



Bosch establishes Regional Headquarters for Research and Advance Engineering in Singapore

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- ▶ Investment of up to S\$30 million in the next five years
- ▶ Establishing long-term partnerships with leading R&D institutions
- ▶ Inaugural project on Organic Photovoltaics in collaboration with NTU
- ▶ Part of Bosch's ongoing commitment to grow "green" technologies

Singapore, September 3, 2008 – The Bosch Group, a leading German global supplier of technology and services, establishes their Asia-Pacific regional headquarters for Research and Advance Engineering in Singapore. This "Research and Technology Center Asia-Pacific" (RTC-AP) was officially opened by Mr. S. Iswaran, Senior Minister of State for Trade and Industry. The centre will study technology trends and market opportunities in the Asia-Pacific region, identify local technology leaders and search for challenging research subjects. The main target is to set up long-term partnerships with leading R&D institutions by means of cooperation in projects.

For its inaugural project on Organic Photovoltaics (OPV), Bosch is collaborating with the Nanyang Technological University (NTU) School of Materials Science and Engineering, in order to decrease the cost of electrical energy gained from solar light. The research in this field of renewable energy is in line with Bosch's global goal to grow with technologies that protect the environment and conserve resources, and NTU's strength and expertise in organic electronics research.

Bosch will invest up to S\$30 million in a modern laboratory and high-tech equipment over the next five years. The new regional headquarters for research and engineering, headed by Dr. Christoph Treutler, Director of RTC-AP, will have about 30 associates; most of them research scientists with doctorates. The centre will also coordinate the two Asian research groups of Bosch which were set up in 2005 and located in Japan (Tokyo) and China (Shanghai).

Choice of Singapore & Bosch's Investment in the region

“We believe that the Asia-Pacific region has much untapped potential in the area of R&D and we foresee that the new regional headquarters located in Singapore will play a vital part in realising our research targets in this part of the world,” said Uwe Raschke, Bosch board member for Asia Pacific.

Bosch chose Singapore as a location due to its highly competent researchers backed by excellent universities and research institutes, its stable political and economic climate as well as its outstanding infrastructure. The Singapore Government’s strong support and efforts to establish the Republic as a hub for renewable energy is also considered a plus point.

“The establishment of RTC-AP is yet another significant milestone in the history of the Bosch Group in this country. Last year, Bosch set up its computing centre and IT R&D facility in Singapore to provide central IT services to more than 200 Bosch locations in Asia-Pacific and to offer global IT R&D expertise. We are confident that Singapore will continue to play a vital role in the growth path of the Bosch Group in the region,” said Cem Peksaglam, President and Managing Director of Robert Bosch (SEA) Pte Ltd.

" I am very glad that Bosch has joined the growing number of international companies that are finding it attractive to set up R&D operations in Singapore. Companies find Singapore an attractive R&D location because of our strong intellectual property rights protection, availability of good local and foreign talent as well as the ability to work together with our universities and research institutes. We hope more companies will follow Bosch's example in using Singapore as a ‘Living Laboratory’ - to test, prove, adapt and implement solutions in Singapore before exporting these to the rest of the world." said Mr. S. Iswaran.

Inaugural Project with NTU on Organic Photovoltaics – A Renewable Energy Source for the Future

In the inaugural project on Organic Photovoltaics (OPV), a new type of solar cells will be developed, based on organic semi-conductive materials, as a new alternative to generate electricity from light. In comparison to inorganic silicon-based solar cells which currently dominate the market, the production of the materials used in organic solar cells is not as energy-intensive. Due to its excellent light absorption qualities, organic-based solar cells can be deposited in ultra-thin layers by vapour deposition or by printing. As a result, organic-based solar cells can be manufactured more cost-effectively and with less impact on the environment.

“Organic solar cells as a renewable energy source present a project with great potential. The versatile nature of the organic solar cells offers a wide range of applications for example foldable cell phone chargers, handheld devices, or even building façade,” elaborated Dr. Felten, Bosch’s Executive Vice President of Applied Research & Production Technology.

While the potential of lowering production costs using OPV and its range of product applications are very attractive, the research targets are also quite challenging. Current samples of organic solar cells convert only five per cent of the available solar radiation into electrical energy. The project plan is to improve this energy-conversion efficiency up to 10 percent or more within three years.

RTC-AP’s collaboration with the NTU School of Materials Science is based on the faculty’s expertise in nanotechnology and materials science which will help to increase the service life of the solar cells. A group of eight PhD and 25 undergraduate students will support the research as part of their coursework. The NTU research team is led by Associate Professor Subodh Mhaisalkar, Head of Materials Technology within NTU’s School of Materials Science and Engineering.

“The collaboration with Bosch is at the heart of NTU’s policy of welcoming and promoting research collaboration with the World’s leading technology-based multi-national companies. As such, we are proud to host the Bosch Laboratory and colleagues on our campus,” said NTU Provost, Prof Bertil Andersson. “I am enthused about the presence of the Bosch team at NTU, especially working in the vitally important area of energy and sustainability - one of our own priorities. Like Bosch, we see this as a long term partnership which is especially important for both parties in the joint training and supervision of research students – who will provide the future research leadership in this vital area,” he added.

In its first year of operation, the RTC-AP will be housed at the NTU laboratories until its own laboratories at the new Robert Bosch regional headquarters at Bishan Street 21 are completed. The collaboration with the NTU is established as a long term partnership. Bosch is in the process of identifying further research subjects to be undertaken in Singapore and will extend the collaboration to other research institutes and partners.

Ongoing Commitment to Grow Green Technologies

Bosch has long been very active in the green technologies market; having developed many systems utilising renewable energies such as gear and drive technology for wind turbines. This year, Bosch made an offer to acquire ersol

Solar Energy AG which develops, manufactures and sells wafer-based silicon solar cells, and is moving into the manufacture of thin-film modules.

In 2007, Bosch and BASF Venture Capital GmbH each invested in the German start-up company Heliatek GmbH to develop new solar technologies. Heliatek specialises in the manufacture of new-generation organic solar cells. The company is working on an ultra-efficient technology to build large-scale modules on cheap, flexible substrates using a roll-to-roll production process and is also a research partner in the joint research project of BASF and Bosch.

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The Bosch Group is a leading global supplier of technology and services. In the areas of automotive and industrial technology, consumer goods, and building technology, some 271,000 associates generated sales of 46.3 billion euros in fiscal 2007. The Bosch Group comprises Robert Bosch GmbH and its more than 300 subsidiaries and regional companies in roughly 50 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. Each year, Bosch spends more than 3 billion euros for research and development, and applies for over 3,000 patents worldwide. The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering."

The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.

Additional information can be accessed at www.bosch.com.