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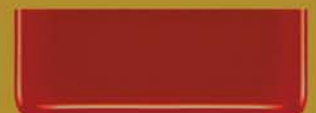
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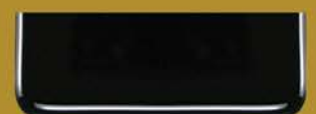
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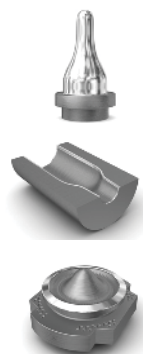
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Kanch

Quarterly Journal of **THE ALL INDIA GLASS MANUFACTURERS' FEDERATION**

Vol. 1, No. 3, October - December, 2013

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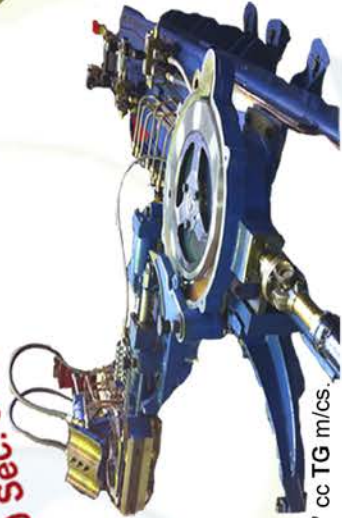
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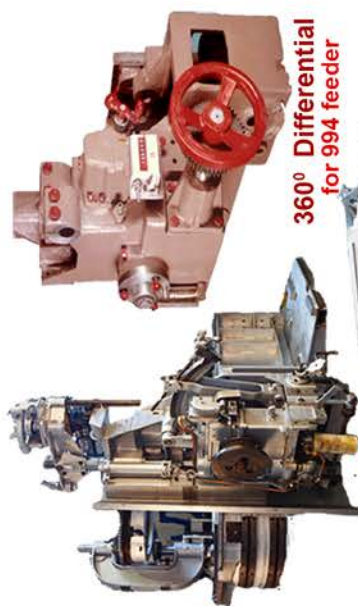
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From President's Desk

To update members about growth of industry, an interactive session with Department of Industrial Policy & Promotion (DIPP), Government of India, Ministry of Commerce & Industry was organised on September 28 in New Delhi. Senior Development Officer of DIPP gave a presentation explaining the role of DIPP in promotion of industrial development, concessions on import of capital goods for initial setting up of a unit for a project relating to substantial expansion and advance authorization for export of Glass & Glass products.

Members sought clarifications in Q/A Session.

AIGMF participated as a supporting association in the Indian Green Building Congress (IGBC) organized by Confederation of Indian Industry from October 24-26 at Chennai.

On December 2, a special function was organised by the AIGMF to felicitate Mr. C K Somany on being conferred 'Glass Person of the Year 2013' by Phoenix Award Committee in association with La Opala RG Ltd., at Bengal Club, Kolkata. Everyone expressed happiness and greeted Mr. Somany who reciprocated with thanks.

AIGMF participated in the Asia-Pacific Meeting of Glass and Allied Industries held at CGCRI, Kolkata on December 2-3, programme organized by CSIR-CGCRI, ICG, AIGMF and The Indian Ceramic Society (InCerS). I am sure that deliberations at various programmes will go a long way in promoting closer interaction between entrepreneurs from India with those from different parts of the globe.

I convey my best wishes to one and all for Happy New Year 2014 on behalf of myself as also other office bearers, members and staff of the AIGMF.■

S C Bansal
President AIGMF

and Managing Director, Adarsh Kanch Udyog Pvt. Ltd./
Advance Lamp Component & Table Wares Pvt. Ltd, Firozabad (UP)



About The All India Glass Manufacturers' Federation

The All India Glass Manufacturers' Federation was founded in 1944. The Federation is made up of five Regional Associations viz.

- Eastern India Glass Manufacturers' Association (EIGMA)-Kolkata
- Northern India Glass Manufacturers' Association (NIGMA)-New Delhi
- South India Glass Manufacturers' Association (SIGMA)-Hyderabad
- Uttar Pradesh Glass Manufacturers' Syndicate (UPGMS)-Firozabad and
- Western India Glass Manufacturers' Association (WIGMA)-Mumbai

The Federation was incorporated under the Companies Act, 1956 (No. 1 of 1956) as a Limited Company on 15-6-1970. The main aims & objects of the Federation are:-

- To encourage, promote and develop the manufacture of glass articles of all kinds and to safeguard and protect the interests of glass industry and glassware business in India.
- To form a common link amongst Glass Manufacturers' in India and thus develop a spirit of mutual help and co-operation with one another.
- To promote the study and research in Glass Technology.
- To consider all matters relating to the manufacture and marketing of glass articles in India and the question of export and import thereof.
- To devise ways and means for securing necessary supply of raw materials required for the manufacture of glass articles at comparatively lower prices and thus to decrease the cost of production and increase the national wealth.
- To collect necessary information and data and propagate it for the benefit of Glass Industry and trade in India.
- To make representations whenever necessary to the Union Government or any unit of the Union of India for the removal of difficulties that might hamper the trade of glass articles or for grant of special facilities for the Glass Industry.
- To draw Government or public attention to the difficulties in the way of Glass Industry and to solve other problems confronting it and to solicit their help and support through concerted action.
- To organise a united front on behalf of all glass manufacturers and thus strive to gain all those advantages which may not be possible through individual effort.

All those engaged in the manufacture of glass and glass articles are enrolled as 'Ordinary' members of the AIGMF and those associated with the Glass Industry are enrolled as 'Affiliate' members of the Federation.

Almost all glass manufacturers including many in the small Scale Sector are 'Ordinary' members of the Federation. Articles of Association of the AIGMF were amended in September 1992 to enroll foreign companies as Affiliate Members of the Federation.■

Manohar Lal
Secretary AIGMF



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Felicitation of Mr. C K Somany on 'Glass Person of the Year 2013'

(December 2, 2013)

Mr. CK Somany, Non-Executive Chairman, HNG Group, was felicitated by The All India Glass Manufacturers' Federation in honour of being conferred 'Phoenix Award' Glass Person of the Year 2013 for his significant and major contributions to glass industry in the field of science, production and education.

The program was organised by AIGMF in association with La Opala RG Ltd., at Bengal Club wherein about 100 persons from Industry, CGCRI and visiting members of International Commission on Glass joined. ■





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Answers for industry.

Indian visionary gains global recognition

John Wallis was among the invited guests at this year's Phoenix Award banquet in Berlin to celebrate the achievements of the 2013 Glass Person of the Year, Chandra Kumar Somany. They spoke prior to the event about C K's pride at receiving this recognition on behalf of the HNG family.

Having recently celebrated his 80th birthday, C K Somany could be forgiven for slowing down the pace of his busy lifestyle. His sons Sanjay and Mukul, together with grandson, Bharat, now head an experienced management team at India's leading glass container producer, a successful float glass business and a revitalised glass container operation in Germany. After six decades at the helm of Hindusthan National Glass & Industries Ltd, however, C K still maintains a close involvement with one of the international glass industry's most enduring family dynasties. Now, his achievements have been recognised by the Phoenix Award Committee, confirming this visionary entrepreneur as the 43rd 'Glass Person of the Year' and staging a celebratory banquet in Berlin in his honour, surrounded by close family and friends.

The award is richly deserved

recognition for C K's efforts in the creation and constant development of HNG over a period of more than 60 years. Having started with a semi-automatic glass container production facility, HNG was India's first to convert to fully automatic operation in 1952.

Now a spritely 80 years of age, C K still maintains an active interest in the company's affairs as non-executive Chairman. It is through his vision, a constant drive towards innovation and the adoption of the latest technologies that the HNG Group has emerged as a market leader in the Indian glass packaging industry. The group now operates seven fully automated container plants in India and one in Germany (HNG Global at Gardelegen), producing more than 4800 tonnes/day of glass.

Separately, the group also has a 700 tonnes/day float glass unit, which is soon to more than double

in size via the addition of a second (1000 tonnes/day) furnace and production line. Leading Turkish float glass producer, Trakya Cam Sanayii AS has recently created a joint venture with HNGFL and the Somany family, bringing valuable expertise in the development of valued-added, high performance processed materials for automotive and architectural use. Mr Somany confirms that Siseecam Group subsidiary Trakya Cam will be responsible for running a proposed specialist processing facility alongside the float plant. Both parties have a 50% shareholding in the venture, which is expected to exploit significant expansion opportunities in the local Indian market. "It is very different to HNG's glass container business in terms of products, manufacturing methods and customer requirements but I think we have managed it very well" says the HNG non-executive Chairman.

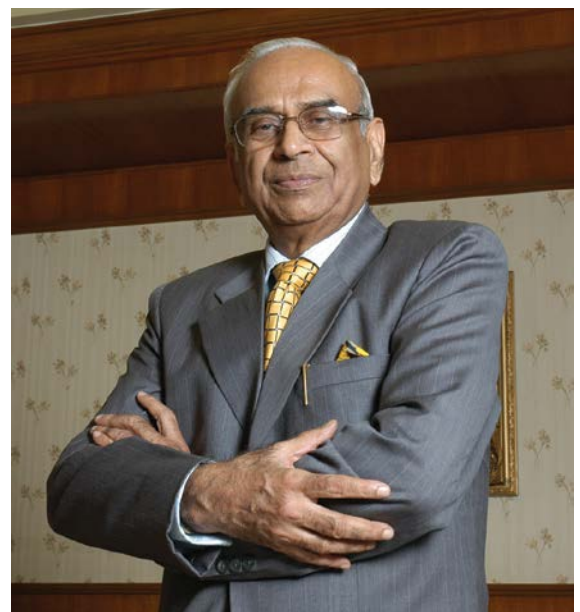
Collectively, the extended HNG family has now grown to include approximately 14,000 people in India and Germany.

VISIONS NEARING REALITY

"Being the first Indian to receive the Phoenix Award makes me extremely proud on behalf of my nation, as well as everyone within the extended HNG family" says C K Somany. "It has been a collective effort that has resulted in this recognition, involving many colleagues



C K Somany (left) receives the 43rd Annual Phoenix Award from Gordon E Jungquist, 2013 Phoenix Award Committee Chairperson.



C K Somany has worked in the primary glassmaking industry for over 60 years.



Specially created ice sculpture of the prestigious Phoenix Award.



Lino Tagliapietra, winner of the 2012 award, was present in Berlin with his wife Lina.

in India, as well as new colleagues in Germany.”

C K visited the former Agenda Glas plant at Gardelegen (now HNG Global) for the first time this October and was impressed by the progress made since acquiring the facility in 2011. “It is a very good plant, with considerable scope for further expansion” he confirms. It has long been Mr Somany’s vision to create world class glass manufacturing plants that pursue quality, cost reduction and productivity improvement measures in a genuinely holistic manner, leading to the satisfaction of customers, shareholders, employees and suppliers alike. Witnessing the latest efforts of family members and colleagues in India and Germany clearly meets with his approval. “This integrated effort will result in the company

becoming an industry benchmark and a role model for systems, processes and results” he confirms.

Another subject of considerable pride for this visionary entrepreneur has been his personal involvement in the training of skilled Indian glass industry engineers, many of whom still work for the industry, both locally and overseas. “I am very proud of them all, I thank them for the respect they continue to show me and I monitor their progress with great interest.”

Furthermore, according to C K Somany, HNG’s acquisition of the Gardelegen glass container factory does not signal the end of

the group’s international investment initiatives. “Eventually, I would like HNG to maintain similar size businesses outside India to those operated in our domestic market” he says. “Our experience proves, however, that success can best be assured by embracing the characteristics of the country, learning the local language and respecting their traditions... it works much better than simply imposing your own methodologies!”

Although no further acquisitions have been concluded yet, Mr Somany is confident that the HNG Global name will be more widely adopted in the coming years. He suggests however that while the HNG brand will become more visible in international circles, his personal involvement will gradually be reduced, leaving more and more of the business decisions to the next generation. “Sanjay and Mukul are both extremely capable, giving me more time to spend at my country home, running local community programmes and supporting the less fortunate.” These may not be additions to the greater HNG family but they represent the latest important additions to an ever-expanding C K Somany ‘family’ and the latest laudable effort of this visionary and charitable gentleman. ■



Four generations of the Somany family were present in Berlin for the awards banquet.

FURTHER INFORMATION:
Hindusthan National Glass & Industries Ltd, Kolkata, India
web: www.hngindia.com

Asia-Pacific Meeting of Glass and Allied Industries

(December 2-3, 2013)

CSIR-Central Glass and Ceramic Research Institute (CSIR-CGCRI), Kolkata, International Commission on Glass (ICG), The All India Glass Manufacturer's Federation (AIGMF), and The Indian Ceramic Society (InCerS) jointly organized the Asia Pacific Meeting of Glass and Allied Industries during December 2-3, 2013.

The Steering Committee Meeting of the International Commission on Glass (ICG), which is an international glass society comprising of 37 national organizations in glass science and technology, was also simultaneously held at CSIR-CGCRI.



Sponsors of the events included Henan Zhongyuan Special Refractory Co. Ltd., China; Zhengzhou Huite Refractory Material Limited Company, China; Borosil Glass Works Ltd., Mumbai; H&R Johnson Ltd., Mumbai; La Opala RG Ltd., Kolkata; Hopewell Tableware Pvt. Ltd., Jaipur; Hindusthan National Glass and Industries Ltd., Kolkata; The All India Glass Manufacturer's Federation (AIGMF), New Delhi and CSIR-



Central Glass and Ceramic Research Institute, Kolkata.

The objective of the Asia Pacific Meeting of Glass and Allied Industries was to energize glass and allied industries in the Asia-Pacific countries and also, in India so that future policy guidelines may be provided for the growth of glass industries and new direction, for research in the field.

The aim was also to catalyze participative science and technology development in the domain of glass and allied science. Another endeavour was to develop knowledge to business (K2B) interface for increasing



competitiveness of the Asia-Pacific Glass Industry and to encourage regional cooperation in the field.

Glass Person of the Year 2013, Phoenix Award winner Mr. C.K. Somany, and Non-Executive Chairman, Hindusthan National Glass and Industries Ltd., (HNGIL) was the Chief Guest. Dr. S. Kumar Former Director, CSIR-CGCRI was the Guest of Honour.

Prominent amongst the delegates present on the occasion were Prof. Peng Shou, President, ICG; Dr. Fabiano Nicoletti, Honorary President, ICG; Dr. Sener Oktik, Şişecam A.Ş.; Dr. Manoj Choudhary, Owens Corning, USA and Vice President, ICG; Dr. Arup K. Chattopadhyay, President, InCerS; Dr. H. S. Maiti, Former Director, CSIR-CGCRI and Prof. I. Manna, Director, IIT, Kanpur and Former Director, CSIR-CGCRI.

The luminaries representing the Indian Glass Industry included Mr. P. K. Kheruka, Vice Chairman, Borosil Glass Works Ltd, India; Mr.



C. V. Chalam, Technical Advisor, Ceasan Glass; Mr. Swapan Guha, MD, Hopewell Tableware; Mr. Sudipta Saha, Vice President, H. R. Johnson India; Mr. Mukul Somany, Vice Chairman and MD, HNGIL; Mr. Arun Kumar, President, AGI glaspac; Mr. Sanjay Ganjoo, COO, Asahi India Glass Ltd., and Mr. S. C. Bansal, President AIGMF.

After the ceremonial lighting of the lamp, Acting Director, Mr. Kamal Dasgupta warmly welcomed all delegates to the City of Joy. Very briefly he introduced the delegates to the multifarious activities of CSIR-CGCRI. He highlighted its commendable service to the nation in both civil-societal and strategic sectors. He expressed appreciation of the roles played by the ICG, InCerS, Industry, Academia and scientific peers abroad in meeting goals of mutual interest.

Prof. Peng Shou in his pithy address reiterated that India has a large number of glass industries and that it was important for ICG. He was confident that the interactions at the Conference would have positive outcomes for the glass and allied industries.

Dr. Fabiano Nicoletti expressed his happiness about his visit to India and his meeting with friends and colleagues;

young and old. He acknowledged the connection between ICG and India which went to the 1980's and rued the brief lull in between and announced his delight that firm ties had been re-established. Dr. Nicoletti emphatically pronounced that the winds of change were blowing and that it would have a great influence on the future of glass.

Dr. Arup K. Chattopadhyay said that it was good news that the Steering Committee Meeting of the ICG being held at CSIR-CGCRI, India. He noted that the present climate is one of inter-dependence and for better or for worse we are dependent on each other. He listed three global challenges that need to be pondered over. These were: Inequality with poverty stalking millions across the globe; Instability in large parts of the world and sustainability. He said that unless these three issues were addressed, growth was impossible. Especial care was needed to address the issue of sustainability, not just because there is approximately 23 per cent gap between energy production and use but because of the energy crunch which is of significance to the glass industry since it uses energy intensive processes. Efficient energy processes have to be worked out to reduce energy guzzling in the present scenario and also to leave enough

for future generations. He said that technology should be used to bridge inequality and thinking green in the context of energy would lead to upliftment. He spoke about the need for affordable healthcare because only healthy communities prosper. The fight for the future is now, he concluded.

In his address Guest of Honour, Dr. S. Kumar said that the last few decades had seen sharp increase in industrial activities in Asia-Pacific countries especially in China, Japan, and Korea. He discussed the problems specific to the glass and allied industries amongst which he paid particular attention to resource crunch, escalating fuel demands, pollution, emissions of Lead, Iron etc., from glass melting, leaching of Chromium and Selenium etc. He touched upon the initial years of close interaction with the ICG and expressed satisfaction that the ties had been re-established. He was confident that CSIR-CGCRI was competent to participate in the various committees of the ICG and to have meaningful discussions in areas of cooperation.

Speaking on the occasion, Mr. C. K. Somany outlined the history of glassworks in India. He spoke proudly about Mr. Ishwar Das Varshney a pioneer of the Glass Industry in India who, in 1908, with the help of Bal Gangadhar Tilak, had set up the Paisa Fund Glass Works in Talegaon near Pune by collecting only one paisa donation from every person. Container glass industry was initiated in around 1952 and the glass industry has gone from strength to strength since then. The reason why glass is so popular is because of its versatility it can be used for a wide range of products. It finds applications in diverse areas such as aesthetically designed artwork to construction business. Transparent glass is revolutionising modern

architecture. It lets in light and cuts down on the cost of energy used for artificial illumination. It is eco-friendly because it can be infinitely recycled. It is inert and thus an excellent packaging medium particularly for food, beverages and pharmaceutical products. Mr. Somany said that the glass industry has to be future-ready to cope with the challenges and opportunities.

Glass mementos were presented to the delegates. The Vote of thanks was given by Dr. S. K. Bhadra, Chief Scientist, FOPD and Head HRDG.

Prof. I. Manna chaired the first technical session. In his opening remarks he said that it used to be said that the growth of a country could be assessed from the quantum of its steel production but that the time has come when glass production in a country could be a measure of its growth. He said that it was important for India to make a mark in glass and allied industries and that it was not possible to get a better venue, than the current one, in the entire subcontinent. He said that CSIR is

considered the mother of almost all of India's many scientific organizations and that CSIR-CGCRI is the only such institute in the subcontinent. CSIR-CGCRI began from scratch, he said and is now a significant contributor to the measure of self-sufficiency achieved by the nation in the strategic sector. It was a conscious decision to acquire expertise in the area of specialty glasses and not venture too much into float or container glass. The challenge is to maintain the continuity of excellent work done in service to the nation. He touched briefly upon the legacy of this institute by remembering the contributions of Dr. Atmaram, a prominent glass scientist, the first Director of CSIR-CGCRI and also, a former Director General of CSIR. Dr. Atmaram did seminal work on coloured glass and import substitution for the same. The resultant glass not only rejuvenated the domestic bangle industry but is still being used by Indian Railways for signalling. He ended by saying that India must leverage the best advantage it has: youth. The young must be empowered and knowledge

must be created and young students must reciprocate by seizing the opportunity represented by the Academy of Scientific & Innovative Research (AcSIR).

Dr. Manoj Chaudhary gave an overview of the ICG and the US Glass Industry. He said that the first ICG Congress on Glass was held at Venice in September 1933; 200 participants from 8 countries participated and 42 papers were published. The ICG constitution was finalized at this event. The ICG has four objectives: (i) Cooperation/participation (ii) Clearing house for technical and scientific works for future congresses (iii) Receipt/transmission of topics of international interest on Physics, Chemistry and Technology of glass and finally, (iv) Assistance to those countries that still do not have glass-related societies. He said that most of the work of the ICG was carried out by its Technical Committees (TCs), which are the "backbone" of international cooperation clusters. The TCs are organized into groups according to their R&D activity fields and include: Basics, Glass



Production, Surfaces & Interfaces, New Applications and Information, Communication, Education, History. He then presented details about the TCs.

Glass is a vital part of the US manufacturing base and represents almost \$ 30 billion/year of value. In summation he said that USA and Europe, in particular Germany dominate the global glass scenario. US accounts for about 29 per cent of global glass production although foreign-owned companies have a significant presence here. Glass manufacturing is expected to grow by 2 per cent every year for the next 4-5 years. China has already registered its presence, albeit as a small and growing one. However, India needs to show up more to make a mark internationally.

Dr. Arup K. Chattopadhyay delivered a talk entitled Refractories for Glass Industry. He analyzed the world market trend for refractories for glass industries and said that while there was a declining trend for specific refractory consumption there was a definite upswing in the demand for total refractory solutions. He added that conventional products are losing ground but there is increased demand for customer-driven product design. India represents one of the largest markets and manufacturing capacities

of glass products in Asian region, after China. Firozabad in Uttar Pradesh, India meets about a third of India's glass needs. He then discussed the new generation refractories for the glass industries. He said that sophisticated refractories are needed for glass furnaces. He concluded by saying that the Glass Industry is facing challenges, the most important of which are: enhancement of furnace life, increase in productivity, achieving better energy efficiency and environmental protection. Refractory industry needs to accelerate the pace of development of technology and product quality. He called for closer ties between the refractory industry and technology providers to render complete refractory solutions for the Glass Industry.

Technical session II, was chaired by Mr. C.V. Chalam, Tech. Advisor, Ceasan Glass. Mr. Swapan Guha, MD, Hopewell Tableware Pvt. Ltd., Jaipur spoke about Ceramics and Glass Tableware. He gave a comprehensive picture about the pioneering companies that had produced tableware in India; leading names included Bengal Pottery, Parashuram Pottery and Hitkari Pottery. Later came Bharat Pottery Pvt. Ltd., Clay Craft Pvt. Ltd., Jaipur Glass and Potteries, Jaipur Ceramics Pvt. Ltd and Oasis Ceramics and Khurja

Pottery among others. It was not till 1976 that Nalanda Ceramics initiated manufacture of porcelain tableware with Japanese collaboration, but the project was not very successful. Similar was the case with Bharat Potteries Ltd. Interestingly, while this was the case in India, Bangladesh and Sri Lanka were forging ahead quite successfully perhaps because they are rich in natural gas-a pre-requisite. Another constraint that India faces is the non-availability of quality raw materials. In India, opal table ware was introduced by La Opala about 25 years ago. Then came Diplomat, Vicopal, and Alembic Glass; Hopewell table ware joined the fray in 2011. Opal table ware is expected to grow at a rate of 12-15 per cent annually in the next five years. Lack of quality raw material necessities the import from countries such as Turkey, New Zealand and China. Currently, India holds second position after China in the production of bone china. India's capacity for producing bone china table ware is 200 MTPD of which 25 per cent is exported. Indian manufacturers have captured a large chunk of the big mug business none has been really successful in producing internationally celebrated quality bone china dinnerware.

Mr. Sudipta Saha, Vice President, H. R. Johnson, India spoke about Glass Frits for Ceramic Glazed Tiles and their Applications. He began his talk by enumerating the different types of tiles that are made and said that without good quality frits this would not have been possible to create this diversity and to achieve the levels of excellence that is available in the tile-market. He especially mentioned the CSIR-CGCRI created glass frits/beads that have been approved by NRB/DAE (Mumbai).

Dr. G. P. Kothiyal, former Senior Scientist BARC, elaborated further



on Glasses and Glass-Ceramics for Sealants and Nuclear Waste.

Dr. Fabiano Nicoletti chaired Technical session III. Mr. Mukul Somany spoke on Evolution of Glass Industry in India: Challenges and Future Scenario. He began with an overview of the Indian glass industry which has roots going back to Harappa and Mohenjodaro (Indus Valley civilization) via trade with ancient Sumer in Mesopotamia. There is evidence that Firozabad, India's Glass City was producing glass by the 17th century. The first Indian glass factory was set up in 1908. The quantum leap in the business of glass making really happened only in 1958 when the float-glass process was perfected in 1958. It rapidly became a significant industrial innovation and became the method of choice globally, for making flat glass for buildings and vehicles. India adopted it too even as India produced its own indigenous technology to make bangles. He then elaborated about the market share of the different types of glass and the specific challenges faced by the Industry in these sectors; potential avenues for future revival and most importantly, expectations from CSIR-CGCRI and the scientific community.

Former Director, Dr. H. S. Maiti who chaired the Joint Meeting of ICG, AIGMF and delegates made a brief speech on India's association with the ICG following which there was a spirited discussion amongst all present. Excellent debate on the capabilities of all the organizations took place and all delegates felt that closer interaction is needed. Outcome of the ICG/AIGMF Joint Meeting was that a few research areas were identified. These included modelling and simulation of glass melting and glass forming

processes. Some experts emphasized on the need for research on soft and light glass for container applications. They stressed on research on energy-efficient float glass for structural and habitat applications.



Dr. Manoj Choudhary chaired Technical session IV. Mr. C.V. Chalam shared his enormous personal experience in the Glass Industry starting from the 1950's to the present. He said that India now manufactures almost all types of glass to global standards.

Dr. Sener Oktik presented an overview of the Turkish Glass Industry beginning with the glassware of the Seljuk and Ottoman periods. In 1934, the foundations of *Turkiye Sise ve Cam Fabrikalari A S* were laid. It was Turkey's first national glass factory. In 2012, it accounted for about 90 per cent of Turkey's glass production. He said that the Eurozone catered to 70 per cent of Turkey's export.

In a fitting finale, Dr. Ranjan Sen gave a crisp and focussed description of the activities of CSIR-CGCRI in the field of specialty glasses. He sent a clear

message that while specialty glasses were not manufactured in bulk like for example, container or float glasses, these have their own importance for the nation's social and strategic sectors. The indigenous technology

for radiation shielding glass that allows the creation of a transparent medium capable of shielding operators from harmful radiations being a case in point. He also elaborated on the applications of fiber optics oriented research in the area of specialty fibers and fiber-based devices. Finally, he added that not only was CSIR-CGCRI research organizations equally involved in basic as well as applied science; it had also demonstrated its commitment to the next generation of students and future scientists by having a functional AcSIR curriculum.

These sessions were followed by Business session, Panel discussion and Cultural programme. In addition, The ICG Steering Committee meeting, AIGMF Executive Committee meeting on the sidelines also took place. ■

Contributed by Dr. Sukanya Datta,
Senior Scientist, CSIR-CGCRI

Presentations given during the programme can be downloaded from <http://aigmf.com/past-events.php>

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Opal and lead crystal tableware expertise

La Opala RG Ltd is a specialist Indian producer of opal and 24% lead crystal tableware. Managing Director Sushil Kumar Jhunjunwala spoke to Glass Worldwide's John Wallis about the company's origins and current activities.



Sushil Jhunjunwala is Vice Chairman and Managing Director of La Opala RG Ltd.

Members of the Jhunjunwala family have been actively involved in the Indian glass industry for more than eight decades, Sushil Kumar Jhunjunwala having personally served the industry for 45 years. In addition to being a key personality at the specialist glassmaking enterprise, he has made a valuable contribution to the All India Glass Manufacturers' Federation and the Eastern Indian glass association.

While La Opala's history dates

back to 1988, the family's involvement stems from the much earlier creation of Ashoke Enamel & Glass Works P Ltd. This hand-made producer of soda-lime bottles, drinking glasses, jars and lamps is now managed by Sushil's brother, Dinesh.

Headquartered in the extreme east of country, La Opala is India's first and leading producer of opal glass tableware and was also the first to specialise in hand-crafted 24% lead crystal items. Curious for products that were radically different, Sushil Jhunjunwala had first been enamoured by opal glass on a foreign business trip. Being a visionary with an eye for innovation, the idea of opal tableware travelled back with him to India. "We believe in keeping our finger on the pulse of consumer taste" the La Opala Vice Chairman and Managing Director contends. "And keeping pace with the rising demand, we leapt to the forefront of innovation with breakthrough products that have helped to shape the Indian tableware market."

It was soon recognised that for the operation to succeed internationally, it would be necessary to be more ambitious than many traditional Indian family enterprises. Turning La Opala into a public limited company in 1994 brought the necessary confidence to create a successful brand identity for its opal glassware, while also paving the way for diversification into the production of lead crystal glass in 1996, creating a separate factory with an installed manufacturing capacity of 540 tonnes. This facility was built with the technical collaboration of Korea's Doosan Glass, some 80% of the resulting Solitaire 24% handcrafted lead crystal currently being sold to export customers.



La Opala features in the Forbes list of Asia's 200 best companies with sales under \$1 billion.

The impact of a multi-brand marketing strategy is said to have placed La Opala at the forefront of Indian glassmakers in terms of turnover according to latest industry statistics. With customers throughout the world, La Opala has grown by a factor of more than eight since its conception and now employs more than 1500 people. This figure may have been greater had the business not invested heavily in production automation technology in recent times.

Having established the original opal glassworks at Madhupur, a second 4000 tonnes capacity facility was introduced at Uttaranchal. Built



Sushil Jhunjunwala (centre) at a recent GLASSPEX India exhibition with AIGMF Secretary General Manohar Lal and Glass Worldwide's Dave Fordham.



Hand-crafted 24% lead crystal items are manufactured.

in 2007, this state-of-the-art operation has subsequently doubled in size to 8000 tonnes and represents the largest single production site in the country making opal glass tableware. In total, La Opala can now produce an impressive 12,700 tonnes of opal and 1080 tonnes of lead crystal glassware.

The original plant was established in the eastern state of Jharkhand, north of Kolkata. As the area's largest employer, La Opala takes its responsibilities for the local community very seriously and has undertaken a number of projects that have benefited the region as a whole. Earlier this year, the Jharkhand factory was the subject of a \$1.8 million modernisation as part of Sushil Jhunjhunwala's ambitious plans to procure the latest manufacturing knowhow for his production sites.

Separately, leading Czech, Polish and South Korean experts in the manufacture of lead crystal were brought in to train the fledgling company's local workforce both to manufacture and cut its products to international standards. The glassmaker's importance to the community cannot be over-estimated and its commitment has been rewarded by the loyalty of its workforce. According to Sushil Jhunjhunwala, not a single day of production has been lost in the past 25 years, as the company has grown and flourished.

BUSINESS GROWTH

La Opala is still growing and the next financial year is expected to see turnover increase by approximately 20%. "We are developing our products all the time with innovations and improvements" the company's Managing Director confirms. "We believe in volume and the only way that is possible is when your products are available at reasonable prices... the quality of our products is comparable with any in the world." La Opala products are available from more than 10,000 retail outlets throughout India and can be found in more than 30 different countries. The company sells via many of the world's leading retail outlets, including Walmart, Carrefour and Tesco.

This is India's only business making 24% lead crystal glassware, which has been successfully exported throughout North America, Europe, the Middle East and Asia since the company's creation. Locally, the national President's household is understood to use Solitaire crystal products for banquets and other official functions. A longstanding collaborative agreement with South Korea's Doosan Glass has assisted the organisation's growth and international success.

The company practices TQM parameters and was India's first opal glassware producer to be certified under ISO 9001, now upgraded to ISO 9001: 2008 standards. "We view environmental and occupational health and safety as an important aspect of integrated management systems and are at an advanced stage of certification under ISO 14001:2004 – Environmental Management System and OHSAS: 18001:2007 – Occupational Health and Safety Management System" says Mr Jhunjhunwala.

Having received ISO 9001:2000 certification and matched the standards of the USA's Food and Drug Administration, La Opala also received the 'Udyog Ratna' award, conferred by the Government of Jharkhand. Other accolades include Capexil's 'Most Outstanding Performer' and 'One Star Trading House' status. In 2013, La Opala features in the Forbes list of Asia's 200 best companies with sales under \$1 billion and is recognised consistently for the company's excellent export performance.

PRODUCTION CAPABILITIES

La Opala's two manufacturing sites are equipped with machines that have been sourced from some of the industry's leading international suppliers. This includes Olivotto forming machines and Car-Met tempering lines. "We look for the best quality suppliers and if the commercial and technical aspects are good, we will consider them" says Sushil Jhunjhunwala. "It has to be a partnership with our suppliers because we do not purchase just once; they have to be correct for repeat purchases."

UK-based Electroglass supplied the 15 tonnes/day all-electric furnace at Uttaranchal, where daily melting capacity was doubled to 30 tonnes a couple of years ago.

INDUSTRY-WIDE FOCUS

Within the past decade, Mr Jhunjhunwala has served as President of the All India Glass Manufacturers' Federation, having previously been Treasurer, Secretary and Vice President of the organisation. "It was a great honour to be President, a role that provides a genuine opportunity to do something for the glass industry - not just for my company's personal interests but for the industry as a whole. The fellowship was very positive, with everyone co-operating closely."

A past President of the Indian section of the Society of Glass Technology and the Eastern India glass association, he is currently an AIGMF committee member and endeavours to attend all board meetings. "Until recently, the federation focused strongly on raw materials shortages and high taxes but there are no longer high taxes in India, so associated problems have more or less been settled."

According to Mr Jhunjhunwala, there are many benefits to being an AIGMF member but it is essential to be fully involved and have an open mind, both giving and taking knowledge. "The Indian glass industry has grown massively over the last 20 years and many conditions for business have changed over that time. The AIGMF provides a good platform and helps create a community." Susil Jhunjhunwala believes that business growth will continue but it is necessary to change with the times. Furthermore, he contends that the AIGMF's co-operation with *Glass Worldwide* is positive, describing the

publication as the best glass magazine outside India.

Similarly, he believes that the GLASSPEX India series of exhibitions, incorporating the AIGMF international conferences, provide a valuable local opportunity to meet international suppliers. "Even for those of us who attend glasstec in Germany, there are many advantages to meeting suppliers here in India as well."

FAMILY INVOLVEMENT

Sushil Jhunjhunwala has been both Vice Chairman and Managing Director of La Opala RG Ltd since the business went public in 1994. His son, Ajit is joint Managing Director and has also been General Secretary of the AIGMF since September 2012. Ajit is the third generation of the family in the business and Sushil hopes that following the completion of his education, his 14 year old grandson will be the fourth.

His daughter-in-law also works for the company, co-ordinating La Opala's important product design and advertising initiatives. The glassmaker introduces 20-30 new products every year. This high turnover is considered necessary because consumers are constantly looking for something different. The company's distinctive brands are La Opala opalware, Solitaire mouth blown/hand cut lead crystal and three Diva opalware collections (Classique, Ivory and Manish Malhotra). Throughout the range, La Opala continues to set standards in Indian glass tableware production and making an important impression with customers around the world. ■



A diverse range of opal and lead crystal tableware is produced by La Opala.

FURTHER INFORMATION:

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Unfair Competition Act - an advantage for glass industry

The glass industry in India is quite old and well established (the oldest glass industry was established in 1908). More than 7 million tons of glass is manufactured in India every year, this includes flat glass, hollow glass and others such as fibre glass and bangles. In the recent years, the technology has transformed from rudimentary mouth blown and hand working process to modern automated processes.

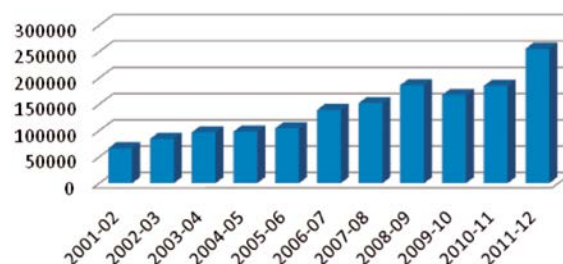
INDIAN GLASS INDUSTRY VIZ-A-VIZ

Year	Glass Exports from India in Lacs (₹)
2001-02	66439
2002-03	84270
2003-04	96499
2004-05	98054
2005-06	104367
2006-07	139189
2007-08	151996
2008-09	186413
2009-10	167536
2010-11	185128
2011-12	255592

DO YOU KNOW?

That the first building in India to have a curtain wall was the Le Meridian Hotel in New Delhi, constructed in preparation for the Asian Games, in early 80s. By the 90s, curtain walls were accepted as standard technology for high-end buildings all over the country starting with the Metropolitans.

Glass Exports from India in Lacs



Source : <http://commerce.nic.in>

The major Glass importing countries are USA, Japan, Germany, France, Italy and Australia. Europe, China and North America account for 75 percent of the global demand for glass. USA is the major importer of Indian glass products. With the growth of infrastructure the Indian glass industry is gearing up for more demands and developments.

The recent changes in the global export market has influenced the glass industry as well. Boom of technology has on one hand brought new opportunity and innovations in the market, on the other hand has increased the competition among companies many times. Hence, to remain in the competition has become a tough task pertaining to the innovations and technology advancements in the market.

UNFAIR COMPETITION ACT AND EXPORTS TO USA

The Unfair Competition Act, is an act that aims to deter unfair competition by penalizing manufacturers who use stolen Information Technology in the design, manufacture, distribution, marketing or sale of their products. This act intends to create a level playing field and encourage fair competition. It supports the interest of manufacturers who suffer direct economic harm as a result of cheaper product produced by manufacturers using stolen IT.

According to UCA, any manufacturer who manufactures goods, by using pirated software at any stage of the product life cycle, engages in unfair competition. As per UCA stolen IT as hardware or software acquired, appropriated or used by a manufacturer without the authorization of the legal IT right holder attracts penalty which may include permanent trade ban to USA. In the words of Mr. Ajay Singha, Chairman AmCham.

“For many manufacturers in India, risking loss of trade with the US is simply not an option. Taking an ill-sighted shortcut of using illegal software is no longer worth the risk of loss of business,”

As per a report in Business Standard major players in the glass industry in India have lined up investments worth Rs 7000 crore for capacity expansion and new technologies over the next 2-3 years.

UCA AND INDIAN PROSPECTIVE

Information Technology today has become part and parcel of every industry including glass industry. Today's severe competition forces enterprises to use all possible tools to enhance their competitive position in the market. Information Technology is a key tool used by every enterprise to enhance its design capabilities, operational efficiency and Supply Chain Management (SCM).

In this scenario UCA has brought an opportunity for Indian Manufacturers and Exporters to have a competitive credibility over its competitors. One of the reasons is comparatively lower piracy rate in India. Moreover, an early compliance effort can further support the efforts to become more competitive .

Since the piracy rate in India is lower as compared to its counterpart, this automatically make Indian traders trustworthy. Due to the new UCA laws the American traders would be searching for legally compliant traders to do business with, this is where the Indian traders can get a competitive advantage.

HOW CAN INDIAN MANUFACTURERS AND TRADERS EXPLOIT THE OPPORTUNITY?

The answer is simple! By being legally compliant as soon as possible. As Indian businesses has a competitive advantage of being more credible as compared to their other Asian competitors, they can grab this

opportunity by legalizing their software assets. This is the most crucial time for the Indian exporters to strengthen their position as an IT compliant nation. For the glass manufacturers and exporters this is the best time to strengthen their position and expand their market in USA, who is already searching for alternative for its non-compliant partners.

As per a study done by BSA (Business Software Alliance) the piracy rate in China is 77 % and Indonesia is 89 % while in India it is 63 %. Which clearly shows that the piracy rate in India is much lower than its toughest competitors.

Another way for Indian business to increase their credibility is by increasing their visibility as compliant partner. There are many online and offline tools available for this purpose. To start with one can go for Software Asset Management (SAM), which includes the audit of the software assets of the company. Another effective tool is verafirm registry. Which provides the certificate of authenticity, by simply registering your software assets on the website.

Pertaining to the developments in the glass industry and the large amount of investments being scheduled, it is

www.verafirm.org is a popular online tool, it is a voluntary computer software licence compliance program launched by Business Software Alliance (BSA). The tool allows you to register your software asset online. You have an option of limited registration or full fledged registration. The registration is free of cost. After registration the registrant will be provided by a digital badge, which can be used as a marketing tool. This is also a certification of Authenticity.

the right time that the glass industry manufacturers and exporters grab this opportunity and convert into legal business providers as soon as possible.

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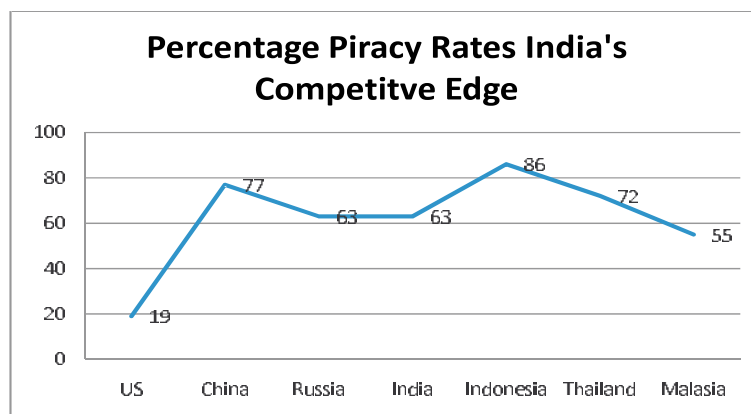
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The article is authored by Mr. Rajveer Singh, Managing Director, Apex Cluster Development Services Pvt. Ltd., e-mail: rajveer@indianclusters.org

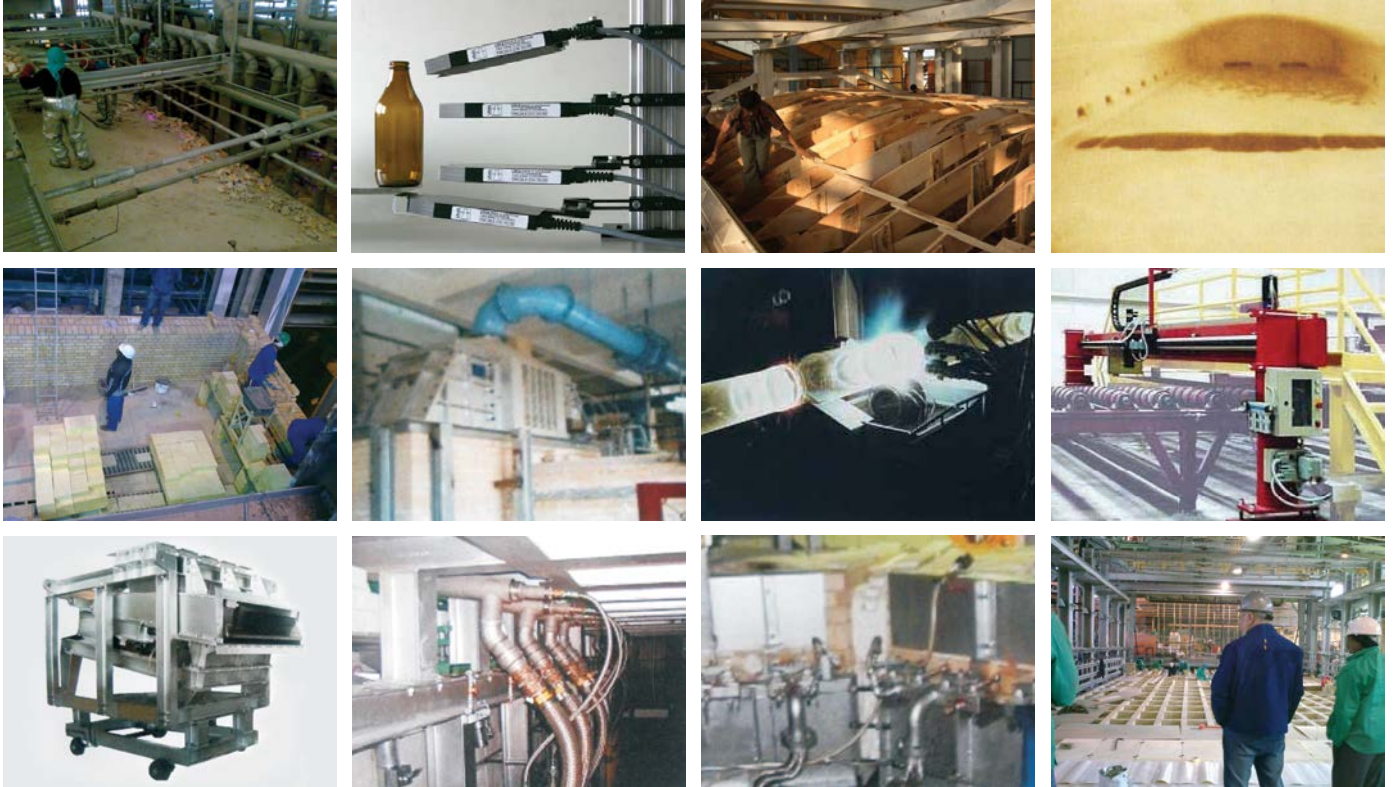


Piracy rate in various countries as per Global piracy Study published by BSA



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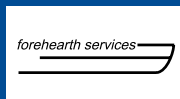


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Interactive Session with Department of Industrial Policy & Promotion (DIPP), Ministry of Commerce & Industry, GoI

(September 28, 2013)



The All India Glass Manufacturers' Federation organized an Interactive Session with Department of Industrial Policy & Promotion (DIPP), Ministry of Commerce & Industry, Government of India on September 28, 2013 at India Habitat Centre, New Delhi.

A presentation on work related to DIPP, Import of capital goods for initial setting or substantial expansion of the project and Advance authorization for export of Glass & Glass products was given by Mr. Nand Lal, Senior Development Officer, DIPP, Ministry

of Commerce and Industry.

Mr. Lal explained that DIPP is responsible for formulation and implementation of promotional and developmental measures for growth of the industrial sector. DIPP monitors the industrial growth and production, in general and selected industrial sectors, including glass.

In the department large volume of different type of data are generated and compiled for meeting their specific requirements. Collection of data by Government agencies is for development of related industry and comparison in growth rate, which also helps in determining the technology absorption by industry.

Mr. Lal informed members about the availability of concessional rate of duty for import of capital goods for initial setting up or expansion of the project. For the export of Glass product, one can import its raw materials and consumables duty free through obtaining Advance Authorization/License from DGFT RLA concerned, he added.

The program concluded with Question/Answer session.

Presentation given during the program can be downloaded from <http://aigmf.com/past-events.php> ■





Cerion:

GLASS
PROCESSING
WITH A FUTURE,
FROM SMALL
FORMATS TO
XXL ...
WITH LASER

Following the trend of modern architecture to increasingly larger glass elements, glass processing machinery must be able, accordingly, to process units with increasingly larger glass areas. Cerion has done its homework in this area and developed the world's largest laser glass finishing machine.

The c-vertica from Cerion is a powerful inclined bed laser system for the finishing of glass surfaces and subsurface engraving. The machine has a modular design and is aligned with customer requirements. The largest system installed so far can finish glass panels with a size of 10 x 4 metres





Whether finishing bathroom mirrors, glass doors or large façade elements, Cerion GmbH offers the ideal machine concept for any format and all glass processing companies. When selecting machinery, the size of units that can be processed has become an important purchasing criterion for glass processing and finishing companies.

More and more often architects all over the world plan buildings with large glass surfaces, both in the private and public sector. Companies wanting to do business with them must also be technically capable of processing large formats in a large variety of shapes. Meanwhile, dimensions are possible with functional glass that seemed inconceivable only a few years

ago. As an example, a composite glass pane with a length of 14 metres and a height of 3.20 metres was presented in January this year at the international trade fair BAU in Munich.

TREND TOWARDS LARGE SIZES

The trend towards large sizes does not stop with the individual surface finishing of flat glass

either. Cerion GmbH from Minden has recognized this development early on and expanded its inclined bed laser system c-vertica to a hitherto unique size level. Glass panes with a size of 10 x 4 metres can be custom-finished with the machine. This world's largest laser system has been in operation at Isophon Glas GmbH in Hann. Münden since the autumn of 2012.

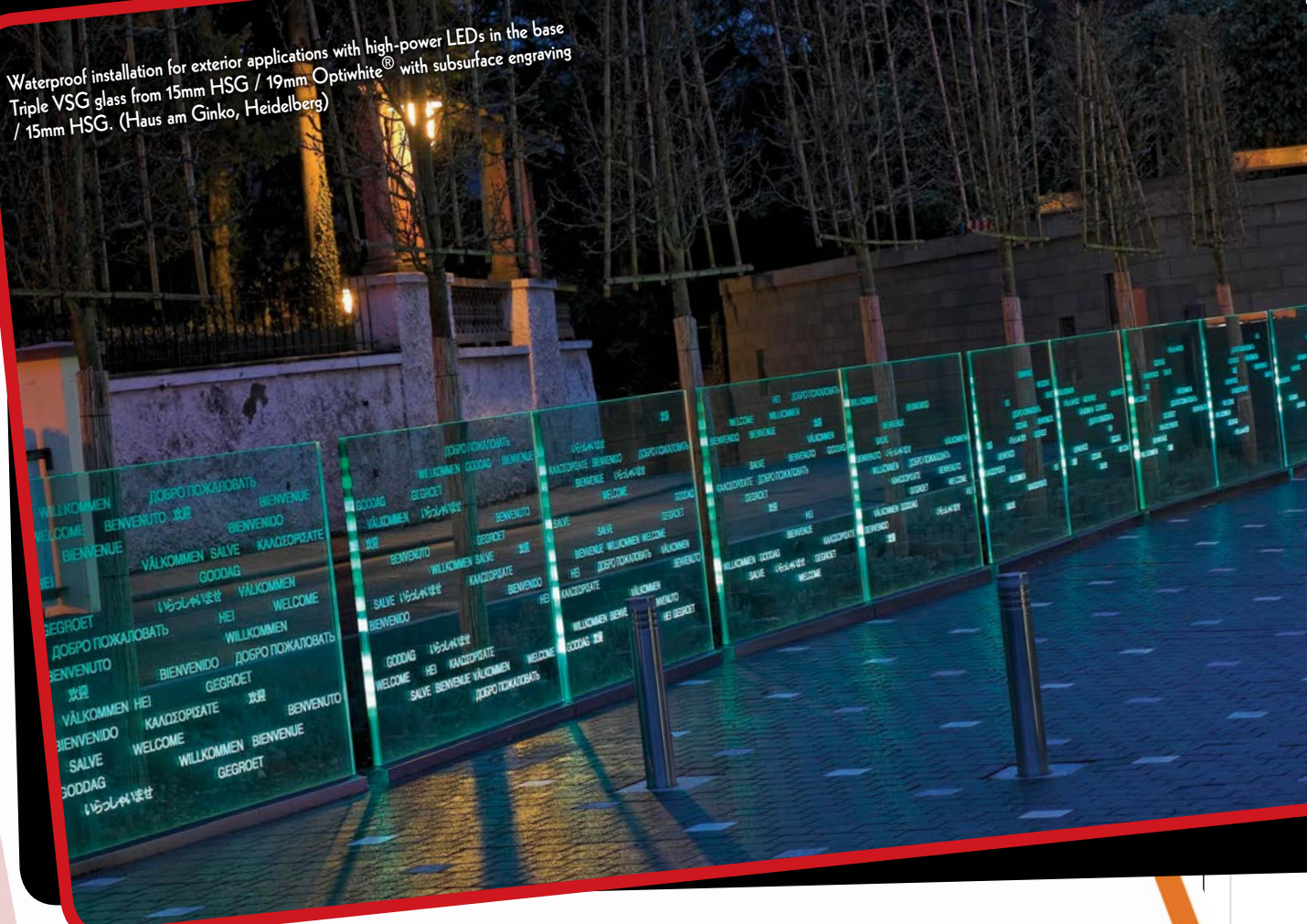
"The company has opted for the futuristic laser technology because it offers many advantages over conventional finishing methods such as sandblasting, screen printing and etching, provides significant rationalisation potential and, in addition, opens up entirely new possibilities with the design of glass surfaces," Andreas Wienkamp, managing director of Cerion GmbH explains. Without the time and labour-intensive use of masks, screens or chemicals the high-performance c-vertica enables the very efficient design of decorative glass in various forms and shapes, façade elements, doors and insulating glass according to customer preference – regardless whether mass-produced or individually manufactured – states Wienkamp.

Cerion also offers compact and thus more cost-efficient machines for laser finishing of smaller formats such as mirrors or glass doors.



Individual two or three-dimensional decors are engraved inside the glass with the c-vertica at high speed and with great precision. The glass surface remains completely intact during this process; a benefit in cleaning. Impressive effects can be obtained through LED lighting from the edges

Waterproof installation for exterior applications with high-power LEDs in the base
Triple VSG glass from 15mm HSG / 19mm Optiwhite® with subsurface engraving
/ 15mm HSG. (Haus am Ginko, Heidelberg)



TECHNOLOGY READY FOR THE INDUSTRY

For more than ten years Cerion has been actively involved in the ongoing development of laser technology and has brought it up to a level ready for the industrial flat glass finishing market.

Depending on customer demands, the high-performance system c-vertica can be designed exclusively for the surface processing of glass or as with Isophon, as a dual system both for surface finishing and for subsurface engraving.

In surface processing, the powerful CO2 laser with high processing speeds enables to generate high resolution designs, graphics and images as well as large-area frosting exact to the millimetre. De-

pending on the decor, up to three square metres of glass with a resolution of 250 dpi (dots per inch) can be finished per hour with consistently high quality. Different grey scales are possible here by changing the laser intensity.

The tests performed by the LaserZentrum Hannover on laser-processed glasses have confirmed that with regards to bending and pulse resistance, they meet the requirements of a static glass building component in the construction sector.

The c-vertica can also be used to remove glass coating, for example, the back sides of mirrors as well as painted and powder-coated glasses. The possibilities with the production of walk-on glass are quite interesting as well. Here, the patented Lasergrip® slip re-

sistance from Cerion, certified according to R9 and R10, offers a nearly transparent and non-abrasive alternative to conventional methods.

Another benefit of the innovative finishing technology: laser finishing does not require any preparatory or follow-up handling of the glassmaking, automated production runs are possible. The achievable rationalization potential is thus significant.

A diode pumped solid-state laser is used for the subsurface engraving of flat glass. With this laser type, which can also be used to cut glasses and produce 3D structures on the surface, a pulsed laser beam creates the desired structures inside the glass without touching the glass surfaces. Three-dimensional motifs and structures, e.g. light-deflecting lamella, can be introduced into the glass with great precision.

C-VERTICA APPLICATION OPTIONS

- Enhancing glass surfaces with individual designs
- Glass matting in different grey scales
- New possibilities to strip coatings from glass for decorative and technical applications
- Transparent and permanent anti-slip surfaces with the patented Lasergrip® process
- Structuring (and cutting) of technical glass with a quality unknown up to now
- Engraving of two and three-dimensional designs and structures inside the glass
- Patented subsurface engraved micro-lamella as unobtrusively integrated solar protection or light deflection



FULLY-AUTOMATIC OPERATIONS

Both surface and subsurface engraving can be carried out fully automatically with the c-vertica from Cerion as an option. The desired motifs are first generated on the PC and then positioned exactly on or inside the glass panels, controlled by the system's computer. The fully automatic version of the c-vertical can be equipped with a slot trolley. With this design version the laser system retrieves the glass units automatically and returns them to the slot trolley after processing. Thus, the system can be run very economi-

cally around the clock almost without the presence of an operator.

The powerful inclined bed machine is designed for glass thicknesses up to 40 millimetres. In automatic mode, glass thicknesses of up to 12 millimetres can be processed. Because the c-vertica from Cerion is manufactured in different sizes, the innovative laser system is not only of interest for the glass industry but also for small and medium-sized enterprises.

The following glass types can be processed with the c-vertica: float glass, Optiwhite®, mirror (front, inside or back), TSG, HSG, VSG, coated glasses, acrylic glass (XT and GS), matted glass, (Satinato, sandblasted glass). The minimum glass thickness is around one millimetre. From a material thickness of four millimetres, the customary stability of TSG is maintained. Subsurface engraving, however, cannot be used with heat treated glass, as there is a risk of breakage during laser processing or over a period of time through spontaneous breakage in prestressed glass. Subsurface engraving prior to the prestressing process does not solve this problem either.

Even large-surface
façade glass panels
can be designed
individually with the
c-vertica from Cerion.
Photo credits:
Cerion GmbH



CERION GmbH



laser technology
made in germany

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Low Grade Heat-Exploiting the Untapped Potential

The Institute for Industrial Productivity, IIP, (www.iipnetwork.org) is a non-profit organization whose mission is to help decision-makers in governments, financial institutions, and industry to develop and implement policies and corporate practices that would significantly reduce greenhouse gas emissions and improve economic efficiency in manufacturing.



In one of its ongoing programs, IIP in partnership with National Productivity Council (NPC) has launched an initiative to promote recovery of low grade waste heat in select energy intensive Indian industries. The temperature at which low grade heat is available poses significant technical obstacles because of low effectiveness of heat recovery at such temperatures. Corrosion of heat exchanger components and their life, high cost of heat exchangers and difficulties

in transporting this low grade heat over large distances are other significant barriers in its wide spread exploitation. Successfully addressing these barriers holds the promise to unlock the vast potential of this resource, which will not only reduce fossil fuel usage but also lead to significant greenhouse gas mitigation.

In order to brainstorm on the subject, IIP organized a meeting at India Habitat Centre, New Delhi, on November 13, 2013, which had participation from three industry sectors namely Fertilizer, Cement and **Glass**. The meeting focused on three key issues: (a) the nature of waste heat (low to medium grade) that is available, (b) the reasons for the industry not to be able to exploit this waste heat presently, and (3) possible technological choices that can be explored in this regard. The meeting also provided a platform for exchange of information across these sectors and the possibility of cross sectoral learning.

With regard to the glass industry, it was felt that the final exit temperatures from Regenerative as well as Recuperative melting furnaces are sufficiently high to encourage power generation. It has been estimated that utilizing this resource-which is presently being wasted, provides opportunity for using a screw expander for power generation with a potential of more than 25 MW. The discussions also looked at the possibility of utilizing this waste heat to meet the thermal energy requirements of smaller furnaces (e.g. lehrs) and the need to clearly establish the comparative advantages and financial viabilities of these competing possibilities. The glass industry representatives also shared their interest in visiting cement plants that have already installed waste heat recovery systems and to learn more about their experience and learning. IIP offered help to the Glass industry representatives by providing the facilitation services in terms of linking them up with Cement Manufacturers Association in this regard.

The next phase of the project would involve carrying out pre-feasibility studies in representative units in these industry sectors, for which the project team would get in touch with interested units who are willing to be a partner for this initiative. ■



Mr. M.D. Farooq
(Founder)

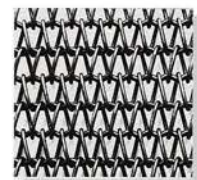
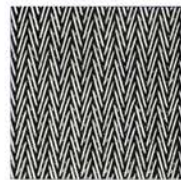
Manufacturer Of Energy
Efficient Lehrs



Mr. M.D. Farooq, the founder of Umda Engineering, brings to the table more than 35 years of expertise in the manufacturing industry. Starting from humble beginnings, today more than 350 of Mr. Farooq's Lehr machines are successfully installed around the world.

Mr. Farooq is best recognised as one of the co-founders of TNF Engineering, a company known across the industry as not only the leading manufacturers of Metallic Wire Conveyor and Lehr belts but also of Glass Plant Equipment. This mantle of superior performance and expertise has now been passed on to Umda Engineering.

Belts



Office & Works

Plot No. A – 581, TTC Industrial Area, MIDC Mahape, Navi Mumbai – 400 710. MS. India. Tel. 022-2778 20 41/42, Fax : 022-2778 13 38

Environmental Product Declarations for Glass Building Materials and Products



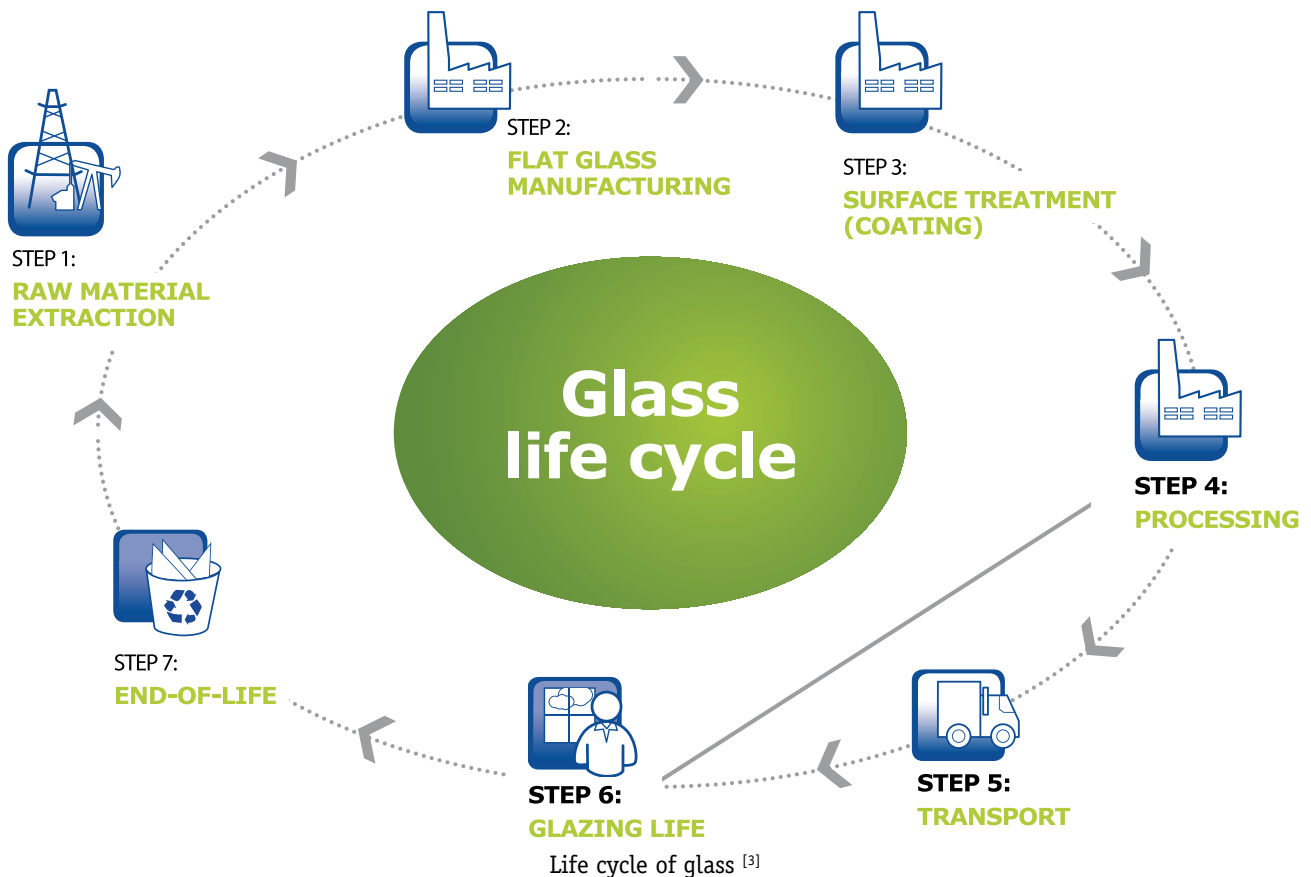
Frameless Glass Wall - Green Greenberg Green House, Los Angeles, USA – LEED Silver^[1]

Glass is one of the most environmental benign materials with excellent eco-friendly characteristics such as complete recyclability without any loss in quality or purity. The manufacture and use of this sustainable material has scope for great environmental benefits such as contributing to the mitigation of climate change and saving precious natural resources. It is also highly appreciated in many building applications for its inert nature thereby safeguarding the occupants' health and well-being. A comprehensive cradle-to-grave approach will give a clear overview of the actual environmental impacts across various stages of glass's life-cycle. In addition to aiding process improvement, it has the potential to

positively impact the value chain at large.

Leadership in Energy & Environmental Design (LEED) is a program by the US Green Building Council that provides third-party verification of green buildings. The latest version, LEED v4 launched in November 2013, encompasses increased technical rigor, greater transparency and disclosure for building product components and higher levels of building performance^[2]. LEED v4 offers the opportunity to improve both process and overall supply chain impacts for companies throughout the building and construction value chain. This includes product manufacturers, material suppliers to these manufacturers and end users of building products such as architects, designers and building owners. This incentivizes manufacturers to disclose the environmental and social footprints associated with their company and products, and encourages them to improve these characteristics.

LEED v4 includes a provision that will offer buildings that use environmentally preferable materials up to 9 LEED points in an effort to incentivize both product manufacturers that voluntarily report their product's composition, and those that reduce negative impacts from raw material extraction in the manufacturing process. These new credits have been built into the Materials and Resources (MRc) section of LEED v4, and will increase market demand for transparency and disclosure. The MRc section of LEED v4 contains four new credits specifically aimed at greater transparency for products, materials and building performance. Three of these new credits, (MRc 2, 3 & 4), specifically encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. Because of this alignment among multiple LEED credits, manufacturers can gain significant efficiencies by streamlining their internal documentation processes to comply with several credits simultaneously and communicate to a variety of customers and end users.



According to the ISO 14040/44 standards, an LCA study consists of four phases: goal and scope; life cycle inventory (LCI); life cycle impact assessment (LCIA); and interpretation. The goal and scope stage outlines the rationale of the study, the anticipated use of the results of the study, the boundary conditions, the data requirements and the assumptions made to analyse the product system under consideration, and other similar technical specifications for the study. The life cycle inventory (LCI) stage qualitatively and quantitatively analyses the materials and energy used (inputs) as well as the products and by-products generated and the environmental releases in terms of non-retained emissions to specified environmental compartments and the wastes to be treated (outputs) for the product system being studied. The LCI data can be used on its own to understand total emissions, wastes and resource use associated with the

material or the product being studied; improve production or product performance; or be further analysed and interpreted to provide insights into the potential environmental impacts from the system.

Design for environment (DfE) is an eco-engineering approach focussing on ethical sourcing, energy efficiency, material innovation, usage optimisation and end of life scenarios thereby closing the loop. Life cycle assessment (LCA) is one of the main tools used to facilitate this design methodology. Environmental Product Declaration (EPD) is an eco-label whose awarding is based on a complete life-cycle assessment and has become the widespread favoured information source for environmental conscious building planners. According to ISO 14025^[4], EPDs are defined as the quantified environmental data for a product with pre-set categories of parameters based on the ISO

14040 series of standards, but not excluding additional environmental information. The overall goal of an EPD is to provide relevant and verified information to meet the various communication needs. Product Category Rule (PCR) documents define the requirements for EPDs of a certain product category. They are vital as they enable transparency and comparability between different EPDs from the same product category.

Sustainability is one of keys areas in the corporate agenda for forward looking companies committed to responsible stewardship. In today's resource constrained economy, companies are required to adopt a holistic triple bottom line approach focussing on people, planet and profit. Rapid urbanisation and economic growth is driving the construction sector with increasing demands on the building materials and products industry. In India, there is a significant awareness and a rising market demand for

green buildings as more and more developers are adopting sustainable construction methodologies. Architects, developers and building occupants are interested in knowing the 'sustainability quotient' of the product and are beginning to make informed procurement choices based on this knowledge. Information disclosure on the environmental attributes of the building products and materials are becoming the norm. All these factors contribute to the necessity for manufacturers incorporate life-cycle thinking into their sourcing, technology, process and production.

Ms. Anjana Shanmugavel, LEED AP (BD+C), is a Consultant at PE INTERNATIONAL, a global sustainability services and software firm that focuses on helping all organizations along the built environment value chain meet strategy, product disclosure, supply chain and innovation needs.

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Sources:

- [1] Paseoner.com (www.paseoner.com/green-greenberg-green-house-with-futuristic-facade-design/frameless-glass-wall-with-swimming-pool-view/)
- [2] PE International AG (www.pe-international.com)
- [3] SAINT GOBAIN 2011 High Performance Glazing for Sustainable Habitat, Saint Gobain Glass
- [4] ISO 14025:2006 Environmental Labels and Declarations -Type III Environmental Declarations
- [5] ECO-XPS-010101-1007: EXIBA-Extruded Polystyrene (XPS) Foam Insulation ■

EXIBA - the european XPS association

EXIBA - Extruded Polystyrene (XPS) Foam Insulation

01 SUMMARY

EXIBA - Extruded Polystyrene (XPS) Foam Insulation

This Declaration is based on the PCR document: PCR „Foam Plastics 2009“ (reviewed as PCR „Schaumkunststoffe“, 2009-11 by IBU third party independent expert committee).

Programme Operator
IBU - Institut Bauen und Umwelt e.V.
Hans Peters (CEO of IBU)

LCA Practitioner
PE INTERNATIONAL
PE INTERNATIONAL GmbH

Declaration Holder
EXIBA - European Extruded Polystyrene Insulation Board Association
Avenue E. van Nieuwenhuysse, 4
1160 Brussels, Belgium

Declaration Number
ECO-XPS-010101-1007

Declared Product / Declared Unit
XPS (extruded polystyrene foam) boards without halogenated blowing agent produced by the EXIBA members. The EPD applies to 1 m² of 100 mm thick XPS board, i.e. 0.1 m³, with an average density of 34.5 kg/m³.

Date of Issue
07.07.2010

Validity Date
07.07.2013

Verification
Third party independent verification of the declaration, according to ISO 14025
 internal external

Dr. Birgit Gohl
third party verifier appointed by IBU third party independent expert committee

LCA RESULT

1 M² OF 100 MM THICK EXTRUDED POLYSTYRENE FOAM BOARD EUROPEAN AVERAGE*

Environmental Parameters	Unit per 0.1 m ³ XPS foam	Production Stage	Construction Process Stage	Use Stage	End of Life	Next Product System
Primary energy, non renewable	[MJ]	320.46	7.43		5.19	-61.89
Primary energy, renewable	[MJ]	3.22	0.010		0.026	-1.124
Abiotic resource depletion (ADP elements)	[kg Sb eqv.]	2.42 E ⁴	1.62 E ⁴		3.68 E ⁴	-3.07 E ³
Global warming potential (GWP 100)	[kg CO ₂ eqv.]	14.15	0.527		6.183	-3.591
Ozone depletion potential (ODP)	[kg R11 eqv.]	4.58 E ⁷	1.00 E ⁸		1.29 E ⁸	-1.74 E ⁷
Acidification potential (AP)	[kg SO ₂ eqv.]	0.046	0.003		1.87 E ³	-0.009
Eutrophication potential (EP)	[kg PO ₄ eqv.]	0.003	5.34 E ⁴		3.82 E ⁴	-7.94 E ⁴
Photochemical ozone creation potential (POCP)	[kg C ₂ H ₄ eqv.]	0.038	2.69 E ⁴		1.94 E ⁴	-5.66 E ⁴

* The data reference consisted of specific data provided by EXIBA member companies and of data from the „GaBi4“ database.

ENVIRONMENTAL PRODUCT DECLARATION
According to ISO 14025

Declaration number: ECO-XPS-010101-1007
Date of issue: 2010-07-07

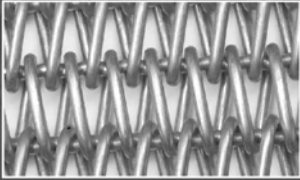
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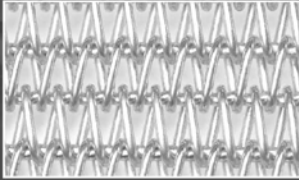
EUREKA METAL BELTS

PIONEER IN GLASS INDUSTRY SINCE 1963

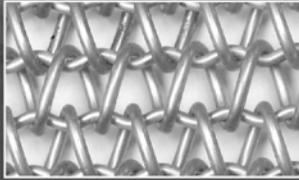
AN ISO 9001 COMPANY
EUREKA BALANCED WEAVE BELTS



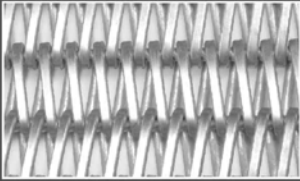
TYPE L.K. 16 SPECIFICATION
36-22-12-12 (LEHR BELT)



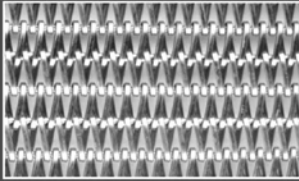
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60-40 -16-16 (I. S. MACHINE)



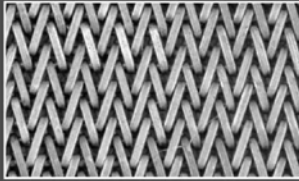
TYPE L.K. 19 SPECIFICATION
24-18-10-10 (LEHR BELT)



TYPE L.K. 16 FLAT SPECIFICATION
36-22-3 X 1.75-12 (LEHR BELT)



TYPE L.K. 5 FLAT SPECIFICATION :
60-40-2 X 1-16 (I. S. MACHINE)



TYPE CB2 FLAT SPECIFICATION
48-80-1.6 / 0.7-16 (I. S. MACHINE)

R. D. Ashar Int. Ltd.

(Formerly R D Ashar Engg Div.)

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Environment

HIMACHAL PRADESH (INDIA) HC BANS SALE, ENTRY OF FOOD ITEMS WITH PLASTIC PACKAGING

The Himachal Pradesh High Court imposed a ban on the sale of junk food in non-biodegradable plastic packaging. The ban will come into effect from January 26. "The High Court of Himachal Pradesh vacated the stay on the state government's notification dated June 26, 2013, and directed it to implement the notification banning the storage, supply, sale and entry of non-essential food items packaged in plastic and non-biodegradable material from January 26, 2014," a court release said.

The court has, however, allowed sale of essential items like bread, milk, drinking water and medicines in plastic packaging till March 31, 2014.

The division bench comprising Justices Rajiv Sharma and V.K. Sharma further directed the government to ensure that edible oil is not sold in plastic bottles/pouches and shall only be packed in tin containers. The court also directed the government to ensure that from March 31, no food stuff, including primary and essential food, is manufactured, transported, sold, packaged and distributed without conforming to the Food Safety & Standards Act, 2006 and Food Safety & Standards (Packaging & Labelling) Regulation, 2011.

GIANT MIRRORS BRING WINTER SUN TO NORWEGIAN VILLAGE

Residents of a remote village nestled in a steep-sided valley in southern Norway are about to enjoy winter sunlight for the first time ever, thanks to giant mirrors. The Mirror Project is a system of three 300 square foot heliostatic mirrors that redirect winter light into the valley, eventually turning one of the biggest town squares into a sunny meeting place.



The mountains that surround the village of Rjukan are high enough to deprive its 3,500 inhabitants of direct sunlight for six months a year. This is an image of the reflection caused by the giant mirrors.

A computer will control the mirrors so that they follow the sun to reflect the light on the market square, lighting up a 600-square-metre (6,459-square-foot) elliptical area. This is a picture of the spot where people gathered in front of the town hall of Rjukan where sunshine is reflected by the three giant mirrors.



Besides getting more cheerful citizens, local authorities hope to capitalize on the extensive media coverage of the feat to bring in more tourists. From just 300 inhabitants spread out across scattered farms in 1900, the population of Rjukan grew to 10,000 by 1913 and the ambitious industrialist Sam Eyde, at whose behest Rjukan was established, endorsed a project to deflect sunrays into the village.

TAMIL NADU TAKES INDIA'S SOLAR POWER CAPACITY UP 30%

India's installed solar power capacity is poised to jump 30% with the Tamil Nadu government close to signing power purchase agreements for 700 megawatts (MW).

Once the plants are up and running, Tamil Nadu will have the second largest solar power capacity in India after Gujarat, the pioneer in such projects in the country.

India has 1,759.43 MW of grid-connected solar power, with close to 800 MW coming from Gujarat. The projects are expected to be ready for commissioning in 2014.

As part of TN's solar power policy, which aims at installing 3,000 MW of capacity by 2015, a total of 52 companies will sign agreements with the Tamil Nadu Generation and Distribution Corporation (Tangedco) for capacity totalling 698 MW at a tariff of 6.48 per unit (with a 5% increase annually for 10 years).

This comes at a time when the country's national solar policy is tottering. The second phase of the Jawaharlal Nehru National Solar Mission (JNNSM) has been delayed by over five months with no sign of the programme being kick-started any time soon.

Solar power is the most expensive form of renewable energy and rupee depreciation has added to the woes of companies importing high-end photo voltaic panels.

"There has been a lot of uncertainty over solar power companies and negativity had set in. But now there are projects in the pipeline and activity for players across the board will go up," said Mr. Madhavan Nampoothiri, founder and director of RESolve Energy Consultants, an energy consultancy firm.

PHILIPS EXPANDS LIGHTING INNOVATION CENTER IN NOIDA (UP, INDIA) TO DRIVE LED TRANSFORMATION

Philips Lighting, the leading lighting company in India, announced the expansion of the Philips Lighting Innovation Center (PLIC) in Noida, to boost its R&D capabilities in LED lighting and further drive the company's LED lighting leadership in India. Philips also introduced new LED lighting products and solutions for the Indian market which will help accelerate the market transition to digital lighting and deliver value to its customers at the same time.

The newly launched Philips LED lighting systems include a breakthrough intelligent lighting monitoring and control software – CityTouch which enables dynamic, intelligent and flexible control on a city-wide scale. CityTouch allows its users to manage all the lighting systems for an entire city from a single, intuitive online interface. The other launches include a street LED lighting luminaire – GreenLine Xtra which enables uniform light distribution, maintenance-free system and easy upgradation of existing light poles and, GreenLEDi – a new offering for indoor lighting which is an ideal value for money replacement for conventional solutions. Both GreenLine Xtra and GreenLEDi offer 50% energy savings and have a long life of 40,000 – 50,000 hours. For the home segment, Philips launched LED products for different applications such as a retrofit bulb and tubelight and also introduced a solar home lighting solution which will help in reducing the dependence on generators and kerosene in areas where power-cuts are very high.

As a strong proof point of the importance of local innovation, PLIC has developed more than 150 LED-based lighting products and solutions in the last two years.

The PLIC in Noida plays a vital role towards engineering the company's success as the leaders in the lighting market and LED solutions. The facility has customized and developed many successful products. GreenLine and GreenLED is a series of outdoor and indoor LED lights respectively, which have been indigenously designed and created at the PLIC. These dynamic, maintenance free, LED luminaires are endowed with good optics design, high energy savings and long life.

DELHI METRO TO TAP SOLAR POWER FOR ITS ENERGY NEEDS

The Delhi Metro would soon be partially fulfilling its power requirements with solar energy.

The Delhi Metro Rail Corporation (DMRC) has signed a memorandum of understanding (MoU) with the Solar Energy Corporation of India (SECI) to execute renewable solar power projects in its premises.

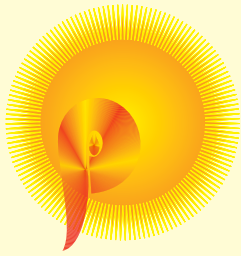
As a result, the production of solar power will help DMRC partially fulfill its energy requirements as well as reduce carbon footprints, said the official.

As per the MoU, the DMRC and SECI will collaborate for the development of solar projects which includes ground, rooftop and other possible mountings of solar panels at identified DMRC sites.

"A pilot project of a rooftop grid connected solar project will be installed at one of the identified rooftops of the Metro stations soon," said a statement.

SECI is a not for profit company under the New and Renewable Energy Ministry working with an objective of developing solar technologies and solar power plants in India. ■

(Glass News Source: World Wide Web)



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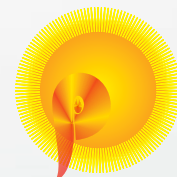
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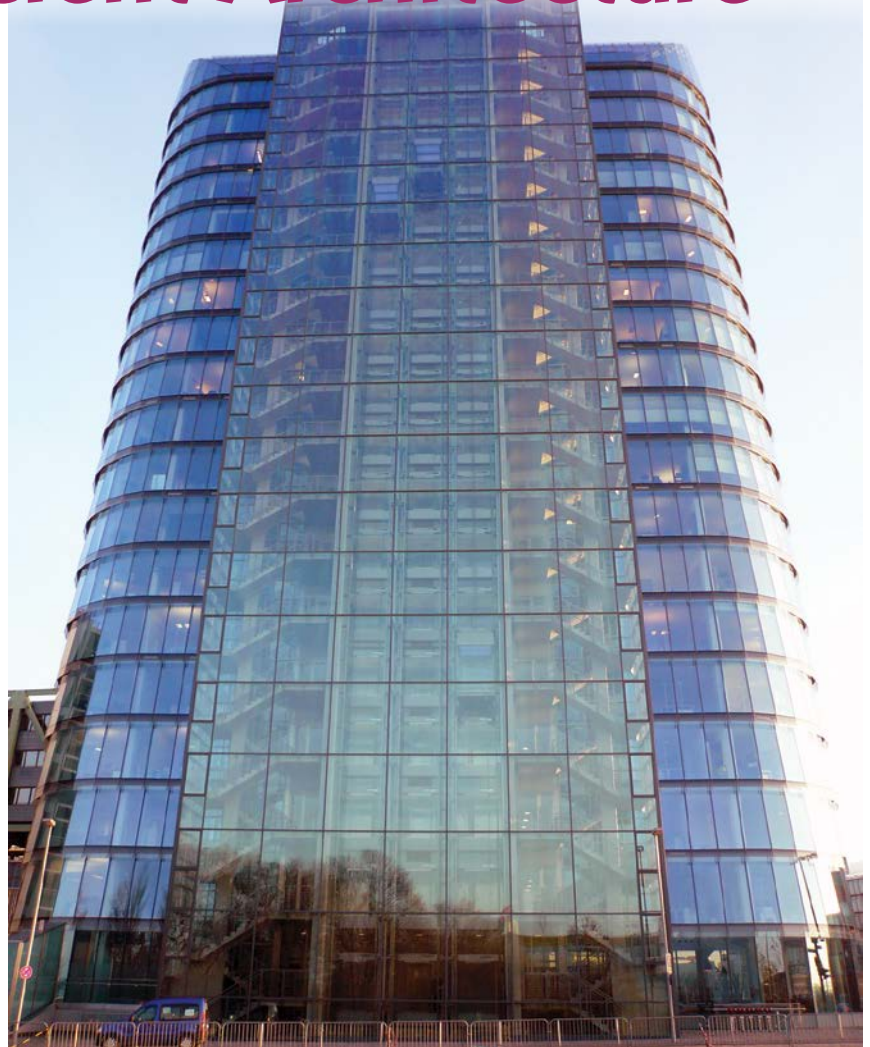
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Energy-Efficient Architecture with Glass

High-performance functional glazing has a significant impact on the energy efficiency of buildings and their level of usability or life quality. Experts agree that increased demands will lead to improved functionality of the glass products used in facades.

Gleaming glass facades have become a key element of today's cityscapes in most of the world. With their smooth surfaces and coordinated designs, these glass claddings are a symbol of modernity and architectural elegance. Glass creates transparency and allows daylight to reach far into the inner spaces, thus forming a basis for a pleasant living and working atmosphere – in residential spaces as well as in commercial buildings. For years we have been able to observe a trend to larger windows and glass surfaces in this field. The performance parameters of the employed functional glass and the dimensions of the glazed portion of the façade are critical factors in the energetic efficiency of the buildings, whether commercial or residential. The careful fine-tuning of construction and functionality ensures a maximally positive effect.



Large-area glass façades such as “Sign” in the Düsseldorf Media Harbour, designed by star architect Helmut Jahn, are symbols of modern construction. Under its glass domes, the 76-metre high, 20-story building offers premium event rooms with a guaranteed view of the state capital on its uppermost floor

FUNCTIONAL GLASS: THE BASIS OF MODERN ARCHITECTURE

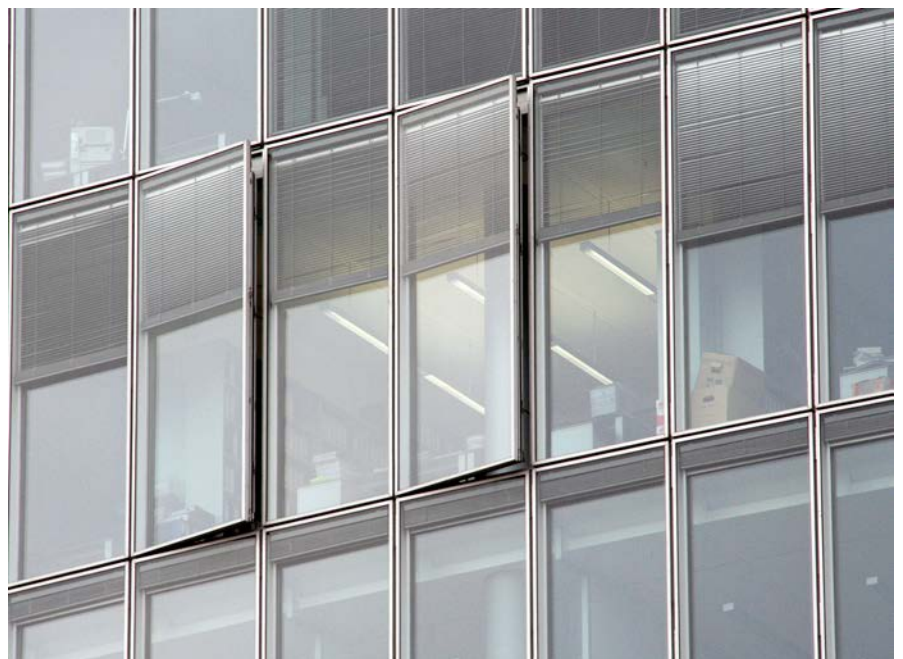
The field of potential applications for high-performance glass products is huge. François Dubuis, Director of Corporate Development for the Glas Trösch Group, was quoted in a German trade magazine¹ in autumn of 2013 as stating, “The ratio of windows to walls in European buildings is currently 40:60 for walls.” The goal of the Swiss glass group is to reverse that ratio. In order to achieve that, according to Dubuis, glass must fulfil even more functions and become a multifunctional structural component in the standard version. Next to the currently major functions – thermal insulation, solar protection and noise insulation, performance characteristics such as light control and energy production via the glass surfaces in the building envelope will be increasingly important in the future. “Solar insulating glass” serves as a collective term for this concept. Already today, modern energy-saving glass has the ability to transform windows – traditionally a weak spot – into heat-producing surfaces. This was verified by a study using, among other products, the triple-insulating SGG Climatop Lux glass ($U=0.7W/m^2K$, $g=0.62$) and SGG Climatop Max ($U=0.5W/m^2K$, $g=0.60$), conducted by the Austrian Clima Plus Securit partner, Eckelt Glas, in collaboration with Saint Gobain Glass Germany and Dr. Peter Holzer from the Danube University Krems². This already high level of performance can be further maximized by integrating additional functions.



The Capricorn House in Düsseldorf was finished in 2006 and has been awarded the Innovation Prize for Architecture and Office, and the label “best architects 2008”. One design highlight of the building is the i-module facade. Integrated modules cool, ventilate and reclaim heat. In addition, lighting, sound absorption and room acoustic elements are integrated in the façade panels.

HEIGHTENING OF ENERGETIC DEMANDS

The future will see a continuous heightening of energetic standards on an international level, and with them, of the performance level of building envelopes. This is, of course, especially true for newly constructed buildings. With its 2010/31/EU policy, for example, the European Union formulated extremely ambitious goals regarding the overall energy efficiency of buildings already in 2010. The implementation of the policy in the national states is targeted to produce a 20% increase in the energy efficiency of buildings by the year 2020. For newly constructed buildings, the policy stipulates the demanding “almost zero-energy building” specifications



Large-area glass façades do not preclude manual ventilation. Effective solar and anti-glare protection is available via the integrated blinds, even when open

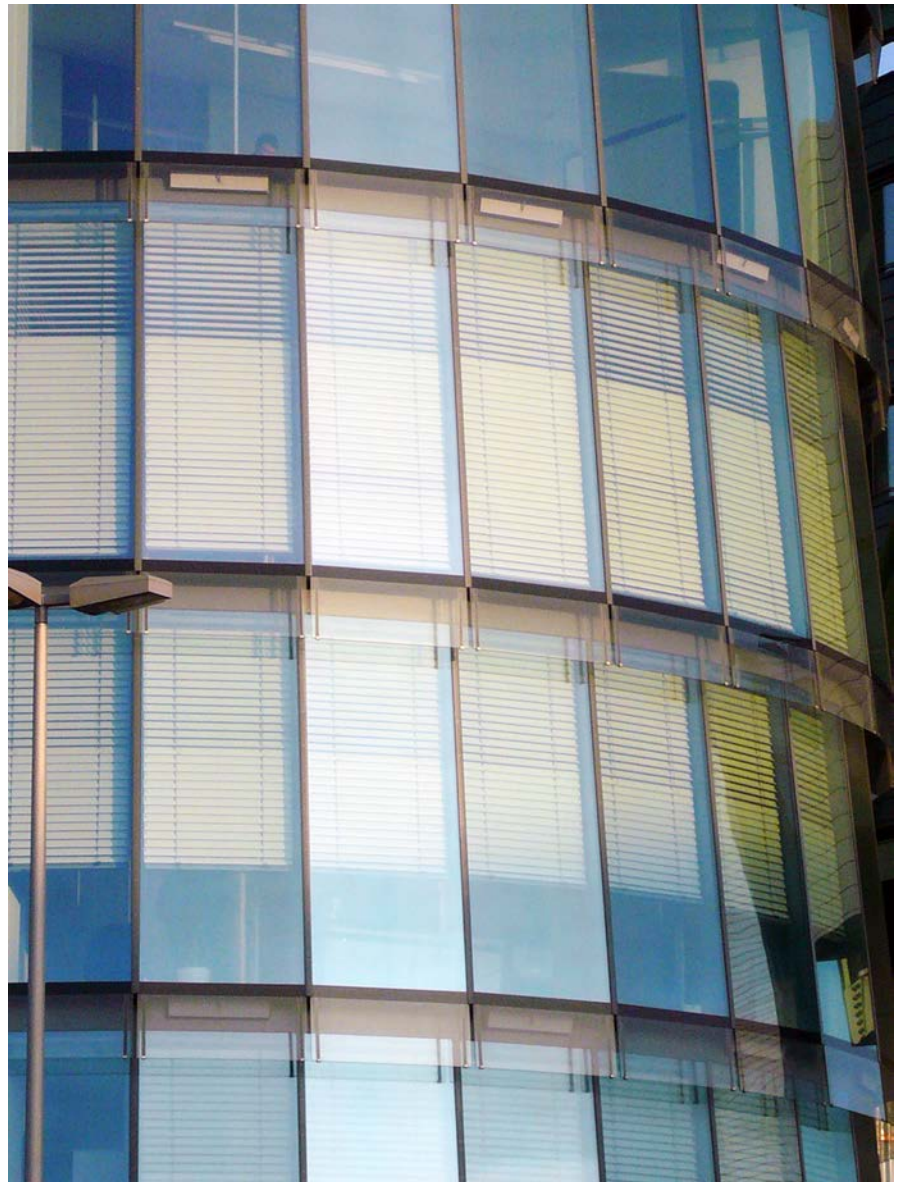
for government buildings beginning in 2019, and in 2021 for all other buildings. Now it's up to the national states to implement these objectives. With the amended Energy Saving Act, enacted in October 2013 (EnEV 2014), the German government has already set an example. Beginning January 1, 2016, all newly constructed buildings are to use 25% less energy, while the standards for the thermal insulation of building envelopes will increase by an average of 20%³.

NO REDUCTION OF WINDOW AREA

EnEV 2014 specifies maximum values for transmission heat loss in building envelopes, including values via " H_T " (specific transmission heat loss based on the heat-transmitting enveloping surface). Although the values specified here were not modified, a heightening of the corresponding standards beginning in 2016 is created by the 25% reduction in annual primary energy consumption. What's new is that the building envelope of a planned building is not allowed to



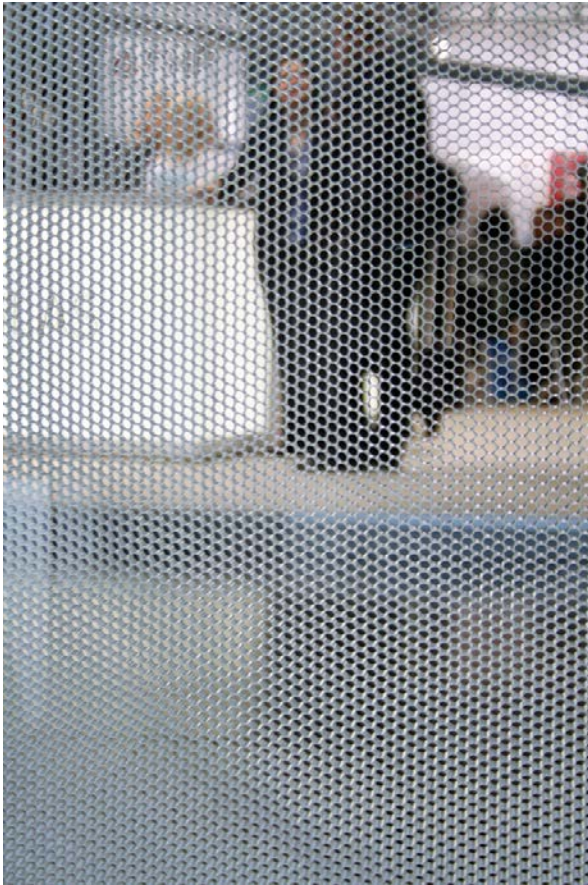
According to industry experts, triple glazing units with warm edge protector will become standard. Toughened thin glass makes insulated glass lighter than with conventional construction. Pictured here is glass with the following construction: 3mm white glass ESG, 12mm SZR, 2mm white glass TVG, 12mm SZR, and 3mm white glass ESG.



Conventional downstream sunshade systems are never the first choice, since they can allow more heat into the room in this position. Ideally the sunshade will be mounted on the façade or in the insulating glass.

have a worse specific transmission heat loss value based on the heat-transmitting enveloping surface than the reference building. This relative relationship to the reference building will prevent the limitation of the window area that is dreaded by the glass and window industry. The background: When strictly observing the heat transmission coefficient responsible for heat loss, the solar gains made possible by glass surfaces are not taken into consideration, in spite of the fact that they lead to a significant reduction in annual

energy consumption on all sides of the building with the exception of the north side⁴. As explained by the German Institute for Window Technology (IFT) of Rosenheim in a trade article on the amendments in EnEV 2014, "In the case that a 25% reduction in annual energy consumption is not achieved through more extensive use of regenerative modules (e.g. PV modules), this will naturally lead to lower heat transmission coefficient values for all parts of the building envelope. Here we should not disregard the



Honeycomb panels that act as solar protection and anti-glare systems can also be integrated in the space between glass panels in insulating glazing. Depending on the mounting angle, the panels can completely block out direct sunlight and offer good transparency and light dispersion.

solar gains, and look for high total solar energy transmittance (g-value) and light transmittance (τ), which contribute significantly to a reduction in annual energy consumption⁵.” Given the new maximum heat transmission coefficient for the heat-transmitting enveloping surface effective beginning in 2016, only energetically optimized facade systems will be acceptable for use in newly constructed buildings according to the IFT. It will still be possible, however, to employ double-glazing units when using profile systems with a Uf-value of 1.4 W/m²K⁶.

HEAT INSULATION IN SUMMER

EnEV 2014 also dictates higher standards for thermal insulation

in summer for residential buildings. Corresponding calculations can only be avoided if the window surface area relative to the floor area is under 35% and a specified external sun shelter system, such as roller shutters, is installed. Evidence of such a system is not required if the window surface area is under 10% or 15% depending on the orientation of the windows. The highly effective solar protective coatings available today for insulating glass provide a significant contribution to the sustainment of a pleasant building climate in summer. The same applies to sunshade and anti-glare systems

that are integrated in insulating glazing or mounted externally, as well as functional electrochromic, thermochromic or gasochromic glazing with adaptable transparency. Ideally, intelligent control systems will always provide the ideal incidence of light or solar protection.

SOLAR GAINS

Next to transparency and light incidence, the available solar gains are an elementary advantage of integrating glass in the building envelope. This energetic contribution is especially welcome in the winter months. In an interview published by the Institute for Window Technology on the topic of the Energy Saving Ordinance 2014, Professor Ulrich

Sieberath, Director of the IFT Rosenheim, states, “The solar gains through windows and glazing have been taken into consideration since the EnEV 2002, in the context of a building-related verification – insofar as such a verification is prepared by the architect or building energy consultant. This is required with newly constructed buildings, and optional with current properties. In this process, however, solar gains are not attributed to windows or glass as building components. Thus there are still contractors who are not aware of these advantages.”⁷”

GLASS AS AN ENERGY PRODUCER

The integration of solar glass (photovoltaic and solar thermal) is a proven method for complying with the heightened annual energy consumption standards. According to the manufacturers of relevant products, however, the lack of knowledge among architects and planners regarding the technical possibilities and performance of available systems remains a significant obstacle. The integral planning of the various work areas is an additional challenge – here there are still deficits to overcome. Moreover, contractors often shy away from the high costs, in spite of the fact that manufacturers tirelessly point out that the integration of photovoltaic elements eliminates the need for traditional facade components and the related costs. Another aspect that speaks for the integration of photovoltaic elements in the facade is sustainability (certifications i.e. according to LEED, BREEAM or the German BNB and BGNB methods). In this context, brand-new facade concepts are also interesting, such as the algae facade shown at the special show “glass technology live” at glasstec 2012.



One solution for building-integrated photovoltaic: Dye cells are produced using simple silkscreen printing and sealed in a thermal fusing step. Image: Messe Düsseldorf. The images pertinent to this professional article can be found online at: www.glasstec.de > Press Service > Press Material > Professional Articles (navigation on the left), at the end of each text as a zip download

Thanks to the sunlight, micro-algae grow in the specially developed glass hull (photo-bioreactors). This process produces biomass and biogas as intermediates, which in turn are used to produce electricity. The current “FluidGlass” research project conducted by the University of Liechtenstein, in which a new concept for multifunctional solar-thermal glass façade systems is being developed, is also extremely innovative. FluidGlass transforms passive glass façades into active, transparent solar collectors, while simultaneously regulating the energy flow in the building envelope.⁸

THE FUTURE OF CONSTRUCTION WITH GLASS

The increased necessity to save

even more energy in the building sector in the not-too-distant future will naturally cause an increase in the demands made on the performance of building envelopes. In turn, the suppliers of functional glass for windows and façades will see themselves forced to do their part by developing new, more efficient multifunctional glass products that contribute to an overall increase in efficiency. Integral planning plays an especially integral role in the establishment of multifunctional glass façades. It is the key to the optimal interplay between façade technology, automation, and ventilation and air-conditioning systems, and ensures maximum energy efficiency. At glasstec 2014 in Düsseldorf we will get a glimpse of where things are headed in the area of multifunctional glass and glass façades.

From October 21-24, 2014 the world's largest trade fair for glass products, glass production and glass processing will once again be the hot spot for glass professionals from around the globe. From glass manufacturing to handling to application, glasstec 2014 shows the industry's solutions for the future of construction with glass. For architects, planners and façade builders, the trade fair – with its special show “glass technology live” and the Façade Centre, as well as the Architecture Congress – an eldorado for new ideas and a gateway to new concepts for energy-efficient,

multifunctional façades of the future.

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GERMANY IN TRANSITION

FROM AN ECONOMY ADDICTED TO COAL AND NUCLEAR ENERGY, GERMANY IS FAST TRANSFORMING INTO ONE DRIVEN BY RENEWABLES. ITS AIM IS TO DEMONSTRATE TO THE WORLD THAT GROWTH AND DECARBONISATION CAN GO HAND IN HAND. **CHANDRA BHUSHAN** AND **ANKUR PALIWAL** TRAVEL TO GERMANY TO UNDERSTAND HOW IT IS DOING SO AND WHAT IT WILL TAKE TO ACHIEVE THIS VISION

“Noise from wind farms is actually music to our ears. We earn more money.” This is how Christian Carstensen, a resident of Ellhöft village on the northern tip of Germany, explains people’s tolerance of the wind turbines set up next to their houses. He himself has invested in wind farms and a solar plant. Ellhöft is in Schleswig-Holstein state that has the highest density of wind turbines in Europe. Wherever one goes in the state, wide plains dotted with wind turbines dominate the view. In most villages and towns the common sight is glittering rooftops, covered with solar

panels. People in Germany are pooling in money and setting up wind farms, especially in the windswept north, or solar panels and selling electricity to utilities because the government guarantees them premium tariffs for 20 years.

More than half the renewable energy capacity in Germany is today installed and owned by individuals and farmers’ cooperatives, not big power companies. Close to 1.3 million households are producing energy using solar photovoltaic panels. In the south, where the sun is relatively stronger, the state of Bavaria alone has more installed solar photovoltaic (PV) capacity than the US. Germany is expanding its renewable energy capacity at a staggering pace. In wind

installation capacity it now beats all countries other than China and the US.

Germany, the most populous country of the European Union, is carrying out the biggest and the fastest transformation in the world from coal and nuclear energy to clean energy. The official word for this transition is “energiewende”, which in English means energy transition. It is the buzzword in the country. In the capital city Berlin, energiewende can be seen written on hoardings close to bus stops and train station. Newspapers, TV channels and radio stations are excitedly debating energiewende. People are largely aware of the word. Bernhard Elias publishes works of artists but knows that energiewende is about rethinking the supply and use of energy. “It is about renewable energy, efficient transport and energy efficiency,” says Elias. He cycles to work and is planning to have energy-efficient lighting in his office on Berlin’s Brunnen Street. Energiewende is also a popular agenda in the general elections scheduled for September 22.

What started this energy transition in Germany? The term “energiewende” was coined in 1980 in a study by the Institute for Applied Ecology in Germany. The groundbreaking study was perhaps the first one to argue that economic growth is possible with lower energy consumption. In fact, Germany was the first country to introduce the concept of feed-in-tariff (FIT) in 1991, even before the Rio Earth summit. FIT is the high price paid for per unit of electricity generated through renewable energy sources. But it was not before 2000 that FIT was formally introduced in legislation with the passage of Renewable Energy Act, popularly known as EEG. The law specifies that renewables have priority on the grid and that investors in renewables must receive sufficient compensation to provide a return on their investment irrespective of electricity prices on the power exchange.

Then in 2001, the combined majority of the Social Democratic Party and Green Party decided to phase out nuclear power by 2022. The country introduced another piece of legislation to propel energy transition, Renewable Heat Act, in 2009. Its aim is to increase the share of heat generated through renewable sources to 14 per cent by 2020.

The next year in 2010, Germany set ambitious targets to have 80 per cent share of renewable energy in the total electricity mix by 2050; to reduce power consumption by 25 per cent below the 2008 level by 2050; to reduce primary energy consumption by 50 per cent below 2008 levels; and to have a carbon-neutral economy by 2050.

But by then Chancellor Angela Merkel-led Christian Democratic Union government

Germany's targets for 2050

Tackling climate change through renewables and energy efficiency

		2020 (%)	2030 (%)	2040 (%)	2050 (%)
Climate	Greenhouse gases*	-40	-55	-70	-80 to -95
	Renewable energy	Share in electricity	35	50	65
	Share in gross final energy consumption	18	30	45	60
Efficiency	Primary energy consumption	-20	→		-50
	Electricity consumption	-10			-25
	Energy consumption in buildings	-20	heat demand		-80 primary energy

Source: Agora Energiewende; *Against 1990 levels

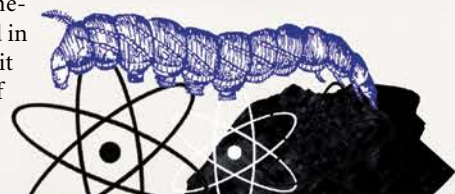


Bulk of renewable energy in Germany comes from wind and solar, and not hydropower as in other countries

PHOTOGRAPHS: ANKUR PALIWAL / CSE

developed cold feet over phasing out nuclear power. It passed a law to prolong the life of nuclear plants till 2040. In a few months, though, it had to roll back its decision due to public outcry after the Fukushima disaster in March 2011. In June that year the phase-out plan was passed with 85 per cent majority in Parliament and immediately eight nuclear power plants were shut down. At present, only nine plants are in operation; they will be shut down in phases by 2022. Reaffirming its targets, the German Parliament unanimously voted to transform its energy sector from nuclear and coal to renewable within next four decades. Energiewende was back into the political system and this time with full force.

The successful FIT scheme has led to the tremendous growth of renewables. Its share in electricity has jumped from 7 per cent in 2000 to the current 23 per cent—among the highest in the world. Unlike other countries where hydropower constitutes the bulk of renewables, in Germany it is solar and wind power. Germany has one-third of all the solar PV installed in the world. For the past 10 years it has been a net exporter of electricity. This holds true even after eight nuclear power



plants were shut down in 2011.

The FIT regime has also led to an enormous decline in the cost of key renewable energy technologies, solar PV and wind turbines. The cost of power generated by wind and solar energy has decreased by 50 per cent and 80 per cent respectively since 1990. And it continues to decrease. According to an estimate by Agora Energiewende, a Berlin-based policy think tank working on Germany's energy transition, by 2015 it would be possible to generate electricity by newly built wind and PV plants at a cost of 7-10 euro cents per kilowatt-hour (kWh). Then, it would be on a par with power from new gas and coal plants. "In good locations like Bavaria in south Germany FIT for solar PV has fallen to about 10 cents per kWh. Electricity from wind in north Germany is possible at about 7 cents per kWh," says Patrick Graichen, senior associate with Agora Energiewende. EEG, however, ensures that onshore wind farms will continue to get 7-10 cents for every unit of electricity sold and solar PV plants 12-18 cents for 20 years.

Wind and solar have emerged as clear winners among the renewable energy technologies.

Installed capacity of renewable electricity is equal to that of fossil fuels'—80 gigawatts

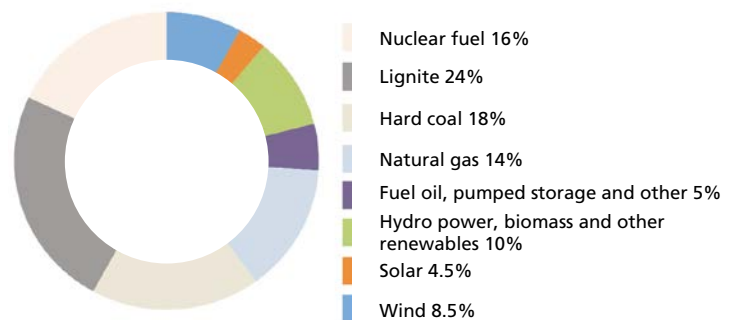
Wind alone accounts for 8.5 per cent of the total energy produced in the country and solar, 4.5 per cent. "Other renewable sources are either more expensive or have limited potential for expansion," says Graichen. For example, biomass energy cannot have a big share because agriculture and forest are limited in Germany and the use of biomass for energy competes with other potential uses such as food and paper production. Besides, biomass is an expensive source of energy. Unlike solar and wind, its cost has only increased over the years.

Wind and PV power will be generating 70 per cent of the renewable energy in Germany by 2022, according to the Federal Network Agency, the regulatory authority on the electricity, gas, telecommunication, post and railway networks. But that would be possible only if Germany meets the emerging challenges. Rising cost of electricity has begun to pinch citizens, who are footing the bill for this transition by paying renewable surcharge. Besides, Germany is yet to have enough transmission lines and storage to absorb its increased capacity.

The great energiewende experiment has entered a crucial phase.

Share of energy sources in electricity generation

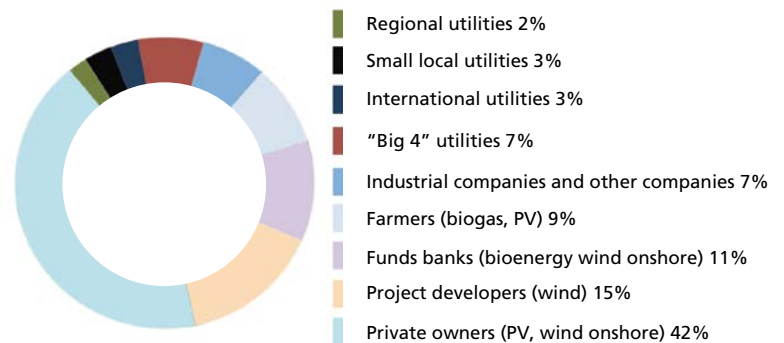
Nearly a fourth of electricity comes from renewables



Source: International energy agency and BDEW

Ownership distribution of renewable installations

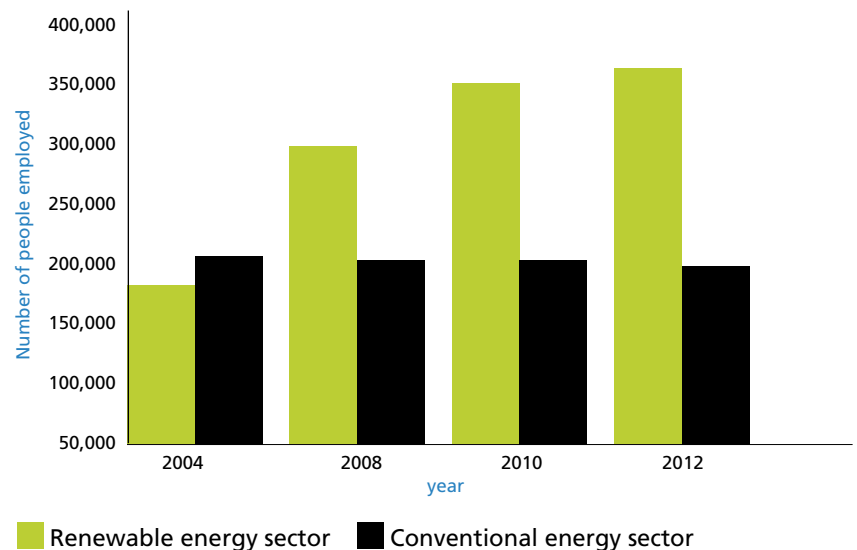
More than half the capacity is in the hands of citizens, not big companies



Source: Agora Energiewende

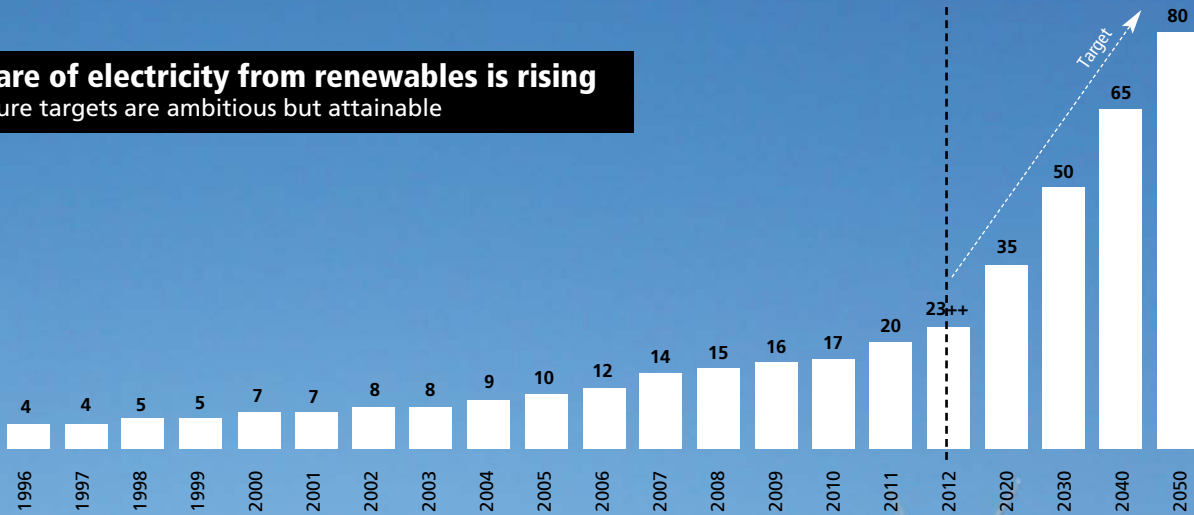
Renewables create more jobs than conventional fuels

Twice as many people are employed in renewable sector as in conventional



Source: International energy agency and BDEW

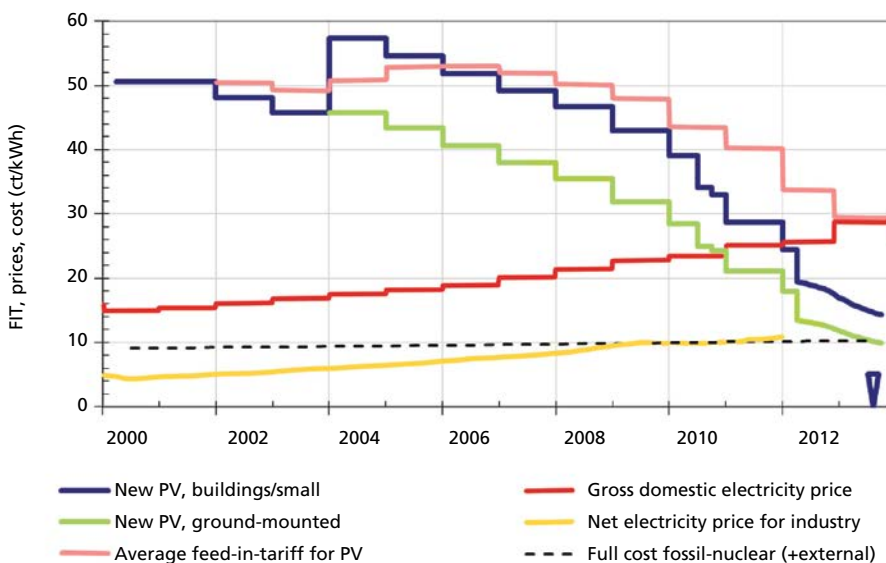
Share of electricity from renewables is rising
 Future targets are ambitious but attainable



Source: Agora Energiewende

Feed-in-tariff down, electricity price up

It's now cheaper for individuals to install power than to buy from the grid



Source: Fraunhofer Institute of Solar Energy

THE FEED-IN-TARIFF FOR SOLAR PHOTOVOLTAIC IS DECREASING MORE RAPIDLY THAN THAT FOR ANY OTHER RENEWABLE ENERGY. IT IS CLOSE TO ATTAINING GRID-PARITY

Ellhöft Electrifying cooperatives

Schleswig-Holstein is the northernmost of the 16 states of Germany. Nestled between the North Sea to the west and the Baltic Sea to the east and bordering Denmark in the North, it is one of the windiest states of Germany. Travelling from Hamburg on train, as one approaches Husum, one of its main cities, as far as one can see the horizon is spiked with wind turbines. Fittingly, the world's most important wind energy trade fair is held every two years in Husum.

Schleswig-Holstein has close to 3,300 megawatt (MW) of wind power (about 11 per cent of the total wind power installed in Germany) and wind energy provides nearly half the state's electricity consumption. With more than 200 kW of capacity per square kilometre, it has the highest density of wind turbines in Europe. Wind turbines currently occupy 0.8 per cent of the land in the state. Recently, the state Cabinet doubled the land area that can be used for wind turbines. The state has set a target to develop 4,800 MW of onshore wind capacity by 2015 and 6,500 MW by 2020.

To understand the wind power development in the state, we travelled to Ellhöft. This is a small village just 500 m from the Denmark border. Our destination: a communal wind farm and a solar PV plant owned by the residents of the village.

Christian Carstensen, 64-year-old vice-chief of the Windpark Ellhöft GmbH & Co.KG, accompanied us to the wind farm. Christian has invested in three projects, two wind farms and a solar PV power plant.

In 2000, 50 people from his village invested between €1,500 and €75,000 to install six wind turbines of 1.3 MW each. The residents contributed 20 per cent of the total capital cost of €9 million; remaining was taken as a loan from a bank. With annual power generation of 16-20 million kWh and a feed-in-tariff (FIT) of 9.1 cents per kWh assured for 20 years, their return on investment is 15-20 per cent annually. In 2012, Windpark Ellhöft paid off its loan and now the money the wind farm earns belongs to the villagers.

As we climbed atop a wind turbine on a ladder, Carstensen explained how the idea is catching up. The high rate of return on investments has meant that the residents are now ploughing back money to set up new renewable energy projects. In 2010, 20 villagers came together to set up a 2 MW solar PV plant costing €5 million. This plant produces 2 million kWh of electricity each year. With assured FIT of 24 cents per kWh, the people get 12 per cent rate of return on their investments. This is lower than what they get from the wind farm, but still far higher than what they can earn from the bank deposits or share market.

Inspired by the success of the Ellhöft, Danish investors from across the border have partnered with the residents to set up another wind farm of 27 MW in Ellhöft. In this project,



Carstensen had to do a detailed impact study on birds and bats before setting up the wind farm

they have installed three wind turbines of 6.125 MW capacity each—the biggest wind turbines available in the market.

Money is the driving force. Investments in wind, solar and biomass projects get people higher rates of return. Regulatory certainty makes it easier for ordinary folk to invest in renewables. “In Germany, anyone can erect one or more wind turbines as long as they can fulfil the legal requirements,” explains Martin Haasler, Pastor at Christian Jensen Kolleg in Breklum who accompanied us to the wind farm. Once an area is declared suitable for wind power generation, permissions to install wind turbines come easy, though not without meeting environmental norms.

Explains Carstensen, “Before constructing the wind farm we did a detailed birds and bats impact study.” His company was also asked to pay for protection of an area equal to the area of the wind farm. “For the six wind turbines we installed in 2000, we had to buy 7.6 hectares of protected area for conservation,” he adds. They were asked to do a similar study after 10 years of operation, which they have finished recently.

Still Carstensen is a little worried. Last year the transmission company asked his wind farm to stop generation during peak wind season. “We cut our generation by 25 per cent because the grid did not have the capacity to transport power from our wind farm. But we got paid for the generation loss,” says Carstensen. According to the German Energy Agency, Germany will have to construct 4,300 km of extra-high voltage grid until 2020 to absorb wind power generated in the north and transport it to the south. However, many grid extension projects are stalled because of local opposition and long planning and authorisation procedures.

Carstensen is also worried about the reduction in FIT for new projects that is likely to happen post September elections. “Major reduction in FIT will discourage investors like us. The government should reduce FIT realistically,” Carstensen stresses before finishing the conversation.



ENERGIEQUELLE

Feldheim is the only village in Germany with its own mini-grid and it meets all its energy requirement locally through renewable energy

Feldheim

Energy autonomy

July and August are holiday months in Germany, but not for Kathleen Thompson. Her office in tiny Feldheim village in eastern Germany receives visitors from across the world all the year round. Feldheim does not have heritage buildings, restaurants or museums. What it has is a wind farm, a biogas plant and a woodchip-fired heating plant. These ensure that the village, with a population of 128 people living in 35 houses, generates all its energy locally from clean sources. It is the only village in the country with its own grid.

“Feldheim showcases Germany’s Energiewende, which the world is talking about,” says Thompson, sitting inside the information centre whose walls are covered with posters advertising Feldheim’s energy ventures. Tucked away in the Brandenburg countryside 60 km from Berlin, Feldheim attracted 3,000 visitors in 2012. “The number is growing every year,” says Thompson, who is in her thirties and works for a regional non-profit, New Energie Forum.

She explains how Feldheim became what it is today. Back in 2004-05 farmers in this village were a worried lot. Prices of their produce, milk, potato and sugar beet, were falling and the rate of electricity was increasing. While farmers were losing hope, a company called Energiequelle GmbH saw a big potential in the village. The Brandenburg-based company, which specialises in renewable power, was looking for a potential site for establishing a wind farm. Feldheim with an average wind speed of 6.5 m/sec fit the bill. Michael Raschermann, a 25-year-old owner of the company, sat with farmers’ cooperative and chalked out a plan to make Feldheim energy independent. A company was set up with equal partnership. It is called Feldheim Energie GmbH & Co. KG.

Soon a 500 KW biogas plant was set up by the joint venture in 2008. Farmers switched to maize, sweet corn and rye. They started sending 15-20 per cent of their produce to the plant, the rest is used as animal feed or sold in the market. The agriculture feed is mixed with manure from animal farms to produce biogas. In a year the plant produces 4.2 million kWh of electricity and 4.3 million kWh equivalent of heat. Almost 80 per cent of the generated heat is used in the village, mostly in a pig farm. Its by-product slurry is used as fertiliser in farms.

Meanwhile, Energiequelle also set up a wind farm with 43 turbines having a total capacity of 74 MW. One of the turbines

of 500 KW capacity is owned by the village. Energiequelle pays farmers rent for putting its turbines on their farms.

The power generated from the biogas plant and the wind turbines is fed into the local grid to meet the electricity requirements of the village. The surplus is sold to the grid. Feldheim Energie gets a feed-in-tariff of 19 euro cents per kWh for electricity generated from the biogas plant and nine cents for the electricity from the wind farm. It sells the electricity to the residents of Feldheim at about 17 cents per kWh.

But building mini-grid for the village was not easy. Michael Knappe, the outgoing mayor of Treuenbrietzen municipality, which covers Feldheim, had to face up to big energy industries. “Energy system in Germany is centralised and strictly regulated. It is also monopolised by a few energy distribution companies. And they don’t like it if somebody steps on their toes,” Knappe, a staunch supporter of renewable energy, told the media. When the residents approached the major public electricity utility E.ON, it refused to sell or lease its grid to Feldheim.

“They didn’t want others to take control,” says a member of Energiequelle. The village, therefore, decided to build its own energy grid with the help of Energiequelle. It was completed in 2010. Each resident contributed around €3,000 and some state subsidies were pooled together to meet the total cost of €2.2 million. The village also received a little help (€850,000) from a European Union programme to build a heating network in the village.

Having their own grid exempts residents of the village from various electricity surcharges. As a result they pay one-third lower tariff than what other households in Germany pay. This tariff is guaranteed for 10 years.

In extreme winter when there is no wind, Feldheim’s wood chip plant switches on and provides heating. The biogas plant, though sluggish in cold, provides electricity. Every family in the village has found a job in these clean energy ventures. They are also earning more than before.

With the number of visitors in Feldheim increasing, Thompson’s makeshift office will be replaced by a big centre which will showcase Feldheim to visitors and also conduct training for people who want to work in the renewable energy sector. It will also have a restaurant, the first in Feldheim.

Transition trials

WIND AND SOLAR HAVE UNSETTLED THE ENERGY SYSTEM. DEMAND FOR REFORM IS GROWING

After taking quick strides—rather too quick—in energy transition, Germany now finds itself grappling with several challenges. Electricity prices are rising, surge in production of renewable power is disrupting energy market and grid expansion is lagging.

Although Germany has been producing more energy than it requires, electricity price in the country has been increasing every year. After the Denmark residents, it is the Germans who pay the highest electricity rate (28.50 euro cents per kWh) in the European Union. This is partly because the cost of renewable energy expansion is passed on to the households and small businesses. In feed-in-tariff (FIT), the premium paid to the producer above the price on the power exchange is collected from the consumer as surcharge. So when more cheap renewable energy gets into the power exchange, the wholesale price of electricity decreases but surcharge increases, says David Jacobs, research fellow with the Institute of Advanced Sustainability Studies in Potsdam. Over €12.5 billion (₹1.09 lakh crore) are collected as renewable surcharge from German houses and businesses per year to finance FIT.

The latest increase in the price of electricity by 3 cents per kWh has been the sharpest (see ‘Surcharge inflates...’). The surcharge is expected to increase from the current 5.3 cents to 6 cents in October, 2013. This would mean on an average a family will have to pay €200 more in a year,” says Fabian Joas, policy researcher with Potsdam Institute for Climate Change Research (PIK). “It could be uncomfortable for those living on social welfare,” adds Joas.

Electricity price is a big agenda for the Socialist Democratic Party in Germany for the coming elections. Left parties are also asking for special tariffs for the poor. Unlike India which has a tier system for electricity tariff,



Germany has a flat price for everybody. As a result even poor in Germany pay renewable surcharge. Some say funds for FIT should come from taxes so that the rich pay for the subsidy redistribution.

The rising rate is also pushing industry and individuals to produce their own power but again this leaves out those too poor to afford solar panels.

Eike Meyer, policy researcher with Berlin-based non-profit Green Budget Energy, says renewables should not be blamed for the price rise because conventional power also enjoys subsidy but it is not reflected in the electricity price.

Thomas Hirsch of Berlin-based non-profit Bread for the World, which works on hunger and climate change, argues that price rise has not affected the people much because the share of electricity in household expenditure has been constant at 2 per cent. “Germans pay more for heating and driving than for electricity,” adds Hirsch. Bernd

Gurlt, who drives a taxi in Potsdam, agrees. He says it is the price of other commodities, like food, he is more worried about. He pays about €50 per month for electricity. But the prospect of a steeper rise than the current does make him a little less sure.

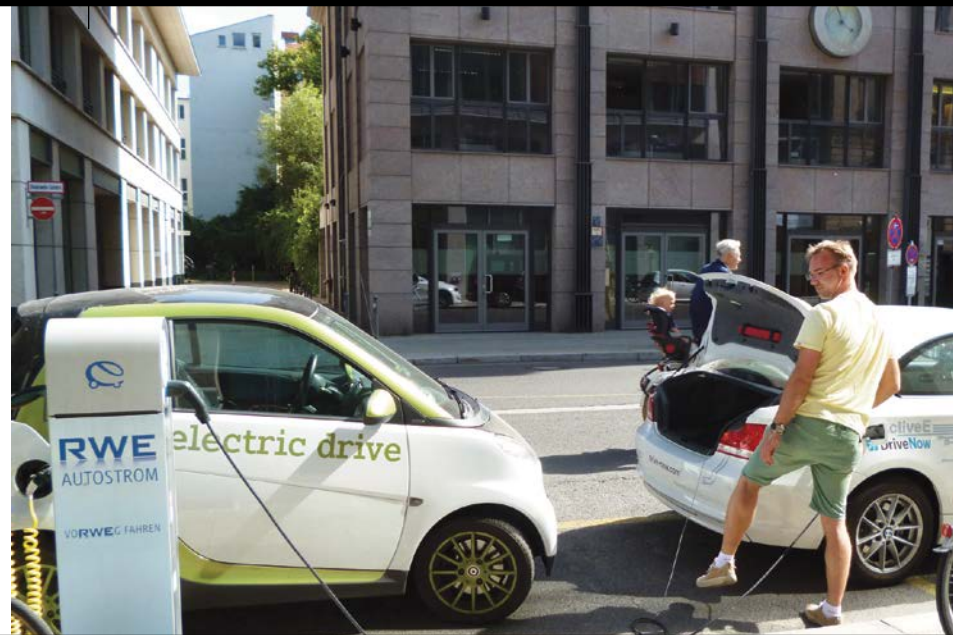
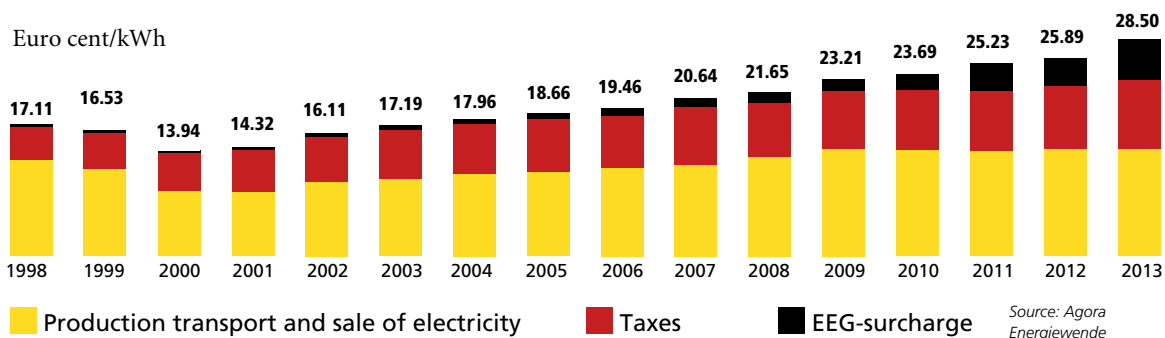
Hungriest industry gets it free

While even the poorest citizen pays the surcharge and other taxes on electricity, big industries are exempted. Energy-intensive firms have to pay nominal charge for grid usage, even though they rely heavily on the grid. Besides, they are also exempted from the renewable surcharge on the ground that they have to compete in the international market. This is when the electricity rate for industry on an average is already half of what a household pays.

The association of energy and water companies, BDEW, says it is just 4 per cent of firms that get exemptions on the ground of international com-

Surcharge inflates electricity rate

Of all taxes, increase in renewables surcharge is the sharpest



Germany is far from meeting the target of 1 million electric cars by 2020

ginal price. Since renewable energy is increasingly meeting a good part of the demand, expensive coal and gas power gets little chance to be sold. This is bringing down the wholesale price. Overproduction of solar energy, especially between 11 am and 2 pm, leads to a sharp fall in electricity price in the spot market (see ‘Renewables displace...’ on p38). This is giving a hard time to the producers of conventional power. “In this changing system, running conventional power plants is increasingly getting uneconomical,” says Volker Holtfrerich, unit manager of BDEW. Many industry players are threatening to shut shop and move to other countries.

Gas-based power plants worry that this system will put them out of business because their operational cost is even higher than coal. Jacobs offers a solution: “One way to avoid this is to levy CO₂ tax on the fossil fuel. This would make coal expensive.”

Noise made by threatened conventional power plants has initiated a debate on market reform in government circles. Industry and some economists are arguing that the existing system cannot guarantee reliable power. Their point is that during the sunless and windless days one needs conventional energy, so conventional power plants should remain in business.

What Germany needs is flexible power plants, which one can start and stop depending upon the demand. “A reservoir of adequate conventional power capacities is needed to provide a flexible and reliable system,” says Holtfrerich. Ensuring system reliability or keeping a backup capacity is not just desirable but of special importance to

petition. But it is these 4 per cent that consume a fifth of the energy supplied in Germany.

An increasing number of companies are asking for exemptions. These include public transport and bottled water companies that have no international competitors. The exemptions are counter-productive to efficiency, says Patrick Graichen of policy think tank Agora Energiewende. At present, companies consuming beyond a certain amount of electricity are exempted from the grid surcharge. If these industries bring down consumption they will lose the incentive.

Noticing this cross subsidy, the European Commission in July launched a probe into the legality of exemptions. According to some media reports, the exemptions granted to the energy-intensive industry amounted to €300 million last year. Sources close to the government say the probe was postponed till the elections after Chancellor Angela Merkel intervened.

4% of the companies in Germany, using a fifth of total energy, are exempted from renewable surcharge

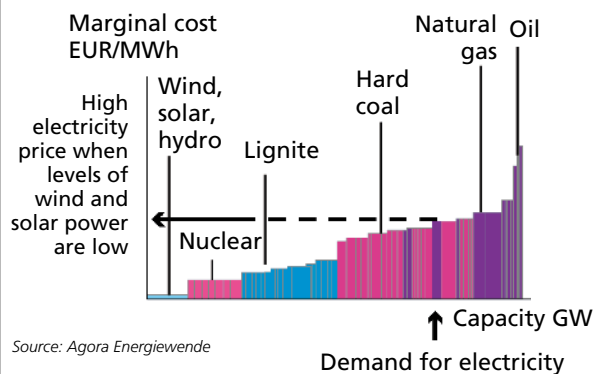
Energy market disrupted

The country’s changing energy mix and increasing production of solar and wind power have disrupted the energy market. The market assigns preference for energy from the cheapest source. The plant with the lowest operating cost—mostly decided by the fuel cost—gets the first purchase preference. Since operating cost is negligible in case of wind and solar energy, it is bought first, followed by power from hydro, nuclear, lignite, coal and gas.

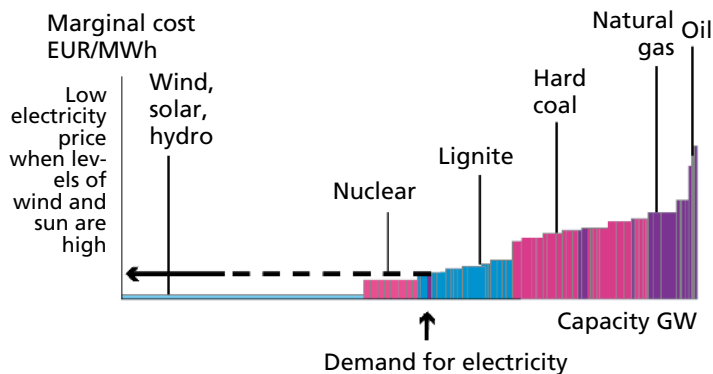
The operating cost of the last most expensive plant needed to cover the demand sets the electricity price in the energy market. This is called the mar-

Renewables displace conventional energy from spot market

Low wind, solar power production



High production of wind and solar power



Germany because it is likely to face a shortfall in uninterrupted power, according to a recent report by Agora Energiewende. The country's decision to phase out nuclear power will eliminate 4-gigawatt (GW) capacity between 2015 and 2019 and another 8 GW by 2022, states the report. Though around 2.7 GW of lignite-based capacity became operational in 2012 and about 8 GW of new coal capacity is expected to be commissioned by 2015, no new coal-based power plant is likely to be built given the current scenario.

So how can Germany ensure a reliable power system without hurting renewables? Industry's answer is it be paid incentives for having capacity. "And the plants can be brought to life whenever demand arises," suggests Jurgen Weigt, senior policy officer at German Association of Local Utilities, Berlin.

Graichen estimates giving capacity incentives to the coal and gas-fired plants will require €4 billion. Agora's report points out that the existing conventional power system is, however, not able to make rapid adjustments like being able to start and shut down quickly. They need to be modified for flexibility.

Grid and storage not adequate

German electricity networks are still the most reliable in Europe, with German consumers experiencing only 15 minutes of electricity disruption in a year. Contrary to the popular perception, renewable energy has so far not made

the grid unmanageable. But the need for grid upgradation is now being felt.

Since most of the renewable energy generation, especially wind, is spread over large areas far from demand centres, expansion of the grid is necessary. The grid between north and south Germany is not capable of carrying the electricity generated by the windiest north to south and south west where most of the industry is located. So when there is overproduction, some plants are asked to shut down or wind energy is pushed into other countries—Poland and Czech Republic on the east and the Netherlands on the west.

The German grid consists of 35,000 km of ultra-high-voltage transmission lines plus 80,000 km of high-voltage lines, which were built for conventional power. But most of the renewable energy projects produce low-voltage electricity, therefore, modernisation of low-voltage distribution grid is also required, especially to become bi-directional to accommodate households selling electricity to the grid, as well as buying from it.

According to official estimates, the country will need an additional 4,500 km of high-voltage line by 2020 but could manage only 214 km by 2012. This is largely due to opposition from the communities who do not want transmission grid in their backyards.

An alternative to the grid is storage but it is expensive due to efficiency losses. In fact, a big argument in Germany is whether to consume the energy where it

is generated or build an intensive network for widespread grid distribution across Germany and the European Union. Most energy experts are in favour of developing different areas based on their local potential rather than concentrating generation capacity in resource-rich regions—wind in the north and solar in the south. This way more renewable energy can be fed into the grid and consumed locally, says Hirsch.

Building a strong grid network will also help stabilise electricity prices. By 2020, Germany will produce about twice the amount of electricity from wind and sun as the rest of the EU. "The increasing overproduction of renewable energy will continue to drive down price in the spot market. When this happens, demand from neighbouring countries can be used to stabilise prices and conversely when wind and sun are weak, energy from neighbouring states can flow into Germany and dampen the high market price," says Graichen. For example, Scandinavian countries have a large amount of hydroelectric power and storage. When cheap electricity is available in Germany they can stop their production or store the power.

Graichen says it is estimated that the extra grids in Germany will cost 0.3-0.4 cent to transport 1 kWh. In contrast, new storage technologies cost 15-20 cents to store the same amount of electricity. Thus, building grids is cheaper. It will not completely rule out the necessity for storage but reduce it greatly.



More than 1.3 million families in the country are producing electricity using solar photovoltaic panels

Integration of energy systems is, however, not going to be easy. Poland has started putting barriers on transmission grids over a certain capacity to block cheap electricity from Germany that is putting their gas and coal plants out of business.

Need for reforms

To meet these challenges Germany needs to reform energy infrastructure, pricing mechanism and energy market. Liberal economics minister Philipp Rösler early this year called for a fundamental reform of the Renewable Energy Sources Act (EEG) and urged the government to rein in spiraling electricity prices before the September election. His demand was supported by environment minister Peter Altmaier who proposed cuts in FIT in June.

Germany's *energiewende* is influenced by its climate policy. Critics say Germany is going ahead without a proper plan. For example, a lot of solar PV was allowed when prices were very high. People who put up PV in their fields and on roofs made a lot of money with 20 years' guarantee. "PV was a money printing machine," says Joas.

Critics say that even when the PV prices were falling and demand to reduce FIT was pouring in from non-profits and policy analysts, the government paid no attention. The reason was political. States in Germany have a huge influence in Parliament. And people who put up solar panels on their roofs constitute a strong vote bank for

local leaders.

It was only last year and then in April this year that the government cut FIT drastically. Critics say the measure came late. According to a recent McKinsey report, renewable subsidies will rise from the current €13.5 billion a year to €15 billion in 2015.

But Germany continues with the expensive energy transition which is now being seen in its commitment to develop off shore wind capacity. It aims to build 10 GW of off shore wind by 2020 from the current 270 MW. For Germany off shore means at least 50 km off the shore because it does not want to spoil its scenic beauty. The farther the wind mills from the shore, the more expensive the installation. FIT for off shore would also be double than that for on shore wind energy.

One way to incentivise renewable energy while reducing its cost progressively is to develop a mechanism for an auctioning scheme in which renewable power producers bid for a given capacity and the lowest bidder gets the contract, something like what India has done. This would also help in reducing the electricity price, says Joas.

Why has Germany chosen this expensive way to check climate change? The most pronounced hypothesis is that this way Germany can demonstrate to

the world that decarbonisation of the electricity sector is possible through renewable energy and demand side management. Germany wants to be seen as a leader and secure a future business. So when, in the future, nations would be desperate for quick answers to climate change, it would be ready with its strong technology base and expertise in renewable energy to become a technology provider.

"It is costly now but will save more than it costs after sometime between 2025 and 2040. The reason is that the fossil fuel-based energy system would also need high investments to replace or rebuild obsolete infrastructure, which will be saved by a combination of very cost-effective energy efficiency and renewable energy that has high upfront costs but very small operating costs," says Stefan Thomas, director of the Research Group Energy, Transport and Climate Policy at the Wuppertal Institute of Climate, Environment and Energy.

In this bold and challenging experiment, Germany is willing to pay for its mistakes than go back. Jeremy Rifkin, a US economist who has advised the EU and Merkel on energy issues, told the media, "Germany cannot afford to fail because the whole world is looking at the German model."

Germany has crossed the hump

RENEWABLE IS REAL IN GERMANY

CHANDRA BHUSHAN

I heard about *energiewende* about two years ago when a German friend told me about the ambitious goal that his country had announced for renewable energy, energy efficiency and greenhouse gas (GHG) emissions reduction. It did not excite me much mainly because till then the outcomes were modest: the share of renewable energy in the electricity mix was only 15-16 per cent, which was similar to India's, and there was a question mark on achievements in sectors like transport and industry. Although Germany had reduced its GHG emissions more than it had to under the Kyoto protocol, it could do so because of the reunification wherein a number of inefficient industrial units in the erstwhile East Germany were closed down. For me, then, *energiewende* was no different from what many developed countries had put out as their emissions reductions targets for 2050 under the Cancun agreement—big numbers, but little to show.

As the noise around *energiewende* grew louder, so did my interest. The turning point for me was a newspaper article that reported how power companies were threatening to shut down their coal and gas plants because renewable energy was making them unviable. We decided to go and see for ourselves what this energy transition was all about.

For 10 days we criss-crossed Germany—from Heidelberg and Frankfurt in the centre to Breklum in the north to Feldheim and Schenkenberg in the east. The more we travelled the more excited we got. Germany's *energiewende* was opening our eyes to a new energy future. Sure we found problems and challenges; but we also saw commitment, achievements and innovation. Most important-



'Wind gas' plant produces hydrogen from excess wind power and mixes it with biogas to produce electricity. Hydrogen can also be stored and used to run cars

ly, across the political and economic spectrum, we found people supporting this transition.

In the past 10 years, Germany has done remarkably well in the renewable electricity sector. Today its installed capacity of renewable electricity is almost equal to that of fossil fuels—about 80 gigawatts each.

In the first seven months of 2013, 15.5 per cent of the electricity generated in Germany came from just solar photovoltaics and wind power. This is a record in the world. In June this year, when the weather was moderately windy but the sun was shining bright, a record 7.7 Terawatt hour or 22.5 per cent of the total electricity was produced by wind and solar plants—again a record. On July 7, when the mercury crossed 35°C in most parts of Germany, between 10 am and 4 pm, the 1.3 million solar power plants, installed on houses, commercial buildings and farms, collectively met half the electricity demand—yet another record. Renewable power is, therefore, real in Germany.

But not all is well with *energiewende*. There are major challenges in

sustaining and upscaling renewable power in coming years without disrupting the electricity supply. The current market design, though favourable for renewable energy that is enjoying assured feed-in-tariff, is creating major problems for the conventional power plants who have to either shut down or sell their power free during peak solar and wind periods. It is also not sustainable for the solar and wind energy producers in the long run.

During peak wind and solar period, so much electricity is produced at near-zero cost that the wholesale price of electricity dips significantly. As a consequence, wind and PV destroy their own prices at the wholesale spot market. Without feed-in-tariff they will not be able to earn enough revenue because the price will always be lower than the market price average whenever they will produce electricity. Thus, Germany will need major reforms in pricing electricity from renewables.

There are proposals on the table that advocate moving from “energy only market” to “energy, investment and storage” market. In the proposed market, the electricity producers will not

Spotlight on renewable electricity is taking the focus away from reducing energy consumption for heating in households

ciency targets for 2020 because of its lopsided focus of energiewende on renewable power.

Germany faces challenges in the mobility sector as well. It has one of the highest car ownership rates in the world. Fossil fuel consumption in cars, which the Germans love to drive, is not reducing and the targets that Germany has set to have one million electric vehicles and 20 per cent biofuels mixed in its automobile fuels by 2020, are not likely to be met in the current scenario.

At present, only 5.25 per cent of the auto fuels used in Germany are biofuels, mainly ethanol and biodiesel. Considering immense pressure on land and conflicts with food production, Germany is now importing palm oil from Malaysia and Indonesia to make biofuels. But certifying imported palm oil's carbon emissions savings is an elaborate process that experts are questioning. They are asking for more money to be put on third-generation biofuels, based on algae, and on public transport.

Electric vehicles are finding very few takers. At present, Germany has only 7,000 registered electric vehicles and many experts believe that meeting 1 million vehicles target will not be possible unless the driving range of these vehicles are improved and Germany offers more incentives.

There is also an element of social inequality in energiewende, which is now being voiced by the left political parties and some Green party politicians. In the coming elections this is going to be an important issue.

Even with all the challenges and problems, German energiewende is the most ambitious venture to decarbonise an economy. No other country even comes closer. Germany is showing to the world that a completely new energy system based largely on renewables is possible.

In this energy system, the majority of energy demand—electricity, heating and for mobility—will be met from renewable sources. The “base load” fossil fuel power plants that dominate our lives will disappear. What we will have instead is flexible fossil fuel plants that will operate only when required.

To maximise on renewable potentials in different countries, we will have regional grids to import and export renewable power. Renewable energy will be stored in pump storage dams and in the form of electricity and hydrogen. The stored energy will supplement the peak demand.

The German model also fosters a new energy market dynamics in which the small players win. Germany's wind and solar transition is not being propelled by large utilities and big companies. It is being led, owned and operated by citizens, small utilities and energy cooperatives. This points towards a decentralised energy future in which millions of people, small businesses and cooperatives will produce electricity, consume it locally and feed the surplus to the grid. With a little more advancement in grid and energy storage technology, this future is possible, too.

It is important to understand that Germany gets far less sun compare to countries like the US, Australia, India, China and most parts of Latin America and Africa. If Germany can produce such large amounts of solar power with so little sun, then we need not worry about the renewable electricity future.

But Germany has been able to do all this because it could afford it. For developing countries like India, financing such a massive venture on their own would not be possible. This is why a global mechanism is required to share the burden of transition to the renewable energy future.

Will Germany be able to solve all problems and meet challenges that energiewende has thrown up? Can it meet all its targets?

I believe, it can and it will. The exciting thing about energiewende is not how much renewable energy Germany has installed so far, but how the German government, businesses and civil society are thinking about the energy transition. I believe the German society has crossed the hump. ■

We would like to thank Thomas Hirsch and Anja Esch of Brot für die Welt for making this trip successful

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ON THE SPOT... SC Bansal

SC Bansal is President of the All India Glass Manufacturers' Federation (AIGMF) New Delhi and Director of Adarsh Kanch Udyog, Firozabad.

GW: What does it mean to you to be President of the AIGMF?

It is a great honour for me.

I represent the small-scale sector of the glass industry in Firozabad and have worked my way up. In 1967, I was a small factory owner and today, Adarsh Kanch Udyog group has a capacity of about 300 tonnes/day. As a manufacturer of lead glass tubing, as well as tube light and glass bulb shells etc, we hold a dominant position and employ about 10,000 people.

GW: How long will you serve as President of the AIGMF?

I have been an office bearer of the AIGMF since September 2003, when I was elected Honorary Treasurer. Moving up the ladder, I was made Senior Vice President in September 2010 and President in September 2012. I am likely to continue as President until September 2014.

GW: What do you hope to achieve during your presidency?

We are attempting an enhancement of membership particularly from Firozabad, which is a hub of the local glass industry and is recognised as the glass city of India. Many glass manufacturers in Firozabad are not yet members so I am trying to rope them in, since the federation gives a platform to work with the changes currently encountered.

GW: What other current priorities does the AIGMF have?

Collectively, we are attempting to solve problems for all sectors of the Indian glass industry, including

those relating to the high cost of soda ash and energy. For example, we filed a petition against the levy of an anti-dumping duty on soda ash that was imposed by the government two years ago. The umbrella of the AIGMF brings glass professionals together to discuss the industry's problems and then the federation takes up these challenges with the authorities concerned. The AIGMF is also trying to educate architects, builders and consumers to use the correct type of glass in buildings.

Continuing upgrades of *Kanch* magazine is also high on our agenda. Our exclusive co-operation with *Glass Worldwide* makes our organisation richer. The quality of *Glass Worldwide* is highly appreciated by members. Our joint collaboration is certainly very useful and benefits both parties.

GW: In general, how healthy is the Indian glass industry?

It's in sound health, having fared reasonably well during the global economic crisis. During 2013, smaller manufacturers in Firozabad have managed to sustain themselves but the larger sector is facing significant setbacks. For many units, particularly those in the large-scale segment of the industry who added more tonnage to production capacities during the industrial boom of 2009-2011, the market has seen a downward trend and larger businesses have not been able to utilise their capacities fully. Consequently, these units have not been able to utilise their installed capacities fully.

GW: What other challenges does the industry face?

Competition to glass comes from



SC Bansal (left) at the opening ceremony for GLASSPEX India 2013 in Mumbai.

substitute forms of packaging like plastic and tin and also from the reuse of glass containers. In Western countries, second-hand bottles are seldom used – they are broken and recycled. In India, we have junk sellers who collect these bottles for a minor price from end users and significant quantities of these products are reused in the local market, if not through the organised sector then by other means. Certain types of glass such as liquor bottles, for example, feature special designs and cannot be cleaned properly. Consequently, it is an unhygienic practice and should not be permitted by the government. The AIGMF has taken up the matter with the authorities concerned.

GW: How well is glass competing against competitive materials?

Unfortunately, there is inadequate public debate about the detrimental effects of plastic in comparison to glass. Consciousness is growing but at a slow rate and so plastic continues to be popular. Education of the rural population is particularly inadequate, although we believe that our efforts will improve the situation in the future.

The Indian government has constituted an expert panel to examine if plastic and PET bottles used for packaging pharmaceutical products are safe. The AIGMF is giving all necessary assistance and support to this panel.

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GW: What are the long-term prospects for the Indian glass industry?

The glass industry's success is linked to population, which in India is increasing. Naturally, therefore, glass demand in all sectors can be expected to increase. Hopefully, the Indian economy will soon realise a faster growth track. This will help all industries, including glass to grow faster.

GW: Does the AIGMF co-operate with glass federations from other regions with common goals?

We joined an international meeting of glass trade associations during glasstec 2012 and aim to learn from other federations. Sometimes, there are major priority differences to address. For example, we have no recycling bottle banks in India like Europe, North America and elsewhere. We want to halt the reuse of bottles in India but stopping this practise is not popular in some other countries. The efforts of other federations with common goals are acknowledged and appreciated but there are many cultural differences and our priority is to focus on domestic needs.

GW: Can suppliers contribute to the efforts of the AIGMF?

We have two categories of membership – manufacturers of all types of glass (containers, flat, solar, tableware and kitchenware, crystal etc) and those connected with the industry such as suppliers of machinery and raw materials. Suppliers have the advantage of meeting and developing contacts with key industry representatives at our meetings, as glassmakers also have the advantage of interacting with those who can supply quality machinery and other products.

GW: How important are the GLASSPEX India exhibitions that incorporate the AIGMF's international conferences?

The AIGMF first staged an exhibition in 1986 and has assisted in the creation of events in alternate years since 1995. During this time, India has embraced the technology revolution and the events have helped visitors to discover the latest available technologies. In addition to me, numerous other companies from Firozabad visited GLASSPEX India 2013 in Mumbai and many exhibitors will follow up with visits to Firozabad. We are happy that Messe Düsseldorf organises GLASSPEX India and as the market size increases further, the event can become increasingly productive and informative. ■



SC Bansal (third from left) with AIGMF colleagues Monohar Lal and Pradeep Gupta and Glass Worldwide's Dave Fordham.

Membership of

Members of the Federation are classified into two categories; manufacturers of primary glass articles are enrolled as **Ordinary Members** of the Federation and suppliers to glass industry viz., suppliers of machinery, raw materials, consultants and others connected with glass industry are enrolled as **Affiliate Members**.

Foreign Companies supplying machinery etc., to glass industry are also enrolled as Affiliate members.

The membership forms can be downloaded from <http://www.aigmf.com/membership.php> Members of the Federation are enrolled on the recommendation of Zonal Associations viz.:

- Eastern India Glass Manufacturers' Association (EIGMA)
- Northern India Glass Manufacturers' Association (NIGMA)
- South India Glass Manufacturers' Association (SIGMA)
- Uttar Pradesh Glass Manufacturers' Syndicate (UPGMS)
- Western India Glass Manufacturers' Association (WIGMA)

ADMISSION FEE / ANNUAL SUBSCRIPTION

Ordinary Members:

Admission fee ₹ 550/-

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Applicants for enrollment for a period of five years may pay a consolidated amount of ₹ 27,000/- (including admission fee).

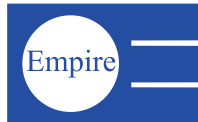
Affiliate Members from countries other than India:

The admission fee and annual subscription is US \$ 100/- and US \$ 200/- respectively.

Applicants for enrollment for a period of five years may pay a consolidated amount of US \$ 1000/- (including admission fee).

New Members

Company Name / Address	Products/Services
<p>Schmalz India Pvt. Ltd EL-38 "J" Block MIDC Bhosari Pune - 411 026 Contact: Mr. Philip Mani T: +91 20 4075500 E : p.j.mani@schmalz.co.in</p>	<p>Manufacturers and suppliers of glass machineries</p>
<p>Cogent Glass Limited 4th Floor, Water Mark Building Opp to Mahindra Satyam Hitech City, Hyderabad – 500081 Contact: Mr. Frederic Barbier T: +91 40 43349999 E: sales@kogentglass.com</p>	<p>Manufacturers of moulded and tubular vials for pharmacy + tubes</p>



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Selected 2012-14



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Empire Industries Ltd. - VITRUM GLASS

Empire House, 414, Senapati Bapat Marg, Lower Parel, Mumbai, 400 013. India.

Tel.: +91-22-61467676, **Fax:** +91-22-24937203

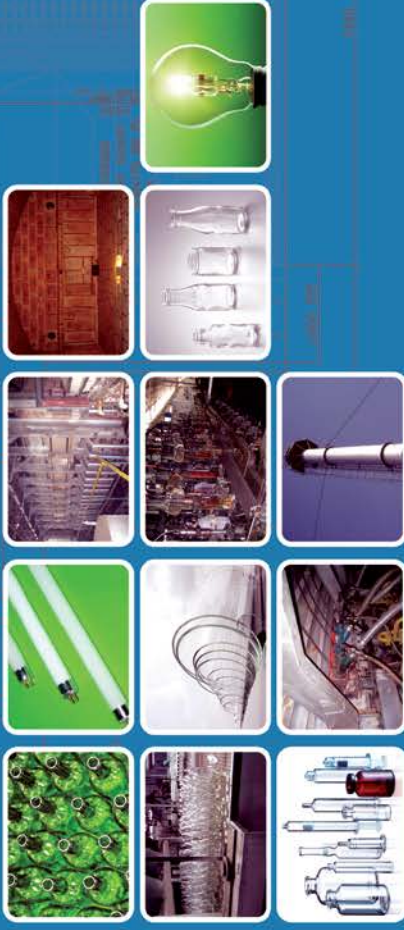
E-mail: vitmktg@vitrum-glass.com, sgupta@vitrum-glass.com

Website: www.vitrum-glass.com

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 - Selection, installation and commissioning of production machinery and annealing lehrs
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Glass News **INDIA**

GOVT MAY SOON BAN USE OF PET BOTTLES FOR DRUG PACKAGING

Pharmaceutical companies may soon have to phase out the use of plastic or polyethylene terephthalate (PET) bottles for packaging medicines such as syrups and liquid orals. The health ministry is considering a ban on the use of such bottles for packaging pharmaceutical products due to concerns of possible adverse effects on health.

Even as the government lacks enough scientific evidence confirming a risk to health from the use of plastic bottles, the Drug Technical Advisory Body (DTAB), the top-most advisory body on health-related matters, has suggested that the government must immediately ban the use of such bottles for some specific categories where risks are high, an official said.

“Since there is not enough evidence, the DTAB has recommended that in the first phase, the use of plastic or PET containers in liquid oral formulations for primary packaging of paediatric formulations, geriatric medicines, and medicines for women in the reproductive age group and pregnant women should be phased out and banned,” the official said.

Pharma companies are likely to be get six months to implement the move, according to the DTAB recommendations.

Drug makers generally use plastic or PET bottles as primary packaging material in pharmaceutical liquid orals, suspensions and dry syrups. Meanwhile, the drug regulator, Drugs Controller General of India, plans to send samples of plastic or PET bottles containing common medicines for testing to ensure the safety of these bottles.

The pharma industry was earlier using glass bottles only as primary packaging material for pharmaceuticals. However, the industry switched to PET bottles primarily because they are easy to handle in the distribution and retailing process.

However, the DTAB report notes this switchover to packing in plastic or PET bottles by the industry “is not based on any scientific studies” to show such bottles do not have any harmful effect on the drug formulations and there are no releases of endocrine disruptors due to leaching.

“India has a large variation in temperatures. In summers, the day temperature rises to 40-45-degree centigrade and the exposure of plastic bottles to such a high temperature may result in adverse effects on the drug formulations packed plastic bottles and the high temperature may result in increased leachability. The harmful effects because of the packaging and leachability may be further magnified in the case of drug formulations,” DTAB said in its report recently.

Packaging is a crucial part of the drug manufacturing and marketing process. While the latest move is likely to have a huge dent on revenues of bottle manufacturers who supply to pharmaceutical companies, it may also have an impact on drug makers as packaging cost and margins on it are determined by the pricing regulator.

SIEMENS INAUGURATES STATE OF THE ART TEST CENTER FOR MOTORS

Siemens Ltd. inaugurated its state-of-the art ‘Advanced Motor Test Center’ at Kalwa Works, Mumbai. One of the most advanced test centers of its kind globally, the fully automated test center houses 8 test benches capable of testing motors in the wide range of 120 W to 3000 KW.

The Indian Electrical equipment Industry has witnessed a host of changes in recent years including adoption of new standards for efficiency for industrial motors. This also has given rise to new testing methods for efficiency calculation as well. Says Mr. Wolfgang Weissler, CEO, Drive Technologies, Industry sector, Siemens Ltd., “At Siemens, we have been a constant partner to the Indian manufacturing Industry by offering the widest range of industrial motors that conform to the new efficiency standards. In fact we are the only one to have the complete range of motors conforming to the latest

efficiency norms. We are now moving a step ahead to unveil our world class Test Center for Motors at our facility in Kalwa, Thane. With eight test benches that are fully automated along with a host of unparalleled features like remote monitoring, we aim to give our customers the most accurate results in the least possible time.”

The growing demands of customers today require the right mix of products and services combined with a value add for a wide range of technology-based services as well. Awaiting accreditation from National Accreditation Board for Testing and Calibration Laboratories (NABL), the test center is established as per global testing standards and is the most advanced test center as on date across the Siemens organization.

AIMGF EXECUTIVE COMMITTEE AND ANNUAL GENERAL MEETING

The Executive Committee and Annual General meeting were held at India Habitat Centre New Delhi on September 28, 2013.

Apart from normal agenda and proceedings, highlight of the day was election of President and office bearers for the year 2013-14. Following were unanimously elected in the Annual General Body Meeting:

President - Mr. S.C. Bansal
Adarsh Kanch Udyog, Firozabad
(Uttar Pradesh)

Sr. Vice President
Mr. Sanjay Ganjoo
Asahi India Glass Ltd., Taloja
(Maharashtra)

Vice- President - Mr. Arun Kumar D
AGI Glaspac (An SBU of HSIL Ltd),
Hyderabad

Hony. General Secretary
Mr. Ajit Jhunjhunwala
La Opala RG Ltd., Kolkata

Hony. Treasurer

Mr. Bharat Somany
HNG & Inds. Ltd., Bahadurgarh (HR)

Executive Committee Members

Secretary announced that following have been appointed as members of Executive Committee of the AIGMF for the year 2013-14, on the recommendation of Zonal Associations:

Nominees of Western India Glass Manufacturers' Association (WIGMA)

1. Mr. H.R.Bhandari
Pragati Glass Pvt. Ltd., Mumbai
2. Mr. G.K. Sarda
Empire Ind. Ltd., Vitrum Glass,
Mumbai
3. Mr. Vijay Shah
Piramal Glass Ltd., Mumbai.
4. Mr. Sanjay Jain
HNG & Industries Ltd., Mumbai

Nominees of Eastern India Glass Manufacturers' Association (EIGMA)

1. Mr. Dinesh Jhunjhunwala
Ashoke Enamel & Glass Works P.
Ltd., Kolkata
2. Mr. Sushil Jhunjhunwala
La-Opala RG Ltd., Kolkata

Nominees of U.P. Glass Manufacturers' Syndicate (UPGMS)

1. Mr. Mohan Lal Agarwal
General Traders, Firozabad
2. Mr. Devicharan Agarwal
Pooja Glass Works (P) Ltd.,
Firozabad
3. Mr. Raj Kumar Mittal
Mittal Ceramics, Firozabad
4. Mr. Sanjay Agarwal
Kwality Glass Works, Firozabad
5. Mr. Deepak Gupta
Hilite Glass (P) Ltd., Firozabad
6. Mr. Sanjay Mittal
Farukhi Glass Industries,
Firozabad

Nominees of South India Glass Manufacturers' Association (SIGMA)

1. Mr. Sandip Somany
AGI Glaspac (An SBU of HSIL
Ltd.), Hyderabad

Nominees of Northern India Glass Manufacturers' Association (NIGMA)

1. Mr. S.C. Vishwakarma
Universal Glass, Sahibabad
2. Mr. N.N. Goyal
U.P. Twiga Fiber Glass Ltd., Delhi

The following were co-opted as members of the Executive Committee for the year 2013 – 2014:

1. Mr. C.K. Somany
HNG & Ind. Ltd., Kolkata
2. Mr. Balkrishan Gupta
Advance Glass Works, Firozabad.
3. Mr. Sanjay Somany
HNG & Ind. Ltd., Bahadurgarh
4. Mr. Pradeep Kumar Gupta
Om Glass Works Pvt. Ltd.,
Firozabad
5. Mr. P. K. Kheruka
Borosil Glass Works Ltd.,
Mumbai
6. Mr. Subhash Tyagi
Gold Plus Glass Industry Ltd.,
New Delhi

REGIONAL ASSOCIATION MEETINGS

Northern India Glass Manufacturers' Association (NIGMA)

In the meeting held on September 24, 2013 at New Delhi, Mr. K K Sharma, HNG & Inds. Ltd., Neemrana and Mr. Jimmy Tyagi, Gold Plus Industry Limited, New Delhi were elected as President and Vice President for the year 2013-14.

Uttar Pradesh Glass Manufacturers' Syndicate (UPGMS)

In the Annual General Meeting held on Sept 22, 2013 at Firozabad (UP), following were nominated for UPGMS for the year 2013-14:

President
Mr. Mohan Lal Agarwal

1st Vice President
 Mr. Raj Kumar Mittal
 2nd Vice President
 Mr. Dharmendra Mohan Gupta
 Hon. Secretary
 Mr. Sanjay Agarwal
 Jt. Secretary
 Mr. Munna Lal Jain
 Treasurer
 Mr. Deepak Gupta

Western India Glass Manufacturers' Association (WIGMA)

In the meeting held on September 17, 2013 at Mumbai, Mr. H R Bhandari, Pragati Glass Works (P) Ltd., Mumbai and Mr. G K Sarda, Empire Industries Ltd., Vitrum Glass, Mumbai were elected as President and Hon. Secretary for the year 2013-14.

FIROZABAD OUTGROWS BANGLES, CRAFTS GLASS LAMPS, CHANDELIERS

If you think Firozabad when you talk of glass bangles, then think again. For this Uttar Pradesh town is now crafting intricate glass lamps that dazzle in homes in countries like Kuwait, Spain, Dubai, Australia, France, and the US.

Glassware is the main industry in Firozabad, about 40 km from Taj city Agra, and almost 70 percent of the country's small-scale glass production



Mr. K K Sharma (L) President and Mr. Jimmy Tyagi (R) Vice President, NIGMA

is concentrated in this district of Uttar Pradesh. Its glass lamps, in particular, are very popular and are mostly exported in large quantities.

“There are a handful of production units involved in lamp making in Firozabad, and most of these lamps are exported. Other than that, we showcase our craft in major fairs in the country which attract serious buyers who place orders in bulk,” Mr. Pawan Gupta of Gupta Glass House told IANS.



Mr. H R Bhandari (C) President and Mr. G K Sarda (R) Hon. Secretary, WIGMA

Understandably so, in their shops one would therefore find only sample pieces - one of each kind.

“We have so many different kinds of artefacts that it is not possible to display everything. Even then we keep some of the sample pieces so that shopkeepers and traders who visit us from nearby towns and the big metros can place their orders accordingly,” Mr. Gupta said, adding that their business is now slowly shifting online.

Available in different

shapes, sizes, colour and designs, Firozabad's lamps are exported to countries like Kuwait, Spain, Dubai, Australia, France, the US and Hong Kong.

And the design - some lamps have beaded work on them, some have stone work; there are some that are painted while others have intricate brass work.

“Most of the designs we decide ourselves, keeping in mind the current times. There are times when

the buyer gives us the design,” said Mr. Banwari Lal, a glassware factory owner.

Although bangle-making production units still draw the biggest number of workers, including from nearby villages, there is also a limited presence of skilled and semi-skilled labour involved in the processes of blowing, cutting, polishing and engraving the artefacts in glass.

Firozabad's glassware makers have also got help from other quarters, like the government and educational institutes like the National Institute of Design (NID) whose students have organised workshops with the town's artisans in order to help them develop new and better designs in tune with the present demand.

Firozabad makes for a great shopping destination because one can pick up exquisite items at a fraction of the cost that they will be sold at once they hit the store shelves in the cities.

According to Mr. Lal, a lamp priced at Rs.500, for instance, will be priced at least thrice more once it reaches the market in a metro like Delhi, and further increase when they are exported. Even then, there is competition from China made lamps and chandeliers.

Mr. Rakesh Mohan, a salesman in one of the shops, told IANS: "Suppose a Firozabadi chandelier costs you Rs. 3,000, a Chinese chandelier of a similar design will cost you Rs.1,800. The margin is big and therefore shopkeepers, sometimes, prefer to buy the latter because they know it will sell more; but the quality of the Firozabadi glass is much better."

But it's not just lamps and bangles that this glass city boasts of. Delicate perfume bottles, jars, tumblers, and decanters with intricate designs, glass jewellery, vases, flowers, etc., you name it. Your shopping list here can be endless.

AMITY UNIVERSITY (UP, INDIA) FIRST TO TEACH HUMAN SAFETY WHILE USING GLASS IN BUILDINGS

In continuation to the efforts made by "Confederation of Construction Products and Services (CCPS)" for disseminating the information on safe use of glass in buildings and promoting the recommendation of "Guidelines on use of glass in buildings-Human safety", a lecture was organized on October 10, 2013, which was attended by 58 final year students and faculty

members of Civil Engineering Dept., of Amity School of Engineering and Technology (ASET), Amity University, Uttar Pradesh, Noida. The Aim was to update the students/Faculty with the latest developments, innovations and requirements in the field of glass use, focusing human safety.

In the lecture, Architect Deepak Gahlowt, Convener CCPS, described about the factors contributing for popularity and extensive use of glass in buildings particularly for aesthetic appeal, visibility, light transmission, light weight, changing life style and many more. The students were informed about the manufacturing process of glass, availability of different types of glasses, their properties and uses, the impact on energy performance and acoustic effects. Further, the types of safety glasses, their uses and test requirements &, selection of appropriate glass at critical locations where chances of injury are more was highlighted. Moreover the recommendations of the Guidelines to ensure human safety and considerations for manifestation, fire safety etc., were explained in

details.

Mr. J. Bhattacharjee, Prof. & Advisor, Civil Engg. Dept., ASET said that the programme was very educative/informative & important for the students/Faculty members to know all about the latest developments of this beautiful building material and this would be very useful to develop courses and include in syllabus to teach in the engineering classes. Based on deliberations and materials given, the University has approved and included Glass - Manufacturing Process, Types of Glass (Basic & Processed), use of appropriate glass at critical locations ensuring Human Safety, Manifestation, Safety glass test requirements etc., including Guidelines along with other publications of CCPS in the curriculum of Civil Engineering Dept., of Amity School of Engineering and Technology, Amity University.

Hope other educational institutions would follow Amity University to include this subject in the curriculum of technical classes for which CCPS is always ready to assist. ■

(Glass News Source: World Wide Web)



समाचार

जिंदगी न खत्म कर दे ये डिस्पोजेबल प्लास्टिक ग्लास

गोरखपुर: छोटी पार्टी हो या फंक्शन, चाय की दुकानें हों या फिर रेस्टोरेंट करीब हर जगह पर डिस्पोजेबल आईटम्स नजर आएं, भागमभाग की जिंदगी में बर्तनों का धोने से बचने का अच्छा ऑप्शन डिस्पोजेबल आईटम्स सामने आया है, इसका यूज लगातार बढ़ता जा रहा है लेकिन इसके कचरे से निपटने का कोई इंतजाम सिटी में नहीं हो रहा है, जीएमसी और कलेक्ट्रेट कैंपस में प्लास्टिक के गिलास पर रोक लगा दी गई है लेकिन सिटी के बाकी हिस्सों पर इसका असर नजर नहीं आता, अगर समय रहते इस पर रोक नहीं लगाई गई तो गोरखपुरराइट्स के लाइफ में तेजी से शामिल हुए डिस्पोजेबल किसी दिन जिंदगी खत्म कर देगा।

लाखों का कारोबार, दर्जनों दुकानें

सिटी में डिस्पोजेबल ग्लास, प्लेट और पत्तल का कारोबार खूब होता है। साहबगंज मंडी में इसकी थोक की दुकानें हैं। यहाँ पर रोजना 25 से 30 लाख का प्लास्टिक के ग्लास और प्लेट का कारोबार होता है। सिटी में किराना की दुकानों पर प्लास्टिक के ग्लास आराम से मिलते हैं। चाय और पान की दुकान पर भी प्लास्टिक के ग्लास मिल जाते हैं। सिटी में वाइन और बीयर शॉप्स के अगल-बगल में चखना बेचने वाले भी फुटकर में प्लास्टिक के ग्लास बेचते हैं। कुल्हड़ का यूज करने के बाद चाय की दुकानों पर भी छोटे वाले ग्लास इस्तेमाल में लाए जा रहे हैं। लोग यूज करने के बाद इनको इधर-उधर फेंक देते हैं। बाद में यह सारा कचरा जीएमसी के मत्थे आता है।

खतरनाक हैं इनका इस्तेमाल, फिर नहीं ध्यान देते हैं लोग

प्लास्टिक के ग्लास, प्लेट और चम्मच का यूज खतरनाक होता है। एक्सपर्ट का कहना है कि यह कई तरह से हेल्थ पर असर डालती हैं। डाइजेशन सिस्टम की डिस्टर्ब करने के साथ ही यह पथरी की शिकायत को बढ़ता है। सिंथेटिक पॉलीमर से बने होने की वजह से इनका केमिकल धूप और मौसम की वजह से असर डालता है। इनको जलाने पर भी हार्मफुल चीजें निकलती हैं। कार्बन डाईऑक्साइड और कार्बन मोनो ऑक्साइड गैस निकलती है। यह बॉडी को नुकसान पहुँचाती है। चाय और पानी वाले अलग ग्लास यूज किए जाते हैं। पॉलीस्टाइरीन से बने ग्लास में टॉक्सिक केमिकल कैलशियम सल्फेट, प्लास्टीसाइजर फिलर डालकर ब्लो किया जाता है। इसे ब्लोइंग

एजेंट कहते हैं। प्लास्टिक का गिलास यूज करने से पेट की बीमारियों के साथ ही पथरी होने, पॉल्यूशन और डेरनेज सिस्टम पर ज्यादा असर पड़ता है।

गुम हो रही कुल्हड़, गायब है पत्तल

सिटी के आसपास जंगल होने से बावजूद यहाँ पर पत्तों से बने पत्तल और मिट्टी के कुल्हड़ों का यूज लगभग बंद हो चुका है। कुछ घरों में कभी-कभी पत्तल और कुल्हड़ का यूज किया जाता है। बताया जाता है कि मिट्टी न मिलने से कुल्हड़ नहीं बन पा रहा है। इस वजह से इसके दाम भी बढ़े हुए हैं। जबकि पत्तों के यूज से पत्तल बनाने का सिलसिला भी खत्म होता जा रहा है। कुल्हड़ की जगह लोग प्लास्टिक के ग्लास और पत्तल की जगह लोग प्लास्टिक की प्लेट का यूज कर रहे हैं। इससे खतरा बढ़ता जा रहा है।

डिस्पोजेबल ग्लास और प्लेट का यूज हेल्थ के लिए खतरनाक होता है, यूज करते समय लोग इसका ध्यान नहीं रखते। चूंकि यह आसानी से उपलब्ध विकल्प हैं, इसलिए लोग इस पर ध्यान देते हैं - डा. वीके सुमन, सीनियर फिजिशियन, डिस्ट्रिक्ट हॉस्पिटल

प्लास्टिक के ग्लास और प्लेट्स के यूज से जीएमसी को काफी नुकसान पहुँचता है। मैरेज हॉल और होटल्स के आस-पास कचरे में प्लास्टिक के ग्लास और प्लेट्स फेंके जाते हैं, इससे पॉल्यूशन तो होता ही है साथ ही नालियां भी चोक हो जाती हैं, कुछ लोग इनको इकट्ठा करके जला देते हैं जो ज्यादा खतरनाक है। लोगों को चाहिए कि प्लास्टिक के ग्लास और प्लेट का यूज करने से बचें।

सब्सिडी मिले तो लगे काँच उद्योग को पंख

फिरोज़ाबाद: अपनी मेहनत के बूते उद्योग जगत की ऊँचाई पर पहुँचे देवीचरन अग्रवाल सम्मान पाकर बेहद खुश हैं। उनका कहना है कि सम्मान के साथ ही सरकारों को काँच उद्योग से वैट को कम करना चाहिए, तभी इस उद्योग जगत को पंख लग सकेंगे। गुजरात प्रांत में काँच पर पाँच फीसदी वैट है, जबकि यूपी में 13.5 फीसदी। इस वजह से काँच उद्योगियों को नुकसान झेलना पड़ रहा है।

यह बात प्रमुख उद्यमी देवीचरन ने स्टेशन रोड स्थित एक होटल में पत्रकारों से चर्चा में कहीं। उन्होंने बताया केंद्र सरकार द्वारा काँच

उद्योग में अभी तक कोई रियायत नहीं की है। निर्यात में इनकम टैक्स में रियायत मिले तो बात बने। यही वजह है कि अनेक फैक्ट्रियाँ दूसरे प्रांत में स्थापित हो रही हैं। इसका खामियाजा सुहागनगरी के कांच उद्योग को उठाना पड़ रहा है। उन्होंने बताया लखनऊ में आयोजित कार्यक्रम में उनकी पूजा ग्लास को लघु उद्योग प्रादेशिक पुरस्कार से नवाजा गया है। प्रयास होगा यह प्रथम श्रेणी पर वह अगले साल भी स्थापित रहें। वहीं उनकी बजरंग ग्लास इंडस्ट्री को ग्लास हैडीक्राफ्ट के निर्यात में द्वितीय श्रेणी का पुस्कार दिया गया है। उन्होंने बताया अगले वर्ष होने वाले समारोह में वह प्रथम श्रेणी पर पहुँचने की कोशिश में जुट गए हैं। जो कमियाँ रहीं हैं, उन्हें दुरुस्त किया जा रहा है। वार्ता में हेमंत अग्रवाल बल्लू, मोहन, अग्रवाल, संतोष अग्रवाल, नितिन अग्रवाल, संजय अग्रवाल, बंटी अग्रवाल आदि उद्यमी मौजूद रहे।

उद्यमियों को लुभा गए प्रो. रामगोपाल

फिरोज़ाबाद: राज्यसभा सदस्य प्रो. रामगोपाल यादव ने विकास के नाम पर जनता को अपनी ओर खींचने का प्रयास किया तो उद्यमियों को भी उन्होंने नई सौगात दी। कांच उद्योग को जीवित करने के लिए उन्होंने कांच की बोतलों में शराब उपलब्ध कराए जाने की घोषणा की।

प्रो. यादव ने बताया तकरीबन ढाई माह पूर्व सपा जिलाध्यक्ष अजीम भाई के नेतृत्व में शहर के उद्यमी विन्नी मित्तल, देवीचरण अग्रवाल, राजकुमार मित्तल, प्रदीप गुप्ता, पीके जिंदल, अनिल गर्ग समेत करीब पंद्रह उद्यमियों का प्रतिनिधिमण्डल उनसे मिला। इनकी मांग थी कि कांच उद्योग को जीवित किए जाने के लिए शराब को कांच की बोतलों में उपलब्ध कराए जाने की मांग रखी थी। प्रो. यादव ने बताया इस पर मुख्यमंत्री अखिलेश यादव से वार्ता हुई तो वह तैयार हो गए, लेकिन उन्हें डर था कि क्या सुहागनगरी इतनी बड़ी संख्या में बोतलें उपलब्ध करा पाएगी। इस पर भरोसा दिया गया। उन्होंने बताया जल्द ही शराब कांच की बोतलों में उपलब्ध हो जाएगी। इससे न सिर्फ उद्योग बढ़ेंगे, बल्कि इनसे जुड़े हजारों लोगों को भी रोजगार मिलेगा। आल इंडिया ग्लास मैनुफैक्चरिंग एसोसिएशन के अध्यक्ष प्रदीप गुप्ता ने कहा कि इससे जहाँ प्रदेश सरकार का राजस्व बढ़ेगा वहीं पर्यावरण संतुलन में सहायक होगा।

(Glass News Source: World Wide Web)



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Step Into The Void:

A man stands in a glass cage named 'Pas dans le Vide' (Step into the Void) at the top of the Aiguille du Midi peak (3,842- meters high) in the French Alps.

It is a new attraction that will let tourists enjoy the view of Mont Blanc, Europe's highest mountain



ICG PRESIDENT Prof. SHOU PENG PROMOTES COLLABORATION AT 2013 ASEAN CERAMICS MEETING

.....*ICG strengthen the network in Asia*

Prof. Shou Peng, the President of the International Commission on Glass (ICG), attended 2013 ASEAN Ceramics, held from September 11-13 at BITEC Bangkok, Thailand alongside the International Conference on Traditional and Advanced Ceramics 2013. Prof. Peng attended this meeting and its opening ceremony at the invitation of the President of the Thai Ceramics Society, Dr. Somnuk Sirisoonthorn. Representatives of the Ceramic Societies of India, Bangladesh, Japan, Turkey, Australia and the United States amongst others also participated. Each explained his society's history and main academic activities, with Prof. Peng describing ICG and the Chinese Ceramic Society. He proposed that the Asia-Pacific Ceramic Societies should further strengthen exchanges and cooperation, establish an effective communications mechanism and



promote common development. He invited the representatives to participate in ICG's Steering Committee meeting to be held from December 2-3, 2013 during the Asia-Pacific Meeting of Glass and Allied Industries in Kolkata, India.

In addition, Prof. Peng met separately with the President of the Australian Ceramic Society, Dr. Jeffrey Sellar, during the conference, discussing with him how to strengthen cooperation and communication between ICG and the Australian Ceramic Society. Prof. Peng confirmed that Australia is an important member of ICG and ICG values their efforts and contributions to the development of the world glass industry. He hoped that Australia would continue to play an important role in ICG. Dr. Sellar appreciated Prof. Peng's favorable remarks and expressed his willingness to make continuous efforts to deepen the communication and cooperation between the two sides.

NEW TC ON ENERGY EFFICIENCY IN GLASS PRODUCTION

As a result of the very comprehensive ICG road map activities, the International Commission on Glass has launched a new Technical Committee addressing the need to focus on energy efficient glass production in order to decrease greenhouse gas emissions and primary energy consumption in industrial glass production. Its name is TC09: Energy Efficiency in Glass Production. The aim is to bring experts together to discuss the energy saving potential and energy saving technologies available for all steps in the process of industrial manufacturing (from raw materials to glass product) and for all glass sectors.

At the first meeting, 14 experts from institutes, industry and suppliers of

glass industries met in Eindhoven on the November 28, 2013; 6 glass companies, 4 institutes and 2 supplying companies were represented. The number of participants is expected to rise over the next few years.

The main direction of this TC is to define activities and studies of a technical and scientific nature. The most important suggestions proposed include:

- Investigations of new technologies applicable for energy efficiency improvement in glass production;
- Sharing experiences with application of new energy saving technologies or energy recovery from waste heat;
- Development of tools and models to investigate energy balances of glass furnaces & forehearth or other thermal processes in glass industries;
- Collection of data on energy consumption in glass industries per country and per process step or furnace (benchmarking);
- Organize symposia or sessions on Energy Efficiency or Energy Saving Technologies at conferences;
- Preparing guidelines to standardize methods of analysing energy efficiency of glass production and setting definitions for units of energy consumption, specific energy consumption and defining reference states.

TC09 will address all process steps, but the first priority will be glass melting, since this contributes on average about 60-65 % to the total energy consumption in glass production.

TC09 will become part of the Glass Production TC cluster of the ICG and will work alongside: TC11, TC13, TC14, TC18, TC15-21, and TC23. TC09 is chaired by Dr. Ing.

Hans van Limpt from CelSian Glass & Solar. Soon a vice-chair, secretary and webmaster will be nominated and proposed. TC09 aims to set up a website and wants to cooperate with other TCs within the cluster especially TC13 (Environment) and TC18 (Glass Melting).

TC09 aims to meet twice per year. The next meeting will be held in Aachen, Germany at the DGG, ACERS-GOMD and Advances in Fusion and Processing of Glass Conference which will take place from May 25-30, 2014.

REGISTRATION PHASE FOR glasstec 2014 STARTS

As from new companies in glass machinery production, the glass industry and glass crafts can register for glasstec running at Dusseldorf exhibition centre from October 21-24, 2014. Glasstec stands out as a leading global fair in the sector because it covers the glass value chain with a unique spectrum of top companies, thereby attracting a particularly international and top notch audience. At the last glasstec in 2012, 59% of the some 42,400 trade visitors came from abroad.

Alongside exhibitors' wide ranges the comprehensive supporting programme with special shows and conferences makes glasstec a must-go event for specialists from the fields of mechanical engineering, the industry, crafts as well as solar technology. Some accompanying events and special themes are also explicitly aimed at architects/(façade) planners and civil engineers. A core feature in the supporting programme is the "glass technology live" section in Hall 11 that is traditionally organized by Prof. Stefan Behling and his team at the Institute of Structural Design at the University of Stuttgart. In 2014 it will once again feature spectacular

exhibits giving visitors insights into the glass product worlds of the future. These will also include large-format façade mock-ups that form “Fassaden Center” in combination with the “Glass + Façade Competence Center” – which will group together the know-how of various associations. In the coming year glass technology live also once again feature a comprehensive symposium that is free to visitors.

In Hall 11 and as a supplement in the other halls visitors will be able to find exhibitors in the special solarpeq theme that is focused on solar production equipment. Other planned special shows include the skilled trades centre “Zentrum Handwerk”, the glass art exhibition “Glass Art” as well the “Autoglass Arena”. The conference programme at glasstec 2014 once again consists of the conference for constructive glass building entitled “engineered transparency”, the “Architects’ Congress” with its presentations by star architects as well as the “Solar meets Glass” conference whose agenda includes interface topics in the glass and solar sectors.

The general trends at glasstec 2014 include thin and curved glass, glass printing and coatings, display glass and technical glass applications (e.g. LED/OLED), building integrated photovoltaics/solar thermal energy, glass and material combinations on facades, laser technology as well as glass recycling.

Exhibitors can register for glasstec via the direct link www.glasstec.de/1330

REDWAVE CX AND CXF - NEW APPROACHES FOR FINE GLASS PROCESSING

At the REDWAVE Glass Recycling Day on September 26, 2013 in Gleisdorf/ Austria, the new REDWAVE CX

– REDWAVE CXF 3-way sorting technology for waste glass processing was demonstrated for the first time to international visitors and participants.

The event was primarily dedicated to the presentation of the new glass sorting machines REDWAVE CX for material 6 - 50mm and REDWAVE CXF for fine material 2 - 12mm. REDWAVE CX and CXF machines are equipped with a completely reworked 3-way system. By rearranging the valve units, the same high performance at the first and second eject is guaranteed even for fine material and air consumption is reduced even at higher ejection rates of up to 60%. This unique machine concept in combination with quick-action eject valves and optimised nozzles allows for the design of more compact sorting plants with fewer sorting steps without any loss of quality or yield of the final products.

Detection system and machine design

The REDWAVE colour identification system can also be extended beyond the RGB range to neighbouring wavelengths. From the additional information gathered a variety of

special glasses can be recognised which have no distinguishing features in the RGB range. With one eject from the front and one from the rear the distance and hence the time between material scanning and ejection is absolutely equal for both ejects. This unique 3-way design guarantees the same high performance for the first and second eject. The REDWAVE CX has a modular design with different working widths from 500 – 1500mm.

The REDWAVE CX and CXF sorters can be used for processing container and float glass from 2 - 50mm for the following sorting tasks:

- Separation of CSP (Ceramics, Stones, Porcelain) and metals
- Colour sorting (flint, green, amber and other colours)
- Separation of laminated glass, acrylic glass and plastics
- Separation of a wide variety of special glasses

Another focus at the event has been the presentation of various sorting technologies for separation of other contaminants and impurities such as plastics, PVB, lead glass or glass ceramics from cullet.■

(Glass News Source: World Wide Web)

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Make 'Green' a way of life: TN Governor

The concept of 'Green' should reach every nook & corner of the country and every construction should be designed Green, said Dr. K. Rosaiah, His Excellency The Governor of Tamil Nadu.

"Green should become a way of life", he underlined at Green Building Congress 2013, International Conference & Exhibition on Green Buildings, organised by the Indian Green Building Council (IGBC) of CII.

"The next 10 years will be the decade of integrated sustainable built structures with the upspring of large integrated townships, satellite cities, gated communities, and campuses with multiple buildings, Dr. Rosaiah said.



Reducing environmental impact and adopting- environment friendly construction practices are the need of the hour to address the climatic changes, he said.

Mr. Jamshyd N. Godrej, Chairman, CII – Godrej GBC, said the most important aspect of the Green building movement in India is that it is a part of larger aspects of sustainability. He added that the solution ahead is not a choice between sustainability or development, rather sustainability and development.

Dr. Prem C Jain, Chairman, IGBC informed that IGBC has inked an MoU with the National Housing Bank for special concessions for homes going green. He said that already there were over 600 Million sq. ft. of Green homes and the footprint will multiply manifold, he added.

Dr. Jain informed that, today India has over 2,235 IGBC registered green building projects with a total area of 1.65 Billion sq. ft, making India one of the top three countries with high footprint.

Mr. B Santhanam, Chairman, CII Southern Region, said the climate change has impacted all countries. The Indian industry is committed to mitigate the environmental impacts, he added. The rise in the number of Green buildings, developments in renewable energy programmes and increase in the manufacturing capacity of green building materials were part of these initiatives, he said.

Mr. N K Ranganath, Chairman, Green Building Congress 2013 Conference Committee, said that it is a huge challenge to manage our resources and the environmental degradation would be irreversible if we did not act now.

The Governor also inaugurated a three-day international exhibition where over 100 Green building products and technologies are being displayed.

The Governor presented award to the winner of 'Green-I Contest' 2013- Lavish Bansal and Sanan Goyal from The Millennium School, Mohali and award to the winner of IGBC Green Design Competition 2013- Minakshi Mohanta and Amit Joseph Kurien from School of Planning & Architecture, New Delhi.

ONE MILLION HOMES TO GO THE GREENER WAY IN THE NEXT 4 YEARS

Many Policy initiatives underway for greening

Speaking at the Conference on Green Homes, Existing Buildings & Green Interiors organised as part of CII-IGBC Green Building Congress 2013, Mr. Arun Kumar Misra IAS, Secretary, Ministry of Housing & Urban Poverty Alleviation, Government of India, informed that in the coming 4 years, one Million houses across the country to be constructed by the Government would be coming up in different blocks & municipalities. All these would go the Greener way by design at the construction stage itself underlined Mr. Misra. The finances for greening will be part of the project cost, added Mr. Misra.

Mr. Misra also proposed entering into a MoU with Indian Green Building Council (IGBC) to further build the capacities of the Ministry staff by ways of organising training and outreach

programmes.

Further, Mr. Misra also called on the need to promote green building materials & technologies and alternative technologies. The Ministry through the Building Materials & Technology Promotion Council (BMTPC) would also explore the possibility of inking a MoU with IGBC, he added.

The new upcoming Housing Policy would also consider providing non-financial incentives to the construction sector. This would go a long way in promoting green buildings and sustainable development, added Mr. Misra.

Mr. Misra released the 'IGBC Green Homes Detailed Reference Guide'.

Dr. Prem C Jain, Chairman IGBC, informed that the detailed reference guide was developed with the involvement of various architects, designers, builders and even those living in green homes.

Mr. C Shekar Reddy, National President, CREDAI and Chairman, IGBC, Hyderabad Chapter addressed the gathering about the policy initiatives and success stories taking Hyderabad as an example. He pressed on the need of carrying out

knowledge initiatives in rural areas.

Mr. C N Raghavendran, Chairman, IGBC -Chennai Chapter, underlined how green homes can play a catalytic role in addressing ecological issues and concerns.

Mr. Ajit Kumar Chordia, Vice Chairman, IGBC- Chennai Chapter said the Conference on Green Homes aims to focus on resource efficiency and environmental sustainability in building homes for Indians."

RENEWABLE ENERGY HAS TO BE INTEGRAL PART OF BUILDING DESIGN

Slew of Central Schemes to promote Renewable Energy in building sector

The focus on Renewable Energy and Green Buildings has given prominence to the thought that renewable energy has to be an integral part of a building design. The Tamil Nadu Solar Policy of 2012 gave a major impetus to solar roof tops, said Mr. Sudeep Jain, IAS, Chairman and Managing Director of Tamil Nadu Energy Development Agency.

Addressing a Special Session on 'Renewable Energy in Green Buildings' he said that all Government



buildings, all Government street light installations and water supply installations have necessarily move to solar and there had been significant progress in all these areas, Mr. Jain said.

Dr. Arun Tripathi, Director, Ministry of New & Renewable Energy, Government of India, said that the design of a new house or building should be in such way that all available sources of energy from nature could be effectively harnessed. As the building sector consumes a major share of the energy produced in the country, adoption of the renewable energy would go a long way in reducing the dependence on fossil fuels, said, Dr. Tripathi.

He said that the residential sector could use solar water heaters, and solar roof top grid- connected power generation systems. Even the kitchen waste could be converted to biogas and used for cooking or generation of electricity.

Across the renewable energy systems, subsidy or central financial assistance, upto 30% was available and this should make installation of renewable energy systems in buildings viable, Dr. Tripathi said.

In order to promote the use of renewable energy, MNRE has special schemes for the development of green buildings in the country, he said. They include financial assistance for architects, engineers, building designers and others for awareness creation among various stakeholders; awards to the urban local bodies for promoting renewable energy in the building sector and for issuing notifications or by-laws for the promotion of solar power in new buildings; awards for green buildings having maximum renewable energy installations; incentives for architects and design consultants; and for the

development web-based tools, short films and literature on green buildings.

Mr. Dinesh Kumar Goyal, IAS, Principal Secretary, Horticulture Department, Government of Rajasthan, said the large-scale solar water pumping system in Rajasthan has been changing the rural landscape of the State. The annual target of this programme, started three years ago, has now scaled upto 10,000 pumping systems a year, he added.

Dr. Prem C Jain, Chairman, IGBC, said we should make the maximum use of the several Government schemes for residential welfare associations and housing societies to promote renewable energy.

Mr. K Krishnan, Member- RE Council, CII-Godrej GBC, said that the RE Council is leading two important programmes in the country., viz. Smart Power for Environmentally Sound Economic Development (SPEED) and The Green Power Market Development Group – India.

Mr. K E Raghunathan, Member, RE Council, CII-Godrej GBC, delivered the concluding remarks.

IGBC FELICITATES 90 GREEN BUILDINGS PROJECTS

The Indian Green Building Council (IGBC) in the year 2012-13 has felicitated 90 projects from a wide spectrum of buildings including- Government buildings, commercial buildings, offices, hotels, hospitals, IT Parks, banks, etc.

Plaques and certificates were presented at the Award Distribution Function organised at Green Building Congress 2013, Chennai.

Presenting the plaques & certificates to the Green certified projects, Mr. Vikram Kapur, IAS, Principal Secretary and Commissioner, Corporation of Chennai, said that going Green was an attitude of the mind and a commitment to the nature.



“Going green, therefore, is to accept the responsibility that our presence on earth has led to certain negative externalities like polluting the environment. “We have the responsibility to undo this”, he added.

“India is one of the top three countries pursuing the path of green buildings with a building footprint of 1.65 Billion sq. ft. This has been possible with the efforts of people from different areas of profession, business and services”, Mr. C N Raghavendran, Chairman, IGBC, Chennai Chapter, said.

Dr. Prem C Jain, Chairman, IGBC, also addressed the gathering. Mr. Ajit Chordia, Vice-Chair, IGBC- Chennai Chapter, proposed vote of thanks. ■

12th edition of Green Building Congress will be held in Hyderabad from September 4-6, 2014.

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