PRESPL

Growth through forward linkages

By Sarthak Takyar

Incorporated in 2011, Punjab Renewable Energy Systems Private Limited (PRESPL) is engaged in biomass aggregation, supply chain management, and delivery of bioenergy and renewable steam to several companies across India. In August 2021, under PRESPL's Series-C funding round, Mitsui & Co. Ltd announced an investment of Rs 300 million in the company. Earlier, in September 2013, responsAbility Investments AG had invested Rs 120 million in PRESPL's Series-A funding round. In the Series-B funding round carried out by the company in April 2019, it received an investment of Rs 350 million from the Neev Fund (supported by the UK and Indian governments). In September 2019, PRESPL closed its Series-B round of funding after raising Rs 200 million from Shell Ventures B.V. While responsAbility Investments AG and the Neev Fund are financial investors, Mitsui and Shell are strategic investors in PRESPL. In total, PRESPL has raised Rs 970 million in its Series A, B and C rounds of capital raise.

Transformation of the business model

Traditionally, farmers burn biomass in the fields as it has no economic value. This results in serious air pollution, especially across north India. PRESPL's business model focuses predominantly on the aggregation and supply chain of biomass. PRESPL aggregates this biomass across the country and further densifies it into briquettes and pellets for easier storage and transportation to various industries and offtakers. The briquettes and pellets are used in solid fuel industrial boilers for renewable steam energy generation.

PRESPL has forward integrated its business model by setting up biomass densification units and industrial boilers on a turnkey basis for selling energy to its clients. For instance, PepsiCo's boilers in Punjab have been taken over by PRESPL for delivering steam energy at cost to the client. PRESPL provides technical manpower for operations and maintenance (O&M), ash handling, and creation and management of the biomass supply chain. Meanwhile, PepsiCo is delivered renewable industrial steam as energy at a predetermined cost. The same business model is followed by PRESPL's other clients, including Sun Pharma, L'Oréal, Cipla, Deccan Fine Chemicals and OC Specialty Chemicals.

In March 2020, PRESPL set up a project for selling renewable steam to Sun Pharma in Punjab on a build-own-operate-transfer (BOOT) basis. It signed a 10-year steam purchase agreement with the client. The Rs 145 million project was debt financed by the Indian Renewable Energy Development Agency. Subsequently, the debt has been shifted to HDFC Bank with support from SIDBI PRSF (the World Bank) as an energy efficiency project as well. The project reduced the cost of steam energy for Sun Pharma by 30 per cent. Steam was recognised as a renewable energy resource by the government in July 2019, providing a major incentive to PRESPL and the renewable steam energy industry. Such projects can be replicated easily across India if funding is available at interest rates of 4-6 per cent, as decentralised bioenergy costs less than fossil fuels.

In addition, PRESPL now operates on the BOOT model, under which it invests in new boiler assets for some of its clients. The assets are transferred to the clients after 10-15 years. PRESPL signs long-term steam purchase agreements, like power purchase agreements, for selling steam at a predetermined price. Such agreements help clients reduce the risk of investment in boiler assets and change in energy costs while ensuring long-term energy pricing. They also do not have to worry about O&M and biomass supply. The price of steam varies depending on the location, the type of briquettes, the quantity and the size of the boiler. According to the company, the cost is Rs 2-Rs 2.25 per kg of steam, which is economical for PRESPL's clients as they had been spending more on less efficient steam generated from coal, furnace oil, diesel and pet coke. In addition, the shift to clean steam helps these companies achieve their climate change commitments.

For each client, the biomass requirement ranges from 50 to 200 tonnes per day. Cumulatively, PRESPL aggregates over 200,000 tonnes of biomass per annum. Going forward, the company plans to double this amount every year based on its project pipeline. The company ensures proper compensation for farmers and village-level entrepreneurs, who receive around 60 per cent of the total revenue. The remuneration for the farmer varies from Rs 1.50 to Rs 2.50 per kg depending on the type of biomass, including cotton stalks, rice straw, lentil straw, corn cobs, sugarcane trash and chickpea straw.

The way forward

Going forward, PRESPL is evaluating the prospect of generating compressed biogas (CBG) and green hydrogen from biomass and selling it to clients. It is currently engaging with technology providers and plans to enter the CBD and green hydrogen business over the next 18-24 months.

"Our business model was not disrupted by the pandemic"

Interview with Lt Colonel Monish Ahuja (Retd), Chairman and Managing Director, PRESPL

As a biomass supply chain company, did PRESPL face any challenges during the lockdowns?

Fortunately, we did not face any such issues as our supply chain is from rural areas to industrial zones. The supply chain operates in a decentralised manner, in a radius of 50-200 km. Hence, our business model was not disrupted by the Covid-19 pandemic. We largely operated in the same or adjoining districts. In addition, all our clients fall in the essential services domain and as such, they had permission to work. Also, we had planned in advance for HPE, PPE, rations and medicines, and in some cases guest house stays for our employees and village-level entrepreneurs, thus creating a bio-bubble for the working team members.

What are your key policy suggestions for the bioenergy sector to the government?

Many positive policy interventions have taken place on the demand-side use of bioenergy. The government has ambitious plans for ethanol blending, biodiesel blending, sustainable aviation fuel and compressed biogas under the Sustainable Alternative Towards Affordable Transportation scheme and co-firing of biomass in thermal coal power plants. These are bold initiatives that are being implemented. However, in my view, the pace of implementation has to increase through a proper road map. We must also encompass mandatory use of bioenergy for large energy-using industries such as steel and cement.

The government's mission statement on co-firing of biomass is a welcome step. However, how much of the biomass will be actually utilised remains to be seen. Going forward, I expect the Ministry of New and Renewable Energy to recognise the need for emerging technologies in the bioenergy space and lay greater emphasis on these, and also announce a bioenergy mission.

Government support is needed for the aggregation and densification of biomass into briquettes and pellets to achieve the targets for co-firing. In my view, the current concept of co-firing in thermal power plants will lead to inefficient energy utilisation. For the present system to work, the densification infrastructure for biomass will have to be set up in rural areas so that pellets can be transported to centralised thermal projects. The electricity generated will, in turn, have to be transported back to rural areas, where the demand growth is expected. The cost of electricity produced by 10 per cent co-firing in centralised projects is expected to be way higher than producing electricity from greenfield decentralised bioenergy projects. Thus, it is better to set up decentralised independent biomass projects of 10-30 MWe capacity in rural areas where loose biomass can be utilised directly to produce electricity. Furthermore, support is required for setting up biomass warehouses in rural areas and for promoting renewable steam.

There are no defined BIS standards in place for briquettes and pellets. Going forward, policymakers need to reconsider the ban on the export of biomass in India while millions of tonnes of biomass is burned in agricultural fields.

Lastly, the replacement of wood with densified biomass briquettes for cremation purposes has huge potential. This is a segment where PRESPL has worked with municipal corporations in the past one year and we find wide-scale acceptance of this. We are optimistic about a large pan-Indian demand for briquettes replacing wood in crematoriums. Many municipal corporations have already come out with tenders and it is going to see wide demand in the bioenergy segment. This will allow the Ministry of Housing and Urban Affairs, the Ministry of Rural Development, the Swachh Bharat Mission and the Atmanirbhar Bharat initiative to come together to promote the use of biomass.

In May 2021, the Ministry of Power announced a national mission on the use of biomass in coal-based thermal power plants. The objective of the mission is to increase the level of biomass co-firing from 5 per cent at present; increase the share of carbon-neutral power generation from thermal power plants; encourage research and development in boiler design to handle the higher amount of silica and alkalis in biomass pellets; overcome constraints in the supply chain of biomass pellets and agro-residue and their transport to power plants; and address the regulatory issues in biomass co-firing. If implemented properly, the mission proposal could open up business opportunities for PRESPL. The company has already participated in NTPC's tender for co-firing biomass in thermal power projects. However, the tender outcome is awaited.

All in all, PRESPL's success lies in its ability to continuously transform its business model through economical forward linkages and participate in the downstream and upstream segments of the energy value chain. Its next goal of producing CBG, green hydrogen and supplying biomass briquettes/pellets for co-firing in thermal power projects will only improve its business prospects. However, a key challenge for PRESPL is the reluctance of policymakers to shift their focus to the decentralised bioenergy sector. It will be interesting to see when this transition actually takes place as serious discussions on the topic are already taking place amongst stakeholders. ■