

THE LNM INSTITUTE OF INFORMATION TECHNOLOGY JAIPUR
Center for Energy and Environmental Studies & Dept. of Mechanical-Mechatronics
Engineering

A STEP TOWARDS SUSTAINABILITY

Title: Dryer design and implementation for moisture removal in Juliflora at Transtech Pvt. Ltd, Sanchore, Rajasthan.

Project Team

	PI	Mentor	Team Member	Team Member
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Designation	Associate professor, MME Lead- CEES and Asso. Dean-Innovation and Consultancy	Distinguished Professor	Research Scholar	Research Scholar
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Proposal on Dryer design and implementation for moisture removal in Juliflora, after Industrial Visit to TransTech Green Power Pvt. Ltd., Sanchore

This is with reference to our industrial visit at TransTech Green Power Pvt Ltd, Sanchore during 21.04.2023 to 22.04.2023.

The department of Mechanical- mechatronics Engineering at the LNMIIT Jaipur is running UG and Ph.D. courses in the field of Mechanical Engineering. The Center for Energy and Environmental Studies (CEES) is an interdisciplinary centre for research which is focusing on designing and developing of decentralized energy systems incorporating novel technologies for




the municipal communities and industrial application to economize their energy requirements in more efficient way.

The TransTech is having a power plant at Sanchore, Rajasthan based on the Biomass. They are interested in removal of moisture from Juliflora and jeera straw biomass so that dried biomass will not have issues related to combustion in the furnace of their power plant.

For the same, we had collected samples from your plant for testing and analysis. The details of the samples are as below:

- Sample of Juliflora
- Sample of jeera straw biomass
- Available drier design and heat duty data

To work on the same, we would be able to do the aforementioned in a phased manner, where first phase we will be implementing task with existing available drier and cyclone with minimal addition of equipment. This would fulfil the capacity of around 6 tons per hour (approx. 1/3rd of the maximum capacity required per day). Hence the similar technology developed may be scaled up with design for mass production at the site at your plant in the next phase which can be through E-neuf Energy Pvt.Ltd. Jaipur or by the TransTech itself with proper licensing from the LNMIIT as per the institute norms without additional fee. The details of the project with timelines are as below:

#	Scope of Work	Sub Activities	Timeline
1	Dryer design and modification	<ul style="list-style-type: none"> • Design of 2-stage drier using data of existing available drier and cyclone • Integration of all stages 	0-1 Months (Design at the LNMIIT and actual implementation at the Plant site)
2	Testing, Validation, and optimization at plant site	<ul style="list-style-type: none"> • Testing and Validation • Optimization of the parameters 	1-2 Months

Budgetary Details:

Non-recurring: Equipment/Machinery

Items	Approximate Cost	Justification for the Requirement
Two stage dryer (with GST@18%)	236000	For modification and integration of two stage drier with blower etc.
Bio Gas burner addition with modification (with GST @ 18 %)	177000	For additional fuel supply of biogas for heating application

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Recurring:

Items	Quantity	Approximate Cost	Justification for the Requirement
Testing (Outsourcing)	Various (Moisture content, GCV, etc.)	10000	For material testing and technology validation.
Travelling & Contingency	Various	50000	
Consultancy fee (with GST @18%)	Professional fee of the PI and the team	236000	
Miscellaneous (Consumables etc.)	Various	10000	

Human Resource:

Position	Number	Duration (in months)	Proposed Monthly Salary (Rs. in Lakhs)	Total Cost (Rs. in Lakhs)
Project Coordinator	1	2	0.40	0.80
Operator (Welder)	1	2	0.30	0.60
Operator (Fitter)	1	2	0.21	0.42

*If the Welder and Fitter are provided by the Transtech, then there is no need for hiring these from the LNMIIT side.

Total Cost:

#	Head	Amount (Rs. In Lakhs)
1	Non-recurring	4.13
2	Recurring	3.06
3	Human resources	1.82
4	Institute Overhead (@15%)	1.35
Grand Total		10.36

Disbursement (In phased manner):

#	Timeline/Head	Amount (Lakh)
1	At start of Month 0 (Non-Recurring-Equipment/Machinery for main dryer, Consumable and 50% of Contingency)	2.71
2	At start of Month 1 (Non-recurring- Biogas burner, Testing, 50% of contingency, salary of first month and 50% institute overhead)	3.705
3	At start of Month 2 (Consultancy fee, salary of second month)	3.945
Grand Total		10.36 (100%)

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List of Items with compatible/suitable capacity to be provided by Transtech Pvt. Ltd at the site

#	Equipment
1	Rotary drum with cyclone
2	Cyclone for preheater
3	Screw conveyer
4	Blower with capacity compatible to the flue gases
5	Welding machine setup
6	Material loader/manpower for moving material if required at the TransTech site as per the actual site/project location
7	Any supporting structure/frame required for the overall setup if required

Note:

- The above amount mentioned in the budget part of the proposal will be borne by TransTech only. There will be no separate setting up cost of drier, however, the welding setup, transfer of equipment from one place to another within TransTech and any Electrical, civil work will be arranged by TransTech.
- Accommodation and meals will be provided by TransTech during the visits and site implementation.
- All the Intellectual Property Rights will be reserved by the PI and the team with rights of the LNMIIT Jaipur as per its IPR policy and the TransTech will have the first right of the refusal for the commercialization.


Declaration with Signatures:

We, the undersigned, participating in the project entitled “ Dryer design and implementation for moisture removal in Juliflora at Transtech Pvt. Ltd Sanchore" certify that the particulars submitted in the proposal are true and correct. We have studied the proposal, terms and conditions governing it and undertake to abide by them. We would do our utmost to support and to ensure effective participation of concerned persons from respective organizations towards the goal oriented, time bound, progress of the said project.

We agree that:

1. The work proposed in the project is based on consultancy project provided by the LNMIIT to be implemented at the transtech site as per the scope of the proposal.
2. The TransTech will provide the financials as per the budget (of total cost INR 10.36 Lakhs) mentioned in the proposal.
3. The above amount mentioned in the budget part of the proposal will be borne by TransTech only. There will be no separate setting up cost of drier, however, the welding setup, transfer of equipment from one place to another within TransTech and any Electrical, civil work will be arranged by TransTech.

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4. All the Intellectual Property Rights will be reserved by the PI and the team with rights of the LNMIIT Jaipur as per its IPR policy and the TransTech will have the first right of the refusal for the commercialization.

The institution (LNMIIT) and company (Transtech) agree that the consultancy project, as per norms of the project, shall be executed at the Transtech site towards implementation of the drying of the Biomass as per the proposal.



Mr. Amitabh Tandon
Director, Transtech Green Power Pvt. Ltd.
Sanchore.



Dr. Kamal Kishore Khatri
(Principal Investigator)
Associate Professor & Dean - Innovation
and Consultancy, Lead- CEES

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Prof Mohit Makkar
HOD, Mechanical-Mechatronics
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Witness-I



Dr. Sakthi Balan
Associate Professor & Dean- Sponsored and
Industrial Research

Witness-II

