

Small is beautiful – scientist proposes new efficient and eco-friendly power plants

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Power plants of the future may be designed to provide electricity solely for an individual housing estate, village, factory or college. That's the prediction of University of Southampton engineer Dr Tom Markvart.

He claims large-scale systems of electricity generation used at present waste considerable amounts of energy by producing unwanted heat. It is also difficult to incorporate environmentally-friendly sources of energy such as wind farms and solar panels because of their intermittent and unpredictable outputs.

Dr Markvart, of the University's School of Engineering Sciences (SES), is advocating the development of microgrids to provide a stable and reliable power supply from various energy sources. Small-scale generating equipment sited close to the eventual energy users could act as a stand-alone source of power, especially in remote areas, or be linked to the national grid. Energy storage devices would provide extra power at times of high demand. The proximity to customers would help boost energy efficiency to around 80 per cent compared to 35-40 per cent for a conventional generation system.

'In the long term, microgrids offer the promise of substantial energy savings and reduction in emissions, without a major change in our lifestyle,' said Dr Markvart.

Initiatives to test small-scale energy generation are already underway. They include the former Mont-Cenis coal mine in Germany, where a



microgrid powers an academy, hospital and nearby housing. Ecologicallyfriendly ways of energy production include the Southampton Geothermal Project, which uses hot water from deep beneath the city.

Dr Markvart's research appears in the latest edition of the Royal Academy of Engineering's Ingenia magazine. The research was carried out in collaboration with, amongst others, Dr Suleiman Abu-Sharkh (SES) and Dr Neil Ross (School of Electronics and Computer Science), both also at the University of Southampton.

Source: University of Southampton

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