

Title: Power failure (black-out at sea)**What happened**

Vessel on sea passage.

The Bridge and ECR agreed to start the procedures to change power supply from AE's to Shaft Generators

After few seconds that the load was transferred, the voltage of shaft alternator output dropped from 380 nominal Voltage to 210V, due to AVR failure.

Consequently The EDG (Emergency Diesel Generator) main breaker failed to close in automatic and the main breaker failed to connect on the bus-bar, causing the black-out.

From 11:20 to 12:04 (44') The vessel's technical personnel managed to restore power, services and equipment.

All services restored at approx. 13:45.

The internal investigation revealed the total blackout was caused by a series of failures:

- The failure of the STBD shaft generator diodes/AVR was the causal factor that triggered the full black out.
- Recurring failures of the following equipment (from past ship records):
 - Stbd shaft generator
 - Ship alarms monitoring system and controls (automation)
 - valve/pumps control

Root causes/contributory factors

- Failure to follow the preventive maintenance .and relevant drills/tests :
vessel unaware that the breaker of the emergency generator and supply to ESB from MSB were not operating in automatic mode;
same as the failure of the various UPS (24V) that should assist the vessel during the transition black-out in way to be restored in automatic
- Crew did not address the existing latent problems on electrical automation system.
- Failure to conduct periodic crew familiarization training, and tests on the electrical system, including but not limited to automatic starting arrangements.

Proposed Corrective/Preventive Actions**Vessel:**

- Ship Command to revisit and follow preventive maintenance and tests (PMS)
- Additional crew familiarization training by Senior Officers
- Ship Command to revisit and familiarize with Power Failure/ Blackout Drill procedure and tests (VMS : [Operations](#) > [Ship Operations](#) > [Ship Technical Operations](#) > [Electrical Blackout](#))
- Verify that ship Planned Maintenance System, includes functional tests and inspections of the various electrical components/systems (as per VMS)

Reference**Office:**

- Electric Superintendent to conduct electrical audits to ascertain compliance
- Fleet cell to monitor the above mentioned corrective actions
- Case study circulated to all managed ships

Completed