UNH Students Rethinking Energy Delivery

Today 1.1 billion people lack access to electricity. But, the industrial grid – the old-fashioned solution for electrification – may no longer be the modern solution for developing communities across the world. Specifically, in Ghana, the rippling effect of climate change plus the growing population and nationwide cottage industries are severely taxing the very limited access to energy throughout the country. The primary source of electricity in Ghana is generated from the flow of water from Lake Volta. While hydropower is a "clean" source of electricity, it is also an unreliable one for this region. Communities that rely on this power are plagued with frequent blackouts caused by decreasing water levels and increasing energy demands. Five UNH students and alumni are rethinking the way energy is generated in a rural village in Toh-Kpalime, Volta Region, Ghana through a community solar power system.

UNH Solar Power for Schools (UNHSPS) partnered with a range of collaborators in New Hampshire, Canada, and Ghana to design a solar panel system for the Liberation Takumi Community School as part of a senior capstone project at the University of New Hampshire in 2013. Over the last two years the project morphed into a four-phased approach to effectively address energy access in Toh-Kpalime and energy awareness in the United States: preliminary system design and New Hampshire community outreach; initial site assessment in Toh-Kpalime; installation and community training in Toh-Kpalime; and monitoring and expansion of the system. The first and second phases were successfully completed between September 2013 and August 2014. In January 2015, UNHSPS will return to Ghana to work with a local photovoltaic distributor to install, start-up and educate the community on use of the solar panel system.

During the course of this project UNHSPS continuously strengthened their network so the team is not only building a PV system for a community: they are working with the community to determine: how this system will impact life in the community, how it will be used, and how it will be maintained. While providing a photovoltaic energy system for 200 enthusiastic children at the Liberation Takumi Community School is at the forefront of UNHSPS's mission, creating energy awareness and sparking interest in the STEM fields there and in the United States is also one of the major goals. UNHSPS hopes to bring these energy challenges from the global scale to the local scale in order to inspire young students to tackle the major energy problems that our society will face in the future. At Mast Way Elementary School and Oyster River Middle School UNHSPS has held assemblies and classroom visits in order to relay the challenges and successes of the project in Toh-Kpalime, and also to teach students the differences between renewable and non-renewable energy.

UNHSPS estimated that the budget for the design, travel, accommodation, and installation for the third phase in January 2016 to be $26,000. To date, UNHSPS has received approximately $20,000 in donations to support this phase of the project. In order to make this project a reality for the community of Toh-Kpalime, UNHSPS has to raise an additional $6,000 to cover in-country expenses including community solar training, a translator, accommodation and food for five students, and roundtrip ground transportation from Accra to the site. *Contact Katerina Messologitis at unhsps@gmail.com or visit www.unhsps.org for more information about supporting UNHSPS's initiative.*

Headmaster of Liberation Takumi Community
Accepting UNH Wildcats Shirt

UNHSPS members (Katerina and Zachary) with
Chief and Elder of Toh-Kpalime