4.5 MW Biomass (low density Crop Residues) based Power Generation unit of Malavalli Power Plant Pvt Ltd

Background

The Clean Development Mechanism (CDM) of the United Nations Framework Convention on Climate Change (UNFCCC) is a mechanism under the Kyoto Protocol that binds developed countries to promote projects that reduce greenhouse gas (GHG) emissions. By taking advantage of the CDM, a developing country and/or a Least Developed Country could gain benefits in areas that would not have received support without the CDM, creation of job opportunities and new markets, and strengthening of ties between developed and developing countries.

The Gold Standard (GS) of the Gold Standard Foundation is a certification standard for carbon mitigation projects and is recognised internationally as the benchmark for quality and rigour in both the compliance and voluntary carbon markets.

About the programme

Malavalli Power Plant Pvt. Ltd. (MPPL) is a power generation plant based in Kirugavalu Village, lying under the jurisdiction of Malavalli Taluka in Mandya District, in the state of Karnataka. The project utilizes biomass crop residues from the nearby region for the generation of power. In other words it produces electricity from renewable sources and therefore is a clean energy power plant.

The programs

Project technology and reduction of green house gases:

The project utilizes low-density crop residues (cane trash/coconut fronds) and other biomass fuels available nearby in effective manner for generation of power.

The total capacity of the power plant is 4.5 MW. This 4.5 MW coming from a green technology power plant utilizing only left over biomass, is a great achievement on the green technology front. The fact that our plant is a biomass power plant, it therefore showcases an innovative way to convert worthless biomass residues into valuable energy source.

The power plant commissioned in August 2001, has been exporting electricity to the state grid ever since; thereby contributing to sustainable economic growth, conservation of the environment through use of biomass residues and green house gas (GHG) emission reductions by displacing fossil fuel based electricity from the grid.

The residues, such as cane trash (just the leaves, not the bagasse) and coconut fronds, which the power plant utilizes are otherwise either burnt on the fields (leading to high particulate emissions) or allowed to decompose.

The plant location is just 35 km from the city of Mysore and 125 km from the city of Bangalore. This further facilitates the building up of engineering resource and O&M organization (with the required technical skills) for undertaking such a pioneering project. The project presents technological innovations in boiler design and special Operation and Maintenance Protocols in order to avoid slagging and corrosion problems caused by the fuel properties of low-density crop residues. The project uses a

steam turbo generator with matching boiler of travelling grate type capable of firing multiple fuels in an energy efficient manner.

Benefits

The power plant contributes to the sustainable development and environmental well being via:

1. Utilising biomass residues to generate electricity, thereby contributes to clean energy.
2. Additional source of income for the local farmers producing coconuts, sugarcane etc. The project has created 450 direct jobs within the biomass residue supply chain.
3. The project acts as a catalyst (and also provides support structures through a sister company Grameena Abhivrudhi Mandali) for rural entrepreneurial development and thereby secondary jobs creation.
4. The project contributes to stability and quality of power supplied to the local industry, farmers and households, improving the conditions for economic activities and quality of life in the region.
5. The project contributes approximately Rs. 45 million (USD 1 million) to the rural economy per year through the Biomass Supply Chain. It is emphasised that value is created for crop residues, which were otherwise wasted in the fields (cane trash, coconut fronds etc.).
6. Provides job prospects for local people at the project plant.
7. The project contributes to GHG emission reductions by displacing electricity from fossil fuel based power plants connected to the regional electricity grid.
8. The project fires 100% biomass and thereby displaces the firing of fossil fuels, which in the Indian context would have been mainly coal with a high ash content (35-45%) or high sulphur content fuel oil (4-5%).
9. The project encourages organic farming through production of organic fertiliser and distributing the same to farmers from whose field's crop residues have been collected.
10. The project (through its sister company Grameena Abhivrudhi Mandali) sensitises farmers on energy conservation and thereby reduces ground water extraction through wasteful farming practices.
11. The project showcases an innovative way to use low-density crop residues, combining power generation from renewable resources and sustainable development in rural areas. With more than 80% of India's population living in rural areas and considering the desolate power supply situation in these areas, the project has an immense replication potential.

Conclusion:

South Pole Carbon Asset Management Ltd is proud to be associated with this programme. The successful implementation of the programme will lead to the sustainable development of the target areas further helping in laying out a platform for replication of similar projects across the country. It will create job opportunities for local people and business groups while ensuring that the environment is protected. South Pole Carbon Asset Management Ltd counts on the cooperation and support of all stakeholders involved to ensure the success of the programme