Problem Statement

In Australia, energy is an industry that generates 20 billion Australian dollars in revenue each year. Among them, solar and wind energy are relatively cheap and environmentally friendly sources of power. Last year, 60% of South Australia's electricity was renewable energy. But among them, 70% during the daytime was renewable energy, but at night only 38% was renewable energy.
IO Energy is an energy company located in Adelaide, South Australia. They hope to use a time-of-use pricing to reward customers for using more clean energy to reduce carbon emissions, by providing an 80% discount on electricity that is used between 10am and 3pm.

The demand of IO Energy is to create an interactive web application (e.g. a dashboard) with an attractive user interface along with data analysis method and machine learning, for the purpose of helping customers understand their energy consumption in detail, examining energy consumption on a daily basis, persuading them to utilise more daytime energy, saving costs, and reducing carbon emissions eventually.

However, in the current market, most electricity suppliers provide different supply plans for households or businesses. However, researching customer’s daily power consumption habits and formulating more energy-saving and money-saving programs are still very few in the current market. Hence, it will result in a lack of corresponding background research, user behavior analysis and competitive product analysis for this project.
In addition to this, in the process of conducting data analysis, it is necessary to establish timeliness and accuracy, and make predictions and energy usage plans for customer’s daily electricity consumption. In this project, the measure to collect, monitor and clean data is also a big problem. Last but not least, how to ensure the privacy of user data is also a question worth studying.

Problem for Clients

Organisational

- What is the business model of IO Energy? How does it make profit from customers?
- How many people are there in the company? How many people are in charge of this project?
- The dashboard for data visualisation - who is currently using it?
- Is the smart meter device the key to the energy detecting and control process? Which is to say, the whole analysis of customers' energy consumption is based on the presumption that the customer actually owns the smart meter?
    - If so, it seems that this project may be closely related to some hardware management? Do we need to deal with this part?
- We all know that energy companies offer different prices for different times, cheaper during daytime and more expensive during peak hours. But the question is, even if we can provide suggestions for customers that they should avoid peak hour energy usage, how can this be practical, given energy use relies on one's daily routine? (offers customers an 80% discount on electricity they use from 10am-3pm)

Environmental

- Is solar energy the main resource for people to use during the daytime, or are there any other clean energy that can be put into use to reduce carbon emissions?
- Are there any competitive companies/products that operate in the same way as IO Energy does?
- How is data collected, and what kind of data is collected? And in what kind of format?
- How much data is collected on a daily basis?

Customers/Users

- What is the target market? Does the energy saving strategy benefit more households, businesses or both?
    - Any other customer segments apart from households or businesses?

Value Proposition

- When customers use IO Energy products, how should they interact, experience and get value from it? Why should a customer choose your product or service?

Perceived Gap

- Is there a perceived gap between what customers are expecting and what product can offer?

- If so, what gap does it form? What kind of opportunities can be derived from this gap?