Sino-German Energy Partnership

“Technical Solutions for the Flexibilisation of Coal-fired Power Plants – Experiences from Germany”

Expert Workshop on June 9th 2017, 09:00 – 17:10 | Beijing, China

Workshop Program

Organized by:
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I Introduction

In the past decade China has made significant strides to fundamentally reshape its energy system and to committed itself to reduce the carbon and energy intensity of its economy by promoting energy conservation and efficiency as well as the development of renewable energies. China aims to increase the share of non-fossil energies in primary energy consumption from currently 13.6% to 15% by 2020 and to 20% by 2030. Meanwhile, the share of coal in primary energy consumption is set to decline from 64% in 2015 to 58% by 2020. The increase of generation from variable renewable energy sources is causing the demand for flexibility in China’s power system to rise – on the demand as well as the supply side. The flexible operation of coal-fired power plants is one important measure to provide the flexibility needed in order to facilitate the integration of variable renewable energy in China.

The workshop “Technical Solutions for the Flexibilisation of Coal-fired Power Plants: Experiences from Germany” specifically addresses this challenge. It provides a unique platform for German and Chinese experts to explore practical solutions, exchange best practices and discuss state-of-the art technology for the flexibilisation of coal-fired power plants. It allows participants to better understand the solutions that have proven effective in Germany as well as the technical and operational needs of China’s power plant fleet.

The workshop is a collaboration between the Deutsche Gesellschaft für Internationale Zusammenarbeit (giz) GmbH and the Chinese Electric Power Planning and Engineering Institute (EPPEI) and is held within the framework of the Sino-German Energy Partnership under the auspices of the National Energy Administration (NEA) of the P.R. China and the Ministry of Economic Affairs and Energy (BMWi) of the Federal Republic of Germany. It aims to support NEA’s efforts to promote the flexibilisation of China’s coal-fired power plant fleet as stated in the recent 13th Five-Year Plan (2016-2020) and evident in the recent establishment of the national demonstration program. At the same time, the workshop is contributing to the international “Advanced Power Plant Flexibility Campaign” as announced at CEM8, spearheaded by Denmark, China and Germany and implemented by the International Energy Agency (IEA).
II General Information

Date & Time: June 09, 2017, 09:00 – 17:10
Venue: Asia Hotel, Beijing, China / Multifunctional Hall, 2nd Floor
Format: Expert workshop (on invitation only)
Language: Chinese – English (simultaneous interpretation)

This Expert Workshop is organized in the framework of the Sino-German Energy Partnership, which is implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (giz) GmbH on behalf of the Ministry for Economic Affairs and Energy (BMWi) of the Federal Republic of Germany together with the National Energy Administration (NEA) of the P.R. China.

To get involved or receive more information on the Sino-German Energy Partnership and its activities please contact Paul.Recknagel@giz.de.

Organized by:

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Electric Power Planning & Engineering Institute
Expert Workshop on
“Technical Solutions for the Flexibilisation of Coal-fired Power Plants – Experiences from Germany”
## III Workshop Agenda

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<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>09:00 – 09:30</td>
<td>Opening Remarks&lt;br&gt;Guo Wei, Deputy Director General, Electric Power Department, National Energy Administration (NEA)&lt;br&gt;Ralf Becker, First Secretary Environment, Climate and Urbanisation, Economic Department, German Embassy</td>
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<tr>
<td>09:30 – 09:50</td>
<td>Keynote: “Power System Flexibility Requirements – Global Status and Outlook”&lt;br&gt;Simon Müller, Head of Unit, System Integration of Renewables, International Energy Agency (IEA)</td>
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<tr>
<td>09:50 – 10:10</td>
<td>Keynote: “Flexibility of Thermal Power Plants – Context and Parametrisation”&lt;br&gt;Markus Steigenberger, Deputy Executive Director, Agora Energiewende</td>
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<td>10:30 – 10:50</td>
<td>Keynote: “Overview of Measures to Adapt Thermal Power Plants to the Flexibility Requirements of the Future Power System - Experiences from Germany”&lt;br&gt;Dr. Claudia Weise, Project Manager, VGB PowerTech</td>
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<td>10:50 – 11:00</td>
<td>Tea Break</td>
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# Expert Workshop on
“Technical Solutions for the Flexibilisation of Coal-fired Power Plants – Experiences from Germany”

## Session 1: Optimizing the Boiler and Water-Steam Cycle

**Moderator:** Han Xiaoqi, Deputy Head of Planning Department, Electric Power Planning & Engineering Institute (EPPEI)

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<th>Time</th>
<th>Presentation</th>
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<tr>
<td>11:00 – 11:20</td>
<td>Improvements of Steam Turbine and Steam Cycle with Respect to Operational Flexibility</td>
<td>Dr. Andreas Feldmüller, Expanded Scope Solutions, Siemens</td>
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<td>11:20 – 11:40</td>
<td>The Flexible Fossil Fuel-based Power Plant - Important Partner for a Stable Power System</td>
<td>Falk Hoffmeister, Vice President, Mitsubishi Hitachi Power Systems Europe GmbH</td>
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<td>11:40 – 12:00</td>
<td>Q&amp;A</td>
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<td>15:40 – 16:00</td>
<td>Q&amp;A</td>
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<td></td>
<td><strong>Transferring German Experiences to China: Opportunities and Challenges</strong> <em>(Panel Discussion)</em></td>
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<td><strong>Moderator:</strong> Dr. Claudia Weise, Project Manager, VGB PowerTech</td>
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<tr>
<td>16:00 – 17:00</td>
<td><strong>Key Questions:</strong></td>
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<td>- Challenges from the perspective of Chinese power plant operators</td>
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<td>- How to adapt the German experience to China</td>
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<td>- Innovative technical solutions</td>
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<td><strong>Panellists:</strong></td>
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<td></td>
<td>- Dr. Andreas Feldmüller, Expanded Scope Solutions, Siemens</td>
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<td>- Axel Meschgbiz, Senior Expert Power Plant Process, RWE Technology International GmbH</td>
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<td>- Hua Zhigang, Head of Division, State Power Investment Corporation</td>
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<td>- Tang Fei, Deputy Head of Department, Power Generation Department, EPPEI</td>
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<td>- Wang Wei, Professor, North China Electric Power University</td>
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<td>17:00 – 17:10</td>
<td><strong>Closing Remarks</strong></td>
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IV Speaker Profiles

Sandra Retzer
GIZ China
Head of Cluster, Sustainable Urbanisation, Transportation and Energy

In the past 20 years - after getting a diploma in Business Studies as well as a diploma in Chinese language studies - Ms. Retzer has been primarily based in Germany and China working for different transnational companies in large-scale infrastructure, airport, renewable energy and energy storage projects. Her work has given her vast opportunities to travel and she has had the privilege of working on projects in more than 20 countries in the past two decades.

Before joining GIZ, Sandra Retzer served as Managing Director Asia-Pacific of Younicos AG, a German company specialized in the management of battery energy storage technologies and systems for a stable power supply from renewable sources.

Currently, Sandra Retzer also serves as the Vice Chair of the Energy Working Group of the European Union Chamber of Commerce in China. The group has been proactively engaging Chinese and European policymakers on policies, regulations, standards and market development. Ms. Retzer is also a member of several advisory boards related to Chinese-European demo projects.

Since September 2014, Sandra Retzer works for Deutsche Gesellschaft fuer Internationale Zusammenarbeit (giz) GmbH. She is responsible for Sino-German policy dialogues and technical cooperation projects in the field of energy, electromobility, low carbon transport and sustainable urbanisation.

For more About GIZ please refer to Section VI.
Mr. Simon Müller is the Head of the System Integration of Renewables Unit at the International Energy Agency. He is responsible for IEA analysis as part of the Grid-and System Integration of Renewables (GIVAR) programme, which aims to identify global best practice for integrating renewable energy into power grids and the wider energy system. He served as the analytical and managerial lead of the last GIVAR phase, a two-year project assessing the technical and economic implications of large scale wind and solar grid integration. Since joining the IEA in 2010, he has authored numerous IEA publications on grid integration, market and policy design as well as renewable energy technologies. Mr. Müller is a frequent speaker at international workshops and conferences. He holds a M.Sc. (Diplom) in Physics from the University of Bremen.

About IEA

Founded in 1974, the IEA was initially designed to help countries co-ordinate a collective response to major disruptions in the supply of oil, such as the crisis of 1973/4. While this remains a key aspect of its work, the IEA has evolved and expanded significantly.

The IEA examines the full spectrum of energy issues including oil, gas and coal supply and demand, renewable energy technologies, electricity markets, energy efficiency, access to energy, demand side management and much more. Through its work, the IEA advocates policies that will enhance the reliability, affordability and sustainability of energy in its 29 member countries and beyond.

Today, the IEA is at the heart of global dialogue on energy, providing authoritative analysis through a wide range of publications, including the flagship World Energy Outlook and the IEA Market Reports; data and statistics, such as Key World Energy Statistics and the Monthly Oil Data Service; and a series of training and capacity building workshops, presentations, and resources.
Markus Steigenberger is Deputy Executive Director of Agora Energiewende, a Berlin-based, non-partisan think tank and policy lab focusing on the transformation of energy systems. Mr. Steigenberger played a crucial role in initiating and setting up Agora in the early years. Afterwards, he was heading the European programme in 2014/15. Currently, he builds Agora’s international programme that aims at supporting and strengthening renewables-driven power system transformations in several key emerging economies.

Before joining Agora, Mr. Steigenberger led the Germany programme of the European Climate Foundation (ECF) where he was in charge of strategic grantmaking in the fields of power (German coal campaign), energy efficiency and climate policy. Mr. Steigenberger started his career as a journalist and held various positions in German and international civil society organisations like the European Environmental Bureau and Friends of the Earth International.

About Agora Energiewende

Agora Energiewende develops evidence-based and politically viable strategies for ensuring the success of the clean energy transition in Germany, Europe and the rest of the world. As a think tank and policy laboratory we aim to share knowledge with stakeholders in the worlds of politics, business and academia while enabling a productive exchange of ideas. Our scientifically rigorous research highlights practical policy solutions while eschewing an ideological agenda. As a non-profit foundation primarily financed through philanthropic donations, we are not beholden to narrow corporate or political interests, but rather to our commitment to confronting climate change.
Mr. Du Zhongming, Professorate Senior Engineer, is Vice President of the Electric Power Planning and Engineering Institute (EPPEI). Mr. Du has devoted himself to power system planning and design for decades, serving successively as Deputy Director of the Department of Power System Planning and Research in EPPEI, as Deputy Director of the Department of Planning and Development at China Southern Power Grid, and also as Director of the Department of Power System Planning and Research in EPPEI. With many years of working experience, his expertise covers various fields, e.g. energy policy, electric power planning and policy research, renewable energy integration, and power grid planning and design. Mr. Du is the project manager for research on China’s “13th Five-Year Plan for Energy Development" and "13th Five-Year Plan for Power Sector Development".

For more About EPPEI please refer to Section VI.
Dr. Claudia Weise has been working for VGB since 2008. As a project manager she is responsible for international projects ranging from technical consultancy to bilateral energy co-operation projects. She started her professional career as a project engineer for Siemens AG in the field of modernization of coal-fired power plants. Dr. Weise holds a diploma and a doctoral degree in process engineering.

About VGB PowerTech

VGB PowerTech e.V. is the European technical association for power and heat generation. Since its foundation in 1920, VGB has become the technical centre of competence for the operators. The membership is open for companies and institutions active in the power business. 488 members in 35 countries – over 90 percent are European based – represent an installed of 461 gigawatt based on a broad energy mix and covering all sources of electricity production.
Dr. Andreas Feldmüller

Siemens AG

Power Generation Services Division

Power and Gas, Expanded Scope Solutions

Dr. Andreas Feldmüller is a steam turbine expert and has worked for 18 years in steam turbine engineering heading different departments responsible for new apparatus, modernizations and service including the Siemens offices in Delhi and Budapest. He has completed his 25th year in Siemens AG and is currently heading the Expanded Scope Solutions within the Power Generation Services division with focus on plant solutions. Dr. Feldmüller studied mechanical engineering at the Ruhr-Universität Bochum where he also earned his doctor’s degree.

About Siemens AG

Siemens AG is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 165 years.

The company is active in more than 200 countries, focusing on the areas of electrification, automation and digitalization. One of the world’s largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of efficient power generation and power transmission solutions and a pioneer in infrastructure solutions as well as automation, drive and software solutions for industry.

The company is also a leading provider of medical imaging equipment – such as computed tomography and magnetic resonance imaging systems – and a leader in laboratory diagnostics as well as clinical IT. In fiscal 2016, which ended on September 30, 2016, Siemens generated revenue of €79.6 billion and net income of €5.6 billion. At the end of September 2016, the company had around 351,000 employees worldwide.
Mr. Falk Hoffmeister is Vice President and since May 2017 Head of Plant Optimisation at Mitsubishi Hitachi Power Systems Europe (MHPS E) and responsible for modernizations, upgrades and refurbishments of Thermal Power Plants within the EMEA (Europe, the Middle East and Africa) region.

In his last position as Head of Firing System, his team developed and executed several biomass conversion projects.

He has been working for more than 10 years with MHPSE in various positions in Germany and South Africa. He started his career as a Scientist with the Institute for Technical Chemistry at the Karlsruhe Institute of Technology in Germany.

He holds a Bachelor’s Degree in Mechanical Engineering from the University of Mannheim, Germany and a Diploma in Mechanical Engineering from the Ruhr-University, Germany.

About Mitsubishi Hitachi Power Systems Europe, Ltd.

Mitsubishi Hitachi Power Systems Europe Ltd. headquartered in London, a subsidiary of globally operating Mitsubishi Hitachi Power Systems, Ltd., designs, constructs and provides long-term maintenance and parts supply for thermal power plants. The plant constructor also supplies key components such as utility steam generators, environmental engineering systems and turbines. As market and technology leader, e.g. in utility steam generators, MHPS Europe places its trust in state-of-the-art, environmentally compatible and efficient plants. With key bases in UK and Germany, branches and subsidiaries throughout the region, the company has a workforce of approx. 1,700.
Mr. Ronald Rost has an economic degree in Foreign Trade and is responsible at VPC for international business development. Being a non-technical person, he has 30 years of experience in the energy sector, especially in thermal power and heat generation. Ronald joined VPC in 1998 and developed the international business of the company.

About VPC

Founded in 1963, VPC is a service provider with international operations, and is held in high regard in the power sector. VPC provides engineering, consulting, EPC and technical services for power and heat generation facilities.

VPC has been involved in the design, engineering, erection supervision, testing and commissioning of more than 70,000 MW of generating facilities, which have the most diverse range of technologies and different periods of operation. VPC provides a combination of engineering know-how and operator experience, always taking into account the minimization of total life-cycle costs. VPC has a strong track record in thermal power, but is also engaged in all types of renewable energy sources, especially in biomass and hydro power, solar power, geothermal energy and wind.
Mr. Quang-Do Pham is General Manager at DURAG CHINA, a subsidiary company of DURAG GROUP, worldwide market-leading supplier of solutions in the fields of combustion and environmental monitoring, serving a wide range of industries such as power industry, waste to energy industry, petrochemical and refining industry, metals and minerals, etc.

Short profile of Quang-Do Pham:
- 32 year experience in the air pollution monitoring for industrial combustion process industries, such as coal/oil/gas fired power plants
- 20 years on the ground experience in Asia, last 11 years in China
- Practical knowledge in industrial emission monitoring in compliance with the regulations and standards in force, Europe-wide and Asia-wide

About DURAG

Durag Group was established in 1948 and is a worldwide operating group of companies. It is one of the market leaders for intelligent solutions in the fields of combustion technology, environmental monitoring, data management as well as tunnel sensors.
Ms. Liu Xiaomei joined Wallstein Ing. GmbH in 2013 and is Deputy General Manager of Wallstein Thermal Technology (Beijing) Co., Ltd. and Wallstein Thermal Equipment (Tianjin) Co., Ltd. She is responsible for the market development in China and the Asia-Pacific region of Wallstein Group’s key product: flue gas heat exchangers.

Before Ms. Liu joined Wallstein Group, she served as Deputy General Manager of Kiie Energy Technology (Beijing) Co., Ltd., in charge of sales, marketing and business work in the field of direct air cooling and cooling towers of power plants.

About Wallstein

Wallstein Ing. GmbH was founded in 1989, is headquartered in Germany, and focuses on heat exchanger system’s R&D, design, manufacturing, and services for different flue gas environment. In order to better serve China’s and the Asia-Pacific’s market, we set up the following companies in China:

- Wallstein Thermal Technology (Beijing) Co., Ltd. - Center for marketing, project, technology and R&D in China and the Asia-Pacific region,
- Wallstein Thermal Equipment (Tianjin) Co., Ltd. - Production base of flue gas heat exchangers for the Asia-Pacific region.

Wallstein Group is a system provider of fluoropolymer flue gas heat exchangers in the fields of power generation, waste and hazardous waste incineration, petrochemical and chemical, metallurgy, environmental protection, thermal and other fields. We can provide flexible and innovative customized flue gas heat exchange system solutions.

Wallstein can provide fluoropolymer flue gas waste heat recovery systems for comprehensive flue gas treatment, through heat recycling, to achieve coal saving, water saving, dust reduction, de-pluming and other targets.

Wallstein Group has more than 70 reference projects with a variety of fluoropolymer flue gas heat displace systems in China. More than 20 years of project experience prove it mature, reliable and durable in different flue gas conditions.
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Dirk Tiedtke
STEAG Energy Services GmbH
System Technologies

Since 2001, Dirk Tiedtke was head of the Technical Department at STEAG Powitec GmbH, Germany. He has more than 15 years of experience in design, implementation and commissioning of Optimization and Monitoring solutions for cement, waste to energy and coal fired power plants.

He developed
- Various sensors for process monitoring purposes in harsh environments.
- Soft sensors to predict certain process quality key figures.
- APC solutions for the optimization of time delayed, non-linear processes found in almost all industrial facilities.

His work took him across Europe, South America as well as Asia and Middle East. Now he is responsible for the sales of optimization solutions in China, India and Turkey.

About STEAG Energy Services GmbH

STEAG Energy Services offers comprehensive services and forward-looking solutions for all forms of power generation. As reliable partners we develop, plan and operate energy plants worldwide. In addition to engineering services for the new construction and modernization of fossil-fueled power plants, we offer skills and expertise in the field of renewable energies by optimizing the auxiliary services and efficient material management.
Mr. Axel Meschgbiz is a senior expert in boiler design, combustion and operation optimisation of large-scale power plants and has more than 30 years of practical experience in the power industry. In particular, he has extensive experience in development and testing of burner systems, furnace and flue gas cleaning, as well as operational issues at RWE and external plants. In recent years, Mr. Meschgbiz has served a number of external customers with issues of coal combustion, providing recommendations of emission reduction measures, slagging and fouling issues, efficiency improvements, operation and maintenance improvements, plant modifications and tests.

**About RWE Technology International GmbH**

RWE Technology International (RWETI) is a leading engineering consulting company, providing independent expertise and technical advice to global energy markets. We enable organizations in mining, thermal generation, renewables and grids to advance efficiency, safety and sustainability of their business.

We support customers across the full value chain - helping them to plan, develop, construct, operate and shut-down their energy assets. With our heritage of more than 100 years as an energy utility, we share our expertise and help customers in over 100 countries reach their goals.
V List of Participating Institutions (excerpt)

- China Huaneng Group
- China Huadian Corporation
- China Datang Corporation
- China Guodian Corporation
- State Power Investment Corporation
- Guohua Electric Corporation
- Sdicpower Holdings Co., Ltd
- State Grid Central Dispatch and Control Center
- State Grid Dispatch and Control Center Of Northeast, Northwest And North China
- Energy Research Institute of the National Development And Reform Commission / China National Renewable Energy Centre
- State Grid Energy Research Institute
- China Electric Power Research Institute
- Dongfang Electric Corporation
- Huaneng Power Intl Inc.
- Harbin Electric Corporation
- Tsinghua University
- North China Electric Power University
- Harbin Institute Of Technology
- Dalian University Of Technology
- China University Of Petroleum
- Dandong Thermal Power Plant
- Dandong Jinshan Thermal Power Plant
- Danlian Zhuanghe Power Plant
- Benxi Power Generating Company
- Dongfanghu Power Generating Company
- Yanshanhu Power Generating Company
- Diaobingshan Coal Gangue Power Generating Co. Limited.
- Shuangliao Power Plant
- Baicheng Power Plant
- Huaneng Jilin Power Generating Co. Limited. Changchun Thermal Power Plant
- Datang Liaooyuan Power Plant
- Jingyuan Second Power Generating Co. Limited.
- Huaneng Beifanglinhe Power Plant
- Baotou Donghua Thermal Power Co. Limited.
- Guohua Inner Mongolia Power Plant
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- State Power Investment Corporation Tongliao Second Power Generating Co. Limited
- Shijiazhuang Yuhua Thermal Power Plant
- Harbin First Thermal Power Plant
- Huaneng Yichun Thermal Power Co. Limited
- Beihai Power Plant
- Northeast/Central Southern/Northwest/North China Electric Power Design Institute, China Power Engineering Consulting Group Co., Ltd
- Jiangsu Power Design Institute, China Energy Engineering Co., Ltd
- Hunan Power Design Institute, China Energy Engineering Co., Ltd
- Northwest Third Power Engineering Co., Ltd., China Energy Engineering Co., Ltd
- Guangdong Thermal Power Engineering Co., Ltd., China Energy Engineering Co., Ltd
- Beijing Power Equipment Group
- Siemens Ltd. China
- Natural Resources Defense Council
- German Energy Agency
- AHK Greater China (Beijing)
- RWE Power AG
VI About the Organizers

GIZ China

Who We Are

As a German federally owned enterprise, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is a global service provider in the field of international cooperation and professional training for sustainable development. GIZ operates in more than 130 countries with approx. 17,000 staff members worldwide. We offer our partners in developing, emerging and industrialised countries tailor-made and effective solutions in all fields of sustainable economic development as well as environmental and climate protection.

What We Do

With almost 30 years of experience in Sino-German technical cooperation, GIZ works within the framework of the Sino-German partnership for the mutual benefit of both countries. Our portfolio includes policy advice, technical expertise, knowledge transfer, capacity building and development support in those areas where German know-how and technologies are world-leading. We provide our services through experienced German, international and Chinese experts as well as German partner institutions.

Who We Work For

In China, GIZ operates primarily on behalf of the German government and is currently commissioned by a number of German federal ministries – such as the Federal Ministry for Economic Cooperation and Development, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the Federal Ministry of Economic Affairs and Energy. We also work for German federal states, the European Commission, the Asian Development Bank as well as clients from the Chinese public sector. During decades of successful technical cooperation in China, GIZ has developed close ties with Chinese and German government institutions. Building upon these networks, we also offer solutions for private sector clients in China to address sustainability issues.

Areas of Expertise:

- Environmental and Climate Policy
- Energy Transition Policy, Regulation and Technology
- Sustainable Urbanisation
- Electromobility and Sustainable Transport
- Economic Policy and Structural Reform
- Legal Reform
- Financial Sector Reform and the Insurance Industry
- Vocational Training and Continuing Professional Education
- Consumer Protection and Product Safety
- Social and Labour Standards and Policies
- Natural Resources Management
Sino-German Energy Partnership (EP)

Background

The Sino-German Energy Partnership between the German Federal Ministry for Economic Affairs and Energy (BMWi) and the National Development and Reform Commission (NDRC) and the National Energy Administration (NEA) of the People's Republic of China was initiated in 2006 at the Sino-German Forum for Economic and Technological Cooperation.

The partnership aims to strengthen the bilateral cooperation on all issues related to the energy transition. Thereby, both countries aim to facilitate the transformation of the energy system towards a sustainable system based on energy efficiency and renewable energy, improve energy security, promote climate protection and mitigate global competition for energy resources. The partnership also strives to remove trade barriers in the energy sector and pave the way for equal market access.

Instruments of Cooperation:

The Sino-German Energy Partnership focuses on three levels of intervention: a high-level policy dialogue between government officials, technical and policy advisory as well as the involvement of the private sector and practical demonstration projects.

Working Groups

Two thematic working groups have been established under bilateral agreements in order to facilitate cooperation as well as intensify the exchange of information, experiences and best practices on the following topics (selection):

1. Working group on Energy: promotion and system integration of renewable energies, electricity market reform, grid regulation, smart / micro grids and storage, sustainable heating and cooling, flexibilisation of thermal power plants and sector coupling.

2. Working group on Energy Efficiency: energy conservation and efficiency in buildings and industry, demand-side management as well as innovative business and financing models.

GIZ’s Role:

GIZ is the German implementation agency of the Energy Partnership and manages its secretariat, serves as a point of contact, information and advisory for interested parties as well as plans and conducts all its measures in close consultation with the partners from both sides.
Electric Power Planning & Engineering Institute (EPPEI)

Introduction

As a national consultation institution for high-end clients, the Electric Power Planning & Engineering Institute (EPPEI) mainly provides services to the government, financial institutions, electric power industry and relevant enterprises. EPPEI’s main business area covers: studies related to the electric power industry, e.g., development strategy, power planning, industrial policy, new technology R&D; engineering review, evaluation, and consultation for power projects; as well as scientific research & standardization work. EPPEI is qualified by the National Development and Reform Commission (NDRC) to conduct the evaluation of electric power projects.

Responsibilities

In 2009, authorized by NEA, EPPEI took the responsibility of standards management of China’s electric power industry and began to exert its management function of the standardization of China’s electric power planning and engineering. EPPEI is in charge of the administration of the four Standardization Technical Committees (i.e., Committees of Power System Planning and Design, Power Generation Design, Power Grid Design, and Technical Economy for Thermal Power Generation and Power Grid), as well as the registration and submission of standards prior to government approval.

Achievements

For the past ten years, together with relevant institutions, EPPEI has completed a large number of research projects among others on national power industry development planning, power industrial policies, analysis of national power markets and the optimization and upgrade of the electric power industry’s structure.

As for specific technologies, EPPEI has researched and applied many advanced technologies such as UHV AC and DC power transmission & transformation technology, smart grid technology, design technology of fossil fuel power plants with high-parameter and large-capacity units, design technology of nuclear power plants, new materials, new processes and new techniques for energy saving and environmental protection and their applications, as well as the economics of power projects.

EPPEI has accomplished nearly 200 national/industrial technical standards, with over 100 patented technologies and inventions. In China, EPPEI plays a leading role in the above areas.