

## ECE ALUMNUS BRINGS CLEAN ENERGY TO GHANA

When Steve Tonissen (EE '70) talks about his experience with the people of Kasei, Ghana, you feel his passion and you want to help, even if you have never stepped foot on African soil.

Most of the village residents in Kasei are farmers, some are shopkeepers, and others are government workers. With only 2,300 people in the village, more than 550 are school-aged children. In Ghana, children can attend up to the equivalent of ninth grade for free, then they must pay to attend grades 10–13 and to go on to college.



An issue larger than money, however, is finding time to go to school. Kasei, like many villages, has no reliable source of electricity except for the power that runs to the school and hospital. The majority of the farm work is done by families during the day without technologically advanced equipment, making it more time consuming and labor intensive.

For less than \$50 per person and with the support of his very good friends at BASIC, Tonissen is working to change the villagers' lives using hydroelectric and solar power. Kasei is abundantly sunny, with major aquatic resources. Tonissen estimates that with a single 5kW solar-powered generator or a low-head hydroelectric dam at the nearby river, the villagers could have one energy-efficient light bulb per household and enough power to enjoy basic necessities such as a refrigerator, radio, and Internet access.

The world has seen the economic stimulus that electricity can provide to remote areas, however, in the past it was often provided in environmentally irresponsible ways. Relief groups provided kerosene and diesel-powered generators, but the cost of fuel and the environmental impact of the generators have reduced their viability as an energy source. The solar and hydro systems that Tonissen's group will provide will use cost-free renewable resources, giving the villagers a long-term sustainable solution.

So far, the group has developed a library and computer facility, sent textbooks for the children, and is providing training for teachers. The next step is to alleviate labor demands on the farms so young villagers can continue in school and farmers can more easily tend to their crops. Once power is provided, the group can create a long-term farming plan with the villagers. They have purchased more than 650 acres of farmland to begin economic development of the village. The farm will likely implement solar- and hydro-powered microgrids to provide power to housing, farm buildings, and outlying structures on the property. The entire project will cost roughly \$500,000. BASIC and Tonissen still need support to reach their goals and change the lives of the Kasei villagers. To find out how you can help, contact Tonissen at 312-342-8895 or [stonissen@smartsignal.com](mailto:stonissen@smartsignal.com).

