

## Hybrid Test Facilities of Demand Area Power System

**Purpose:** To identify problems for controlling and protecting the distribution system and to examine conventional technology are purposes of the test facilities, in the case when a lot of dispersed power sources are connected to the distribution system.

To establish basic technology of “Demand Area Power System”, proposed by CRIEPI with the aim of increasing amount of dispersed power sources, is another purpose.

### Main Specifications:

- (1) It is the largest full-scale test facility of distribution system in Japan.
- (2) It can be configured as radial and loop-shaped lines to simulate various shaped distribution lines in Japan.
- (3) It contains actual equipments or simulators of dispersed power sources, such as synchronous generators (co-generation), induction generators (wind power), photo voltaic systems, fuel cell systems, batteries and gas turbine generators.

- (4) The dispersed power sources are installed in four places.

Total capacity of the dispersed power sources is 950 kW, which is about 50 % larger than that of transformers.

- (5) It contains real-time simulator to simulate higher voltage lines and other distribution lines. Furthermore, conversion equipment (BTB) is installed to connect the real-time simulator and the test distribution system.

Therefore, behaviour of larger systems can be tested.

### Location and Date of Installation

Akagi Test Center, April 2003



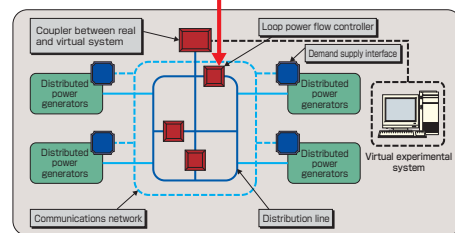
Loop power flow controller (pilot type)



Synchronous generator



Induction generator



Hybrid test facility of demand area power system (Akagi test center)