

ASSESSMENT OF ENERGY SAVING OPPORTUNITIES AT TANZANIA BREWERIES LIMITED (TBL)

A Case Study of Dar es Salaam Plant

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Tanzania Breweries Limited Dar es Salaam plant has experienced high energy consumption over recent years hence presenting high total cost of production despite the set targets and measures for energy usage reduction. This research assessed the energy saving measures employed in the brewery and finally developing new measures to assist on energy and cost saving. Energy flow and consumption analysis within the brewery were conducted according to IEEE SA 739-1995 standard. The analysis for energy saving opportunities has been conducted as well as financial analysis for new opportunities and respective measures using Life Cycle Cost Analysis (LCCA) for 10 years life time of the facility. The analysis showed that the first feasible option is mixing the biogas and natural gas for boiler firing which resulted to Net Present Value (NPV) of 324 million shillings and the Internal Rate of Return (IRR) of 42% with cost saving of 120 million shillings annually, the second feasible option is installation of small standalone biogas boiler which resulted to NPV of 265 million shillings and IRR of 34% with cost saving of 120 million shillings annually, the third feasible option is replacement of the existing normal lights by the LED ones which resulted to the NPV of 69 million shillings and the IRR of 26% with cost saving of 31 million shillings annually. The last feasible option is boiler efficiency improvement by re-insulating the hot surface which resulted to the NPV of 43 million shillings and the IRR of 23% with cost saving of 31 million shillings annually. The research findings revealed that the most feasible option to be employed for quick energy and cost saving is mixing the biogas and natural gas for boiler firing followed by replacement of all normal lights by LED ones at the brewery and boiler hot surface re-insulation.