



**SIEMENS**

中国2010年上海世博会全球合作伙伴  
Global Partner of Expo 2010 Shanghai China

# Siemens and Expo 2010 Shanghai China

## Brief Introduction

Siemens holds a leading position in infrastructure area and provides innovative, environmental-friendly and energy saving technologies. With advanced proven technologies and comprehensive experience in various major events and mega city development, Siemens is an ideal partner to provide integrated solutions, covering special purpose buildings (pavilion, stadium, etc.), intelligent traffic management, airport construction, environmental management and healthcare, etc.

The World Expo 2010 Shanghai China will take place from May 1 to October 31, 2010 and is expected to attract approximately 70 million visitors. The "Better City, Better Life" theme of Expo 2010 represents the common wish of the whole humankind for better living in future urban environment. Siemens has been an active participant and strong supporter of World Expo since 1851. As a committed global partner of Expo 2010 Shanghai China, Siemens has long time been bringing its unique business portfolio and innovative core competence to help realize the shared vision of "Better City, Better Life" and make the Shanghai Expo a successful, exciting and unforgettable World Exposition.

## History

The cooperation between Siemens and World Expo dates back to the first London Expo in 1851, namely the "Great Exhibition of the Works of Industry of All Nations". Mid 19th Century was the era of social and economic transition in UK. Trains and steamboats replaced carriages and sailboats. Factories and smokestacks were everywhere. Siemens had only been in operations for four years yet the company

had committed itself to rapid industrial modernization. At the first World Expo, Siemens exhibited an innovative alarm ring, a new telegram machine and other technologies and products. These products earned Siemens the highest Expo award - the "Council Medal".

The successful participation of Siemens at the London Expo kicked off a long-term partnership between Siemens and the World Expo. From 1851 to 2007, during the period of 156 years, Siemens has participated in 16 World Expositions (Details see appendix). As the Information and Transportation partner for Hannover Expo 2000, Siemens sponsored Shanghai Municipal Government to showcase the city's sustainable development vision from 2030 - 2070 in the 21<sup>st</sup> Century Thematic Area, which attracted over five million visitors.

## Siemens and Expo 2010 Shanghai China

As a reliable partner and responsible corporate citizen, Siemens has a unique business portfolio and core competences fitting to the key needs of Shanghai for sustainable city development and necessary infrastructure to host Expo 2010. Since 2000, Siemens has spent relentless efforts to support Shanghai's bidding and preparation to host a successful world Expo:

2000	Sponsorship for Shanghai's participation at the 21 <sup>st</sup> Century Thematic Area to depict Shanghai's vision of future development at Hannover Expo
June 2001	Sponsorship of International Urban Environment and Sustainable Development Conference in Shanghai
August 2002	Organized 100 kids' painting for Shanghai's future to support Shanghai's bid to host Expo 2010
December 2002	Became a member of the Business Supporting Group for Shanghai's Expo bid
November 2003	Siemens Global CEO delivered key-note speech titled "Expo Infrastructure as a Platform for the Future" at Shanghai International Business Leaders' Advisory Conference (IBLAC)
February 2006	Jointly hosted first "Innovation and Expo 2010 Forum" with Shanghai
August 2006	"China Yangpu Siemens 2010 Forum" jointly held with Yangpu District
July 2006	Official announcement of the establishment of a dedicated organization, Siemens Expo Program Center, to support Shanghai with respect to all Expo 2010 preparations

- May 2007 Official announcement of Siemens becoming Global Sponsorship Partner for World Expo 2010 Shanghai China, which made Siemens the very first multinational company to independently become Expo 2010 Global Sponsorship Partner
- November 2007 Signed a framework agreement of strategic cooperation with Yangpu District Government to help realize the vision of "Better City, Better Life"
- February 2008 Honored the "Award of the Best GSP for International Promotion on Expo 2010" by Bureau of Shanghai World Expo Coordination
- June 2008 Siemens and OSRAM signed a Memorandum of Understanding (MoU) with Shanghai Institute of Visual Art, Fudan University on "Visual Art Application of Lighting" for Shanghai Expo
- January 2009 OSRAM, a 100 percent affiliated company of Siemens, was awarded the designation of "Global Partner for Lighting of Expo 2010"
- January 2009 Honored the "Award of the Best Star for Marketing on Expo 2010" by Bureau of Shanghai World Expo Coordination
- January 2009 Siemens signed a framework contract with the Bureau of Shanghai World Expo Coordination for a win-win partnership on the "Green China Pavilion Project"
- May 2009 With less than a year to the kick-off of the Expo 2010, Siemens launched its "Siemens Expo-City-Vision Campaign" to strengthen its commitment to the Shanghai Expo and its theme of "Better City, Better Life"



## **Siemens' Contribution to the Expo Site**

With its unique business portfolio and rich experience in major events, Siemens is committed to providing the most advanced technologies, solutions and high-quality products/services to World Expo 2010 Shanghai China, particularly in the areas of rail transportation, building technology, healthcare and lighting. Siemens' technologies of power distribution, intelligent building system, fire detection and security system, lighting, etc. are widely applied in Five Permanent Constructions (China Pavilion, Theme Pavilion, Culture Center, Expo Center and Expo Boulevard), Expo Village, Country Pavilion (German Pavilion), UBPA (Hamburg House), Expo auxiliary facilities (Media Service Center and Expo Bureau of Shanghai World Expo Coordination Building) and the entire Expo Site.



**SIEMENS**

中国2010年上海世博会全球合作伙伴  
Global Partner of Expo 2010 Shanghai China

## China Pavilion

### Project Overview

China Pavilion, located at the center of Expo Site, takes an outstanding position when seen from the main Expo entrance in Pudong Area. The building consists of three parts: Chinese National Pavilion, Regional Joint Pavilion as well as Hong Kong, Macao and Taiwan Pavilion. As one of the five permanent constructions at the Expo Site, China Pavilion is not only designed to manifest China's brilliant culture and wisdom, but also positioned to become a showcase project to realize the "Green Expo" concept.



### Siemens Answers

Siemens has provided an integrated and world-leading energy-saving solution to help make China Pavilion a "green landmark" in the areas of:

- Power distribution equipments: the products include low/medium-voltage switchgear, low-voltage control box, convertor cabinet, etc. All these equipments contribute to reducing the energy consumption thanks to extreme low operation and maintenance cost, recycling material, compact design and air being the insulated medium to avoid harmful gas emission.
- Lighting: the world-leading "green" lighting technologies and solutions of Siemens OSRAM will not only help bring China Pavilion a gorgeous look at

night, but also contribute significantly to energy-efficiency. The products include LED module, accessories and control/PS applied in decoration, architectural lighting, and signage, etc.

- Building automation system (BAS): the most advanced system APOGEE can not only ensure the air inside as fresh as that of outside, but also centralize the monitoring, management and control of separate equipments or systems like power transmission and distribution, lighting, elevators, air conditioners, heat and water supply, fire detection system and security system, so as to master their operation condition, energy consumption status and achieve energy-saving results.
- Fire detection system and security system: automatic fire detection system uses the most sophisticated sensor and data processing that help to react promptly and estimate accurately, and achieve the lowest proportion of improper alarming in the industry. Moreover, dynamic detection and object capture function of security system guarantee that no single corner will be missed.

## Project Highlights

The advanced and innovative technologies and solutions provided by Siemens for China Pavilion will reduce the operation cost and greatly improve the energy efficiency:

- By installing Siemens convertor cabinet, around 50% energy could be saved.
- Adopting the newly developed insulated material, medium-voltage switchgear type NXAIR S is highly compact and almost maintenance-free, which can reduce both space and labor cost.
- Equipped with Siemens APOGEE Building Automation System, estimated 25% energy can be saved than traditional building, and around 50% labor cost can be saved.
- Compared with conventional bulbs, the LEDs from Siemens OSRAM operate up to 15-time longer than conventional ones with up to 80% less energy consumption.



**SIEMENS**

中国2010年上海世博会全球合作伙伴  
Global Partner of Expo 2010 Shanghai China

## German Pavilion

### Project Overview

At the German Pavilion in Shanghai, Germany's contribution to the Expo 2010 "Better City, Better Life" theme is called "balancity" – a marriage of the terms "balance" and "city". A city in balance between renewal and preservation, innovation and tradition, urbanity and nature, society and its individuals, work and recreation, and finally, between globalization and national identity. Diversity and balance are vital to tomorrow's cities, and they enable a special quality of life and vitality to emerge. Preserving this diversity is essential – without forgoing innovation and technology. The pavilion's site - with its 6,000 square metres - is the largest national pavilion at Expo 2010.

### Siemens at the German Pavilion

Siemens, an exhibition partner of the German Pavilion, is also committed to bringing a sustainable and enjoyable experience to visitors from all over the world, with its state-of-the-art expertise. The visitors' journey through the German Pavilion is a discovery of "balancity", with its rooms for work and thought, spaces for recreation and leisure, rooms to live in and places for culture and community.

In the Factory, for example, visitors are led by moving walkways where conveyors belts cross each other at different levels above them. These represent the innovations, products and processes created by German companies addressing the "Better City, Better Life" Expo theme. Here, visitors can experience Siemens expertise and innovative strength in the areas of energy-efficient applications, especially in power transmission and building automation:

- In the field of power transmission, a film shown in the Factory illustrates how Siemens successfully put into operation the world's first 800-kV high-voltage direct-current link (HVDC). The Yunnan-Guangdong HVDC is the world's most powerful system of its kind, reducing annual CO2 emissions by over 30 megatons, which would otherwise have been produced by additional fossil-fuelled power plants linked to the interconnected grid in Guangdong Province.
- In the area of power consumption, visitors can find out about Siemens' advanced building automation system, which has been used in many pavilions at the Expo site.

In the forum of German Pavilion, for another example, visitors can find out Siemens' world-leading healthcare. As one of the largest suppliers to healthcare industry and the first integrated healthcare solution provider, Siemens offers the entire range of patient care from early detection to aftercare, addressing the increasing demands of affordable and high-quality healthcare service. Siemens will also display the innovative hearing aids devices in the Pavilion.

Furthermore, Siemens supplied a number of innovative technologies for "balancity", which enhance energy efficiency in the German Pavilion. These include, for instance, compact-design power distribution equipment which saves space costs, while ensuring stable operation under a variety of extreme conditions. And, integrated extra-low voltage solutions achieve the intelligent control of air-conditioning, security and fire-detection systems, reducing the pavilion's overall energy consumption. As well, highly energy-efficient LED lighting from Siemens OSRAM reduces energy consumption by around 80% compared with traditional lighting.



# SIEMENS

中国2010年上海世博会全球合作伙伴  
Global Partner of Expo 2010 Shanghai China

## Hamburg House

### Project Overview

Located at the Urban Best Practice Area (UBPA) as a permanent construction, the Hamburg House is a unique and interesting building, which represents the first certified "Passive House" in China. The "Passive House" means an ultra-low energy building that requires only 10% energy consumption for heating or cooling compared with traditional buildings while the temperature inside maintains at around 25°C. Apart from the unique airtight design, what are the innovative technologies behind such "Passive House" concept?



### Siemens Answers

As the official premium sponsor for Hamburg House, Siemens is committed to leveraging the world's leading "green" technologies to equip this "Passive House" which represents the world's most advanced energy-saving concept. The answer to the "Passive House" is to create an energy self-sufficient building with "zero-gas emissions". Firstly, "Hamburg House" should make full use of the heat from human bodies and electrical equipments, so as to supply a large portion of heat for the house. Secondly, renewable energies, such as geothermal energy and solar energy will be used as additional energy sources for heating, cooling and power supply.

Sharing the same vision to make the "Hamburg House" a landmark in the Urban

Best Practice Area in both exterior construction design and interior energy-efficient technologies, Siemens provides "Hamburg House" with the most advanced building automation system - Siemens APOGEE System. Working along with the solid layout of the building, it retrieves the heat of the waste air and sends purified fresh air into the house, ensuring the best effect of temperature conservation and good flow of air with almost no dust in the room. The "Hamburg House" is also equipped with Siemens GAMMA instabus KNX building management system, which helps to reach a maximum usage of sunlight by the intelligent control of lighting and electric curtains.

- Siemens APOGEE System: Apart from its strength to purify the air inside, the system effectively keep the heating system and convective heat transfer devices in good operation. Besides, it also centralizes the monitoring, management and control of separate equipments/systems and the usage of energy, reaching a result of energy-saving to the biggest extent.
- Siemens GAMMA instabus KNX Building Management System: Curtains and lighting will be automatically adjusted according to the intensity of sunlight by sophisticated sensor system in order to make full use of the sunlight. For example, lighting will be turned on in the dark area, remaining 50% intensity of lighting in the dim area, while turned off automatically in the bright area. In a word, the system will increase the lighting less at the window, more by the wall through automatic lighting of compensation. These help achieve energy saving, comfort and a longer average life of the lights.
- Fire detection system and security system: Automatic fire detection system uses the most sophisticated sensor and data processing that help to react promptly and estimate accurately, achieving the lowest proportion of improper alarming in the industry. Moreover, dynamic detection and object capture function of security system guarantee that no single corner will be missed.

## Project Highlights

"Passive House" stands for the most innovative concepts and environmental-friendly technologies as well as the trends of future building development in Europe, even in the world. So it's no doubt that products and solutions provided by Siemens are facing the extremely high requirements for energy saving and low emission:

- Siemens APOGEE Building Automation System: Estimated 25% energy can be saved in Hamburg House than traditional buildings, significantly reducing the operating costs and labor cost by 50%.
- Siemens GAMMA instabus KNX Building Management System reaches a maximum usage of sunlight by the intelligent and real-time control of lighting and curtains. It is estimated that more than 40% energy can be saved.



**SIEMENS**

中国 2010 年上海世博会全球合作伙伴  
Global Partner of Expo 2010 Shanghai China

## Five Permanent Constructions

### Project Overview

At the Expo Site in year 2010, walking among the five permanent "green" constructions brings the visitors a big surprise due to their world-leading energy saving technologies and comfortable experience. These constructions that tell the essence of sustainable development for buildings are vivid showcase of "Green Expo".

### Siemens Answers

The Five Permanent Constructions, including China Pavilion known as the "East Crown", Theme Pavilion with old Shanghai style, Expo Culture Center with a strong visual impact of the seashell, World Expo Center that gives a magnificent appearance at first glance, and Expo Boulevard acting as the main axis at Expo Site, are all featured with the most complete functions and green highlights. Taking their characteristics into consideration, Siemens has proposed the advanced and stable power distribution solutions to relieve organizers' concerns about insufficient power supply and lighting solutions to create a comfortable visiting experience.



- Power distribution equipments for Five Permanent Constructions: The products include low and medium-voltage switchgears that ensure the stable operation and power safety of

all the facilities in the building. Siemens technologies and solutions ensure much lower operation and maintenance cost; longer service life; recycling materials without harm to environment; and minimized power loss due to world-leading circuit protection.

- Lighting control system for Expo Boulevard: Siemens provides complete KNX/EIB interior lighting control system to Expo Boulevard, which realizes centralized and energy-efficient lighting control of public areas, public channel, waiting areas and indication light. Besides the manual control to reduce energy consumption, the advanced system also allows automatic constant lighting control. The system realizes daylight-dependent lighting control, which means the less the sunlight is, the more artificial lighting to be turned on, and vice versa, so that people are able to make the maximum usage of the sunlight and reduce the energy consumption.
- Interior lighting for Expo Center: Siemens OSRAM provides the "green" interior lighting for Expo Center which has gained high appraisal from China's President Hu Jintao for its high efficiency features. LEDs from Siemens OSRAM operate up to 50 times longer than conventional ones with up to 80% less energy consumption.

## **Project Highlights**

The advanced and innovative technologies and solutions provided by Siemens will reduce the operation cost and improve the energy efficiency:

- By installing the newly developed insulated material, medium-voltage switchgear is highly compact and almost maintenance free, so it can reduce both space and labor cost.
- With the integration of top automation and green technologies, Siemens world-leading KNX/EIB lighting control system is estimated to help Expo Boulevard reduce energy consumption by more than 40% compared with traditional lighting control system.
- Advanced technology applied in circuit protection to ensure the power loss of product is only 1/3 to 1/2 of the international standard IEC 60898. It largely reduces the energy consumption and achieves the "green" goal.



**SIEMENS**

中国2010年上海世博会全球合作伙伴  
Global Partner of Expo 2010 Shanghai China

## **Siemens and Sustainable Development of Shanghai**

For over 100 years, Siemens has always been a reliable and trustworthy partner of Shanghai, and has been an integral part of the local economy. Siemens' dedicated support to Expo 2010 Shanghai China comes from long-term partnership with Expo worldwide, but also from sincere cooperation and mutual trust between Siemens and Shanghai since 1904 or even earlier.

In 1904, Siemens established its first permanent China office in Shanghai. This was a major milestone of the company's engagement in China and marked the start of Siemens' long-term and profound partnership with China. The company's continuous contributions to the sustainable development of Shanghai are clearly visible through many city landmarks and major infrastructure projects, for example, Jin Mao Tower, International Conference Center, Waigaoqiao Power Plant, Pudong International Airport, Transrapid, Metro Lines, to just name a few.

Today, Shanghai is a key location and market for Siemens in China. All business segments of Siemens - including industry automation & drive technologies, industry solutions, mobility, building technologies, energy, healthcare, lighting and household appliances - have active presence in the city. The city is home to more than 20 Siemens operating companies as well as Siemens Ltd., China Shanghai Branch that was established in 1996. With around 13,000 employees, Shanghai becomes the largest Siemens location in the world outside of Germany. Expo 2010 Shanghai China has brought Shanghai unprecedented opportunities. Besides the Expo Site, Shanghai's city development is a great platform to express the "green" concept. As a committed partner of Shanghai and World Expo, Siemens is fully engaged in sustainable development of Shanghai, and help realize the "Better City, Better Life" vision through a number of showcase projects.

## Rail Transportation

- **Shanghai Metro Line 13 (Expo Line)**

Shanghai Metro Line 13 runs from downtown center (Xin Tian Di) to the Expo Park. It is regarded as one of the most important metro lines especially built up to send millions of people to Expo Park. In March, 2009, Siemens got the contract to deliver DC switchgears to the Metro Line 13, to help the stable and safe operation of the railway. It fully demonstrates Siemens' strong commitment to the mass transit development of Chinese mega cities and determination in helping make a successful Expo 2010.

- **Shanghai Metro Line 11**

Holding the prominent importance for the whole network, Shanghai Metro Line 11 is one of the four urban metro lines which form the city's backbone metro network. It will be the only open railway station for Shanghai International Circuit in the city. A consortium comprising Siemens Mobility and CSR Zhuzhou Electric Locomotive Co., Ltd. (ZELC) has been awarded the contract of supplying 58 trains of 6-car configuration to Shanghai Mass Transit Line 11 North Section. Representing the world-level advanced technology, the metro vehicles for Shanghai Metro Line 11 will be the first type A cars traveling with the speed of 100 km/h in China. It will take only 35 minutes by taking Metro Line 11 from downtown to Shanghai International Circuit in suburb Jiading.

- **China's Biggest Parking Management System to Hongqiao Airport**

Hongqiao Airport starts construction in order to better serve the big flows of visitors during Expo 2010. Siemens will provide a Parking Control System to Shanghai Hongqiao Airport, which so far is the biggest parking management system in China. According to the contract, Siemens will offer the complete parking system, which includes ticket dispensers and readers, entrance/exit barrier systems, vehicle detectors, identification and payment support, a central management system, a parking guidance system & multistory parking guidance system, as well as video identification and recognition. The project aims to enable Hongqiao Airport to be a key traffic hub in Shanghai.

## Building Technology

- **Complete Energy-saving Solution for Citic Square**

Located on West Nanjing Road in downtown Shanghai, Citic Square is a landmark building which incorporates shopping mall, department store and office tower functions. After conducting audit and detailed assessment of its energy consumption, Siemens has proposed complete energy saving solutions

and is committed to transforming Citic Square into a highly energy-efficient building. The comprehensive energy saving solutions cover eleven aspects including the heat pump retrofit in office tower, demand-controlled ventilation based on indoor and outdoor carbon dioxide concentrations, escalator energy saving optimization in the mall area, as well as sun shading and heat insulation improvement of the roof in the mall area, etc. According to the Energy Saving Performance Contracting (ESPC) model, upon completion of the project, Siemens will guarantee the reduction of the annual energy consumption by at least 1.68 million KWH, which means over RMB 1.39 million (based on the electricity price in 2007) for six consecutive years. This is the first Siemens project to provide complete energy saving solutions to a high-end commercial building in China.

## **Healthcare**

- **Sino-German Friendship Hospital**

The Sino-German Friendship Hospital to be established in Shanghai by Tongji University, Siemens and Germany-based hospital operator Asklepios Kliniken, is set to become a cutting-edge, IT integrated, energy-saving and environmental-friendly hospital providing world-class healthcare services. The completion of the hospital will greatly improve the local medical environment and accelerate the process of hospital modernization which will provide patients with the international-standard services and experiences.

## **Lighting**

- **Siemens to Light Expo 2010**

As Expo 2010 is coming, lighting art will present a huge potential of application in the construction of urban facilities, art and cultural performances, large World Expo events in Shanghai. In 2008, Siemens, OSRAM and Shanghai Institute of Visual Art, Fudan University signed an MoU on "Visual Art Application of Lighting" for Expo 2010 Shanghai. Three parties will set up a first-class Joint Art Lighting Lab in China. What's more, research and teaching experiments in the visual art applications of modern lighting technologies, especially the emerging energy-saving light sources, e.g. LED will be carried out to better serve Expo 2010 in areas of stage lighting, landscape lighting and lighting art ornaments.

# About Waigaoqiao

Waigaoqiao Power Plants are located in Shanghai. The project consists of Phase 1 (WGQ I) 4x300MW subcritical, Phase 2 (WGQ II) 2x900MW supercritical and Phase 3 (WGQ III) 2x1000MW ultra supercritical.

Waigaoqiao's total capacity is 5GW and it delivers one third of Shanghai's overall installed capacity.

With Siemens' contribution, Waigaoqiao III with its outstanding 46% efficiency has the best performance among coal-fired power plants in the world. It has significant value in respect to energy saving and environmental protection.



## Waigaoqiao I Power Plant

WGQ I is equipped with the boiler, turbine and generator supplied by Shanghai Electric Corporation (SEC, Siemens JV local partner), using Siemens (former Westinghouse) T-G set technology. The four units were put into commercial operation between 1995 and 1998, representing the most advanced subcritical technology in China (main steam pressure 16.7 MPa, main steam and hot reheat steam temperature 538 °C / 538 °C , test heat rate 7,958 kJ / kWh) at that time.

## Waigaoqiao II Power Plant

Siemens supplied Turbine Island with steam condition of 23.96 MPa, 538 °C / 566 °C . According to customer's performance test, the units reach 42% efficiency, saving about 400,000 tons of coal, reducing about 1 million tons of CO<sub>2</sub> and 9,600 tons of SO<sub>2</sub> per annum compared with the average in China. Siemens won Asia Power Award 2006 for Excellence in Clean Coal Technology for the project.

The 1st Unit started commercial operation in April 2004 and the 2nd Unit in September 2004. It was the first 1,000MW class supercritical and ultra supercritical (SC/ USC) power plant in China. The success of the project leads to a booming of 1,000MW USC units in China and majority market share in this field (54%, 60 out of total 112

units) are gained by Siemens together with SEC.

## **Waigaoqiao III Power Plant**

WGQ III consists of 2x1000MW ultra supercritical (USC) units. SEC won the contract of turbine-generator set supply in 2005 using Siemens technology. Siemens did engineering and supplied key components of the turbines (HP, part of IP, last stage blades of LP) and complete generator of Unit 1.

The 1st Unit started commercial operation in March 2008 and the 2nd Unit started commercial operation in June 2008. The units represent the most advanced technology (main steam pressure 25.86MPa, main steam and hot reheat steam temperature 600 °C / 600 °C). Siemens Energy and Waigaoqiao No. 3 Power Generation Company won Gold Award for Best Environmental Performance Power Plant of the Year 2009 from Asian Power. As per customer calculation, the units reach 43.53% net efficiency at average operation load of 75%, 282g / kWh coal consumption and 11.1 TWh power generation in 2009 (saving about 700,000 tons of coal and reducing about 1.8 million tons of CO<sub>2</sub> per annum in comparison with the average coal consumption in China).

# All-round Cooperation with Yangpu District

Yangpu District is located at the northeast corner of Shanghai city center. As a long-term and reliable partner, Siemens signed a framework of strategic cooperation with Yangpu District Government in December 2007, with the aim to accelerate the overall construction of the district cover energy-saving management, intelligent traffic management, healthcare and modern communities.

## Green Building Projects

The energy consumption of architectures accounts for 40% of all buildings worldwide, while technology can change 85% of those architectures to achieve energy efficiency.

### Governmental Office: Yangpu District Government Office Building Renovation

To develop Yangpu District into an energy-saving model area, Yangpu District Government invited Siemens to conduct a comprehensive energy audit for the office building and develop an energy project proposal for government's further consideration. This is the first time for Siemens to set up partnership with Shanghai district government to provide innovative and green solutions for district government office building. What's important is that Energy Saving Performance Contracting (ESPC) model is used to guarantee the amount of saved energy per year.

#### Project Highlights:

- By upgrading and optimizing the air conditioning system, lighting and building automation control system, around RMB 500,000 can be saved from energy consumption annually, accounting for 16% of energy expense currently, and CO<sub>2</sub> emission can be reduced by 600 tons per year. The renovation was finished at the end of 2008. After initial nine-month trial-operation, over RMB 800,000 has been saved, accounting for 32% of energy expense. The result is much better than guaranteed before.
- Enhancement of building automation system leads to the reduction of labor.

## Intelligent Parking Guidance System

As one of the four municipal sub-centers in the overall planning of urban

construction in Shanghai, Wujiaochang has become one of Shanghai's most prosperous commercial centers. The ever-increasing visitors and the traffic are becoming more prominent contradictions. In January 2009, the intelligent parking guidance system provided by Siemens for Wujiaochang area in Shanghai Yangpu District has been officially launched after one-year construction. The system has been installed in seven major parking lots of Wujiaochang central area, including Wanda, Youyicheng, Lantian Mansion, etc. With the development of this district, this system will be updated step by step by integrating the rest of the parking lots of Yangpu District and also integrate itself into the traffic information system, so as to realize the transportation information modernization of Shanghai.

### **Project Highlights:**

- The parking guidance system is designed on the basis of the most updated intelligent transportation technology.
- Through advanced GPRS APN network, it enables the system to timely transmit destination's parking information, which the passengers would like to know before set out, to corresponding media devices. Consequently, the system improves parking management, reduces parking time, balances the utilization of parking lots, and relieves transportation pressure.

## **Modern Communities**

Yangpu District is one of the districts having highest population density in Shanghai. A number of communities built long time ago have encountered a series of difficulties like insufficient security, poor quality of drinking water, bad lighting system and out-of-date parking environment. All of these not only lower the living quality of residents, but also lay a big pressure on city sustainable development. Having evaluated the situation, Siemens proposed a concept of "Modern Communities" and designed integrated and tailor-made solutions:

- Advanced EDS security system acts like a shield to provide 24 hours safety.
- Compact water treatment technology provides drinking water of high quality.
- Upgrading the lights extends life cycle and reduces environmental pollution. Around RMB 160 can be saved for a bulb in its whole life.
- Introduction of new financial mechanism solves the parking problem by setting up solid parking equipment.

# China and Shanghai

## – Examples for the Global Challenges of Urbanization

China has become one of the most modern countries in the world. Indeed, the Middle Kingdom has increased its economic output five-fold over the last 20 years. This huge growth has presented China with one of the most difficult challenges it's ever faced. In just the last few decades, hundreds of millions of people have moved into cities from the countryside, and well more than half-a-billion Chinese now live in urban areas. By 2030 – in just 20 years – that number might even double. All of the new urban residents will need housing, electricity, and water. In addition, the continuously growing Chinese middle class is further increasing the country's huge appetite for energy by purchasing more and more televisions and electrical appliances like vacuum cleaners, mixers, and microwaves. The middle class will also continue to buy cars as long as public transport systems in major cities remain overburdened. Traffic jams and smog are already the rule today, and China is now the world's largest producer of pollutant emissions as a result.

### Did you know that...

- Cities alone are responsible for 75 percent of the worldwide energy demand and emit 80 percent of harmful emissions into the atmosphere. This growing demand must be met while reducing the carbon footprint of urban habitats.
- Shanghai's population nearly doubled between 1990 and 2008. Some 14 million people now live within its city limits. Population density amounts to around 7,200 residents per square kilometer, double that of Berlin.
- Shanghai's demand for power is currently growing by more than 1,000 megawatts (MW) per year. (1,000 MW = power consumption of 2 Mio. European households)
- In December 2009, the city's electricity requirement reached 19,000 MW on some days, and a power shortage seemed imminent.



- The peak demand for Shanghai's electricity is between 16 and 20 gigawatts each day. In normal situations the deficit is about 0.4 to 0.9 gigawatts. Just 10,000 to 22,500 e-cars with a capacity of 40 kilowatts each would be enough to compensate peak demands.
- China focuses on Wind to meet the rising demand for

electricity in Shanghai as well as the rest of the country: By 2020, China plans to produce 100 gigawatts. In comparison: Producers around the world create a total of 120 gigawatts of wind-based energy. This means China could soon be the largest wind energy supplier in the world; with high potential in the off-shore sector, given China's shallow ocean floor reaching many kilometers out to sea.

- By the end of 2008 China's wind energy capacity reached 12 gigawatts – some 10 percent of the entire global market.
- The ocean is now home to large-scale offshore wind parks that produce between 30 and 40 percent more power than the equivalent parks on land. Turbines must be extremely robust, solid and powerful: Repairs at sea cost 10 times as much as they do on land.
- Siemens developed a patented process to manufacture seamless rotor blades and produce them as one solid piece. The blades can be up to 52 meters long, their tips spinning through the air at up to 220 kilometers an hour. In order to utilize every last breeze, the turbine housings can rotate 360 degrees.
- Siemens has been developing technology for wind energy since 1980 and has installed roughly 8,100 facilities worldwide. Siemens is the global leader in offshore wind parks and is expanding its production network for wind energy equipment.
- Siemens is building a new factory for rotary blades not far from Shanghai in the industrial area Lingang New City. As of September 2010, some 200 employees will build rotor blades used to create 500 megawatts of wind-based power each year. The first of these blades will be delivered during Expo 2010. Subsequently the factory in Lingang will produce not only rotor blades but entire wind turbines in the 2.3 megawatt and 3.6 megawatt class. They, in turn, will produce up to 2,000 megawatts a year.
- So far, only 3 percent of the electricity produced globally originates from renewable sources. By 2030, this figure is expected to rise to 14 percent, according to the International Energy Agency and Siemens. Yet the key will be the combination of renewable energy and highly efficient clean fossil fuels. This mix will meet rising demand in a sustainable way with as few emissions as possible.

As a result, most electricity will continue to be produced in fossil-fuel fired power plants in years to come. So it is just as important to make fossil power generation more efficient and eco-friendly, as it is to invest in the development of renewable power generation.

- The China Greentech Initiative estimates the total addressable market volume for the greentech solutions could be as much as 500 billion to one trillion US Dollars annually.
- The International Labour Organization assesses that over the past years more than 2.3 million green jobs have been created worldwide.
- According to the Chinese Renewable Energy Industries Association, 100,000 jobs could be created by renewable energy industries every year in China.
- According to the International Energy Agency (IEA), the amount of electricity used globally for lighting is more than that produced by either hydro or nuclear power plants. CO2 emissions are equivalent to 70 percent of the emissions produced worldwide by passenger cars. With an efficient lighting scheme this electricity consumption can be reduced drastically, for instance by employing energy-saving bulbs and LED lights.
- Compared to standard light bulbs, energy-saving lamps and LEDs consume up to 80 percent less energy and have a 15-times longer lifespan providing 50,000 hours of light.
- An only 30 percent increase in energy-saving lighting could reduce worldwide carbon dioxide emissions by 270 million tons.
- By 2050, CO2 emissions from the transport sector could reach 85 gigatons per year according to Stern-Review. Besides solutions for long-distance and urban public transport, Siemens offers traffic-management systems that can reduce congestion in cities while at the same time improving reliability of transport networks.
- Buildings cause the most harm to the environment – they consume 40 percent of the world's energy and cause 21 percent of greenhouse gasses since lighting, heating and cooling are expected to function reliably and create a comfortable environment.
- Yet with modern technology it is possible to reduce the carbon emissions created by build-ings up to 40 percent by 2030 estimates the Intergovernmental Panel on Climate Change (IPCC) in its 2007 report.
- Iron and steel factories consume 20 percent of all energy used by industrial companies, according to the International Energy Agency. About one third of operating costs for a steel mill are energy costs.
- Life expectancy is on the rise due to better nutrition and healthcare. According to the United Nations World Population Prospect, in 2025 people will live for an average of 72 years, up from 46.6 in 1950.
- Those who are over 65 will make up 12 percent of the population, a demographic

trend that has far-reaching implications. For instance, the United Nations has speculated a global population of 8 billion people in 2030, an increase of 2 billion from today.

- Populations in Asia are set to rise more quickly than elsewhere in the coming decades.
- Healthcare costs for over 65 year old people are much higher than for younger people. In Germany for example nearly half of the healthcare costs are accounted for patients older than 65, according to the Federal Statistical Office.
- Global healthcare costs are set to double between 2003 and 2013 to reach 5.5 trillion Euros.
- Already today, industrialized countries spend more than 10 percent of their GDPs on healthcare.
- According to the World Health Organization, some 60 percent of these budgets are used to treat chronic diseases. As populations age, these diseases will reflect even more on healthcare costs.



- According to the World Health Organization, in 2015 some 20 million people will die of cardio-vascular illnesses. Cancer will take about 11.5 million lives in 2030. About one third of these patients may survive the illness if it is detected early enough and treated effectively.
  - According to the United Nations, in 2025 some 2.3 billion people in 40 countries and regions will face water shortages.
  - In China, ensuring a supply of clean water is a pressing problem. The country is one of 13 which will face acute shortages of water in the future.
- Already today, Shanghai, which is naturally rich in water, suffers from polluted springs. The Huangpu River is contaminated with harmful industrial and agricultural substances. And seawater seeps into groundwater while the Yangtze River's lower reaches are increasingly filled with salt. Therefore, the United Nations considers Shanghai one of the six megacities that will face acute shortages of drinking water during the next decade.

# Siemens and Major Events

Globally, Siemens has extensive experience in major events. The efficient and comprehensive solutions are the keys to the success of major events, because they not only ensure flow management of visitors and information, but also improve the infrastructure in the city development. The unique business portfolio of Siemens provides the technologies and solutions in IT & Communications, security, and special purpose building as pavilion, city rail system, building technologies, power supply and healthcare, to help the major event move forward in a good order.



Siemens has landed orders totaling about EUR 1 billion for infrastructure projects in advance of the 2010

World Cup in South Africa. Besides contributing a large number of solutions in the areas of power generation and transmission, Siemens is participating in the design of traffic management solutions for mass transit systems and in the improvement of healthcare services. In addition, until now lighting systems from the Siemens subsidiary Osram will be employed in eight of ten World Cup stadiums.

Siemens has again underscored to be the most reliable partner for integrated solutions for major events like the Beijing 2008 Olympic Games. Siemens won contracts worth over RMB 10 billion and delivered high quality in time. These include:

- The baggage handling system over 68 kilometers of belts for T3 of Beijing Capital



#### International Airport

- High-speed trains at a speed of 300 kph from Beijing to Tianjin
- The most up-to-date signaling and control technology for Beijing metro line
- The integrated extra-low voltage solutions to the National Aquatics Center
- Substation equipments for

#### Tianjin Olympic Center

- The most advanced membrane bio-reactor technology for Beixiaohe Wastewater Treatment Plant in Beijing

In 2006 FIFA World Cup, Siemens has successfully contributed to more than 100 projects for venues and host cities in the fields of security, transportation, energy, building technology, information and event management:

- Ticketing systems
- Access and security systems
- Logistics and traffic management
- Mobile medical stations
- Equipment for organization and media centers
- Stationary and mobile information and communications systems

# Siemens in China

The history of Siemens in China dates back to 1872, when the company delivered the first pointer telegraph to China. For more than 130 years, Siemens has been active in the country, where it holds leading positions in the company's three sectors: Industry, Energy and Healthcare. Over the years, Siemens has become an integral part of the Chinese economy and a reliable, committed and trustworthy partner of China. By applying a wide array of environmental portfolio and innovative solutions in the cooperation with the local partners, Siemens is committed to contributing to the sustainable development of China.

Siemens has witnessed the tremendous changes that have taken place since China opened up and embarked on its reform drive. To date, Siemens has established around 90 operating companies and 61 regional offices in China. These offices, together with Regional and Provincial managers, are the backbone of Siemens' regional marketing strategy and ensure that the company is close to its customers in order to respond quickly and effectively to their needs.

In fiscal 2009 (October 1, 2008 – September 30, 2009), sales of Siemens in China amounted to EUR 5.2 billion and new orders totaled EUR 5.5 billion, growing by 7 percent and 1 percent respectively compared with fiscal 2008. With a workforce of over 43,000, Siemens is one of the largest foreign-invested employers in the country.



## **Dr. Richard Hausmann**

**CEO Siemens North East Asia  
President and CEO Siemens Ltd., China**

Dr. Richard Hausmann was born on August 28, 1960. On leaving high school, he studied Physics at Regensburg University and the State University of New York at Stony Brook. In 1988, Dr. Hausmann completed his studies with a Doctorate in Physics.

In June 1988 Dr. Hausmann joined the Siemens Medical Engineering Group. Until 1993 he worked in the Applications Development Department of the Magnetic Resonance (MR) Division. From 1994 to 1995 he was Marketing Manager for the new Magnetom Open MR system. In 1995 Dr. Hausmann was first appointed Manager of the MR Applications Development and then Director for Marketing and Product Planning.

In 1998 he joined the Computer Tomography (CT) Division, where he rose to the position of Division President in April 2000. In this position he was also responsible for the entire China business of the Siemens Medical Solutions Group.

On January 1, 2005, Dr. Hausmann assumed his current position as President and CEO of Siemens Ltd., China with full responsibility for all Siemens activities in China. Since April 1, 2008, he took additional responsibilities as CEO of Siemens North East Asia, which comprises of Siemens China, Siemens Hong Kong, Siemens Taiwan, Siemens Korea and Siemens Mongolia.

Dr. Hausmann also actively contributes to China's development and helps to shape the country's business environment. He is the Chairman of the

Executive Committee of Foreign Invested Companies and Chairman of the Board of the German Chamber of Commerce in China. In addition he serves as an advisor to the governors of Yunnan Province and Shaanxi Province, member of the consultant committee of Wuhan Municipal Government, and advisor of Foreign Trade and Economic Cooperation to Shenyang Municipal Government. Dr. Hausmann was awarded the Great Wall Friendship Award of Beijing, the Golden Magnolia Award of Shanghai and the Yellow Crane Friendship Award of Wuhan for his contribution to the development of the three cities.

Dr. Hausmann has published numerous articles and book chapters on modern applications of medical imaging and holds various patents related to Magnetic Resonance and Imaging. He is honorary professor of Huazhong University of Science and Technology and gives numerous lectures at various universities around China.

Dr. Richard Hausmann is married and has two sons.

## **Mr. Jianguo Xu**

**Vice President, Siemens Ltd., China**

**General Manager, Siemens Expo Program Center**

---

Mr. Jianguo Xu is currently Vice President of Siemens Ltd., China and General Manager of Siemens Expo Program Center. Prior to his current assignment, Mr. Xu has been working for Audi, Alcoa, Corning and Siemens in various key positions including business development, sales, marketing, product line management, customer service and engineering support, and other commercial roles. His geographical experiences cover EMEA, APAC and North America. Mr. Xu graduated from Tongji University and completed EMBA program at European University and LDP at CCL / Niagara Institute.





## Siemens AG

**Mr. Marc Langendorf**

Tel: +49(0) 89/636-37035  
Fax: +49(0) 89/636-13-37035  
Mobile: +49 (0) 174/1551854  
Email: marc.langendorf@siemens.com

**Ms. Monika Brücklmeier**

Tel: +49(0) 89/636-34782  
Fax: +49(0) 89/636-13-34782  
Mobile: +49(0) 172/8260578  
Email: monika.bruecklmeier@siemens.com

## Director of Communications North East Asia

**Mr. Bernd Eitel**

Tel: +86 (10) 6476 2782  
Fax: +86 (10) 6476 4922  
Mobile: +86 (0)13911900689  
Email: bernd.eitel@siemens.com

7, Wangjing Zhonghuan Nanlu  
Chaoyang District, Beijing, 100102  
P.R. China