INTERNATIONAL ACADEMY for QUALITY

Quality Sustainability Award
International Academy for Quality

IAQ QUALITY SUSTAINABILITY AWARD 2022 ONE-PAGE SUMMARY

The One-Page Summary should be in English and submitted as Appendix 1 to your Application. It will also be published on the IAQ Quality Sustainability Award Homepage; http://iaqaward.com . The length of this document must not exceed 1 page.

Project and contact details

The name of the quality sustainability project: **Waste to Wealth by using Unique Thermal Storage System**		
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Organisation(s), country, where the project-members are working, including Web-page links Mahindra & Mahindra Ltd., Pune, India, www.mahindra.com		

Project description

Mahindra and Mahindra Chakan-Pune plant is the biggest plant in M&M. We have many process shops for catering to multi model production. During inception stage, these process shop roofs were "design protected" to take care of Solar PV panel weight.

As per the Sustainability Road map of the sector, to increase renewable energy % in the manufacturing, we started installation of Roof Top Solar. This was purely for Captive usage. By the end of March 2021, we had installed total 6.35MWp capacity Solar PV inside the premises. This generated close to 1 million units annually.

Problem Description: Entire solar generation was consumed during manufacturing days but during paid holidays and during weekly off days, the demand was very less hence the generation was not utilised fully.

"Plant Demand and Solar Supply not matching during non-working days of Plant resulting in loss"

PDCA Approach as below:

- Enlisting of all energy sources used in the plant
- Alternate storage system possibility worked out and ruled out conventional battery storage as it is not sustainable
- Thermal storage system finalised in place of battery storage
- Electric heaters installed in the 5 KL insulated tank
- Whenever throttling command given by the system automatically, we started the electric heating system to heat the 5KL tank
- To take advantage of Renewable energy, we integrated Solar Thermal circuit to heat the same tank
- During start up, instead of electric heating, we used the heated water to heat solvent tank.
- This method reduced the start-up energy cost during every start up

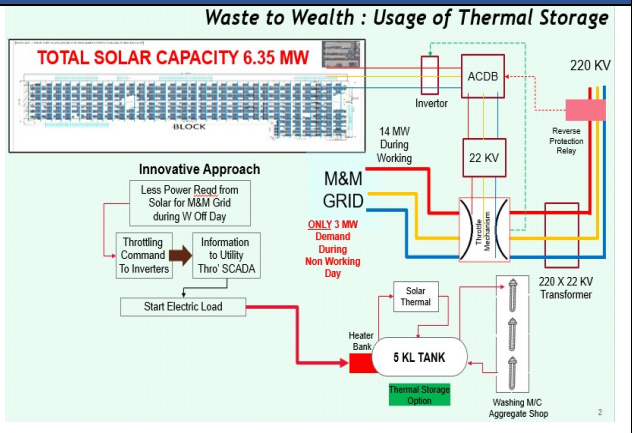
Results: Energy conservation 71,000 Units per year, GHG emission reduction:56 Tons and Notional environmental hazard elimination if we would have selected Battery storage option. By doing this, we touch upon following UN Sustainability development goal
GOAL 12: Responsible Consumption & Production, GOAL 9: Industry, Innovation and Infrastructure & GOAL7 : Aff Clean Energy

Project leverage potential

Due to increase in Power Tariff of State Electricity Boards, more and more companies are installing Solar PV Power plants. The declining cost of PV systems and clean image of the company in terms of Renewable Energy are the main drivers.

Generally, the installed capacity of Solar plant depends on average production volumes. In case there is lower production or during non-production days, the excess solar energy becomes unutilised and goes as waste. Owing to this, the planners are very cautious in selecting the Capacity. By this they minimise waste but at the same time during needed hours, they don't get so much generation. Our innovative sustainable model bridges the gap and planners can optimise RE capacity as per their need and meet the "Supply and Demand" by eliminating loss

Picture/Image describing the project



Note. More information about the award and how to apply can be found on the IAQ Quality Award homepage