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Studying the Relationship between Energy Consumption and Poverty

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2015 Research and Creative Experience for Undergraduates (RCEU) Program

Proposed Title: Studying the relationship between energy consumption and poverty

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Project Summary

Energy consumption has been in the limelight in the last decade. The source of energy has been the cause for this debate since much of the energy produced has been from coal. About 40% of the electricity generated in the U.S. is from coal. When coal is burned to produce electricity, sulfur dioxide, nitrous oxides and other particulates are released in to the air that pollutes the air. Yet we continue to use coal to generate electricity.

On June 2, 2014 the Environmental Protection Agency proposed a plan to cut carbon pollution from power plants called the Clean Power Plan. The purpose of this plan is reduce pollution and protect the health of individuals especially the future generations. However, this has been met with opposition from some states, especially in the southeast region, like Alabama since this would increase the price of electricity as the cost of producing electricity goes up.

Alabama is ranked 15th overall in the production of energy and ranks 12th in total energy consumed and the retail price of electricity ranks 33rd with 11.88 cents per kWh. Alabama has been taking initiatives to implement improvements in energy production and consumption. In North Alabama for instance, in July 2014, energy efficiency organizations, technology solutions companies and UAH research centers decided to collaborate to create new energy efficiency initiatives.

The relationship between energy and poverty has been established in the literature. At the national levels in many countries, studies have been conducted to show that energy consumption is high in areas of high poverty. The purpose of this study is to study the relationship between energy consumption and poverty in the southeast. The southeast region faces high poverty rates and electricity costs are disproportionately high.

In this study, we plan to look at the relationship between areas of high poverty and the rate of energy consumption and the price of electricity in Alabama. We propose to examine median income and electric utility costs in these areas, to establish the connection between poverty and energy consumption. A combination of high energy costs and increased poverty results in fewer families that are able to afford to

weatherize their homes or purchase energy efficient appliances for their homes. This creates a vicious cycle where the family spends more on energy thereby unable to rise out of poverty.

Student Duties:

The student will collect data on energy consumption in the state of Alabama by electric utility from the Energy Information Administration. The data will then be organized by utility and sectors (residential, industrial, commercial). The focus of this study will be the residential sector.

The student will also gather data regarding incomes, residential characteristics, and electric utility costs at the household level from the U.S. Census Bureau county level poverty and population data.

An analysis of the data will be carried out to determine the relationship between poverty rates in different counties and electric utility costs.

The results of the study can be used to determine what and how electric utilities and the state can do to provide energy efficiency programs that reduce energy bills and help alleviate poverty.

Supervision: Dr. Brinda Mahalingam will work closely with the student in gathering and analyzing data from different sources. The research group will meet at BAB 314 on a regular basis.