

Opportunity to Run Cold Storages in Bangladesh from Waste Heat Recovery

Background

Agriculture contributes around 20% to the GDP of Bangladesh. Sustainable supply of energy is one of the major catalysts required to boost agricultural production and sustainable management of agricultural products. Limited access to cold storages, packaging and transportation is a major constraint in the production of larger quantities of potatoes, vegetables and fruits. On the other hand, present trend of inefficient use of energy in power stations has significant impact on energy management and cost of energy production. Innovative and efficient technological interventions can address these issues and reduce energy consumption in parallel to fulfilling energy demand for electricity generation. Aiming to revamp the Bangladesh cold storage industry within a framework that involves new technologies, new sources of energy and new refrigeration techniques in a financially viable manner, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is exploring the potential of using waste heat from power stations and invigorating it with an innovative technological solution to operate cold stores.

Our Approach

GIZ, on behalf the German Federal Ministry for Economic Cooperation and Development (BMZ), together with Bangladesh's Ministry of Power, Energy and Mineral Resources, aims to create the enabling conditions required to disseminate renewable energy technologies and increase energy efficiency in Bangladesh.

GIZ has conducted a feasibility study to explore the potential of utilising waste heat from power stations. The central idea is to introduce a new technology that can be used to provide energy for refrigeration for cold stores in conveniently located sites. Clean Energy Alternatives Inc. (CEA) is the GIZ contracted consultant for the study.

Technology Proposed for Recovering Waste Heat

The state-of-the-arts technology proposed for the project is the Water-Lithium Bromide Vapour Absorption Refrigeration System in place of conventional vapour compression cycle practiced in Bangladesh. The project aims at developing a programme to revamp Bangladesh's cold storage industry within a framework that involves new technologies, new sources of energy and new refrigeration techniques in a financially viable manner.

Findings of the Study

The study has revealed that waste heat from power plants in Bangladesh is a large source of useful energy that can be used as primary energy to power downstream industrial activity including cooling and refrigeration and is a technically and financially viable option in the context of Bangladesh. The assessment of waste heat potential from selected power hubs has shown that there is a large amount of waste heat that can be utilised.

Future Prospect

Based on the analysis, two sites, Ashuganj Power Station Complex and Shahjibazar Power Hub were selected which are deemed the most promising locations for a demonstration plant, considering both cold store demand and waste heat availability. As per study recommendation, the Honourable Energy Advisor to Prime Minister has instructed to construct a 5000 MT capacity cold storage at Ashuganj Power Station Company at its adjacent premises by own financing initially. A Task Force has already been formed in this regard and is currently working towards this goal. The task force is also exploring the demand for cold storage at site specific situation. Moreover, conceptual feasibility study for alternative use of recoverable waste heat at different power plants for food drying or cold chamber application is under process.



Photo (Left): The Honourable Energy Advisor to Prime Minister addressed at the final stakeholder consultation meeting at SREDA

Right: Power stations can provide energy to cold storages

Published by

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

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As at

June 2017

GIZ is responsible for the content of this publication.

In cooperation with



On behalf of

Federal Ministry for Economic
Cooperation and Development (BMZ)

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