The Energy and Resources Institute

IGES Joint Crediting Mechanism Capacity Building in India for FY 2013

Executive summary

TERI and IGES have been collaborating in developing the capacities of various Indian stakeholders like government officials, industry and consultants on Clean Development Mechanism (CDM) for a number of years. During the Financial Year 2013-14, TERI and IGES focused on capacity building of stakeholders on joint crediting mechanisms. The main objective of this year’s activity was to raise awareness on opportunities of joint crediting mechanism and Japanese low-carbon technologies.

Activities

The following three activities were conducted under this project.

1. Developing a research paper on a Japanese low-carbon technology;
2. Organization of two workshops in India;
3. Provide inputs to the MRV methodology development for low-carbon technologies.

The highlights of the tasks undertaken under each of the above mentioned activities are provided below.

Developing a research paper on a Japanese low-carbon technology

India is the second largest producer of cement in the world. The Indian cement industry, which is largely in the private sector, is comparatively energy-efficient and has adopted modern technologies. The industry is always looking for new energy-efficient technologies for increasing their profitability.

A number of Japanese low-carbon technologies have significant application potential in India. One such technology is waste heat recovery (WHR) from flue gases in the cement industry. On an average, about 55% of the thermal energy input in the cement kiln is utilized in clinker formation and the balance is lost through various exhaust flue gases and surface losses. The kiln exhausts gases and hot air from cooler account for about 33% of the waste heat and hence is a good potential area for heat recovery.

Cogeneration or waste heat power generation (WHPG) system will utilize the waste heat to produce electricity thereby reducing the overall energy cost of cement plants. A cogeneration system utilizing the waste heat can deliver up to 20% of total electrical energy required for the process.

Kawasaki Heavy Industries (KHI) of Japan is one of the leading suppliers of WHPG plants to cement industries. Till date, about 212 plants in cement industries, located in different parts of the world, are using KHI’s technology. However, only one cement plant has adopted KHI’s technology in India. Considering the huge potential to scale-up the technology in India and the overall energy saving potential at the national level, the technology was selected for preparing the research paper.

TERI conducted an extensive literature review of the technology. Further, consultations were held with KHI India Office to seek information about their WHPG technology. TERI met senior officials of KHI India to learn more about the technology and explore possibilities of cooperation to promote the technology within the cement industry in India.
Executive summary

India. KHI showed keen interest to collaborate with TERI and IGES and agreed to participate and make a presentation on the technology at a workshop to be organized under the project.

During the interactions with KHI, it was found that a demonstration WHPG plant has been installed by them at India Cements in Andhra Pradesh in 2004, under a project which was supported by NEDO. In order to get a first-hand insight into the performance of the technology, a field visit was organized in December 2013 to the demonstration site. Representatives of KHI India joined the IGES and TERI team for the site visit. Some of the insights gained about the demonstrated technology during the plant visit are highlighted below.

- The demonstration plant has been operating successfully for the past 10 years;
- The 4800 tonnes per day plant kiln is consistently generating more power (between 8-11 MW) than designed (7.7 MW);
- The KHI technology has relatively lower maintenance issues compared to other competing low-cost technologies from China;
- If financial support for the investment is provided, the company is willing to adopt the technology for its other units as well.

A joint research paper on the technology has been prepared. The paper is presently being revised based on the comments received from internal reviewers. The paper will be published in a suitable journal later.

TERI, with the support of IGES, organized the following two workshops.
1. Stakeholder Consultation on WHR Technology for Cement Industry – 16 December 2013;