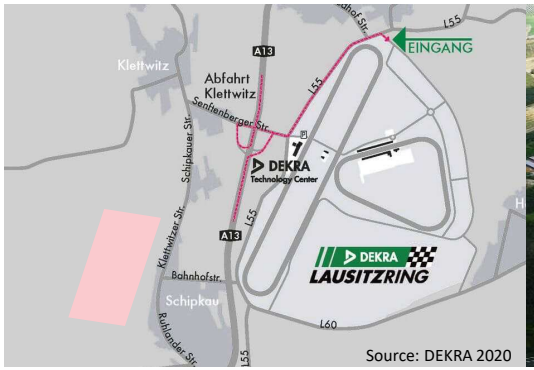
TESLA Battery Factory in Brandenburg (Grünheide)

4. Mobility in the Lusatia Region

Automotive & Rail transport technology

DEKRA Test Center for Autonomous Driving on Formula 1 Course

DEKRA is establishing Europe‘s biggest OEM-independent test center for automatic and connected driving. 4 simulated courses (2 x inner-city, highway, longhaul). Integration of Vehicle-to-Vehicle- resp. Vehicle-to-Infrastructure-Communication (V2V resp. V2X)



90 hectares investment-ready area

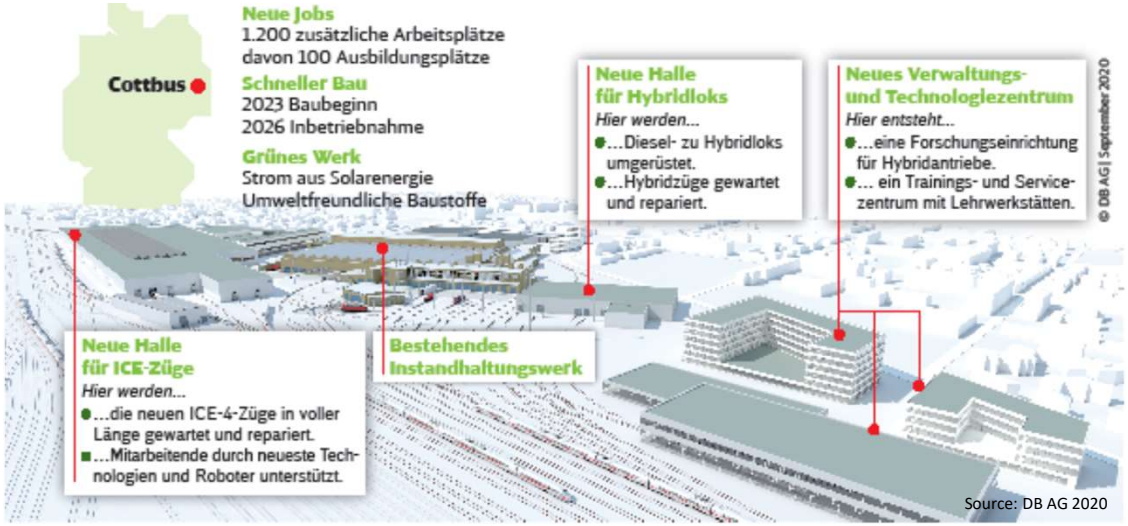
Source: DEKRA 2020

Deutsche Bahn AG: Projekt HELMS (Hybrid Elektro-Mechanical Shunter)

DB´s most-modern site will offer innovative hybridization for energy-efficient power transmission on two prototypes of the 294 series for DB Cargo. Hybrid-planet transmission replaces the conventional flow gearbox and an energy management system will be established.
1,200 new jobs, 100 % renewable energy supplied.

So green, so big, so modern like no other

In 2023 Deutsche Bahn will start building its newest and biggest site for innovation, conversion and maintenance in Cottbus / Lausitz



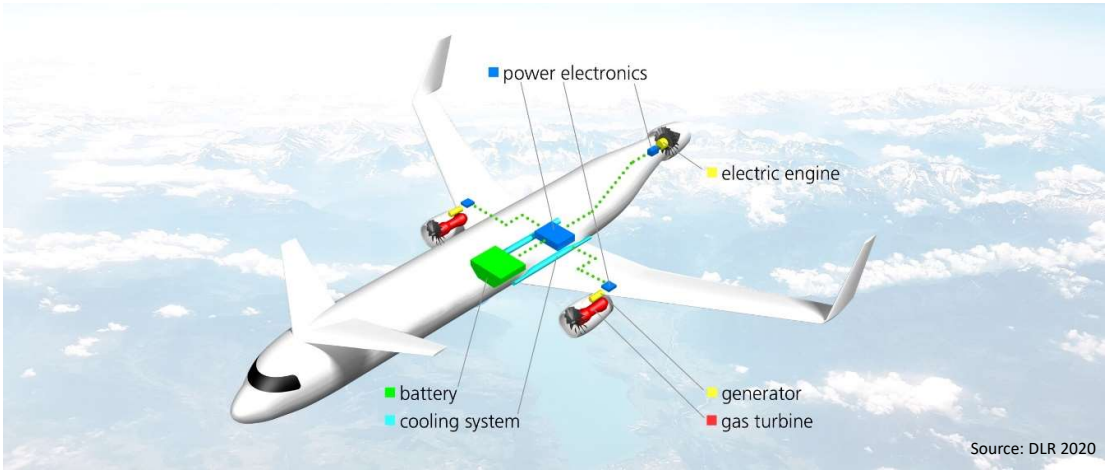
4. Mobility in the Lusatia Region

Aeronautical Engineering

DLR Institute for Electrified Aero Engines (Cottbus):

R&D for low-emission electrified aero engines, H_2-Technologies and electrical on-board systems.

Cooperation of Rolls Royce (Brandenburg), Brandenburg University of Technology (B-TU) and Brandenburg State to foster R&D for low-emission jet engines.



CHESCO – Center for Hybrid-Electric Systems Cottbus

R&D on hybrid-electric and electrical systems for airplanes, rail and road vehicles (on- and off-road).
F-MERC: Fast Make Electrification Research Center. Test Center for new technologies and products (partners are Rolls Royce, B-TU, APUS et al.)

5. Flagship Projects in Lusatia

BigBattery Lausitz

BIG BATTERY LAUSITZ

The battery storage provides up to **50** MW primary control energy.

On standby, to be fully activated within 30 seconds.

LEAG

BigBattery Lausitz:

- 25 million EUR investment
- Primary control power of 53 MW
- Full activation within 30 seconds
- One of Europe‘s biggest lithium-ion batteries
- Regular operation since summer 2020

5. Flagship Projects in Lusatia
Further Hydrogen Projects

chEErs

- Chemicals and Energy from Renewables in Schwarzheide/Lausitz (chEErs)
- Real-world laboratory for testing under authentic conditions how renewable energy sources can be utilized in innovative chemical value chains
- Applying „power-to-gas“ and „power-to-heat“ from surplus energy
- Part of government initiative “Real-world laboratories of energy transition” with strong funding
- In Schwarzheide construction of H_2 - based storage power plant enters first phase

WALEMO – Model region for hydrogen, lightweight construction and autonomous mobility

Goals:

- Countering climate change and structural change in rural areas
- Establishment of new business areas and a sustainable value chain for H_2 - powered mobility
- Attraction of start-ups and research institutions for Lusatia

Idea:

- Production of H_2 via electrolysis
- Storage of H_2 and distribution in Lusatia
- Design and production of light and autonomous driving vehicles powered by H_2
- Implementation of intelligent transport systems for autonomous driving in rural areas

6. Testimonial: TD Deutsche Klimakompressor GmbH

Toyota Denso – Deutsche Klimakompressor GmbH (TDDK)

- Joint venture of Toyota Industries Corporation and Denso Corporation
- One of Europe's leading manufacturers of compressors for car air conditionings
- Producing for all renowned car makers
- Successful company with combined expertise of Japanese and German engineering
- Prime example of fruitful Japanese investment and bilateral cooperation in Lusatia

Kazushige MURAO, Managing Director of TDDK:

"As No.1 in the world market for car air condition compressors we deliver our refrigerant compressors from Bernsdorf, Western Lusatia, to the European car plants of many OEM. Being located here for more than 20 years we are with a thousand employees and therefore biggest Japanese investor in Lusatia firmly rooted in Lusatian soil. We enjoyed each and every minute since our investment decision for this site."

7. Incentives for Investment in Lusatia

GRW-G Growth Programme for Small Enterprises

Who can apply?

Small enterprises (SE)
< 50 employees; sales or balance sheet total max. €10 million

What will be funded?

- Investments eligible for funding of at least €60,000 up to a maximum of €2 million
- Provision of funds in advance for capital expenditure
- no pre-financing by companies necessary in the next 2 months

How much funding can you expect?*

- Capex related grants or alternatively wage-related grants
- Amount of funding for eligible investments:

Basic funding rate	30%
Border area bonus	10%
Maximum funding rate	**40%**

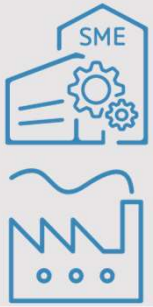
Funding rates are valid for applications submitted until 30.09.2021

* Funding regulations are valid until 31.12.2021

7. Incentives for Investment in Lusatia

GRW-G Growth Programme for Large Enterprises

Who can apply?



- Small enterprises (SE) with investment volume > €2 million
- Medium-sized enterprises (ME) (< 250 employees and sales < €50 million, balance sheet total < €43 million)
- Large enterprise (LE)

What will be funded?

- Investments eligible for funding starting at a minimum of €100,000

How much funding can you expect? *

- Capex related or alternatively wage related grants
- Funding amount for eligible investments up to max. €50 million**

	SE	ME	LE	
Basic funding	5%	5%	5%	
SME - supplement	20%	10%	0%	
Structure- and Quality criteria	5%	5%	5%	
Border area bonus	10%	10%	10%	
Funding ceiling	**40%**	**30%**	**20%**	

Funding rates are valid for applications submitted until 30.09.2021

* Funding regulations are valid until 31.12.2021

** Additional conditions apply for investments over €50 million.

8. Opportunities for Investment

Industrial Park „Schwarze Pumpe“

8. Opportunities for Investment

Excellent business locations for your investment

Cottbus TIP Technology & Industry Park

180 ha

Industrial park in Cottbus and close to Brandenburg University of Technology

Airfield Schipkau / Industrial Park „Schwarzheide“

125 ha

Former airfield close to Industrial Park Schwarzheide with excellent logistics connection

„Green Areal Lausitz“ 100% RE Industry Park (Drewitz)

209 ha

dedicated to new energy and mobility with 100% Renewable Energy concept

Industrial Park „Schwarze Pumpe“

250 ha

excellent industrial infrastructure

Industrial Park „Rietschen“

50 ha

transition to future industries

Industrial Park „Boxberg“

13 ha

R&D location for carbon fiber

Industrial Park „Kamenz“

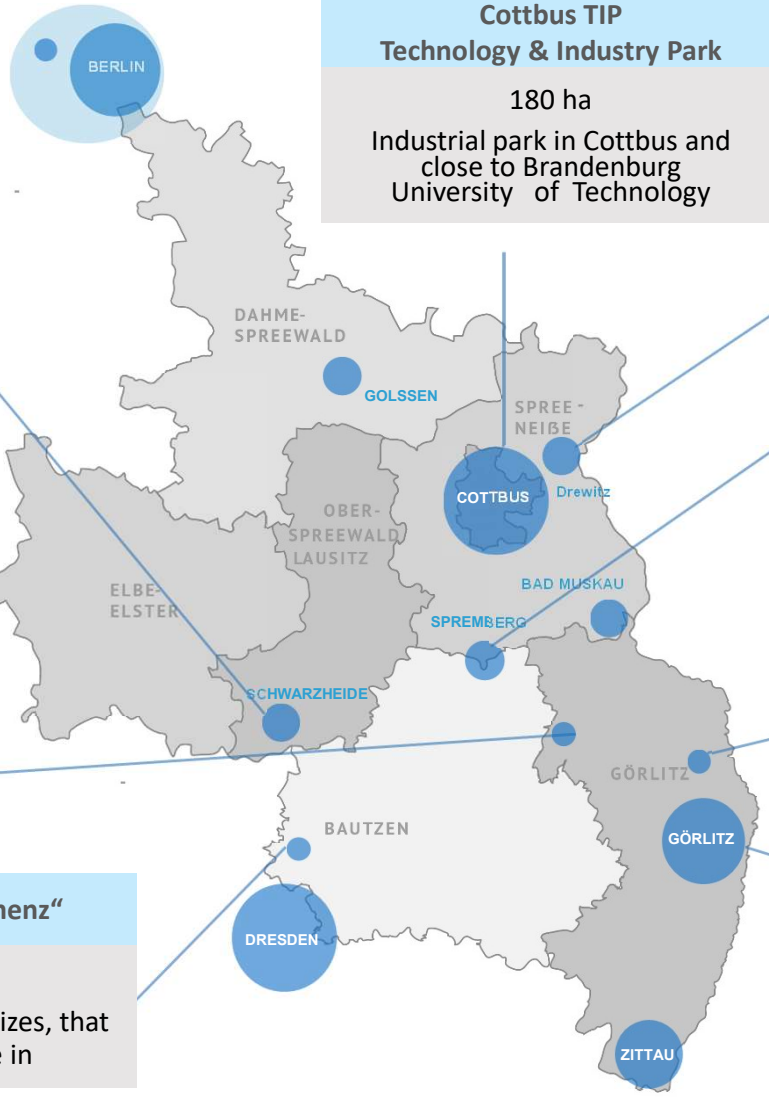
10 ha

different industrial hall sizes, that are ready to move in

Industrial Park „Görlitz Ebersbach“

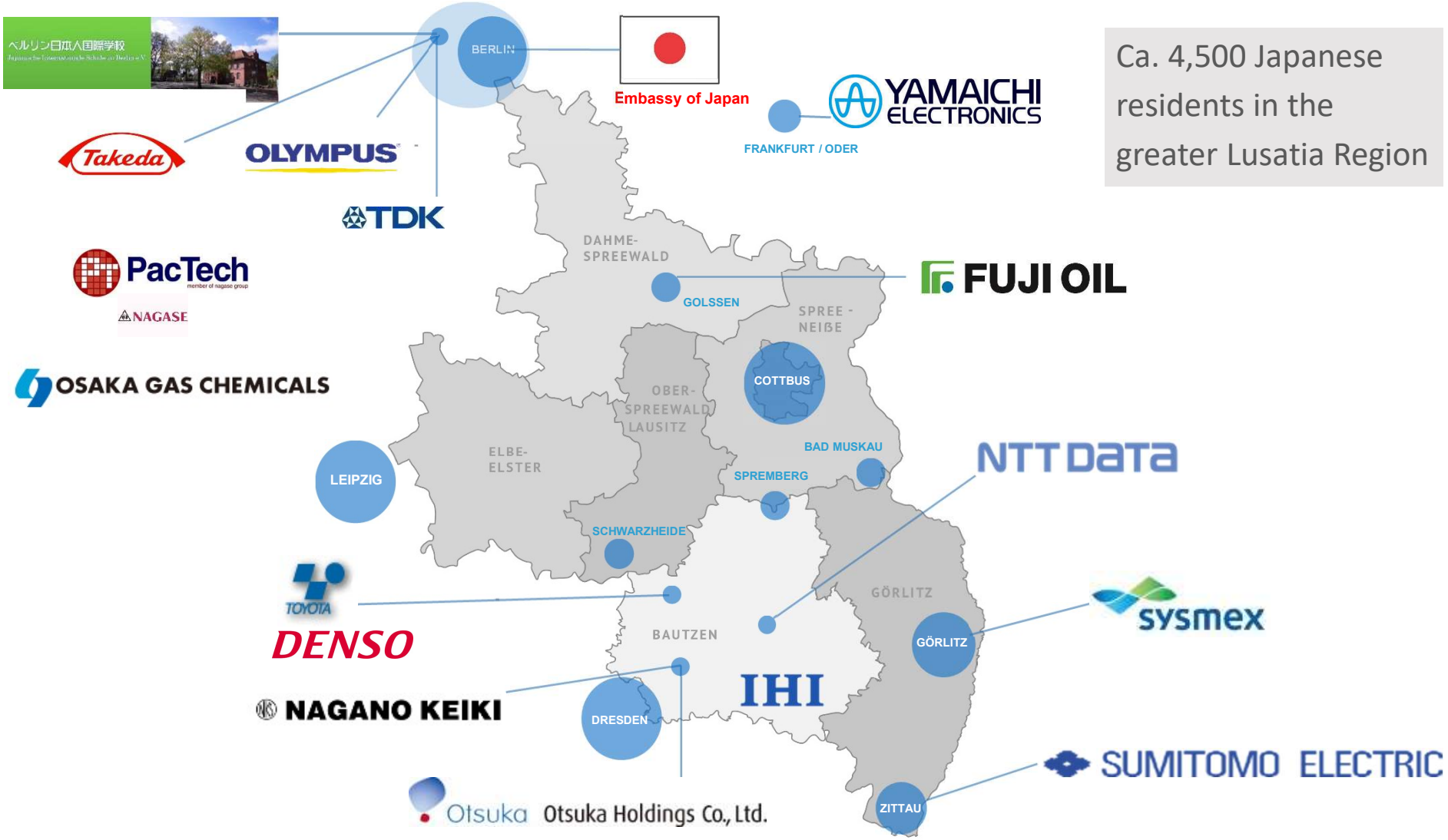
6 ha

highly skilled workforce and great transport infrastructure



9. Japan in Lusatia

Japanese Companies and Infrastructure in Lusatia Region



Ca. 4,500 Japanese residents in the greater Lusatia Region

9. Your Landing Services at Hand

Your points of contact in Japan and in Germany

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日本代表部　代表

9. Your Landing Services at Hand

Please check for more information on
www.lausitz-invest.de/en

Please give us a call or
set up an online meeting
(zoom, Teams or any other platform)

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your business location.

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