

# Safety Alert

## Switchboard earth closed into live 11kV busbar

### What happened?

While conducting switching operations as part of a planned outage at Wairere Power Station, the switchboard earth was inadvertently closed into the live 11kV busbar. This caused a trip of associated electrical protection and trip of the connected network (The Lines Company) circuit breakers, resulting in the loss of Wairere generation and electricity supply to around 1200 customers. No injuries were sustained but there was potential for significant injury to the operator (high potential consequence). Work was immediately stopped pending a review of the switching process.

### What did we learn?

- No OEM or site operating procedures were available on site at the time for this switchboard.
- The operating order was being developed during the switching activity. Operating orders should be developed at least 24 hours in advance through review of the required work activity, H.V single line diagrams (SLD), OEM manuals, review of previous operating orders etc before being checked by a second competent person and approved for actioning on site. This may include a simulation of the steps to ensure they are correct.
- The design of the switchboard in this scenario does not prevent inadvertent application of the equipment earth, this means that compiling and checking the operating order is correct is essential for safe switching.
- There was a lack of information available for the circuit breakers and switchboard (e.g., no warning sign at the earthing application point or electrical diagram show earthing connection design). Check these are visible and available when planning work.
- The switchboard does not have any bus shutters or OEM means of inadvertent contact prevention with live 11kV bus when circuit breaker 1212 is removed from the cubical. Any such situation requires that the cubical door is immediately locked closed with an issuer applied safety measure (IASM) lock.
- The switchgear type involved in the incident (Metalclad) is not specifically identified and covered in the standard switching and earthing course provided for Manawa. On the job instruction and competency is essential for sites equipped with this type of switchgear.
- Formal Metalclad switchgear training will be added to the standard high voltage switching and earthing course and include on-site competency assessment.

CB680 showing the operating handle inserted on the normal racking position.



Temporary warning label applied to the switchboard earthing handle insertion point



Unprotected 11kV bus

