A Model of Fuel Supply Linkages

at

SLS Power, Nellore

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With an objective of promoting clean energy, M/s SLS Power Limited implemented a 6 MW Atmospheric Fluidized Bed Combustion (AFBC) based biomass power project at Navalakan Thota village, Nellore district, Andhra Pradesh in 2001. The project promoters generate the energy from locally available biomass resources and fed the regional grid of Andhra Pradesh Transmission Corporation (APTRANSCO). The technical details of the plant are given in the table below.

Project at a Glance	
Capacity	6 MW
Location	Navalakan Thota village, Nellore district, Andhra Pradesh
Plant status	Operating since 2001
Technology	Atmospheric Fluidized Bed Combustion Boiler
Feedstock	Rice husk, groundnut shell, coconut shell, coal and Prosopis Juliflora
Capacity of steam boiler	30 tons per hour
Pressure and temperature conditions	Pressure - 65 kg/cm^2 Temperature - 485 °C
Substation	132 kV

Fuel Supply Linkages at SLS Nellore

In the year 2001, M/s SLS Power commissioned the biomass based power project, at that time there was an abundant availability of rice husk in the area because of the presence of large number of rice mills. Other biomass resource such as Prosopis Juliflora was also available in plenty which were procured through the Forest Department. The landed cost of biomass including cost of chipping, transportation and so on was approx. INR 2,400 to INR 3,000 per ton for Prosopis and rice husk respectively.

But like several other biomass power projects, SLS Power started facing operational problem due to inconsistent supply of biomass. Development of new biomass projects and increased application of biomass in thermal boilers in small industries made the biomass procurement a challenge and substantial price rise. In addition, low tariff and legal disputes with the state Discom had made operations unviable for SLS, which resulted in shut down of the plant for two years. The legal dispute has recently been settled by the Supreme Court of India in favor of SLS and the state regulatory authority has also upwardly revised tariff for plants running on biomass. Both these have resulted in reviving of plant operations and SLS starting running the plant since June 2014 again, with considerable investments made in overhauling the plant. For enabling continuous and sustainable fuel supply, SLS planned for setting up of fuel linkage system. MNRE-UNDP with an objective of setting up a successful biomass

supply model, considered the project as one of the Model Investment Project (MIP) under the ongoing programme "Removal of barriers to biomass power generation in India."

Under the MIP, four Decentralized Biomass Depots (DBDs) have been set up for collection, processing and storage of biomass within 30-45 km proximity to the plant. The collection system has reduced the biomass procurement cost up to INR 350-450 per ton. SLS also got benefitted as DBDs increase the efficiency of collection and storage of fuel during the harvest season.

SLS Power uses mobile fuel processing equipments that processes the fuel onsite. Hence, due to the densification of biomass, more biomass is transported compared to the loose biomass. This has helped the company by reducing the cost of transportation. Each of these collection centers, to avoid fixed investment, are taken on lease and are spread in an area of 1-2 acres. All these depots are also facilitated with equipments such as tractor-trucks, mobile chippers, weigh bridges, front loaders, fire fighting and so on.

The biomass depots established around the plant used to store the biomass available during short span of harvesting season at much lower price in a decentralized manner. This biomass is then subsequently transported to a centralized shed created at a plant as per the plant operation needs for safer storage. This not only helped to capture much higher quantum of fresh arrival of biomass resource during short span of time but also helped reducing fuel cost by procuring huge volumes at relatively lower prices.

SLS power required 60,000 tons of biomass for operating the plant at full capacity throughout the year. About 50% of the biomass requirement is procured from the biomass fuel depots and rest is taken from the suppliers and farmers who will deliver the fuel directly at the power plant.

Benefits of Establishing Biomass Fuel Depots

The establishment of biomass fuel depots enabled the farmers to generate higher income. Farmers are getting paid for collection and selling of biomass. About 900 families are selling biomass to depots established at Nellore and each family is benefitted with an amount of INR 6,000 per month. SLS Power project employed local people for plant operation and maintenance and also for biomass collection, processing and transportation. This has resulted in job creation in this area.