

## Success Story: Hydro Overhaul

**Market Served**  
Hydro generating facilities



# Aging Hydro Facility Needs Overhaul

**Location:**

Northeastern U.S.

**Segment:**

Small hydro generating facilities

**Problem:**

The plant was in desperate need of a complete overhaul.

**Solution:**

A comprehensive study of the facility, upgraded control scheme, and addition of a high resistance grounding system.

**An Aging Hydro Generation Facility Needs an Overhaul to Assure Economical Operation for the Decades to Come**

Typical of many small hydro generating facilities, this Northeastern U.S. plant was in desperate need of a complete overhaul. Its two 3,750 kW generators were in good condition, but obviously burdened with aging insulation, making them vulnerable to damage from fault currents, voltages, and mechanical stresses. Their ungrounded configuration increased this vulnerability. In addition, the plant's power cables, medium voltage switchgear, controls (mounted in ancient slate panels), and station service facilities had reached the end of their practical service life. Worse yet, the facility was a terrible risk from a safety standpoint. Both low and medium voltage busses were open air designs, inviting contact accidents. A complete overhaul was obviously in order.

Enter EESS. Eaton's engineering team performed a comprehensive study of the facility and submitted a thorough solution proposal that provided for new medium voltage switchgear, cables, and busses; two new station service transformers; new controls, and surge protection. The control scheme was upgraded to provide for automated gate operation that provides better pond level control.

Importantly, a high resistance grounding system was added to each generator. This advanced design is an Eaton exclusive solution which is custom-designed for each location. It provides protection for the generator's windings from the typically long duration faults that occur on the generator side of its circuit breaker.

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