BIOMASS GASIFICATION FOR COMBINED HEAT AND ELECTRICITY AND POWER GENERATION PROJECT FOR MERU ECO CAMPUS, SOUTH AFRICA

The project is a demonstration project and it is part of a bigger project to develop MERU eco-campus and Ezemvelo Nature Reserve. The goal of the EEP funded project is to build a gasification plant that would produce renewable energy for the MERU Eco campus and Ezemvelo. The feedstock for the plant would be alien trees, which should be removed from the nature reserve to reestablish the original indigenous fauna. Thus, the cost of feedstock is zero or very low, as the trees would be cut down regardless of whether they would be used for energy production or not.

The Community and Individual Development Association created the MERU Eco-Campus to educate disadvantaged youth in the skills needed to participate in the green economy, with a particular focus on the natural resource management. The innovative concept combines personal, financial and environmental high quality education with experiential learning; students live and study at the 1700 ha Ezemevlo Nature Reserve.
As the plant is operated by an educational institution, there will be opportunities for students to be trained in the use of the equipment, increasing their skill levels.

Lessons learned

The project has experienced a number of challenges causing significant delays and requiring additional resources. Lessons have been learnt from overcoming these challenges. Support and advice from the EEP Programme and access to technical support have proven to be essential to overcome the challenges and for the successful progress of the project.

One of the more significant challenges the project has faced is the financing of expenses prior to reimbursement by the EEP Programme. This is especially the case with regard to the purchase of the equipment, as the cost of the equipment is significant and forms the majority of the whole project budget.

In the full proposal, various local companies were identified that were able to provide the needed equipment. However the regional coordination office requested that a comprehensive international tender process be conducted as the total amount of equipment and services purchased exceeded 30.000 EUR.

Organizing and conducting the tender process has further delayed the project significantly. As the winning bidder came from India, the procurement of the equipment became more demanding and delivery took much longer.

The extra time and resources required to obtain various approvals from relevant authorities regarding building/civil works, fire safety and environment impact assessment, have also contributed to some months' additional delays to the project.

Some key learning's from the implementation of this project are:

- When the project equipment is of significant value, then it is important to ensure that you are capable of financing the purchase. Before the commencement of the project, arrangements should be made for financing equipment of significant value. Furthermore it is advisable to arrange a financing facility to cover additional /unknown increases in cash flow requirements during the project implementation.
- Furthermore when the value of equipment is of significant value and therefore requires to be procured through a comprehensive international tender process, it should be considered that this can add months to the project implementation time. More resources will also be required for organizing and conducting the tender including conducting due diligence process and negotiating the contract with the successful international bidder.
- Also if the equipment has to be procured internationally, the procurement process become more complicated than procuring locally. Additional attention is required in relation to import and trade regulations. Also, time for delivery is likely to be longer. Logistics/transport and delivery arrangements become more demanding. Import duties and value added tax will apply. Finding an experienced clearing agent is essential.
- Finally obtaining all the approvals from authorities in relation to: building/civil works, fire safety and environmental impact can be a costly and lengthy process adding months to the project implementation time.