

THE IMPORTANCE OF RENEWABLE ENERGY AND SUSTAINABILITY

GOAL: In this summer experience, students will be introduced to renewable energy, mostly solar and wind. We will introduce storage and utilize an inverter to convert DC (Direct current) to AC (alternating current, like the one at home)

OUTCOMES: 1. it is intended to have students learn the modeling of solar and wind generation and consequently, learn the fundamentals of several software packages. 2. Students will install and operate a set of solar panels to light up an incandescent light bulb. 3. Students will have a close view of the importance of renewable energy and its effect on the system (smart grid) specially its impact on the environment. 4. Several software packages will be utilized, such as: Pspice computer simulations, Simulink computer simulations, Labview computer simulation.

ADVANCED GOAL: To learn the operation and programming of an Arduino microcontroller to control stepper motors/dc motors. (Selected students with programming experience will be involved in this advanced goal)

PREREQUISITES: Be a participant of the AIMS2 program.

RESULTS: By the end of the summer AIMS2 students will be required to identify an elementary school or middle school and present/share the lessons learned.