# Project Scope

The aim of the project is the design and implementation of a 24-hour solar panel generation and distribution system. The scope shall define the expected outcome and deliverables, including the processes leading to these.

The outcomes include:

* Development of a solar panel system consisting of the following:
  + Solar panel
  + Battery
  + Battery Charge Module (BCM)
  + Power Distribution Module (PDM)
  + Baseload
* Develop a web application to manage the solar panel system. The web application shall include a graphical user interface GUI to represent the user appliances and show the power draw of each
* The system shall supply power generated by the solar panels to the base loads which consists of the user’s household electronics, and charge the battery which in turn supplies power to the baseload when the panels cannot generate power.
* A model of the system based on demonstrable solar and electricity calculations. This model shall allow for end-user inputs for calculation parameters through the web application based on user requirements and shall produce results in a user-friendly format such as graphs and tables.
* The system is to be modelled over 24 hours and shall take into context solar elevation angle leading to variations in solar intensity and therefore power generated as the sun rises and sets. This includes periods of no power generation corresponding to night-time where the system runs on battery. The model is to be done over two instances corresponding to the summer and winter solstices respectively.
* Decide if the user system configuration can provide power over 24 hours in both summer and winter.
* Define upper and lower power limits of solar panel system.