

Gifu University

Mitsubishi Heavy Industries Thermal Systems, Ltd.

## **Gifu University and Mitsubishi Heavy Industries Thermal Systems Form Joint Research Program Partnership**

### **-- Focus on Smart Grid Power Control Engineering --**

Gifu, December 19, 2017 – Mitsubishi Heavy Industries Thermal Systems Co., Ltd. (MHI Thermal Systems) has become the first partner in a new scheme by Gifu University to initiate joint research in partnership with the industrial sector. The university concluded an agreement with MHI which will focus on joint-research into smart grid power control engineering.

#### **Background to the New Program**

The latest program was established in April 2017. It has been developed to ensure that research and instruction is maintained on an ongoing basis, and that courses for specific areas of engineering and manufacturing are established. Under the new scheme, research topics are selected that match the businesses providing course funding, and ownership of any resulting intellectual property is made available to the sources of the endowment.

#### **Future Smart Grid Research**

With the increased adoption of solar and other natural energy sources in the years ahead, there is concern about the difficulty of maintaining an instantaneous supply/demand balance in power networks. In addition to solutions such as the use of storage batteries, new technologies are expected to help maintain the balance in the smart grids of the future by means of power control systems that cover users spread across a wide area.

One promising candidate, from the perspective of power consumption volume and operating flexibility, is air-conditioning in large office buildings. The key future-oriented technology here is precision control of the power consumption of an enormous number of air-conditioning units installed across a wide area, while ensuring constant comfort.



[Research wing at Gifu University, site of the forthcoming collaborative study courses]



[Mitsubishi Heavy Industries Thermal Systems' multi-system air-conditioner for office buildings]

### **Objectives of the Joint Research Study Course**

MHI Thermal Systems has a long history in multi-system air-conditioning technologies for office buildings, while Gifu University's Next-Generation Energy Research Center has a strong track record in researching smart grids and air-conditioning power demand. In preparation for the coming era of smart grids, the two partners will collaborate in developing technologies for achieving air-conditioning power control optimal for both networks and users.

By integrating the open ideas fostered within the university and the practical experience of a leading manufacturer, the two partners will aim for a collaborative system capable of bridging the gap between research and application. A further objective of the new course program will be to educate graduate students—including doctoral candidates and foreign students in doctoral programs—to ensure that tomorrow's engineers are thoroughly well versed in air-conditioning systems and smart grids.

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