

Electric power condition of Wako campus in 2013

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The monthly electrical power consumption data for RIKEN Wako campus (Wako) and RIKEN Nishina Center (RNC) and the energy supply by the cogeneration system (CGS) are shown in Fig.1. The hourly electrical power consumption of RNC in 2013 is shown in Fig.2. The annual data of energy supply and consumption in 2013 is listed in Table 1. The total electrical power consumption of Wako in 2013 was 143,508 MWh, which was 14% lower than that in 2012. On the other hand, the total electrical power consumption of RNC in 2013 was 55,820 MWh, which was 32% lower than that in 2012. When the RI Beam Factory (RIBF) experiments using the uranium (²³⁸U) beam were conducted, the maximum electrical power supply to Wako from Tokyo electric power corporation (TEPCO) reached 21.00 MW with a CGS output of 4.00 MW on May 24, 2013, and the maximum electrical power consumption of RNC reached 16.8 MW on April 26, 2013.

A complete overhaul of the gas turbine of the CGS #1 after 24,000 h of operation was carried out between February and March 2013. After that, an inspection of the gas turbine of the CGS #1 after 4,000 h of operation was carried out in August 2013.

We experienced the following problems during the reporting period. The absorption chillers of the CGS #1 had problems, such as corrosion of the surface of the heat transfer tube. Therefore, work for replacing two markedly impaired absorption chillers is currently in progress by the manufacturer since December 2013, and the work is to be completed by the middle of February 2014. We had a short interruption in power twice, in July and August 2013, due to thunderbolts. Earth leakages also occurred 21 times. However, the origin of most of those leakages was unexplained.

Table 1 Annual data of energy supply and consumption in 2013.

	Total	Unit	Note	% of 2012
Wako purchase	125,923	MWh	Total electrical power supply to Wako from TEPCO	91%
Wako consumption	143,508	MWh	Wako electrical power consumption (CGSs + TEPCO)	86%
RNC purchase	43,278	MWh	Total electrical power supply to RNC from TEPCO	76%
CGS #1	12,542	MWh	CGS #1 total electrical power output	49%
RNC consumption	55,820	MWh	RNC total electrical power consumption	68%
CGS #1 thermal	32,696	tons	RNC total thermal power	74%

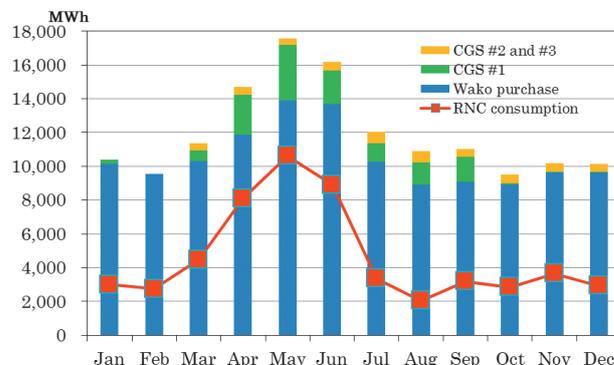


Fig.1 Monthly electrical power consumption and energy supply by CGSs in 2013.



Fig.2 Hourly electrical power consumption of RNC in 2013.

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