INTERGEO 2016 UPDATE

BACKING THE GREEN ENERGY REVOLUTION

THE TOPIC OF RENEWABLE ENERGY, SELDOM FAR FROM THE HEADLINES, WILL BE WELL TO THE FORE AT INTERGEO 2016. DANIEL KATZER EXPLAINS WHY

When it comes to gauging the potential of development sites, or the planning and maintenance of transport or utility infrastructures, the key to success lies in geodata. Alongside headline topics such as Big Data, BIM (Building Information Modelling) and Smart Cities, this year's INTERGEO (www.intergeo.de) will be showcasing applications and networked solutions for the intelligent use of energy.

The consistent use of renewable energies and the phasing-out of nuclear energy present numerous challenges that geoinformation can help solve more easily. One example can be found in energy generation and where appropriate sites for wind, hydro or solar power plants can be identified, planned, simulated and maintained by adding geodata into the mix. Energy distribution can be streamlined in the same way – after all, most energy is not required at the point where it's generated.

Enormous challenges
Almost half of the world's population already lives in cities, and the United Nations calculates that those living in mega-cities will rise to 70 percent by the year 2050. This confronts planners with enormous challenges. Ultimately, the mobility, energy and social infrastructures will need to provide a liveable environment for the growing urban and shrinking rural populations. INTERGEO will be showcasing simulation projects that reveal how energy provision will need to be structured for the urban districts of the future. Here, the focus is on current and projected energy requirements, how consumption can be influenced, and finding the right energy mix.

Calculating the need
3D geodata can be used to calculate electricity requirements, such as for heating/cooling or lighting, and then visually represent the results. A precise analysis of energy requirements reveals the potential for decentralised provision using renewable energies and flags up their limitations, e.g., where supplementary power will be required from the grid. The calculation matrix is based on intelligent 3D city models and demonstrates potential scenarios for load management, storage dimensioning and projected requirements in the city.

"Intelligent consumers"
BIM and the Smart City both aim to network buildings and cities and to manage them intelligently using information technology so as to make them fit for the future economically, socially and ecologically. In different ways, BIM and Smart Cities are two sides of the same coin – boosting the quality of urban living using information and communications technology (ICT) and balancing the economic and ecological management of buildings.

Transparency
The energy revolution also acutely raises the issue of citizen participation regarding, for example, the siting of wind turbines, and where people want to be consulted. The process can be made more transparent using the software exhibited at INTERGEO 2015 by the Fraunhofer Institute for Computer Graphics Research (IGD). This uses a 3D simulation to represent how a proposed energy farm will look, as well as demonstrating its effect on the landscape, local residential areas and any tourist attractions or cultural facilities. One thing is clear – it won't make the decisions about where to site potential energy farms any easier, but it will make them more well-reasoned and transparent.

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