

WESTCO Electrical & Equipment Corp. Case Study

Restoring the Grid Reliability of a Major Transportation System

Engineered for a Secure Future

 How WESTCO enhanced grid reliability for a major Philippine transportation system through its Power System Analysis.

Before WESTCO got involved, the main safety breaker of a large transportation system was unintentionally tripping, which presented an issue for its operations. This happened frequently, even for a tiny, common fault located far downstream at a feeder site. (e.g., Feeder 2)

The Challenge: Critical Power Quality Risks and Outdated Monitoring

-  **Lack of Proper Protection Coordination:** The main power system protection rule, which states that the protective device nearest to the fault should be the one that clears it, was not being followed.
-  **Complete Shutdowns:** A minor fault at a downstream feeder has caused the primary safety mechanism (**main protective device**) to trip— halting the station's entire operation, leading to a **total shutdown**.
-  **System Unreliability:** The transportation timetable and operational continuity were significantly disrupted by the unpredictability of the interruptions.
-  **Poor Selectivity:** Due to an over-reach caused by the protection settings' lack of selectivity, a significant portion of the power system was unnecessarily shut down.

IS YOUR CRITICAL FACILITY MARRED BY SURPRISE POWER TRIPS AND COMPLETE SHUTDOWNS? DON'T LET OUTDATED SYSTEMS RISK YOUR OPERATIONS AND BUDGET.

Schedule a consultation now with WESTCO to find out how our proficiency in **Power System Analysis and Protection Scheme Development** can provide your facility with dependable, well-coordinated protection and uninterrupted operation

The Solution: WESTCO's Power System Analysis and Setting Adjustment

-   **Root Cause:** The Power System Analysis (PSA) included obtaining and analyzing the **fault record from the relay**. The analysis revealed that upstream main devices had to handle chronic faults because the **protective device setting was insufficiently sensitive** (too "less sensitive") to clear minimal faults. The protective relay was unable to "see" the fault at minimum fault values.
-   **Protection Recalibration:** To ensure that local faults clear rapidly while preserving selective coordination, the team applied **fault research computations** and engineering judgment (**art and science**) to recommend increasing the **sensitivity of the protective settings**.
-   **Implementation & Collaboration:** Before implementing the recommended **setting adjustment**, the team thoroughly discussed it with the client and the prior designer to show how it would affect system performance. The entire solution was **data-driven**, derived from the actual fault records.

CONTACT US:

 +63 (2) 8365-0068

 sales@westco-phil.com



Engineered for a Secure Future



The Impact



Business Result:

- 
Operational Reliability Restored: Unintentional tripping was no longer an issue. There haven't been any further incidents of small downstream problems leading to a complete facility closure.
- 
Service Continuity: The facility now maintains maximum service continuity, enabling the remainder of the station to function without disruption, by making sure that only the circuit nearest to the fault trips. For a transportation service with a lot of traffic, this is essential.
- 
Asset Protection: Costly equipment is protected by effective coordination. The system reduces the amount of time and severity of fault current exposure for other important assets by guaranteeing that faults are promptly resolved by the closest device.



Technical Result:



Correct Protection Coordination: The system now has proper selectivity. The nearest protective device to the fault is always the first and only one to trip, isolating the fault source effectively.



Optimized Sensitivity: The protection relay setting was successfully optimized to be sensitive enough to identify and clear even the minimum fault values downstream, so that the fault is not allowed to travel upwards.



Conclusion:

The study points to the indispensable function of **Power System Analysis (PSA)** in large transport networks.

The central operational problem—system-wide tripping for small, local faults—resulted from a "**less sensitive**" setting of protective equipment. After thorough **analysis of fault data** (including **current** and **voltage** records) and a suggested **readjustment of protective settings**, selectivity and reliability of the system were re-established.

This specific technical solution erased cascade main trips, stabilizing the power system and demonstrating the value of small changes in impacting overall business operations.

IS YOUR CRITICAL INFRASTRUCTURE AT RISK FOR FAILURE DUE TO AGING PROTECTION AND CONTROL SYSTEMS?

Schedule a consultation now with WESTCO to find out how our proficiency in **Power System Analysis and Protection Scheme Development** can provide your facility with dependable, well-coordinated protection and uninterrupted operation

CONTACT US:

+63 (2) 8365-0068

sales@westco-phil.com