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# Survey on Improper Cases of our Gas Insulated Switchgear

In the "Improper Quality Control Incidents" we announced on August 27, 2021, that we had conducted improper tests and reports on partial discharge tests, which are part of the acceptance tests (tests to be conducted at the time of shipment to customers), on two products of the cubicle type gas-insulated switchgear (C-GIS)<sup>\*1</sup> and gas-insulated switchgear (GIS)<sup>\*2</sup> manufactured at our Oyama Plant

Subsequently, we continued to investigate whether the necessary test items were properly inspected for the type tests (performance verification tests at the development stage) and acceptance tests of the two target products and completed them. As a consequence, we have newly found that the main circuit resistance is being inspected in a manner that differs from the compliant standard JEC-2350  $^{*3}$ .

We deeply apologize for causing great inconvenience and concern to our customers and related parties

- \*1 C-GIS: Cubicle-type Gas Insulated Switchgear
- \*2 GIS: Gas Insulated Switchgear
- ※3 Standards defined by the Japanese Electrotechnical Committee of the Institute of Electrical Engineers of Japan.

## **1.Target products**

Target products are as follows.

Product name	Туре	Applicable standards <sup>*1</sup>	Year of manufacture	Quantity
72/84kV Cubicle-type Gas Insulated Switchgear (C-GIS)	70CGR-G1 70CGR-G2	JEC-2350-1994 JEC-2350-2005	2000 ~2021	470 Box <sup>*3</sup>
72/84kV Gas Insulated Switchgear (GIS)	*2	JEC-2350-1994	1997 ~2021	692 Line
120 kV, 168kV Gas Insulated Switchgear (GIS)			1994 ~2021	85 Line

×1 Applicable standards for products are indicated on delivery specifications, test results, equipment name

plates, etc.

- %2 GIS is a complex device composed of several devices, such as a circuit breaker, disconnect switch, and ground switch. Therefore, there is no overall model type.
- ※3 Includes 7 boxes (1 customer) of 36kV C-GIS according to JEC-2350 as specified by the customer.

### 2. Overview of newly discovered inappropriate tests

C-GIS and GIS compliant standards JEC-2350 of our company stipulate that the main circuit resistance measurement in the acceptance test should be performed before and after the open/close test. However, the open/close test "before" was not measured, and only the open/close test "after" was measured, and the measured values were listed on the test report.

#### 3. Integrity of Target Products

For the target product, the main circuit resistance value is measured before and after the open/close test in the type test at the development stage, and it is confirmed that there is no significant change between the measured values before and after the open/close test. In addition, although the main circuit resistance measurement has not been conducted before the switching test in the acceptance test, we have confirmed the soundness of the product by comparing the actual measured values after the open/close test with the actual measured data during the type test to confirm the presence or absence of anomalies during manufacturing. There are no accidents have been confirmed to have resulted from this incident.

We are explaining the facts that are known at the moment to customers who have delivered the target product. In the future, we will consult with our customers and conduct inspections as necessary

For products shipped after the findings of the incident, tests based on the compliant standards are properly conducted before shipment.

### 4. Policy for future actions

We have organized an investigation team consisting mainly of the Internal Audit Department, which is not directly engaged in the development, manufacture, and inspection of the target product, at the Emergency Response Headquarters (Chief Officer: Takashi Ichinose), which was established on August 24, and are investigating the cause of this incident, etc. We are also proceeding with a comprehensive inspection survey on the presence or absence of similar incidents with respect to other products. As soon as the results of these surveys are compiled, we plan to announce them together with the causes and measures to prevent a recurrence. We consider this inappropriate test to be an extremely serious problem because of its quality policy of "safety and quality first," "customer-oriented," and "rule observance," which undermines our relationships of confidence with customers and society. We will formulate and deploy drastic measures to prevent recurrence on a company-wide basis in areas such as quality control systems, corporate culture and cultural environment, and human resource development.

At this time, there is no revision of the forecast for the current fiscal year. In the future, we will announce it as soon as possible if it is expected to have an impact.