NERC has identified a potential trend of 345 kV SF6 puffer type breakers failing. High voltage circuit breaker failures are one of the leading contributors to severe disturbances on the Bulk Electric System (BES). Circuit breaker failures, in conjunction with another fault, may lead to more BES Facilities removed from service than required to clear the original fault. This poses a risk to the reliability of the BES. Attached is a Manufacturer’s Maintenance Advisory that was issued in 2010 by Hitachi HVB, Inc., (formerly HVB AE Power Systems, Inc.). The purpose of this Advisory is to alert the industry to this trend of breakers failing and to help inform the industry of the Manufacturer’s Maintenance Advisory.

**Why am I receiving this?**

About NERC Alerts

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**Status:**

No Reporting is Required – For Information Only

**PUBLIC:** No Restrictions

More on handling >>

**Instructions:**

NERC Advisories are designed to improve reliability by disseminating critical reliability information and are made available pursuant to Rule 810 of NERC’s Rules of Procedure, for such use as your organization deems appropriate. **No particular response is necessary.** This NERC Advisory is not the same as a Reliability Standard, and your organization will not be subject to penalties for a failure to implement this Advisory. Additionally, issuance of this Advisory does not lower or otherwise alter the requirements of any approved Reliability Standard, or excuse the prior failure to follow the practices discussed in the Advisory if such failure constitutes a violation of a Reliability Standard.

**Distribution:**

Initial Distribution: Generator Operator, Generator Owner, Transmission Operator, Transmission Owner

Who else will get this alert? >>
### What are my responsibilities? >>

**Primary Interest Groups:**

**Advisory:**
All recipients of this Advisory should review their inventory of circuit breakers to determine if this Manufacturer’s Maintenance Advisory should be performed based on each company’s unique situation and individual maintenance policies.

**Background:**
NERC has reviewed nine 345 kV breaker failures affecting both generation and transmission facilities. Six of these failures have occurred within the past year. From these reviews, NERC has identified a potential trend of 345 kV SF6 puffer type breakers failing. A SF6 puffer type breaker compresses a bellows when opening, directing SF6 gas across the parting contacts to extinguish the arc. The SF6 gas is directed across the contacts via a nozzle. The reports indicate a potential trend with respect to a separation of the nozzle from its point of attachment. In most cases, the nozzle has been found lying on the tank floor. Hitachi HVB, Inc (formerly HVB AE Power Systems, Inc.) issued a Maintenance Advisory on the affected model of breaker in 2010. The manufacturer has indicated that there were approximately 1,000 of these breakers delivered. Based on Transmission Availability Data System data, it is estimated that this type of breaker could comprise 10% to 16% of the 345 kV breakers in service. NERC is attaching the Manufacturer’s Maintenance Advisory to this NERC Alert for your reference. NERC will collaborate with the North American Transmission and Generator Forums and industry trade associations to determine the extent of condition and assess residual risk to the grid. NERC will reevaluate this reliability risk and report to the NERC Board of Trustees at the February and August 2014 meetings.

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