Press Release

早稲田大学

*Press release: 11/1 opening ceremony complete

To Members of the Press

October 19, 2012

Waseda University

Ministry of Economy, Trade and Industry

Testing begins at the Energy Management System (EMS) Shinjuku Demonstration Center

Work towards a Japanese ADR standard

Waseda University and the Ministry of Economy, Trade and Industry (METI), have set up a new set of servers at their EMS Shinjuku Demonstration Center to handle DR signals over networks such as the internet. This will contribute to development of communication standards which are crucial to expanding aggregator operations and linking electricity utilities, aggregators and consumers with Automated Demand Response (ADR) systems. The servers are linked with the Japanese ADR standard, which was developed by the METI-led Smart House/Building Standardization and Business Promotion Study Group's Demand Response Task Force, and based on the OpenADR standard currently under development in the United States.

As part of the testing program, proving of the Japanese ADR standard has begun in cooperation with DR business between electric utilities and aggregators as well as the 4-Region (Yokohama City, Toyota City, Keihanna, Kitakyushu City) demonstration project.

In 2012 Waseda University's Research Institute for Advanced Network Technology (Director: Professor Yasuhiro Hayashi, Faculty of Science and Engineering) and the METI established the "Energy Management System (EMS) Shinjuku Demonstration Center" within Waseda University. At this facility, as the first attempt of its kind in Japan, low-voltage equipment from a variety of different manufacturers can be inked together using telecommunications standards for optimal energy management and control, and their coordination with smart meters and demand response systems can be verified.

Mutual coordination of equipment including smart meters, solar cells, electric vehicles, charging/discharging devices for electric vehicles, fuel cells, heat pump water heaters, air conditioning equipment, and storage batteries can be controlled mutually linked within the facility. Through optimal indoor control, electric power can be controlled in real-time within the range of contract amperes, and technology will be developed to, for example, automatically suppress power usage during time periods with high electricity rates (peak cuts/peak shifts). Although power shortages are a major source of concern after the Great East Japan Earthquake, control technology such as this would enable houses and buildings equipped with smart meters and Home Energy Management Systems (HEMS) to achieve energy conservation within reasonable limits even in times of highly stringent power supply and demand. It is also believed that this could help avoid scheduled blackouts and support requests for energy conservation.

[Sender] Information and Public Relations Section, Office of Information and Public Relations, Waseda University; Representative: Ryoehi Matsuoka

5pgs. total

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Energy Management System (EMS) Shinjuku Demonstration Center

- Research joining industry, academia, and government, to develop demand response technology using telecommunications standards
- Developing technology linking smart meters to control electric power peak cuts/peak shifts in real-time for smart houses, buildings, etc.

On November 1, 2012, the Research Institute for Advanced Network Technology (Director: Professor Yasuhiro Hayashi, Faculty of Science and Engineering) in Waseda University's Organization for University Research Initiatives established the "Energy Management System (EMS) Shinjuku Demonstration Center[1]," an industrial, academic and governmental research and development facility. This project was one of the activities of the Ministry of Economy, Trade and Industry's Smart House/Building Standardization and Business Promotion Study Group, together with 26 industry-wide corporations including electric and gas utility companies, telecommunications carriers, housing manufacturers, automobile manufacturers, and energy equipment/home appliance/telecommunications equipment manufacturers.

The Center provides platforms for testing and evaluating demand response control technology using telecommunications standards. By testing interconnections between different manufacturers's equipment and verifying various types of technology from related domestic corporations, proposals are being made to achieve Japan's goals for standardized demand response technology frameworks, while also striving to support the industrialization of individual companies.

Together with further future expansion of aggregator businesses, many servers will be installed at this Center, for the transmission and reception of DR signals via the Internet and other telecommunications networks ("Utility DRAS (VTN; Virtual Top Node)," "Utility DRAS (VEN; Virtual End Node)," and "Aggregator (DRAS)" in the Figure). This will contribute to the standardization of signal transmission inevitably required for ADR (Automated Demand Response), which links together electric utility companies, aggregators, and customers. Transmission of DR signals between these servers will employ Japanese versions of standardized ADR methods based on OpenADR, an ADR standard currently under development in the United States, and formulated by the Demand Response Task Force（DR-TF） of the Smart House/Building Standardization and Business Promotion Study Group hosted by the Ministry of Economy, Trade and Industry. Furthermore, in external telecommunications environments, security will be ensured and servers, HEMS, and other equipment from differing manufacturers can be combined in a variety of configurations, to construct a DR-compatible telecommunications network environment capable of confirming interconnections.

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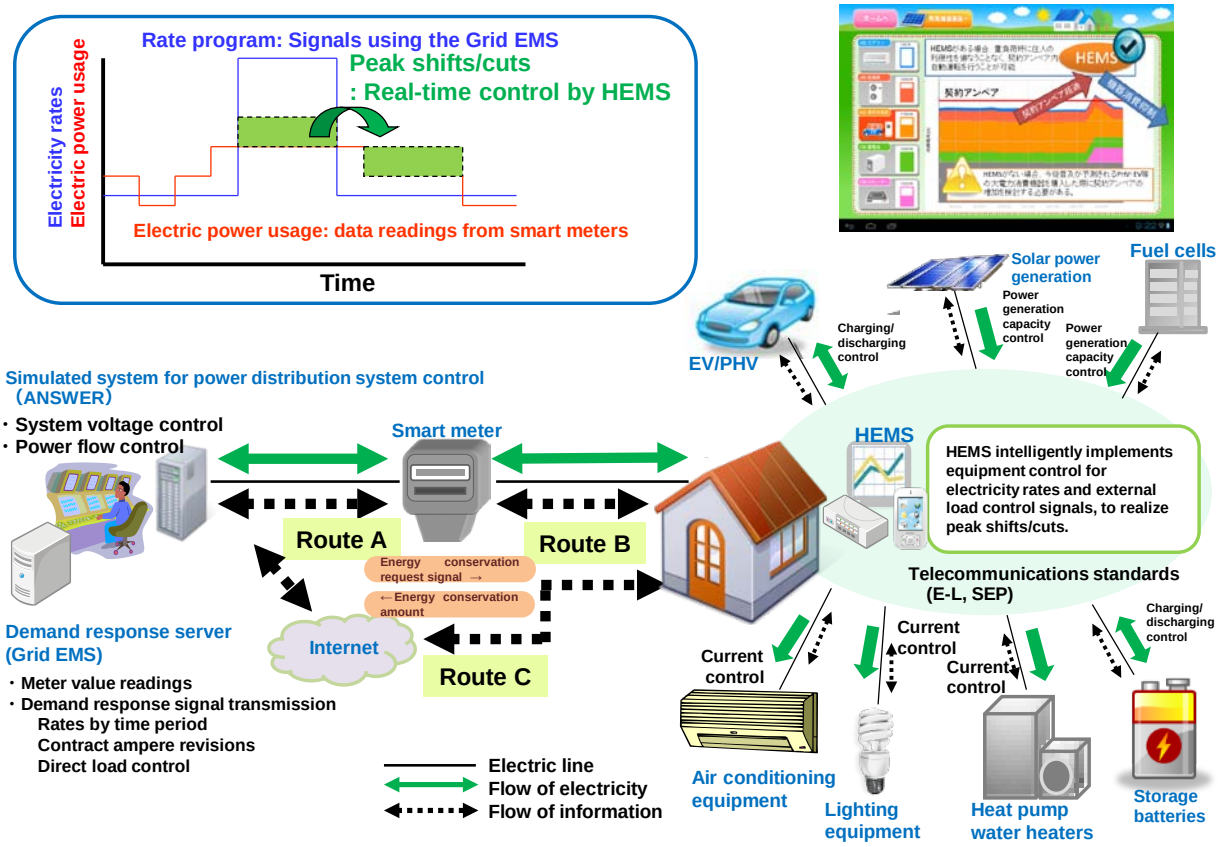
<Testing participant corporations>

Testing Platform Concept



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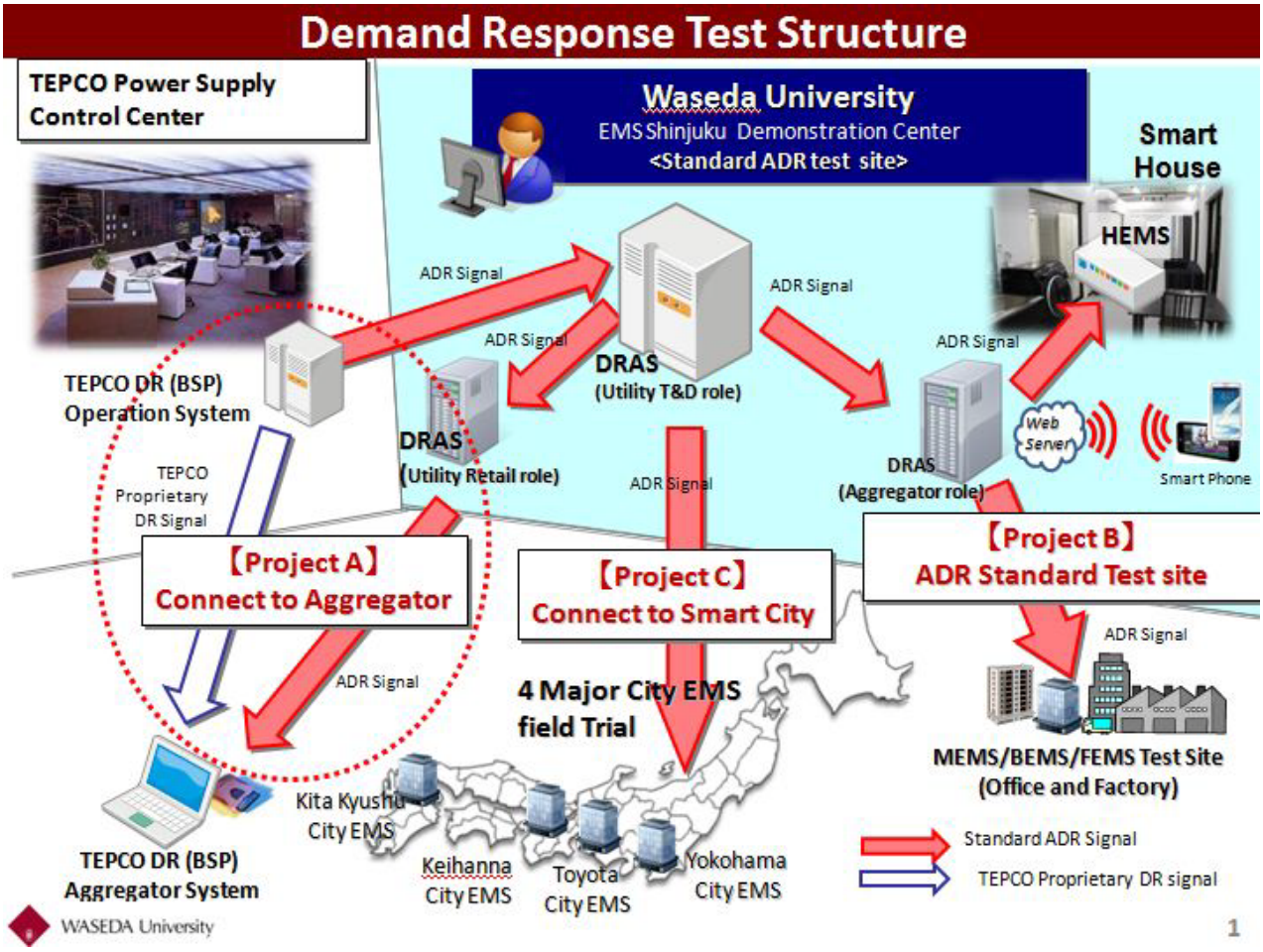

<Results Expected>

The technology whose development has started at the EMS Shinjuku Testing Center is the first attempt in Japan. It is able to use telecommunications standards to connect to equipment from differing manufacturers, including smart meters whose usage is expected to spread in the future, as well as solar cells, electric vehicles, charging/discharging devices for electric vehicles, fuel cells, heat pump water heaters, air conditioning equipment, and storage batteries, in response to energy saving request signals sent from electric utilities, while also carrying out optimal control using HEMS and intelligently saving energy according to demand/supply conditions and electricity rate systems. Specific examples include technology to perform real-time control of the above types of equipment so that they can manage within contract amperes, and technology to automatically suppress electrical usage during time periods with high electricity rates (peak cuts, peak shifts). Also, even in instances of highly stringent demand and supply conditions, or in situations where implementation of scheduled blackouts is necessary, it is believed that use of this technology could aid in resolving those conditions or preventing scheduled blackouts by enabling energy saving in houses and buildings within reasonable limits. Verification of this technology will furthermore contribute to the construction and verification of domestic standardized demand response methods.

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<Overview of testing plans>

At the Demonstration Center, telecommunications and control environments for energy management systems with integrated connections to demand response servers (hereafter, Grid EMS), simulated systems for power distribution system control (ANSWER), smart meters, HEMS, and energy equipment, are being constructed. Under these environments, HEMS implementing telecommunications standards (ECHONET Lite[2], SEP, etc.) will be used to test and evaluate demand response technology such as electric power peak cuts and peak shifts. Part of this will include coordination with DR businesses and 4-region testing (Yokohama City, Toyota City, Keihanna, Kitakyushu City) between electric utilities and aggregators, and verification of Japanese-version standardized ADR (Automated Demand Response) methods.

Through efforts such as these, standardized frameworks to achieve Japan's goals for demand response technology will be developed and proposed in the future.

<Testing participant corporations>

Ministry of Economy, Trade and Industry; Asahi Kasei Homes Corporation; Ad-Sol Nissin Corporation; Osaka Gas Co., Ltd.; Omron Corporation; The Kansai Electric Power Co., Inc.; KDDI Corporation; Kyushu Electric Power Co., Inc.; Sharp Corporation; Sumitomo Electric Industries, Ltd. ; Daikin Industries, Ltd.; Chubu Electric Power Co., Inc.; Denso Corporation; Tokyo Electric Power Company, Inc.; Tokyo Gas Co., Ltd.; Toshiba Corporation; Toyota Motor Corporation; Nissan Motor Co., Ltd.; Nippon Telegraph and Telephone Corporation; NEC Corporation; Panasonic Corporation; Hitachi, Ltd.; Fujitsu Limited; Mitsubishi Motors Corporation; Mitsubishi Research Institute, Inc.; Mitsubishi Electric Corporation; Waseda University

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[1] This project is implemented by this educational institution with the aid of the Ministry of Economy, Trade and Industry's "Research Program on Connection and Control Technology for Energy Management System Standardization."

[2] Standard recommended by the Smart House Standardization Study (http://www.echonet.gr.jp/)

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