

Energy and Resources Group Fall 2009 Colloquium Series (ER295)

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THE ROLE OF RENEWABLE ENERGY EDUCATION IN THE DEVELOPMENT OF THE WEST AFRICAN ENERGY SECTOR

110 Barrows Hall / 4:00 p.m.

The modernization of the West African energy sector will require an indigenous labor force and policy leadership educated in renewable energy technologies. Addressing the demographic trends of rapid population growth, urbanization and low population density will require West African energy professionals to build renewable energy infrastructure in close collaboration with serviced communities. West African leaders will be tasked to finance this renewable energy infrastructure while facing declining economic growth, increasing national debt, dependence on few primary exports and increasing fossil fuel costs. Thus West African political leaders must have technical knowledge of renewable energy technologies while energy professionals must be versed in community engagement in order to transition from fossil and wood fuels to the renewable energy sources which will characterize the 21st century. Creating a new generation of West African leaders knowledgeable of the opportunities and realities of renewable energy echnologies requires changing the current educational system. West African educational institutions have been shaped by governmental policies to increase access to education, e.g., Universal Basic Education. These policies have spread academic resources thin, leading to ubiquitous large class sizes, low teacher salaries, and limited investment in textbooks and laboratory facilities. We address the need to extend science learning outcomes through science service learning programs in Mali and Ghana. This pedagogy of science service learning simply promotes student application of classroom skills to energy issues relevant to and chosen with local community organizations. We discuss strategies to implement community based learning programs in the face of scarce resources and ingrained educational practices. In particular, the benefits of educational pipelines composed of secondary schools, university, industrial, governmental and non governmental organizations is discussed. Specific examples of partnerships with Malian solar panel distributors, Ghanaian HVAC installers and development agencies serve as case studies. Technologies of ongoing science service learning programs include the construction of geothermal cooling systems, photovoltaic lighting systems, photovoltaic water filtration systems, and efficient wood stoves.