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INTERVIEW

Mr. Deepankar Banerjee,
CEO, ExxonMobil Lubricants

Mr. Rishi Seth,
Joint Managing Director,
HPL Electric & Power Ltd

Mr. Anil Saboo, Chairman,
ELECRA 2020

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Switchgear Market:
Challenges and Opportunities;
Havells India Limited

Looking ahead to 2020 and
beyond; Black & Veatch

SOLAR POWER

Case Study: Solis 1500V
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Scaling rooftop solar:
Understanding consumer
perspectives in East Delhi

STARTUP

NavAlt: Kerala-Based
Start-Up into Solar-Powered
Boats

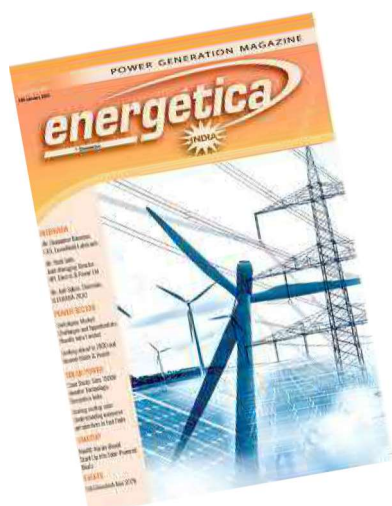
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India is set to cross the 100 GW renewable energy capacity mark in 2020, moving towards its ambitious goal of 175 GW of clean energy by 2022. At the same time, Indian corporates are increasingly adopting renewable power resulting in India becoming the second largest growth market for corporate renewable power purchase agreements (PPAs) after the US.



Mr. Marco Wirén

President-Energy Business & Executive Vice President,
Wärtsilä Corporation

"Wärtsilä is one of the few multinational energy companies with a local factory (at Khopoli, Maharashtra). We will be looking at how to utilize the factory for enhancing our business to 'Make in India' and make Wärtsilä more competitive. We are also looking at how we can indigenise more, with a high quality of our products."

Energetica India catches up with Mr. Marco Wirén, President-Energy Business & Executive Vice President, Wärtsilä Corporation to learn more about the company's India plans and his opinion on industry trends.

ENERGETICA INDIA: Wärtsilä has repositioned itself as an energy system integrator. How does the company plan to champion its path towards 100 percent clean energy transition?

MARCO WIRÉN: Wärtsilä understands the energy transition in detail and the role of different technologies as part of future power systems. We create optimal power systems for our customer through software, full EPC offering and global

services footprint. Energy transformation is progressing globally, but the pace varies country by country. In addition, every country has its unique combination of solar, wind and demand profiles and therefore the path towards 100% renewable energy system is different for every customer. Wärtsilä will be there to support our customers with flexibility solutions and services throughout their energy transition journey, making sure their system produces electricity that is

sustainable, affordable and reliable.

ENERGETICA INDIA: What kind of strategy does Wärtsilä implement in order to cater to rising clean energy transition, complementing the company's core business areas?

MARCO WIRÉN: Flexibility is the key to deliver successful energy transition. Having enough flexibility in the power system, our customers can stay in control



of the energy transition and add as much cheap renewables as economically or politically desirable. Our customers value the fact that our flexibility solutions, flexible power plants and energy storage, are future-proof already today, and can support the grid all the way to 100% renewable energy future for decades to come. Our strategy is to further increase our technological leadership in flexibility solutions and services and continue to offer the best value for our customers over the entire lifecycle.

ENERGETICA INDIA: As one of the emerging Asian market, what opportunities and challenges do India offers to Wärtsilä's global growth story?

MARCO WIRÉN: In the last couple of years, Government's thrust has been on renewables and India has done quite well in strengthening this portfolio, especially in solar. They have set an ambitious target of adding 175 GW by 2022. However, the main challenge is that as renewable energy gets into the system, the conventional thermal power plants are experiencing issues of being flexible. With the addition or sudden rejection of renewable energy, these thermal plants are not able to scale down or ramp up the power in order to match the flexibility needed. With renewables, there is no certainty when it would be at its best, given its dependence on natural factors like sun and wind.

With clean energy coming in, the idea is to have plants that could support its usage as efficiently as the traditional power plants. Hence, it is imperative to make these power plants flexible because thermal power plants were not built to operate on low loads. They were meant to take loads of 70-80 % as that is when the emission and efficiency is at its best. Therefore, we need to explore ways of integrating renewables with the traditional form of power. Furthermore, batteries have an important role to play, so does the gas engines as they can be started and stopped quickly, despite the fact that the energy cost generated from these sources is considerably higher than the traditional inflexible power plants. In fact, in future energy systems one can easily draw the wrong conclusions looking at cost of individual plants or technologies, instead it is the optimal mix of technologies that provide the lowest system level cost. Renewables being the cheapest form of electricity generation, this means significantly reduced emissions as well.

ENERGETICA INDIA: As the global power generation sector moves towards 'smart' generation. How important is the adoption of smart power generation technology? What kind of solutions does Wärtsilä offer in this space?

MARCO WIRÉN: Smart power generation technology is key in the ongoing energy transition. According to Bloomberg

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New Energy Finance, the renewables are already today the cheapest source of energy in 2/3 of the world and will be the cheapest by 2030 practically everywhere. This means renewables are quickly becoming the new baseload, and the rest of the power system needs to be built to support it. Flexible power plants and energy storage play a key role in future energy systems by enabling optimal use of renewable energy. Wärtsilä is able to deliver the best value across a wide range of flexibility needs, depending on each customer case. In short, we offer:

- Future-proof flexible power plants
- Energy storage with industry leading energy management system GEMS
- Energy services that support customer needs along the energy transition;

Our portfolio is future-proof; wherever we are in the transition, our portfolio solutions hold. For example, when our customers want to reach the RES 100 %, our engines can run on biofuels and synthetic gases produced with Power-to-X technology converting excess renewable energy into storable renewable fuel. When our customers choose us, they will not be left with stranded assets, but they are set for the future as well.

ENERGETICA INDIA: What is the cumulative installation capacity achieved by Wärtsilä to date globally and in India?

MARCO WIRÉN: Wärtsilä's total installed power plant capacity is 68 GW in 178 countries across the globe. In India, Wärtsilä has delivered around 250 power plants with total output of over 3500 MW. Wärtsilä takes care of the operation and maintenance on behalf of its customers in over 35 power plants (including Boiler Turbine Generation stations) with a total output of over 1300 MW.

ENERGETICA INDIA: Advanced Energy Storage Solutions are the need of the hour for sustainable RE generation. What kind of energy storage solutions does Wärtsilä bring to the industry, particularly in India?

MARCO WIRÉN: Energy storage will become an important part of every power system and Wärtsilä will be there to support our customers to successfully introduce the new technology to their grids. As mentioned before, it is the optimal mix of

flexibility technologies that pave the way for future energy systems. Wärtsilä offers the complete storage solutions with a world leading software to optimize not only the batteries but the entire energy system. Therefore, Wärtsilä's holistic approach to our customer's flexibility needs enables us to design solutions that best match each specific use case. Furthermore, hybrid power plants will utilize storage technology alongside traditional engine-based power generation. Adding energy storage technology to our existing engine-based power plants enables our customers to have instant power while saving fuel, maintenance costs and reducing emissions.

With our foray into the Energy Storage solutions, we are very excited to introduce these new solutions to our customers.

ENERGETICA INDIA: Please tell us about your plans for global and Indian markets in the next to 3-5 years?

MARCO WIRÉN: Globally:

Globally we strive to maintain our position as the leading supplier of flexibility solutions and continue to improve our offering to match changing customer needs along the energy transformation service. We see a lot of potential in data and connectivity and building new type of service concepts based on those. We want to be the most trusted partner for our customers in delivering sustainable, affordable and reliable energy transition.

Indian markets:

We are already one of the few multinational energy companies who have a factory locally. We have a state-of-the art factory at Khopoli, Maharashtra. We will be looking at how to utilize the factory for enhancing our business to Make in India and make Wärtsilä more competitive. We are also looking at how we can indigenise more, with a high quality of our products. That is a part of the strategy. Another strategy is that when the renewable integration happens, and gas engines play a role in creating the system flexibility, it will open up a big opportunity for us. We are also in discussion with various States, utilities and regulators regarding the role that renewables can play in meeting future electricity needs and strategies to efficiently integrate renewables in the grid. The industry should holistically look at the total cost of the system and not just individual technologies in isolation.