Aquatic Centers

From seasonal outdoor splash pads to year-round swimming pools, aquatic centers offer a variety of aquatic activities like lap swimming, recreation, and even water slides. However, their popularity comes at a high energy cost, leading to high emissions and operational expenses. Recognizing this challenge, many centers are taking a sustainable approach, aiming to lessen their environmental footprint and save money through improved energy efficiency and smarter operations. To achieve this, the CCR has worked with aquatic centers across several Australian cities to identify areas for improvement.

Aim:

- To find ways to improve how the facilities uses energy, making it more efficient and cost-effective. This will reduce the amount of energy consumed, leading to lower operating costs and a smaller environmental footprint.

Challenges:

- Effective resource management.
- Proper asset management and monitoring building health and environment.
- Maintaining visitor comfort and safety.
- Ensuring efficient energy usage.

Solution:

- HVAC: Replacing R22 refrigerant with natural ESE Engas can save between 25-38% of energy.
- GEOTHERMAL HEAT PUMP: Installing a geothermal system can significantly reduce gas, electricity usage, and greenhouse gas emissions.
- PUMPS: Smart flow metering can lead to 5% energy savings, optimizing operations and reducing resource consumption.
- SUB-METERING: Provides energy consumption insights, individual equipment performance, and aids in decision-making, resulting in 10-12% energy savings.
- THERMAL ROOF PROTECTION: Thermoshield coating can insulate metal roofs, repel radiant heat, and reduce heat transfer, lowering building cooling costs.
- Leisure World can save over $55,000 by implementing the solutions mentioned above. However, even greater savings can be achieved by integrating solar panels.

Network:

Modbus, Bacnet, 4GLte, LoRa, LoRaWAN, Ble

Scope of Expansion:

- DUAL-SUN: Future exploration of Dual-Sun's hybrid thermal/PV panel technology can provide sustainable and renewable solar energy for electricity and thermally heated water.
- COGENERATION: Although viable, gas-fired cogeneration is not recommended due to cheaper and renewable alternatives like boilers and PV systems.
- PUSH BUTTON SHOWERS: Implementing push button showers can reduce water wastage and water heating requirements, offering high returns on low investments.

Success Criteria:

- Achieve significant cost savings.
- Achieve the project objectives within specified time and budget constraints.
- Provided value in alignment with project goals.
- Improved visitor experience.
- Lower the carbon emissions

Key Outcomes

Energy Efficiency	**Improved Guest Experience**
Smart and Real Time Monitoring	**Reduced Energy Costs**