

Energy Situation in India

Government of India Targets – 175 GW of RE by 2022

- 40 GW of rooftop solar – 22.8% of total targets of RE provided by Solar Power on rooftops

Current Scenario

India has 275 GW of installed electricity generation capacity which is significantly higher than 140 GW of peak demand. In fact, India's coal generation capacity is higher than peak demand of 140 GW.

Despite installed capacity exceeding power demand, some parts of the country face acute power shortages. The critical reasons are

- Coal supply shortages,
- High level of transmission and distribution losses,
- Poor financial health of utilities and
- The price of imported coal is unregulated and volatile. Imported coal in the recent past has been significantly more expensive than Indian coal.

Outcome - Distribution companies (discoms) that buy electricity generated with imported coal face significant and unpredictable upward pressure on tariffs. Some utilities have tried to avoid these high costs by simply not buying power, even when the result is local shortages, rolling blackouts, and increase in fixed costs.

More than 300 million people in India are still waiting for access to electricity.

RE Potential in India

India's solar potential is greater than 750 GW and its announced wind potential is 302 GW (actual could be higher than 1000 GW). India Energy Security Scenarios 2047 show a possibility of achieving a high of 410 GW of wind and 479 GW of solar PV by 2047.

Tapping into abundant indigenous renewable resources could avoid revenue outflows for expensive imported fuels. At the current time – without innovative policy changes – India is facing a rapidly rising and volatile imported coal bill far into the future. India's coal imports in 2014-15 were already at 212 million tonnes at over Rs 1 lakh crore.

<http://economictimes.indiatimes.com/industry/indl-goods/svs/metals-mining/coal-imports-likely-to-decline-to-160-mt-in-fy17/articleshow/53264727.cms>

In 2016-17, Coal import may come down to 160 MT. Decline of 24.5% in import of coal from overseas. This suggest 3 propositions,

- Domestic Coal production has increased – **Agreed but Productivity of CIL is weak.**
- Demand is weak
- RE is taking some of Coal fired power station electricity generation capacity

The world's largest miner, Coal India is aiming to ramp up its output to **1 billion tonnes** by 2020. "CIL may miss (production target) by **20 million tonnes** (MT) and it (the output) should be between 570-578 MT.

Import of coal is projected for the year 2016-17 by Niti Aayog is 160.16 million tonnes

http://www.indiaonline.com/article/news-top-story/coal-india-cil-aims-at-400-mt-output-by-the-end-of-fy-2016-17-117031100216_1.html

<http://www.climatechangenews.com/2017/01/18/india-to-end-coal-imports-in-next-few-years/>

The infographic features a portrait of Narendra Modi on the left, a large downward arrow with the text 'Coal Import down by 25%' in the center, and a bar chart on the right showing a decline in coal imports. Below the chart, it states 'December 2015: 19.15 M Tonnes' and 'December 2016: 14.31 M Tonnes'. The bottom section of the infographic reads 'India aims at zero coal Import in next few years' and includes social media icons for Facebook, Twitter, and YouTube, along with the logo 'TheIndiaEye'.

Coal Import
down by 25%

High availability of Domestic Coal & Efficient Coal Ministry making it possible

Coal Import

December 2015: 19.15 M Tonnes

December 2016: 14.31 M Tonnes

India aims at zero coal Import in next few years

Piyush Goyal @PiyushGoyal

India's coal import drops 25% in Dec 2016 (YoY); aims to eliminate coal dependency in the next few years.

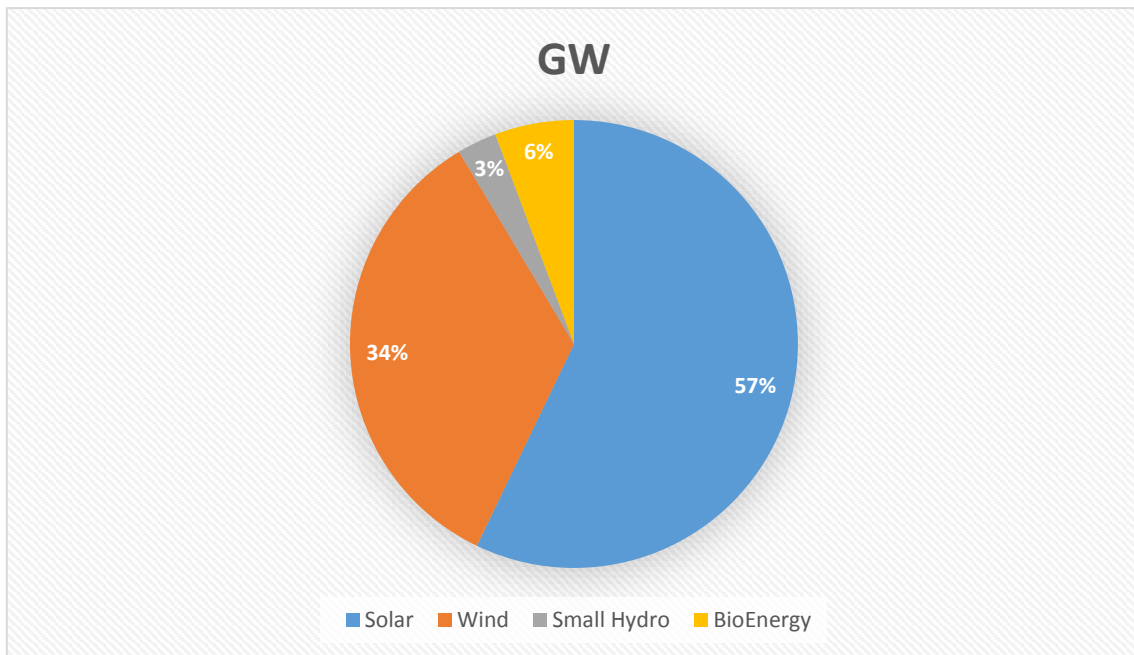
6:35 PM - 18 Jan 2017

591 866

Cost

Renewable energy tariffs, of which 70% are financing costs (but no fuel costs for 25-30 years), will reduce if loans are provided at lower interest rates.

2022 RE Breakdown



India's Intended Nationally Determined Contribution (INDC) aims to base 40% of the total installed power generation capacity on non-fossil fuel resources by 2030 with international support on technology transfer and financing. This includes Government of India's ambitious target of achieving 175GW of RE by the year 2022 that marks 75 years of our independence. It also aims to reduce the emissions intensity of GDP by 33 to 35% from 2005 levels by 2030. The installed capacity of RE is 37.4 GW (as on 30th Sep 2015)

Presently, renewable energy accounts for ~12% of India's total installed power generation capacity, and approximately 5% of the total generation.

Of the 100 GW target for solar, 40 GW is expected to be achieved through deployment of decentralized rooftop projects, 40 GW through utility-scale solar plants, and 20 GW through ultra-mega solar parks. Considering these targets, renewables (solar, wind and hydro) will account for ~10% of the total energy mix, by 2022 (IESS 2047).

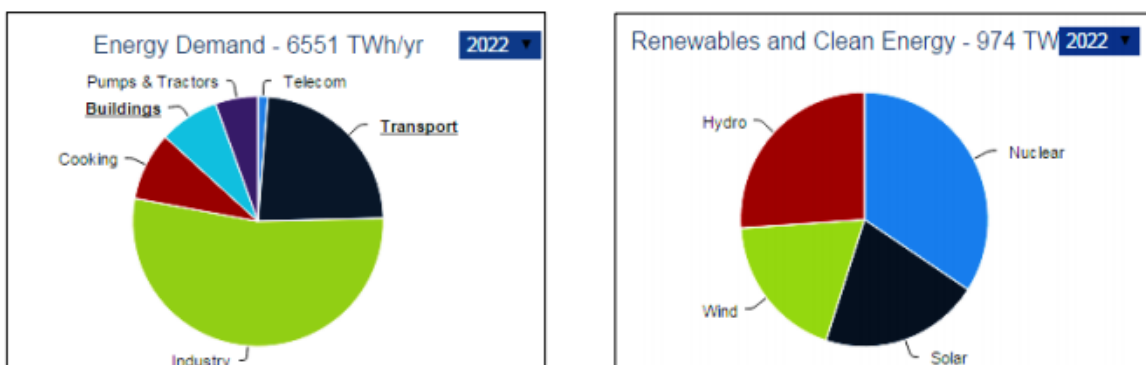


Fig 1: Possible share of RE in India's Energy Mix in 2022

Most RE projects can be deployed within a time frame of less than three years from conceptualization, as compared to ten years required for conventional power projects. In fact, solar PV can be deployed in less than a year. RE can also provide access to affordable energy solutions to the India's off-the-grid population, and can create employment opportunities for local skilled and unskilled manpower. Recent studies also suggest that RE creates much more jobs than conventional power, per unit of power produced, major chunk of which are local. Renewables can reduce the ever-growing dependence on imported fossil-fuels and their volatile prices, with practically no fuel costs and negligible impact on the quality of the surrounding environment.

On the flip side, it is true that renewable energy is variable – as one cannot control the time for which the sun shines or the wind blows. Some of the conservative grid operators and utilities consider power from renewables to be unmanageable. However, we must remember that for decades, grid operators and power distributors have dealt with variability and uncertainty of power demand from consumers – including demand variations within the day and across seasons. They have also tackled sudden trips of large thermal power units. Similarly, the variability and uncertainty of renewables can be successfully and cost-effectively managed as seems possible from the strategies deployed world over.

In the immediate term, the high costs associated with renewables – compared to domestic coal based power generation – is considered to be a deterrent. But comparators need to be highlighted. Renewable electricity is cheaper than most conventional sources such as gas, diesel, nuclear and also imported coal (in many cases), except domestic coal.

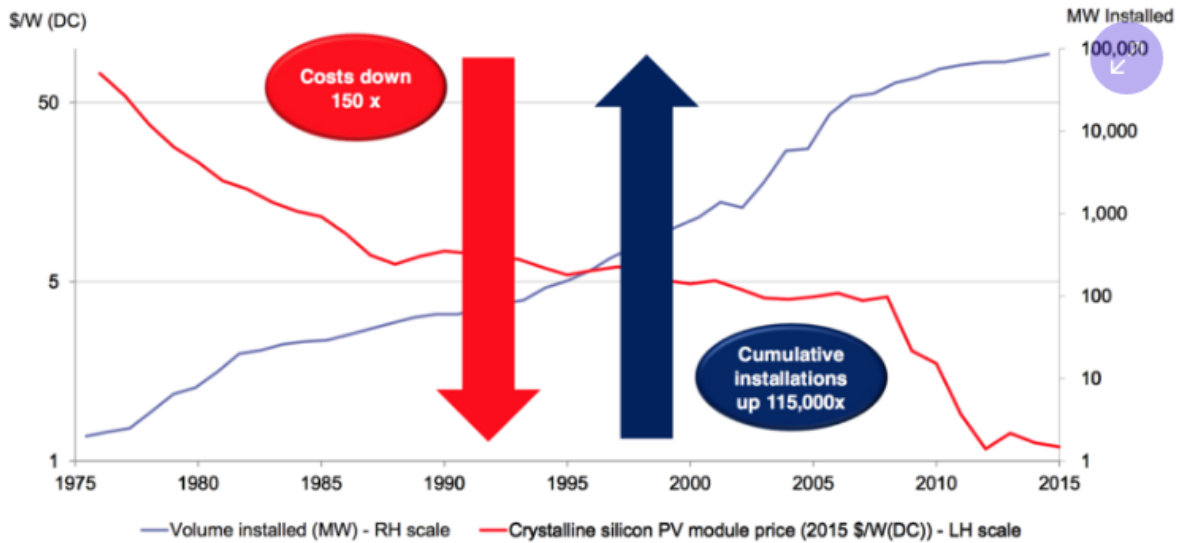
In fact, real power generation tariffs of renewables are decreasing, while prices of coal-based power are increasing, despite domestic coal prices being controlled by the government. PV module prices have fallen 80% since 2008 and by 12% in 2012 alone. Wind turbine prices have fallen 29% since 2008. These falling prices can be attributed to declines in the prices of system components (e.g., panels, inverters, racking, turbines, etc.), and dramatic improvements in efficiency, among other factors.

In India today:

- New wind projects at the point of generation are cheaper than the comparable costs of power from new imported coal-based projects;
- Solar photovoltaic generation costs are cheaper than the cost of natural gas-based generation;
- Roof-top solar photovoltaic systems costs is cheaper than the retail tariffs for large commercial and industrial consumers and even high-use residential consumers in some states; and
- New rooftop solar costs are already significantly lower than the cost of diesel back-up generators and battery-inverter systems used by many consumers.

The costs of generating RE have fallen steeply in the past decade, and once projects are set-up, the costs are not likely to increase over life of the asset – typically 25 years. Within a few years, it is likely that existing RE power generation will actually become cheaper than all possible sources and hence, subsidies for RE will no longer be necessary. It will in fact be available at the same or lower cost than power from the more traditional fossil fuel-based plants.

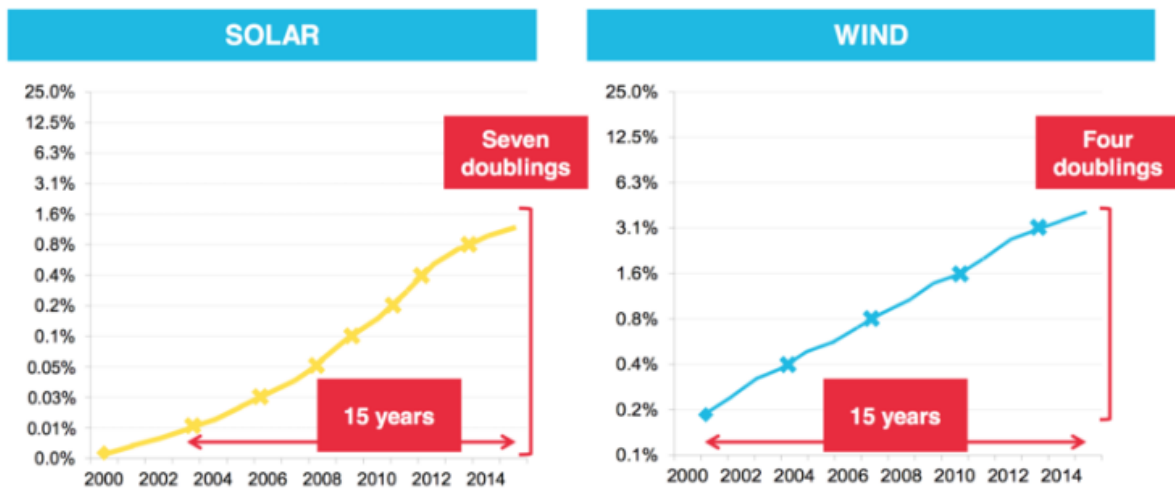
As solar prices fall, installations boom



Source: BNEF

The reason solar-power generation will increasingly dominate: It's a technology, not a fuel. As such, efficiency increases and prices fall as time goes on. What's more, the price of batteries to store solar power when the sun isn't shining is falling in a similarly stunning arc.

An industry that keeps doubling in size



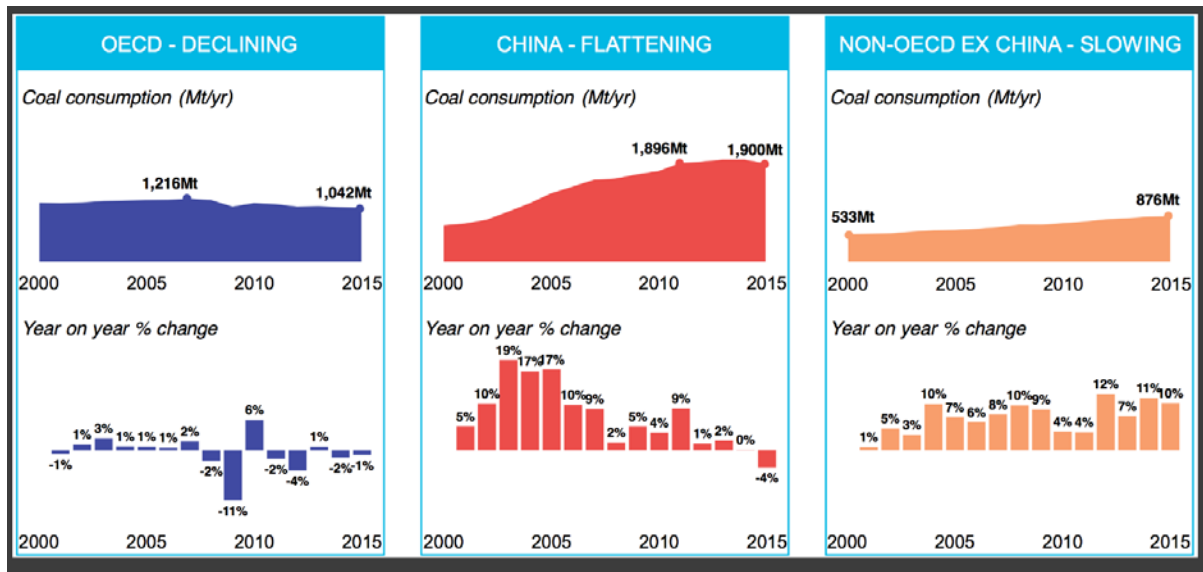
Renewables' share of power generation. Scale is shown in doublings. Source: BNEF

Read - <https://www.bloomberg.com/news/articles/2016-04-06/wind-and-solar-are-crushing-fossil-fuels>

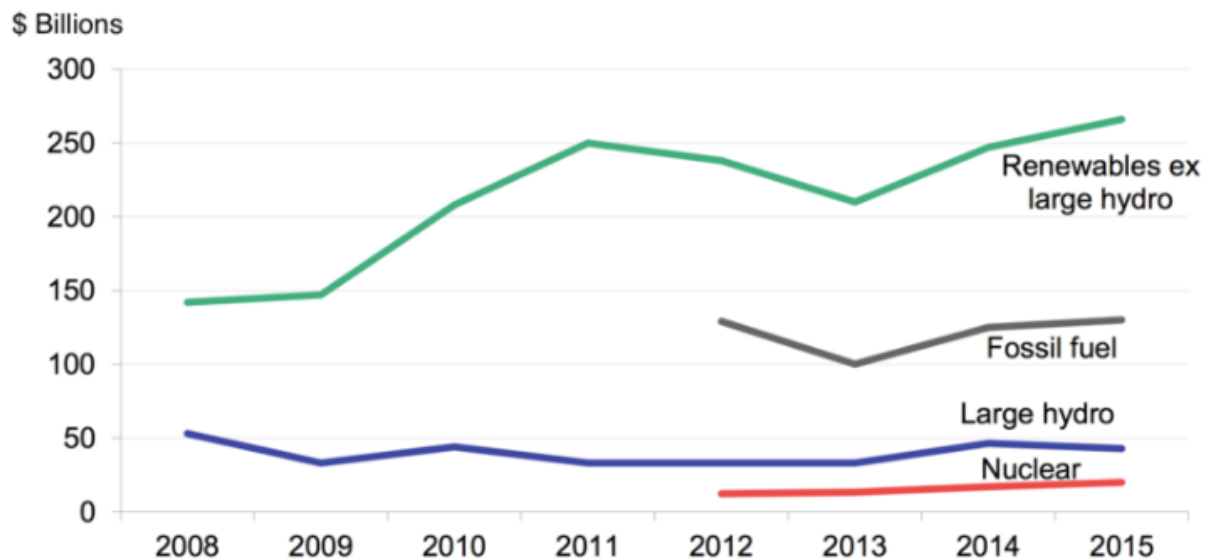
The best minds in energy keep underestimating what solar and wind can do. Since 2000, the International Energy Agency has raised its long-term solar forecast 14 times and its wind forecast

five times. Every time global wind power doubles, there's a 19 percent drop in cost, according to BNEF, and every time solar power doubles, costs fall 24 percent.

Coal phases out in the wealthiest countries first



Renewables are beating fossil fuels 2 to 1



Investment in Power Capacity, 2008-2015 Source: BNEF, UNEP

Government subsidies have helped wind and solar get a foothold in global power markets, but economies of scale are the true driver of falling prices: The cost of solar power has fallen to 1/150th of its level in the 1970s, while the total amount of installed solar has soared 115,000-fold.

The price of solar PV continues to fall. On Monday, a new record low of US2.42c/kWh (\$A0.032c/kWh) was set in a tender for a large solar park in Abu Dhabi, not by an industry outlier but by the biggest manufacturer of solar modules in the world, JinkoSolar.

The tender handsomely beats the [previous record of US2.91c/kW set just last month in Chile](#), and [previous sub-3c/kWh markers set in Dubai](#) in an earlier tender.

<http://reneweconomy.com.au/solar-price-hits-record-low-of-2-42ckwh-and-may-fall-further-32358/>

The fall in the cost of renewable energy technologies – 80 per cent in five years for solar and 60 per cent for wind – was cited as a major reason why agreement was reached in Paris last year for a landmark and an ambitious climate target, or well under 2°C and possibly 1.5°C. Now prices have fallen dramatically again.

Offshore wind, considered a critical component of renewable energy strategies in northern Europe and the Americas, has fallen dramatically with Swedish group Vattenfall offering to build two projects off Denmark for a price of €60/MWh – (\$6680/MWh – or US6.6c/kWh)

Cheapest Solar – US 2.4c/kwh

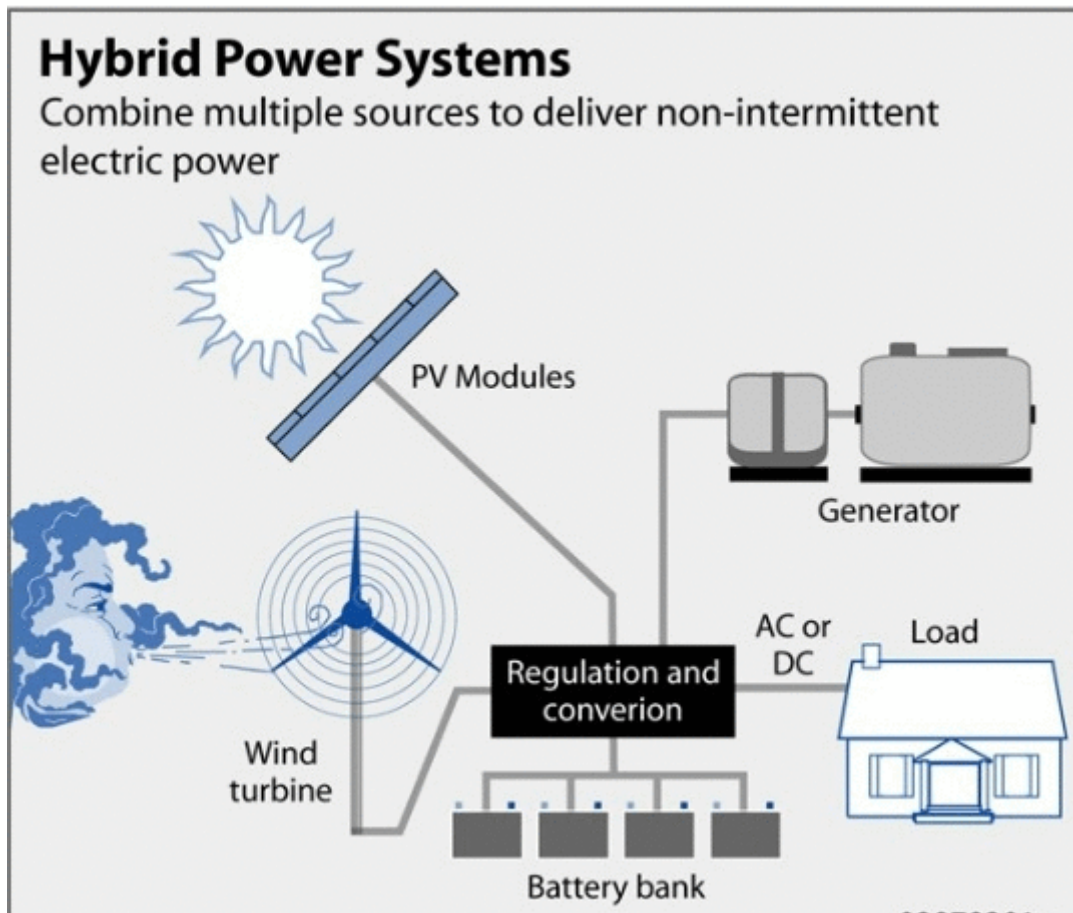
Cheapest Offshore Wind – US 6.6c/Kwh

Tesla Elon Musk - <http://reneweconomy.com.au/billionaire-tweets-signal-end-of-the-road-for-fossil-fuel-dinosaurs-35646/>

The following trends will create a new era in power production, distribution and management.

1. Quantum shift in demand for electrical energy from trucks, cars and other automobiles, as well as electric heating needs, will be major triggers for production and consumption of energy.
2. Graphene and hybrid variants in solar cells, power converters with a range of bandgap semiconductors will enhance performance, efficiency and reliability of electric grids and the next generation of solar panels.
3. Digitalisation of the power sector will bring a wide array of benefits. The cost of wind energy is expected to peg lower, and customers will be in better control of power consumed by them.
4. Wind energy production and distribution will scale greater heights with technological advancement impacting generation as well as distribution.
5. Electricity storage will see better storage and chemical batteries will help consumers store solar energy and smart software embedded in the batteries will optimise the use of those batteries.
6. A more reliable and controllable system of demand response will impact the way utility companies work today.

Power grids will also go hybrid to make room for an increase in the share of multiple streams of renewable energy facilitating better transmission efficiency over longer distances.



The electricity grid is a complex system in which power supply and demand must be equal at any given moment. Constant adjustments to the supply are needed for predictable changes in demand, such as the daily patterns of human activity, as well as unexpected changes from equipment overloads and storms. Energy storage plays an important role in this balancing act and helps to create a more flexible and reliable grid system. For example, when there is more supply than demand, such as during the night when low-cost power plants continue to operate, the excess electricity generation can be used to power storage devices. When demand is greater than supply, storage facilities can discharge their stored energy to the grid.

Because some renewable energy technologies – such as wind and solar – have variable outputs, storage technologies have great potential for smoothing out the electricity supply from these sources and ensuring that the supply of generation matches the demand.

The future of energy storage - <https://youtu.be/Pp2Wg5sICfI>

Back to India Context

Largest Wind player in India by market share

Gamesa

Suzlon

Inox Wind

Management Commentary

"We feel that hybrid projects will make 50 to 60 percent of our sales over the next three years," **Ramesh Kymal, the chief executive officer of Gamesa's India operations**, said in an interview in New Delhi. "In a couple of months an announcement of a hybrid project from Gamesa can be expected."

India aims to install 10 gigawatts of hybrid capacity by 2022, according to a policy released earlier this year by the Ministry of New and Renewable Energy.

"A common grid infrastructure for wind and solar installations will bring stability in the grid and will help avoid curtailment and seasonality of energy production," **Tulsi Tanti, founder and chairman of Pune, India-based Suzlon Energy**, said in an interview, adding that wind and solar are complementary. Suzlon will focus more intensely on wind and solar hybrid projects beginning next year, with a target to win market share of more than 40 percent in the next five years, Tanti said.

"Wind-solar hybrid projects will boost growth but will not be a fundamental game changer," Devansh Jain said in a phone interview, saying the government's auctions of wind projects will likely be the biggest driver of growth in the sector. – Inox Wind

India installed a record 3.5 gigawatts of wind in the fiscal year ended March 31, according to the Indian Wind Turbine Manufacturers Association.

Link - <https://www.bloomberg.com/news/articles/2016-09-05/hybrid-solar-and-wind-systems-attract-turbine-makers-in-india>

<https://www.eqmagpro.com/suzlon-to-focus-on-wind-solar-hybrid-model/>

Suzlon Energy is present in all nine wind rich States with over 14 manufacturing facilities in the country. The company is the largest operations and maintenance (O&M) service provider in the Indian renewable sector with 10 GW of assets installed is under its management. It is ranked fourth in terms of entire power sector-renewables and conventional. Its current order book stands at 1,231MW valued at Rs 7,523 crores spread across various wind States. The company is keen to explore the hybrid model combining the strengths of both wind and solar.

Tulsi Tanti, chairman and managing director, Suzlon Group, told Telangana Today, "One must understand that wind and solar energy do not compete and rather complement each other. Solar in India is in addition to wind and not a substitute. Both technologies are required for ensuring the energy security of the country and to bring down the levelised cost of energy (LCoE)."

Complementary role

Due to complementary generation profile of wind and solar, a combination of both the technology is required even from optimum utilisation of grid infrastructure. Wind is already at grid-parity and with over 28 GW installations, it is a proven and mature technology. Central government has set individual targets for Wind and Solar. The target is the same for both, wind and solar at 60 GW with an additional 40 GW in solar coming from rooftop installations. Wind employs over two million individuals in the manufacturing and projects side of the business.

He said, "India has exported wind products and technologies to over 30 countries, so the sector itself is truly 'Make in India' not only for domestic market but also for the export market. You must appreciate that no other Asian country has achieved this feat in wind and the products are predominantly sold in the developed markets, like the US and Europe. There is a huge opportunity in wind-solar hybrid solutions given the complementary cycles of generation and the better utilisation of the installed infrastructure. However, a dedicated policy for hybrid is still awaited and is shortly expected to be rolled out."

For investors, hybrid Policy could be a big trigger.

Tanti on Power Sector

On the power industry patterns, Tanti says, "Growth in conventional is almost stalled, with limited new capacity addition, whereas renewables are on strong growth trajectory. With sustained profitability and increased momentum, our rankings in overall power sector is also bound to improve." Suzlon has been making rotor blades, a key component in the wind turbines. The company's current capacity of rotor blades stands at over 4,000 MW per annum. It has commissioned three manufacturing units one each in Madhya Pradesh, Andhra Pradesh and Rajasthan in the last year. These units produce the next generation of its 2.1 MW turbine S111, with rotor diameter of 111 meter. This turbine has a 120 m tower and 111 m rotor which gives good energy production and 30 per cent plant load factor. It has already invested Rs 200 crore for setting up manufacturing facilities in these States. "The company's S111- 120 prototype is now in completion stage of one year of testing and has already delivered 37 per cent to 38 per cent PLF. The product is likely to cross the 40 per cent PLF. The S111 (2.1MW) 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 meter. Touted to be a potential game-changer in the industry with increased energy production by nearly 20 per cent, S111 is one of the highest yielding International Electro technical Commission (IEC Class) III wind turbine," Tulsi Tanti informed.

Telangana focus

Predominantly a wind power company, Suzlon has also tasted success in solar across the country. The company has also recently completed 49 per cent of disinvestment in 210 MW in Telangana. He said, "We build, sell products and maintain projects, which has been our business model from the beginning. In respect of solar projects, the idea was to gain experience in end-to-end turnkey solution offerings."

"Going forward our focus would remain on wind-solar hybrid offerings and will continue to divest from our solar portfolio. Telangana continues to be a key market for us and we will continue to bring further investments to strengthen the State's objective of achieving its renewable," he added.

Suzlon CFO on Financials

J P Chalasani, Group CEO, Suzlon, said, "Q3 FY17 revenues are up by 76 per cent on a YoY basis and

we are confident of maintaining the growth momentum with strong focus on posting sustainable profits. We continue to drive technology innovation in our industry and have introduced next generation turbines which will bring down the Levelised Cost of Energy (LCoE). Wind-solar hybrid solutions is the next strong growth opportunity for Suzlon.”

“We are focused on ramping up volumes by executing our strong order book, at the same time ensuring that we continue to maintain tight control on our working capital and fixed costs. We are also adequately capitalised to deliver high volume for the forthcoming quarters and will continue to post sustainable profits.” Kirti Vagadia, Group Chief Financial Officer (CFO), Suzlon, said.

Auctions in RE

Solar power in India fell to a record 3.30 rupees (**U.S. \$0.05**) a kilowatt-hour on Feb. 10 after a World Bank-backed auction helped the central Madhya Pradesh state tender 750 MW of power. The auction format, which included payment guarantees and was run by the state and central governments, could become a template fueling growth in other regions and bringing energy security to the world’s second-most-populous country.

“The outcome for this tender has shown that the holy grail of grid parity has been discovered,” said Basant Jain, the director at Mahindra Renewables Pvt., which won the right to build 250 MW of capacity in the auction. If the auction can be replicated, it would unleash exponential growth in Indian solar and make it the cheapest source of energy available, he said.

Under scenarios projecting high levels of green power growth, and assuming “[energy storage technology would become viable](#) beyond 2027, the price of electricity from **renewable energy storage achieves parity with the price of electricity generated from domestic coal sources at prices below 5 rupees a kilowatt-hour,**” according to the report, titled “Transitions in Indian Electricity Sector.”

<http://www.renewableenergyworld.com/articles/2017/02/india-s-new-solar-auction-lights-the-way-to-modi-s-green-targets.html>

ICRA on Shareholder return

ICRA Ltd., an Indian credit ratings agency, warned lower tariffs for developers may also hurt returns.

The levelized 3.3 rupee tariff looks “aggressive from an equity holders’ perspective and returns may likely be in single digits,” ICRA’s head of power and renewables, Girishkumar Kadam, said in an e-mailed response to questions.

CARE report on renewables

India to reach solar grid parity by FY17, few states to achieve it earlier.

Outlook on Indian Renewable Energy Sources

- 12th Plan (2012-17) to add 17GW;
- funding requirement of Rs1.09tn
- Gujarat is emerging as top wind destination, while TN is losing sheen
- Solar Grid Parity by 12th Plan-end; few states to reach even earlier
- High raw material costs; cost underestimation to haunt biomass sector REC market faces glut given weak enforcement of RPO mechanism

<http://www.careratings.com/upload/Research/IndustryResearch/Brochure%20-%20Renewable%20Energy.pdf>

Suzlon bank Facilities guarantor holds shares in Sun Pharma.

15	Lakshdeep Investments & Finance (P) Ltd.	25,357,954	0
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Holding as on March 15th, 2017 → Rs 17978789386 or Rs 1800 crores

Care rating on Suzlon -- >

<http://www.careratings.com/upload/CompanyFiles/PR/SUZLON%20ENERGY%20LIMITED-12-22-2016.pdf>

Bank facility guarantee given of 1300 crores.

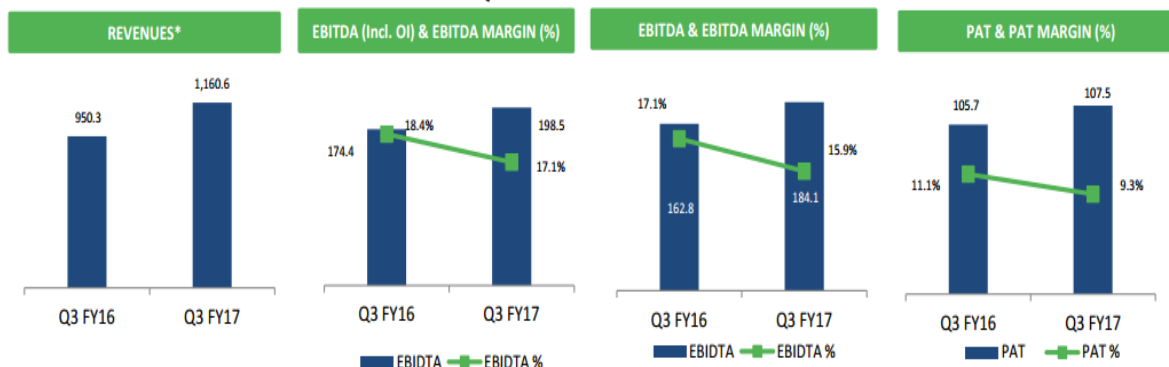
INOX Winds - <https://www.inoxwind.com/crisil-reaffirms-aa-rating-for-inox-winds-long-term-bank-facilities-and-a1-rating-for-short-term-bank-facilities/>

INOX Winds - The Company had an order book of 1,104 MW as of March 31, 2016.

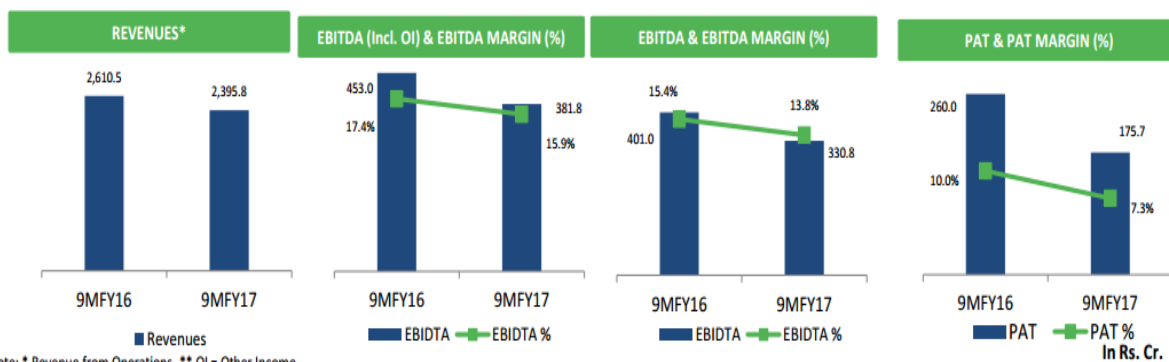
RESULT ANALYSIS- Q3 & 9MFY17



Q3 FY17 YoY ANALYSIS



9MFY17 YoY ANALYSIS



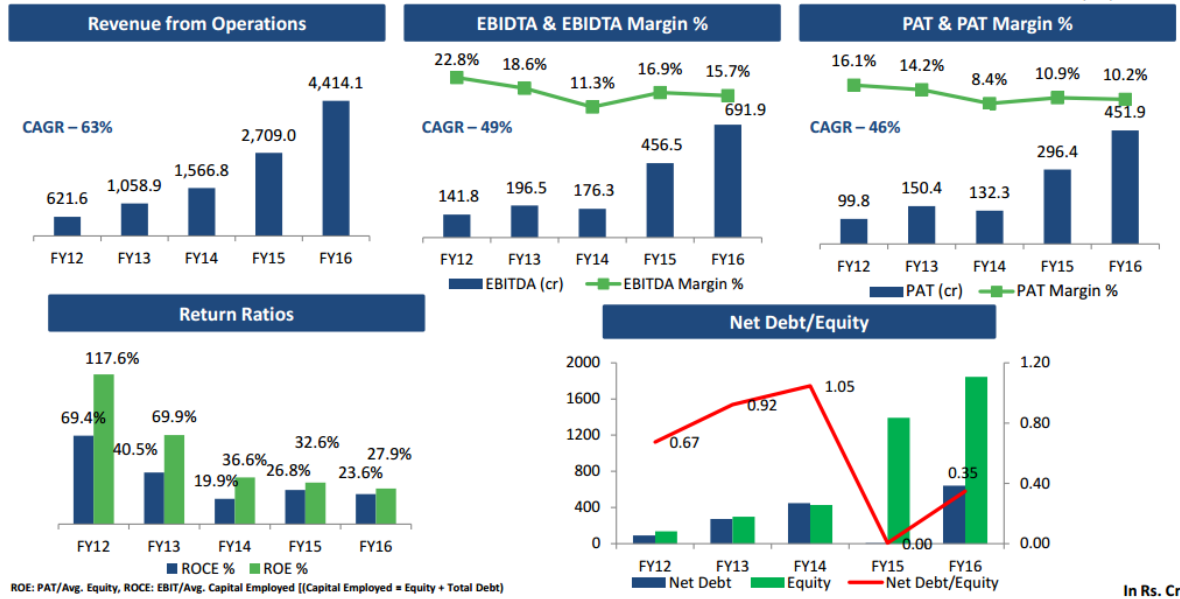
Note: * Revenue from Operations, ** OI = Other Income

In Rs. Cr.

FINANCIAL SUMMARY – LAST 5 YEAR PERFORMANCE



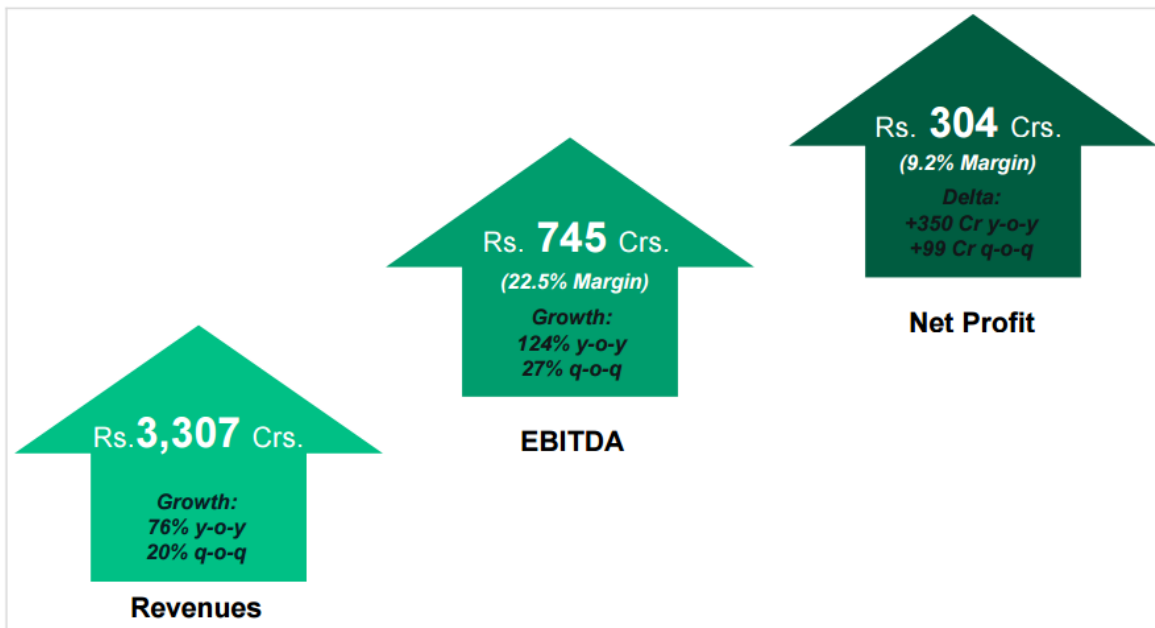
Financial Summary as per IGAAP



ROE: PAT/Avg. Equity, ROCE: EBIT/Avg. Capital Employed [(Capital Employed = Equity + Total Debt)]

In Rs. Cr

Suzlon

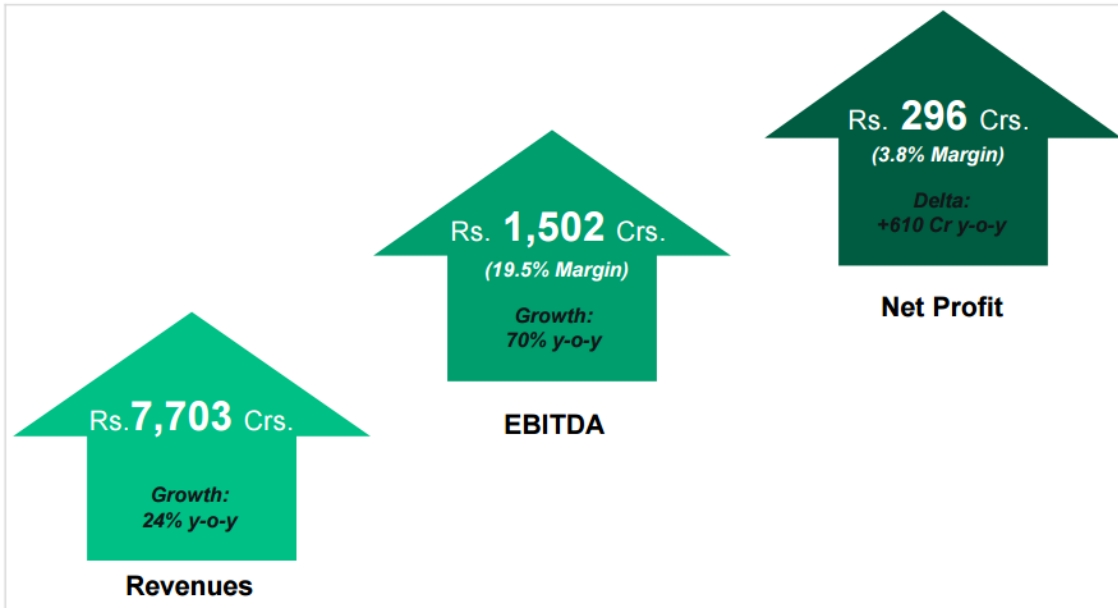


Continuing strong growth and profitability

Note: EBITDA and Net Profit is pre FX and exceptional items



9M FY17 Financial Performance Highlights



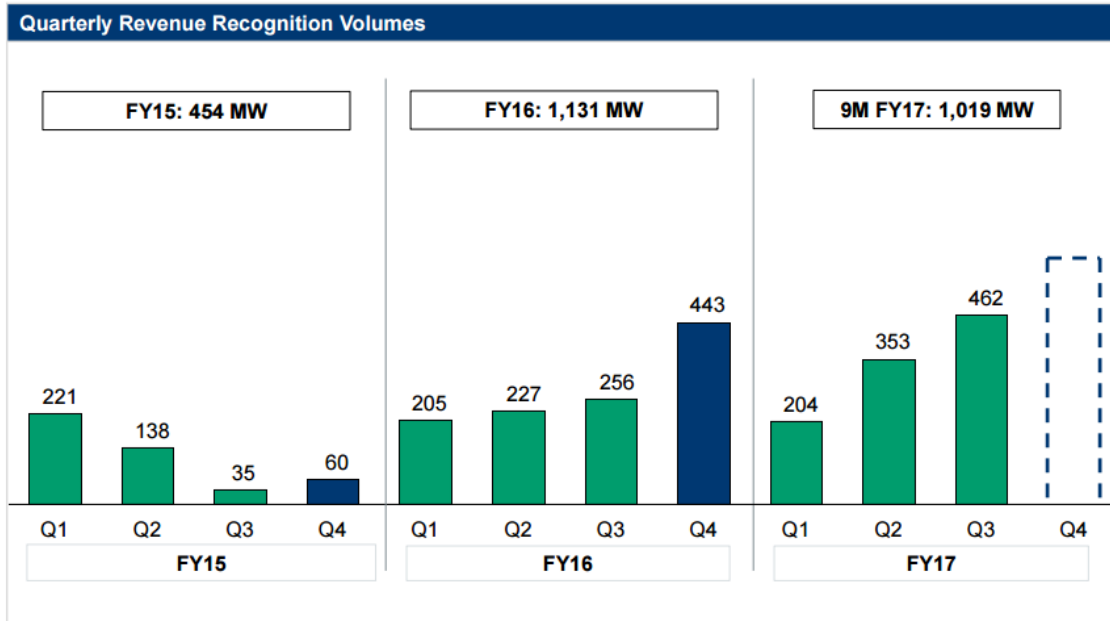
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Operating leverage and favourable revenue mix enables strong financial performance

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Note: EBITDA and Net Profit is pre FX and exceptional items

(MW)



Strong growth momentum continues

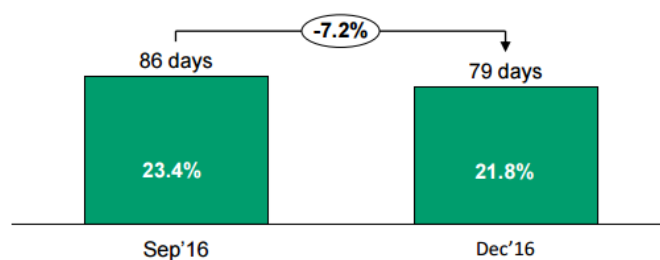
SUZLON
POWERING A GREENER TOMORROW

Other Key Highlights

- ✓ **Net working capital reduced** to 79 days as on Dec'16 compared to 86 days in Sep'16
- ✓ **Net term debt reduced** to Rs. 6,538 Crs. (excluding FCCB)
- ✓ **Credit rating upgraded** from BBB- to BBB for Suzlon and its domestic subsidiaries as well as SE Forge
 - SGSL (India OMS Division) rated A- (Provisional)
- ✓ **Strong quarterly order intake** of 557 MW; Closing order book at 1,231 MW
- ✓ **Solar project divestments completed** for 49% stake in 210 MW solar projects in Telangana
- ✓ **Surpasses 10 GW milestone in India**



Net Working Capital



NWC as on Sep'16 (Rs. Crs.)	2,232	Remarks
Add: Inventories Build-up	294	Due to stronger expected Q4
Add: Increase in receivables	409	Increase due to 20% q-o-q Revenue Growth
Add: Loans, Advances & Others	181	Due to increase in volumes
Less: Increase in Creditors	(654)	Due to increase in volumes
Less: Increase in Customer Advances	(79)	Due to increased order inflow
NWC as on Dec'16 (Rs. Crs.)	2,383	

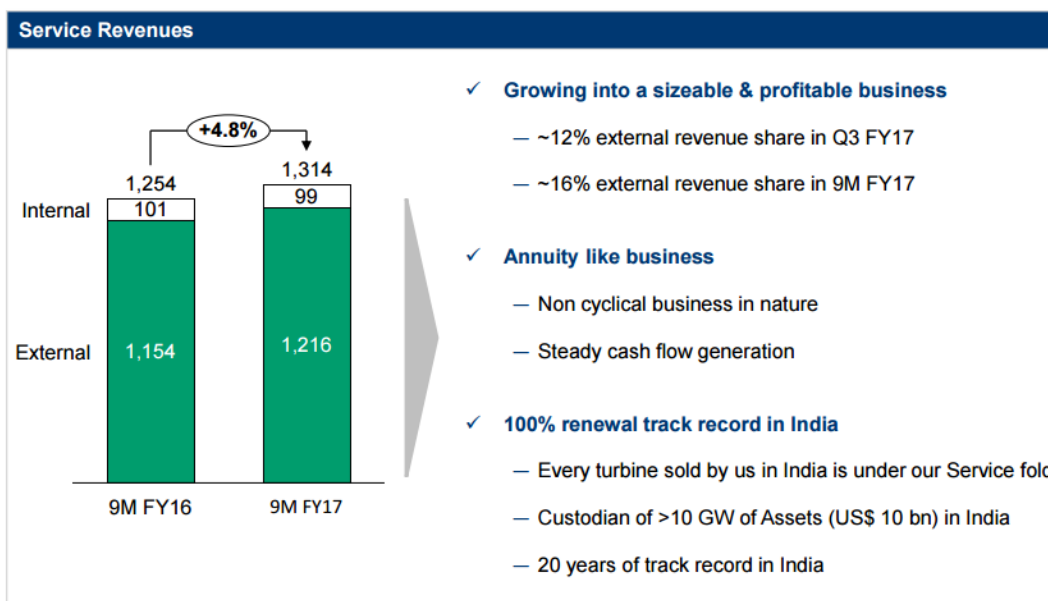
Note: NWC % and no. of days calculated on trailing 12 months Revenue

Continuous efforts to optimize working capital



Operation and Maintenance Service Business

(Rs. Crs.)



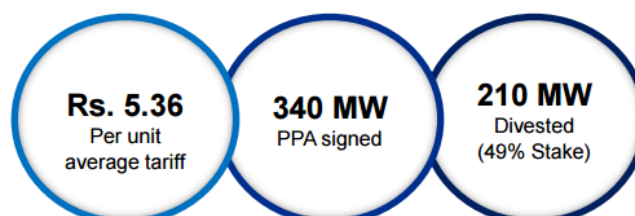
Note: All information pertaining to Suzlon Wind Only

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Stable cash generation

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Solar Bidding Status Update



Summary of Divestments

SPV	Project Size	State	Investor	Cash Consideration	Stake Divested
SE Solar	100 MW	TL	CLP Wind Farms	Rs. 73.5 Crs.	49%
Prathmesh Solarfarms	50 MW	TL	Ostro Energy	Rs. 49.0 Crs.	49%
Vayudoot Solarfarms	15 MW	TL	Unisun Energy	Rs. 13.5 Crs.	49%
Amun Solarfarms	15 MW	TL	Canadian Solar	Rs. 26.4 Crs.	49%
Avighna Solarfarms	15 MW	TL	Canadian Solar		49%
Rudra Solarfarms	15 MW	TL	AMP Solar	Rs 13.7 Crs.	49%
Total	210 MW			Rs. 176.0 Crs.	

Note: Additional bids won for 175 MW solar project in Jharkhand, for which PPA is yet to be signed

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Advanced negotiations for further divestments

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Enhancement in Credit Rating

Company	Previous Rating	Current Rating	Remarks
Suzlon <ul style="list-style-type: none"> Suzlon Energy Limited and its domestic subsidiaries, except SE Forge Pooled together under CDR for security purposes 	BBB-	BBB	1 Notch Upgrade
SE Forge Limited	BBB-	BBB	1 Notch Upgrade
Suzlon Global Services Limited (India OMS Division Carve out) <ul style="list-style-type: none"> For proposed debt raising at SGSL 		A- (Provisional)	2 Notch higher than parent, (Reflects stable cash flow profile)

Note: Issued by CARE Ratings for domestic bank facilities

6

To result in interest cost optimization



Consolidated Debt Profile

(Excluding FCCB)	31 st Dec'16	5 year Maturity Profile												
SBLB Backed AERH Debt	Rs. 4,229 Crs. (US\$ 626 M)	<ul style="list-style-type: none"> Current bullet maturity of March 2018 SBLB facility lenders consented to SBLB extension till 2023; 												
Other FX Term Debt	Rs. 570 Crs. (US\$ 85 M)	(Rs. Crs.)												
Rupee Term Debt	Rs. 2,796 Crs.	<table border="1"> <caption>Rupee Term Debt Maturity Profile (Rs. Crs.)</caption> <thead> <tr> <th>Fiscal Year</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>FY17</td> <td>23</td> </tr> <tr> <td>FY18</td> <td>134</td> </tr> <tr> <td>FY19</td> <td>387</td> </tr> <tr> <td>FY20</td> <td>572</td> </tr> <tr> <td>FY21</td> <td>764</td> </tr> </tbody> </table>	Fiscal Year	Value	FY17	23	FY18	134	FY19	387	FY20	572	FY21	764
Fiscal Year	Value													
FY17	23													
FY18	134													
FY19	387													
FY20	572													
FY21	764													
Gross Term Debt	Rs. 7,594 Crs.													
Net Term Debt	Rs. 6,538 Crs.													
Working Capital & Short Term Debt	Rs. 3,167 Crs.													

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Back ended maturity profile; Sufficient headroom for operations

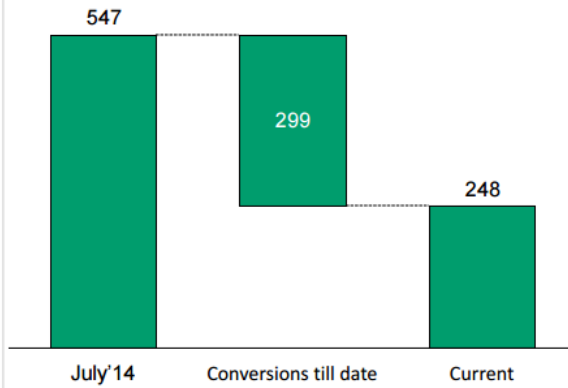
Note: 1 US\$ = Rs 67.93. Numbers post impact of Ind-AS



July 2019 FCCB Series Overview

(US\$ Mn)

FCCB Principal Value



Current and Diluted No. of Shares (Crs.)

Current Outstanding	502
Pending Conversion	97
Post Full Conversion	599

Conversion Details

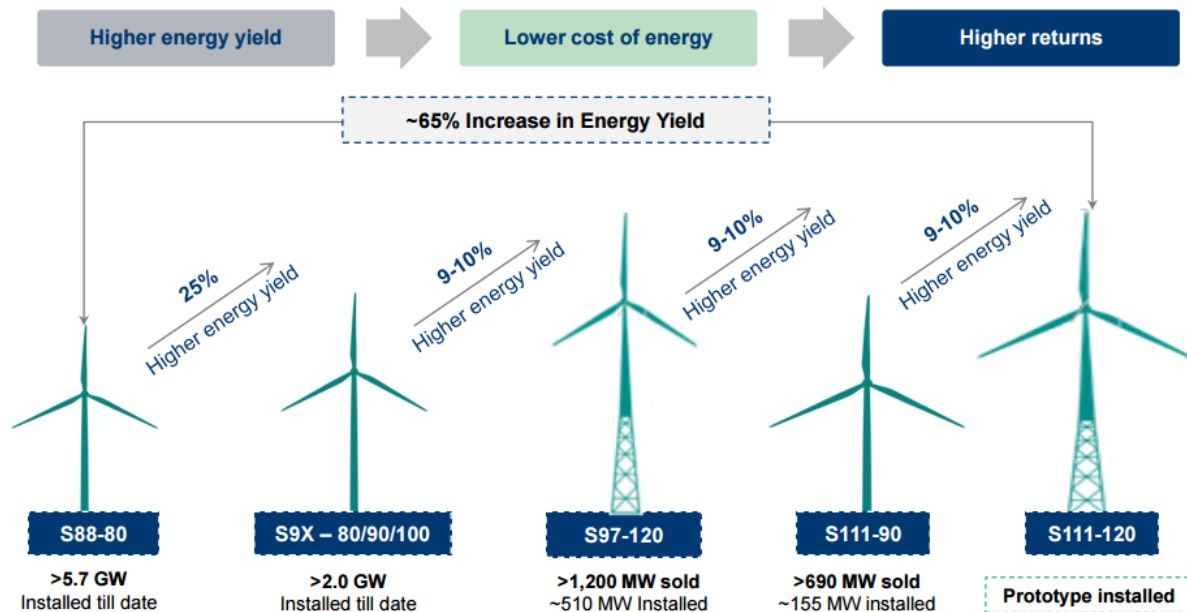
Price (Per Share)	Rs. 15.46
Exchange Rate	Rs. 60.225

Upon conversion, debt to reduce and net worth to strengthen by US\$ 248 Mn (~Rs 1,749 Crs.)

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Note: 1 US\$ = Rs 67.93; Numbers post impact of Ind-AS

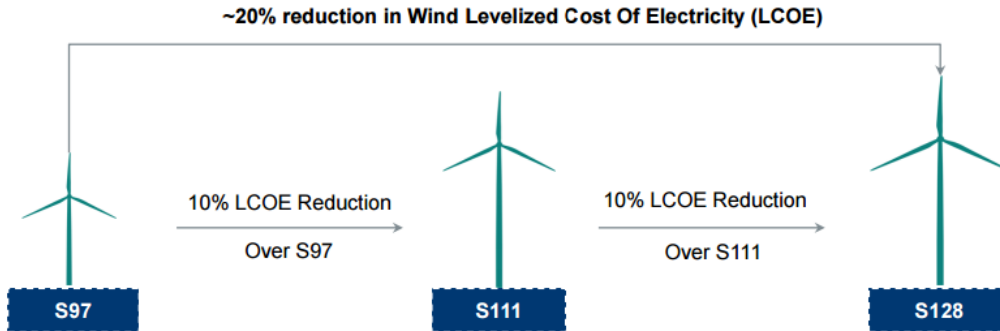
2.1 MW Series: Proven Platform with 100,000,000 Operating Hours



Over 4,000 turbines across 17 countries

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Global Coverage - Next Generation Products



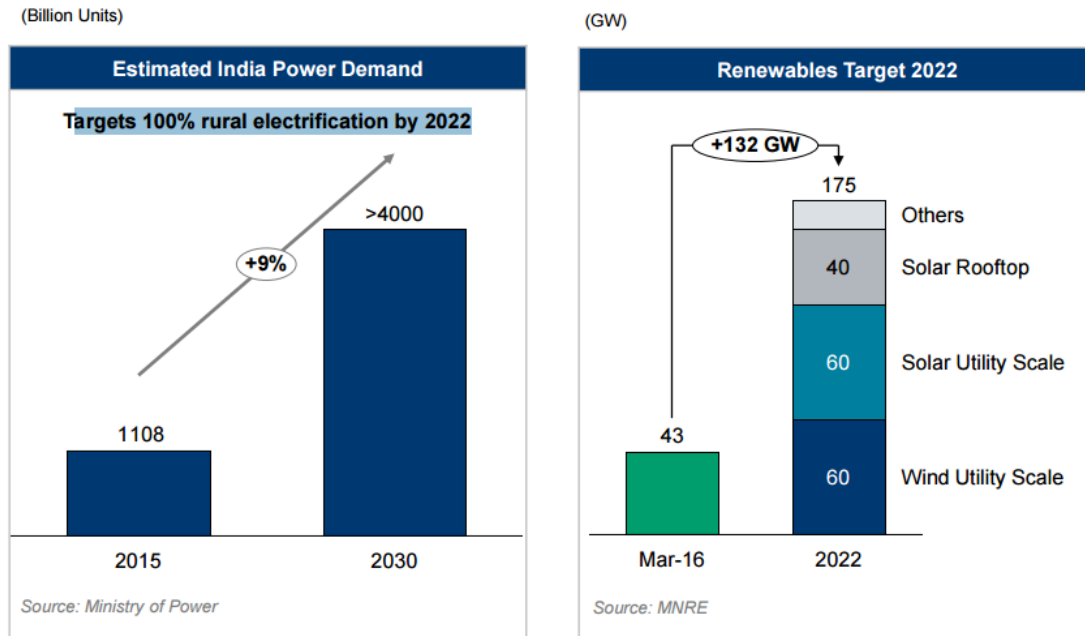
Product	S128 – 2.6 MW	S128 – 3.0 MW
MW Rating	2,600 kW	3,000 kW
Rotor Diameter	128 meters	128 meters
Tower Height	120 m - 140 m	120 m - 140 m
Wind Class	IEC III (Low Wind)	IEC II (Medium Wind)
Focus Markets	Domestic	International
Time to Market	CY18	CY18

3

Committed to lower LCOE

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India: Strong Growth Fundamentals for Renewables



India's COP21 commitment: To reduce 33-35% carbon emissions by 2030

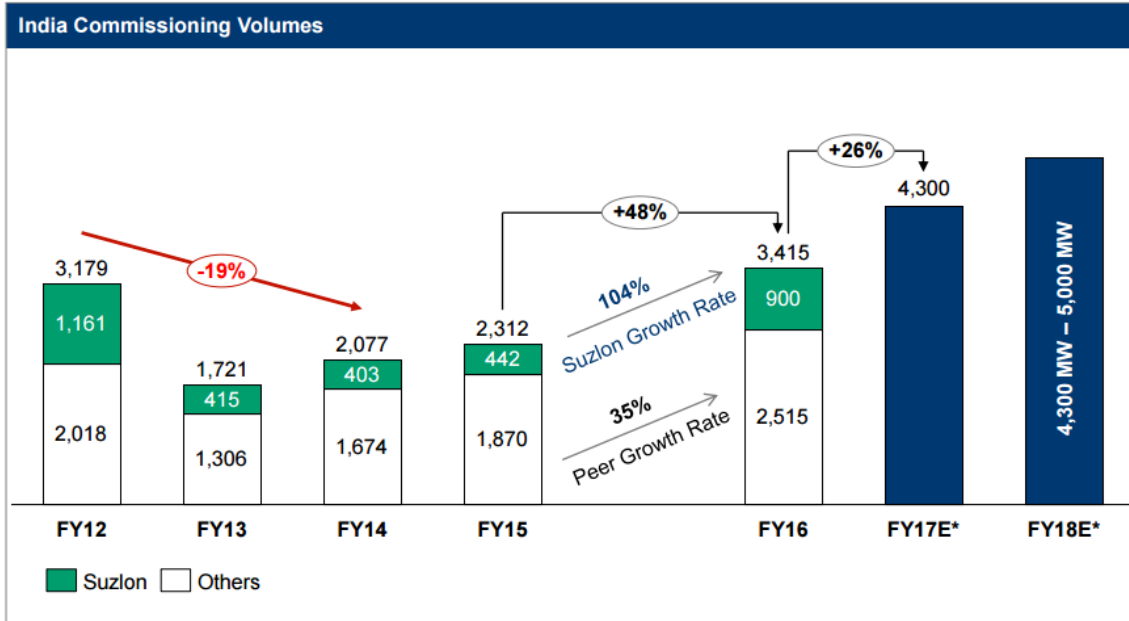
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Renewables preferred for affordability, sustainability and security

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Annual Wind Capacity Addition

(MW)

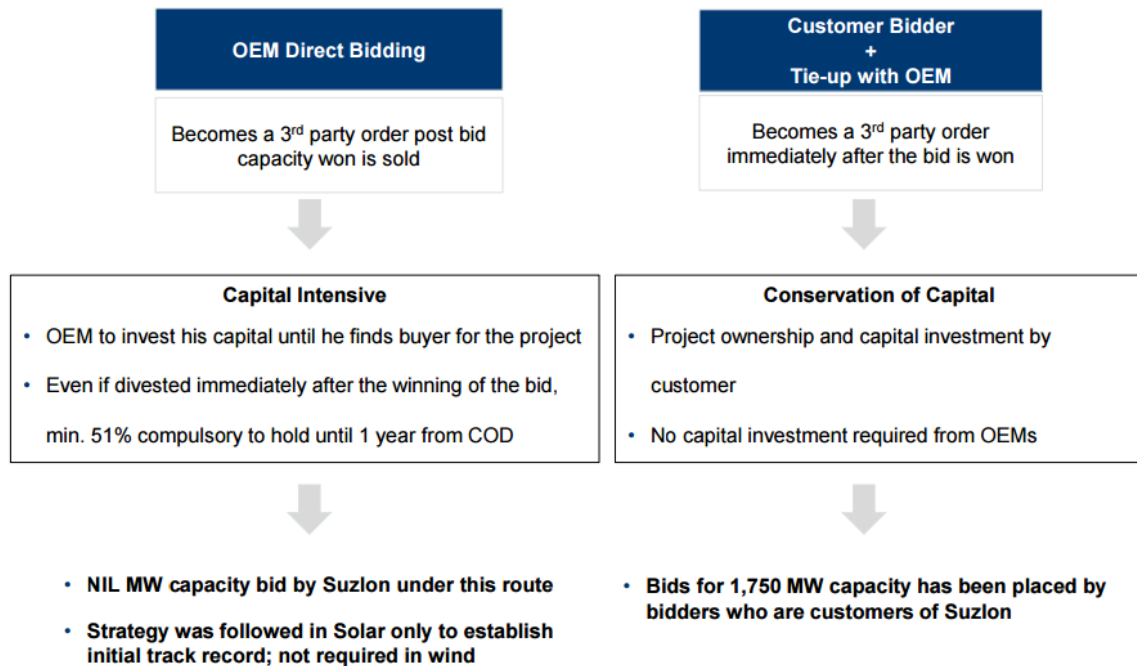


*Source: Internal Estimates

India now 4th largest market globally on cumulative basis

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SECI Wind Bidding: OEM Business Model

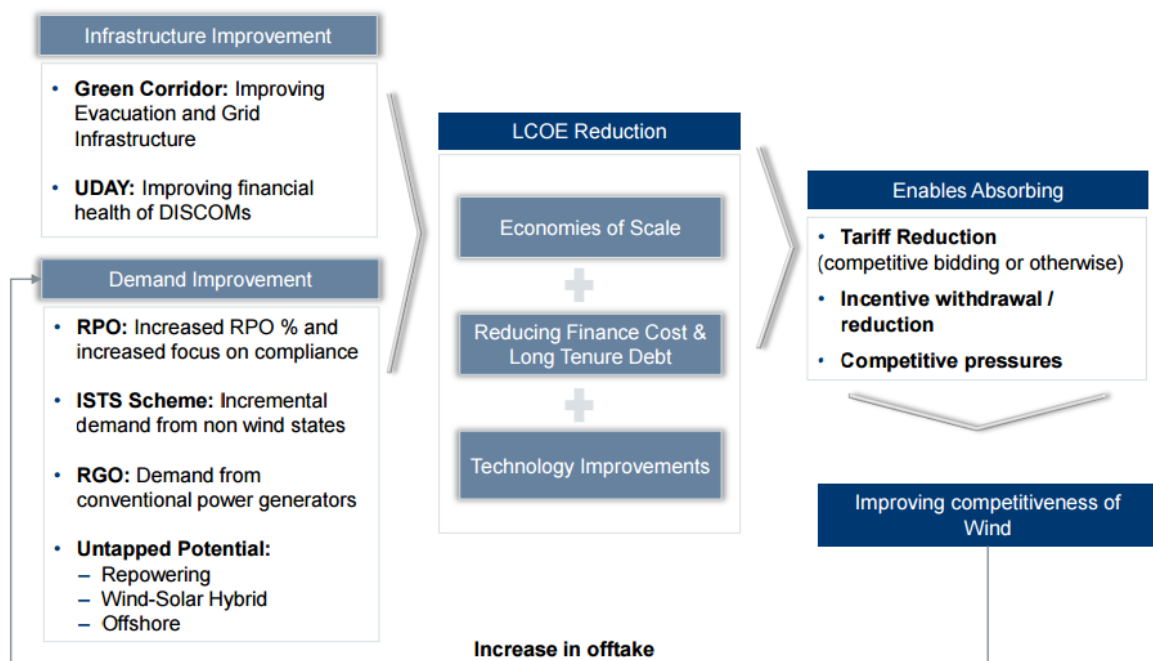


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Optimizing capital allocation & avoiding conflict

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India Wind Industry Growth Triggers



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Volume expansion and lowering of LCOE

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http://www.suzlon.com/pdf/investor/investor_presentation/Result-Presentation-9M-FY17.pdf

Tulsi Tanti: So first of all let us give an update about the Indian market. I think last two years Indian market growth in renewable wind and solar combined almost a year-on-year 100% growth. \$2.5 billion investment moved to the \$5 billion and this year it is moving to the \$10 billion. So 4.2 GW capacity will come in the wind in this year, which is good visibility. It will be executed because Suzlon Energy Limited February 13, 2017 Page 4 of 18 mainly it is on a commissioning basis. So the last moment will be 50 MW plus or minus. So the market is robust. Second thing the domestic market now the last bidding in a 1 GW also the demand has come from the different-different investor is 2.6-2.7 GW. So demand market it is a good and momentum is good. So if I see the next three to five years the market momentum will continue but the competitive landscape will change and that is good. So currently market is moving from one phase to another phase in transformation phases. I can say because now no more accelerated depreciation or 80IA benefit or GBI. Still Government has not concluded for the GBI because we have wait for up to the 1st of April. But assuming it is not continue, till the next year market we believe it will continue to grow by 15% minimum. So that size will continue to grow, because there is a good number of states are giving supports on FIT market and additional 1 GW bidding which is 23rd of February will be decision may be the finalized. So that 1 GW will be added. Another pipeline of some bidding is there almost 1-2 GW is there so that will be also available. So based on that its momentum is positive and it will remain in the market at least by 15% growth so somewhere a 5 GW size of the market will be for the next year. So that is for the market.

Kirti Vagadia: See on working capital the inventory built up is primarily due to the fact that we have higher volume in Q4. So naturally it is going to go down once we go on a normal volumes on a quarterly basis. Similarly receivable as you are aware that invoicing or receivable has built up in December itself so that happens always on a quarter end date. But if you take on a normal basis, probably we have a situation that debtors also remain in control. Our ideal working capital which you can expect net working capital is currently we have reduced it from 86 days to 79 days, ideally we would have preferred to be around 60 days.

Kirti Vagadia: We would not give a guidance on a volume per se but definitely it is higher than what we have done in Q3.

Kirti Vagadia: In current year margins should be somewhere between 17% to 18%.

Kirti Vagadia: Next year it is safe to assume that we will be somewhere between 15% to 16%.

http://www.suzlon.com/pdf/investor/investor_presentation/FY17-Q3-Suzlon-Energy-Earnings-Call-Transcript.pdf

Pavan Parekh: Okay and sir secondly on the solar you must be aware recent solar bids has fallen below Rs. 3 per unit. And sooner than later other renewable sources also including wind also have to be competitive below 3. So I mean does that really concern you in terms of your margins over next two or three years?

JP Chalasani: No, first of all let's have clarity on solar bids. It is not what we look at as. The bids which you are talking about minus Rs 3 is excluding the Rs. 0.05 escalation.

Pavan Parekh: So I think that Rs. 2.97 is the levelized tariff so I think Rs. 2.69 and then there is a Rs. 0.05 escalation. Rs. 2.97 is the levelized tariff?

JP Chalasani: Yes, on top of it they have a grid curtailment as a deem generation which was not available for anybody till date on this. And they have a guarantee for payments and then they have 25% to DMRC. There are some intangible things which has come on this. But it is a good tariff, the tariff has come down but it is not same as what we are looking at. But you know the other side of it is that the wind it takes efficiency levels of what we are talking about 35%, 40% what Mr. Tanti just explained in terms of S111-I20. It has a much higher efficiency level compared to the solar. So therefore, wind can always withstand much better tariffs than solar.

Pavan Parekh: Okay, so what do you mean by efficiencies I mean essentially it is the per unit cost which we look at, right?

Tulsi Tanti: No, the plant load factor of the solar is 18% to 20%. That is the maximum is achievable is there, maximum 20% where the wind is giving 35% PLF. There is a competitiveness between wind and solar. Also we have to understand the solar bidding is under two, three parameters. The product is coming from China and they have a surplus capacity in this segment and pricing is at some pressure plus the solar equity investor expectation of IRR is lower. So that is why it is one scenario is there. In a wind bidding area, it is so many other parameter is there so it is not comparable. It is possible only on those windy site it is not possible everywhere and if the higher PLF anyway is available with the wind, so it will remain very competitive on that environment. With cost is going down and everything and IRR expectation of customer is going down so the scenario will be the wind also will be the tariff will be very competitive in the market place. And bidding is generating additional market and additional volume.

Pavan Parekh: Okay so sir, are you visualizing I mean so in next two three years or so in the wind bidding also we can see tariffs between Rs. 3 to Rs. 3.5 a unit?

Tulsi Tanti: It is not possible.

Tulsi Tanti: Just to clarify you today India has already installed capacity is 28 GW. Now balance we have to deliver 32 GW by 2022. If we take a simple average it is 6 GW which is 100% achievable and we are very confident India will deliver 60 GW by 2022.

Tulsi Tanti: We have already communicated earlier the next five years we are going to deliver 15 GW in India. So out of 32 GW almost 14 GW to 15 GW will come from Suzlon.

On Market Size in India

Tulsi Tanti: The Indian market is big enough there is a space for so many suppliers not just Senvion but Vestas has also started again business and GE is doing. But we have to understand that the Indian market the per MW installed cost basis is the lowest in the world is there. So it is not the easy market to get the business and there is a unique strength and competency is required for the business model perspectives. So there is a space for everybody because the cake is growing bigger and bigger so everybody will get some business.

On Debt Reduction

Kirti Vagadia: Net debt is a function of three things basically. One is whatever we generate from operations as a profit, that will help us in reducing the debt so profitability estimate definitely I am not going to give you, that you need to make your own calculation. The second thing is which will impact debt reduction is potential conversion of our FCCB. And the third area which we have already guided to market way back in July that we will be monetizing couple of our subsidiaries in next 12 to 18 months that will also lead to a debt reduction. Your second question was interest reduction. Definitely the country rate of interest reduction as well as our credit rating upgrade both are positively going to help us in interest cost reduction per se and we are working on that direction to optimize our cost. Lastly, on a currency side I would say that it does not make sense to replace 3.3% annual cost debt from foreign currency to rupee at this juncture.

Jayesh Gandhi: And so my next question is can you just help us in knowing what can be the tariff in your assessment below which an industry will not take it? I mean will it be Rs. 4 per unit or I mean any number, any guess? **JP Chalasani:** This is our individual guesses, I do not think as a company we can really guess. **Tulsi Tanti:** But we have to understand we are not investing in any wind projects. It is a customer's decision if they are comfortable to go with 10% equity IRR they can bring down. We will protect our interest and our margin.

JP Chalasani: This is our individual guesses, I do not think as a company we can really guess. **Tulsi Tanti:** But we have to understand we are not investing in any wind projects. It is a customer's decision if they are comfortable to go with 10% equity IRR they can bring down. We will protect our interest and our margin.

Tulsi Tanti:

Thank you all for your continuous support and faith in our company. I assure that we will achieve our targets higher than the industry's growth rate which is expected to grow by close to 30% in the current financial year. Also the next financial year Indian market will continue to grow by

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*Suzlon Energy Limited
February 13, 2017*

nearly 15%. Today India's total installed base is 28 GW by that way India is the fourth largest country in the global market and India has to deliver 32 GW to achieve by 2022 of the 60 GW that we target.

Whatever 175 GW of the target of renewable is there out of the 60 GW target is for the wind and we are very confident by 2022 India will exceed the 60 GW of the target by 2022. We see the demand for the clean sustainable and affordable power continues especially in the emerging market. If I see the 2015 and 2016 in the global market nearly 62% of the new installation in the power sector has happened from the renewable only. So the renewable is now no more is alternate energy it is the main stream energy in the world market and also now in the case in India market.

The technology and innovation will continue to be the catalyst for the growth for the wind industries and Suzlon is working towards achieving it. Our R&D efforts are focused on bringing down the levelized cost of energy by 25% in the next five years. We plan to use integrated technology and offer a wind-solar hybrid solution which will lead to the more efficient utilization of the grid and other resource.

RE is relatively more capital-intensive than conventional power plants. Technically, RE is typically described as an intermittent source of electricity. Intermittency consists of two distinct aspects: • "Predictability/Uncertainty" refers to the lack of accurate knowledge about future RE generation (e.g., a sudden drop in wind power), which is not very different from fossil fuel- based generation/transmission systems (e.g., an unforeseen failure of a fossil-based generator or a transmission line). 6 <http://indianexpress.com/article/business/business-others/fy15-coal-import-bill-spills-over-rs-1-l-crore/> 6 • "Variability" is the known natural variation in RE generation (e.g., wind peaking during monsoon and reduced availability in other seasons), just as we have on the demand side currently (e.g., low demand at midnight and high demand during late afternoon). 1.20 Internationally — where RE accounts for increasingly large shares of the power systems — various changes to grid design, technology, and its operation have been implemented that allow successful grid integration, i.e. minimizing and/or managing the variability and uncertainty aspects of RE. Many of these strategies are inherently useful for improving the overall efficiency of grid operations and reducing overall costs to consumers whether RE accounts for a large (e.g. >25%) share of the

generation mix or not. Some of these changes are one-time changes while others would evolve over time as load shapes and the resource mix continue to change.

On the financing side, the reality is that RE project developers in India often struggle to access the large quantities of financing they require and even when available, the cost of financing is often high. Renewable energy technologies, unlike conventional energy technologies, often tend to have high (as much as twice or more) capital costs and very low operating costs (less than 10% in few cases). Thus, the cost of capital (finance) emerges as one of the most significant contributors to the delivery of clean energy. In contrast, conventional energy sources are less capital intensive, and the cost of capital has much less contribution to cost of delivered energy (fuel costs are most significant contributors).

The cost of capital is inherently high in India – debt costs in India is typically 12-14%, vis-à-vis 3-7% range in the developed economies, equity return expectations are even higher. This can mostly be attributed to the inherent structure of India's financial sector and the state of the economy which influences factors such as the cost of money, its variability and tenor, and inflation. These terms adversely affect RE projects.

Table 2: Proposed state-wise RE targets

State/Uts	Solar Power (MW)	Wind (MW)	SHP (MW)	Biomass Power (MW)
Delhi	2,762			
Haryana	4,142		25	209
Himachal Pradesh	776		1,500	
Jammu and Kashmir	1,155		150	
Punjab	4,772		50	244
Rajasthan	5,762	8,600		
Uttar Pradesh	10,697		25	3,499
Uttarakhand	900		700	197
Chandigarh	153			
Northern Region	31,120	8,600	2,450	4,149
Goa	358			
Gujarat	8,020	8,800	25	288
Chattisgarh	1,783		25	
Madhya Pradesh	5,675	6,200	25	118
Maharashtra	11,926	7,600	50	2,469
D. & N. Haveli	449			
Daman & Diu	199			
Western Region	28,410	22,600	125	2,875
Andhra Pradesh	9,834	8,100		543
Telangana		2,000		
Karnataka	5,697	6,200	1,500	1,420
Kerala	1,870		100	
Tamil Nadu	8,884	11,900	75	649
Puducherry	246			
Southern Region	26,531	28,200	1,675	2,612
Bihar	2,493		25	244
Jharkhand	1,995		10	
Orissa	2,377			
West Bengal	5,336		50	
Sikkim	36		50	
Eastern region	12,237		135	244
Assam	663		25	
Manipur	105			
Meghalaya	161		50	
Nagaland	61		15	
Tripura	105			
Arunachal Pradesh	39		500	
Mizoram	72		25	
North Eastern Region	1,205		615	
Andaman & Nicobar Islands	27			
Lakshadweep	4			
Other (New States)		600		120
All India	99,533	60,000	5,000	10,000

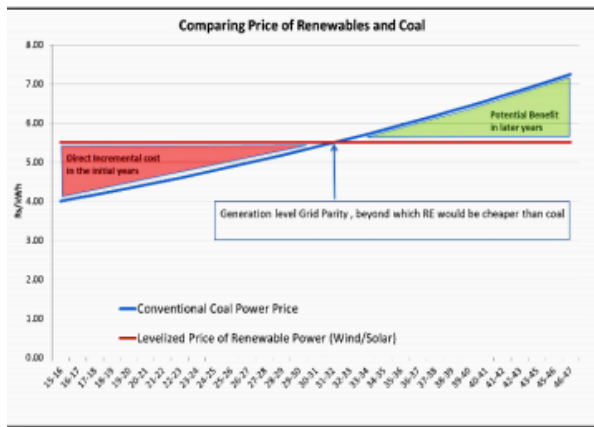


Fig 4: Analysis 1

Comparing cost of RE with new coal

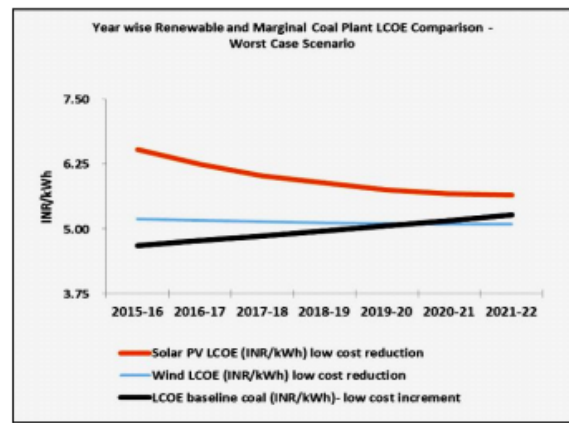
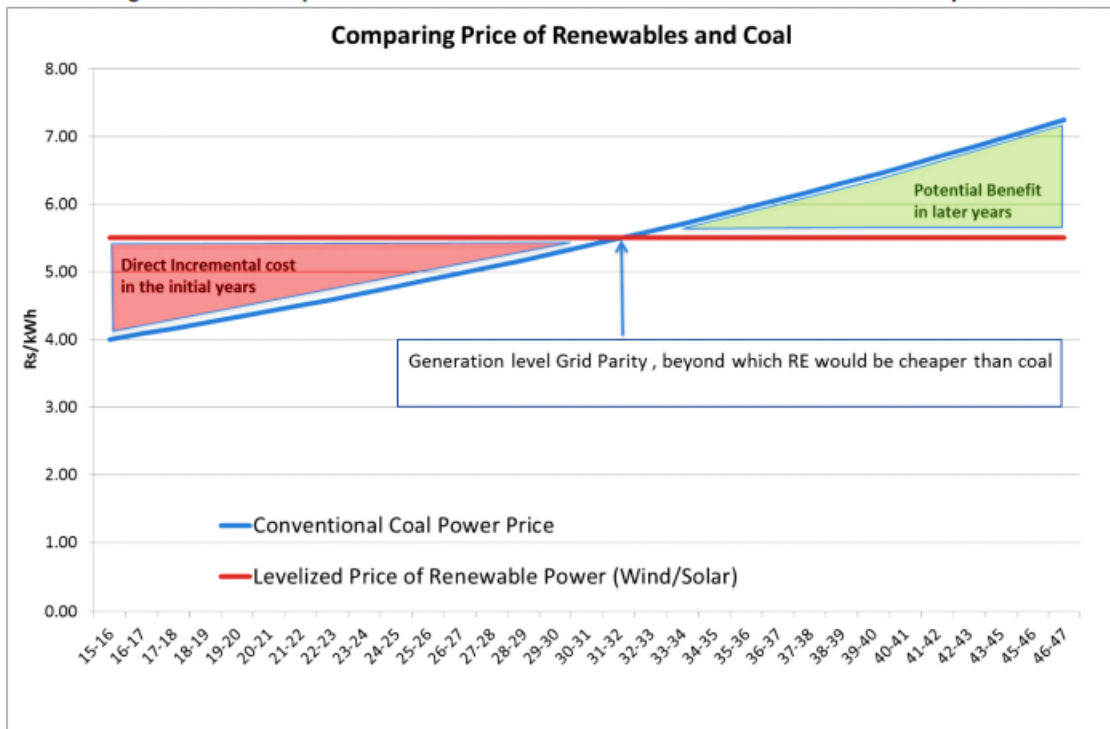
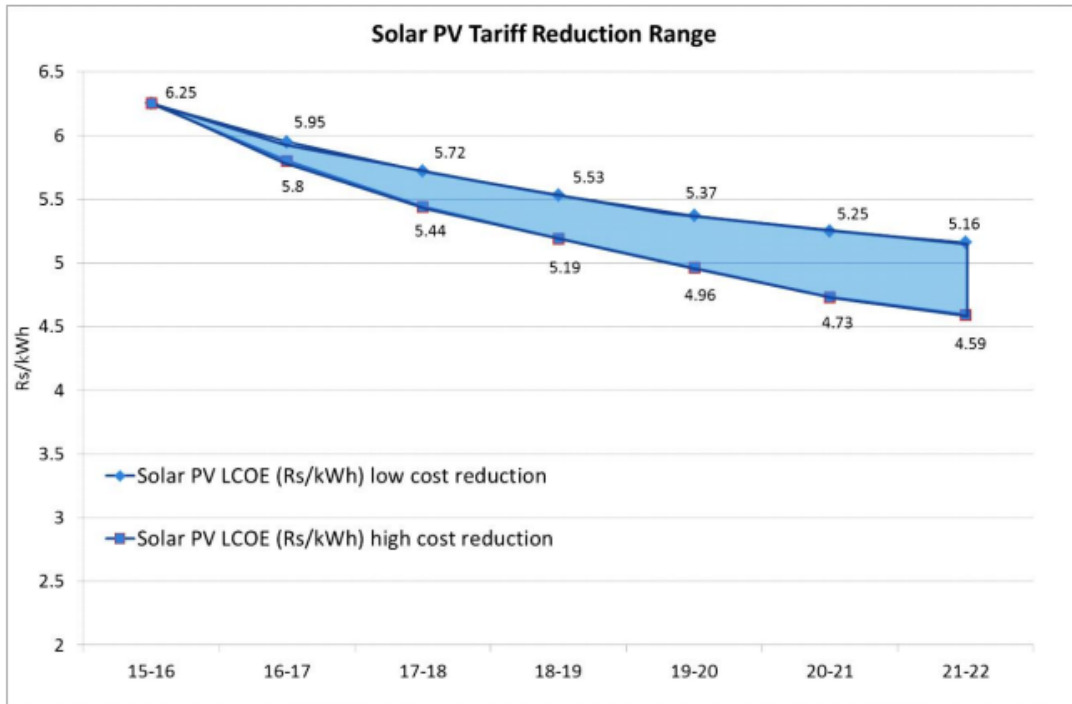


Fig 5: Analysis 2

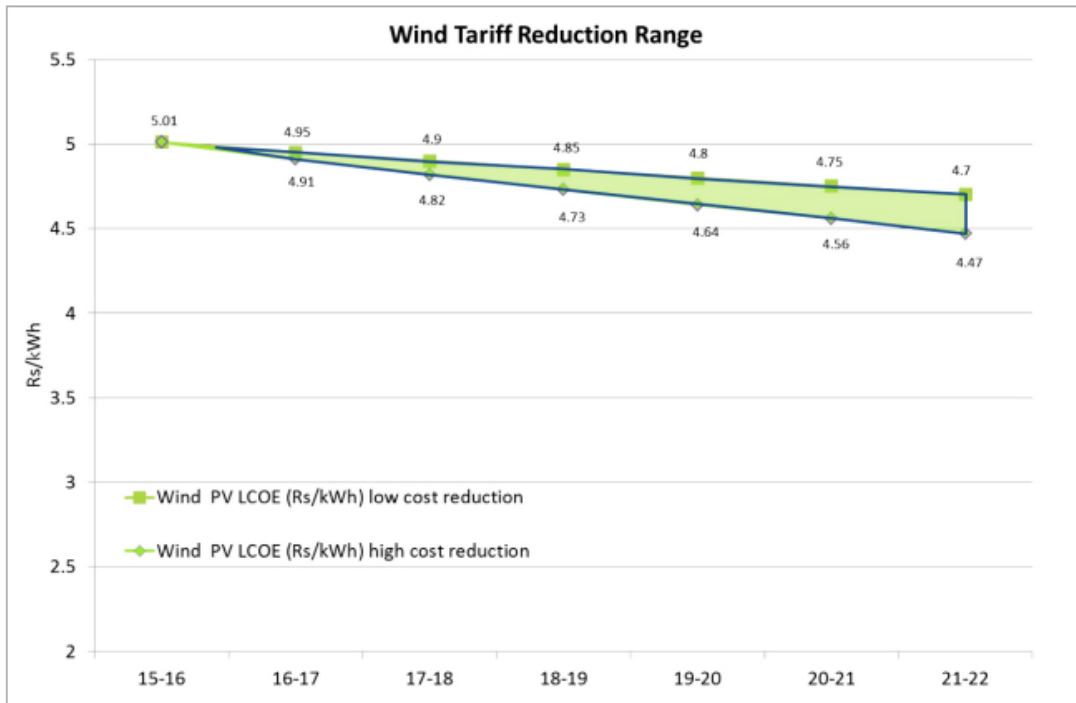
Figure 1: Generic representation of direct incremental costs for DISCOMs in the initial years

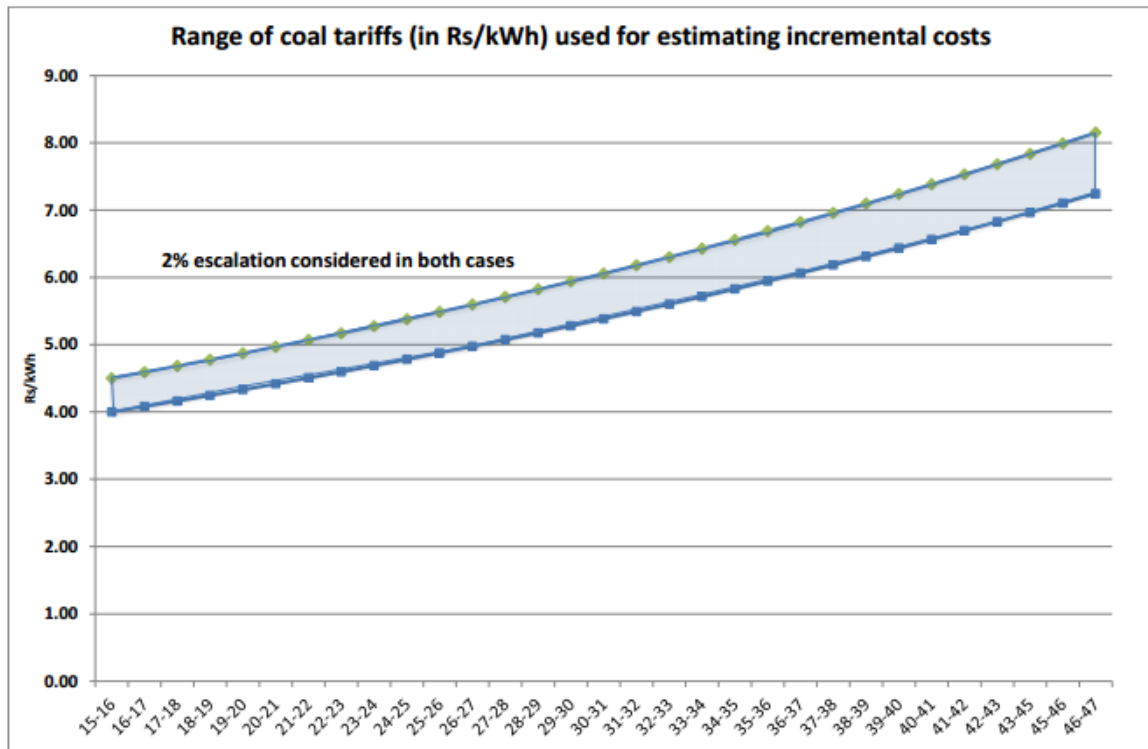


Solar PV tariffs reduce between 17% - 27% in the next 7 years.



Wind tariffs reduce between 6% - 11% in the next 7 years.





It is important to note that these incremental cost estimates are not projections or forecasts but more of scenario based indicative estimates

The **levelized cost of electricity (LCOE)** represents the average cost of generating energy over the life cycle of a project. At a conceptual level, it is calculated as the net present value of the total costs over a project's life cycle, divided by the total amount of energy produced over the life cycle. It enables comparison of the cost of energy across different technologies, particularly when capital cost, scale, and project life differ.

Please perform your own due diligence before investing in companies mentioned above.

Note: - I have seen on an online video. The auction price for solar at few cents/kwh sold for Abu Dhabi power could match with crude price at USD 10\$/barrel. So, I will not be surprised if crude could see its golden age again. Countries like Saudi Arabia are moving towards Sovereign default unless they diversify their economy.

Coal Demand will weaken and so is Crude demand. This augurs well for oil importing countries like India to improve fiscal position further. Renewable unlike Fossils generates many more jobs.

Source - http://niti.gov.in/writereaddata/files/writereaddata/files/document_publication/report-175-GW-RE.pdf