

# Partnerships Bring Running Water to a Community Off-the-Grid

SCHOOL AND ORPHANAGE IN THE VILLAGE OF RAKAI, UGANDA



## SOLAR PUMPING SYSTEMS CASE STUDY



Working closely with distributor Water Works Pumps & Supply, Franklin Electric helped provide installer Koch & Sons with a reliable solar-operated pumping solution for a school and orphanage located in the village of Rakai in Uganda.

### CUSTOMER CHALLENGE

The village of Rakai is in southwest Uganda, about 200 miles from the capital city of Kampala and miles away from reliable energy sources. The village is home to approximately 500 adults and 200-school-age children, 70 of which live at a nearby school and orphanage. The area's arid environment and lack of power mean accessing running water at the school is a challenge. In fact, students could only get water at one of the four cisterns located across the school's property. In addition to the daily hygiene challenges associated with this lack of water, the residential school's bunkhouses, classrooms and a medical clinic could not easily access water when needed.

### THE SOLUTION

Installer Koch & Sons worked closely with the school to propose a solution. They proposed a water system design that could transfer water from a cistern to a holding tower. The tower in turn would allow running water for both the school and local village members. Solar pumps would be used to pull water from the cisterns to the towers.

Koch & Sons reached out to their distributor Water Works Pumps & Supply to talk through these unique parameters. Using FE Select, the

distributor was able to quickly specify a solution: two Photon SolarPAKs. The 48-volt solar pumping system would be equipped with 4" off-the-shelf Franklin Electric 7-gallon per minute pumps that are known to withstand sand better than any other pump. As a Franklin Electric SolarPAK system, they would also include a Photon™ variable frequency drive with NEMA Type 4-rated enclosure to minimize the impact from wildlife, insects, dust and weather. The solar panels would power a proven ½ horsepower, 4" Franklin Electric submersible motor trusted for its reliable operation – an important benefit since the system's professional installers were visiting from the U.S. and would have limited time to support and service the installation.

***"Given our very specific needs, FE Select allowed the project's stakeholders to easily input application-specific requirements and identify the exact pumping system to fit the needs of an entire village halfway around the world."***

–Travis Behymer, Water Works

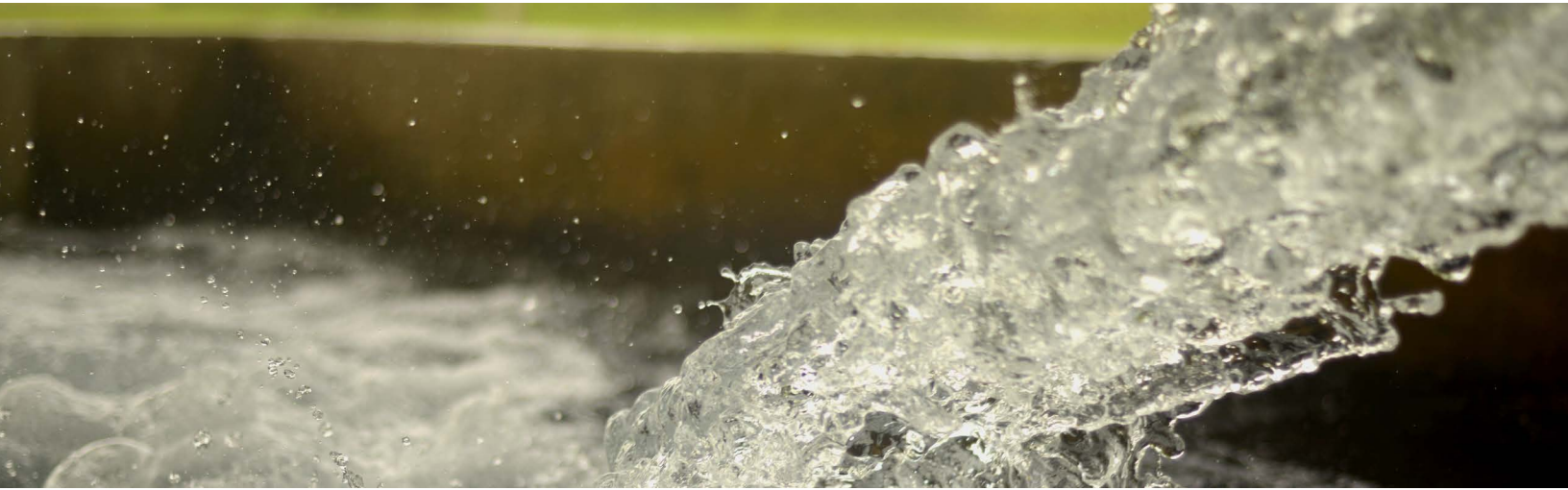
**700+** PEOPLE DIRECTLY BENEFITED FROM HAVING RUNNING WATER

**200+** CHILDREN IMPACTED THROUGH CERTIFIED, FUNCTIONAL CLASSROOMS

**1** SINGLE SOURCE FOR A COMPLETE PUMPING SYSTEM SOLUTION

### SYSTEM FEATURES

- **High-flow, solar-powered system for faster tank-fill and significant water output**
- **Proven Franklin Electric 4-Inch submersible pumping system for long-term reliability**
- **Photon™ Solar Controller includes built-in diagnostics, protections, and soft start feature to prevent water hammer and increases system life**
- **Simple installation and no required maintenance, helping to minimize the challenges of harsh and remote environments**



The high-flow system would also provide faster tank-fill and significant water output, giving the community not only running water – but a better overall water experience.

## THE RESULTS

Franklin Electric’s solar product line provided the Koch team with everything they needed to install the system and get it operational in their limited time at the Uganda site. The pump, motor and drive were all included and engineered for easy installation and no maintenance performance.

The new system immediately began leveraging the natural resources to make water happen. Into the future, the Photon solar controller’s built-in diagnostics, protections and soft start features will help support the system’s reliability and prolong it’s operational life — guaranteeing an investment that benefits the community for years to come. The ultimate goal is for the Koch team to install an additional tower during future visits, helping to supply the community with running water for numerous other parts of the school, orphanage and medical clinic.

Solar Irradiation for Rakai town: 5.55 Solar Hours



## PERFORMANCE DETAILS

- **Flows: 7 GPM (25 LPM)**
- **Heads up to: 165 ft (72 PSI)**
- **Pump Size: 4-Inch 3200 Series, 10 Stages**
- **Power: ½ Horsepower**
- **Average of 5.5+ hours of solar irradiation throughout the year**

## RESULTS

- **Delivered solutions for water system reliability**
- **Simplified system selection**
- **Reduced installation and maintenance time**



Simply input your location, duty requirements, and solar panel characteristics (if known) and FE Select will automatically recommend the solar pumping solution and panel array configuration that suits your application.