

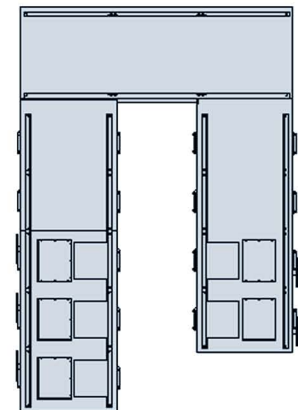


*Zeefax – the London based drilling service and supply company - has recently delivered a fully digital SCR system to the National Drilling Company in Abu Dhabi for the Al Bzoom Jack-Up.*

### Engineering Challenge

After several years of inactivity the Al Bzoom jack-up was programmed for refurbishment and upgrade. Zeefax was selected to provide the 600V and 480V switchboards and transformers.

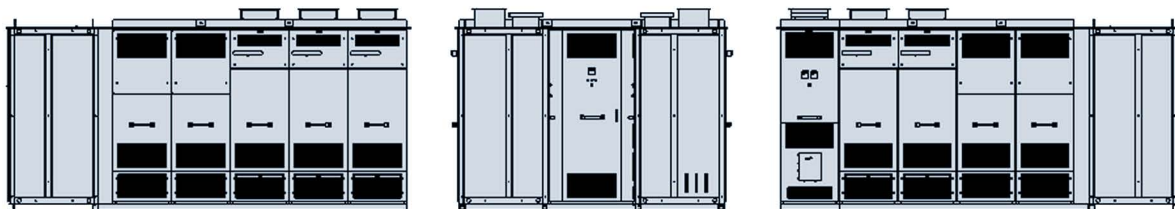
The system to be supplied was not simply a replacement, but represented a substantial increase in generated power. Consequently, Zeefax faced a considerable challenge to engineer a footprint that would fit within the existing switchroom structure. Following extensive consultation with the client, a U-shaped format was adopted for the main 600V switchboard.



The main 600V switchboard comprises four 2.5MVA generator control sections with Woodward and Basler digital controllers to regulate generator frequency, voltage and load sharing.

The five SCR sections incorporate DCS800 ABB digital drives and are fully assignable for drilling operations. The SCR sections also incorporate AC line reactors, DC motor isolators, and DC interconnections so no additional equipment or cabling is required other than connection to the DC motors.

The SCR switchboard was engineered and manufactured at Zeefax's manufacturing facility in Oxfordshire



*Over the past 28 years, Zeefax has built a reputation on its ability to provide a reliable and excellent electrical engineering service to the Drilling Industry worldwide, and today has the technical expertise and capability to specify, engineer, manufacture and deliver complete SCR Power Control Houses for both land-based as well as offshore installations.*

## Digital Control

Zeefax is able to engineer and build SCR systems based on analogue controllers (Ross Hill/Hill Graham type) or fully digital systems. AI Bzoom is a fully digital system.

A distributed digital I/O network provides a communication link for all elements of the SCR system, including the drillers console, mud pump console, drilling and auxiliary MCCs. A central HMI monitors and controls operations. The drillers console link is a dual fibre-optic connection. Connections to the mud pump console and MCCs is via screened twisted pairs.

The communication protocols are MODBUS and PROFIBUS. Zeefax is able to integrate it's SCR systems into SCADA and distributed control networks.



## Project Management

As well as engineering and manufacturing the main 600V SCR switchboard, Zeefax was responsible for providing all the major electrical distribution components for the rig. Zeefax also obtained approval through ABS, providing all the necessary drawings, calculations and co-ordination settings. The complete inventory included the following:

### 600V Switchboard

Four 2.5 MVA generator sections, five assignable SCR sections with DC isolators, two 2.5MVA transformer feeders, three jacking feeders, top drive feeder.

### 480V Switchboard

Two incoming sections and interlocked bus tie, Various feeders for 480V MCCs and distribution boards

### 480V MCCs

Main MCCs A and B, Ventilation MCC, Drilling MCC and Auxiliary MCC.

### Power Transformers

Two 2.5MVA 600:480V enclosed transformers, 480:220V distribution transformers.

### Control Consoles

Drillers Console (hazardous area), Foot Throttle (hazardous area), Mud Pump Console, PLC control section

