

Getting rid of humidity can cut air-con bill

Scientists here plan to use silica gel to reduce air-con's power usage

BY LIAW WY-CIN

ONE reason that air-conditioners are such big energy guzzlers is that Singapore's humid air has to be cooled before the moisture can be removed.

To make air comfortably dry, the machines have to first chill it from about 30 deg C to 8 deg C, when the moisture condenses into water that can be drained away. This air, now far too cold for people, is warmed again to, say, a cool 22 deg C.

A group of scientists here is working

on a way to remove the humidity that will do away with the excessive chilling, cutting energy usage by 40 per cent in the process.

The team, led by Professor Joachim Luther, chief executive of the Solar Energy Research Institute of Singapore, plans to have a prototype ready in two years.

The group's idea is to pass air through a box lined with silica gel – a moisture-absorbing substance commonly used to keep items such as camera parts and packaged food dry – so the air does not have to be cooled first. Solar energy, or waste heat from motors and generators in the air-conditioning unit, could be used to dry the silica gel for reuse.

The project is one of eight, by tertiary institutions and the company DuPont Apollo, awarded a total of \$15 million by



Professor Joachim Luther, CEO of the Solar Energy Research Institute of Singapore, and his teams have won two EDB grants to devise new clean technologies. ST PHOTO: ALBERT SIM

the Economic Development Board (EDB) yesterday. The other projects deal mainly with customising solar technologies for the tropical climate.

One problem with current solar technologies is that they were developed to

work in temperate climates, and the efficiency of solar cells drops with temperatures above 25 deg C.

Prof Luther, who has been awarded one other grant to customise solar technologies for the tropics, said: "Manufac-

Solar energy, or waste heat from motors and

generators in the air-conditioning unit, could be used to dry the silica gel for reuse.

turers give a 20-year warranty, but under tropical climate conditions, where temperatures and humidity are higher, we don't know if they will last that long."

His institute is trying to design solar cells that work well in the tropics.

Engineers, Professor Andrew Tay from the National University of Singapore (NUS) and Dr Jiang Fan from the Singapore Polytechnic, also won an EDB grant to develop a solar unit that can generate both electricity and heat – say for water heaters – that works well in the local climate. The team is planning to install a unit at an NUS hostel to road test it.

Clean technology – which looks at products and services that improve efficiency while reducing cost, energy consumption waste or pollution – has been identified as a new economic pillar for Singapore. Almost \$700 million in total has been set aside, over five years, to support research and development in clean energy, the environment and water.

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