Smart grid lighting test-bed sees up to 45% energy savings

by Esther Ng

SINGAPORE - A smart office is one which uses less energy, where wireless sensors placed on workstations and personal computers "talk" to each and relay information about the room back to a computer or base station, which then "tell" individual LED lights installed on the ceiling how much to light up, dim or switch off.

Such a smart grid lighting system can result in energy savings of some 45 per cent compared to conventional fluorescent lighting.

Yesterday, the Nanyang Technological University (NTU) announced a tie-up with JTC Corporation and Royal Philips Electronics to develop a smart lighting test-bed that will be the largest of its kind in Singapore.

Test-bedding at NTU's Energy Research Institute (ERI@N) has gone on for a year and, based on test results, LED panels lead to energy savings of up to 30 per cent over fluorescent lights, while the smart grid contributes up to an additional 15 per cent.

"Unlike fluorescent lighting, the luminance of light-emitting diode (LED) can be varied and, therefore, more energy saved," said Dr Tan Yen Kheng, an ERI@N research fellow.

For example, if the blinds are up and natural light is streaming through, the lights near the window will not be lit, but the rest of the room will.

In January, NTU and Philips will be test-bedding a low-voltage direct current grid network at JTC's CleanTech Park. During the day, solar cells will generate electricity for lighting and excess electricity will be used to generate hydrogen and stored for use by a fuel cell system in the night.

The consortium declined to reveal the cost of investment in the test-bed. ERI@N executive director Subodh Mhaisalkar said there are plans to install wireless sensors and control systems at the CleanTech Park in June. Testing will start soon after, he added.