Consecutive no. 1	**Science and research for the region - strengthen the BTU Cottbus-Senftenberg as driving force for structural change** Project “Open lab for Lusatia”
Description of Project	The project's idea is to establish a centre for cognitive data analysis at Brandenburgische Technische Universität Cottbus-Senftenberg It shall be designed in such way that it can offer cognitive data analysis for companies in the close and wider environment. By locating the centre at BTU Cottbus-Senftenberg, a thematic connection to the research focus Cognitive Systems (http://www.b-tu.de/rc-cognitive-systems/) exists.
Current Status of the Project	Project has not started yet.
Project (1) Scope (2) Partners (3) Timeline (4) Budget	 The centre shall offer its data analysis services primarily in the region Lusatia, whereby an evaluation for the regions Berlin and Dresden and possibly even Germany-wide is planned. Brandenburgische Technische Universität Cottbus-Senftenberg, Companies from Lusatia 10 years € 2.892 million (in total)

Consecutive no. 2	**Extension and professionalisation of the FAB-Lab as service provider and "academy" for the region**
Description of Project	The FAB-Lab offers different workshops and possibilities of materials processing and prototype construction, including digital laboratory for "citizen science", inventors, people with ideas, "start-ups" etc and, among this, creative space to the topic "Entrepreneurship".
Current Status of the Project	Currently, the FAB-Lab Cottbus is a basement workshop on the BTU campus in Cottbus with good technical equipment up to a 3D printer (plastic). Since 2014, the FAB-Lab Cottbus has been operated by a non-profit organisation.
Project (1) Scope	The FAB-Lab Cottbus offers interested students and externals the room and the technical equipment for their small and larger technical projects and allows on-site a mainly technical exchange of knowledge and experience between the users and initiates the formation of project-related working groups.
(2) Partners	Brandenburgische Technische Universität Cottbus-Senftenberg, Start-up companies
(3) Timeline	5 years
(4) Budget	4.1 Mio €

Consecutive no. 3	**Advancement of Lusatia's competences in the field of mining and energy industry and their international marketing.** Project Min Gen Tech
Description of Project	The initiative Min Gen Tech has the goal to promote further innovations in in the field of mining and energy industry and to support the companies in bringing their know how and their technologies into new markets. The cluster approach offers the opportunity to use structural change as an innovation engine.
Current Status of the Project	The initiative was launched in January 2017, but there is a lack of funds to finance the activities.
Project	
(1) Scope	Lusatia set a global standard, along the whole value-added chain, from mining via energy production up to rehabilitation.
(2) Partners	Among some global companies like *ABB* (energy and automation), *LEAG* (mining and production), *FAM* (conveyor technology) or *Takraf Tenova* (mining and hoisting machines), there are approximately 150 small and medium-sized companies of the mining and power plant industry. The federally owned *LMBV* that plans and controls the reconstruction and rehabilitation of old opencast mines and industrial areas of mining in Lusatia, has, furthermore, unique know how in the field of recovery of territories for business, living, agriculture and recreation. Science (e.g. the Brandenburg Technical University Cottbus-Senftenberg) as well participates in driving innovation and diversification forward.
(3) Timeline	Minimum term of 5 years.
(4) Budget	Approx. € 10 million, there is currently no suitable funding programme.

Consecutive no. 4	**Industrial large-scale storage on existing power plant site to increase system security; a nucleus for the transformation process in the Lausitz energy region**
Description of Project	The European Climate and energy policy framework for 2030 focuses on the development and implementation of innovative concepts and the integration of renewable energies. At the same time, low-cost power supply, system stability and security of supply are essential. The project aims to build a large energy storage facility on the site of an existing large power plant. It is an industrial large storage with an installed capacity of approx. 60 MW. In a first stage of development, the quantity and quality of the provision of primary balancing power, secondary balancing power and optimization of the balancing group management should be expanded and optimised by a technology extension.
Current Status of the Project	The project development was finished in 2017. Next steps depend on public funding to enable and realize the project in 2018/2019. The preparation for the tendering process is actually in finalization and will be finished in Q1/2018.
Project	
(1) Scope	The "BigBatt" project is one of the initial projects with mayor relevance for the whole region in the southern part of Brandenburg. Furthermore the project has to be understood as a reference project for building different electrical storage systems in an industrial scale and with a direct relevance for the "Energiewende" in Germany. This project could be a substantial initiative for the upcoming "Strukturwandel" (change of the industrial landscape) and will support the security of supply within the "Energiewende".
(2) Partners	Realizing company is LEAG (Lausitz Energie Kraftwerke AG located in the coal region "Lusatia – Lausitzer Revier"). The LEAG actually develops a strategy for realizing a step-by-step-transformation process with investments in technologie-projects beside lignite. Additional partners: BTU – technical university of Brandenburg in Cottbus; other partners from economy, science and technical development in Brandenburg and Sachsen will be involved after tendering process.
(3) Timeline	The realization is provided in 2018/2019.
(4) Budget	The project includes an investment of round about 30 Mio. EUR. There is a need for an financial support of approx. 7 Mio. EUR.

Consecutive no. 5	**Installation of an industrial plant for the production of activated coke for the purpose of reducing the release of mercury for example from coal-fired power plants**
Description of Project	The Project Partners are planning the construction, testing and operation of an industrial plant for the production of activated coke on the basis of dry pulverised brown coal. The produced activated coke is used in brown coal power stations in connection with separation processes for the purpose of adhering to future threshold values for emissions of mercury which will become valid in Germany in the framework of European BAT processes by 2021 at the latest.
Current Status of the Project	Project has not started yet.
Project	
(1) Scope	Compliance with threshold values for mercury as contribution to environmental protection as well as to the stability of energy supply in the region and in Germany by means of securing the further operation of existing coal-fired power plants. Thereby, the enhancement of existing infrastructures in Lusatia by introducing new technologies with perspective evaluation of the sustainability of possible export solutions take centre stage.
(2) Partners	Lausitz Energie Kraftwerke AG, Lausitz Energie Bergbau AG, ARCUS Technologie GmbH, other industrial partners
(3) Timeline	2018/2019
(4) Budget	Approx. € 20 - 25 million

Consecutive no. 6	**Establishment of a competence centre for Building Information Modelling (BIM)**
Description of Project	Building Information Modelling (digitalisation of planning and construction industry) is currently the most important building and trend topic that will change building planning, realisation and use. BIM is generally relevant for most companies in construction main trade and renovation trade and also for the industries of industrial need. Integration of BIM into the vocational training and technology centre Cottbus (BTZ Cottbus) as central site for whole Lusatia.
Current Status of the Project	Project has not started yet
Project (1) Scope (2) Partners (3) Timeline (4) Budget	 For the preservation and development of competitiveness the SMEs of building trade have to build up and expand their competences concerning the topic of digitalisation in the construction sector now and within the next 3 years. Cottbus Chamber of Crafts, Companies from Lusatia 3 years 1.7 million €

Consecutive no. 7	**Successor campus**
Description of Project	Potential successors shall systematically be acquired, further trained, coached and prepared for company succession. The opportunities of company succession as alternative to start-up are to be emphasised noticeably and be motivated. One main focus is on the coaching of innovation-oriented company successors. Particularly in the area of increase of innovations and innovative start-ups, company successors shall be increasingly come into focus as an alternative.
Current Status of the Project	Project has not started yet
Project (1) Scope	In the next 5 years to come, approx. 2,300 craft companies in Southern Brandenburg (25 percent of all companies) face the challenge of successfully shaping the generation change because the business owners are over 60 years of age. More and more frequently, the successor must be found externally since less and less family members are available for succession.
(2) Partners	Cottbus Chamber of Crafts, Companies from Lusatia
(3) Timeline	3 years
(4) Budget	931.000 €

Consecutive no. 8	**Development and establishment of a pilot plant for the cost-effective gasification of biomass in supercritical water and the subsequent flexible conversion into electricity in a gas and steam turbine process, short title "Hydrothermal gasification"**
Description of Project	Hypothermal gasification is the conversion of very wet and heterogenous biomass in supercritical water into methane and hydrogen at 35 megapascal (350 bar) and 700°C. Unlike "normal" biomass plants, here, an extremely high implementation level of 95 % is reached with a degree of efficiency of 84 % (biomass -> gas). Thereby, the retention time in the reactor is only few minutes. Therefore, Hypothermal gasification can, in case of simultaneous electricity delivery according to the Renewable Energies Act 2017, supply bio-methane at prices like natural gas from the spot market in Rotterdam (approx. € 20/megawatt hour) if waste biomass is used. Waste biomass is mostly wet and low calorific and, thus, can only economically implemented in this process. The technology of using steam or supercritical water at high pressure complies with the specific know how of many companies in Lusatia and, therefore, is an excellent compensation for the job losses in power plant industry and with the suppliers.
Current Status of the Project	Project has not started yet.
Project	
(1) Scope	The use of waste biomass for flexible production of electricity in periods of low winds and sun complies with the objectives of future renewable power generation and is, therefore, future-proof.
(2) Partners	The project implementers - VPC GmbH - are now together planning the commercialisation of the process together with the company Babcock Borsing Steinmüller GmbH.
(3) Timeline	Design phase: Beginning of 2018 - Commercial permanent operation: from January 2023
(4) Budget	Design phase: approx. € 2 million Construction phase: approx. € 20 million for approx. 5 megawatts electrical output, or approx. 14 megawatts thermal output. Test and trial operation: approx. € 8 million Possible revenues from the sale of gas and/or power are already considered.

Consecutive no. 9	**Rotational storage device - a cost-efficient alternative to pumped-storage power plants**
Description of Project	The rotational storage device is a facility for the storage of large amounts of electricity for up to one week. It is a very compact alternative to batteries and does not use raw materials required there. All raw materials for the rotational storage device are available on a massive scale and broadly. Contribution to structural change: The displacement of fossil power plants from the electricity market due to the "merit-order effect" by the renewable ones led to significant cancellations of fossil power plants. Initially, by gas power plants and now increasingly as well by coal-fired power stations. Only brown coal can currently still survive because of its position as cost-effective combustible. This safeguards brown coal presumably until 2026. After that, brown coal needs support by storage facilities which help to continue to reduce the minimum load of power plants towards the grid in order to avoid negative prices for electricity. The target price for the rotational storage device is € 150/kWh. It has an unlimited number of cycles.
Current Status of the Project	Project has not started yet.
Project	
(1) Scope	Alternative to pumped-storage power plants
(2) Partners	International Company
(3) Timeline	2018: Clarification of feasibility of a test facility with a storage capacity of approx. 2 MWh with development of Basic Engineering. 2025. Test operation of the pilot plant.
(4) Budget	The overall costs for this "programme" over 10 years would be 80 million euros at value date of January 2017 including the construction and operation of the test and pilot plant. Thereof, we estimate approx. 35 million euros for the first 6 years including construction and operation of the test plant.

Consecutive no. 10	**Energy storage and interconnection of sectors**
Description of Project	The initiative's goal is the interconnection of power and heating grids by means of conversion of materials and storage of excess power from renewable energy sources as well as from residual thermal energy according to increased efficiency of cogeneration plants. Altogether, corresponding demonstrators shall help to increase the share of renewable heat as well as the use efficiency in existing energy systems. Demand potential is complexly structured, from heat supply units of single-family house complexes to larger heating networks in urban areas, among others with a mixture of old and new buildings, for example: Ketzin, "field test" for CCS, heat storage Reichstag building. As model region, Brandenburg can refer to a number of water- and salt-bearing layers below the ground which have an extremely high potential for geothermal heat utilisation or as storage space for heat or material energy sources. Additionally, there are spatially fragmented installations of wind energy and photovoltaics with electricity supply that is subject to strong fluctuations and cannot always be appropriately made available.
Current Status of the Project	Project has not started yet.
Project	
(1) Scope	Interconnection of sectors
(2) Partners	The German GeoForschungsZentrum Potsdam GFZ (geo research centre), as well as the BTU Cottbus-Senftenberg and the other partners from the *Cluster Energietechnik* (cluster energy technology) Berlin-Brandenburg have comprehensive scientific-technical expertise in the area of material and energetic underground use (GFZ), energy and process technology, energy industry as well as the IT technology (BTU) to combine supply and demand in these different contexts.
(3) Timeline	Feasibility phase 2 years, development phase 3 years, construction and operation 5 years
(4) Budget	Feasibility phase approx. € 5 million, development phase approx. € 10 million, construction and operation approx. € 250 million

Consecutive no. 11	**Development of the innovative "competence region Lusatia" as common centre of education for the purpose of securing skilled workers in Southern Brandenburg and Eastern Saxony**
Description of Project	Structural change in Lusatia requires a large-scale qualification campaign in order to secure employment in the region. Besides the creation of perspective for the employees in the production of brown coal or the conversion of brown coal into electricity as well as employees functionally connected to it, one must not lose sight of the securing of young skilled workers. Already today, the rural regions of Brandenburg are affected by the outflow particularly of young people. It is important to demonstrate employment and career opportunities in the region and to mediate professionally relevant competences starting from the child age Core project of the measure is an "Innovative Learning Centre Lusatia" (ILL).
Current Status of the Project	Project has not started yet
Project	
(1) Scope	The establishment of an "Innovative Learning Centre Lusatia" (ILL) serves as flagship for the securing of young skilled workers in Lusatia. This extracurricular place of learning is to accompany young people through their educational biography from early childhood education up to completion of education.
(2) Partners	Federal State of Brandenburg. Involvement of other parties, among others in Saxony
(3) Timeline	The project will start 2020 at the earliest.
(4) Budget	€ 35 million overall costs for investment measures

Consecutive no. 12	**Watercrafts and platforms with minimal Co2 emissions**
Description of Project	The opencast mines for brown coal will change Lusatia within three generations from an agricultural region that is widely characterised by poor soils into lakeland. The massive increase of shore and water areas entails special demand for the development of new utilisations and infrastructure in the region. This demand arises at a time in which mobility and transport go through a technological change: the step-by-step decarbonisation. Driven by climate policy, a global trend and a global export potential for decarbonised traffic and platforms of swimming architecture are behind this demand. Here, the developing lakeland of Lusatia can be a development laboratory for this perspective - by creating new technologies and exporting them afterwards.
Current Status of the Project	Project has not started yet. There are initial discussions between interested companies.
Project (1) Scope	The project is grouped around shipyards and development centres as well as several product lines for which basics and prototype series are being financed. On the side of skills, competences have to be built from the first approaches, professional fields and technologies in the field of high tech as well as crafts have to be established. In order to achieve fixture in economy, initial financing is essential for the manufacturing of the products. Companies with partial capabilities and interest are available.
(2) Partners	Companies of Lusatia.
(3) Timeline	Duration at least 7 years
(4) Budget	Project fund (€ 10 million)

Consecutive no. 13	**Smart Grid Lusatia**
Description of Project	The special situation in Lusatia and the ongoing energetic transformation predestines the region in the federal state of Brandenburg as "Smart Grid Pilot". A main focus could be the Smart City Cottbus. The chance of development of a flagship region for the transformation of energy systems from coal to renewable energies arises. Other focal points could be intelligent energy management and mobility on the basis of renewable energies. An approach resulting in the integration of city development, IT infrastructure and platforms for thematically suitable start-ups is imaginable. A group of regional companies has already developed a first content-based concept that can serve as basis for the further development (start of work was 2016).
Current Status of the Project	Project has not started yet.
Project	
(1) Scope	It is a special characteristic of this concept that it strongly focuses on a systematic approach. The integration of other cities from the region is sought in order to be able to use the economies of scope and scale resulting from it.
(2) Partners	Companies from Lusatia.
(3) Timeline	The project is currently still in an early conception phase. From 2018. Duration of at least 5-10 years
(4) Budget	There are no concrete calculations yet. The following dimensions are imaginable: • Further concept development (€ 1 million, 2018-2019), • Development of one (or more) prototypes (€ 10 million until 2021) • Twin projects in other cities of Lusatia (€ 5 million per city) Technological roll-out in different working areas (hard to calculate, € 250 - 400 million possible in case of success).