

Press Release

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Fraunhofer Know-how for the ecological model city Masdar

The city of the future is currently being constructed on the outskirts of Abu Dhabi. Masdar City shall be supplied exclusively with renewable energy and produce neither carbon dioxide nor waste. Fraunhofer researchers are involved in the development of new technologies for planning and realising the ecological model city.

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On June 21, 2009, the Fraunhofer Gesellschaft and the Abu Dhabi Future Energy Company, representing the Masdar City Project, signed a cooperative agreement for a strategic partnership. The aim of the cooperation between the largest European institution for applied research and the ecological futuristic city in the Emirate of Abu Dhabi is firstly to found a joint project group. Over the long term the goal is to establish a close cooperation in the field of sustainable urban development and building planning. Participating in the cooperation are the Fraunhofer Institutes for Industrial Engineering IAO and for Building Physics IBP as well as the Fraunhofer Institute for Solar Energy Systems ISE.

“Coupling applied research with sustainability is one of the strengths of our Institutes,” says Prof. Hans-Jörg Bullinger, President of the Fraunhofer Gesellschaft. “Therefore it is of great mutual interest to bring Fraunhofer into the unique, future-oriented project of the eco-city Masdar. I am looking forward to a close strategic cooperation in this important field. This cooperation represents a milestone in the development of sustainable solutions for meeting the global challenges.”

“Our mission is to accelerate innovation in clean and renewable technologies and make these available and affordable on a global scale”, said Masdar CEO Dr. Sultan Al Jaber. “We believe global collaboration is essential to achieving this mission and our partnerships with MIT, DLR, Imperial College and the Tokyo Institute of Technology are proof of this. The collaboration with the Fraunhofer-Gesellschaft will also ensure Masdar plays a key role in the development of Abu Dhabi’s renewable energy sector; driving continual innovation and commercialisation of clean and sustainable energy technologies.”

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Masdar City is to be constructed on an area of approximately 6 square kilometres, located about 30 kilometres east of the capital Abu Dhabi. It is designed to support a population of about 50,000. The planned carbon-neutral city is to be supplied entirely by renewable energy, using systematic recycling techniques it is to be nearly waste-free and will have significantly reduced water consumption. Thanks to an underground transportation system, it is to have car-free streets.

As a first step, each of the participating Institutes sends one representative to form a project group in Masdar City with the goals of project acquisition and making preparations for the founding a Center. Further, the possibilities of creating a joint institute for sustainable urban development shall be examined. It is striven to establish a close cooperation with the Masdar Institute of Science and Technology, which is currently being constructed. Existing contacts and on-going projects, especially with the ISE were the basis for starting the strategic cooperation. "To initiate rapid change from our present energy supply system to one based on renewable energies, we need ambitious examples. The construction of a world-wide exemplary concept for sustainable urban planning within this initiative will have global impact, and we are looking forward to make a substantial contribution to this project", says Prof. Eicke R. Weber, Institute Director of ISE, who, as the representative for the Fraunhofer Gesellschaft, signed the Memorandum of Understanding.

Presently Fraunhofer ISE is working on first projects with Masdar in the field of solar climatization as well as solar-thermal process heating. Three spin-off companies of ISE, Mirroxx, Concentrix Solar and Solar Spring, have already established contacts in Masdar.

Solar energy with its wide variety of application fields is a central focus of the cooperation. Similar importance will be placed on sustainable technologies such as energy efficient buildings, sustainable natural resources, desalination technologies, intelligent electricity supply concepts, electro-mobility, simulations of architecture and engineering and sustainable behaviour. Also, design projects based on virtual reality concepts are in planning. In such processes planners, users and visitors can collectively plan and experience the zero-carbon city already during the design phase using the Virtual Reality Software developed by IAO. This software provides efficient support for the complex planning processes and allows the customers and visitors to

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experience the city by means of impressive real-time computer graphics. In parallel, researchers from IBP, who hold experience in building in extreme climates, will demonstrate the possibilities for increasing both the comfort and the energy efficiency in the planned buildings.

At the beginning of the cooperation between Fraunhofer and Masdar City, the focus is on consulting, feasibility studies, and setting up test centers. The German industry, which holds the leading market position worldwide in many relevant areas, will be included in the project.

The **Fraunhofer-Gesellschaft** is the leading organization for applied research in Europe. Its research activities are conducted by 57 Fraunhofer Institutes at over 40 different locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of around 15,000, who work with an annual research budget totaling 1.4 billion euros. Roughly two thirds of this sum is generated through contract research on behalf of industry and publicly funded research projects. Branches in the USA and Asia serve to promote international cooperation.