RESOURCE EFFICIENCY FINANCING OPPORTUNITIES IN THE TEXTILE SECTOR

Workshop on Reducing Water and Recovering Heat

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Implemented by:

PaCT Partnership for Cleaner Textile
• Scope for Energy Recovery in Industry
• Resource Efficiency Financing Approach
• Case Study of Resource Efficiency Financing
• Conclusions
Scope for Energy Recovery in Industry
PATH TO SUSTAINABLE ENERGY USE

Efficient energy distribution network

Heat recovery and process integration

Demand reduction

Process Improvement

Heat pumps and thermal chillers

Heat and cold networks

PINCH analysis
Heat exchanger networks

Efficient equipment (boilers, chillers, ...)

Polygeneration (Electricity, heat and cold)

Cogeneration (Electricity and heat)

Solar thermal

Renewable Energies

Biomass
WHERE IS HEAT WASTED IN AN INDUSTRY?

- Heat wasted in industry in processes and in utilities

Examples of heat wasted while meeting the process demand:

Cloth dyeing  Cloth stentering
Where is heat wasted in an industry?

• Heat wasted in industry in processes and in utilities

Example of heat wasted during energy conversion in utilities

Gas turbine

Boiler
Example of Heat Recovery to Minimize Fuel Cost

Heat recovery from gas engine/turbine to reduce fuel demand
Example of Heat Recovery to Minimize Fuel Cost

Performance of an efficient 1 MW gas engine*

INPUT
Gas cost = BDT 12.24 million/y

OUTPUT
Elec. value= BDT 4.90 million/y

MONEY LOSS = BDT 3.92 million/y
MONEY LOSS = BDT 3.30 million/y

*Average cost of gas purchased at BDT 7.5/Nm³, 75% load, 24 hours of operation during 340 days in a year
Example of Heat Recovery to Minimize Fuel Cost

Performance of the gas engine after modifications*

INPUT
Gas cost = BDT 12.24 million/y

OUTPUTS
Elec. Value = BDT 4.90 million/y
Heat value = BDT 4.90 million/y
MONEY LOSS = BDT 1.22 million/y
MONEY LOSS = BDT 1.10 million/y

* Average cost of gas purchased at BDT 7.5/Nm³, 75% load, 24 hours of operation during 340 days in a year
Example of Heat Recovery to Minimize Fuel Cost

Comparison of performance before and after installation of heat recovery systems

40% reduction of gas use will need investment that will be recovered in less than 2 years!
Resource Efficiency Financing Approach
Benefits of Resource Efficiency Projects

• Financial
  • Reduced operating costs;
  • Reduced energy bills;
  • Improved cash-flow and higher profit margins;
  • Loan repayment solely based on energy bill savings

• Operational
  • Improved management of facilities;
  • Increased equipment reliability and availability;
  • Improved productivity and product quality

• Environmental
  • Lower emissions
  • Better waste management
Resource Efficiency Projects: Low Risk

• Low-risk returns
  • Equipment/technologies well proven
  • Energy savings calculated using reliable and proven techniques
  • IPMVP (International Performance Monitoring and Verification Protocol) used to verify and monitor performance

• Long-term returns
  • Use of EE equipment and technologies generates a stream of benefits and improves effectiveness of the whole production line
  • Lifetime of most EE equipment typically in the range of 7-10 years
What can a Bank’s REF Product Offer?

- Evaluate technological solutions
- Assess technical feasibility and economic viability
- Link up with vendors and energy service providers
- Identify opportunity in resource efficiency and renewable energy use
- Package financing and mobilize funds for investment

Offer A to Z financing solutions to EE, RE and Cleaner Production
How can a Bank Work with the Client?

Exploratory meeting; commitment to pursue

- Introductory meeting
- Submission of energy consumption and equipment data/Client Identification Form
- Conduct walk-through energy audit/validate financial and technical data
- Compute potential savings for EE project and prepare financing recommendation for RE project
- Presentation of results to client

Client Decision

Bank assists the client in the energy investment by providing an appropriate financing program for a sustainable energy project.

REF goes through usual Financing Procedures
PROCEDURE FOR REF BY A BANK (1)

Phase 1: Project Development

1. Identify potential clients
2. Approach clients to inquire into their demands
3. Help clients execute energy audit
4. Assist clients in developing the project
5. Assess the project

Energy use questionnaire
Preliminary survey
Investment Grade Audit
Phase 2: Project Implementation Phase

- Loan application
- Credit assessment
- Loan disbursement
- Loan monitoring
- Loan collection
Case Study of Resource Efficiency Financing
**BACKGROUND INFORMATION**

- **Sector:**
  - Ready-made garment (RMG)

- **Client:**
  - Export oriented RMG company with a state of the art factory, involved in the production of textile and garment, dyeing and processing of fabrics

- **Project:**
  - Improve energy efficiency in the existing facility

- **Financial Product:**
  - BDT 25 million term loan

- **Bank:**
  - Dedicated Green Finance Team, seeking to expand the green finance portfolio
Cleaner Production Assessment

- Preliminary and in-depth cleaner production assessment:
  - High water consumption
  - Potential resources and energy saving potential in the dye house

- Identified measures through investment grade energy audit with USAID support:
  - Online efficiency monitoring system for boilers with oxygen trim
  - Insulating steam valves/flanges/fittings
  - Replacing vacuum tables with start-stop tables
  - Replacing T8 tubes with LED tubes
  - Installing steam traps and utility flow meter monitoring system
Bank’s Role after Due Diligence

• Bank identified four types of credit facilities to meet the client’s needs:
  • Foreign currency term loan
  • BDT commercial term loan
  • BDT term loan under the Bangladesh Bank green banking refinancing scheme
  • USAID energy grant

• Loan offered by the bank to the client:
  • Simplified the loan application process and management approval within a week
  • Structured a blended model of financing that facilitated finance at attractive terms
  • Loan repayment secured only using personal and corporate guarantees; no need for any collateral
PROJECT COSTS AND BENEFITS

• Investment and bank financing:
  • Total investment: USD 139,350
  • Bank financing: USD 126,580
  • Estimated simple payback period: around 4 years
  • Loan tenor: 5 years

• Expected annual benefits of the project:
  • 160,000 m³
  • 66,000 kWh
  • 390 MT
  • USD 31,000
Conclusions
Lesson learned from REF Projects

- Most energy intensive industries are content with the status quo of their core business and do not care about energy.
- **Strong commitment** from project owner and senior management is essential.
- Return on sustainable energy project is most often higher than return from core business.
- Avoided energy cost is sufficient to pay sustainable energy investment (loan).
- IGA from **experienced energy service provider** is critical to offer financing against guaranteed saving scheme.
- **Strong technology supplier** is a must to procure high quality energy saving product at affordable price from international market.
Win-Win Solution for the Bank and the Client

- **Benefits to the client:**
  - Easier access to funds and lower cost of funds
  - Improved E&S performance
  - Further financial access to the bank’s green finance portfolio
  - Enhanced reputation and market access

- **Benefits to the bank:**
  - Financial benefits
  - Gaining technical knowledge
  - Enhanced reputation and brand value
  - Further expansion of the bank’s green finance portfolio
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