RAACH SOLAR
DESIGNING PHOTOVOLTAIC POWER

PRESS RELEASE [part 1]

100kW Solar Power Supply and AC Mini Grid

View on one solar module sub array with HECKERT SOLAR polycrystalline modules. The picture shows the school compound including waterhouse, and three class room buidlings

Freetown, Sierra Leone, 07.10.2016

RAACH SOLAR successfully commissioned a 100kW photovoltaic village power supply system close to Freetown in Sierra Leone.

The local NGO "WAMA GRISO" backed by funding of the German Ministry of Economic Cooperation (BMZ) implemented the water supply project and invested in a 100kW photovoltaic AC mini grid and water distribution system for their school and the nearby Mambo village , about 10km from the capital Freetown in Sierra Leone. "The school with about 400 students profits directly from clean borehole water and sees for the first time electricity and lighting" says happily Mrs. Maria Walz, head of the NGO. "We did not want to compromise on quality of components and chose only the best suppliers and installer" added Mrs Walz.

Installation of SCHLETTER aluminum carport on concrete foundations.

During nighttime a 150kWh industrial solar battery guarantees a 24hours / day electricity supply. The battery is protected by four 500 Amps hydraulic magnetic battery breakers which link the SMA inverter-chargers to the maintenance free lead-gel battery. The solar power system supplies four school buildings, a sickroom, a sewing room, a computer class and the school's administration. Refrigerators and deep freezers will be soon added.

(from left to right) 100kW main sub distribution box for school and village, AC main combiner box for inverters, SMA grid tie inverter, SMA SUNNY HOME MANAGER for internet connection and remote monitoring

John Sesay, head of school administration, proudly presents one SMA SUNNY ISLAND three phase cluster with SRC remote display and configuration unit

The nearby village could soon profit from stable electricity supplies. At present, the electricity is used for the school and the water supply, but already 10 units prepayment electricity meters and AC house connections are waiting for the subscribers.

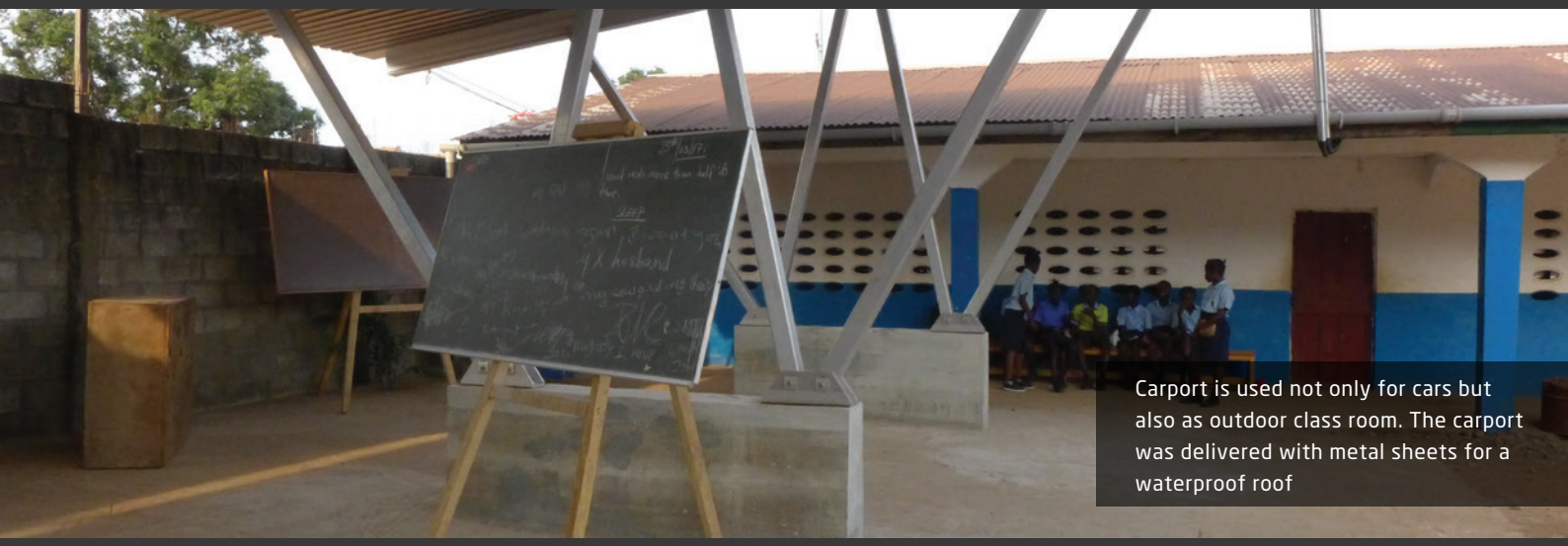
Additionally a carport was installed to replace a roof which could not support the installation of the solar modules. The carport can be used as car parking, but it has become popular to use it as open terrace as outdoor school class. RAACH SOLAR delivered the carport turn-key and coordinated the civil works for the foundations.

instIlling solar modules on carport

DC battery main switch, 48V-500A with battery temperature sensor (center)

Industrial maintenance free lead gel batteries from manufacturer BAE PVV with total storage capacity of 154kWh (C100) per cluster

Inauguration party for a school which has now electricity for lights, computers etc and clean drinking water supply



Carport is used not only for cars but also as outdoor class room. The carport was delivered with metal sheets for a waterproof roof

Enjoying electric light first time on school compound

About RAACH SOLAR

RAACH SOLAR engineers, procures, delivers, installs and maintains turn-key and tailor made photovoltaic systems worldwide. RAACH SOLAR is a premium supplier for open area photovoltaic power plants, building integrated photovoltaics (BIPV), carports, battery storage systems, AC mini grids, solar pumping systems, solar streetlights and consulting services.

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RAACH SOLAR
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PRESS RELEASE [part 2]

Solar Water Pumping, Distribution & Water Management

Water distribution by GRUNDFOS DEA pressure station into the school compound


Water management by GRUNDFOS AQTAP water prepayment meters

Freetown, Sierra Leone, 07.10.2016

RAACH SOLAR successfully commissions two GRUNDFOS AQtap prepayment meters in Sierra Leone and combines three major GRUNDFOS technologies: GRUNDFOS SQF solar pump for water delivery, GRUNDFOS DEA booster station for water distribution and GRUNDFOS AQtap water prepayment meters for water management.

The GRUNDFOS SQF pump was installed with an independent solar power supply and delivers 5m³ / hour, whereas the GRUNDFOS booster station and prepayment meters are supplied by three phase respectively single phase 230VAC voltage which comes from the solar village power supply system. During nighttime a 150kWh industrial solar battery guarantees a 24hours / day electricity supply. One AQtap prepayment meter was installed in the school and one AQtap meter in the village. About 300 prepayment cards were given to families and individuals who can buy clean drinking water at the prepayment water

taps, especially during the dry season in Sierra Leone. About 2000 people profit directly from water and electricity supplies. The GRUNDFOS booster station will supply in the next phase of the project more GRUNDFOS AQtaps and individual homes which are situated up to 50m uphill in the mountainous village.

The nearby village could soon profit from drinking water supplies. At present, the installed water prepayment meters GRUNDFOS AQtap which work with a personalized electronic card per user, are there to manage and test the water consumption over a time. During this test period, water is donated for free to the school and population, which is especially important to be supplied during the dry season.

RAACH SOLAR engineered, procured, delivered and installed with an African-European team the project as a turn-key solution. RAACH SOLAR will continue to accompany the project and delivers the necessary after sales service.

“We are happy to find in HECKERT SOLAR, SCHLETTER, SMA, BAE BATTERY, EMCOMP, LET and GRUNDFOS the right technology partners to boost rural development and renewable energy technologies” says Jürgen Raach, general manager of RAACH SOLAR. “We also would like to express our thanks to these companies for their continuous support of our business” adds Raach.

Preparing GRUNDFOS SQF submersible stainless steel solar water pump for its installation in an open shaft well

Connecting the stainless steel riser pipe from pump to water 10m³ tank

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