

# POWER PROFILE

**Customer:** Road & Transport Authority (RTA)/Dubai Metro

## **Location:**

Dubai, United Arab Emirates

## **Customer Business Issue:**

Electric power generation source to supply standby power to Dubai Metro facilities

## **Solution:**

Eight Cat® 3516 generator sets  
Eight Cat 3512 generator sets  
Two Cat C18 generator sets  
Two Cat C15 generator sets

## **Cat® Dealer:**

Mohamed Abdulrahman Al-Bahar



*Since it opened in 2011, more than 170,000 passengers ride the Dubai Metro each day.*

## **POWER NEED**

First opened in 2009, the Dubai Metro system was constructed in two stages – the Red Line (Stage 1) and the Green Line (Stage 2). The Red Line was opened on September 9, 2009, and the Green Line opened in September 2011. Combined, the system carries more than 170,000 passengers each day. With the opening of its Green Line, the Dubai Metro regained the title of the world's longest, fully automated driverless railway system, with 47 stations and 75 kilometers (46 miles) of lines.

The initial studies for developing a metro system in Dubai began in 1997. A robust feasibility study was carried out from 1997 to 2000, followed by four years of extensive planning and preliminary engineering design. In July 2005, a Design and Build Contract was awarded to a consortium known as Dubai Rapid Link (DURL). This contract included the purchase of backup generator sets to provide reliable power to the metro system, which depends on electrified rails to move the metro trains.

## **SOLUTION**

Local Cat Dealer Al-Bahar secured the turnkey project from Dubai Metro, supplying Cat generator sets and managing the installation, commission, testing, and maintenance of the generator sets. Al-Bahar also provides ongoing technical training on the operation and maintenance (O&M) of the generator sets to Dubai Metro engineers and technicians.

The order includes multiple units of Cat diesel generator sets rated between 320 kW and 1,820 kW which will be used as emergency power for Dubai Metro. In total, 20 generator sets were delivered in two phases. In Phase 1, 10 generator sets, including five 3512 generator sets, three 3516 generator sets, one C15 generator set, and one C18 generator set were delivered. In Phase 2, 10 additional generator sets were delivered, including three 3512 generator sets, five 3516 generator sets, one C15 generator set, and one C18 generator set.

Phase 1 kicked off with a factory acceptance test conducted at Al-Bahar's main Sharjah facility in May 2009. Several high-level officials from DURL and the Road and Transport Authority (RTA) witnessed the full function endurance test, which demonstrated the exceptional performance of Cat products in the extreme heat of the Arabian summer. The second phase was executed later in the year and included the testing of generator sets packaged in specially designed acoustic enclosures that would later be buried below ground level to compensate for space restrictions.

"We are excited about the fact that we are the part of a team that will change the lives of thousands of commuters in Dubai," said Narasimhan L. Jagadisan, Project Engineer at Al-Bahar.

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## RESULTS

Al-Bahar has provided excellent technical support services to DURL and achieved a milestone in the field of training, earning an 89 percent satisfaction rating from the DURL team. As a result, Dubai Metro has signed a three-year maintenance contract with Al-Bahar.

Tejinder S. Sodhi, Project Manager from Al-Bahar and project lead on the Dubai Metro project, said, "Al-Bahar has a large pool of technically sound engineers and a robust infrastructure to support and execute mega projects, one like Dubai Metro. Projects of such large magnitude also give us the opportunity to strengthen and polish our delivery capabilities."

An interface and O&M manager at DURL said, "I deem myself quite lucky to work with the sub-contractor that carries a high sense of responsibility like Al-Bahar."

Currently the RTA is investigating the feasibility of future projects that includes extension of the Red Line and the addition of two more lines. Additional power generation opportunities will attract greater investment to the city of Dubai, as well as contribute to the national economy.



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