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Tulsi Tanti

By ARYN BAKER | Wednesday, Oct. 17, 2007

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Every evangelical has a story about the moment he first glimpsed his destiny. Tulsi Tanti has two. The first came with his electricity bill, back in 1995. The young engineer's fledgling textile company, Suzlon, was just starting to take off. His new line of polyester yarns was doing well, but India's shaky power grid and the rising cost of electricity offset any profits. "We were constantly innovating, but we weren't able to control the price of power," says Tanti, now 49. So he decided to generate his own. After a few years of research, he settled on wind power, buying two turbines to provide his energy needs. The initial cost was steep, but the company, headquartered in the western Indian city of Pune, was no longer buffeted by the seesawing cost of fossil fuels. Soon Tanti was preaching to fellow industrialists about the economic advantages of staying off the grid.

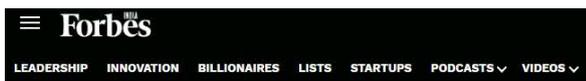


Bharat Sikka for TIME

Epiphany No. 2: In early 2000, the inveterate traveler read a report on global warming predicting that without a radical decrease in the world's carbon emissions, some of his favorite tourist destinations, including the Maldives, would be under water by 2050. It was then that Tanti realized his fate lay far beyond the latest advances in synthetic fibers. "I had a very clear vision," he says. "If Indians start consuming power like the Americans, the world will run out of resources. Either you stop India from developing, or you find some alternate solution."

If wind was the answer to Suzlon's energy needs, asked Tanti, then why couldn't it fuel the growth of other industries? By 2001 Suzlon had sold off its textile manufacturing and plunged into the relatively new field of wind-turbine generators. Today, with factories on four continents and wind farms across Asia, Suzlon is the fourth largest wind-turbine maker in the world, with annual revenues of \$850 million. With the price of oil hovering around \$80 a barrel, Tanti is all the more convinced that wind is the energy of the future, and that Suzlon will help launch the industry into the mainstream. "Yes, green business is good business," says Tanti. "But it's not just about making money. It's about being responsible." Suzlon's main factory, in the southeastern city of Pondicherry, runs exclusively on wind power. Rainwater is collected to tend the lush grounds, and factory construction disturbed not a single tree.

Tanti doesn't leave his mission at the office when he goes home to his three-bedroom apartment at night. "I could have a mansion and afford to leave the lights on all day long if I wanted. But it's not about saving money anymore for me. I just want to do what I can to fix the problem." And perhaps prevent his favorite island getaway from disappearing under water.



Suzlon's rise from the ashes

The resurrection of what was once one of the world's largest wind turbine manufacturers has all the elements of a blockbuster, including a promoter determined to redeem himself, and a deep-pocketed knight in shining armour

BY AVEEK DATTA

19 min read

PUBLISHED: Sep 28, 2015 06:57:23 AM IST

UPDATED: Sep 22, 2015 03:13:40 PM IST



Image: Vikas Khot

Tulsi Tanti, 57, chairman and MD of Suzlon Energy, is confident that his company will turn in a net profit for the entire year this fiscal

Earlier this year, Tulsi Tanti, the 57-year-old chairman and managing director of Suzlon Energy, moved into his renovated office at One Earth, the company's headquarters in Pune. The redesigned office in a sprawling, ten-acre campus in the city's Hadapsar area is better compliant with Vastu—the Hindu science of architecture that is supposed to channel positive natural energy to the benefit of those inhabiting the physical space. And Tanti's stars do appear to be better aligned at present than they have been in the past. His company, which has been struggling with losses since FY2009, posted its first quarterly operating profit in three years in the April-June 2015 period.

Though battle-scarred, Suzlon's chairman appears more relaxed now than he was a year ago when the company was overleveraged and operations were at a near standstill. Tanti has since been painstakingly trying to restore the credibility that he had lost with stakeholders like lenders and customers due to an infamous debt default that led to a restructuring of the company's borrowings and hamstrung its ability to sustain business operations at the same scale as before. "The last 36 months have been the most turbulent times that we have experienced," says Tanti, a mechanical engineer by education.

Suzlon, a manufacturer of wind turbines and an end-to-end turnkey engineering, procurement and construction (EPC) player in the wind energy space, holds the dubious distinction of being the largest defaulter on repayment of foreign currency convertible bonds (FCCBs) issued by any Indian company to date: In October 2012, it defaulted on the repayment of FCCBs worth \$209 million, which were due for redemption.

This was on the back of operational challenges at home and abroad arising from the economic downturn that followed the collapse of Lehman Brothers in September 2008, and a debt-funded international expansion strategy that didn't go as per plan. Suzlon, which used to rank among the top three wind turbine makers in the world, saw its business shrink rapidly due to liquidity constraints.

It wasn't alone in the adversities it faced during this period: Several Indian firms in the metal and mining sectors, especially those with significant exposure to international markets, burnt their fingers. But not everyone has been able to script a recovery like Suzlon has.

Its turnaround is a story of how lenders can work with their borrowers to help a company get back on its feet while ensuring they recover their dues; a story of how a well-meaning white knight with deep pockets can change the tide of fortune; and, most importantly, of how a promoter can redeem himself by setting his ego aside, putting the company's interests before his own, and selling assets that may have been the crown jewels of his business. Suzlon was able to halve its debt from Rs 14,281 crore as of March 31, 2015, to a current Rs 7,010 crore. (This is excluding FCCBs that were restructured.)

The growth phase

Till 2007-08, Suzlon was a healthy company. In FY2008, it posted a consolidated net profit of Rs 1,017 crore on a turnover of Rs 13,679 crore. Over 20 years since Tanti founded it in 1995, the company has been supplying wind turbines to customers across 32 countries, in North and South America, Europe and the Asia-Pacific region. Through its wind turbines, it has helped establish a wind power generation capacity of 26,000 MW the world over. In doing so, Suzlon had positioned itself as a competitive global player in this space. In India specifically, government incentives to promote wind power generation, including accelerated depreciation (AD) on wind power assets and generation-based incentives (GBI), attracted various companies towards creating wind power capacity. This meant brisk business for Suzlon.

With the Indian business doing well, Suzlon made some big-ticket global acquisitions. In 2006, it acquired Belgian wind turbine gearbox manufacturing firm, Hansen Transmissions International NV, for around €431 million. In 2007, it bought a majority stake in the German wind turbine maker REPower (renamed Senvion in 2014). Between 2007 and 2011, Suzlon progressively ramped up its stake in Senvion and eventually bought out the whole company. Through several tranches, it paid around €1.4 billion to acquire Senvion. Most of this expenditure was funded through debt raised internationally.

Senvion gave Suzlon access to new and better technology, especially in the offshore wind energy space, and greater access to international markets. The German firm soon accounted for a majority of Suzlon's consolidated turnover. In the nine-month period ending December 31, 2014, Senvion contributed as much as 73.5 percent to Suzlon's consolidated revenues of Rs 14,928 crore. Also, while the standalone Indian business called Suzlon Wind reported a loss, Senvion's operations helped the consolidated business report earnings before interest, tax, depreciation and amortisation (Ebitda) of Rs 482 crore.



The image shows the cover of Forbes India magazine. At the top, it says 'ICICI BANK'S DIGITAL DRIVE PG. 34' and 'PRICE RS. 110, OCTOBER 2, 2015'. The main title 'Forbes INDIA' is prominently displayed. A portrait of Shri Tulsi Tanti, wearing glasses and a grey suit, is the central focus. To the left of the portrait, there is a yellow plus sign followed by the text 'PHILIPS INDIA'S NEW AVATAR' and 'A BIOTECH PRODIGY'S DRUG RESCUE MISSION'. To the right, a quote from Tulsi Tanti is enclosed in a box: 'THE LAST 36 MONTHS HAVE BEEN THE MOST TURBULENT TIMES THAT WE HAVE EXPERIENCED.' Below the quote, it identifies him as 'TULSI TANTI, Chairman & MD, SUZLON ENERGY'. At the bottom of the portrait, the headline 'WINDS OF CHANGE' is written in large yellow letters, followed by a sub-headline: 'THE RECOVERY OF SUZLON ENERGY IS, IN NO SMALL MEASURE, A RESULT OF ITS PROMOTER TULSI TANTI'S RESOLVE TO PUT HIS COMPANY'S INTERESTS FIRST'. In the bottom left corner, there is a 'Network 18' logo and the website 'www.forbesindia.com'.

ICICI BANK'S DIGITAL DRIVE PG. 34

PRICE RS. 110, OCTOBER 2, 2015

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TULSI TANTI
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WINDS OF CHANGE

THE RECOVERY OF **SUZLON ENERGY** IS, IN NO SMALL MEASURE, A RESULT OF ITS PROMOTER TULSI TANTI'S RESOLVE TO PUT HIS COMPANY'S INTERESTS FIRST

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Asia

BILLIONAIRE TULSI TANTI OF INDIA'S SUZLON ENERGY

Wind At His Back

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INDONESIA RP 23.000	SINGAPORE S \$7.00
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A LIFETIME OF CONTRIBUTION: SHRI TULSI TANTI, FOUNDER, LATE CHAIRMAN AND MANAGING DIRECTOR
 The journey from "The Wind Man of India" to becoming "The Father of Indian Renewable Energy"

Forbes Asia
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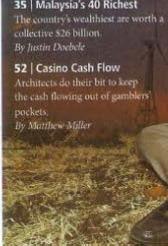
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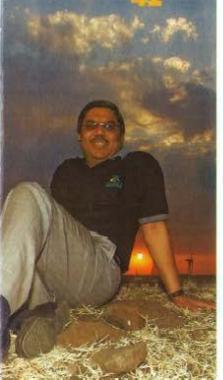
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Sidelines

Nerves

Markets around the world—equity, bond, commodity—shook during the mid-life days of May. What was going on? Most important, the leach was belatedly tightened on money globally. Loose credit, leftover medicine from the postmillennial downturn, worked its way through various bubbles and a general inflationary drift. Global monetary authorities are now following the U.S. Federal Reserve's lead in chasing price stability. The Fed is itself behind the curve and is disappointing those who were betting only a few weeks ago on an end to interest-rate hikes soon.

When money becomes more precious, the more speculative assets usually feel it worst. So it was in mid-May. The biggest equity markets dropped 5%, and the more speculative plays, including some Asian indexes and commodities, were down 10% or more—after heady run-ups.

Happiest New Year

COMPANY NAME	1/1/06 MARK CAP (\$B)	5/22/06 MARK CAP (\$B)
Microsoft	\$604	\$233
Cisco Systems	355	126
Intel	274	105
Oracle	158	72
Sun Microsystems	135	15
Dell	130	56
IBM	129	48
Qualcomm	125	77
Yahoo	116	43
Comcast	101	66

Sources: FactSet, Yahoo Finance.

Since then the investment world has gone on to other fashions, but it's worth remembering that all those Nasdaq companies are still viable concerns today, creating technologies or expanding their businesses rapidly.

Much current negativity stems from imbalances in national accounts, namely the huge U.S. importation of capital and goods. Asia has exported both. As conditions evolve, this is likely to shift, but it needn't do so jarringly. Stronger Asian currencies will pose challenges. "Question One," this column said last January, was whether Japan's rally would survive a stronger yen—and the answer is still uncertain. For Americans who want a cheaper dollar to aid exports or who see such a depreciation as proper punishment for profligacy, the rub will be when unfamiliar foreigners come buying more U.S. assets.

The proper perspective on all of this is that a dynamic economy adjusts and that an open market will get things moving forward faster. If a terrorist blows something up or a rogue financial derivative blows itself up, we will have more nervous days. The same can be said for haves that are more natural than they made. Yet, come what may, the growth story so often on display in these pages remains the enduring one of our age.

Tim W. Ferguson
 Tim Ferguson
 Editor, Forbes Asia
 globaleditor@forbes.com

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Suzlon Energy

Wind Man

Tulsi Tanti anticipated India's enormous yen for renewable energy and became a billionaire in the process. *By Naazneen Karmali*



CONFRONTED IN 1994 WITH escalating power costs, Tulsi Tanti's young textile business was in dire straits. With court-ordered debt relief, Tanti chanced upon a solution that was literally blowing in the wind. Commissioning two wind-turbine supply contracts for the family's factory at Gujarat, on India's west coast, he realized that he had stumbled onto a promising business opportunity. In a power-starved nation, renewable energy has a favored future.

India's power is woefully inadequate during summer months when temperatures soar to 115 degrees Fahrenheit and demand peaks. In Delhi, the national capital, a recent heat wave compelled the government to mandate curbing lighting of stores and to ban air-conditioning use until after 9 p.m. "Our country needs power for its economic growth, and clean, green power is the best option," says Tanti, 48. Acting on that belief, he radically shifted his enterprise into what is now Suzlon Energy, which just reported annual revenues of \$850 million. That was nearly double the previous year.

Since changing course in 1994, Tanti has become Asia's foremost wind man and

one among India's growing crop of new billionaires. Suzlon Energy makes wind turbines, industry jargon for modern windmills, to generate electricity. The 70% stake that Tanti and his three brothers own in the Bombay Stock Exchange-listed company is worth \$4.3 billion. The stock has risen 50% since Suzlon's first daily close last October, giving Tanti an entrée into the billionaire ranks.

Now situated in Pune, a city known for its engineering skills, Suzlon is a prime example of India's energy sector in manufacturing. It's also a high-tech company. Tanti and his three brothers own a 70% stake in Pune-based Suzlon Energy Services, a yellow Pages-listed maintenance and repair firm. Tanti also owns a 50% stake in Suzlon's auto chassis, into a wheel business. Tanti wants a similar status for Suzlon.

The company already ranks as the world's eighth-largest producer of wind

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JUNE 5, 2006 FORBES ASIA 43



A LIFETIME OF CONTRIBUTION: SHRI TULSI TANTI, FOUNDER, LATE CHAIRMAN AND MANAGING DIRECTOR
The journey from “The Wind Man of India” to becoming “The Father of Indian Renewable Energy”



Chairman Tulsi Tanti has put Suzlon on the path of redemption with his resolve and focus.

CORPORATE ACCOUNT

SUZLON

Riding the Wind

A gradual process of recovery is unfolding at Suzlon, or so improved growth, profitability and debt numbers—and Tulsi Tanti's confidence—seem to indicate

BY AVEEK DATTA

A year ago, Tulsi Tanti, the 58-year-old chairman of the Pune-based wind turbine maker Suzlon, decided to set his ego aside—at the right time—to bring his company back to financial health. This included divesting the crown jewel of his business, Servion, a German wind turbine manufacturing company acquired in 2007, and parting with a significant portion of his shareholding in the company he founded in 1995. He also took the help of lenders and friendly investors to fix his company's liquidity challenges, which had forced operations to come to a near standstill. The intention was to grow the core business and lead Suzlon to profitability once again.

Today, it is fair to say that Tanti seems to have put Suzlon Energy on the path to redemption. You can see it in the pride on his face; you can, more importantly, see it in the numbers.

The wind in Suzlon Energy's sail appears to be back as it reported its first annual net profit in seven years. With robust growth across operating revenues and profits for the financial year ended March 31, 2016, a gradual process of recovery is unfolding at Suzlon, just as Tanti said it would when he spoke to *Forbes India* last July.

Suzlon recorded a turnover of Rs 8,259 crore in FY16, up by 69 percent year-on-year. The company's Ebitda (earnings before interest,

tax, depreciation and amortisation) is at Rs 1,295 crore versus a loss of Rs 166 crore in FY15, with a healthy Ebitda margin of 15.7 percent. Suzlon reported a net profit of Rs 539 crore, against a loss of Rs 9,355 crore in FY15. The net profit was largely the result of a one-time gain of Rs 1,039 crore on account of the sale of Servion in 2015. But even without this, Suzlon reported a net loss of Rs 24 crore, a considerable improvement over the loss of Rs 2,376 crore—excluding one-off items—in FY15. (In fact, Suzlon's acquisition of Servion—executed in phases between 2007 and 2011—was one of the reasons it landed in the debt trap that hampered its growth.)

"Reporting a profit for fiscal 2016 is an extremely important and valuable milestone for the company," Tanti tells *Forbes India*. "It has helped in significantly enhancing the company's credibility among stakeholders and boosted investor confidence." It has also proved to be a source of motivation for employees, adds Tanti. "When we were struggling over the last three years, the team was preoccupied with crisis management rather than focusing on the actual project execution," he says. "But the team is now motivated to grow the business as there is visibility on where we want to go from here."

DOWN WITH DEBT

A combination of factors—the financial crisis in Europe, a slowdown in the

wind power sector in India, and aggressive international expansion leading to a highly leveraged balance sheet—had pushed Suzlon into a corner in 2012-13. It had become the largest defaulter on repayment of foreign currency convertible bonds (FCCBs) in India, a considerable slip in perception from being one of the world's largest wind turbine makers.

Things have altered for the better there. Suzlon's consolidated long-term, rupee-denominated debt stood at Rs 3,033 crore in FY16, compared to Rs 10,100 crore as on March 31, 2015. As far as the dollar-denominated debt is concerned, the outstanding FCCBs on the company's books have come down to \$249 million from \$328 million in FY15. The credit-enhanced debt taken by the company (backed by a standby letter of credit from the State Bank of India) remains at the same level as last year at \$647 million, but significant repayment on this isn't due before FY23. Kirti Vagadia, Suzlon's chief financial officer, tells *Forbes India* that the company had reached an agreement with lenders to extend the maturity of this debt till 2022-23 (from 2020-21 earlier). Consequently, a bullet payment of \$657 million, which the company was supposed to make in FY18, is due only in FY23 now, Vagadia says. He also adds that the company is in talks with lenders to assess if it can repay this debt in larger installments ahead of the due date, instead of

WILSON KHOT

CORPORATE ACCOUNT SUZLON

coughing up \$657 million at one go.

Getting help from lenders to restructure outstanding debt, as well as bringing in Dilip Shanghvi, chairman of Sun Pharmaceutical Industries, as a white knight investor (in February 2015, Shanghvi invested Rs 1,800 crore for a 23 percent stake in Suzlon and also agreed to extend additional working capital to the company) has worked as Suzlon has been able to focus on growing volumes again in FY16.

The company delivered wind energy equipment to support 1,131 MW of power generation in FY16, two-and-a-half times over the previous fiscal; it has commissioned wind power projects, on behalf of clients, worth 900 MW in India, double of what it did last year. With the level of wind power generation capacity that Suzlon helped commission in India in 2015-16, its market share in India has risen to 26 percent from 19 percent in FY15. Simultaneously, the company took fresh orders for 1,251 MW in FY16, a little over three times its 2015 number.

With the Indian wind energy market expected to grow at a compounded annual growth rate of 30 percent over the next five years, Tanti is confident that Suzlon will grow faster than the industry and is targeting a 40 percent share of the market by the end of FY17.

OPERATIONS FOCUS

But fiscal 2016 hasn't only been about kick-starting volume growth after addressing liquidity challenges; the company has also utilised the crisis to bring in better operating practices, prudent working capital management strategies and strengthening the management team to ensure future growth, according to Vagadia. "The entire organisation has been trained to regain credibility across stakeholders. Giving a commitment to a customer and not honouring it is not acceptable any longer," Vagadia says. With most of the liquidity challenges behind it, Suzlon is focussed on executing orders in a timely and profitable manner, he adds. "We no longer accept orders that do

not match our threshold of profitability, or which are cash flow negative."

Tanti also points out that even during its troubled phase, Suzlon didn't stop investing in upgrading technology to improve productivity of a new range of products—turbines and rotor blades. Suzlon's new line of equipment helps increase the plant load factor of wind power installations to around 40 percent from 30 percent earlier, and allows production of wind energy at sites that were earlier unviable. "All of this will help us grow the business in India and remain competitive, even as the cost of renewable energy keeps coming down," Tanti says.

Suzlon reported its first annual net profit in seven years in fiscal 2016. It is a valuable milestone, says Tulsi Tanti

"The company argues that its new products, which offer around 15-20 percent better yields should be able to offset the impact, if any, from the phase out of accelerated depreciation and generation-based incentive schemes," says an HSBC research report dated June 1, 2016.

Suzlon is also mindful of the government's target of generating 100 GW (1 GW is equal to 1,000 MW) of solar power by 2022—and knows it cannot afford to miss out on the opportunity. The company has already won a bid to develop a 210 MW solar power project in Telangana and will be bidding for more such assets. While it will capitalise on its project management skills to develop and maintain these assets, it doesn't intend to retain their ownership for long. Consequently, on June 20, Suzlon

signed an agreement to sell a 49 percent stake in a 100 MW solar energy project (part of the 210 MW won from the Telangana government) to CLP India, the Indian arm of the Hong Kong-based power company. CLP India has the option to acquire the remaining stake post commissioning in May 2017. This is a strategy for diversification that Suzlon will continue with, says Tanti.

RECOUPING NET WORTH

But even after the encouraging financial performance, years of strain have led to a negative net worth of Rs 7,077 crore as on March 31, 2016. The company aims to recoup this over the next three to five years on the back of greater estimated operating profits, further conversion of FCCBs into equity shares, and some amount of long-term capital to be raised at the level of some group companies at a cheaper cost of borrowing.

Suzlon has also strengthened its management bandwidth over the last one year, making two key hires. It appointed JP Chalasani, former CEO of Punj Lloyd and Reliance Power, as group CEO; it has also brought in Rakesh Sarin, a former senior executive at Finnish power company Wartsila Corp as the CEO of its international business and global service division.

If the momentum of the earnings for the January-March 2016 quarter continues, the next year looks even better for Suzlon. The company reported a consolidated turnover of Rs 3,240 crore during the quarter, up by 423 percent year-on-year, with an Ebitda of Rs 450 crore versus a loss of Rs 220 crore earlier. "We remain confident on Suzlon Energy regaining market share leadership in FY17," another HSBC research report dated May 31, 2016, notes.

Whether Suzlon's FY16 financial performance is an indicator of a full recovery remains to be seen. But Tanti is confident that in FY17, Suzlon will be able to report a net profit purely on the back of its operational performance—without any exceptional gains. 

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www.entrepreneur.com
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On Succession in Family Business

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A LIFETIME OF CONTRIBUTION: SHRI TULSI TANTI, FOUNDER, LATE CHAIRMAN AND MANAGING DIRECTOR

The journey from "The Wind Man of India" to becoming "The Father of Indian Renewable Energy"

'95 '96 '98 '98 2001 '02 '03 '04 '05 '06 '07 '08 '10 '11 '15

Suzlon founded by Tulus Tanti

It commissions its first 0.27 MW WLU for Indian Petrochemicals at Dank, Gujarat

The company enters Maharashtra by installing a WTC at Vankarwad, Satara District, for Unidawit Pvt Masala Products

It forays into Tamil Nadu with the commissioning of its first wind turbine in the state

Formation of Suzlon Energy GmbH, Germany, a wholly owned subsidiary of Suzlon

Jaywantiben, Minister of Power, Daman, flags off Suzlon's first export order to the US

Suzlon enters China by opening its representative office in Beijing

Suzlon Energy Australia, a wholly owned subsidiary of Suzlon Energy (India) is formed and commences operations

It opens its IPO for 29.34 million shares to an overwhelming response and successful listing on the BSE and NSE

Suzlon crosses the 2 GW installation mark in India and becomes the only Indian manufacturer to attract foreign direct investment in the wind energy sector

Suzlon starts its first wind power project in China and becomes the only power company in India and the only wind power company in the world to become a Superbrand (2008-2009)

Harvard Business School concludes a case study labeled - The Suzlon Edge

Suzlon global headquarters 'One Earth' receives the coveted Leadership in Energy and Environment Design Platinum Award, bestowed by Meera Simhas, the Ambassador of India to the US

Suzlon Wind Energy Corp., the North American subsidiary of Suzlon Energy Limited, opened a state-of-the-art training centre for wind technicians across its North American operations

Suzlon signed definitive agreements with Dilip Shanghvi Family and Associates for equity investments of Rs 1,800 crore in Suzlon Energy

TIMELINE

Another task that she initiated was speeding up the production process. Earlier, it took time to put together a product. Further, due to the supply chain constraints, a lot of money would get sucked into the system. To address this, she brought all the teams working in various geographies to work on the similar page. That transparency brought much more speed into the system. It wasn't easy to bring in these changes, there was resistance. To put it in context, she realized that it was a matter of putting all perspective together and seeing how you can systematically

correct it. Sharing on how she did it, she says, "I had to create an example and then prove to people how it could be done." As things progressed, the rhythm picked up and people started buying into the change. The second change that she brought in was the digitization process, so that the engineers can login even from the remotest areas. We further break it down to year-on-year basis, based on how the market is going to react for that particular year. Accordingly, our budget is created." Each vertical comes for a review and shares how they are going to achieve it, talking about their issues and opportunities. She again faced huge resistance while introducing this. It took her time to make them understand that she is not there to judge them but to help them in making the system more efficient. She says, "More than anything else, this helped the senior management to rightfully identify the risks." Even then, the pat on her back from her father didn't come easy. Nidhi shares, "When I started BRC, I spoke to him that this would really help the entire management to come together. Though he liked the idea but showed concerns about how we were going to initiate

that I needed to take a step back," says Nidhi. However, when she joined back, she created a new space for herself - the Business Review Committee (BRC). She explains, "What I do is - at the start of an year, I sit with my whole team to plan a five year strategy, for each and every vertical of the company. We further break it down to year-on-year basis, based on how the market is going to react for that particular year. Accordingly, our budget is created." Each vertical comes for a review and shares how they are going to achieve it, talking about their issues and opportunities. She again faced huge resistance while introducing this. It took her time to make them understand that she is not there to judge them but to help them in making the system more efficient. She says, "More than anything else, this helped the senior management to rightfully identify the risks." Even then, the pat on her back from her father didn't come easy. Nidhi shares, "When I started BRC, I spoke to him that this would really help the entire management to come together. Though he liked the idea but showed concerns about how we were going to initiate



Tulus Tanti, Founder, Chairman And Managing Director, Suzlon Group

"Nidhi has given me that space, or else I would have been busy taking care of my office"

AS DADDY'S GIRL GROWS UP FROM THE SHADOW OF HER ILLUSTRIOUS BILLIONAIRE FATHER, THE FATHER SPEAKS UP

AS A FIRST GENERATION ENTREPRENEUR, WERE YOU IN TWO MINDS TO INTRODUCE NIDHI INTO THE BUSINESS?

We have a very big basket of opportunities and all she had to do is pick up an area of interest. Once that is done, she had to decide whether she wanted to do something on her own or grow within the business. She decided to stay and BRC, had to be more responsible by adding value to the business.

LIKE YOU, DOES SHE CARRY THE SAME KIND OF PASSION?

She has the same tenacity and in fact she has the lesser knowledge than me. Moreover, she is very aggressive, passionate and aspirational.

ANY CHANGES YOU HAVE SEEN IN THE COMPANY SINCE HER JOINING?

After she joined back, 90 per cent of my work load has been reduced. Along with the senior management, she seamlessly deals with every detail, processes and then sets budget too. She has taken a huge responsibility to expand. Secondly, she also focuses on the

service business to provide value added products, increasing the revenue. Nidhi is also instrumental in introducing project like renewable solutions in solar and re-powering. Another change that really strengthened us internally was her initiative to digitize the entire process.

PERSONALLY ALSO, DO YOU THINK NIDHI HAS BROUGHT IN ANY CHANGE IN YOUR STYLE OF OPERATION OR HAVE TALKED YOU ANYTHING?

She is driving the organization now, so I think that is the biggest change. Now, I can focus more on industry roles working closely with the government in areas like renewable space, wind, solar, bio and hydro-power. Nidhi has given me that space, or else I would have been busy taking care of my office.

the process or keep it streamlined." Nidhi was always stubborn, tenacious, and a woman who won't give up easily. Her father always knew that and hence encouraged her to create her own space. Sharing an example, she adds, "Couple of times, I was asked to back down on critical company matters but I refused as I felt those decisions were important for the company, even though few people might think differently. Such incidents made my father realize that I am here for the business and not to create a position."

As a mentor, Tulus has a directional approach, instead of telling her what to do and what not to do. "Initially, I would keep on asking him questions and his suggestions would directly influence my decisions. I developed my business understandings like this." Now, the frequency of her visits has reduced.

The BRC also looks into new business development and the diversification opportunities working as an incubator where it reaches out to companies looking for tie-ups or services. Talking about the same, she says, "We often find interesting

ideas. Following which, we talk to the entrepreneurs and share each other's perspective, before taking it forward." Her main initiatives so far has been in organic solar and hybrid power. Currently, Nidhi is also working on "re-powering", which is designed especially for older models of turbine. In such cases, they either exchange the old turbines with the new ones, or install new turbine along with the existing ones. Talking about her learnings from markets like Australia, she says, "It is smart in terms of execution. They have amazing project plans - available across the board. One person is in charge of updating that on a daily basis. Here, cultural changes make it very difficult to execute."

WOMAN OF POWER: ON speaking about her merits and the negatives too, she says, "If you don't talk about it, the world will. She feels that she has miles to go before she can put in the perfect work culture but the good parts have already started seeding in. With these winds of change at Suzlon, she is all set to see it become one of the top three in the world."

THE SUZLON STORY

World's leading renewable energy solution provider has a revenue of \$1.2 billion.

Headquartered in Pune, the organization is present in 18 countries across six continents.

Suzlon is the market leader in India, with over 11.9 GW of installed capacity.

Across the globe, it has a cumulative installation of over 175 GW of wind energy capacity.

The company has a human capital of over 7500 employees.

Suzlon's One Earth campus is one of the greenest corporate campuses in the world.

It is credited with developing one of Asia's largest wind farms in Rajasthan and Gujarat.

Suzlon is the only wind energy company with a large in-house R&D set up in Germany, the Netherlands, Denmark and India.

THE ECONOMIC TIMES

Corporate Dossier

The Suzlon One Earth campus in Pune is only the second corporate campus in the world after Google to run its email servers using green technology

01 May 29-June 04, 2015

spotlight

BACK FROM THE BRINK

Tulsi Tanti has steered Suzlon away from a near-death experience. Can the company grow from here?

By Priyanka Sangani

HOW SUZLON GOT BACK ON TRACK

Sale of German subsidiary Servion for €1.1bn in 2015 (Additional €50mn subject to certain conditions)

₹1800 cr fund infusion from DSA in February 2015

Stake sale in Chinese subsidiary and US wind farm in FY14 for ₹700 cr

Sale of gearbox maker Hansen Transmissions for ₹ 850 cr in October 2011

Undertook cost cutting initiatives like reducing fixed costs, lowering break events, reducing head count and closing operations in certain markets

Worked at reducing cycle times by relooking at processes in order to bring down working capital requirements

An eight foot tall windmill replica is the only thing that sticks out in Tulsi Tanti's otherwise spartan office at Suzlon's sprawling One Earth campus in Pune. The chairman and managing director of Suzlon is in a relaxed mood, churning out anecdotes of the early days of Suzlon: the foray into the US, convincing customers to take a bet on an Indian manufacturer and how India's perception has changed considerably in the Western world since then. Tanti's Zen state of mind can be attributed to the favourable winds blowing the way of Suzlon, the company he founded in 1995. Suzlon has just concluded the €1 billion sale of its German subsidiary Servion. Also, the ₹1800 cr that Dilip Shanghvi Family and Associates (DSA) is investing in the company should be in officially in the next few days.

Things haven't always been this tranquil at Suzlon. Back in 2012, it was buffeted by a perfect storm of local and global headwinds. The Indian government withdrew policies which benefited the wind energy sector. Globally, the impact of the financial slowdown meant fresh orders dried up. Suzlon ended up defaulting on foreign currency convertible bonds worth \$209 million in October 2012.

A lot has changed in the past year with the Narendra Modi government setting ambitious targets for the renewable energy sector. The government has announced a target of 60GW for wind power while the current installations in the country are at 23GW," says Amar Kedia, research

analyst, Nomura. "This is a strong opportunity for Suzlon given that they were market leaders in India and they have strong potential to come back." Dalal Street analysts are a lot more positive about Suzlon's prospects and some are even using that magical word 'turnaround' in their reports. In other words, after a few pale years and losing some flesh, Suzlon is on the mend.

Foreign banks & Indian promoters

"2012 was a crucial year for us," says Tanti. "In India, the market crashed 60% after the policies were withdrawn. Globally, we were still making money while most wind companies posted major losses but it became difficult for me to service my investments." Tanti found himself in an odd situation where though the German subsidiary Servion (formerly Repower) continued to post profits, he couldn't transfer the funds back to India to service the debt he had taken on to acquire the company. "You could call it a non-tariff barrier," he says, referring to the German bankers' resistance in allowing Suzlon to repatriate funds or raise fresh debt. "Our bankers, SBI, tried talking to them as well, but maybe they had less comfort in the company and industry. Meanwhile, they've allowed Centerbridge Partners — the PE fund who has bought Servion — to go ahead with this, so really, it was an unfortunate situation for us."

Windmills of the Mind continued on pg2

WHAT'S NEXT

Policy changes have made the renewables sector in India an attractive proposition

Deal with DSA covers equity sale as well as wind farm JV and incremental working capital facilities

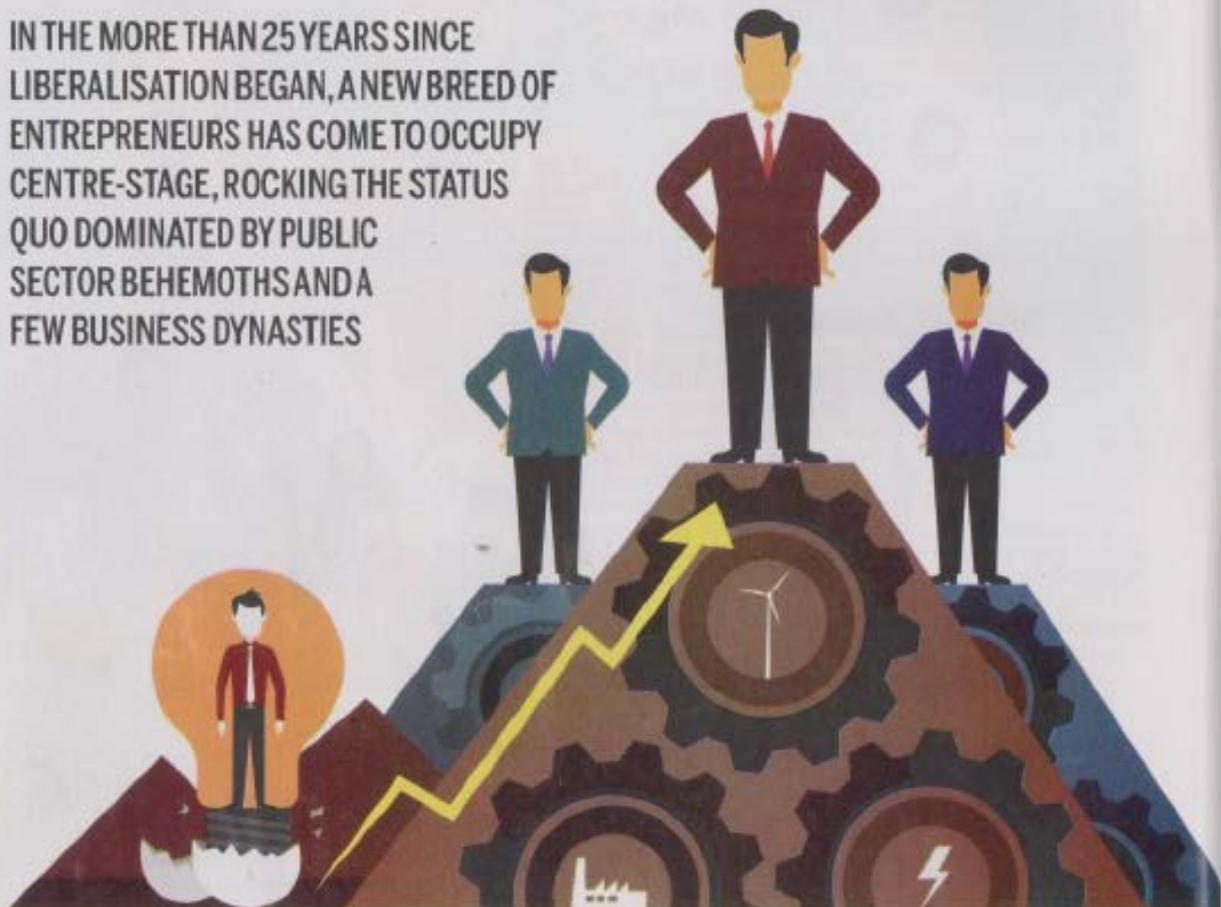
Post Servion sale will focus on high growth-high volume markets like India, China, Latin America etc

Focus on off-shore wind farms and wind-solar hybrids

COVER STORY
fe 1000

CREATORS OF A NEW ORDER

IN THE MORE THAN 25 YEARS SINCE LIBERALISATION BEGAN, A NEW BREED OF ENTREPRENEURS HAS COME TO OCCUPY CENTRE-STAGE, ROCKING THE STATUS QUO DOMINATED BY PUBLIC SECTOR BEHEMOTHS AND A FEW BUSINESS DYNASTIES



6 | THE FINANCIAL EXPRESS | FEBRUARY 2017

Illustrator: SHYAM

●● SHAKTI PATRA

BEFORE the Indian economy was liberalised in 1991, almost 40% of the combined assets of all listed companies in the country lay in the kitty of just five state-owned names—NTPC, IOC, SAIL, MTNL and Nalco. And the top-20 list had just five private companies—three owned by the Tatas, one by the Birlas and one by the Ambanis. Just 25 years later, the 40% share had dropped to a tad over 12% and the top-20 list had 14 private names—three owned by the Tatas, three by the Birlas, two by the Ambanis, but more important, there were six new entrants.

Winds of Change

It was the end of fiscal year 1991. The Narasimha Rao government was yet to be formed and Manmohan Singh's path-breaking budget five months away. While the babus in South Block were trying to figure out ways to reduce the country's import bill, all a 33-year-old Tulsi Tanti, running a family textile business in Surat, was interested in was to prune his power bill. "With a profit margin of 5%, we were spending 40-50% on energy costs," Tanti told *FE*.

While looking for a solution to address this, Tanti decided to experiment with wind energy and installed two wind turbines. "The power went to the state electricity board and I got the credit for it in my factory," he said.

By the time it attained adulthood 18 years later, Tanti's idea had broken into the list of the top-20 companies in the country! Yes, in FY09, Suzlon Energy was among the top-20 listed companies in the country. However, it's not as if economic liberalisation gave anyone a free ticket to glory. The Tatas, Birlas and the Ambanis, already entrenched in the economic landscape, were at a vantage point. Global powerhouses had started making a beeline for India. What liberalisation, however, provided the likes of Tanti was a belief that the playing field was more level than before.

But when you are a startup—not a word very popular then—and that too trying to enter a very new industry, the challenges are immense. "Raising capital was a big challenge, as we had to convince lenders to finance and fund the renewable projects and our working capital requirement. We had to persuade the government and policy makers to promote renewable energy. We had to develop our own in-house technology without any technology licence," Tanti said.

Suzlon's journey, unfortunately, has hit a large speed bump in recent times. The debt-fueled inorganic growth strategy meant that while its revenue grew at a compounded annual growth rate (CAGR) of 72.5% in the decade to FY09, debt grew 96.1%. This led to its reporting losses for the following six years. Only a mixture of paring down of assets and cost rationalisation could see it returning to the black in FY16.

Tanti is not overly worried though. He expects the Indian economy to consume a lot of energy for the next many decades. "We will need to proactively adopt clean technologies to reduce our carbon footprint. I envision clean technology being at the heart of growth and creating sustainable jobs," he said.

Black Diamond

Not long before Tanti set up his first wind turbines, a 29-year-old Gautam Adani had set up a successful commodity trading business. So, with India's foreign trade all set to take off exponentially post liberalisation, Adani was at the right place at the right time. The way he grew, consolidated and then diversified, however, could be a subject matter of study. Adani Enterprises has been the top coal importer of the country for almost a decade.

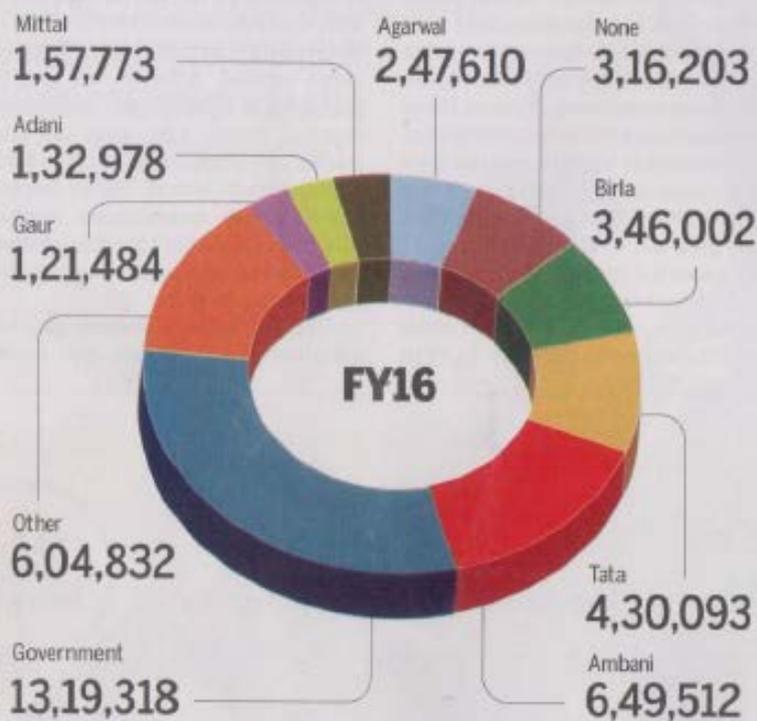
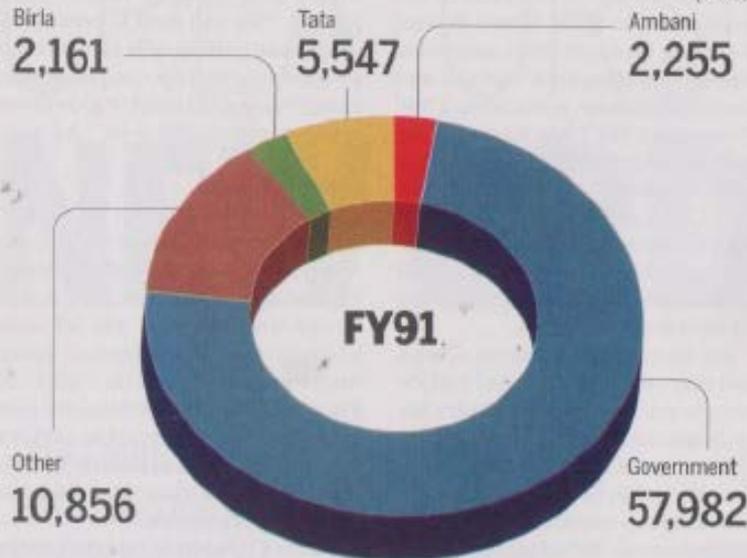
Most of this coal is imported via the ports of Adani Ports and Special Economic Zone (APSEZ) which, along with nine others, owns Mundra Port—the country's largest port in terms of cargo handled. A lot of this coal is then used by Adani Power to produce thermal power. And some of this power is then sold via Adani Transmission—one of India's largest private power transmission companies. There just aren't too many better examples of integration across the value chain, are there?

Gautam Adani's success can be measured from the fact that as of

The journey from "The Wind Man of India" to becoming "The Father of Indian Renewable Energy"

PROMOTER GROUP OF TOP 50 LISTED COMPANIES BY ASSET

(in ₹ crore)



FY16, if one combines the assets of the four listed Adani Group companies, it would feature among the top 10 in the country. The Adani Group's most valuable company, APSEZ, is today a constituent of the Sensex and one of its ports is the largest in the country, despite being in a sector dominated by government ports. "When the Adani Group's foray into ports was initiated in 1998, little did we know that in just 18 years we would become the nation's largest ports and logistics player," he had noted last year.

Old Warhorse

While Tanti and Adani are mostly post liberalisation success stories, GM Rao, the founder of GMR Infrastructure, had entered and exited several businesses before he entered the infrastructure sector some years into the liberalisation era. When the National Highway Authority of India (NHAI) decided to try out the private sector, Rao picked up the gauntlet. "In the first phase, three roads were offered and we bid for all three. It was a BOT annuity model. We went into it very aggressively. Our group emerged as the lowest bidder for all three," Rao had said in an interview.

Today, GMR Infrastructure is the second largest company in the sector behind Larsen & Toubro and the GMR Group is a diversified conglomerate with interests in airports, highways, and power. It even owns an IPL team.

This rapid growth, however, has come at a cost. While GMR Infra's revenue has risen at a CAGR of 28.8% in the last decade, debt has grown 32.4%. The resultant pressure on the bottom-line has seen the company trying to divest certain assets and bring down leverage of late. "Though there are opportunities galore, we need to be very cautious of the present volatile and uncertain environment and need to make prudent decisions," Rao noted a few months back.

A LIFETIME OF CONTRIBUTION: SHRI TULSI TANTI, FOUNDER, LATE CHAIRMAN AND MANAGING DIRECTOR

The journey from "The Wind Man of India" to becoming "The Father of Indian Renewable Energy"

WE HAD TO CONVINCE LENDERS TO FINANCE AND FUND RENEWABLE PROJECTS AND OUR WORKING CAPITAL REQUIREMENTS

LITTLE DID WE KNOW THAT IN JUST 18 YEARS WE WOULD BECOME THE NATION'S LARGEST PORTS AND LOGISTICS PLAYER

THOUGH THERE ARE OPPORTUNITIES GALORE, WE NEED TO BE CAUTIOUS OF THE PRESENT VOLATILE ENVIRONMENT

OUR EYES ARE SET ON 1,000 PVR SCREENS BY 2020, AND I AM CONFIDENT OF ACHIEVING THIS OBJECTIVE

TULSI TANTI
Founder, Suzlon Energy

GAUTAM ADANI
Chairman & Founder, Adani Group

G M RAO
Founder Chairman, GMR Group

AJAY BIJLI
CMD, PVR Limited

Irony personified
Anyone using Terminal 2 of the Mumbai airport—ranked as the best in the world by many bodies—would probably be surprised to know that the company that has built and is operating it, has reported losses for the last four successive years. Yes, GVK Power and Infrastructure (GVKPIL), the company behind T2, the Bengaluru airport, several large power plants, and some of the best highways in the country, has been experiencing a serious crisis for years now. This probably best manifests the volatile and uncertain environment in the Indian infrastructure sector that Rao spoke of. What might also surprise many is the fact that while the assets of GVKPIL and TajGVK Hotels and Resorts—the group's hospitality joint venture—if combined will ensure them a place among the top-50 listed companies, their combined market capitalisation is not even ₹2,000 crore! The reason for this is simple. Over leverage. It had ₹26,735.9 crore of debt

as of FY16. A few months back, chairman of the group GVK Reddy had said some of the projects were in trouble for no fault of its own and that reducing debt remained the top priority.

Blockbuster
For a country crazy about movies, it's amazing how little organised the industry is in India. Be it production, distribution or anything in between, businesses are fragmented, scattered all over the place and for the most part, family owned. And then there's PVR. When Ajay Bijli was barely 25, the demise of his father suddenly burdened his young shoulders with a thriving transport business and a movie theatre in New Delhi called Priya. By the time he turned 50, Priya had turned into Priya Village Roadshow and then metamorphosed into PVR Cinemas—by far the largest movie exhibition chain in the country with over 550 screens in 47 cities. In the 10 years since being listed, its revenue

has grown at a CAGR of 30.5% and its market capitalisation is close to the billion dollar mark. But if you thought Bijli would be basking in the glory of his success, you would be mistaken. "I believe, we have reached an important inflection point, having laid the strategic groundwork for PVR 2.0. Our eyes are set on 1,000 PVR screens by 2020, and I am confident of achieving this objective sooner than later," Bijli had recently observed.

Trendsetters
There's no doubt that the first 25 years of liberalisation have broken the stranglehold of not only public sector companies, but also the pre-liberalisation dynasties. The reason for this is both the end of the licence permit raj and the emergence of a new breed of entrepreneurs. Gautam Adani, the most successful of this new breed of businessmen, could have been defining the pack when he said, "I could never take orders from anyone."

A LIFETIME OF CONTRIBUTION: SHRI TULSI TANTI, FOUNDER, LATE CHAIRMAN AND MANAGING DIRECTOR

The journey from "The Wind Man of India" to becoming "The Father of Indian Renewable Energy"



INFLUENTIALS

TULSI R. TANTI

Chairman - Suzlon Group

Some dreams and vision are too big to be conceived by average human minds. To harness such disavowment one needs to be a lot more than just a dreamer, one ought to be a visionary who finds solace in accomplishment under duress and not mitigation of responsibilities. One such man our world has witnessed is Tulsi Tanti. A revolution which made power generation a greener mechanism, which gave hope to the lost; made sustainability the inevitability of present time owes its inception to this man.

1995 saw the advent of a green energy movement. That today a wind farm produces 1,100 megawatts of electricity – the equivalent of one nuclear power plant – is a realisation of Tanti's dream coming alive via Suzlon Energy. Suzlon is already the world's fifth-largest wind turbine manufacturer, and Tanti himself, who is worth \$3 billion (\$1.9 billion), is one of India's richest men. This unassuming man, with his carefully combed hair and thin mustache realised his dreams while facing competition from bigger and more established players. Despite his serious demeanour and modest appearance, Tanti is known for his sharp and aggressive takeover tactics. Tanti has driven Suzlon Energy limited not just as a business, but as a cause, contributing to the world, by creating sustainable social, economic, and ecological development, by using the very best of technology to help mitigate the global climate crisis.

One needs to have the tenacity for success to understand Tanti's stance. His vigour, endurance and sobriety of thought probes him beyond most entrepreneurs – making him one of the most treasured leaders of all times for AMP.

KEY ATTRIBUTES THAT MAKE HIM A LEADER

- His business expertise makes him an expert par excellence that the whole world looks up to.
- A whole industrial revolution of a nation owes its success to this man.
- His efforts to make energy production greener, leaves the whole world indebted to his life's endeavours.
- The fact that his success is the corollary of sustainable use of natural resources and efficient development of an entire nation makes him undoubtedly the brightest embodiment in business industry.
- 13 years of journey and that has changed the energy world makes him a man of indispensable presence.

Riding the tailwinds



PHOTOS: PALSHRANJAN SHANDE/IC

Tanti: renewable energy profitable

Wind turbine maker Suzlon diversifies into solar energy to straddle the renewables spectrum

Pune-based Suzlon Group, the eighth largest wind turbine maker (onshore and offshore) in the world, has returned to profitability after years in the red with a spirited foray into solar power and a robust strategy for high growth. In just one year, it has reduced its total debt by 47 per cent from ₹10,947 crore (March 2015) to ₹5,164 crore (March 2016).

In the last fortnight, Suzlon came out with its corporate score card for the second quarter for 2016-17 showing consolidated year-on-year (y-o-y) revenue to be up 57 per cent at ₹2,746 crore – this, on the back of sales of

353 MW. While the operating profit (EBIDTA) of ₹586 crore (pre-forex) has registered a five-fold jump on a y-o-y basis, the net profit is ₹238 crore as against loss of ₹202 crore. Boasting of a healthy order book pegged at 1,136 MW and valued at ₹7,165 crore, the group CEO, J.P. Chalasani, says: "We have achieved sustainable turnaround and profitable growth. Our performance is further boosted by rapid technological advancements and a conducive policy environment. Recent policy impetus such as revised RPO trajectory, approval on repowering policy and 1 GW under the inter-state transmission scheme

(ISTS) will further bolster incremental demand for renewable energy in India. We are confident of maintaining this momentum and building on our strengths."

"Strong volume growth, controlled costs and resultant operating leverage enabled strong financial performance in this quarter," explains chief financial officer (CFO) Kirti Vagadia. "We remain focussed on tapping business efficiencies and sustainability of profitable growth, and continue to monitor our long-term debt which has helped keep our finance cost in control." Suzlon's consolidated net term debt (excluding FCCB) currently stands at ₹6,646 crore, further reduced by ₹230 crore quarter-on-quarter (q-o-q). "Our efforts to reduce debt are validated by our upgraded credit ratings, which has been recently revised by CARE to investment grade BBB from the earlier BBB-", adds Vagadia. "The upgraded rating is evidence of our improved liquidity profile, working capital cycle, significant volume ramp-up and increase in order intake, our back-ended debt maturity profile, healthy order book, significant reduction in our debt and interest cost, and our efforts are also supported by positive business outlook and policy environment conducive to renewable energy in India."

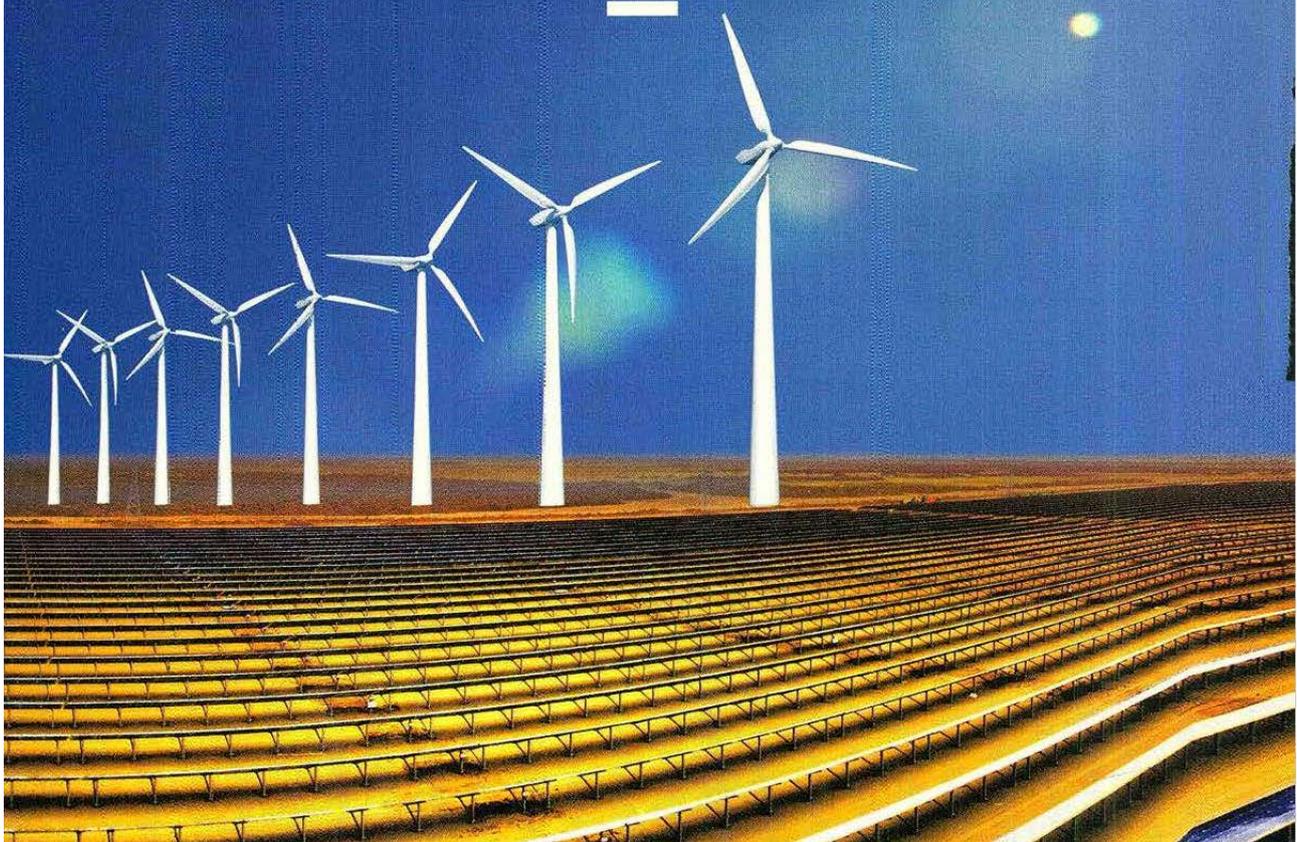
Now, with new wind turbine models hoisted on some of the tallest towers in the industry that eke out viability from unfeasible wind sites, ensure better yields and increase the capacity utilisation factor (CUF), Suzlon is seeking to expand its market share this year (2016-17) to 40 per cent – by 1,760 MW (1.76 GW, one megawatt being 1,000 gigawatts) of a projected 4,400 MW (4.4 GW) of wind capacities to be established across the country.

Suzlon had a 26 per cent market share in 2015-16, with 900 MW of a record 3,415 MW wind installations in the country. The previous highest

INDUSTRY Renewable Energy

The Great Green Gamble

RECENT ROCK-BOTTOM BIDS IN SOLAR AND WIND POWER HAVE CHANGED THE RENEWABLE POWER BUSINESS, BUT VIABILITY OF SUCH PROJECTS IS DOUBTFUL. **By ANILESH MAHAJAN**



INDUSTRY Renewable Energy



VIKRAM SHARMA

"IT IS NOT CORRECT TO NOT HONOUR YOUR COMMITMENT. WE WILL EVALUATE WHAT THE GOVERNMENT CAN DO"

PIYUSH GOYAL, Union Power Minister



"INDIAN MANUFACTURERS ARE RUNNING AT HALF THEIR CAPACITY. WE ALL NEED TO GROW, AND WE NEED SCALE."

TULSI TANTI, Chairman and MD, Suzlon

trigger has been sustained crash in prices of Chinese solar panels; the fall has been 80 per cent in the last seven years. In wind power also, the fall in tariffs has been steep. In the last auction, they had touched ₹3.46 a kWh.

Now, the question is — are these rock-bottom bids viable? Or will they make projects unsustainable and, finally, come to haunt both power companies and banks, just as what had happened in the conventional power sector a few years ago? Also, while the government's targets for renewable power capacity are agnostic towards wind and power, is the fall in wind power tariffs sustainable or driven purely by the need to compete with solar power players, who are reaping the windfall of falling solar panel prices?

"Flowing with the tide might be risky but it is bearing fruit," says a top banker. He says construction and commissioning of projects is one thing, viability is another. India's solar capacity expanded a record 5,526 MW in 2016/17, while wind power capacity rose 5,412 MW. For the first time, renewable power capacity grew on a par with thermal power capacity in a financial year.

Bankers Stressed

Bankers are, no doubt, worried. After all, they have burnt their fingers in infrastructure in the past — power accounts for ₹5 lakh crore stressed assets.

Citing back-of-the-book calculations, a banker told *BT* that the average tariff across 24 solar power tenders gives projects an internal rate of return, or IRR, of 14.2 per cent; this is significantly less than the ideal figure of 18-20 per cent. This elongates the breakeven period from seven years (after financial closure) to 11 year. A solar power plant has an average life of 20-25 years. "Most

projects are taken on forward-looking projections. Here, we are expecting a fall in construction cost and softening of interest rates," says a developer.

Less Windy

But in wind power, things are more difficult. Now that India is moving towards reverse auctions (where the aim is to encourage undercutting among bidders and bring down tariffs) in wind also, tariffs are expected to fall further. In February this year, the Ministry of New and Renewable Energy (MNRE) entity, Solar Energy Corp of India, or SECI, allocated 250 MW each to Mytrah Energy, Sembcorp Green Infra, Inox Winds and Ostro Energy at a record low tariff of ₹3.46 a kWh. Myntra and Sembcorp will set up projects in Tamil Nadu, while the other two will build their projects in Gujarat. Of them, only Inox Wind has equipment manufacturing capacity. This means lower margins for other players.

There is policy uncertainty too. India has not fully moved to reverse auctions for wind and states are continuing with feed-in tariffs that guarantee a fixed price of electricity. But now, many states have hit the panic button, as their utilities want developers to match prices arrived at the auctions. Some have refused to sign power purchase agreements while others are looking for ways to end existing agreements where tariffs are higher.

This is bad news for wind power companies such as Suzlon, Spanish major Gamesa Corp, Tecnologica SA, ReGen Powertech and Inox Wind. Till now, domestic companies have been dominating the market on the basis of this preferential and fixed tariff regime. This allowed equipment manufacturers such as Suzlon to bun-

Exploring Greener Options

Several Indian companies are adopting cutting-edge technologies to improve the generation and storage of wind and solar energy. By P.B. JAYAKUMAR

How many times have you heard about, much less seen, a floating solar power plant? However, if Enzen Global Solutions, an energy technology company based out of Bangalore, has its way, India will soon see a rollout of technology for building solar power plants that float on water. It has licensed the technology from French company Ciel & Terre.

The manufacturer says these plants are more simple and affordable than the ground-based systems. They are also 11 per cent more efficient. But most importantly, they will solve the problem of land acquisition – around six lakh acres – for the 100 GW (100,000 megawatt or MW) solar power capacity the government plans to add

by 2022. "We are setting up a demonstration plant at our headquarters and will soon start marketing the product," says a spokesperson for Enzen.

Like Enzen, hundreds of companies across the world are spending a lot of time and money to make production of renewable energy more efficient to close the price gap with energy from



"Such tall turbines make low-wind sites viable and generate 12-15 per cent more than the other turbines of same capacity"

TULSI TANTI, Chairman and Managing Director, Suzlon

conventional sources such as coal. Some are already helping India meet its ambitious renewable energy targets. For instance, Sun Edison, a US-based renewable energy company, inaugurated a 50-MW solar power plant at Dammakhedi in Madhya Pradesh on June 30. It is the first solar power plant in the state to use the 'single axis tracker' technology – which ensures that solar panels keep changing direction with the sun and so absorb more sunlight – to increase production.

"Tracking increases production up to 30 per cent. It will have a good market in India," says Aditya K. Singh,

Managing Director of Mumbai-based Rolta Power, which makes solar photovoltaic (PV) modules. Rolta last week joined hands with China-based Zhenfa New Energy Science and Technology Company to set up tracker projects in India. Zhenfa runs a 100-MW plant in China that is said to be the world's largest solar tracking project.

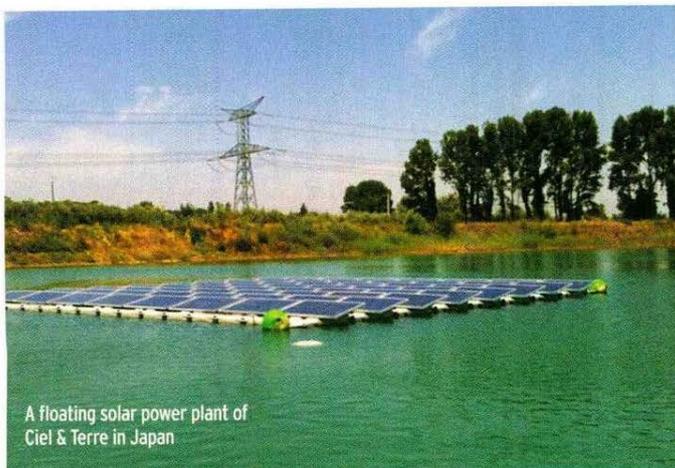
A report by GlobalData, a consulting and research firm, says capacity under solar trackers in the country is expected to rise from 103.5 MW at present to 312 MW by 2020.

Bratin Roy, Vice President (Industry Services), South Asia, TÜV SÜD, a certification company, is hopeful about these developments. "From innovations in PV cells to new storage solutions, numerous technologies are being researched that are highly relevant to India," he says.

For instance, at the generation stage, one of the biggest drawbacks of current solar panels, made from crystalline silicon cells, is inefficiency. They are able to convert only around 16 per cent sunlight into electricity. Scientists are working to take this to 50 per cent. The most promising innovations here are 'multi-junction cells' or 'quantum dots', which can absorb more energy from solar rays. These are made from super-efficient semiconductor materials such as perovskite and gallium arsenide. The latter can make solar PV systems nearly three times more efficient than the existing products. It, though, is costly, the reason why its use is limited to applications such as satellites. Perovskites, made from inexpensive ingredients such as lead and ammonia, increase efficiency by 20-24 per cent. However, both these are still at the research stage.

Then there is the issue of storing power. Solar power generation is possible only during the day. Wind, too, is not available 24x7. "In wind and solar energy, the biggest challenge is storage. For example, a 50-MW plant requires a couple of acres for setting up storage devices," says Mahesh Makhija, Director, Business Development (Renewables), CLP India, which has the largest wind power capacity in India and is planning a foray into solar energy. Roy of TÜV SÜD says technologies being developed in this area include charge controllers, which limit the rate at which power is added to or drawn from the system, and batteries made from materials that increase storage by three times and life by four times. There is also a huge interest in PV panels with built-in batteries.

In wind, most experiments revolve around changes in the height of wind mills and development of



A floating solar power plant of Ciel & Terre in Japan

GUEST COLUMN

By Tulsi Tanti

RENEWABLE ENERGY HAS entered an exciting new phase and its growth is unstoppable. Once considered a niche industry dependent on government subsidies,

today it is driven largely by economic realities, improved reliability and cost competitiveness backed by proven technology. Another advantage of renewables is that it is modular in nature and is scalable. We are confident that the evolving technology and economic viability of energy storage solutions, will give further impetus to renewables. Additionally, conducive policy reforms and growing consciousness to mitigate climate change risks, has ushered momentum in favour of renewable energy across the world.

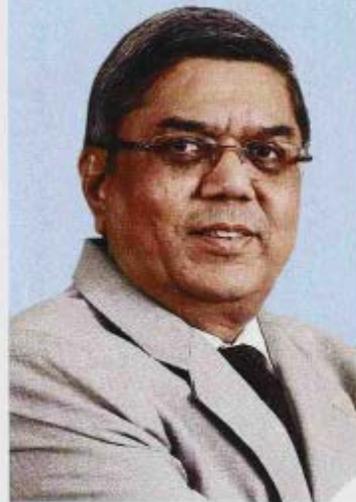
Foundation for a Green Revolution:

While the wind industry's transition to bidding created short-term challenges in 2017, it laid the foundation for sustainable and inclusive sector growth. Investors are bullish and excited to be part of the renewable growth story in India and the momentum will continue to gather speed. The wind industry is poised to grow to about 8-10 GW annually, with 5-6 GW annual bidding from the central government, 3-4 GW auctions at the state level and 1 GW capacity expected from the PSU and captive markets.

This has paved the way to unlock 300 GW wind energy potential in India and harness the latent potential of non-windy States. The canvas has expanded from nine wind-rich States to all 29 States in the country with waiver of Inter-State Transmission (ISTS) charges in the central bidding scheme. The first auction of 1 GW capacity that took place in February, 2017, witnessed 100 per cent power off-take by non-

Reshaping Future Of Energy

Renewable energy is all set to aggressively power a greener tomorrow



windy states.

2018: Opportunities to Unlock: The government target of 175 GW by 2022, comprising of 60 GW wind energy is not a distant dream. India's coastline of 7,600 km provides enormous potential for offshore wind energy and India can potentially repeat the success achieved in onshore wind energy. The Ministry of New and Renewable Energy plans to auction 5 GW offshore wind energy power projects in 2018.

Repowering of ageing low capacity wind turbines with the latest technology is also an opportunity to be unlocked. Further, India has the po-

tential and capability to become the renewable energy manufacturing hub to the world. By securing the supply chain for wind, solar and other renewable technologies in India, we can not only reduce the cost, but also create value additions and employment in the country. This would act as a GDP multiplier as seen in Europe and China. It will not only save foreign currency but earn much needed foreign currency. What we require now is policy predictability and flawless execution.

Technology and digital transformation: Technology and innovation will remain the catalyst that will drive growth in the sector. Digitalisation of services, innovation in tower and blade technologies aimed towards making unviable wind sites viable, ensuring better yield and increasing turbine utilisation will be the key focus areas.

Digitalisation will enable maximising turbine efficiency and availability by leveraging the big data technologies. This will not only increase energy production at lower lifecycle cost, but also ensure greater transparency of performance parameters at all levels. It is a win-win situation for customers and wind farm operators due to enhanced revenue and reduced operations and maintenance cost.

Further, with improved accuracy in scheduling, forecasting and integration in the grid, enabled by the technological advancements, renewable energy has already achieved grid parity with fossil fuels and competitive levelised cost of energy (LCOE).

The wind energy sector is scaling up to achieve nearly 10 GW per annum installation in the next four years. It is through technological innovation and the pursuit of sustainable development that we can power a greener tomorrow. ■

The author is CMD, Suzlon Energy

IN DEPTH / ENERGY

RENEWED POWER BANK

VILLAGERS IN AND around the coal mining areas in Talcher, Odisha, constantly complain of skin and eye irritation, respiratory diseases and other allergies, apart from ash deposits in rivers. Talcher, also known as the Coal City of Odisha, is home to several mining industries and often the villagers bear the brunt of environmental and health hazards.

"Since people fall sick more often they fall into the debt trap because they cannot afford to treat their increasing sickness and morbidity at present," writes Utkal University's Rabindra Garada, in a paper published in IOSR Journal of Humanities and Social Science.

Talcher is just one of 600 coal mines in India, part of which also aids in producing power. Undoubtedly depleting resources of renewable energy (RE) and associated health and environmental fears have com-

Several challenges plague the renewables energy ecosystem despite budgetary support and growing entrepreneurs entering the sector **By Roy Varghese**

pelled the government and individuals to explore options of RE sources in India.

Efforts in the sector haven't gone unnoticed by the Narendra Modi government. Budget 2017 allocated Rs 5,473 crore — up from Rs 5,063 crore — to the Ministry of New and Renewable Energy (MNRE). Media reports also point out that Prime Minister Modi has allocated Rs 210 billion to boost India's solar power manufacturing sector.

The MNRE, headed by Cabinet Minister Piyush Goyal is also pioneering the cause of RE sources to supplement the energy requirements of the country. Goyal, one among the many ministers active on social media, tweeted on 7 April: "For the first time, India's capacity addition in RE sur-

ENERGY CORRIDOR	
TOP 3 STATES IN WIND & SOLAR PRODUCTION	
WIND POWER	SOLAR POWER
TAMIL NADU 7,684.31	TAMIL NADU 1,590.97
MAHARASHTRA 4,664.08	RAJASTHAN 1,317.64
GUJARAT 4,227.31	GUJARAT 1,159.76
Total capacity in MW as of Jan 2017	
Source: Greenworld Investors 2017	



passed the conventional power capacity, with 15.3 GW (gigawatt) in FY17.”

RE has also become critical to the movement against the risks of climate change. India’s commitment at Paris COP21 to reduce 33-35 per cent carbon emissions by 2030 and increase RE to 40 per cent of the energy mix by 2030, is set to expand India’s RE portfolio. The government has also announced the goal of reaching the production of 175 GW of RE by 2022. There is proof to the sector’s enthusiasm in surpassing all records: at 31.1 GW, India attained 4th position in

global wind power installed capacity. In fact, FY17 was a historic period for the Indian RE industry as wind energy has surpassed its previous records with 5,400 MW installations. The previous highest installation was 3,472 MW in FY16. The RE industry even attracted an investment of over \$6 billion in FY17 and the cumulative installations of the sector is about 64 per cent of India’s total grid interactive RE capacity.

How Things Stack Up For India

Coal-based power plants account for more than 60 per cent of India’s total power production. In fact, India spent a massive Rs 4.5 lakh crore on crude imports in 2016. To cut down this cost substantially, it is vital to step up on application of the alternative energy sources. The MNRE is planning to achieve 175 GW by 2022 through 60 GW from wind power, 100 GW from solar power, 10 GW from biomass power and 5 GW from small hydro power.

So, does wind energy and solar power generation, the two grand jewels of India’s RE production mix, seem a viable entrepreneurial option?

Going by the numbers it sure does. Wind energy accounts for nearly 61 per cent (27,441 GW) of renewable installed capacity, making India the world’s fourth largest wind energy producer. In FY2015-16, wind power accounted for 8.5 per cent of India’s total installed power capacity, and 2.5 per cent of the country’s power output (See: *Energy Corridor*). “India’s wind energy sector has witnessed unprecedented acceleration last year, propelled by technology and conducive policy environment for renewables, by central and state governments,” said Suzlon CMD Tulsi Tanti in his blogpost in 2016.

His confidence is not without reason. “The growth was way higher than the industry estimates of 30 to 40 per cent,” he further added. Tanti sure has his finger on the pulse. In the past two years, there has been a 100 per cent growth in RE sector, which has never happened in India’s energy history. Pune-based Suzlon is India’s largest RE company with over 11 GW in installed capacity.

Then, there are others like Gurugram-based ReNew Power Ventures who are gearing up to achieve remarkable power generation capacities. ReNew Power announced that the company has doubled its power generation capacity in a single year’s time to cross 2,000 MW (2 GW). In FY17, the company made investments of Rs 6,700 crore to add 430 MW of solar and 626 MW of



grid but having a RE based generation capacity of below 10KW.

Despite efforts from government and enterprises, the RE sector — being intermittent sources of electricity — also suffers from the missing cost competitive, large-scale electricity storage technology. However, companies are attempting to provide solutions here. "Having provided balance-of-system conceptual design for multiple battery energy storage systems totalling more than 100 MW, this is another area of renewable technology where we combine global best practice with the capacity to deliver with local resources," says Anand Pattani, Country Manager & MD, Black & Veatch India.

Waste-to-energy (WTE) is another exciting source of RE because unlike wind and solar it is not intermittent; in addition, WTE dovetails with the Smart Cities missions' requirement for citywide sewage treatment infrastructure and the Swachh Bharat Mission.

Sunny Side Up

In India, solar power generation is becoming an increasingly viable option. As of late 2016, the country's solar grid had a cumulative capacity of 8,626 MW. The government has recently expanded its solar plans, targeting 100 GW of solar capacity by 2022. Companies such as Suzlon, Tata Power, NTPC, etc., are setting up solar power plants. The economics of solar technology is changing fast with the capital cost of setting solar power plant declining steadily (See: *Soak Up The Sun* on Page 80).

Even NTPC, India's largest electricity generator, is tweaking its expan-

adopting better energy sources. In 2011, CleanMax Solar, a rooftop solar power developer based in Mumbai, enabled more than 100 corporates and leading institutions to adopt on-site solar power, with a cumulative on-site capacity of more than 80 MW. "We provide hassle-free models to our corporate clientele, which has made solar power adoption easier for them," says the company's co-founder Andrew Hines.

Another player in the solar space, First Solar began as a module supplier in 2011. In 2016, the

company completed an important milestone of shipping /installing more than 1GW of its CdTe thin film modules in India making it one of the top 3 PV module companies to do so in India and the first thin film PV maker to have achieved this. Sujoy Ghosh, Country Head, First Solar, India, says, "We are executing 60MW of developed projects in Karnataka and will participate in the upcoming capacity auctions both at the Federal and at the State level."

However, despite several players in the field, challenges such as demand generation persists. Given that power is a concurrent subject, the State entities who are the primary consumer of energy need to align with the Centre's policies. This does not happen readily. The implementation and enforcement of renewable purchase obligations (RPO) that are the primary driver of bulk demand for RE are still behind their targets. The improvement in financial health of the state-owned distribution companies is critical for the country to implement market mechanisms that will eventu-

"We are industry leaders particularly in aerodynamic technology which is one of our biggest USP"

TULSI TANTI
CMD, Suzlon Group

sion plans to become the biggest RE company in the next 10 years. The state-owned company's Rs 5 lakh-crore capital expenditure plan will be skewed towards adding RE capacity instead of setting up more thermal units. Of the 10,000 MW of RE capacity planned, NTPC has commissioned 250 MW and has started work on developing 3,010 MW of projects. It also plans to set up about 800 MW of solar plants on water reservoirs at thermal power plants. NTPC, in March, put up solar panels in backwaters next to their Kayamkulam plant in Kerala.

Slowly and Steadily

Corporates and individuals also need to be handheld when it comes to

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Wind | Interview

'The sector truly propels 'Make in India'

Tulsi Tanti, Chairman and Managing Director, Suzlon Group, says Indian wind sector is capable of achieving 60 GW target by 2022



The sector truly propels 'MAKE IN INDIA'

Indian wind sector is capable of achieving 60 GW target by 2022, says **Tulsi Tanti**, Chairman and Managing Director, Suzlon Group, in an interaction with **Anurima Mondal**.



Q India ranked 4th position in global wind power installed capacity index and Suzlon was one of the major companies that helped the country to cross the milestone. Tell us something about your contribution in India's wind energy market.

With ~28.5 GW wind energy installations, India attained 4th position in global wind power installed capacity, of which 10 GW has been contributed by Suzlon in the Indian market.

Suzlon wind installations are capable of powering over 5 million households per annum and offsets ~21.5 million tonnes of Carbon Dioxide (CO₂) emission annually. This installation also accounts for ~22% of India's renewable energy sector and 35% in India's cumulative wind energy installations. Wind technology has witnessed a change over the past two decades. Efforts are now focused on

improving the energy yield and bringing down the cost of energy.

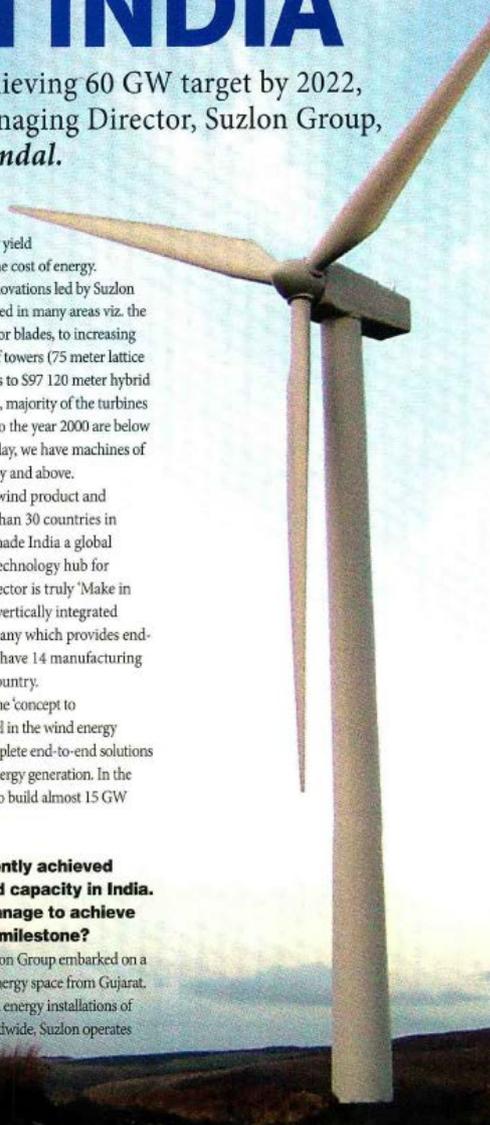
The technological innovations led by Suzlon have been implemented in many areas viz. the size and weight of rotor blades, to increasing the height and type of towers (75 meter lattice towers, tubular towers to S97 120 meter hybrid towers). Furthermore, majority of the turbines in India installed up to the year 2000 are below 500 KW capacity. Today, we have machines of up to 2.1 MW capacity and above.

We are exporting wind product and technology to more than 30 countries in the world and have made India a global manufacturing and technology hub for wind energy. Wind sector is truly 'Make in India'. We are a fully vertically integrated manufacturing company which provides end-to-end solutions and have 14 manufacturing facilities across the country.

Suzlon pioneered the 'concept to commissioning' model in the wind energy industry, offering complete end-to-end solutions to harness wind for energy generation. In the next 5 years, we plan to build almost 15 GW energy assets in India.

Suzlon has recently achieved 10,000 MW wind capacity in India. How did you manage to achieve this significant milestone?

Two decades ago, Suzlon Group embarked on a journey in the clean energy space from Gujarat. With cumulative wind energy installations of over 16,000 MW worldwide, Suzlon operates



Energy Next 28 February 2017

across 19 countries and has over 1800 customers across the globe.

This landmark achievement is a testament of our customer's confidence in Suzlon's technologically advanced products and project execution and service capabilities. Our focus has always been on upgrading our technology and hence we have advanced our technology to harness wind energy at even Class II wind sites.

We have established a multi-pronged strategy that covers continuous R&D and innovation in design, manufacturing and O&M services.

Over the years, Suzlon has been leveraging technology to consistently increase the plant load factor (PLF). The S97 120 m (2.1 MW) turbine with hybrid tower has achieved 35% PLF. With the help of a prototype of the S111 120 m hybrid tower turbine installed at Bhuj, Gujarat is expected to deliver 40% PLF.

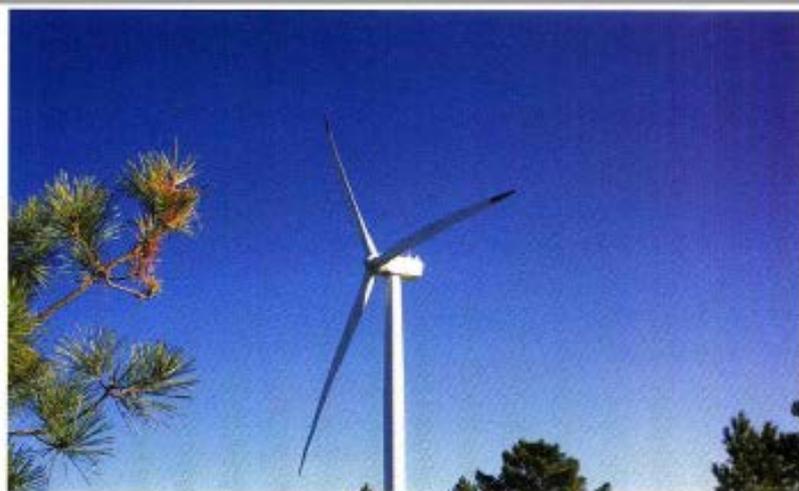
We are present across all nine high wind potential states of India i.e. Gujarat, Maharashtra, Andhra Pradesh, Telangana, Tamil Nadu, Rajasthan, Madhya Pradesh, Karnataka and Kerala and have invested in setting up 14 manufacturing units in strategic locations to cater to high wind potential sites.

Could you tell us about your core strengths that make you different from other players?

We are the market leader in India and have a global spread extending across Asia, Australia, Europe, Africa and North and South America with installations of 16.07 GW across 19 countries of which over 10 GW is in India.

We are industry leaders particularly in aerodynamic technology which is one of our biggest USP. We have our R & D centres in Germany, Netherlands, Denmark and India. Last year, we established a Blade Science Centre in Vejle, Denmark, which will work on the development of aerodynamics, pitch control systems, smart controls and new structures

- Our R&D efforts are focused on the following:
- o Lowering the LCoE by 20% in the next five years with new turbines
 - o More efficient turbines to make previously unviable sites viable
 - o Continue to increase our plant load factor and to stabilize the grid in India
 - o We envision gigawatt size projects supported by increasing digitization and best in class service



Suzlon pioneered the 'concept to commissioning' model in the wind energy industry, offering complete end-to-end solutions to harness wind for energy generation

Our R&D efforts have resulted in path-breaking new products such as the S97 120 and S111 meter hybrid towers. The towers in addition to getting our latest rotor designs into winds with higher energy also require one third less concrete for their foundations and are easier to transport to the site

- o The S97-120 m is giving 35% PLF in India, which is the highest PLF turbine in the country
- o The S111-120 m is forecasted to provide a 40% to 45 % PLF

With its foray into the solar segment, Suzlon is one of the few players to provide turnkey solutions for solar projects.

Suzlon has recently bagged 105 megawatt (MW) order from Axis Energy Group in Andhra Pradesh. Which other states are you focusing on?

Suzlon is a market leader in India with a global footprint across Asia, Australia, Europe, Africa, North and South America. Over the past two decades, Suzlon has built and consolidated its presence in 19 countries.

Post the Axis Energy Group order win, we secured a repeat order of 226.8 MW from a leading Independent Power Producer for a project in Andhra Pradesh. Additionally, we

received 50 MW order from leading power utility in the state of Gujarat.

What initiatives have you taken to reduce Levelised Cost of Energy (LCoE)?

We have invested close to USD 250 million in the last 5 years towards R&D and continue to do so with an aim to reduce the cost of energy further by 25 % in the next 5 years.

Aligned with the government agenda, we are striving for sustainable and affordable energy for all by focusing our R&D efforts on developing high yield products that effectively bring down the LCoE and improve customers' Return on Investment (ROI). This has resulted in path-breaking products:

- o The S97-120m (2.1 MW) turbine with hybrid tower which enables viability of low wind sites and has 35% PLF.
- o The S111 (2.1 MW) turbine prototype has been successfully tested in India and USA. In India, it is amongst the few in its class to have the largest rotor diameter spanning 111.8 m. S111 is one of the highest yielding IEC Class III wind turbine.
- o The S111 120m hybrid tower prototype turbine commissioned in Gujarat in March 2016 targets a PLF of 40%.

[WIND | INTERVIEW]

India has a target of installing 4600 MW of wind power capacity in 2017-2018. Tell us two things that you would like to address for achieving the target?

To continue the momentum in the renewable energy, the government should consider the following policy recommendations

- o Long-term policy predictability: Accelerated Depreciation (AD) and Generation Based Incentive (GBI) should continue till 2022
- o Banks and financial Institutions should earmark at least 20% finance for Renewable Energy projects and provide finance for longer period of 20-25 years.
- o SMEs should be supported by 5% interest rebate for using renewable energy for captive requirement.
- o Improve availability of grid and land infrastructure at State level
- o GST for RE projects at zero rate, since electricity is not subsumed under the proposed GST framework
- o Provide manufacturing with support to facilitate innovative financing, increase capabilities, facilitate job creation and meet the 'Make in India' initiative. Wind manufacturing capacities are created in

India, while Solar is imported from China. Incentives for local manufacturing and job creation in the sector should be considered

- o Implement the EXIM practices of China and USA that gives a line of credit of \$1 billion and \$2 billion respectively, in case of exports by local companies. In India, EXIM offering is limited to \$200 million per year. RBI should remove the 10% limit imposed to one company or infuse \$5 billion fresh equity to EXIM

Do you think India has a business-friendly environment?

What are the major challenges you face as a wind power producing company?

The government's thrust on renewable energy has helped the business environment. Alignment of State and Central Government has increased, which has impacted the execution of renewable energy projects.

There are various policy actions such as approval on the repowering policy, the draft wind-solar hybrid and revised RPO trajectory. Further, policy impetus included, 1 GW under Inter-state transmission scheme (ISTS) across various states and investments

in Green Energy Corridor project. During the Union Budget 2016, the coal cess was doubled to Rs. 400/tonne, thereby, creating the resources to achieve the 175 GW target. The government's commitment to improve grid infrastructure also reflected in the proposed additional depreciation for the plant and machinery acquired, installed for transmission activity.

What are your future plans?

Aligned with the 'Make in India' initiative and the green commitments of the Indian Government, we aim to install 15 GW in the next six years.

Our focus areas include R&D to harness technology and reduce Cost of Energy (LCoE), increase Plant Load Factor (PLF) and make low wind sites viable, ramp up volumes, expand our presence in focused markets, realize business efficiencies, introduce new generation products, enable digitalisation to enhance services and further optimize capital structure.

We are also working on setting up utility scale, GW size renewable projects. With our foray into solar energy, we have already expanded our portfolio and presence.

A Wind-Solar hybrid is another concept that is gaining momentum in the industry and Suzlon is focusing on it. This option optimizes land usage, grid infrastructure and offers energy reliability through complementary forms of energy generation.

We are confident that, with our plans and strategies, we are well on the way to achieving our vision of becoming one of the best renewable energy companies of the world.

What are your expectations from Indian renewable market?

The renewable energy landscape both in India and globally, is undergoing significant transformation. With over 28 GW wind energy, India today is the fourth largest in terms of wind installed capacity. We see the demand for clean, sustainable and affordable power continuing especially in emerging markets. India's commitment at COP21, to reduce 30% to 35% carbon emission and increase renewables to 40% of the energy mix by 2030 will continue to give impetus to incremental demand for renewable energy. **EN**

Aligned with the 'Make in India' initiative and the green commitments of the Indian Government, we aim to install 15 GW in the next six years



COP21: The World comes together to fight Climate Change



Mr. Tulsi R. Tanti, Chairman, Suzlon Group

Climate change has been a cause for growing concern, and rightly so. As global economy grows, production and consumption continue to grow, with consequent growth in the need for energy and carbon emission. This is putting the planet at great risk. Studies have proved that the rise in the earth's temperature needs to be limited to 2°C above pre-industrial levels if our children are to have the prospect of a green future. While this translates into the seemingly large allowance of 1,000 billion tonnes, the fact remains that this will be reached within 20 years if change is not implemented right away.

COP21, held in Paris at the end of last year, brought to light all these facts and allowed nations to be a part of a historical agreement to combat climate change and unleash actions and investment towards a low carbon, resilient and sustainable future.

The role that renewable energy plays in this mission was clearly identified, with countries committing an increase in their renewable energy installations as a means to support economic growth while mitigating the risks of climate change. This led to the distinction between environmental responsibility expected from developing and developed nations, especially with regards to carbon emission; and this differentiation was considered across all pillars of action including mitigation, adaptation, finance, technology capacity and transparency. Developed economies have been recognized as the largest consumers and, as a result, the largest producers. This increases the onus of protecting the environment that falls on them. Furthermore, it also adds upon them the responsibility to support their developing counterparts with financial and technological resources to enable global advancement without affecting the environment.

The commitments made by the developed countries included carbon emission reduction, renewable energy installation increase as well as support for renewable energy, carbon capture and energy efficiency to other countries. These commitments came from Malaysia, Bahrain, Uruguay and Australia amongst others. Developing countries, on the other hand, had commitments

more focused on increasing renewable energy installation to support their industrial and consumption needs. Furthermore, they were also focused on reducing their carbon emissions at the outset so that economies such as India, China, South Africa, Brazil and Sri Lanka could be built on clean energy. At the same time, these nations offered clear indicators of the support they were expecting from their developed allies.

India played an important role at the forum, pivotal in making the agreement supportive of developing nations' needs. With the target of 175GW of renewable energy by 2022, India is heavily vested in mitigating climate change risks. This target was therefore further complemented at COP21 with the commitment to reduce carbon emissions by 30% to 35% and increase renewables to 40% of the energy mix by 2030. At the same time, India demanded for IPR-free technology to lead to faster adoption of clean technologies. We also requested a review of gaps in implementation by developed countries in order to measure their mitigation commitments and pledged support for technology transfer, finance and capacity building to developing countries.

Commitments made by India were based not only on the nation's energy needs, but also on Prime Minister Narendra Modi's pledge to mitigate the risks of climate change and curtail the potential damage that could be caused, worldwide and in India especially, by global warming. His vision led to the launch of the initiative of the International Solar Alliance in collaboration with French President François Hollande.

While discussions and debates brought forth many points on the position of developed and developing countries on the climate change front, the biggest achievement at COP21 was the specific nature of the commitments made by nations from around the world. Overcoming the ambiguity that existed in previous commitments, COP21 ensured that nations became a part of the agreement by outlining specific targets and actions, thereby ensuring that the world works, collectively, towards powering a greener tomorrow.

More power to his blades

"Wind power is cheap, can be made cheaper," says Suzlon chief Tulsi Tanti in an exclusive interview to **M Ramesh**

Last year, the wind power sector saw record installations of 3,472 MW and the home-grown wind turbine manufacturer, Suzlon, surprised the market by doubling its installations to 900 MW. After three years in financial difficulties, Suzlon bounced back, and with consolidated turnover of ₹5,562 crore and net profit of ₹483 crore, it announced its turnaround.

The Indian wind power market today is fraught with difficulties on the ground. Wind energy companies are beset with payment delays in many states, notably Maharashtra. "Wind" is also fast losing its mandate to "solar". How does the comeback Suzlon see the market that is full of opportunities as well as challenges? business line talked to the company's founder and Chairman and Managing Director, Tulsi Tanti, about this.

My view is that where there are problems there are opportunities. The mood towards renewable energy is very positive. With 350 million people still living in the dark, it is our responsibility to put up more projects, generate more power. In the last 20 years, the wind sector has

built 10,000 MW that has given access to 50 million people. We put up grids where there were none earlier. When the target of 175 GW was announced it looked very ambitious, but today it looks easily achievable. However, we need to fix a few things. First, the utilities should pay on time. Most of the independent power producers (IPPs) are funded by foreign financial institutions and we need to build their confidence in renewables. A three to six month delay in payment is normal but beyond six months it is bad. Second, there should be (wind and

solar) resource assessment in each state and grid infrastructure built accordingly in advance. Today, projects are getting ready, but the grid is behind, and states stop buying power. If we have to get 175 GW of installed capacity we should have the grid infrastructure ready. Today we don't.

If these two issues are fixed, then the industry will take care of the rest, be it competitive bidding, tariffs...
On tariffs, an often-heard comment is that while solar prices have come down steeply, wind power prices have not, and the wind industry is demanding more. How would you react?

That is not correct. Today, see where wind tariffs are - ₹4.20 in Gujarat, ₹4.78 or so in Madhya Pradesh, ₹4.84 in Rajasthan, ₹4 something in Karnataka, only in Maharashtra and Rajasthan it is higher than ₹5. Most of the tariffs are below ₹5. The ideal tariff for wind is ₹5 a kWhr.

As for comparison with solar, the cost per MW for wind includes ₹50 lakh that we pay as various taxes; solar pays zero. If we didn't have to pay this ₹60 lakh, tariffs can come down by 30 paise a unit. If the discoms pay on time and there is no curtailment (of energy purchase), tariffs can come down further.

But the IPPs say your turbine manufacturers are making big profits and refuse to drop prices. No, wind turbine companies

are not really making big profits. Take Suzlon. Your EBIDTA margin is above 15 per cent. Other capital goods companies don't have such margins. Out of the 15 per cent if you take away 10 per cent interest cost, there is hardly anything left. How much did we make on the top line - ₹400 crore on ₹9,000 crore of turnover, is about 4-5 per cent.

You must understand - we sell in more than 20 countries - the cost per MW of installed capacity in India is the lowest in the world. India is \$1.2 million per MW, China is \$1.35 m, US is \$1.7 m, Europe is \$1.8 m, Brazil is \$2 m and Australia is \$2.25 m. Also, in India the government is not providing enough grid capacity. Every year, we build about 100-200 km of grid. Also, if we are profitable at \$1.2 million in India, we should be more profitable abroad. That also helps EBIDTA (implying that if exports are not counted, the margins are low in India.)

But isn't it true that the cost per MW of turbine has been going up in India? In Suzlon's own case, your price realization has gone up from ₹6.13 crore in 2014-15 to ₹6.43 crore the next year.

That is bound to happen because the machines are getting bigger and taller. Earlier, we had 80-metre towers, now we have 120 metres. The weight of the structure increases from 100 tonnes to 300 tonnes. But the rated capacity of the turbine is the same. Therefore, cost per MW goes up.

The important thing to note here is the machines are generating more or are suitable for low wind sites. If you take Suzlon, between our S 97 and S 111 machines, the cost goes up by 25 per cent but the energy yield increases 63 per cent. And that too at low wind sites. Over the last 2-3 years, there has been a 30 per cent reduction in the (potential of) sites. With better machines we are opening up new areas for wind. When our S 128 machine comes, the entire state of Tamil Nadu will become viable - you can put up the machine even without doing

wind resource assessment. Cost per MW is not important, what is important is the levelised cost of energy. In the last 10 years, cost of generation per kWhr has come down 20 per cent. The comparison with solar is not proper, because only inferior panels are being sold in India at cheap prices. The same Chinese companies sell for higher prices in China and even higher in the US. And, for roughly the same amount of capex per MW, wind gives you far more energy. Let me ask you, why is no Chinese company able to sell wind turbines in India?

Because you have a barrier in the form of the RLMM committee. (The revised list of machines and manufacturer' is the body that recommends approval to the certifying agency, NIVE).

No, no. RLMM Committee is in the interest of the country, for keeping good standards of the machines. Anybody is welcome to sell here.

But the committees members are industry players, isn't there a conflict of interest?

No, if anyone wants to bring a GL certified machine, no member can stop him. But if you see how many barriers are there in other countries, you'll go crazy. I have a factory in China - last three years, zero production. Why? Because 90 per cent of the market is given to only Chinese companies. We were happy for a share of the other 10 per cent, about 2 GW, but they are not paying on time. Even now money is due to us. Can we fight the government there?

Then, take Brazil. We have built 1,200 MW there, our machines are giving 80 per cent PLF. But in Brazil if you want to sell turbines you have to get 'Finame registration'. (Those who buy from Finame-registered companies get cheaper loans from the Brazilian Economic and Social Development Bank, this gives registered companies an advantage.) One fine morning, they cancelled our Finame registration. Siemens and Vestas too. We asked them why, they don't even reply. The real reason was they wanted to help a

local turbine manufacturer called IMPSA. In three years, IMPSA went bust. In Germany, a Turkish company placed an order on us for 150 MW. No German bank would fund him. They said, this company (Suzlon) has no track record here. We gave enough information about our presence in 20 countries, but still they wouldn't fund. Finally, we offered him Senion machines (the German company that was then owned by Suzlon), which were 12 per cent costlier than ours, then the banks gave funds.

You have estimated the market for this year at 4,300 MW, but many think it is optimistic. Do you still stick to the projections?

Of course. We know what is happening on the ground. It will be 4,300 MW, hundred per cent.

The market seems to have attracted many new players. Vestas is back, Senion is entering India with Kenersys, Acciona is bringing in Nordex machines and there are talks about Ming Yang getting serious about India. How does Suzlon see this competition?

First of all, the fact that many players are coming goes to show that our market is open to competition. Our Prime Minister is visiting many countries and communicating the 175 MW target. Now, 175 MW is a high number, and many players are attracted.

I am not worried about the competition. After all, I am picking up business in their countries. What can they do here? Siemens, GE, Vestas have all been here. India is a very complex market. Their products are not very competitive in India. Kenersys is even more expensive. It is an Indian company, part of the Baba Kalyani group, if they couldn't succeed, what will a foreign company do?

We will keep increasing the size of the cake and keep taking larger share of it, the rest of it will be divided among the other players. See, we were absent from the market for three years (due to financial difficulties) and that is when some others came in. (Games was the market leader last year.) But last year, our installations grew 100 per cent. This year, the market will grow 30 per cent, and we will capture most of the growth.



Tulsi Tanti

The Hindu Business Line, 31, Aug 2016

DINNER WITH BS ▶ TULSI TANTI, CHAIRMAN & MANAGING DIRECTOR, SUZLON GROUP

Treading cautiously

Tanti tells Jyoti Mukul what the tumultuous years between 2011 and 2013 taught him

I am scheduled to meet Tulsi Tanti, chairman and managing director of Suzlon Group, for dinner a day before he is slated to fly to Ahmedabad for the Vibrant Gujarat summit. But I am told Tanti wants to wrap up his day early because of his flight early next morning. So we meet at 6 pm for an early dinner at the Regency Club in Hyatt, a few minutes' drive from the Pune airport. It is Sunday, but Tanti has some meetings at the Club's conference room before we catch up.

As we sit down and scan the menu, Tanti declares he doesn't want to eat anything. "It's all healthy food," he rues. After some dithering, he orders a cheese chilly toast, which is not on the menu. The waiter gets it nonetheless. "Are you a vegetarian," I ask him. "Hundred per cent vegetarian. No drinks, no smoking. We are a Guju family from Rajkot," he announces proudly.

As I order a Mumbai masala sandwich and black tea, Tanti tells me how the world is moving towards vegetarianism because meat is expensive abroad when compared with India. "In India, people have money and food is not that expensive. Many countries have to import seafood like pomfret and prawns that are often exported from Gujarat. The transportation cost gets built into the price, but if you are a local, say, in Howrah, it wouldn't be so expensive."

He tells me those who believe in mitigating climate risks and reducing carbon footprint eat less of non-vegetarian food because it is processed and needs transportation, while vegetables can be procured locally. "Only three to four per cent of carbon footprint in food comes from vegetables, the remaining is from non-vegetarian food." A vegetarian, I had never thought of food in that fashion, but then Tanti represents a green energy company, so climate concerns are not simply highfalutin idealism for him, but part of everyday business.

Tanti entered the energy business by buying two windmills at Upleta near Rajkot to mitigate the power cost at the family's Ankleshwar textile unit. What started off as a captive wind power project for his family's textile business in the 1990s has now grown into the \$1.5-billion Suzlon Group, a major wind technology and project contracting provider. "Textile is more of a processing industry. It didn't give us much opportunity in engineering and manufac-

turing." So the family moved out of textiles and went on to build the Suzlon Group, which now has footprint in 19 countries and has, among other things, sold around 1,500 windmills to textile companies.

As Tanti narrates with passion the changes he has introduced to the textile units of Tiruppur in Tamil Nadu, food is served. He asks for the French fries from his plate to be removed, while I pour the much-needed hot tea for myself.

Tanti says his company has been able to change with the times with great success. "One has to change with the changing environment. Just like our wind turbines, which move according to the direction of the wind, we have to move our organisation in a manner that it is aligned with the market reality. In that sense Suzlon is agile," he adds with pride. After selling off the traditional textile business, the family moved cities also — from Rajkot to Ahmedabad and then to Pune. Stepping out of India thereafter, the company set foot in the US, Europe, China and Australia.

Some say success came too soon to Suzlon. In 2011, the group sold off Hansen, a Belgian company with the second-largest gearbox capacity, which it had acquired in 2006. Then in 2015, it had to sell German company REpower for \$1.4 billion. It had bought REpower in 2007 and renamed it Senvion. The company's consolidated debt at that time was over ₹17,323 crore and it was unable to pay off creditors. "It took us two years and we suffered \$300 million in losses while selling our assets," he says.

The same year, Dilip Shanghvi, promoter of Sun Pharmaceuticals, picked up 23 per cent stake in Suzlon Energy for ₹1,800 crore. The Tanti family holding came down to 20 per cent from 52 per cent. "By selling assets, the conversion of FCCBs, turning debt into equity and getting in Dilip Shanghvi, we have given away ownership but we have also protected the company," says Tanti.



ILLUSTRATION: BINAY SINHA

The restructuring phase had important lessons for Tanti. "I learnt a lot about the finance side of business. As an engineer, I understand technology and innovation but I

started to understand financial engineering — things like how to reduce debt, manage cash flow — in three years from 2011 till 2013." From 3,000-Mw installations in 2008, the company is down to 400 Mw because of market and liquidity constraints.

The company was present in 32 countries and in the midst of two large acquisitions, when the global financial markets went into meltdown. In India, too, the government removed the accelerated depreciation benefit for wind power producers while German regulation did not allow Suzlon to get cash back to India to pay off debt. "All this complexity was the biggest learning. Now we have pure wisdom," he says gratefully.

Suzlon's new business in solar is more an extension of its existing portfolio than a new venture. Since the company is already into engineering, procurement and construction for wind and solar energy will be complementary revenue. Unlike wind, however, the company does not plan to be in manufacturing of solar panels and cells. Zero Custom duty on panels, surplus capacity in China, besides the huge requirement of energy along with the high cost of power and finance in India make manufacturing in solar difficult, he says.

Though the cost of renewable power is coming down, Tanti says the problem lies with the health of the utilities. "The solution is clear. There are 2,000 private utilities in the US, while in India, there are only four/five companies. Bring in more private utilities and the price of power will come down." Power, he thinks, should be a central subject and not a state subject. That will pave the way for privatisation and integration of the power market.

India is treading a difficult path with global uncertainty, he says. "We need to create sufficient jobs. We should not target more than seven per cent growth because we are not able to handle more. We should be happy to grow between six and seven per cent. We require cautious but quality growth."

Caution is also a virtue the three years of turmoil have taught Tanti. Suzlon will continue to invest in technology and excellence in manufacturing while simultaneously trying to reduce debt, rather than go in for fresh investment and acquisition over the next decade or so, he says.

Business Standard, 27 January 2017

In turbine manufacturing, wind blowing the India way

Suzlon chief says auction of capacities to 'non-windy' States is a game-changer

M RAMESH

Chennai, May 4

India will soon be the global manufacturing hub for wind turbines, just as China is for solar panels today, feels Tulsi Tanti, Chairman and Managing Director, Suzlon Energy.

In a chat with *BusinessLine* on the sidelines of Windergy 2017, an international conference of the wind industry organised in New Delhi by the Indian Wind Turbine Manufacturers' Association last week, Tanti said that the position of 'global manufacturing hub for the wind industry' is today "vacant". China has not been able to break into the global market, but India is well positioned to do so,



Tulsi Tanti, CMD, Suzlon Energy

he said. He believes that because of the assured market, which is thanks to government-sponsored auction of capacities, the supply chain for the manufacture of wind turbines is expanding, leading to cost reduction

Growing demand

Tanti's optimism was palpable both in the conversation with *BusinessLine* as well as in his

speech at the conference. The doyen of the wind industry reckons that the government's auctioning of capacities to sell the power to non-windy States has been a game-changer.

He believes that the demand from the non-windy States (to meet their renewable purchase obligation) will call for setting up 30 GW of wind power capacity in the country, over the next five years.

Demand from windy States, public sector undertakings and 'captive customers' (who put up wind power plants and consume the electricity themselves), will bring in another 30 GW of market. Even allowing for slippage, Tanti sees the Indian market for 40-50 GW over the next five years.

"Vendors have clear visibility, so they find sense in putting up factories. Because of scale and the fact that they manufacture locally, they are able to reduce

prices," he said. He gave the example of ZF, the German company that produces gearboxes, which dropped prices by 15 per cent in the last two years.

A supply chain vibrant enough to cater to a 10-GW per year market can easily export, Tanti said. He noted that some turbine manufacturers were shutting shop in the developed West and putting up plants in India, from where they could cater to all market.

Tanti, however, expects support from the government to make India a 10-GW market. First, he wants State-wise capacity auctions (as opposed to the one that happened in February, where developers were free to set up plants anywhere in the country).

Absence of State-wise auctions could lead to problems such as concentration of wind farms in a few States, leading to increase in land prices, logistics costs and, consequently, price of power.

Second, he wants the Centre to incentivise State governments by giving a 'performance-based incentive', a certain number of paise for every kWhr of wind energy they purchase.

He said that the wind industry was mature enough not to want government support (the generation-based incentive expired on March 31), but the State governments could be supported financially to buy green energy.

No pressure on manufacturers

Asked if turbine manufacturers, such as Suzlon, saw their margins under pressure consequent to the fall in wind tariffs, Tanti said that the drop in margins was compensated by increase in volumes.

He said that typically a wind turbine manufacturer will break-even at the first GW of sales, and beyond that profits will start flowing.

The Hindu Business Line, 5 May, 2017

c-suite chat

'Hybrid tech will raise PLF'

The renewable energy space in India has witnessed significant changes in terms of technology and innovation over the few years.

Tulsi R Tanti, CMD, Suzlon Group in conversation with **Ateeq Shaikh**, speaks about the company's initiatives in leading the change, overall business scenario, expansion plans and new introductions.

Suzlon's share in India's wind turbine market has gone down from 50% to below 30%...

We have taken some transformational steps, aligned to our strategic vision and we have seen it pave the way for Suzlon's future growth. We have significantly reduced our debt, interest obligations and adequately capitalised our business to ramp up volumes rapidly and focus on operations and execution. We are expected to grow faster than the market; hence, market share gain is imminent. There are immense opportunities and Suzlon is in a unique position to cater to the domestic market. We have technologically advanced product portfolio, strong customer base across segments and a pan-India presence. Our new product, the S97 120-metre hybrid tower wind turbine generator (WTG) has achieved 35% plant load factor (PLF), and S111 90-metre 2.1 mw WTG has received encouraging customer response. Roughly 70% of our new order wins in FY16 are for new products. We have recently installed the prototype of our S111 120-metre lattice hybrid tower which is expected to deliver 40% PLF and will be introduced to the market in FY17. I believe technology and innovation will continue to be the catalyst for Suzlon. The

wind-solar hybrid solutions, digitisation of services, innovation in tower and blade technologies are aimed towards making unviable wind sites viable, ensuring better yield and increasing the capacity utilisation factor (CUF). We envision to add about 20-22 gw of renewable capacity by 2022.

In April, the new turbine at 120 metres was introduced. Please share details.

There are two aspects to reducing the cost of energy. First is technology that can increase energy production and second being price and material cost. We have centres in Netherlands, Germany, Denmark and Austria. Those teams are working and developing next generation of aerodynamic product, which is particularly rotor blade that can generate more energy. The second technology piece that is very important is tower height. Once we go higher, the wind velocity increases, so does the stability of the wind. Thereby, we're able to harness more energy at higher reaches. But the flip side is that if you go higher, the cost of the project also increases. Therefore, we have to find a balance to get the optimum output, for which we have

come out with a hybrid tower – a mix of lattice and tubular tower. We have introduced S111-120 tower at 120 metres of height that have given us 40% PLF. In the last 9 months, we have achieved 20-22% of PLF and in the balance months, we are confident of delivering 40% of the PLF. Due to this, the cost of energy will go down by at least 5%. If you see, coal-based power plants run at 60-

the better utilisation of the installed infrastructure. However, a dedicated policy for hybrid is still awaited and we believe it will take 1-2 years for this opportunity to translate into a commercial scale. Wind-solar hybrid has multiple benefits to offer. One does not have to duplicate costs such as land and evacuation infrastructure. Our wind-solar hybrid projects are planned in the state of Rajasthan, Gujarat and Tamil Nadu. Wind-solar hybrid will give at least 50% PLF, which is very close to power plant capacity utilisation.

Are you comfortable with the current debt-equity ratio?

We are not comfortable with the debt-equity ratio, but we are working on that to improve year-on-year performance. Debt level is very comfortable, equity is negative which we are working on by increasing our business, profitability and bringing certain cash in the system, by generating cash.

How do you plan to roll out S128, the new turbine?

This is the next generation of the product. It will help in reducing 10% of energy cost. It will be a 120-metre tower, installed sometime in early 2018. The first prototype will be installed in Gujarat and Tamil Nadu.

What about the offshore solar plant?

We in the process of studying it to have it at the Bay of Kutch. We have done a lot of analysis for the same. Still from the project feasibility and wind resource study point of views, the assessment is under-way. We are expecting that by 2020, the first such project should be possible.

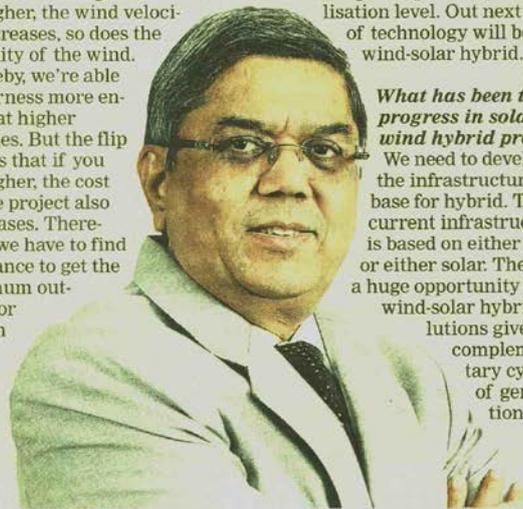
We need to develop the infrastructure base for hybrid. The current infrastructure is based on either wind or either solar

— Tulsi R Tanti

65% of load level. So we are going closer to power plant capacity utilisation level. Our next level of technology will be wind-solar hybrid.

What has been the progress in solar-wind hybrid project?

We need to develop the infrastructure base for hybrid. The current infrastructure is based on either wind or either solar. There is a huge opportunity in wind-solar hybrid solutions given the complementary cycles of generation and



DNA New Delhi 5 May, 2017

India can export up to 5 GW wind energy by 2022: Tulsi Tanti

Govt sets a new target of 227 GW of renewable capacity by 2022

OUR BUREAU

Mumbai, July 2

India can become a global wind energy exporter by 2022 if the government continues to back its commitment to achieve 40 per cent of total installed power capacity from non-fossil fuels by 2030.

"We believe with the right policy framework and ecosystem, India has the potential to develop wind export economy of more than 5 GW by 2022. India is poised to become the global manufacturing hub for wind energy," Tulsi Tanti, Chairman and Managing Director, Suzlon Group, and Chairman, Indian Wind Turbine Manufacturers Association (IWTMA), said in a statement.

"India is best positioned to become the export hub owing to its cost competitiveness, mature wind energy value chain and technology-



Tulsi Tanti, Founder, Chairman and MD of Suzlon Group and Chairman of Indian Wind Turbine Manufacturers Association

edge, although the country needs to create a level playing field for SMEs, specifically to take part in the wind energy programme," he added.

Tanti welcomed the expanded government target for wind energy capacity growth to 80 GW by 2022. According to IWTMA, achievement of revised targets would require investments in the range of ₹3 lakh crore.

Offshore wind energy

The government has set a new target of 227 GW of renewable capacity by 2022 against the earlier target of

175 GW. The government has also set a target for offshore wind energy generation of 5 GW by 2025 and 30 GW by 2030.

In May, the government called for expression of interest for the first offshore wind auctions.

According to Tanti, the new competitive bidding regime has provided for a clear visibility of tendering volumes for next five years with exponential volume growth of around 12-15 GW per annum expected in the coming years. This, he added, creates economies of scale and thereby offsets the concerns of low tariffs.

The Hindu Business Line, 2 July 2018



BY INVITATION
TULSI TANTI
 CHAIRMAN
 SUZLON GROUP

COEXISTENCE IS THE KEY

Addressing issues of private players could help govt tap 175gw from renewables

THE government's thrust on renewable energy has led the country to experience a transformation in the energy sector. Out of India's total installed power capacity of 303gw, 15 per cent is contributed by the clean energy sector, which is mainly driven by 27gw of wind power. The government has set an ambitious target of 175gw of renewable energy capacity by 2022 with an intention to power and achieve energy security in an environmentally sustainable way.

India, undeniably possesses the capability to lead the transition from conventional energy sources to renewables, which, in turn, would also help the country emerge as the world's renewable energy technology hub. But this depends on policy certainty and execution, which is presently seeing a positive change, evidenced in the new amendments in the national tariff policy for electricity in January 2016 that focuses on electricity to all, environment friendly procurement of power to help the Saubh Bharat mission, efficiency through optimal utilisation of land and other resources, renewable purchase obligation (RPO) to promote renewable energy, policies and measures that will enable efficient interstate power transmission and introduction of Uday scheme to improve the financial health of the discoms, among others.

Another major development referring to the government's move to support renewables is the new offshore policy that facilitates development of offshore wind farms in the territorial waters of India and also the RPII according priority sector lending status for renewable energy.

Playing pivotal roles in the execution of Make in India mission, renewable industry cannot only transform the country into a manufacturing hub for renewable energy technologies, but also prove to be the key to competitiveness of Indian manufacturing and



HIGHER PATH: Together, wind and solar can position India as the torchbearers of a new economy that is environmentally conscious and ensures energy access to all, in an affordable and sustainable manner

exports. Since power is a vital aspect in any industry, it constitutes a critical input and cost. The rapidly declining cost of energy from renewables has resulted in renewable energy sources being competitive with the prevailing commercial or industrial tariff for power from conventional sources. In fact, many companies, public sector units and small and medium enterprises, such as in textiles, have already tapped the benefits of wind power to hedge their energy costs. By investing in renewables, Indian industries can freeze their energy costs for 25 years helping manufacturing become more competitive vis-à-vis the global scenario.

The new government's ambitious plans of 175gw from renewables is achievable if the key issues faced by the private sector are addressed. Additionally, availability of grid and land infrastructure at state level is a concern, which both, the central and state governments are trying to overcome through a variety of programmes viz., green energy corridor and grid strengthening. Renewable energy is bound to need large-scale funding, so it is impor-

tant that banks and financial institutions earmark a fair amount of outlay for renewable energy projects for a longer amortisation schedule ranging 20-25 years. The ease of arranging funds for greenfield projects and expansion will go a long way towards lowering the cost of energy. Renewable energy is the key catalyst for economic growth of our country and development of renewable energy such as wind is vital to attract domestic manufacturing.

Contrary to common belief, wind is already at grid-parity with other conventional sources of energy and with over 27gw installation, India, today is the world's fourth largest wind energy producer. Solar, which is a sunrise sector in India, is a complementary source and not a substitute to the already established wind energy sector.

It is now firmly believed that both the technologies are required for securing the country's energy needs and lower the levelised cost of energy (LCOE). Due to complementary generation profiles of both, wind and solar, it ensures an optimum utilisation of the

available grid and power evacuation infrastructure, and hence, a combination of both the technologies is required from the country's long-term energy security point of view. Hence, both the energy sources have to grow. This is very much in line with the draft guidelines issued by the Union government on wind-solar hybrid policy.

From a RE perspective in general, and wind energy in particular, it is important to constantly innovate by increasing the efficiency of the products year-on-year.

The wind sector is rolling out products to harness energy from low wind sites, with larger blades, higher towers, state-of-the-art advanced control systems and improved systems for scheduling and forecasting generation; in the future, one would see wind-solar hybrid, along with digitally smart grids and storage systems to smoothen out unpredictability of both the energy sources. Such an approach will also see India emerging as a technology hub for the competitive export market.

Similarly, the solar industry requires a huge cha-

nge in approach to bring down the cost of kWh towards grid parity and also improve the capacity factor.

While the first phase of the solar mission was very successful in bringing the market to a go scale, there is a long way to go in terms of innovation, manufacturing of quality modules on a required scale and achieving efficiency in installation and maintenance.

There is enormous scope for indigenising India's solar value chain. We need to make India a manufacturing and technology hub for solar. With a huge growth potential, Indian solar industry can clearly aim for leapfrogging existing technologies and nations, driving manufacturing in the sector.

On the finance front, apart from raising masala bonds, it is time to implement concepts like investment trust (INVT), which would widen the equity base and substantially reduce the cost of equity, which is in two-digits today.

There is an urgent need to improve the availability of non-traditional sources of finance for this sector so that projects do not suffer due to undue delays in financial closure.

The banking sector, too, needs to be sensitised to change its approach towards greenfield RE projects which were once considered too risky, but have since proven otherwise. Priority sector lending currently covers only the retail segment.

However, as the market is undergoing a sea change, more and more organised IPP customers are playing a major role and timely availability of cost effective funding to these customers will determine the competitiveness of the country's renewable energy sector.

Together, wind and solar can position India as the torchbearers of a new economy that is environmentally conscious and ensures energy access to all, in an affordable and sustainable manner.

- Out of India's total installed power capacity of 303gw, 15% is contributed by the clean energy sector
- India possesses the capability to lead the transition from conventional sources to renewables
- Contrary to the belief, wind is already at grid-parity with other conventional sources of energy

Maharashtra must re-look energy policy: Tulsi Tanti

State's wind energy share poised to drop to 12% by 2022 from 17.3% now

ALKA KSHIRSAGAR

Pune, June 8

Suzlon Group's Chairman and Managing Director Tulsi Tanti wants the Maharashtra government to take a re-look at the energy policy to give wind energy in the State a much-needed thrust.

He has also urged the government to encourage small and medium enterprises to set up captive wind power projects that will enable them to hedge energy costs and also give an impetus to the Make in India initiative.

"We (Maharashtra) have huge energy deficit, but unfortunately, we are not growing very well in the renewable energy space. They have come out with a policy and tariff, but the government is not interested in signing power purchase agreements (PPA) and



Tulsi Tanti

power companies are free to invest and sell to other states," Tanti said, urging the government to have a "re-look at this."

Wind energy share

He was referring to the Maharashtra Renewable Energy policy that was formulated last July but has not resulted in any new power purchase agreements being signed by the State. This is expected to push down Maharashtra's share in wind energy from 17.3 per cent today to 12 per cent by 2022.

"We are the largest company sitting in Maharashtra. We have manufacturing base but there is no business here while we are growing in other States," Tanti rued.

Making a case for encouraging SMEs to set up captive wind power projects, he said, "If we want the Make in India strategy to be successful, we have to support small and medium businesses. They can invest in wind power projects and hedge power cost for 25 years which will help their business be competitive."

TN textile companies

Pointing out that this will help enterprises that are labour and power intensive, Tanti said the model had been very successful for 4,000 textile companies in Tamil Nadu who were growing very well and also exporting and were paying less than ₹4 per unit for power.

Tanti also cited the example of Bajaj Auto which had invested in wind mills ten years ago and now could get power at a price of 50 to 60 paise per unit.

The Times of India, 9 June 2016

Suzlon chief takes over as head of wind turbine makers' body

M RAMESH

Chennai, January 11

Tulsi Tanti, Chairman and Managing Director of wind turbine manufacturing company Suzlon Energy, is the new President of the Indian Wind Turbine Manufacturers' Association. Tanti took over from Sarvesh Kumar, Chief Operating Officer of RRB Ltd, another wind turbine company, at a meeting of the association that was held here recently.

Tanti takes over the reins of the industry's biggest association at a time when the wind sector is undergoing a major transition. Until early 2017, the price at which wind energy companies sold electricity to utilities used to be fixed by the respective state electricity regulator. But in February last year, the country's first wind auctions took place. Energy companies who agreed to sell for less price got to sign long term power purchase agreements.

Now, while there is no ban on utilities buying power at tariffs fixed by the regulator, none is doing so, because prices determined by competition are cheaper than the fixed prices. The cheapest tariff arrived at so far through



Tulsi Tanti

auctions is ₹2.43 a kWhr; comparatively, the cheapest fixed tariff is ₹3.75 a kWhr paid by Karnataka. As utilities are neither willing to sign agreements on fixed tariffs nor are ready to come out with tenders inviting price quotes, fresh wind power capacity in the country in 2017-18 is expected to be not more than 1,500 MW, in sharp contrast with 5,400 MW in 2016-17.

However, a marked pick-up in installations is expected to happen in 2018-19, as the capacities already auctioned would be set up during that year, and more auctions will take place. Industry sources expect fresh capacity additions of 3,000 MW during the year.

The Hindu Business Line, 11 January 2018



GREEN ENERGY

Winds of change at Suzlon

The ill-fated REpower deal left Tulsi Tanti in a debt quagmire. Now, the humbled founder says he has a plan to make Suzlon great again

By P.R. SANJAI & SHALINI SHARMA

It's unfair to blame Tulsi Tanti alone. In the wave of irrational exuberance that swept the world until the global financial crisis hit, Tata Steel Ltd had bought Corus Plc., Dalchini Sankyo had bought Ranbaxy Laboratories Ltd., and NTT DoCoMo had bought into Tata Telecommunications Ltd.

And Suzlon Energy Ltd, Tanti's wind turbine maker, bought Germany's REpower for €1.4 billion.

The other deals soured too, but Tanti's German misadventure was the first. REpower soon became an albatross around Suzlon's neck, as Tanti could not repay the debt taken to finance its purchase. It led to India's biggest convertible bond default, torturous negotiations and a debt recast, ending in the sale of REpower—renamed Servion—to Centerbridge Partners LP for €1 billion in 2015.

It's a journey that he would rather forget, but Tanti, who chairs Suzlon that once made one in two wind turbines sold in India, is on the move again. And if he is to be believed, with the turnaround strategy he has in mind, he will be making one in two turbines again. In an interview in his Mumbai office, Tanti said the sole loser in the debt saga was "the promoter," referring to himself.

Humbled, but still in the game.

Picking up the pieces

The founder of what was once the world's fifth largest wind turbine maker, Tanti, 58, has seen at least three downturns in the two-decade-old business. After posting losses in all quarters of 2014-15 and 2015-16, with the exception of a profit in the June 2015 quarter, Tanti is once again rebuilding his business, aiming to turn Suzlon profitable this fiscal. Plus, he aims to get the company back in the list of the world's top five wind turbine makers—a spot it lost when Servion was cut loose.

"We target to reclaim 50% market share progressively in the medium term," said Tanti in response to an email questionnaire following a meeting in February. "Next year, the industry is likely to grow by 30% and Suzlon will grow higher than the industry for the next three years. With Suzlon expected to grow faster than market, market share gain is imminent." Suzlon had a 27% share of the market in fiscal 2016.

"An entrepreneur never thinks of quarter-on-quarter; he thinks for 25 years," Tanti said in the interview. "We know the cyclones will come because we are in the wind sector. It cannot be consistent high wind; sometimes, it can be low wind. We are designing our turbines assuming that

one day even a cyclone will come."

Tanti's optimism doesn't find many takers though. For one, the wind turbine business remains a capital-intensive one. And second, while Suzlon wrestled with its lenders, rivals such as Inox Wind Ltd and Gamesa Wind Turbine Pvt. Ltd have gained ground.

Maybank Kim Eng Securities analyst Anubhav Gupta does not think Suzlon will be able to claw back the market share it lost. He expects individual market shares of Suzlon, Inox and Gamesa to stabilize at 25-27%. "It is very difficult not only for Suzlon, but also for Inox or Gamesa to eat into each other's market shares." Gupta was referring to the share of capacity installed in fiscal 2016.

Established in 2009, Inox Wind is one of the fastest growing wind turbine makers in India and has installed 2GW of capacity till date. To be sure, Suzlon has installed 9.5GW of wind capacity, but it was built over a longer period of time. In fiscal 2016, Suzlon has installed projects totalling 900MW, while Inox Wind has installed about 800MW of projects in the same period.

Analysts also point out that Suzlon is at a slight disadvantage because of the profile of its clients.

Inox and Gamesa have significantly higher share in selling to independent power producers (IPPs), while Suzlon has a bigger share with investor clients, who look for tax benefits from accelerated depreciation, according to Gupta. The latest Union budget capped this tax benefit at 40% from April 2017, down from the previous 80%. Suzlon has been trying to win more orders with the IPPs.

A senior analyst from an international brokerage also said the market is not ready to take another bet on Suzlon so soon. "Suzlon has a long battle ahead to restore the glory. The entry into solar by Suzlon is partly to convince the market that it is spreading the risks," said the analyst requesting anonymity as he is not authorized to speak to the media.

For every naysayer, there is a believer. Tuskar Pendharkar, head of research at Right Investment Advisory Services, says Suzlon is on the right path. "In my view, company is on track and could get the maximum benefit out of the government's ambitious plans for renewable energy. There is still enough room for business growth and we believe that the demand for wind turbines is still at a very nascent stage in India," said Pendharkar.

"For diversification, the company has also entered into solar EPC (engineering, procurement and construction), which I believe could be a good move, considering the government is focusing more on solar rather than wind."

Rising wind that fills all sails

Part of the reason behind Tanti's optimism is the government's ambitious plans to push clean energy. India has a target of installing 100GW of solar power capacity and 60GW of wind power capacity by 2022. The total installed capacity of renewable energy stands at 38GW, of which wind energy



Road to recovery: Suzlon Energy chairman Tulsi Tanti has a three-pronged strategy for reviving the troubled company: introduce next-generation turbine technology, launch hybrid solutions and bring in power storage solutions over the next three to four years.

projects account for 24GW, solar contributes 5GW and the remaining comes from smaller sources, such as biomass.

During the climate change talks held in Paris in December, Prime Minister Narendra Modi said that by 2030, 40% of India's installed power capacity will be based on non-fossil fuel. India was also among the 20 nations that pledged to double clean energy research investment in the next five years.

Companies and investors alike believe that the government's focus on clean energy presents a strong business opportunity for renewable energy producers and, in turn, those that make equipment for them.

India's wind energy market is expected to grow at an annual average rate of 20% over the next five years, helped by the government's initiatives and the entry of large investors due to the attractive return on investment, which is an internal rate of return of at least 14%, according to a 17 December report by Maybank Kim Eng Securities.

Apart from Suzlon, Inox Wind and Gamesa, wind equipment makers in the country include WinWind and ReGen PowerTech Pvt. Ltd. Among their prominent customers are independent wind power producers such as Welspun Renewables Ltd, Goldman Sachs-backed ReNew Power Ventures Pvt. Ltd, Morgan Stanley-owned Continuum Wind Energy Ltd, JP Morgan-backed Leap Green Energy Pvt. Ltd and NuPower Renewables Pvt. Ltd.

Meanwhile, the government's ambitious solar power target and the consequent excitement have pushed down solar power tariffs to record lows of below ₹5 per unit. In January, Finland-based energy firm Fortum Oyj quoted a per unit price of ₹4.34 to bag the mandate to set up a 70MW solar plant under NTPC's Bhadla Solar Park tender. It was in this backdrop that Suzlon stepped into the sector, which Tanti has called "complementary" to wind power. The company in January received letters of intent from the Telangana government

interest costs last fiscal. "And it will further reduce in FY17 because we are optimizing our financial cost," he said.

The sale of Servion in January 2015 helped Tanti bring down debt. A month later, Dilip Shanghi Family and Associates (DSA) acted as a white knight for Suzlon, buying a 23% stake in the firm for ₹1,800 crore. Management control remained with the Tanti family through a pooling arrangement for voting.

DSA is the largest shareholder in Suzlon. DSA declined comment to an email query sent on 16 May.

On 2 April, Suzlon said it has appointed J.P. Chalasani as its group CEO. Chalasani, who was most recently CEO of engineering and construction company Punj Lloyd, started his career with public sector enterprise NTPC Ltd and went on to head Reliance Power.

Having substantially diluted his stake in the company, Tanti feels there is no need to raise further funds. There are no loan obligations for the next three years, he said. "Today, all my bankers and bondholders are extremely happy," he said. "They passed through the difficult time, but nobody has lost the money; they have gained money."

"The only loser is the promoter. My stake was almost 52%, and now, it is 20%. I had given stock to bankers also when I was not able to pay [obligations]," he added.

But Tanti says he doesn't dwell on the past anymore. "Indian solar market appears in full bloom right now. 25GW of projects are under different stages of development. The market is growing at an exponential rate, about 35 new tenders with a cumulative capacity of 15.5GW were announced last year and an additional 5GW of new tenders are to be announced in the coming months," said a 22 April report by Bridge to India, a renewable energy consulting firm.

He doesn't have big fund-raising plans, but there could be some monetization of manufacturing facilities, which were meant for outdated small turbines. Tip for sale will be production units in Pudukkottai and Vadodra.

The new challenge for Suzlon is also its focus on four key markets—the US, India, Brazil and China. Suzlon has shrunk its presence from 32 to 19 countries, with a CEO for each country. The company also recently appointed a CEO for managing the overall international markets business.

A volatile graph

The ups and downs in Suzlon's story are perhaps best reflected in the company's stock.

Suzlon shares hit an all-time high of ₹452.30 on 8 January 2008, and sunk to an all-time low of ₹5.76 on 28 August 2013. From there, it has since rebounded to ₹86.15 on 11 June 2014. It failed to hold on to those levels and closed at ₹15.95 on Tuesday.

Its market capitalization has fallen from more than ₹60,000 crore in January 2008 to ₹1,196 crore in August 2013 to ₹8,007.70 crore as on Tuesday's close.

The upside is that more analysts seem positive on the company than negative. Of the five analyst recommendations available on Bloomberg, four had a buy rating on the stock, while only one had a sell call.

For Tanti, that would be reaffirmation of his conviction, that one day Suzlon will once again be the premier wind turbine maker in India.

psanjai@livemint.com

"Huge opportunity in wind-solar hybrids"

Views of Suzlon Group's Tulsi Tanti

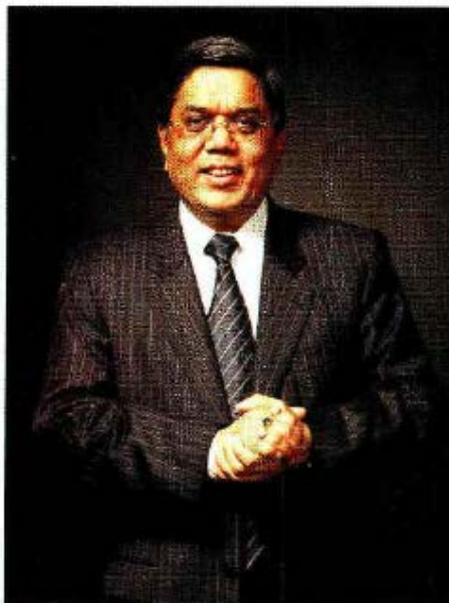
Wind turbine maker Suzlon Energy has taken several transformational steps in line with its strategic vision, paving the way for its future growth. In an interview with *Renewable Watch*, Tulsi Tanti, chairman and managing director, Suzlon Group, talks about the overall business scenario, and the company's expansion plans and initiatives...

What are your views on the renewable energy sector in India and its outlook?

Renewable energy has become pivotal to the movement against the risks of climate change. India's commitment at COP21 to reduce 33-35 per cent of carbon emissions by 2030 and increase renewables to 40 per cent of the energy mix by 2030 is set to truly expand the country's renewable energy portfolio. The government's target of 175 GW by 2022, including 60 GW of wind energy, is closer to becoming a reality, propelled by technology and a conducive policy environment for renewables, facilitated by both the central and state governments. As a result, we witnessed annual installations of 3,415 MW in 2015-16, higher than ever before, and 48 per cent higher than the previous year. The industry is expected to grow at a rate of 30 per cent annually, and may even surpass this, on the back of positive policies.

What are the emerging trends in wind turbine technologies?

- Aerodynamics is the key to maximising output from wind turbines and there is an ongoing advancement in aerodynamics and material technology.
- Improvements in computational fluid dynamics analysis and the resulting optimisation of rotor configuration and pitch control directly translate into an overall increase in production.
- Our new blade design will utilise carbon fibre in key areas of the blade to reduce its weight. It allows us to design even more aggressive airfoils that generate more lift and less drag in the outboard



- portions of the blade.
- Suzlon's hybrid tower uses a lattice base and tubular tower, which uses a unique transition piece to join the upper and lower sections of the tower. These towers make it easier to scale new heights, require less material and hence cost less.
- Wind farm management will grow to further enhance control of the park.

How has the company's experience been in the solar power segment? Going forward, what will be its focus areas in the segment?

With 20 years of experience in the wind energy sector, we have established a multitude of relationships with stakeholders, enabling us to become one of the most vertically integrated wind energy companies in the country. We are applying these core values and experiences to solar energy.

Our vision is aligned with the goal of 175 GW of renewable energy by 2022 as envisioned by the government, and Suzlon has successfully entered and made its mark in the solar energy segment. We are currently working on the implementation of 515 MW of solar energy projects and are one of the few players to provide complete turnkey and engineering, procurement and construction solutions. We are also working on wind-solar hybrid solutions, as there is a huge opportunity in this area.

What will be the likely impact of the solar-wind hybrid and repowering policies on the wind power segment?

Over 3,000 MW of ageing turbines are located in high wind sites and can be repowered with upgraded technology to maximise the potential of the site for higher energy yield. The 0.25 per cent rebate from the Indian Renewable Energy Development Agency (IREDA), in addition to the interest rate rebates available to the new wind projects being financed by IREDA, will further encourage investors to consider repowering.

There is an immense opportunity for repowering, especially in Maharashtra, Gujarat and Tamil Nadu, since they were amongst the early adopters of wind energy. We are glad that the Ministry of New and Renewable Energy (MNRE) has directed the state nodal agencies to extend support, especially for infrastructure augmentation of pooling stations, wherever required and for land acquisition. However, creating a facilitative framework for repowering is only the first step. With the initial

A LIFETIME OF CONTRIBUTION: SHRI TULSI TANTI, FOUNDER, LATE CHAIRMAN AND MANAGING DIRECTOR

The journey from "The Wind Man of India" to becoming "The Father of Indian Renewable Energy"



Tulsi Tanti

Chairman at **Suzlon Energy** Limited

C-Suite executives



Tulsi Tanti is the Chairman and Managing Director of Suzlon Group, an Indian MNC and a prominent player in the global renewable energy sector. A visionary and a world renowned expert on clean energy, he is passionate about championing the cause of affordable and sustainable energy to tackle the paradigm of economic growth and climate change. He conceptualized end-to-end solutions model creating realistic avenues for businesses and

envisioned importance of R&D to optimize available wind resources & minimize LCoE. Suzlon has become global conglomerate under his able leadership and emerged as a prominent player in global renewable energy market.

He is also the Chairman of Indian Wind Turbine Manufacturers Association (IWTMA) and also active member of various CEO Forums.

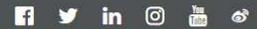
He is credited with the establishment of the renewable market in India and has been conferred with numerous awards including 'Champion of the Earth' by the United Nations, 'Entrepreneur of the Year 2006 by Ernst & Young, 'Hero of the Environment' by TIME magazine and many more.

A LIFETIME OF CONTRIBUTION: SHRI TULSI TANTI, FOUNDER, LATE CHAIRMAN AND MANAGING DIRECTOR

The journey from “The Wind Man of India” to becoming “The Father of Indian Renewable Energy”

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TULSI TANTI - ENTREPRENEURIAL VISION

Chairman and Managing Director of Suzlon Energy Limited

Born in Gujarat, India, Tulsi Tanti is the Chairman of Suzlon Energy Ltd, the fifth largest wind turbine manufacturer in the world and the largest in Asia. After graduating in commerce and mechanical engineering, Tulsi Tanti started a textile business and decided to invest in two wind turbines in 1990 due to power unavailability in the area. Suzlon Energy Ltd currently

possesses 17,000 MW of wind energy capacity installed in 18 countries and it has demonstrated that renewables not only represent a profound business opportunity, but also contribute significantly to sustainable development and the reduction of greenhouse gas emissions.

A LIFETIME OF CONTRIBUTION: SHRI TULSI TANTI, FOUNDER, LATE CHAIRMAN AND MANAGING DIRECTOR
 The journey from "The Wind Man of India" to becoming "The Father of Indian Renewable Energy"

"India Inc. examines the key players that are shaping the India of tomorrow; these are the people that will lead the country into a new future, both in terms of what they are doing now and through the examples they set as role models."
Jim O'Neill, Head of Global Economic Research, Goldman Sachs and author of The BRICs Report

 K. V. Kamath <i>ICICI Bank</i>	 Kiran Mazumdar-Shaw <i>Biocon</i>	 Kishore Lulla <i>Eros International</i>	 Mahinder Singh <i>Religare</i>	 Narayana Murthy <i>Infosys Technologies</i>
 Baba Kalyani <i>Bharat Forge</i>	 Tuli Tanti <i>Suzlon Energy</i>	 Subhash Chandra <i>Zee TV</i>	 Shiv Nadar <i>HCL Technologies</i>	 S. Ramadorai <i>Tata Consultancy Services</i>

India is well on the way to giving the world a new generation of role models to follow Bill Gates, Richard Branson, Rupert Murdoch, and Warren Buffett. This book reveals who these entrepreneurs and business leaders are and what makes them tick. It sifts through the jargon, dusts off the myths and spells out in simple terms what the future of India Inc. holds for the world at large.

"India Inc. provides an easy read with vignettes for readers who want a light introduction to these personalities. An interesting cross-section of today's Indian business leaders, beyond the large industrialists. It will be welcomed by many readers in a country that has a voracious appetite for biographical accounts of how a successful entrepreneur overcame the country's notorious red tape and poor infrastructure to make millions."
Financial Times

"One of the important trends of the first decade of the 21st century is the presence of Indian companies on the world stage. As the geo-economic weight shifts to Asia in this new century, after more than two centuries of Euro-American domination, we need to better understand the implication of the presence of Asian business leaders in the global arena. India Inc. will play an important role in providing a nuanced understanding of India's role in this globally shifting economic environment."
Vishakha N. Desai, President and CEO, Asia Society, US

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India Inc.

How India's Top Ten Entrepreneurs are Winning Globally

1



Vikas Pota

"Insightful and thought-provoking. A must-read for any aspiring Dragon or business person wanting to understand the minds behind the greatest business expansion of our world today" *James Caan, Dragons' Den*

India Inc.



India's Top 10 Entrepreneurs

Vikas Pota



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x

Tulsi R Tanti



- Chairman of Suzlon Energy, the world's third largest supplier of wind turbines and other complete end-to-end wind power solutions.
- Asia's largest wind turbine manufacturer, spread across 21 countries and five continents.
- Recognized as one of *Time* magazine's "Heroes of the Environment" and by the United Nations Environment Program as a "Champion of the Earth" for his contribution to raising awareness and initiating action on global climate change.
- A serial entrepreneur: Suzlon is his 17th enterprise. His journey began with a decision he was asked to make: would he prefer to manage his family's cinema halls or its cold storage facility? Guess which one he opted for?

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The Climate Change Billionaire

Very few entrepreneurs can boast a billion-dollar enterprise built, quite literally, on air. That's why the Tanti story makes interesting reading.

Tulsi R Tanti sells windmills and is one of the biggest players in the field. He is the face of wind energy in India and is on his way to becoming a global market leader. The US is focused on securing its energy supply, the EU is showing strong support for tackling climate change, and the boom in Asia has resulted in a greater demand for electricity. Such factors bode well for Tanti and Suzlon Energy.

Referred to as "Tiger" by his friends for the aggression he shows in his business, Tanti has always dreamt big and matched his company's growth rate with his dreams. His wind turbine business has consistently grown at more than double the rate of the existing market.

His driving force is very simply what he describes as "common sense":

"Wind energy can, and will, play one of the most important roles in saving the world tomorrow, today. I drive my business as a cause, one where we power a greener tomorrow.

"We have a very clear vision, strategy, and plan. I can write down a 10-year balance sheet for you right now, Suzlon is that focused. I want to put the wind energy sector at a completely different level. It is my contribution to society. Low-cost energy is very important for the common people of the developing world. Alternative sources of energy are the reality of today. So while I make money, I want to take care of the environment at the same time."

Tanti is confident that the increasing oil and gas prices coupled with concerns about global warming will present him with an opportunity to grab a quarter of the global market for wind energy by 2015.

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