



52 MW WEST SUNRISE PLANT GRAND BAHAMA

COMMISSIONED IN 2012

Burmeister & Wain Scandinavian Contractor A/S

A WORLD CLASS NEW GENERATION PLANT ON GRAND BAHAMA

Faced with generation equipment that was rapidly approaching retirement, the Grand Bahama Power Company (GBPC) investigated options for new generation capacity and solicited, in Autumn 2010, proposals for a turnkey generation plant with modern, medium speed heavy fuel diesel units.

A Letter of Intent for a 35 MW medium speed, HFO, diesel power plant was issued in December 2010 by GBPC to a consortium consisting of Burmeister & Wain Scandinavian Contractor A/S (BWSC) from Denmark, as consortium leader, and MAN Diesel & Turbo S.E. (MDT) of Germany as the diesel gen-set supplier.

In order to cover current electricity demands and be well prepared for future growth, with adequate reserves to ensure reliable electricity supply, GBPC decided to increase the overall plant configuration by two additional generators, making it a total of six 8.7 MW diesel generator units.

After detailed technical discussions and intensive negotiations, a contract was signed between GBPC and the BWSC/MDT Consortium on April 13, 2011 for EPC delivery of the West Sunrise 52 MW Plant.



To put together a complete 'greenfield' turnkey EPC contract in such a short period of time, from idea to signing of contract, took a great deal of commitment and flexibility from all the parties involved.



PROJECT EXECUTION

BWSC was the overall turnkey contractor responsible for the complete plant design, engineering, balance of plant supply, transportation, civil works, installation of all equipment and the testing & the commissioning of the complete facility.

One of the many important aspects of the project was to deliver a reliable power plant designed to minimize the risk of a plant shut down, which required the auxiliary equipment supporting the gen-sets to be designed and delivered with redundant facilities, automatically taking over in case of a component or system failure, thus maintaining the plant operation.



Modularization concepts were utilized for design, manufacture, logistics and construction in order to complete the plant within the contractual time frame of 13 months for the first three generating units and 14.5 months for the remaining three generation units.

This included a full 3D modeling of the plant providing a detailed plant overview and the design basis for prefabrication of modularized equipment packages and piping systems.

Such techniques minimized installation problems and significantly reduced the specialist skills time required for the on-site installation work.

Experienced local sub-contractors, supervised by BWSC technicians and specialists, carried out the civil works and buildings along with the majority of the mechanical and electrical installation work.

Scope changes during the project execution phase were handled flexibly, smoothly and quickly to ensure the schedule was maintained, and additional features could be encompassed within the project.

A large heavy fuel oil transfer system was designed and delivered, improving and simplifying the fuel supply for both the new West Sunrise Plant, and the older generating units at the adjacent existing plant.



COOPERATION WAS THE KEY

The period from when first discussions were initiated between GBPC and BWSC/MDT and when the power plant was taken over for commercial operation, was impressively short. Contributing to this was the drive for professional, constructive and open dialog between all parties, trust and common understanding. Decisions made during all phases of the project were made with the common goal of building a world class diesel power plant, for the long term benefit of the residents of Grand Bahama.

Local legislation on the island of Grand Bahama requires that all major designs are certified by a local Engineer of Record (EOR), ensuring relevant requirements of the local authority, the Grand Bahama Port Authority (GBPA), are met. Regular coordination meetings took place between GBPA, EORs, GBPC and BWSC, and a common approval procedure was established and followed to make sure the completed power plant fulfills all local regulatory requirements.

GBPC's operators and maintenance staff were deeply involved in the commissioning activities of the project to gain familiarity with the equipment and operation before assuming the responsibility for commercial operation and maintenance of the plant.

Following the successful completion of the West Sunrise Plant - on time and on budget, GBPC has contracted BWSC to provide operational assistance and general technical support for a one-year period, hereby ensuring specialist skills being available not only for supporting the initial operation, but also for transfer of knowledge and experience to the GBPC operation and maintenance staff.

SUMMARY

Contract:

Type:.....Turnkey
Effective contract:April 2011
Handing over: June 2012
Plant capacity:.....52 MW

Technical Data:

Diesel Engines

Make:.....MAN Diesel & Turbo, Germany
Type:..... 6 x 18V32/40, 4 stroke
Speed: 720 rpm

Alternators

Make:.....ABB, Finland
Type:..... AMG 1120MP10 DSE
Voltage/frequency:..... 13.8 kV/60Hz
Rated output:..... 10.94 MVA
Output at 100% load..... 6 x 8.75 MW at pf 0.8

Exhaust Gas Boilers/Auxiliary Boiler

Make:.....Danstoker, Denmark
Type:..... EEB-S90.114.3500 / Omnical 33 HD
Steam capacity: 3 x 1350 kg/h, 8 barg
800 kg/h, 8 barg

Step-up Transformers

Make:.....CG Electric System, Hungary
Type:..... HOFV 66000/72.5
Ratio:..... 13.8 / 70 kV
Rated output:..... 2 x 66 MVA

Control System

Make:.....ABB
Type:.....XA-800

Powerhouse Building and Chimney

Supplier:.....Aquila A/S and VL Steel
Length:..... 49 m
Width:..... 24 m
Height..... 12 m
Overhead crane:1 x 2 t
Stack height: 32.5 m



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