

'MD-E4' to enhance attractiveness and quality of life



With the official title 'MD-E4: Magdeburg – Energy Efficient City – Model City for REnewable Energies' the capital of Saxony-Anhalt intends to improve its attractiveness as a likeable city with a high quality of life at the same time as saving costs at a public level and in private households. Among more than 70 towns and cities which applied for financial support as a model city in the competition organised by the Federal Ministry of Education and Research, Magdeburg emerged as one of the five winners.

The Investment and Marketing Corporation Saxony-Anhalt (IMG) talked to Coordinator Volker Krüger of the Gesellschaft für Wirtschaftsservice Magdeburg mbH (Society for the Economic Advancement of Magdeburg) and Dr. Eng. Zoran Jovanovic of the Institute for Logistics and Material Flow Technology (ILM) at Otto-von-Guericke-University, Magdeburg about the path to becoming an energy efficient model city.

IMG: What were the deciding parts of your concept that convinced the jury to choose Magdeburg as one of the winners in the national federal competition? The MD-E4 is receiving approximately five million Euros to develop economically sound proposals for action by 2016.

Volker Krüger: Our concept convinced primarily due to its cross-discipline approach. Magdeburg wants to take the path to becoming an energy-efficient model city with four partners by its side: The Otto-von-Guericke-University Magdeburg, the Fraunhofer Institute for Factory Operation and Automation (IFF), Magdeburg-Stendal Technical University and ifak - the Institute for Automation and Communication e.V. Magdeburg. Together we are looking for solutions to cut CO₂ emissions and reduce our energy consumption.

Zoran Jovanovic: Another point that speaks in our favour: we also want to achieve energy efficiency through the use of renewable energies.

IMG: The research project has been up and running since spring 2011. Do you now have specific ideas with concerning the involvement of renewable energies?

Volker Krüger: Scientists are developing an innovative geothermal procedure. You have to imagine it along these lines: In the winter the soil gives off warmth for heating buildings and is simultaneously frozen. In the summer the heat can be conducted into these storage reservoirs to cool the rooms.

Zoran Jovanovic: In addition to this, scientists are also examining the realisation of a biomass power station in Magdeburg. A large quantity of pure biomass with wood and grass cuttings is gathered during the maintenance of local parks and cemeteries.

IMG: By 2020, your concept plans to reduce CO₂ emissions by roughly 25 per cent compared with 2007. What paths can lead to this goal?

Volker Krüger: A lot of CO₂ is emitted by road traffic. A modern form of traffic management can bring about a considerable reduction in this context. With some of the financial support money an environmentally oriented traffic management unit is to be installed by 2016. With the aim of optimising traffic flow, on the basis of online data in the 'intelligent' computer software, strategies for traffic light control will be stored in specific scenarios which can then be recalled before and after big events in the city, in the event of traffic holdups due to construction sites, and in the case of high traffic levels after accidents on the motorway, for instance, which result in diversions through the city.

Zoran Jovanovic: The construction of a mini distribution centre for inner city delivery traffic can also contribute to a reduction of CO₂ emissions. In practice this would mean that before entering the city, goods would be reloaded from Diesel trucks onto electrically powered 3,5 tonne transporters with integrated batteries. These electrical transports have several advantages: they are quiet and do not have any emissions which means that in contrast to HGVs they are permitted to travel in road traffic at all times.

IMG: It will not be possible to achieve the goal of cutting end energy consumption by at least 20 per cent compared with 2007 without the help of the local population. How will it be possible to encourage them to act in an energy saving way?

Zoran Jovanovic: We have a research group for environmental psychology at our university. This plays an advisory role together with the Municipal Utilities Magdeburg (SWM) and the consumer advice centre to optimise the saving of energy in private households. It will also support and advise the traffic management unit from an environmental-psychological perspective.

Volker Krüger: And it will also check the extent to which the fifty-fifty project can be extended from schools to include youth clubs, authorities, companies and old aged peoples' homes.

IMG: What does the fifty-fifty project entail?

Volker Krüger: Different partners give school students practical introductory training in saving energy. Ideally the children and young people will then pass on their knowledge to members of their families. As a reward for their

environmentally conscious behaviour the schools are then returned half of the money that they have saved by the local council. This money can finance, for example, parties or excursions in addition to measures for saving further energy.

IMG: Many of the proverbial paths can be seen to lead to the MD-E4 goal. Some are highlighted here. They also include, however, the decentralised automation of the electrical power networks and load management systems, the construction of a science centre for renewable energy and, of course, the development of a controlling system. What will be available, exactly, at the end of the research project in 2016?

Zoran Jovanovic: Each step of the MD-E4 project will be continuously measured in detail on the basis of key performance indicators so that the progress of the MD-E4 project is continuously documented both according to the individual measures and as a whole. The measures will be tested for their practical suitability.

Volker Krüger: A final report is set to be available in 2016. This will provide a decision-making basis for local politicians and private investors alike. The latter group, in particular, will use the energy-efficient city of Magdeburg as a model city.

Zoran Jovanovic: Certain parts of the research project should have been realised by then, such as the key figures controlling system and the traffic management unit.

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