



**NORTHERN BAHAMAS
UTILITIES**

A BETTER ALTERNATIVE TO ENGINEERING MANAGEMENT



Company Overview

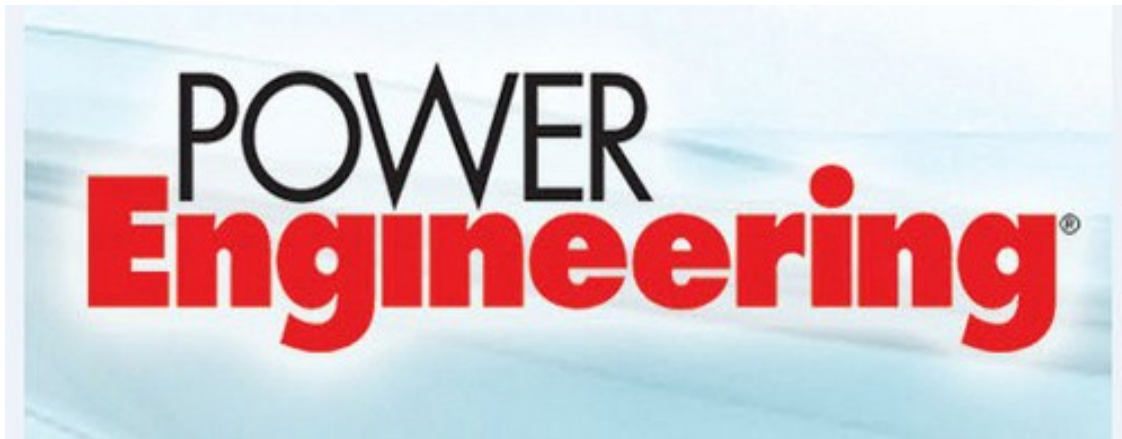
Northern Bahamas Utilities (NBU) Holdings Co. Ltd. is a fully owned Bahamian company that was formed in 2006. NBU is currently operated by four former employees of Grand Bahama Power Co. Ltd., that held management positions. The firm's mission is to provide innovative and comprehensive asset management, engineering, and technical business solutions for the Bahamas market. Our team comprises some of the most qualified and experienced engineers and managers in the region, with hands-on experience about the ins and outs of the power industry in the Bahamas. The firm's offering include; but is not limited to asset ownership and management, engineering analysis, project management, professional training, environmental health and safety, technical consultation, maintenance solution, and renewable and alternative energy.



Technical Expertise



NBU has worked expansively in the area of engineering analysis. Our team has performed many specialized tasks in this field, including the technical evaluation and repairing of the failed generator rotor coil ground fault for Grand Bahamas Power Company's 18 mega watt (mw) steam turbine generator. This encompassed the disassembly of the hydrogen cooled generator rotor, removal of the generator rotor, reviewing shop repair work to replace the failed generator rotor coil, and the reassembly of the generator, and recommissioning of the unit (return to service). This project had an estimated cost of \$800,000.00. Additionally, we performed the function of the owners engineering to oversee the integrity assessment of the plant fuel oil lines and harbour bunkering line by an electrical consulting firm called Structural Integrity Associates, Inc. The work included an evaluation of the existing condition of the piping and corrosion protection systems (cathodic protection), and the development of recommendations and repairs and preventative maintenance measures to preserve the assets. Long range guided ultrasonic testing was used to determine the wall thickness of the fuel oil lines along their length. This project had an estimated cost of US\$65,000.00



Our team has also Performed the function of the owners engineer to oversee the electrical cathodic protection, lightning protection, and grounding study of the Power Plant and seven 67 kv substations by an electrical consulting firm called ELK Engineering Associates Inc. This work included an inspection of each operating cathode protection system, measurement of close pipe-to-soil potential at selected test points, review of existing grounding drawings, and conduct an IEEE-80 Fall-of-Potential Test for the existing grid systems. This project had an estimated cost of US\$35,000.00.

Further, we performed professional electrical engineering oversight for Emera 55 mw medium diesel plant construction. Work included approving electrical as design and as built drawings for the power plant, and signing-off as the professional electrical engineer on record to the plant construction regulatory agencies

Major Projects Management

NBU also has a vast amount of experience in planning, scheduling, and providing technical expertise for major construction projects, maintenance and inspections. Our project managers can also provide required technical services as it has done for both the Generation Department and the Transmission and Distribution Department of the Grand Bahamas Power Company. For example, periodic maintenance on Mitsubishi Heavy Industries (MHI) two-stroke 13.5 mw slow speed diesel engine generators, and MAN Diesel four-stroke 18.5 mw medium speed diesel engine generators were maintained using a project management approach.



Implementation of Environmental Policies

NBU has been at the forefront of evaluating, approving, and making decision on all environmental, safety and security issues at Grand Bahama Power Company, included the following :

Our team negotiated, reviewed design, and approved the design and development of a security card access system that provided electronic card access control for all the company physical locations;

We researched and negotiated a \$1,000,000.00 lightning protection system (The Dissipation Array®) for the generating station and the Company's electrical substations;

We researched, negotiated and oversaw a hydrogeology study of the power station subsurface, cross trans-boundary ground water contamination that resulted in hydrogen sulphide gases emanating from the plant's cooling water outfall;

We helped approved the design, and oversaw the installation of a NFPA fire detection and alarm system for a new Company \$2,000,000.00 headquarters building; Directed a Grand Bahama Power Barge project location, and environmental permitting study.

Our team was also responsible for managing 10 acres of wetlands and 20 acres of hardwood forest for sites to be certified by the Wildlife Habitat Council® from 2003 through 2011 as certified Wildlife at Work sites and Corporate Lands for Learning sites.

Additionally, we conducted an environmental management system audit at BEC's Clifton Pier Power Plant.

Lastly, we coordinated a safety & health management system audit at Freeport Container Ltd.

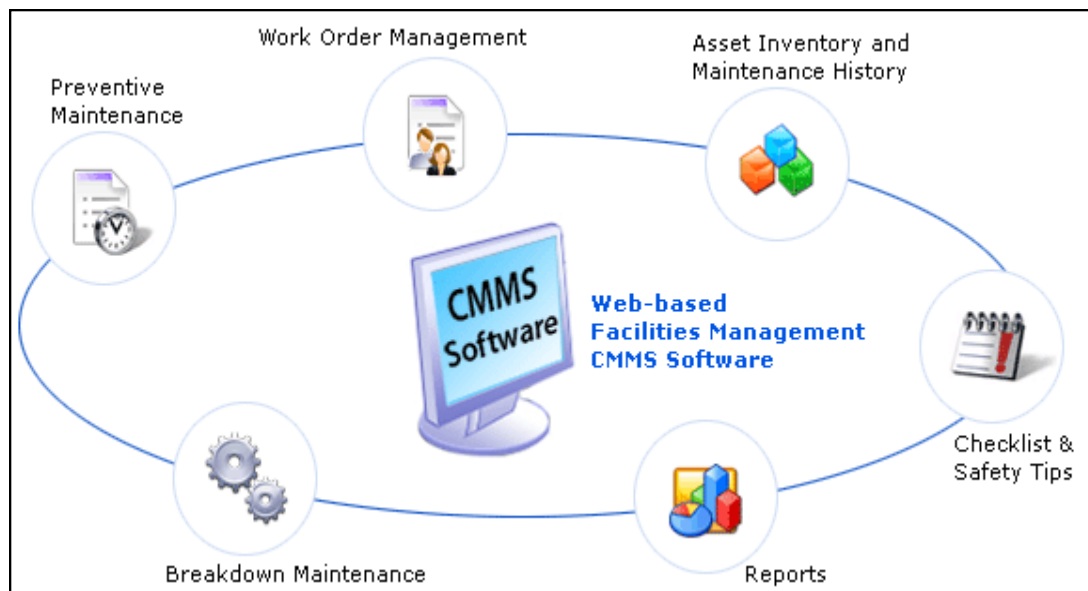
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The following chart highlights some of the major accomplishments that we have been able to implement in the areas of Environmental Safety and Protection.



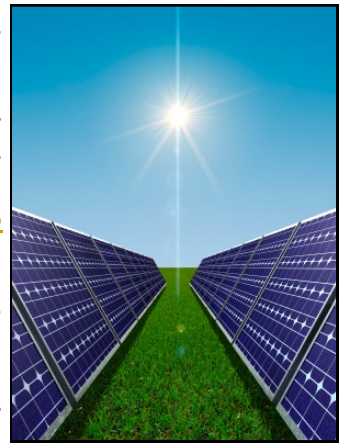
Maintenance Solutions

NBU also has extensive experience in maintenance solutions. Our company was responsible for setting up and managing the Plant maintenance planning and scheduling section including the use of modern preventative, predictive and condition based maintenance technologies for the Grand Bahamas Power Company. This also included coordinating all plant maintenance planning and scheduling major plant outages and projects and the administration of the Plant's computerized maintenance management system (CMMS), and enterprise-wide computerized maintenance management system (CEMMS).

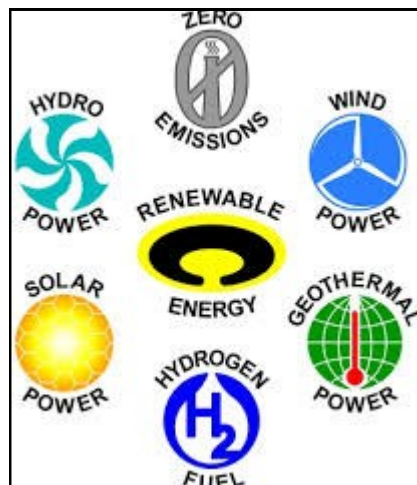


Renewable Energy

NBU is one of the leading companies in the Bahamas that has experience in the field of Renewable Energy. We have performed many procedures in this area. We have a certified technical team at our clients disposal to perform any task in this area. One of our affiliated companies, [Bahamas Solar Generators](#), is dedicated to providing the latest and most efficient equipment in the field of solar powered energy for the entire Bahamas. Our team has worked with the Grand Bahamas Power Company in implementing solar energy into their operations. We have Performed special project management for GBPC/Emera Wind Study Project for the Island of Grand Bahama.



We have also liaised with Sanitation Services and Viola Corporation on a Grand Bahama landfill methane gas generation project. Additionally, we have coordinated with individual potential investors on renewable projects such as wave energy projects, geo-thermal energy generation, and alternative energy projects



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