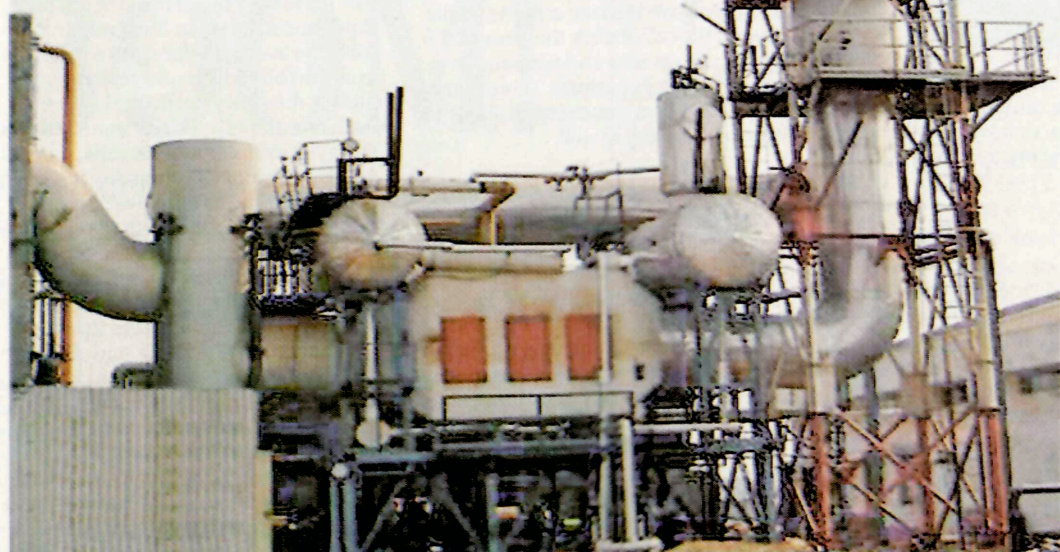


# Save energy intelligently and earn carbon credits!



Indian process industry now fully realizes that conserving energy can dramatically improve a company's bottom line while ensuring social good by protecting the environment.

Pune-based Transparent Energy Systems Pvt. Ltd. is a unique company that has been pioneering state-of-the-art customized energy and resource conservation projects.

Founded in 1986, the company started off as a super-efficient thermal equipment manufacturer. The company's Sales and Marketing Director B.G. Kulkarni explains: "From the very beginning, engineering superior efficient & maintenance free equipments has been the vision of the company. When the industry-standard for efficiency of oil/gas fired equipments was 87-88%, the company pioneered 95% efficient equipments." Petroleum Conservation Research Association (PCRA) highly appreciated this effort.

Since 1995-96, the company



has launched wide range of waste-heat recovery system designs to cater to variety of industries like Power, Cement, Fertilizer, Steel, Chemicals, Textiles, Pigments, Pesticides, and Food. Today Transparent are technology leaders offering application specific super efficient energy conservation systems. The company has today more than 150 Waste heat recovery system customers reaping large benefits from visionary technologies of Transparent. Many of them are in the advanced stages of obtaining Carbon Credits (CCs). Since last two years, almost all projects being engineered by Transparent are eligible for Carbon Credits because such waste-heat recovery systems vitally help the environment by

reducing CO2 emissions and global warming effects.

Underlining the specific challenge from the cement industry, Mr. Kulkarni says: "The implementation of waste heat recovery systems in cement industry had been a big challenge because these plants produce hot gases having high dust load. Therefore, traditional waste heat recovery designs are highly susceptible to loss of performance due to fouling. On the other hand, this heat, if converted into power, can render large savings for the cement industry."

Transparent has been able to measure-up to this challenge by developing a unique system that converts this waste-heat into power amounting to almost 25-30% of the total requirements of the cement plant, which is a major cost-saving. "Close to getting commissioned, the first two projects are being closely watched by the entire cement industry. Transparent is one of the very few companies in the world offering such technologies & has already acquired multiple Indian patents for these heat recovery processes & equipments involved."

## Returns on Investment (ROI)

Talking about the ROI of its resource conservation projects, Kulkarni informs that the ROI varies from project to project. "In some cases, the company investing in such projects can recover their investment in as less as 6 to 7 months, while for large scale projects, it comes to around 2.5 to 3 years." The CDM benefits from these projects can further substantially improve the ROI. Currently Carbon Credits are being traded at the rate of US \$13 per ton.

## Customized product engineering philosophy

Elaborating on the company's design & engineering philosophy, Mr. Kulkarni explained, "At Transparent, everyone firmly believes that it is by customizing application specific systems, that energy can be best conserved. Offering standardized, off-the-shelf products or

## systems from Transparent

Quintuple Cogeneration means energy output is produced in five different forms from a single fuel input. In this specific case, Transparent's natural gas fired super efficient "Quintuple Cogeneration" simultaneously produces electricity, hot thermal oil, steam, chilled water & distilled water (through thermal waste water recycling), thereby making the user industry zero-liquid effluent discharge plant.

## Process integrated Cogeneration system for Ceramic Tile Industry

According to Mr. Kulkarni, ceramic tile manufacturing process is extremely energy intensive. Energy costs reduction, therefore, can dramatically change a company's bottom line.

Last year, Transparent designed and successfully commissioned a novel process integrated cogeneration plant which utilizes the entire 100% of the waste heat generated in this cogeneration plant, resulting in phenomenal cost savings. This system also improves productivity of the process. The plant is running very satisfactorily with the bottom line of this ceramic industry moving strongly upwards going closer to the topline.

## Lean Low Btu gas fired Boilers

Last year, Transparent specially designed and manufactured Blast Furnace Gas fired steam boilers for steel industry, which are expected to reliably run 100% on Blast Furnace Gas without requiring firing of supplementary support fuels like heavy oil. This unique feature offered only by Transparent boilers will result in huge savings in cost of petroleum fuels. According to Mr. Kulkarni, this design of boiler can be readily used for firing wide range of Lean Low Btu Gases without the need of firing of support fuels. Transparent has applied for an Indian patent for this technology.

## High Temperature Recuperators for Heat treatment furnaces

Last year, for an automotive axles manufacturing industry in South India, which runs high temperature heat treatment furnaces firing on LPG gas, Transparent built on a concept-to-commissioning basis high temperature heat recovery recuperator system that preheats the incoming burner combustion-air to the temperature of 500° Celsius by recovering 100% of the entire technically feasible and recover-

## Unique Superefficient "Quintuple Cogeneration"



# CARBON TRADING

An eco-freindly market based approach to saving environment

A majority of the nations used non-renewable sources of energy that lead to the emission of greenhouse gases (GHG), it became essential to regulate emissions and reduce GHGs that cause global warming. A voluntary treaty, was signed by 141 countries (thus far), at the Kyoto conference to reduce Greenhouse emissions. The concept of Carbon Credits was thus born at the Kyoto conference.

Here's how the concept works: first a quota for each nation is established stating emissions limits based on population, potential economic growth and past emissions history. If a country produces less-emissions than it is allowed to, it can trade the offset amount in the international market with countries

that have exceeded their limits of emissions set according to the Kyoto protocol. In a country, credits are issued to companies that invest in renewable energy, energy efficiency, improved land use, forestry and agricultural practices and methane control programs.

While carbon credits are already tradable, implementation of the treaty is slated in two phases; the preliminary phase of the Kyoto Protocol is to start in '07 while the second phase starts from '08. The penalty for non-compliance in the first phase is E40 per tonne of carbon dioxide (CO2) equivalent. In the second phase, the penalty will be hiked to E100 per tonne of CO2.

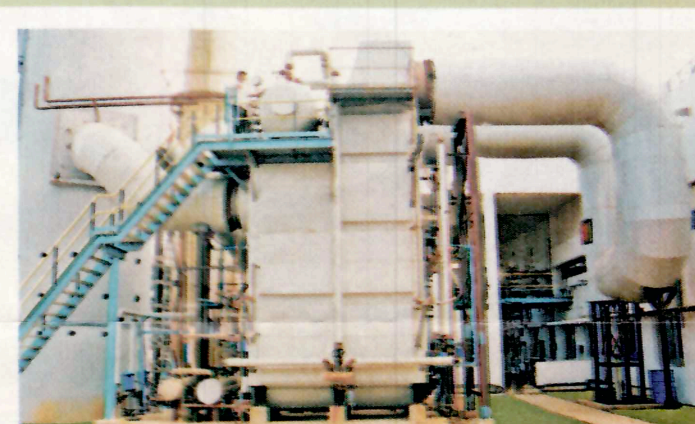
One credit is equivalent to one tonne of CO2 emission reduced. CC

are available for companies engaged in developing renewable energy projects. BG Kulkarni, Sales and Marketing Director of Transparent Energy Systems, a firm engaged in providing solutions in such projects, explains: "Our focus is on Clean Development Mechanism (CDM), that generates carbon-credits for the companies that are implementing them. Not only are these projects eco-friendly, they work out to be much better investment as compared to the traditional ones. Plus, of course, the advantage of income generated through the sale of carbon credits." The Credit Emission Reduction (CER) trade is set to flourish in India, as it is considered to be one of the largest beneficiaries.

able waste heat from furnace exhaust gases. According to Mr. Kulkarni the challenge was to maximize heat recovery and at the same time retrofit the system in continuous running plant with minimum modifications in the existing set up. Today the industry saves 175 Tons of LPG per year and the system payback was that time less than one year.

## Recent updates and achievements

With financial support from Maharashtra Energy Development Agency (MEDA), a state government promoted body, Transparent has recently developed a highly energy conserving 7-stage sugar juice concentrator which drastically reduces steam consumption in sugar industry from present 38-45% to 26-27%, measured as percentage of cane crushed. A pilot production plant built by Transparent to demonstrate the designed performance has been duly validated by UICT and IIT Mumbai. Transparent has been already awarded an Indian patent for this system and few more are expected. This is another pioneering effort that has the potential to change the whole economics of the sugar industry.



## Partnering with world class companies

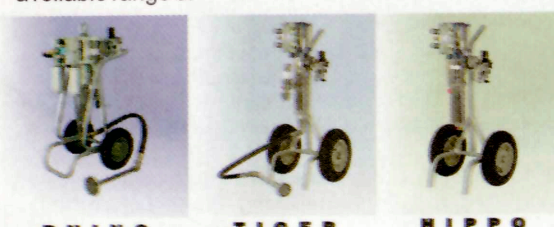
Since 1997, Transparent has partnered with German company, Mattes Engineering GmbH (who are successors of Deutch Babcock Borsig's AARP technology), for manufacturing of its world class ammonia-absorption refrigeration plants in India. Since then Transparent has manufactured several plants for its Indian & overseas customers including prestigious European customers. AARP are essentially driven by waste-heat or low cost heat produced on fuels like coal, biomass etc. They can produce

refrigeration down to -60° Celsius. With no moving parts, AARP is known as the best method for reliable production of deep sub zero refrigeration. Currently Transparent is executing a large multistage AARP for a Freeze drying application that works at -54° Celsius.

Similarly a reputed Chinese manufacturer of LiBr Chiller, Shuangliang Air-conditioning Equipment Company Ltd. has partnered with Transparent for promotion of its products & incorporating the same in energy conservation systems built by the company.

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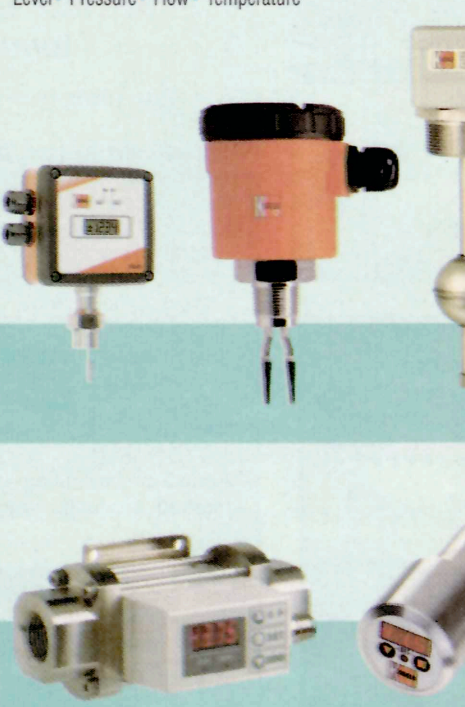
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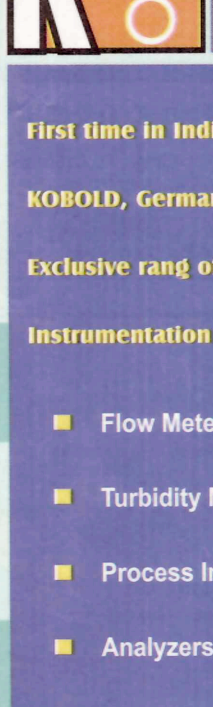


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