

# Analysis & Identification of Jeju-Haenam HVDC System Disturbances

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## 1. Event Summary

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- Date & Time : 2006. 04. 01 10:46
- Fault Equipment : Jeju ~ Haenam HVDC Converter Pole #2 Submarine Cable
- Description : A fault occurs in a submarine DC cable, pole #2 tripped and a stuck DC breaker develops that led to pole #1 transfer switching failure. This event resulted in the complete tripping of pole #1 & 2.

## 2. Start Date & End Date

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## 3. Investigation Team Members

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## 4. Contents

- ① Investigation to identify the causes of HVDC system failure
- Investigation on protective relay operation(DC cable fault and neutral over-current relay)
  - Correct relay operation achieved under the Pole #2 submarine cable fault conditions

## 5. Problem and Solution

### ① Problems

- Improper design of DC breaker opening scheme
  - : DC circuit breaker having an auxiliary relay contacts for outputting an open command signal have resulted in low operating reliability and time delay.

### ② Solution

- Change of feedback time setting of DC Breaker

## <Potential Benefits>

### 1. Technological side

- ① Acquired a good reputation by tactfully pointing out its design error.

### 2. Economical side

- ① Improve Jeju-area power system stability and dynamic performance.