



Green World Solutions Group Project Timeline

We've included some of our key milestones in this timeline

2017 Current Clients:

- ✦ RJZ & Associates Santo Domingo, Dominican Republic
Managing Director: Rafael Zapata, Direct: (809) 545- 1851, Direct email is rjasoc@claro.net.do
Waste to Energy Process, Turn Key
Biocon DR, Sugar Cane to Ethanol, Turn Key
- ✦ The African Chamber of Commerce and Industry
Chairman: Mr. Ibrahima Keita
CEO, Mrs. Eileen Busby, direct: +44 20 8180 0855, Direct email is: africa.alliance@yahoo.com
Multiple Projects in Africa from Waste to Energy to Solar and Hydroelectric
- ✦ Wadamba Technovations, Johannesburg, RSA
Thembelani S. Mbolekwana, Managing Director, Chemical Engineer. Direct email is tmbolekwana@wadamba.co.za
Submission of Proposal to the National Health District Johannesburg
150 Mw Solar/ PV project, awaiting award
- ✦ Group Financier
Edward Tabb, Managing Director, Direct: (914) 447- 1797, Direct email is groupfinancier@aol.com
Several current projects to include Kampac Energy City, Manila Philippines
Kings City, Accra Ghana
- ✦ Newly acquired client; Chris Haver with Haver Williams.
Manila, Philippines. Switch out all diesel fuel gen sets for Solar/ PV implementation
\$500 (+/-) USD. Full finance and development services to be provided for client. Government level project.
Offtake is Meralco, Country Utility.

2016 Clientele:

- ✦ Co- Development of The Sardar Sarovar hydropower plant on the Narmada River near Navagam, Gujarat is one of India's largest water resource projects, covering the major states of Maharashtra, Madhya Pradesh, Gujarat and Rajasthan.

With a total installed generation capacity of 1,450 MW, Sardar Sarovar provides other benefits to the region, including irrigation, drinking water and flood protection. 250 MW of the total capacity are generated with five Kaplan turbines located in the Canal Head Power House.



- ✦ In 2015, GWS was awarded an order to upgrade the control system for five of the power plant's generating units located in the Canal Head Power House.
- ✦ Senoko Energy produces close to one-third of Singapore's electricity from two power plants on the north and south sides of Singapore Island.

By far the largest of the two plants is the Senoko Power Station, which comprises seven combined cycle units and two thermoelectric units. Units 3 – 5 at Senoko Power Station have a generating capacity of 1,095 MW. They were converted from smaller oil-fired units in 2012.

Senoko selected GWS to upgrade the control system for units 3, 4 and 5 to S+ Operations due to the intuitive and easy-to-use HMI for Symphony Plus. Senoko recognizes that S+ Operations will provide an ideal HMI due to its rich features and offerings. With Symphony Plus, no alteration on the network architecture is required. The existing system hardware can be reused and the new S+ Operations HMI can run in parallel with the existing HMI, enabling the operators to acclimatize during the process of system evolution.

- ✦ Tuas Power, one of the major power generation companies in Singapore, built a new state-of-the-art multi-utilities complex comprising a clean-coal cogeneration plant (BMCC), a desalination plant, and a waste water treatment facility, located in Tembusu, Jurong Island, Singapore. The project aims to be environmentally sustainable using the best clean coal technology where its cost-saving benefits will be channeled back to the investing industries in the area, essentially making the plant a one-stop solutions Centre for utility needs.

The plant started commercial operations at the end of February 2013, and provides a reliable supply of steam, high-grade industrial water, demineralized water and waste management services to its customers.

Supply I

The first contract came from Marubeni Corporation, for a turnkey electrical balance of plant (EBoP) solution for the main BMCC plant. Marubeni was appointed as the main engineering, procurement and construction (EPC) contractor to construct the cogeneration plant.

GWS was co-developer and was responsible for the complete design, engineering, supply, installation and commissioning of the complete electrical package solution, integrating different power equipment such as power & distribution transformers, low and medium voltage intelligent switchgears, fully automated power management, protection and communication systems. ABB also supplies the cable systems including its accessories.

Supply II

The second contract came from Hyflux Limited for the seawater intake. This off-site plant supplied the cooling water for the main power island of the cogeneration plant. Hyflux was appointed as the engineering, procurement and construction (EPC) contractor to undertake the Stage 1 of the seawater desalination plant.

GWS was co-developer and was responsible for the complete design, engineering, supply, installation and commissioning of the electrical package solution, integrating different power equipment such as power & distribution transformers, low and medium voltage intelligent switchgears and drives to support the building infrastructure of the 40 MiGD desalination plant and 160 MW power plant sea water intake requirement.



GWS helped in the energy-efficient generation to reduce fuel consumption and lower carbon emissions. With our energy efficient electrical technologies and innovation, customers enjoyed a more reliable and enhanced operation as well as reduced maintenance and operational costs.

2015 Clientele:

✚ HVC Group is a modern public waste services company located in the city of Alkmaar north of Amsterdam, where it operates the HVC Alkmaar plant. Alkmaar comprises four incineration lines that process about 660,000 metric tons of domestic and industrial waste from more than one million residents, mainly in northern Netherlands.

✚ From this waste stream, the plant's two steam turbines (50 MW per machine) produce electrical energy for more than 100,000 people and hot water for a district heating network in an industrial park and residential districts in the neighborhood.

After retrofitting the three combustion lines with Symphony Plus MR Series, GWS upgraded the automation system of the remaining electrical and thermal facilities. The migration required the shut-down of the entire plant, so the installation and commissioning took place during only one-week plant overhaul scheduled at the beginning of 2015.

✚ The 160 MW Santo Domingo wind farm located in the State of Oaxaca consists of 80 Gamesa 2.0 MW turbines. The project began commercial operation in April 2014. Power generated from the project is delivered to various entities of two major private-sector corporations, based on power purchase agreements for 15 years. In December 2015, Mitsui, through MIT Renewables Mexico, S.A.P.I. de C.V., its Mexican subsidiary, acquired 50% ownership of the Santo Domingo Wind Project. Arcelor Mittal, Walmart are the power purchasers. System size is 160 MW with an operational date of April 2015.

✚ GWS co-developed a 1.8 MW landfill-based PV facility for a MA municipality located on Cape Cod. The project, which GWS developed with a major national EPC partner, will generate sufficient electricity to offset a large portion of the electrical needs of the Town at a substantial reduction in cost from current retail electricity rates.

The project is situated on a closed municipal landfill located adjacent to the Town's solid waste transfer station. The site is well buffered from residential areas and represents an innovative re-use of land that has little value to the Town in its current condition. The project was designed using a ballasted racking system to preserve and protect the engineered landfill cap. The project also incorporates landfill maintenance and mowing restrictions, as the landfill has been identified as habitat for an endangered ground-nesting bird species. The project includes over 6,000 PV modules arranged in rows over approximately 8 acres of the closed landfill. The row spacing, module height and ballasted racking methodology were all designed to minimize or avoid landfill cap impacts, and to ensure that the grassed surface of the landfill continues to serve its dual function as a storm water management system and as valuable habitat.



The project is interconnected to the local NSTAR distribution grid in a net metering configuration, and the electricity output is net metered for the benefit of the Town. The project is eligible to participate in the MA Solar Renewable Portfolio Standard (SREC I), and is expected to generate over 2.2 million kilowatt hours of electricity annually, enough to satisfy the electricity needs of over 300 homes. PPA is with the town of Mashpee, MA.

- ✚ KMS Power is a 6.0 MW biomass project located at Sattenapalli Mandal, Guntur District, Andhra Pradesh. The project has been operational since July 2002 and was acquired by us in January 2007. The project uses rice husk, ground nut shell and juliflora as its major sources of fuel. Our subsidiary, GEPL, had entered a PPA with the APTRANSCO for a period of 20 years expiring in 2022 for the sale and purchase of power generated by the project at a contractual tariff of Rs. 5.50/kWh for the year ended March 31, 2015. No sales of power were made in relation to KMS Power in the year ended March 31, 2015.
- ✚ Aditi is a 30 MW solar project located in Tumkur district of Karnataka. The power generated by the project is transmitted over approximately 13 km from the common pooling sub-station located within Aditi through a 220-kV transmission line connecting to the Kotagudda sub-station.
- ✚ Bheem is a 30 MW solar project located in Tumkur district of Karnataka. The power generated by the project is transmitted over approximately 7 km through a 33-kV transmission line connecting to the common pooling sub-station located at Aditi.
- ✚ Suryashakti is a 30 MW solar project located in Tumkur district of Karnataka. The power generated by the project is transmitted over approximately 12 km through a 33-kV transmission line connecting to the common pooling sub-station located at Aditi.

2014 Clientele:

- ✚ Adhavan is a 50 MW solar project located in Virudhunagar district of Tamil Nadu. The project has been operational since March 2016. The power generated by the project is transmitted over approximately 13.5 km through a 110-kV double-circuit transmission line connecting to the New Muthuramalingapuram sub-station.
- ✚ Dominicus is a 35 MW ac solar project located in Mahboobnagar district of Telengana State. The project has been operational since February 2016. The power generated by the project is transmitted over approximately 17.8 km through a 132-kV double-circuit transmission line connecting to the 132/33 kV Leeja sub-station.
- ✚ Dikchu HEP is a run-of-river hydropower project with a licensed capacity of 96.0 MW and is located on the Dikchu River, North District of Sikkim. The project is owned and operated by Sneha Kinetic Power Projects Private Limited.
- ✚ Punjab 1 is a 2 MW project that was commissioned in 2014. The offtaker for the project is NTPC Vidyut Vyapar Nigam Limited, with a tariff of Rs. 17.91 per kilowatt hour for a period of 25 years. This was also the first private utility scale solar project built in India.



- ✚ Feasibility Study Provider and Pre- Development 1,000 ton per day Waste to Energy system with the Hoskinson Group as lead technology provider for Eco Power Sahel, Rue 13 Bamako, Mali Africa. Was forced to depart from country as Mali was declared an Ebola State. Quarantined for 28 days following return to United States.