

FiRESiDE

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Editor
A M Roshan

Assistant Editor
Natasha Rodricks-Naidu

Design
Shashi Karmarkar

Production & Circulation
Vilas Bade

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Cover

It is that time of the year when life is one long wait for the rains to settle down. Early showers have already brought in their intoxicating smells of wet earth and leaves. Leaving us to recall days of abundance.

Land and water long for the rain that arrives to linger and stay on. As clouds gather over the horizon, the altered light from an immense sky seems to accentuate the patient wait.

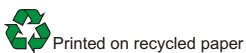
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Back Cover
**An unforgettable
summer of adventure
and craft**

Comment

Perfection is achieved,
not when there is nothing left to add,
but when there is nothing
left to take away.

– Antoine de Saint-Exupery



Correspondents : J. Natesan Heating Vikas Tripathi Cooling Prasanna Hiwase Services Sourabh Kekre B&H Arjun Baidyaray Power Varsha Patekar Enviro Chetan Sathe WWS Amit Shah Chemical N.Haridas TECC Kavita Naidu HR Sneha Patil IR S. Chandak Administration Aditi Vakil BTG Jenny Alexander Finance Asmita Kshirsagar RTIC Kirti Pitale Mumbai Rama Subramanian Delhi Swati Aditya Kolkatta Laxmi Gupta Chennai Ami Patel Savli

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Thermax HRSG for European oilfield operations

WHAT'S
NEW ?

Thermax's Heat Recovery Steam Generator (HRSG) is supplying steam for the Schoonebeek oil field in the Netherlands. Installed for Nederlandse Aardolie Maatschappij B.V. (NAM), it is the company's first HRSG in Europe, on GE Frame 9E gas turbine.

In conventional systems, steam is generated from hot gases coming out of a gas turbine. In Thermax's fresh air fired 126.5 MW HRSG, if the gas turbine trips, fresh air from a forced draft fan is used to burn the fuel in the burner. It is designed to generate 210 TPH gross steam in fresh air firing mode and 403 TPH on turbine exhaust gas mode.

It complies with technical standards of health and safety for products sold in the European Union. To meet the project's stringent

emission control norms, Thermax modified the burners to reduce excessive air levels, thus enabling the furnace to fire at higher temperatures and with lower carbon monoxide (CO) levels. A flue gas recirculation fan keeps the nitrogen oxide and CO levels within authorised norms.

The HRSG's design and control allow remote operations. It has been supplied in pressure part modules to reduce the work at site, and as a bolted structure to ease its installation at the site.

NAM, the largest gas producer in the Netherlands uses the steam from Thermax's HRSG for oil extraction. The project enhances Thermax's credentials for similar complex engineering projects with EPC majors in Europe.

Power division's first turnkey project in Africa

Power division commenced work on its first turnkey project in Africa – a 30 MW greenfield captive power plant for Dangote Group's cement manufacturing operations in Zambia.

Thermax's scope of work in this project includes design, engineering, procurement, supply of the power plant equipment including two AFBC boilers, steam turbine generator along with auxiliaries, water treatment plant, electrostatic precipitator, and coal and ash handling plant. Thermax will also supervise the erection and commissioning



A cement plant of the Dangote Group: prospective in Africa

of the plant. It will complete the turnkey supply within 14.5 months, loading the equipment from the Indian port. Dangote would take care of the shipping and transportation to the site.

Dangote Group is a Nigeria based diversified business conglomerate in Africa with business interest in cement, sugar, steel, salt, logistics and real estate in 14 African countries. This order would improve Thermax's prospects in Africa.

Multi fuel fired boiler for a mining company

Thermax commissioned a unique waste heat recovery boiler (WHRB) for a steel plant of a mining company in Western India. It uses the waste gases from coke oven plant and the blast furnace to generate steam, most of which is used for captive power generation.

The WHRB is designed to generate 65 TPH steam with coke oven gas alone.



Thermax boiler in action: impressive energy savings

The combustor fires blast furnace gas to meet the shortfall in steam generation. The system uses hi-speed diesel to heat flue gases to above 800°C to introduce blast furnace gas in the combustor.

By generating 65 TPH of steam without additional fuel, the boiler is expected to help the customer gain around Rs. 12 crores in annual energy savings.

Thermax forays into community drinking water treatment business



Courtesy: Indian Water Portal

Thermax has entered the community drinking water treatment business of the municipal sector. It has received an order from Kolkata Metropolitan Development Authority (KMDA) for creating a 59 million litre per day water treatment plant on EPC basis and also manage its operation and maintenance.

So far, Thermax had participated only in projects dealing with municipal sewage treatment. The foray into the treatment of municipal drinking water at Panihati, West Bengal is a first for the company and is a natural progression of its expertise gained from industrial water treatment projects.

Thermax is bringing to this project its differentiated space saving technology with elaborate sludge handling system.

KMDA chose Thermax after due deliberations, site visits and evaluation of its technical offer. Thermax's process and proposal team was able to present the plant's design that would fit into the constrained space of KMDA land.

The plant, when completed, would treat the water using a flash mixer tank, clari-tube-settler, rapid gravity sand filter and chlorination system. The scope also includes clear water reservoir and pumping system along with the administration building, laboratory, chemical storage room and weighbridge.

The KMDA project is certain to open new opportunities for Thermax in the municipal potable water treatment segment.



Thermax's Thermosyphon is an ideal energy saver for the food industry

Thermax's solid fuel Thermosyphons are finding new customers.

Recently, Ruchi Soya's edible oil refinery at Patalganga, Maharashtra installed two of them. A manufacturer of refined palm oil from Indonesia also has placed orders with Thermax for similar systems.

Thermosyphon systems are preferred by the food industry as they use distilled water for heat transfer and avoid any possible contamination. Safety guidelines don't permit the use of thermic fluid in the refining process of edible oil. Thermax has several satisfied customers using Thermosyphons that use a variety of fuels including biomass.

The recent system commissioned at Ruchi Soya deodorises and decolourises the edible oil processed at its refinery. Water heated

within the closed loop of the thermosyphon is converted to steam, and later condenses in the customers process. The unit can give a temperature upto 290 °C. The edible oil is heated upto 255°C where odoriferous and coloured material evaporates from the oil.

Indonesian edible oil plants find operations with Thermosyphons highly energy efficient, compared to their traditional open loop steam heating system.



Thermosyphon in edible oil plant: satisfied customers

Comfort cooling for casinos in the US

Two 1000 TR hot water driven absorption chillers will be used for comfort cooling of one of the largest hotel casinos and spa in the United States. The chillers which are part of a combined heating and power system will be used for comfort cooling of the casinos' hotel rooms, restaurants, bars and huge commercial gaming area.



Thermax chiller for Atlantic City Hotel: comfort cooling

Earlier, Thermax had supplied two 950 ton chillers for the city's Marina Thermal Facility, a 8MW power plant with a solar turbine. This facility currently supplies power, chilled and hot water to a hotel casino and spa.

Thermax systems supplied to Atlantic city will supplement the output from electrical chillers.

EXPRESSIONS

We are optimistic that, in the near future, our businesses will be able to contribute significantly to the creation of additional capacity in power, both on and off grid.



In a tough year for the manufacturing sector, it is gratifying that we were able to maintain and marginally improve our performance. In fiscal 2011-12, the Thermax group generated a total income of Rs 6091 crore and a profit after tax of Rs. 404 crore.

I would like to thank Unny and his entire team for maintaining the company's performance in a volatile environment; all our employees, vendors and business partners who have worked very hard to add value to our customers, as well as to protect our top and bottom lines. Our Directors, as always, have been a source of guidance and incredible support for which I thank them.

We all know that we are gearing up for a challenging year ahead. Our order carry forward into the new year stands 25% lower than the previous year. The power sector, which contributed about 20 – 25% of our company's turnover in recent years, is languishing as there is a near freeze in orders and slowdown in decision making. It will be a difficult year as our project business, which contributes around 2/3 rd of our income, needs a good order backlog from the previous year to show a healthy growth in revenues.

To revive our growth engine, the ever widening supply-demand gap in the power sector has to be addressed as 400 million Indians still await electricity. We are optimistic that, in the near future, our businesses will be able to contribute significantly to the creation of additional capacity in power, both on and off grid. The manufacturing plant that the joint venture Thermax Babcock & Wilcox Energy Solutions is setting up will be ready during this financial year. Though it may be a while before we receive an order, we are confident that the power sector and therefore the JV will do well over time.

However, before we blame the world around us, can we once again look at difficult times as an opportunity – a clarion call? We have gone through much tougher times and emerged stronger. Can we spend more time with our customers, understanding their unfulfilled needs and pain points and come out with solutions, rather than waiting for an

enquiry? Could we invest our time on Project Everlean – a very innovative project initiated by all of you in 2008, where we learned to work in teams to eliminate waste? I would urge you to look upon this project as a silver lining, to reduce our costs, improve deliveries, and differentiate us vis-a-vis our products, services and business models, which add value to our customers. Today, customers are aware of the rising cost of fossil fuels and are keen to explore options including the use of solar thermal energy for their heating and cooling applications. However, to tap into this opportunity, we need to focus on making these products economically viable.

It is in times like this that we realise the importance of the saying, "revenues is vanity, profit is sanity, but cash is reality." Therefore, let us make sure we only take orders where cash flow is assured.

There are non-infrastructure sectors like food, pharmaceuticals and chemicals that have so far been insulated from the economic slowdown and our product divisions have been able to gain from improved business. This is the time when we have to give the desired push to our product businesses, and services like retrofit, O&M, as also products and services that enhance energy efficiency.

The recent acquisition of Rifox will reinforce the company's presence in the energy efficiency space in Europe and other markets. This acquisition will also extend the reach of our service arm, which over time, will help compensate for the cyclical vagaries of the project business.

I am happy to share with you that Danstoker, the Danish company that Thermax acquired earlier, improved on its previous year's turnover, in spite of the volatile business conditions prevailing in Europe – although margins have been under pressure.

With pride I would like to share that our Board has agreed to set aside 3% from the erstwhile 1% of the company's profits for its CSR activities. The schools that the Thermax Social Initiative Foundation has adopted in partnership with Akanksha and the Pune

Municipal Corporation continue to do well. In the coming year we will add on one more school, making it three schools in the city of Pune. We are confident that the additional resources can be utilised to expand our work in the field of education for the economically underprivileged.



Challenging times remind me of Sir Robert Swan, the well known explorer and environmentalist. In January this year, we had organised an evening with him in Pune. It was truly inspiring to listen to him, especially about the difficulties he faced in turning his dreams into reality.

He is the first person to have walked both the North and South Poles. He and his team walked 1600 Kms at temperatures of -72°C where sweat turns to ice inside clothing. With 180 kgs on their back, walking nine hours a day, six days a week on a continent three times the size of India, without a map or a single other human being other than the four of them, must have been a daunting task, to say the least.

In his talk, Robert presented us some of the beautiful yet stark pictures of his journey to both Poles. His talk highlighted his passion for the environment and his action to mitigate climate change. It was interwoven with some very insightful lessons on leadership. It all starts with the leader having a dream and converting it into his purpose and passion in life.

When Robert was 11 years old, his dream was to get to Antarctica. He realised that to make this happen he had to collect \$ 5 million, which took him seven years of relentless work. The next important step was to select the right members for the expedition. He looked for qualities like tenacity, perseverance, fearlessness and the ability to take setbacks. One of the most important attributes of a winning team is implicit trust between members. On an average they had to cover 20 km a day to reach their destination or else they would run out of food and perish. Battling harsh conditions and limited resources, one has to have implicit trust and collaboration to bring out the best in the team. Trusting each other

was critical. Other qualities – listening skills, openness to new ideas and a great dose of humour – were also important. What surprised me was that Robert chose people based on cognitive diversity – those who thought differently, had a different perspective and yet shared the same values and vision.

Before setting out on his voyage, Robert had promised his mentor that he would not leave any waste – only their footprints over this landmass which contains 90% of the world's ice and 70% of the world's fresh water. Even though their ship which brought them to Antarctica sank, he kept his commitment and in subsequent trips cleaned up 1500 tons of garbage left behind by various country missions. It took him eight years to remove the scattered solid waste, but he kept his word!

In difficult times, remembering Robert's talk was reassuring. Yes, we have embarked on a long journey and as long as we hold our vision in mind, we can live with temporary setbacks. In Thermax, we also have the additional benefit of earlier experience – of having come through difficult times, of surviving storms and eventually prospering. We are lucky, thanks to our Founders and all of you, to have built a culture that embodies trust, respect and empowerment – a precious eco system that has been nurtured over decades. After hearing Robert, I feel that we need to take trust to another level, defining it as being able to rely on people's commitment. If we can build this level of trust within our organisation, we can rest assured that we will be able to weather any storm and continue to delight our customers.

Let me end by thanking you once again, and wishing each of you the very best. With your confidence, support and action, we will stay on course even during these trying times.

With best wishes,

Meher Pudumjee

Battling
harsh conditions
and limited resources,
one has to have
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to bring out the best
in the team.
Trusting each other
was critical.



S Krishnan talks about Chemical Division's growth plans and of the joys of mentoring children, in a chat with A M Roshan

“Performance chemicals can support the environmental vision of Thermax.”

S Krishnan's appointment in Thermax happened on an unconventional note. A job in Thermax was the last thing on his mind when he visited the company in 2004 to sort out the difficulties related to a heater supplied from Chinchwad. At that time he was the Works Manger at Pearl Engineering (of Pearl Pet bottles and jars fame). During that visit he met the then Managing Director, Prakash Kulkarni, who offered him a similar role in Thermax's Paudh Chemical factory. Headhunted by the CEO, today he is the SBU Head and Vice President of the Chemical business of Thermax.

By the time he joined Thermax, Krishnan had already gained 20 years of experience in various organisations. After completing his Chemical Engineering from REC Trichy, he joined Indian Organic Chemicals, where between 1982 and 2001, he would work for thirteen years spread over two innings. There, he handled production, projects, technical development and eventually headed manufacturing operations.

He also spent seven years at a friend's family group of companies where he had the opportunity to be the business head with profit and loss responsibility of a small independently-run company.

This year he completes eight years in Thermax. I ask him about his life in Thermax. He is happy that at the top, people are value based, something that “makes one want to work here.” The management is professional and there is a nurturing environment for trying out new ideas. More importantly, “the entrepreneurial spirit is kept alive here.” He talks of construction chemicals and industrial biotechnology, business segments that the division has recently entered. The decision to enter these two businesses, was not top driven, but came up from the division itself.

“The entrepreneurial spirit is kept alive here”



“It is great to see that ideas from our own employees are accepted and provided resources to blossom as future businesses.”

Krishnan is excited about the growth opportunities that the new business lines are going to provide. In the division's existing business segments, the domestic market is relatively small and saturated, with Thermax a market leader. He says that the forays into new business segments that have been happening since 2007 will further gain momentum. The new business lines are expected to contribute significantly to the division's plans to more than double its revenue by 2016.

Thermax's Chemical business was one of the first to find its niche in developed markets like the US, Europe and Japan. The Division ships its products to more than 20 countries and nearly 40% of its revenue comes from exports. The outbound thrust of the business, Krishnan says, is a top priority. To make this happen, divisional people have been positioned in Russia, Indonesia, Bahrain and China.

I break off and ask him why, as a student, he opted for Chemical Engineering. “Chemistry somehow seemed more artistic, creative. I was fascinated by something new created or a substance changed into something else.” He laughs and explains that such young notions have been revised since then – though, for a moment I have visions of Krishnan as a medieval alchemist working with glistening metals and powerful potions. One can sense the fascination of the young student when Krishnan talks of chemicals in the service of environment – treating effluents, ion exchange resins purifying water and recovering metals, construction chemicals reducing the use of cement, paper chemicals helping less wastage. My own notions of chemicals as a dirtying business are challenged when he says with conviction that “specialty performance chemicals can support the environmental vision of Thermax by improving process efficiency and reducing waste for the customer.”

As project businesses, the big revenue earners of Thermax, are vulnerable to business cycles, Krishnan feels that his own business can act as an effective buffer, shoring up the company's profitability. “We already have three to four decades of manufacturing and

product development know-how. It would be to our advantage to leverage this background in specialty performance chemicals.”

The Chemical division is getting its people ready for the growth agenda through role enhancements and building a base of young talent. He says while choosing new talent, apart from the ability to understand client processes, the Division encourages people who work in a collaborative manner.

What is the change that he would like to see in Thermax? While entrepreneurship, innovation and technology will differentiate Thermax as a company, “our growth will need to be sustained by robust systems and processes.”

What has been sustaining him, outside his work, I ask Krishnan. He talks about the inspiring legacy of his grandmother, who had a clear idea about what needs to be done and tirelessly worked towards that. “Somewhere I internalised the belief that great ideas can only account for 20% of what we want to create, where we want to move; the remaining 80% has to come by way of hard work and sheer doggedness.” From his young days, he says, he knew that steady effort is required to make possible what one perceives intuitively.

A practitioner of Isha Yoga, he picked up the discipline from his wife Srividhya. “Every day I practise for close to an hour and it has helped me look at life differently.” Though he used to read voraciously in earlier years, he is not able to read as much as he would like to. “Still, before I sleep, I make it a point to read for at least half an hour.”

An earlier issue of *Fireside* had featured Krishnan among Thermax's people mentoring the children from Akanksha. I ask him if he still continues the practice. He tells me that Pournima, one of the children he had mentored has passed her 12th and the CET and is likely to get admission in one of the Pune engineering colleges. “It is a joy to see the transformation in children and I am grateful that I can be of help. Mentoring continues to be a very satisfying experience for me.”



UP CLOSE

The winning teams with Dr. Srikumar Banerjee: impactful innovations



Saluting Thermax's Best Innovators



The ND Joshi Awards for Innovation were presented to two Thermax teams on 11th May 2012. This year there had been 49 nominations. Jalindar Gaikwad and his team comprising CR Subramaniam, Manoj Maheshwari and Vinay Nair won the award for 'Design, engineering and deployment of CFBC technology for capacities less than 80 TPH'.

Kiran Deshpande and his team of GS Deshpande, VV Dubal, Ramalingeswara Rao, Ramesh Perla, Mushir Ahmed, Anil Patki and Suhas Chavan won the other award for 'Concept to commissioning and product

development of medium temperature parabolic trough solar collector'.

The award with a cash prize of Rs. 1 lakh was instituted by Thermax's former innovation chief, Dr. N. D. Joshi in 2003. Its aim is to encourage innovations that impact the company's bottom line in a substantial way. This year's awards were presented by Dr. Srikumar Banerjee, Secretary of Department of Atomic Energy.

ROUND UP

Keeping Dal lake clean: efficient effluent treatment



Laurels from customers for Water utilities' O&M teams

The Lakes and Waterways Development Authority of Jammu & Kashmir has appreciated Thermax's work of operating and maintaining (O&M) three sewage treatment plants (STPs) in the valley. The STPs at Hazratbal, Laam and Habak treating 15.2 million litres of sewage per day have been in operation since 2006.

In spite of adverse climatic conditions, the O&M staff of the Services group (Chemical

and Water) has ensured that the effluent is treated to laid down norms – a small but significant effort to keep alive Srinagar's status as a 'City blessed by the Gods'.

Elsewhere, happy with Thermax services, two customers have extended their O&M contracts with Thermax for the third year in succession – IOCL, Mathura for its 150 m³/hour effluent treatment and recycle plant; and Tata BlueScope Ltd., Jamshedpur.

Change of guard



Vivek Sharma joined Thermax as Vice President & SBU Head – WWS in May 2012.

He has over 19 years of experience with techno commercial expertise. Before joining Thermax, he worked with Shriram Group's Ennore Coke Limited, Kolkata, as Chief Operating Officer. He has also worked with BSNL, Govt. of India and Shriram EPC Ltd. where he had been the CFO.

Vivek is a Civil Engineer from IIT Roorkee and has a PGDBM (Finance) from IIM Calcutta. He will report to S Ramachandran, EVP – Chemical and Water group.

With new businesses coming into the Thermax fold and opportunities for higher responsibilities emerging, new heads are taking charge of various businesses :



B C Mahesh



Shekhar Kashalikar

Ashish Vaishnav is now the Global Head of the Cooling SBU. He set up the marketing operation and created the 100% subsidiary in China.

BC Mahesh, with wide ranging experience in materials, sales, project and financial management is the Head of Thermax's Power business. He takes over from RV Ramani, who has superannuated in April this year, after an illustrious career.



Ashish Vaishnav



Venkatesh Balasubramanian

Venkatesh Balasubramanian takes over as Head of the subsidiary, Thermax Zhejiang Cooling and Heating Company Limited in China. His career experience covers proposal management, domestic and global sales.

Shekhar Kashalikar takes over as the SBU Head – Utility of the Boiler & Heater group, following his successful role as chief of Cooling.

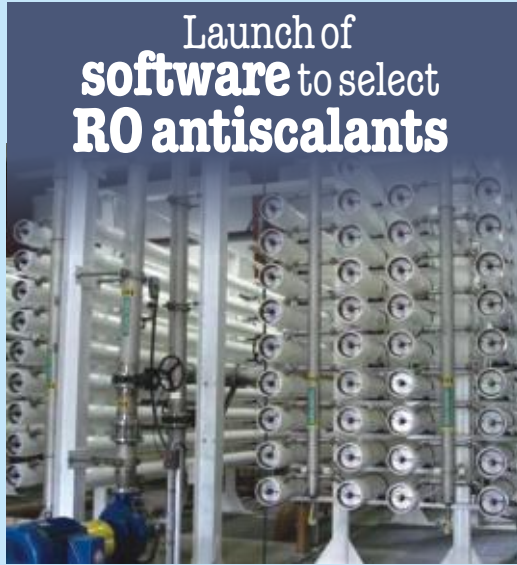


Shardul Kshirsagar

Shardul Kshirsagar is the Global Head – Services (C&H) SBU with additional responsibility of the recently acquired German subsidiary, Rifox.

Fireside wishes the new business leaders the very best in their new roles.

Launch of software to select RO antiscalants



The Chemical division recently launched a software to help the selection of Maxtreat chemicals used to prevent scaling (antiscalants) in the reverse osmosis process.

A wide range of antiscalants are available for the treatment of different types of water, and selecting the appropriate one can be time consuming. The Maxtreat software analyses the feed water parameters which are keyed in

and recommends the most suitable antiscalant for that type of water. Maxtreat will also calculate the optimum dosage, daily and annual requirements, and graphically display saturation indices of the water with and without the selected antiscalants.

Customers can benefit from the software, now available with Thermax dealers and the Performance Chemical team.

R S Jha wins accolades for his boiler expertise



R S Jha from the Heating division chaired a session on the changing industrial scenario of boilers and steam in India at Steamtech 2012 in January. The technical paper he presented titled 'Residual fuel oil combustion and its challenges' was well received by the audience

made up mostly of chief engineers from process industries.

At another conference, 'Optimal Utility' in Mumbai, Jha's presentation on 'Optimum selection of boiler' was awarded the second best paper. The award included a cash award and a citation.

Book on a social worker's life



Mrs. Dravid at her book launch: remarkable courage

Dr. Mandakini Dravid, who has counseled Thermax's staff and workers since 1982, launched her book, *Medical Social Work in Indian Settings* in June. The book is based on her PhD thesis and forty years of medical and psychiatric social work with the mentally ill, physically challenged, unmarried mothers and abandoned babies. It also examines important themes such as adoption, marital discord, alcoholism, drug addiction and disaster management.

Mrs. Dravid, as she is popularly known,

agreed to be a consultant at Thermax on the request of AS Bhatena and Rohinton Aga. In spite of her busy schedule in Sassoon Hospital, Yerawada Mental Hospital and others, she devoted her weekends to spending time with Thermax factory employees. Later her visits became thrice a week.

Anu Aga while releasing the book, complimented Mrs. Dravid on her determination to get a PhD in 2008 at the age of 81. In the course of her felicitation, Anu highlighted instances where the committed social worker displayed remarkable courage and empathy.



TECC constructs stacks for MRPL

In April 2012, the construction arm of B&H, Thermax Engineering Construction Co. Ltd. (TECC) erected five stacks at Mangalore Refinery and Petrochemicals Limited in Karnataka. The 90 meter tall stacks weigh 315 metric tonnes and their installation was critical due to space constraints. They are part of a larger project which includes an incinerator and flue gas cooler.

Of the five, three stacks were erected on a sulphur recovery unit, one each on a flue gas cooler and heater. Each stack that vents hot flue gases to the outside atmosphere is refractory-lined from inside and insulated from outside. The erection was carried out by TECC under Engineers India Ltd., engineering consultants.

Technology Day celebrations



Beginning April, a variety of events and lively employee participation marked the run up to the 11th May Technology Day celebrations.

An online quiz, a presentation contest named pecha kucha, essay, photography, product and logo design contests set the stage for a harvest of ideas. The high point of the celebrations came when the winners of Innovation Awards were honoured by the Chief Guest, Dr. Srikumar Banerjee, Secretary of the Department of Atomic Energy and former Chairman of the Atomic Energy Commission, at EERC.



Top Prize winners for the various events

Lalitha J. Pillai (C&H) : Double winner for the Technology Day Logo + Tagline and Essay contests.

Shailesh Vartak (B&H Proposal) won at Pecha Kucha for expertly presenting 20 slides, each for 20 seconds.

Vinod Kadam's (wvs) visual interpretations of the theme, Energy, won him the Best Photographer prize.

Mohammad Akram (Power) took top honours in the Online Quiz.

The RTIC team of **Swamit Tannu, Sachin Pol, Priyanka Bharanpure** won at Humpty Dumpty by designing and building an enclosure for a raw egg which would protect it from breaking after a free fall from a height of 1.5 metres.

Vijay Jadhav (B&H) built a working model of a Flying Machine which flew using energy stored in a balloon in Tech Garage.

Anu Aga appointed Member of Parliament



Anu Aga has been appointed Member of the Rajya Sabha, the Upper House of Parliament in May 2012. She was nominated by the President of India, Pratibha Patil, on the recommendation of the Prime Minister, Manmohan Singh.

Anu has distinguished herself by her work in the field of education and has actively supported the educational initiatives of

Akanaksha and Teach For India. Anu is well known for her advocacy of better corporate governance standards, committed social responsibility, women empowerment and a society that promotes human rights and communal harmony.

Recognising her contributions in the field of social work, she was honoured with the Padma Shri in January 2010.

A book on **R. D. Aga** written by an employee

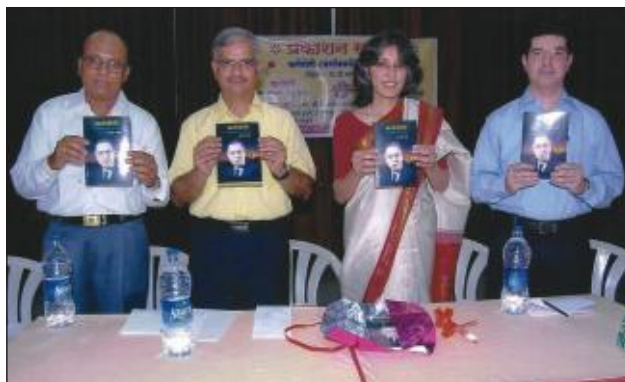
Tanaji Ekonde, a Thermax employee has written a book on Rohinton Aga, the Founder Chairman of Thermax. 'Karmayogi: Thermax Man R. D. Aga', written in Marathi, presents the personal and professional journey of Mr. Aga.

Releasing the book on 13th May 2012, Meher said that the book is a fitting tribute to her father's work ethic and the beliefs he lived by.

Tanaji has been with the Cooling division in Chinchwad factory for the past 30 years.

It took him six years to write this book. He has been an enthusiastic participant in the employees' co-operative credit society, Kshitij magazine, quality circles, suggestion schemes and TQM. Tanaji is also an active environment crusader who organises tree plantation drives and exhibitions on environment protection.

Readers interested in purchasing a copy of the book may contact Tanaji on 9421965825.



*Ekonde (left) at the launch of his book:
tribute to a karmayogi*

**A lot
can happen
over coffee
the Thermax Babcock
Wilcox way**

*A coffee session:
engaging discussions*



Thermax Babcock Wilcox Energy Solutions, the joint venture company, has hit upon a novel way of engaging with its people. Sessions appropriately called 'Coffee with the COO' bring together batches of five employees and their Chief Operating Officer, Deepak Chopra. Over coffee and snacks, they spend a qualitative two hours discussing their professional and personal goals, voicing concerns and suggesting improvements.

Along with the COO and the five employees invited from cross functional teams, a senior manager or functional head also participates and contributes to the discussions. The HR manager is present to make a note of suggestions and when feasible, to implement them.

Seven sessions on a monthly basis have taken place so far. One of the offshoots of this interaction is the Product Knowledge Sharing

sessions which resulted from participants wanting more information about super-critical boiler equipment. Requests for visits to project sites have since been accommodated and arranged.

Vishwas Jumde from manufacturing welcomes this opportunity to talk and listen to things that relate to not just work but personal interests and aspirations. Others agree that its an ideal platform to exchange views directly with the COO and fellow colleagues. Says Nagalakshmi from contract engineering, "I really appreciate the fact that my suggestions have been quickly implemented."

More power to the Thermax Babcock & Wilcox team for reviving the old magic of face-to-face interaction with its employees.

*The winning
team at
Ultratech:
building an
excellent safety
track record*



**Appreciation
awards
at customer sites**

Power division's Ultratech cement plant in Awarpur, Maharashtra bagged the 'Best Safety Practices Award' among 22 plants across India. It was in recognition of the team's excellent safety track record during the construction of the 25 MW captive power plant.

Thermax also received the best safety practices award at Grasim Industries Ltd. at

Bharuch in Gujarat and won 'Best safe contractor' at Gulbarga Power Plant Limited, Karnataka.

At the Tata BlueScope Limited site in Jamshedpur where Thermax's Services (C&W) business handles O&M for water utility, Subhasis Adhikari and Sibendra Samanta received citations and cash prizes for best safety work practices.



Enroute to the fort: refreshing break

A heady trek to Rajgarh

The Thermax SPX Energy Technology Limited team made a memorable trek to the Rajgarh fort. The enthusiasts began early in the morning from Pune and reached the top after four hours of trekking.

Rajgarh enjoys a unique position among hill forts in Maharashtra on account of its unique architecture. A refreshing breather from work, the trek was also a lesson in history, and an opportunity to soak in the panoramic view.



Runners up prize for nimble footwork

Thermax won the Runners up trophy in a 'seven a side' football tournament organised by the Prayas Youth Circle for corporates. Swift moves and counter attacks tied Thermax with Mphasis, but in the penalty shoot out, Mphasis came out winners. Scoring six goals, the highest in the tournament, Tushar Kadam (B&H Marketing) grabbed the best forward award.



Football runners up: swift moves

Ten corporate teams including Persistent, ThyssenKrupp, Symantec, Tech Mahindra, Syntel and Cognizant battled for the cup, this year.



Victory on the badminton court

Shalmalee Marathe and Sonali Agarwal from B&H returned with honours from a Badminton Tournament organised by the Industrial Sports Association. In the Doubles category, they finished runners up against Sandvik Asia, while Shalmalee was the Single's Champion of the tournament.

Forty companies including Atlas Copco, Bajaj Auto, Tata Motors and Tata Engineering Services competed in ISA's golden jubilee tournament. Employees from these companies also competed at cricket, table tennis, football, badminton and chess.



Shalmalee (centre) and Sonali before their game: proud sportswomen

Math champ, Gandhar

Gandhar, a first standard student of City International School, Pune was awarded 3rd rank in Z1 group in the 8th State Level UCMAS Abacus and Mental Arithmetic Competition - 2012 in Maharashtra. Gandhar's proud parents, Urmila and Nilesh Deshmukh from Power also encourage him in drawing and music.



Gandhar

Gold medalist, Ananya

Ananya, a 2nd standard student of Dnyanganga School, Pune won a gold medal in the International English Olympiad exam. This exam is conducted every year by the Science Olympiad Foundation to popularise Science, English, Math and Computer science among school students. Seven year old Ananya, the daughter of Vidula and Kapil Kale from WWS, loves painting and is learning Bharatnatyam.



Ananya

Dr. Vinit Shah bags a gold medal

Dr. Vinit Shah was awarded the Dr. Sam G. P. Moses Gold Medal for the best performance in the Diplomate of National Board in the general medicine examination. Each academic session, this medal is awarded to only one candidate in India. Vinit received this year's award from Meera Kumar, Speaker of Parliament and Ghulam Nabi Azad, Union Minister for Health and Family Welfare.

Vinit is the son-in-law of Abhay Shah from Corporate Finance.



Vinit

Dnyaneshwar completes his Masters

Dnyaneshwar Rajput from C&H division completed his Master's in Chemical Engineering with First class from Amravati University. His project paper, 'Reuse of cotton and recycle paper mill waste as building material', is published in the Elsevier journal of 'Construction and Building Material, Vol.-34'.

Dnyaneshwar, who joined Thermax in 2011, enjoys playing cricket, volleyball and listening to music.



Dnyaneshwar

Bakhtawar elected to IASAP

Bakhtawar Battiwalla from Administration has been elected on the Pune Chapter Committee of the Indian Association of Secretarial & Administration Professionals. In 2010, she won the National Best Administrator award from IASAP. She is an enthusiastic participant of the Mumbai and Pune marathons, and organiser of various events at Thermax.



Bakhtawar

Chitra has a Masters in Bioscience

Chitra, the daughter of Lakshmi Narayan from Corporate Administration, has completed her Masters of Bioscience-Clinical and Regulatory Affairs from Keck Graduate Institute of Applied Life Sciences, California, USA. She has also been trained and certified by the Association of Clinical Research Professionals, USA. Chitra studied clinical research and regulatory affairs at Bicare Research Academy, Pune and completed her B Sc from the Pune University. She has been a project student at Thermax, and enjoys traveling and exploring new places.



Chitra

Ravindra is an accredited NACE professional

Ravindra Patil has completed levels 1 and 2 of the National Association of Corrosion Engineers (NACE), a professional organisation for the corrosion control industry. He completed level 1 in November 2011 and level 2 in January 2012 in Mumbai, as a part of the 'Coating Inspection Program.'

Ravindra has been with Thermax since 2005 and works with the B&H division. He enjoys cricket and music.



Ravindra



The Coming Energy Revolution

In his 2007 book, Power to the People, Vijay Vaitheeswaran, environment and energy correspondent of The Economist surveys burgeoning trends that have the potential to revolutionise the global energy situation – liberalisation of energy markets, distributed generation of power closer to the end user and the development of fuel efficient, emission free vehicles that use hydrogen fuel cells.

Excerpts from the book:

The Promise of Clean, Distributed Energy

The needlessly filthy and inefficient way we use energy is the single most destructive thing we do to the environment. Whether it is the burning of coal in industrial power plants or the felling of tropical forests, our appetite for energy – which is essential to modern life – seems insatiable.

With enough clean energy, most environmental problems – not just air pollution or global warming but also chemical waste and recycling and water scarcity – can be tackled, and future economic growth can be made much more sustainable.

The problem is that change comes slowly in the energy realm. Old ways of thinking have encouraged monopolies, shielded polluters, and stifled innovation. That has burdened

Britain and the rest of the rich world with an energy system locked into outmoded technologies – such as old-fashioned coal plants – that are dirty and inefficient. That's bad enough, but now it seems that giants of the developing world, like China and India, may follow the same path as their economies surge over the next couple of decades. That is why this is the key question: Can we move beyond today's dirty energy system to one that is cleaner, smarter, and altogether more sustainable?

Absolutely. Though cries of shortage and crisis are often heard these days in the energy world, there is actually more reason for hope than there has been in decades...

There are three powerful trends going on below the radar that promise to rewrite the rules of the energy game: the global move toward the liberalisation of energy markets,

Today's technological revolution in power is the most dramatic we have seen since Edison's day, given the spread of distributed generation, transportation using electric drives, and the convergence of electricity with gas and even telecommunications.

the growing popular appeal of environmentalism, and the recent surge of technological innovation in areas such as hydrogen fuel cells. Taken together, they could lead to an energy system that meets the needs and desires of future generations while still tackling serious problems like global warming and local air pollution.

Tomorrow's Vehicles

A nonpartisan study done by America's National Academy of Sciences (NAS) in 2001 (identified) readily available technologies that could "significantly reduce fuel consumption of new cars over the next fifteen years." The experts were certain that reductions in fuel use up to 20 percent could be achieved easily.

What's more, the NAS group left the door open for even bigger reductions if radical new technologies that are now getting close to commercialisation penetrate the market. Their optimism was based on the exciting new combination of hydrogen energy and fuel-cell cars, which makes it possible for the first time to contemplate a system of personal mobility that is completely free of harmful emissions and does not rely on the iron nexus of petrol and the internal combustion engine. If that magical technology really takes off, and it will probably take a decade or more before it hits the big time, it could signal the end of the Age of Oil – and bring with it the death of OPEC, the collapse of Middle Eastern dictatorships, and a radical realignment of geopolitics. Because the hydrogen energy required to feed those fuel cells can be produced in all sorts of ways all over the world, and not just in the Middle East, this brave new energy world would not see any wars waged over energy resources...

If you want to catch a glimpse of our planet's future, visit the Rocky Mountain Institute (RMI) in Snowmass, Colorado. This curious think tank and "do tank" attracts visitors from all over the world who are interested in new ideas about energy and the environment.

Amory Lovins is the intellectual force behind RMI. Like all visionaries, he gets things wrong, but he has also gotten some big things spectacularly right. In an article published in *Foreign Affairs* in the gloom after the first oil shock in the 1970s, he famously predicted that improvements in energy efficiency would

lead to the decoupling of economic growth and energy use. At the time, most were convinced that America would continue to suck up more energy in lockstep with economic growth. Even America's Department of Energy (DOE) had predicted that by the year 2000, oil prices would have skyrocketed to more than \$150 a barrel in today's money. The DOE's predictions were clearly wrong. America has learned to use energy more efficiently than it did in the 1970s – though, it must be noted, still not as efficiently as Britain or Japan – and history has vindicated Lovins.

For some years now, the Sage of Snowmass has been making another sweeping forecast for the future of energy, and again he is sounding fanciful: "This breakthrough will be like the leap from the steam engine to the diesel locomotive, from the typewriter to the laptop computer ... it's a really disruptive technology." He gestures toward a covered object in the centre of a spacious high-tech workshop where his team of engineers has been working for years. With a flourish befitting a mad scientist, he unveils his creation: the Hypercar.

After nearly a decade of work, and with the support of big industrial firms from Europe, Japan, and the United States, his outfit has developed a concept car that it believes will be the clean power plant of the future: it features electric propulsion, a 100 percent composite-plastics body, highly sophisticated electronics and software, and a radically simplified and integrated design. Most important, his roomy and stylish SUV will be powered by a stack of fuel cells.

What exactly are fuel cells? They are essentially big batteries that produce electricity by combining hydrogen fuel and available oxygen. They do this much more efficiently than a conventional car engine that

The Coming Energy Revolution

uses petrol. They run nearly silently. Best of all, their only by-product is harmless water vapor. They are already beginning to appear in stationary applications, such as generating power for clusters of homes and factories, and are likely to appear soon in portable applications: laptop computers, cellular phones...

With fuel-cell technology, even a gargantuan American SUV could sip hydrogen and emit absolutely none of the usual tailpipe gases that contribute to smog and global warming or that damage human health. There's a dream that avid consumers and righteous environmentalists might share.

But Lovins has his eye on bigger game. He is convinced that consumers will be able to use the fuel cell under the hood as a "micropower" plant that can power their homes or offices. Such cars might also be used as backup generators in Cornwall, or while travelling in remote bits of Scotland. He sees nothing preventing consumers from plugging these electric cars into a wall socket during peak hours, when the power grid is overloaded, and selling the electricity they generate back to London Electricity for a profit.

In a nutshell, Lovins thinks that some version of the Hypercar will turn the modern world upside down. Just days before Lovins unveiled his Hypercar on the other side of the world, another wild-haired visionary, Ferdinand Panik, had introduced a similar hyper-green power plant on wheels. At that unveiling, in Berlin, there had also been talk of revolution, and even the promise of an Energy Internet: "We can use the energy unit in this car for homes or stationary power. When linked together by smart electronics, our customers can buy and trade energy freely." Panik's boss, Jurgen Schrempp, was even more effusive: "The problem of how to ensure sufficient supply of energy that is environmentally friendly is the key challenge of the future, and we see fuel cells as the solution."

Schrempp and Panik were not pundits or pie-in-the-sky dreamers: they were, respectively, the chairman and the chief fuel-cell expert at DaimlerChrysler, one of the biggest carmakers in the world. The company has already spent \$1 billion to develop its "new electric car" (NECAR), and Panik expects the company to shell out another billion or so over the next

The exciting new combination of hydrogen energy and fuel-cell cars makes it possible, for the first time, to contemplate a system of personal mobility that is completely free of harmful emissions and does not rely on the iron nexus of petrol and the internal combustion engine.

decade to ensure its success. Daimler now expects to have its first commercial fuel-cell cars on the road within a few years, and mass-market volumes in about a decade.

Daimler is far from alone. Honda, Toyota, and GM also say their fuel-cell cars will be ready by then, and others claim they will follow. A number of car firms and oil companies have jointly opened up a hydrogen refuelling station for their demonstration cars near California's capital of Sacramento. There is also a similar hydrogen station near Munich's airport, and one planned for London too. Daimler's top managers claim that in twenty years' time, fuel cells will power perhaps 20 percent of all new passenger vehicles, and possibly all urban buses.

What do the stodgy old utilities think of all this airy talk? Ask Kurt Yeager, the head of the Electric Power Research Institute, which is the main research body of the utility business. He can hardly contain his excitement: "Today's technological revolution in power is the most dramatic we have seen since Edison's day, given the spread of distributed generation, transportation using electric drives, and the convergence of electricity with gas and even telecommunications. Ultimately, this coming century will be truly the century of electricity, with the microchip as the ultimate customer."

If the lines between the auto industry and the power industry really do begin to blur, the impact on the economy, on industry, and on all our lives could be dramatic indeed.

Consider just one killer statistic: the power generation capacity found under the hoods of cars in Britain or Germany is ten times that of all of the nuclear, coal, and gas power plants combined in those countries. That is what makes this recent pronouncement from Bill Ford – Ford's chairman and the great-grandson of the company's famous founder –

such a bombshell: “I believe fuel cells will finally end the 100-year reign of the internal combustion engine.” That is the epitaph for today’s motorcar – the filthy but durable workhorse of the twentieth century.



Grid Connected Distributed Generation

The economies of scale once achieved by building bigger and bigger power plants are now being eclipsed by other sorts of economies – through reliability and efficiency as well as mass production – offered by micropower.

The result has been a global trend to liberalise electricity markets that can be broken down into three waves of reforms: The first wave created independent power producers who were allowed to sell power to the utilities. The second wave of reform, which is now in midstream, created wholesale and retail markets for power. The third wave, just getting under way, promises to speed the arrival of smaller power plants located near the end users. Progress has come only in fits and starts, but the trend is clear: the era of monopolization, centralization, and overregulation has started to give way to market forces in electricity.

After a century that saw power stations getting ever bigger, transmission grids ranging ever wider, and the dominance of central planners growing ever stronger, a dramatic new possibility has emerged: grid-connected distributed generation, or smart micropower. In this emerging world, prices are increasingly dictated by markets, not monopolies; power is increasingly generated close to the end user and not at distant central stations.

Sound far-fetched? Consider these words penned by experts at the International Energy Agency, better known for its conservative technical reports than its flights of fancy:

“Although they represent a small share of the electricity market, distributed-generation technologies already play a key role: for applications in which reliability is crucial, as a source of emergency capacity; and as an alternative to expansion of a local network... This kind of generation has the potential to alter fundamentally the structure

After a century that saw power stations getting ever bigger, transmission grids ranging ever wider, and the dominance of central planners growing ever stronger, a dramatic new possibility has emerged: grid-connected distributed generation, or smart micropower.

and organisation of our electric power system.”

Coming Age of Micropower

What does this miraculous micropower look like in real life? A visit to the shimmering Condé Nast building in New York’s Times Square will give you a hint. This newish skyscraper is best known as the headquarters of such glamorous magazines as Vogue, Vanity Fair, and The New Yorker. (But) the most remarkable things in this place are the two big, boxy machines whirring quietly away on an unfurnished floor: fuel cells. Briefly put, they are big batteries that produce electrical energy by combining hydrogen fuel with oxygen from the air. Their great attraction is that they do so much more efficiently and cleanly than conventional power plants.

In the Condé Nast building, the two fuel cells, along with the advanced solar panels integrated cleverly into the building’s façade, are living examples of micropower. Thanks to those local generation sources, the building managers have greatly reduced their dependence on conventional grid power. The architect, Robert Fox, said that he was determined to take self-empowerment even further in a forthcoming project – a massive new complex, occupying an entire Manhattan block that would be powered completely by on-site sources.

Ake Almgren favors a different flavor of micropower altogether. A soft-spoken Scandinavian, Almgren was the boss of California based Capstone Turbine Corporation, the world’s biggest manufacturer of these small generation units... Convinced that the future lay instead with small-scale generation, Almgren left a top job at ABB to head what was then an upstart firm in the nascent field of microturbines.

The clever thing about a microturbine – as opposed to the big, clunky sort of turbine that

The Coming Energy Revolution

is used in traditional power stations – is that it has only one moving part, a high-speed compressor-cum-rotor that spins at up to 100,000 revolutions a minute. The simplicity of the design means that microturbines are cheap to operate and maintain – running costs can be as little as one-third of those of a comparable diesel generator. Even the problem of lubricating the one part that does move seems to have been solved. Capstone has developed a version of the device that uses sophisticated “air bearings,” which require no liquid lubrication. The power crisis that plagued California in the summer of 2001 and revealed the instability of the conventional power grid provided a boost to micropower.

The Energy Internet Is Born

In time, though, the rise of micropower could end up changing the way electricity grids themselves operate – turning them from dictatorial monopolies into democratic marketplaces. Add a bit of information technology to a microgenerator, and it will be able both to monitor itself and to talk to other plants on the grid. Visionaries see a future in which dozens, even hundreds, of disparate micropower units are linked together in so-called microgrids. The technology involved is not at all pie in the sky. The Electric Power Research Institute, a research body for the power industry, is developing a microprocessor-based converter that will enable “plug and play” connection of any micropower device to the power grid, and the University of California at Irvine has already got a reliable microgrid up and running.

As energy markets liberalise, on-line energy-trading markets develop, and individual consumers win the right to select their energy suppliers, some people even see the emergence of “virtual utilities.” Microgrids would allow such firms to combine the individual efficiency of micropower plants with the market power that is gained by bundling together their collective generating capacity. Whether run in competition with established utilities, or by them, such virtual utilities would, according to ABB, result in “greater system reliability, lower operating costs, reduced environmental impact, and improved overall business.” Much as with the Internet, the companies that develop the

There are three powerful trends that promise to rewrite the rules of the energy game: the global move toward the liberalisation of energy markets, the growing popular appeal of environmentalism, and the recent surge of technological innovation in areas such as hydrogen fuel cells.

technology to allow the electricity grid to perform intelligent metering and switching – and position themselves as “air-traffic controllers” for these streams of electrons – will lead the industry.

Micropower could provoke change in the energy business every bit as dramatic as the revolution that hit the world’s telecommunications industry in the 1980s, after the breakup of the AT&T monopoly. The same forces of innovation, competition, chaos, and choice that transformed yesterday’s sleepy telephone monopolies into today’s high-tech predators are already apparent. Besides, electricity is every bit as important as telecommunications. America’s \$200 billion – plus electricity market alone, never mind other sectors of the energy business, is larger than those for cellular and long-distance telephony combined.

Fuel Cells Meet Big Business

The moment when an experimental technology becomes a commercial one is hard to define, but the interest of oil companies, carmakers, and power-engineering firms – almost all the industries that have a stake in the business – is a sign that fuel cells are crossing the line. Cozy incumbents in most industries typically resist new technologies that threaten to make their existing capital stock worthless, but even Shell now has a hydrogen division. The very notion of an oil giant investing serious money and credibility in such a technology would have been laughable just a few years ago. Yet today, Sir Philip Watts, the chairman of Shell, does not even blush when he forecasts a “decarbonized energy world” based on “hydrogen energy and fuel cells.” If the big boys of the energy business think that fuel cells are coming, they probably are.

Why did they turn from obstructionists to

The problem of how to ensure sufficient supply of energy that is environmentally friendly is the key challenge of the future, and we see fuel cells as the solution.

enthusiasts? Whatever their clever advertising campaigns say, the reason is not because Big Oil suddenly decided to worry about the environment. The real reason is that recent technical advances have been so promising that the incumbents simply could not ignore hydrogen any longer. One oil boss explains: "Fuel cells have produced more technological breakthroughs in five years than battery research has in the past thirty." The advances are so great that market incentives, not mere regulation, are now motivating them. As Texaco's Graham Batcheler put it (before his firm was swallowed up by Chevron): "We came around late to fuel cells, but we now recognize that the oil and gas business is going to change . . . whatever fuel emerges eventually as the choice for fuel cells, we want our consumers to fill up at a Texaco station." In other words, even the traditional purveyors of fossil fuels, realists to a fault, now believe in fuel cells.

From Drawing Board to Mass Commercialisation

Pay a visit to Firoz Rasul in Burnaby, a small town outside Vancouver, Canada. In his own quiet way, he has transformed Ballard beyond recognition.

Ballard got its start doing contract research, including top-secret stuff for the Canadian military. In the early 1990s Ballard decided to start nurturing proton-exchange membrane (PEM) technology into a commercially viable product for the civilian market. The original research patents in this area were held by GE, but they had expired by the mid-1980s. Ballard's first brilliant move was to swoop in and register its own patents. Then the firm dedicated top-tier scientific talent and money to commercializing the technology. Ballard now holds hundreds of crucial patents on PEM and related technologies. Under Rasul's leadership, it has gone from being an obscure contract-research laboratory to a technology powerhouse in automotive fuel cells.

So impressed were big auto firms by Ballard's PEM technology that two of them, Ford and DaimlerChrysler, even bought equity stakes in the company and arranged for special joint ventures with Ballard.

This field is young and fluid, and it would be foolish to make any concrete predictions

about Ballard; the firm faces stiff global competition and could yet go bust. Even so, if any fuel-cell firm has a chance of success, it is probably Ballard.

The laboratories at Ballard's headquarters are the site of dramatic breakthroughs that have made fuel cells so tantalizing. In just the last decade or so, Ballard's scientists have managed to shrink a stack of PEM fuel cells powerful enough to run a small car from the size of a giant fridge to the size of a microwave. They have reduced the amount of pricey platinum required by several orders of magnitude, and they have otherwise redesigned the stacks for ease of manufacture and assembly.

Taking a page from Ford's visionary embrace of the assembly line, the real advance in Ballard's plant is the slow but sure shift toward volume manufacturing of fuel cells. In early 2003 Rasul handed over day-to-day management of the firm to Dennis Campbell, an outsider picked specifically because of his experience in helping technology companies with what he called "mass commercialisation." The shift taking place at Ballard and its rivals is the best reason to think that the time for fuel cells has come.

Still not convinced? Consider these words from a new hydrogen convert: This technology "will fundamentally alter the American way of life in a positive way!" So said George Bush as he unveiled his hydrogen strategy in early 2003 to a roomful of executives from the energy and automotive industries. His announcement is especially striking when you consider the play on the defiant words used by his father at the Rio Earth Summit a decade earlier – the American way of life, the elder Bush had insisted, was not up for negotiation.

– Excerpted from
Power to the People
by Vijay Vaitheeswaran



The pleasures of star gazing

It was a pitch dark, and far away I could see some hovering clouds. The Milky Way galaxy belt was clearly visible and I realized it was named so aptly. At 0411 hours, there we were – standing in a field, our telescopes closely pointing at a star. “Get ready!” one of my friends said. And within a fraction of a second, I saw the star disappearing right in front my eyes. It was invisible for 30 seconds and voila, it came back! I couldn’t believe my eyes. We had come early morning for this most enthralling experience, to see the star getting ‘occulted’ – hidden by an asteroid. As the asteroid moved away, the star reappeared, almost like a hide and seek game. After such an awe-inspiring phenomenon, we quietly packed our bags and came back. The next day, I was still in a hangover. The astronomy hangover!

When did my passion for astronomy begin? Ever since I saw a UFO when I was about eight, I always felt there is something out there! I still believe that, and I have no doubt about what I saw. That inspired me to deep dive into the beautiful and endless universe. I started attending workshops and lectures on astronomy at IUCAA (Inter University Centre for Astronomy and Astrophysics). I was lucky to be a member of my school team, selected for a one week program at IUCAA to learn the basics of astronomy. To sit close to Jayant Narlikar himself was an out-of-the-world experience.

As I grew older, I began to like the subject and thought of learning more. I wanted to be a serious amateur astronomer. For that I needed the arsenal and apt guidance. So, I got my own telescope, a small 3.5 inch refractor. With a little help from the instruction manual, I mounted the telescope. The first celestial object I saw through it was the Jupiter. With its moons Io and Europa, the Jupiter is a quite a beautiful sight. This was followed by other celestial objects like globular clusters, nebulas, etc. After some years, I wanted to really go for a higher

resolution telescope and while I was in London pursuing my studies, I got myself a 5 inch reflector. It helped me observe some deep sky objects and has literally expanded my horizon. As Gollum would say in *Lord of the rings* I call it, “My precious”.

Learning astronomy and astrophysics as a child, I was always fascinated by constellations. The peculiar shapes they make and the mythological stories behind them were and always will keep my imagination alive. Like the well known story of Orion or Mruganakastra. The Greek Gods sent Taurus the Bull to fight Orion, a fierce warrior who was feared by one and all. Orion won the battle. Angered by the defeat, the Gods sent Scorpio. In the fierce battle that followed, Scorpio defeated Orion. Since then, when Orion sets in the west Scorpio is set to rise in the east. The names and stories help us identify the stars.

I always thought that the pleasure that star gazing has given me, should be experienced by others too. Hence, I started sharing my knowledge and experience. With my friends at *Akashmitra*, we organise workshops for making telescopes and models, and star gazing events to make the riches of astronomy available to others.

Recently, we had the amazing experience of observing the occultation of Venus. It was happening after eight years, and will happen again only after 105 years. We organised a public sky watching session to view the celestial phenomenon of the transit of Venus on 8th June 2012. Although the clouds played a bit of a spoilsport, the event was a success. We managed to get glimpses of the wonderful movement of Venus across the sun.

I know there is a lot more to know about the universe. It is a boundless sea of knowledge. My ultimate aim is to learn astrophotography and get pictures from the depths of the universe. One day, I hope I would succeed in that endeavor.



Rounak Kharait
Power Division

The saleable superhero myth

During the 1992 World Cup season, my five year old son was the biggest cheerleader for the Indian team.

Our heroes were unbeatable mainly because they wore 'Action' shoes, the team's official footwear. That was what the television ads told him. After we lost in the early rounds, while comforting him, I explained that to win matches you needed something more than good shoes. The night when Imran Khan and his team lifted the winner's trophy, he was unusually quiet. Snuggling close to me, he asked softly, "Papa, Imran's team – they are wearing which shoes?"

Powerless and vulnerable, which child can resist the magnetism of the superhero? We have had several generations of saviour heroes: Phantom. Mandrake. Flash Gordon. SuperSpiderBatMen. Wear a magic cape, mask the face, go out and fight evil. Save the world. As long as they are there, the world is safe, the child sleeps easy.

That trace of vulnerability – seems it is never allowed to fade, especially when billions of dollars of merchandise rides on our dreams to grow to power. The collective wish of millions to turn into those beautiful people who inhabit glossy pages and shimmering screens. Look at this invitation from a website that sells superman accessories: "Do you remember wanting to be a specific superhero when you were a child? The amazing thing about wanting to feel like a Superhero is that the desire does not go away when you are older...it is important to make an attempt to fulfil this desire to feel like a superhero with some of the Superman cufflinks that are on sale."

If you have outgrown the habit of dressing up like a superhero (which, as someone pointed out, means wearing your underwear on top) you are still reminded that you are not equipped for life's daunting journey. It could be as simple as the right cooking oil to protect your weak heart, a particular brand of suiting or jewellery that make you the complete man

or woman. And you can choose from an entire range of accessories that promise power and poise.

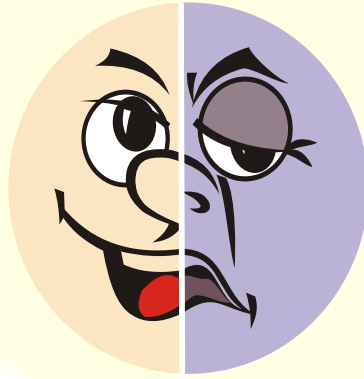
In the shop, the octogenarian picks up the hi-tech shoe and looks completely lost. He has absolutely no clue about how to just do it as the tagline asks him to. But some vague impulse tells him to just buy it anyway. Who knows, wearing them he might just feel a surge of youth. An article highlighted that many sedate middle aged corporate executives in the US take to Harley Davidson bikes in search of the alternate life they missed.

It is not limited to shoes or shirts, cars or mobikes. It doesn't stop at things. Coming back from office, a realty hoarding assures me that if I acquire a new address in an upmarket housing project, my jaded life would be magically transformed. As I wait for the traffic lights to change, a blast of deodorant smell hits me. The tattooed youngster on the bike has been persuaded that only the right 'deo' will get the girls swarming around him. At home, in the letter box there is a pamphlet inviting me to a spiritual discourse. A sharp eyed Guru looks at me almost pityingly, offering me the serenity that I lack.

For every age, there is a matching fantasy or a remedy, manufactured by concept sellers and the hip crowd from ad agencies. Hospitals that promise wellness (this, a funny word); coaching classes that dole out the mysteries of the mark scoring method; educational institutions that dangle the keys to hefty pay packets and exciting careers, in that order.

Clooney's watch, Jolie's pout, someone else's blemishless face. You can aspire to anything, except being comfortable in your own skin. Woody Allen, that high priest of neurotic anxiety, summed it up 'My one regret in life is that I am not someone else.'





Splitting images of Indians

Indians, especially those living in cities and working in relatively high-paying jobs, seem to suffer from acute multiple personality syndrome when it comes to India and our fellow citizens. There is one personality that sees India taking her place at the high table alongside the world powers. There is another personality that thinks that India's poor are people from another country and another time. There is a third personality that believes rules should be applied uniformly and the corrupt should be locked up and the keys thrown away. And then to counter that, there is a fourth personality that believes it is completely all right for them to jump the red light and slip the traffic policeman a fifty-rupee note...All these personalities and opinions reside within a single person. If it was spread across the country, you would call it diversity. But, within one person it seems like a serious problem that requires some concerted psychiatric care.

— DNA (from a column
by Harini Calamur)

World travelled cycle goes missing in home town

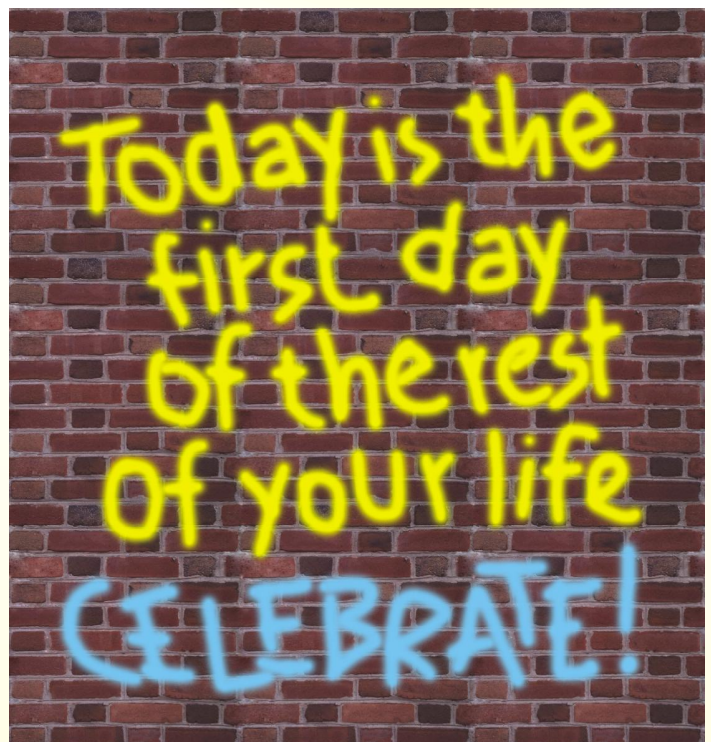
Sam Swain cycled across Europe to Japan without a hitch only to have his treasured bike stolen in his home town, Bristol. Swain, 22, travelled 10,000 miles through Iran and China, that were supposed to be hazardous, but he had not felt that he or his touring bicycle were ever at risk.

Now he feels angry and disillusioned that the bike was taken even after locking it outside a restaurant he worked at, to save up for his next trip. Swain, who travelled with his father, Mark, said: "When we were travelling we used locks but in some places it was so remote you could only attach the bikes to each other. No one ever tried to steal our bikes."

— The Guardian



And this graffiti...



Thermax's first IPP Project crosses a major milestone

Thermax's Power division successfully synchronised the first unit of Meenakshi Energy's 2 X 150 MW Coastal Thermal Power Project in June 2012. Power from this unit will be generated in the second quarter of this year.

This project executed by Thermax on

an EPC basis is coming up at Nellore in Andhra. It marks the company's transformation from a supplier of captive power plants to an emerging player in the Independent Power Producer (IPP) segment.

Thermax's scope of supply for the project includes two 495 TPH CFBC

boilers of 143 atmospheric pressure that recycles turbine exhaust for reheating; water treatment plant with RO systems to use sea water ; effluent treatment facility and electrostatic precipitator. The plant can be run on both imported and low grade Indian coal.



An unforgettable summer of adventure and craft

Bhathena summer camps, this year, took Thermanx children to Purandar and Korlai Forts, and Ranthambore wild life sanctuary. There was also an outing to Ananda valley, a visit to the Nehru Science Centre and a catamaran ride in the Arabian Sea – trips that were marked by the spirit of exploration and adventure.

At an aero modeling session workshop, the participants got to know more about glider planes, how they are built and flown. In craft workshops they tried their hand at calligraphy and origami. Learning the art of sending personalised greeting cards and hand-made objects to their friends and families.

