



NEW ENERGY TECHNOLOGIES

in the Capital Region of Berlin-Brandenburg

THE GERMAN CAPITAL REGION
MORE VALUE FOR YOUR INVESTMENT

Cleantech region

The capital region is one of Germany's leading cleantech regions. In 2008 Brandenburg was awarded the "Leitstern" prize for the German federal state that best utilizes renewable energies! Berlin is distinguishing itself as the "green metropolis". The cleantech region involves almost all branches of industry and embraces a broad spectrum of topics related to energy efficiency – from innovative processes to the use of new materials. The focus is on **new energy technologies**.

Germany's region for solar power

Every second German solar module comes from Berlin-Brandenburg. The capital region is experiencing a unique industry boom: internationally renowned companies such as First Solar, Conergy, Nanosolar, Aleo Solar, Johanna Solar, Evergreen Solar, Solon, Inventux and EPV Solar have created almost 4,000 jobs. The region covers the entire supply chain – from top-quality basic components, special-purpose glass and solar module frame models to complete solar modules and specialized expert assembly and maintenance work. Odersun AG, based in Frankfurt (Oder), and Sulfurcell Solartechnik GmbH are just two examples of German companies included in the "Global Cleantech 100" list (The Guardian).



Solar module production at Conergy in Frankfurt (Oder)

The region also occupies a leading position when it comes to the use of solar technologies: near the town of Lieberose is the second biggest solar park in the world, comprising 700,000 solar modules over an area the size of 210 football pitches with an installed capacity of 53 MWp. Another large-scale photovoltaic power plant with a capacity of 41 MWp is being built in Lichterfeld (Elbe-Elster) in the southern part of Brandenburg. The largest rooftop photovoltaic system in Germany has been built with thin-film modules in the northern part of Brandenburg and covers a roof area of 100,000 m². Berlin features several roof-integrated PV systems. Well-known examples include those installed on the Reichstag building and the Federal Chancellery.

Innovative use of wind energy

Brandenburg, the "wind energy state", takes second place in Germany with its installed capacity of over 4,000 MWe. Well-known manufacturers have also established themselves here, including the Danish company Vestas, Reuther GmbH (a subsidiary of Hendricks Industries), and REpower Systems AG. Highly innovative solutions are being developed in the region: for example, Enertrag AG has built the world's first hydrogen-wind-biogas-hybrid power plant in Dauerthal. This pilot project marks a milestone in using renewable energies to provide base load power.



Production of wind power plants at Vestas

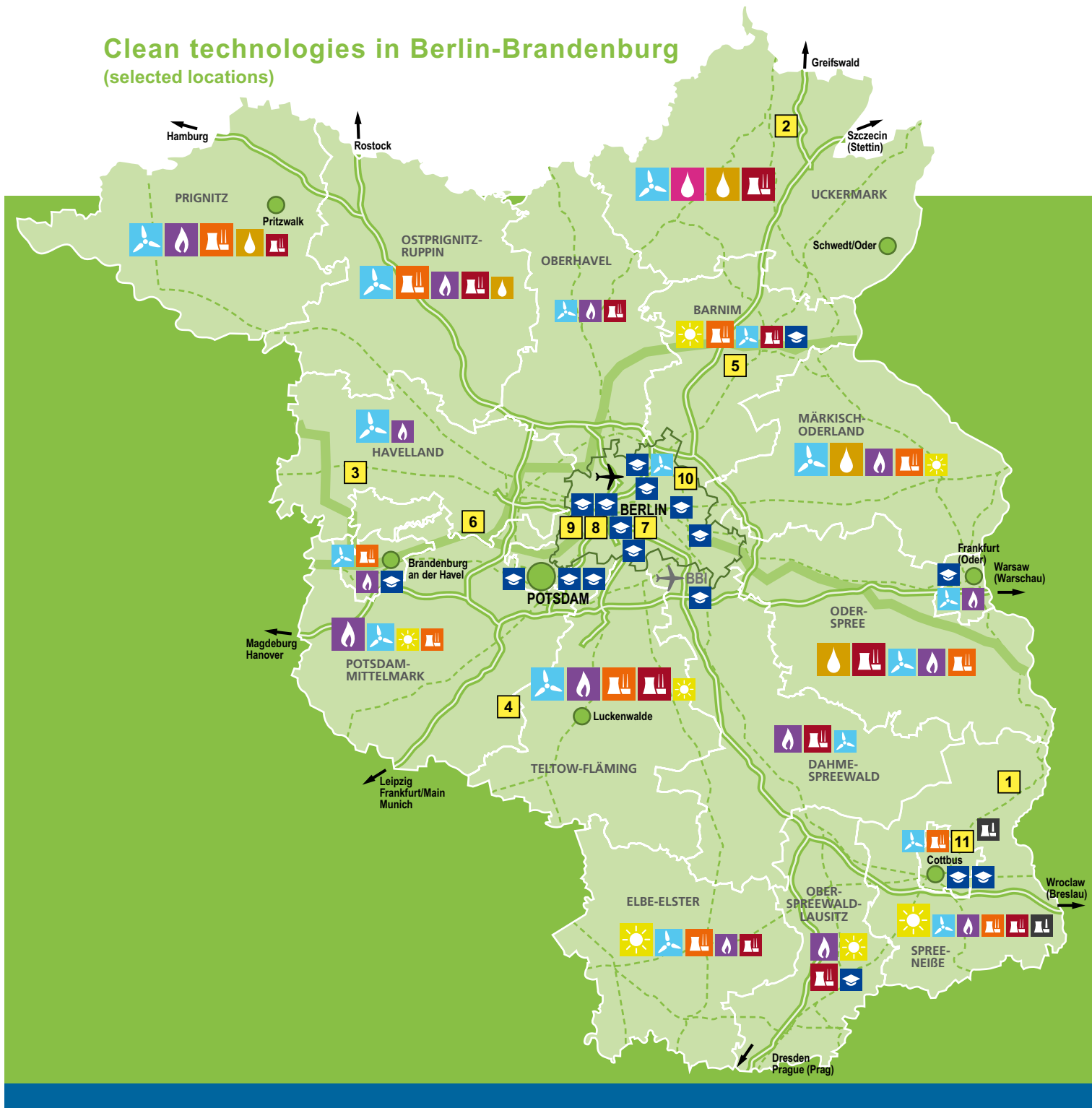
Clean coal and bioenergy

"Carbon Capture and Storage Technology" (CCS) is paving the way for climate-friendly technologies that reduce emissions from fossil fuels. It enables the capture and storage of carbon dioxide in processes such as power generation using brown coal, as well as in other CO₂-intensive industrial facilities. Vattenfall is developing new technology in the long-established Lausitz lignite region in cooperation with the Brandenburg University of Technology Cottbus. The world's first oxyfuel pilot plant has been built in the Schwarze Pumpe district. In Ketzin in Brandenburg, research is being carried out into the underground storage of CO₂. The bio-energy sector has also seen a flood of innovations: Germany's first biogas plant has been set up in Rathenow. The plant processes biogas to natural gas quality and feeds it into the natural gas network. A total of 156 biogas plants with a capacity of 98 MWe are currently in place. About 20 biomass heating plants (160 MWe) primarily use scrap wood from the wood processing industry. Brandenburg is also Germany's biggest producer of biofuels, producing almost one million tons of biodiesel and bioethanol annually.

Energy efficiency

Whether for businesses, buildings or private households, energy efficiency is a hot topic, and one in which the capital region has invested heavily. Energy efficiency partners in the region are the ZAB EnergieSpar-Agentur Brandenburg (www.zab-energie.de) and the Berliner EnergieAgentur (www.berliner-energieagentur.de). Berlin is a research and production location for innovative cogeneration technologies and has positioned itself as a model city for cogeneration (www.kwk-modellstadt-berlin.de).

Clean technologies in Berlin-Brandenburg (selected locations)



Wind energy

-  up to 150 MW
-  150 to 250 MW
-  more than 250 MW

Biogas plants

-  up to 5,500 kWth
-  5,500 to 10,000 kWth
-  more than 10,000 kWth

Existing and approved photovoltaic facilities

-  up to 10 MWp
-  10 to 50 MWp
-  more than 50 MWp

Bioethanol plants

-  more than 100,000 t/a

Biodiesel plants

-  up to 50,000 t/a
-  50,000 to 100,000 t/a
-  more than 100,000 t/a

Biomass heating plants (number)

-  fewer than 2
-  2 to 3
-  more than 3

Biomass heating plants

-  up to 15 MWth
-  15 to 50 MWth
-  more than 50 MWth

-  CCS pilot plant and demonstration plant currently in planning stages

-  Higher education institutions, universities of applied sciences

-  Selected key projects (see next page)

-  International commercial airport

-  Motorway

-  Major railway line

-  Waterway

1. Universities, Higher Education Institutions and Research Institutes

Higher education institutions in Brandenburg

- Brandenburg University of Technology Cottbus · www.tu-cottbus.de/btu/en.html
- European University Viadrina, Frankfurt (Oder) · www.euv-frankfurt-o.de/en/index.html
- University of Potsdam · www.uni-potsdam.de/english/
- Brandenburg University of Applied Sciences, Brandenburg an der Havel · www.fh-brandenburg.de/index.php?id=2&type=1
- University of Applied Sciences Eberswalde · www.fh-eberswalde.de/en
- Lausitz University of Applied Sciences, Senftenberg and Cottbus campuses · www.hs-lausitz.de/en.html
- University of Applied Sciences, Potsdam · www.fh-potsdam.de/index.php?id=70&type=1
- University of Applied Sciences Wildau · www.tfh-wildau.de/1442.htm
- University of Management and Communication, Potsdam · www.umc-potsdam.de

Higher education institutions in Berlin

- Technische Universität Berlin · www.tu-berlin.de/menue/home/parameter/en/
- Freie Universität Berlin · www.fu-berlin.de/en/index.html
- Humboldt-Universität zu Berlin · www.hu-berlin.de/standardseite-en
- Beuth Hochschule für Technik Berlin (formerly TFH Berlin) · www.beuth-hochschule.de
- Hochschule für Technik und Wirtschaft Berlin · www-en.htw-berlin.de/
- Berlin School of Economics and Law · www.hwr-berlin.de/index.php?id=141?&L=1
- FOM University of Applied Sciences in Berlin · www.fom.de/index.php?id=1778
- Steinbeis University Berlin (SHB) · www.steinbeis-hochschule.de/en/home.html?no_cache=1
- ESMT – European School of Management and Technology · www.esmt.org
- ESCP Europe · www.escpeurope.eu/campus/escp-europe-campus-berlin/

Sector-specific department chairs

- www.berlin-sciences.com/english/index.html
- www.zab-brandenburg.de/en/18.aspx

Research institutes in the region (selected)

- Leibniz Institute for Agricultural Engineering Potsdam-Bornim e.V. · www.atb-potsdam.de
- Federal Institute for Materials Research and Testing · www.bam.de/en/index.htm
- Fraunhofer Institute for Environmental Chemistry and Ecotoxicology · www.fraunhofer.de/en/index.jsp
- Fraunhofer Institute for Reliability and Microintegration · www.izm-m.fraunhofer.de/en/index.html
- Helmholtz Centre Potsdam – GFZ German Research Centre for Geosciences · [http://www.gfz-potsdam.de/portal/-/?\\$part=GFZ&locale=en](http://www.gfz-potsdam.de/portal/-/?$part=GFZ&locale=en)
- Helmholtz-Zentrum Berlin für Materialien und Energie · www.helmholtz-berlin.de/index_en.html
- Potsdam Institute for Climate Impact Research · www.pik-potsdam.de
- Institute for Economic Ecology Research (IÖW) · www.ioew.de/en/
- Institute for Resource Conservation, Innovation and Sustainability · www.iris-berlin.de/index_e.html
- Institut für Solartechnologien (IST) · www.ist-ffo.de
- Leibniz Institute of Freshwater Ecology and Inland Fisheries · www.igb-berlin.de
- Max Planck Institute of Molecular Plant Physiology · www.mpimp-golm.mpg.de
- Öko-Institut e.V. – Institute for Applied Ecology · www.oeko.de/home/dok/546.php
- Centre for Energy Technology Brandenburg · www.tu-cottbus.de/einrichtungen/en/cebra2008.html
- IZE Innovation Centre Energy · www.energie.tu-berlin.de/menue/ize/parameter/en/
- IGV Institut für Getreideverarbeitung GmbH · www.igv-gmbh.com/start.html
- IHP Leibniz-Institut für innovative Mikroelektronik · www.ihp-microelectronics.com/1.0.html
- IASS Institute for Advanced Sustainability Studies

2. Networks / Initiatives / Technology Centres (selected)

- Berliner NetzwerkE · www.berliner-netzwerk-e.de
- BioRaffinerie – Grüne BioRaffinerie Brandenburg-Berlin · www.bioraffinerie.de
- Brandenburgische Energie Technologie Initiative ETI · www.eti-brandenburg.de
- CEBra – Centre for Energy Technology Brandenburg e.V. · www.tu-cottbus.de/einrichtungen/en/cebra2008.html
- Clusterinitiative Nord-Ost-Brandenburg · www.energie-nord-ost-brandenburg.de
- EuroEnergyNet GA-Kooperationsnetzwerk · www.stadtteilmanagement.de/aktuelles.html
- Energy Works/Energy Technology EWET · www.ewet-bb.de/index.php?content_sprache=en
- Fördergesellschaft Erneuerbare Energien – FEE e.V. · www.fee-ev.de

- GreenIT-BB · www.greenit-bb.de
- Innovationsnetzwerk Berliner Metall- und Elektroindustrie · www.innonetz-berlin.de
- Kompetenznetzwerk Mineralölwirtschaft/Biokraftstoffe · www.biokraftstoffe-brandenburg.de
- local energyStadtwerke-Verbund · www.local-energy.de
- meseda – ambient energy · www.gfai.de/meseda
- Präzisions-Sensorik · www.sensoriknetz.net
- Solarregion Berlin-Brandenburg (in formation)
- Regional Innovative Network Photovoltaic-Electronics-High-Tech Providers · www.solar-belt.com/index.php/en
- Leichtbauzentrum Panta Rhei · www.tu-cottbus.de/einrichtungen/de/pantarhei
- PVcomB · www.helmholtz-berlin.de/projects/pvcomb/index_en.html
- Klimaplattform · www.klimaplattform.de
- ImpulsE · www.berliner-impulse.de

3. Selected Key Projects and Initiatives in the Capital Region

- 1 Solarpark der Solar Projekt GmbH – Lieberose Heide is home to the world's second-largest photovoltaic power plant with a capacity of up to 53 MWp. · www.solarpark-lieberose.de
- 2 ENERTRAG-hybrid power plant in Prenzlau – The hybrid power plant in the Uckermark region allows for safe and sustainable energy supply using renewable energies. · www.enertrag.com/en/
- 3 Biogas Rathenow Betriebs GmbH & Co. KG – First biogas plant to feed into the German gas network in Rathenow. · www.emb-gmbh.de/index.php?id=132&no_cache=1&sword_list=rathenow
- 4 Feldheim – Feldheim, part of the Treuenbrietzen municipality, has established itself as the first energy self-sufficient community in Berlin-Brandenburg. · www.mluv.brandenburg.de/cms/media.php/lbm1.a.2335.de/feldheim.pdf
- 5 Paul-Wunderlich-Haus in Eberswalde – Zero-emission building and one of the most modern ecological administrative office buildings

- 6 in Germany · www.baunetzwissen.de/objektartikel/Nachhaltig-Bauen-Paul-Wunderlich-Haus-in-Eberswalde_664445.html
- 6 CO2SINK, innovation project in Ketzin – 18 industry partners and scientific institutes from nine European countries are involved in this research project into CO₂-storage. · www.co2sink.org/techinfo/geology.htm
- 7 Clean Energy Partnership – The hydrogen demonstration project is one of the most important international projects for testing the possible application of hydrogen as a fuel for road traffic. · www.cleanenergypartnership.de/index.php?id=13&L=1
- 8 EUREF – The first private university for energy research where representatives from the economic, scientific and political spheres form a cooperative platform. · www.euref.de/en
- 9 NAVI – A business start-up and cooperative centre is to be established in Berlin-Charlottenburg. · www.navi-bc.de
- 10 Clean Tech-Park Business Marzahn – The location provides the ideal environment for companies from the cleantech sector. · www.cleantechpark.de/e_start.htm
- 11 Schwarze Pumpe oxyfuel pilot plant

Leading the way in science and research

The Potsdam Institute for Climate Impact Research (PIK) is considered an international pioneer of interdisciplinary research into climate change. The institute's scientists are advisors to the German Federal Government, the EU Commission, the United Nations and the World Bank, among others.

Around 40 scientific institutions in Berlin and Brandenburg are actively involved with energy topics, in particular the Technische Universität Berlin (e.g. photovoltaics), Brandenburg University of Technology Cottbus (power plant technology, biomasses, electricity networks) as well as the University of Applied Sciences in Eberswalde – awarded the prize of “greenest university in Germany”, – and those in Berlin, Wildau, Brandenburg an der Havel and Senftenberg. Important research institutes are the Helmholtz Centre Berlin, the Institut für innovative Mikroelektronik (IHP), the Institut für Solartechnologien (IST), the Fraunhofer Institute for Production Systems and Design Technology (IPK) and the German Research Centre for Geosciences in Potsdam (GFZ).

Joint innovation strategy

Berlin and Brandenburg have drawn up a joint innovation strategy. Energy technology is one of its top five future fields of activity and on a cross-national basis encompasses photovoltaics, power plant technology/CCS, energy efficiency, electrical networks and renewable energies.



E-Smart in Berlin

Test market for eMobility

One of the main topics of the joint innovation strategy is the area of eMobility. Berlin and Potsdam have been selected as the test region by the Federal Ministry of Transport. RWE/Daimler and Vattenfall/BMW carry out their biggest field trials here. The Berlin-Brandenburg flagship project e-Solcar is closely linked to the project outlined above. Clean Energy Partnership – the demonstration project includes the building of two public hydrogen petrol stations and a fleet of hydrogen-powered cars.

11 investment advantages

- Proximity to political decision-makers and associations
- Excellent research environment
- Global players in the energy and environmental sector
- Proximity to growth markets in Central and Eastern Europe



- Modern transport and telecommunications infrastructure
- Berlin Brandenburg International BBI (operational 2011)
- Attractive business and industry locations
- Highly qualified specialists and executives
- Flexible working times and good cost-benefit ratio
- High quality of life and low living costs
- Best European location for investment assistance

Political focus on energy and climate

Brandenburg laid down its energy-related policies and economic guidelines in the **Energiestrategie 2020**. Renewable energies should play a leading role, making up 20 percent of the total amount of primary energy consumption by 2020. Low-carbon energy technologies should replace power generation using brown coal. Economic growth and energy consumption are to be decoupled by creating higher energy efficiency.

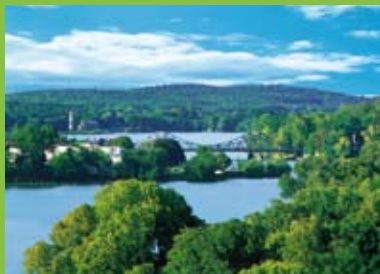
One of the main tasks of the **Berliner Landesenergieprogramm** is to support innovative companies and research institutes. Other objectives are the development of pilot energy saving projects, especially in the construction and small trade sector, and doubling the share in renewable energies.

Capital Region Berlin-Brandenburg

Locational advantages, facts, service



Potsdamer Platz



Potsdam, Glienicke Bridge



Solar power plant, Johanna Solar

■ Where investment makes sense

Berlin-Brandenburg is the best funding location in Europe. Investment assistance comes in the form of direct subsidies. Funding programmes pool resources from the EU, the German Federal Government and the states of Berlin and Brandenburg. In the capital region, large companies receive up to 30 percent in investment subsidies, medium-sized companies up to 40 percent and small companies up to 50 percent.

■ High quality of life

The region offers the unique combination of Berlin's international metropolitan flair and Brandenburg's fascinating countryside and historical places of interest. A nightlife like no other, renowned large-scale events, more than 170 museums, 150 performance venues and around 500 palaces, churches and parks – all these add up to an irresistible location. The region also offers unlimited sporting and leisure activities such as golf, horse riding, water sports and flying. Living costs, transport and leisure activities are considerably cheaper than in other comparable metropolitan regions.

■ Making investment easy

The two business promotion agencies Berlin Partner GmbH and Zukunfts-Agentur Brandenburg GmbH provide extensive support with the establishment of your business: they're competent, quick, unbureaucratic and offer a free service.

- Location: facts and figures about the Berlin-Brandenburg business region
- Personnel: support with the recruitment and training of new employees
- Real estate: help with leasing or buying premises
- Financing: advice on funding assistance and financing methods
- Contact with: public authorities, banks, trade associations, corporate alliances

www.capital-region.de

www.brandenburg-invest.de/energie

www.businesslocationcenter.de

Your point of contact in Brandenburg:



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