

## UNDERGRADUATE SUMMER RESEARCH PROGRAM PROPOSAL

- Project title: **Analyzing the Impacts of Power Outage Time and Duration on Solar Energy Systems Planning**
  - Faculty advisor: **Josue Campos do Prado**
  - Project description

This project aims to investigate how power grid outages affect solar photovoltaic (PV) systems planning. In particular, we will investigate the impacts of different power grid outage times and durations on the optimal sizing of solar panels and energy storage systems for residential and commercial buildings. The simulations will be performed using the REopt software, developed by the National Renewable Energy Laboratory (NREL).
  - Deliverables
    - A Technical paper comparing the cost-effectiveness of different residential and commercial solar PV and energy storage systems for several power outage times and durations. The results obtained in this project may be used as preliminary results to support a future external proposal.
  - Time requirements

200 hours. 25 hours per week from May 16 to July 15.
  - Constraints

None
  - Required skills and knowledge
    - Basic Microsoft Excel skills
- Note: No previous experience with REopt software is needed. Dr. Josue Prado will provide necessary training.
- Preferred qualifications
    - Self-motivation
    - Time management
    - Ability to quickly learn and apply new technical skills
    - Interest in power and energy systems