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IN CONVERSATION

Our power plant has contributed immensely to Punjab's economy

— **Vikas Sharma**, CEO and Whole Time Director, Talwandi Sabo Power Ltd

The 1,980-mw supercritical Talwandi Sabo power plant, owned by Talwandi Sabo Power Ltd (TSPL), a Vedanta Group company, has earned several distinctions for its performance, and is today regarded as the backbone of Punjab's economy. In this exclusive interview, we have **Vikas Sharma** telling us what makes the Talwandi Sabo plant amongst the finest power plants in the country, and how this asset is fuelling Punjab's economic growth.

Vedanta's Talwandi Sabo plant is among India's earliest independent power producer (IPP) generation project to use supercritical technology. Tell us about how the plant has been performing in recent years, in terms of electricity generation, plant load factor, etc.

Talwandi Sabo Power Ltd (TSPL), one of India's finest power plants is a 1980-mw supercritical world-class thermal power plant in Banawala, Mansa district, Punjab. It supplies 100 per cent of the electricity it generates to Punjab State Power Corporation Ltd. The power plant is vital to Punjab's agricultural economy that depends heavily on electricity. TSPL deploys globally benchmarked environment and safety practices making it Punjab's greenest thermal power plant, and among the foremost zero-harm, zero-waste, zero-discharge thermal power producers in the country.

The power plant has been performing very well with plant availability of 91 per cent in FY20. The plant's efficiency, in terms of auxiliary power consumption, heat rate and specific water consumption, has improved substantially over the past couple of years. We are the largest power supplier to Punjab and our plant load factor depends on the requirement of the state.

What is roughly the quantum of carbon emissions that the plant's supercritical technology is helping forestall, annually?

Super critical technology adopted at TSPL operates above the regime of vapor dome of the Rankine Cycle and hence the plant operates at higher cycle efficiency. The following benefits, in terms of achieving reduction in carbon emissions, are realized:

- Optimal fuel consumption

- Less emissionsof GHG per unit of power produced (about 14% lesser than the older technologies)
- Lesser auxiliary power consumption
- Lesser water consumption and zero blow down (with Zero Liquid Discharge System installed at TSPL)

We are relentlessly working on different aspects, like reducing auxiliary power consumption of the plant, improving turbine and boiler efficiencies to further bring down the carbon emissions and are also working towards carbon sequestration by planting more trees.

Tell us about the coal linkages. Do you generally face concerns regarding coal supply due to railway infrastructure bottlenecks?

TSPL has long-term fuel supply agreement signed with Mahanadi Coalfield (MCL) for an annual coal linkage of 7.7 million tonnes. TSPL has been materializing 100 per cent of its coal through rail mode only and we haven't faced any railway infrastructure bottlenecks so far. It is pertinent here to mention that TSPL owns one of the largest private sidings in India, stretching from Saddasingh Wala railway station to the plant yard, covering a track route length of 16 km.

The Talwandi Sabo plant, as we understand, supplies its entire generation to Punjab State Power Corporation. It is also regarded as the "greenest" thermal power plant in Punjab. Please discuss how the Talwandi Sabo plant is empowering Punjab, and that too, without adverse ecological implications.

TSPL is the largest thermal plant in Punjab, catering to 16 per cent of the total power requirement of the state. During the paddy season, when the power demand is at its peak and touches 12,000 MW, the plant is fully available ensuring 24*7 power supply to PSPCL to meet this demand.

TSPL has been working relentlessly to minimize its carbon footprint and is well ahead in its plan to reduce GHG emissions. TSPL is home to over 30 different species of flora and fauna, with 700 acres of sprawling green belt having over 4 lakh trees, which is 33 per cent of the total project area and the largest greenbelt cover in a single location in Punjab. This greenbelt acts as a carbon sink and has shown positive impact on the climatic conditions. This is not all, the water in the captive reservoir and the ash dyke of the plant attract migratory birds too, making it one of the most scenic plants as well.

The plant even set a Guinness Record in October 2015 by planting more than 2 lakh trees simultaneously at a single location.

TSPL is a zero-discharge plant with 100 per cent ash utilization. Not a single drop of water gets discharged as all of it is recycled and used in secondary processes.

The TSPL power plant currently employs over 1,500 people directly and has been the biggest driving factor for development of Mansa and its adjoining areas, which comes under the economically backward Malwa region of Punjab.

The plant doesn't only cater to Punjab's power requirement but also contributes immensely to the state's economy by ensuring continuous power supply to farmers, who are now able to grow rich cash crops like rice, wheat, cotton etc, besides supporting MSMEs.

We learn that Punjab, where electricity demand is driven primarily by agriculture, there is a period of very high demand (for around eight months) and low demand in the rest of the year. What bearing does this have on power plants in the state, especially because the entire power generation by Talwandi Sabo is tied up with the home state?

TSPL supplies 100 per cent of its power to Punjab as per the signed Power Purchase Agreement (PPA) with PSPCL, as per Case II scenario IV of Section 63 of Electricity Act, 2003.

As per the PPA, TSPL ensures its plant availability throughout the year. During high demand, the state doesn't have grid power transfer capability of more than 6,500 mw from other states and hence the state-run plants are required to run to meet the peak requirement. Sometimes, PSPCL chooses to sell the power outstate when the captive demand (demand within Punjab) is low.

We understand that the main plant equipment (boilers, turbine-generators) for the Talwandi Sabo plant was sourced from Chinese suppliers. Did you or do you face issues relating to quality, under-performance, after-sales service, etc.?

TSPL has sourced best-in-class high efficiency supercritical plant equipment and the plant performance has been outstanding since commissioning. We have adequate technical know-how available in India to run these plants with high efficiency.

Are you planning any capacity expansion at Talwandi Sabo from the current 1,980 mw?

We are open to exploring the possibility of expansion, including addition of renewable energy to our portfolio in the future, as per the demand of the state.

How is the Talwandi Sabo plant faring in terms of emissions? Do supercritical power plants need retrofitting of flue-gas desulphurization (FGD) units?

TSPL has been complying with the new emission norms for stack emission like SPM, Mercury and NOx, and for specific water consumption. TSPL is equipped with eco-friendly supercritical technology to conserve natural resources and reduce emissions.

TSPL is also equipped with zero liquid discharge system to achieve best-in-class specific water consumption. Hybrid electrostatic precipitators (ESP) with bag filters have been installed with 275m tall flue-stacks. We also have continuous emission monitoring stations installed to monitor ground level concentration.

FGD has been recommended for controlling SO2 emissions. It has been installed in many countries, which have high-sulphur coal. However, Indian coal has very low sulphur content (around 0.4 per cent) in comparison to coal reserves of other countries like US, Indonesia, South Africa etc, which is 0.7 per cent to 3 per cent.

Ground Level Concentration (GLC) of SO2 is being monitored by TSPL with four ambient air quality monitoring stations. As per the records of AAQMS, the SO2 ground level concentration in surrounding area of TSPL has been within the rage of 8.4 to 16.1 μg/Nm3 (less than 20 per cent of the prescribed limits of 80μg/Nm3). However, we are working on retrofitting flue-gas desulphurization (FGD) units as per the directions of CPCB. ■