

## General Overhaul of two 4.3 MW MWM Gen-sets in Bratislava, Slovakia



In February 2022, TEDOM overhauled two MWM TCG2032 V16 gas engine gen-sets and AvK DIG156 generators for Prvá rozvojová spoločnosť, a.s. at the energy center in Bratislava, Slovakia. This company has been an energy supplier in this city since 2012. Two natural gas-fired sources of cogeneration with a total installed electrical output of 8.6 MW and a total heat output of 9.4 MW are used to supply the city with the power and heat. The installed gen-sets were manufactured by the German company MWM GmbH.

### Services

In 2014, we participated in a tender for the servicing of both gen-sets. Due to extensive experience with CHP units and our close cooperation with MWM, we were selected as the service provider and concluded a long-term service contract. In 2020, the overhaul options were discussed with the customer and, based on these discussions, an addendum for the overhaul of both gen-sets was subsequently concluded in the spring of 2022. This extensive service action was linked to the overall maintenance of individual technologies of the energy center (maintenance of the air engineering system, heat exchangers, coolers and high voltage switch room...), which, however, was the responsibility of the customer. It was therefore necessary to coordinate the individual works and each contractor so that there were no delays and everything was geared towards meeting the commissioning deadline.



**52 000 kg**  
one gen-set weight

**3 to 5**  
TEDOM technicians

**20 working days**  
from start to putting into operation

# TEDOM Solution

In response to the customer's request for the shortest possible downtime of the gen-set, we recommended the customer carry out the engine overhaul by way of replacement, i.e. by delivering a long-block engine from the MWM 2032 engine repair center located in Vigo in the western part of Spain. This execution method significantly reduces the downtime. To carry out a conventional overhaul on a single engine on site requires 6 technicians for approximately 35 working days. Performing an overhaul on a single engine using the exchange method requires only 3 technicians for 17 days. Another exceptional feature of this event was that the overhauls on both gen-sets were carried out simultaneously. As part of the engine overhauls, TEDOM also provided other work, namely: gas train maintenance, generator maintenance, including the generator bearing inspection, generator revision, and their disconnection and reconnection.

Implementation of the whole event started in September 2021, when the long-blocks were ordered from MWM. The scope of the maintenance work was determined by both the MWM engine manufacturer's instructions and the recommendations from TEDOM. All the specified parts were ordered and prepared on-site prior to commissioning. The commencement date of general overhaul on the installation was set for February 14, 2022, based on the previous coordination meetings of all concerned participants and the mutual agreement on a detailed schedule for the overhaul. The maintenance completion with both engines put into operation at the rated power was planned by March 11, 2022.

## Overhaul Process Summarization

Overhauls were carried out on both gen-sets in parallel. Our long-standing partner assisted us in removing the gen-sets from the engine room and putting them back in place. During the dismantling process, all parts were carefully inspected and those that were not suitable were immediately replaced with new ones. TEDOM's ample inventory allowed for these unplanned replacements without delay. Recommissioning of the engines was carried out in cooperation with the MWM technician.



Thanks to the professional approach of our technicians and careful preparation, the overhauls of both gen-sets were carried out exactly according to the determined schedule and within the preplanned deadlines. The number of technicians on site varied depending on the actual work being carried out. Experienced technicians from the Ostrava service center, the Bratislava service center, and technicians from the Svit service center had rotated on the installation. On March 8, the technicians successfully started the first engine, and the second engine was started the following morning. The test run of both gen-sets was started on March 9 at 2 p.m. and finished on March 11 at 5 p.m.

### MWM engine

Type	TCG 2032 V16
Fuel	natural gas
Efficiency	86 %
Size (WxLxH)	2.7 x 9.2 x 2.7 m
Weight	52 000 kg



## About Cogeneration

Cogeneration is the combined production of power and heat. The biggest advantage of cogeneration is the highly efficient utilization of energy in fuel, which amounts to more than 90%. Cogeneration brings savings in fuel sourcing and significantly reduces the amount of CO<sub>2</sub> emissions. As compared to conventional power plants where heat generated during the production of electrical energy is usually wasted into atmosphere, this heat is utilized by CHP units for heating which makes the production of electrical power a great deal more efficient. Due to their flexibility, CHP units are also convenient complements to renewable energy sources during periods with insufficient solar radiation or wind.