Design Criteria for a design idea

The below design criteria are used by each team member to satisfy his/her design idea with a standard design criterion. Please use the below 7 design criteria's that your design idea should satisfy expected design criteria

1. Team member Name

   Justin Nguyen

2. Team member - Student ID

   104309099

3. Please choose the workshop you or your team member attended as per your timetable (don't give us unmatched information)

   Wednesday Workshop 10 10:30 am - 12:3...

4. Please choose your or team member team (Team 1, 2, 3, 4, 5, 6)

   Team 2

5. Design Criteria 1 - Choose minimum 3 approaches (used in your design idea) *

   - [x] Analyse

- [ ] Reduce
- [ ] Eradicate
- [x] Prevent
- [x] Predict

6. Design Criteria 2 - List 3 different technology for 3 different approaches in your design idea (one technology for each approach) *

Analyse: The monitoring algorithm in the energy management system.
Prevent: The latest energy-saving technologies.
Predict: The machine learning algorithms.

7. Design Criteria 3 - List at least 2 or more different devices/tools for each approach in your design idea(at least 2 devices/tools for each approach, your design should have 3 approaches) *

Analyse: Smart meters and the energy management system (EMS) provide real-time information about energy consumption, allowing us to identify when and where the most energy is being used.
Prevent: maintenance tools for the system and the upgrade of both software and hardware components.
Predict: The devices used data analytics tools and learning machines.

8. Design Criteria 4 - List 3 benefits and explain in a few words how your design idea is beneficial to the end user/community? *

Cost savings: Community members can significantly reduce their electricity bills by generating their own electricity and using excess energy stored in the BESS.
Energy independence: The community can become less reliant on the grid, giving them greater control over their energy supply and their expenditure.
Environmental impact: Using renewable energy reduces greenhouse gas emissions and energy waste by storing excess energy for later use.

9. Design Criteria 5 - List 3 Impacts and explain in a few words how your design idea is impacting the community *

Improving infrastructure: As the community becomes more self-sufficient in terms of energy, many fields of the economy could be developed, like tourism, education, or service providers.
Energy awareness: Implementing this system could increase the awareness of energy consumption and conservation among the community.
Job creation: The installation and maintenance of the system could create new jobs, reduce the number of unemployed people in the community.

10. Design Criteria 6 - List 3 guiding principles and explain in a few words how your design idea will satisfy a particular guideline principle(Check your canvas week 1 module for more information on 6 guiding principles) *

Access and Equity: The system provides all households in the community with access to a reliable power supply.
Health and Safety: The system improves public health and safety by using renewable energy, which helps improve air quality.
Affordability: The system can reduce electricity costs by using stored energy during peak demand times, making it an affordable solution for the community.

11. Design Criteria 7 - List 2 constraints/challenges and explain in a few words how it is affecting the end user/community *

Initial investment: The upfront cost of installing the system can be high. However, the cost can be decreased over time through savings on electricity bills.
Technical knowledge: Operating and maintaining the system requires some level of technical knowledge, so training for the community is needed.
Weather dependence: The energy received depends on the weather conditions and the time of year.
Battery lifespan: The periodic replacement of batteries in the BESS can be expensive.