

Maintenance challenges for cast resin dry-type transformers

SCA2 PS2, Question 2.3 What maintenance challenges exist for alternative technologies, especially for demanding applications?

Is there any significant difference from the maintenance challenges for conventional oil-immersed transformers?

Matthew Gibson, Ausgrid (Australia)

Background

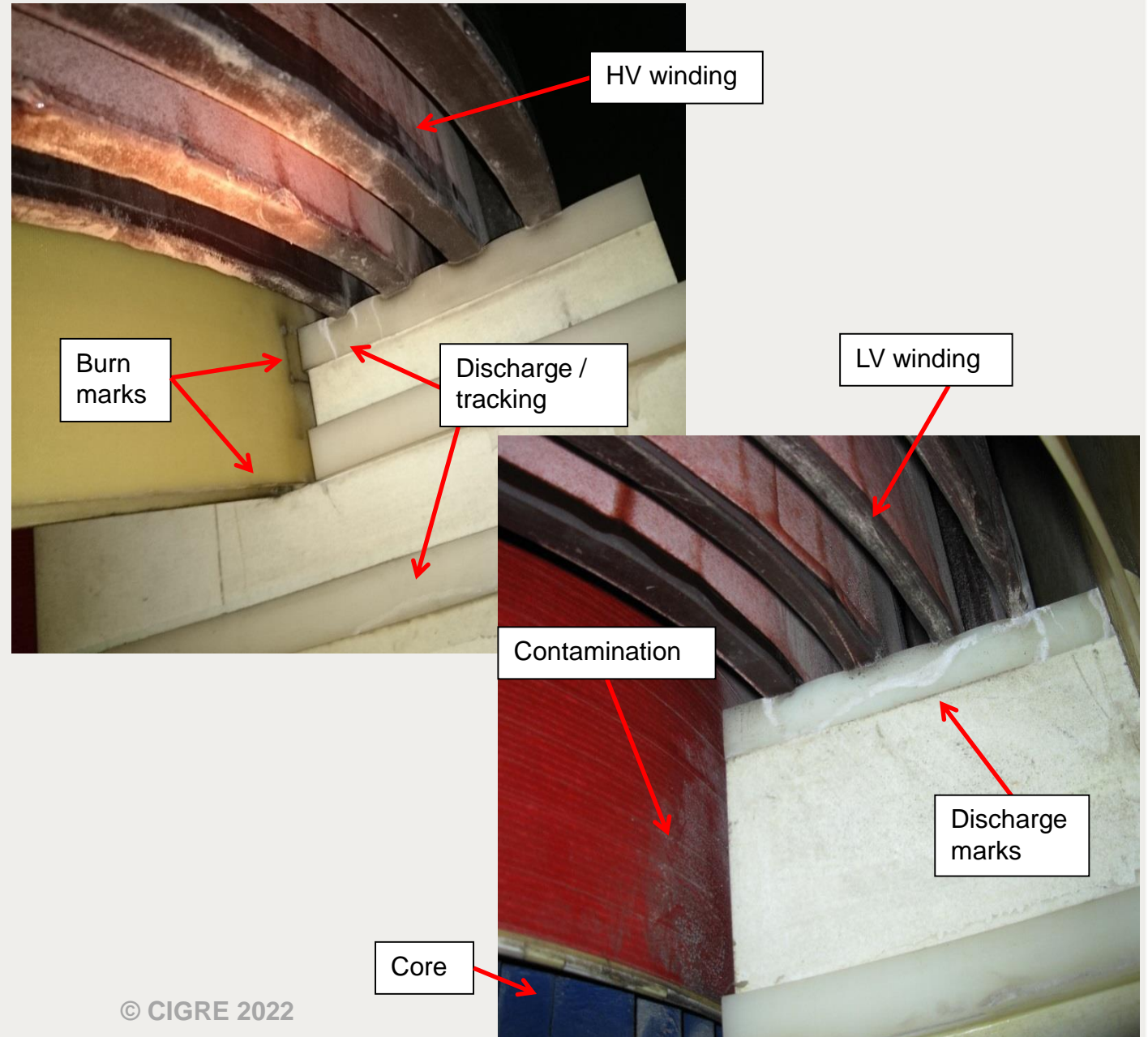
- Installed two 25MVA 33/11kV **dry-type cast epoxy resin** transformers to replace aged oil-immersed transformers
- Environmentally sensitive location close to popular beach; substation wall shared with residential apartment block
- After about 5 years in service, started experiencing differential protection trips – flashovers across post insulators

Group Discussion Meeting



The problem & cause

- Failed on-site PD & HV tests
- Causal factors:
 - Pollution (atmospheric dust, salt residue and sand particles) plus moisture.
 - Transformer bays exposed to external atmosphere – vents in roof
 - Enclosures specified for indoor application – IP21
 - Maintenance inadequate – cleaned (but not well enough) every 6 months in conjunction with dry tap changer maintenance



Group Discussion Meeting

Maintenance challenges & differences to oil-immersed TxS

- More regular & more intrusive
- Must clean ducts between windings
 - Uncomfortable and tedious task for field staff
- Timing and frequency of maintenance more critical
- Deferral of maintenance can lead to situations where major/permanent damage can be done.
- Environmental conditions matter
- However, viable solution if these factors are carefully considered.



Sealed enclosure – fans & filters

