Request for Proposal for the Engagement of a Survey Agency

Project Title: *Socio-Economic Impact Assessment of Solid Fuel Blending in NTPC's Thermal Power Plants*

Implementing Institution: Ashoka Centre for a People-centric Energy Transition (ACPET)

Partner Organization: NTPC Limited

1. Introduction

The Ashoka Centre for a People-centric Energy Transition (ACPET) is a transdisciplinary centre under the International Foundation for Research & Education (IFRE). ACPET's vision is to guide the global south, particularly India, towards a sustainable, secure, and equitable energy transition. India's energy transition to meet its net-zero commitment while powering its economic growth is expected to trigger major changes across the energy sector. Our project portfolio spans various sectors, all united by the goal of placing a people-centric approach at the core of policymaking to ensure a just and equitable transition to clean energy.

2. Project Overview

The Socio-Economic Impact Assessment of Solid Fuel Blending in NTPC's Thermal Power Plants aims to generate a comprehensive understanding of how large-scale biomass co-firing initiatives affect communities participating in the biomass supply chain. NTPC, India's largest power producer, is implementing biomass co-firing across multiple thermal power stations as a sustainable measure to reduce dependence on fossil fuels and lower greenhouse gas emissions. While the technical feasibility of solid fuel blending is well established, there is limited empirical research on its socio-economic implications for rural and peri-urban stakeholders supplying biomass. The present study, anchored by **ACPET** in collaboration with **NTPC Limited**, will focus on the NTPC Dadri and NTPC Jhajjar thermal power plants and its associated supply chain. The survey will cover **four major stakeholder groups**:

- ✓ **Farmers** supplying agricultural residues for biomass blending
- ✓ **Aggregators** engaged in the collection, storage, and logistics of residues

- ✓ **Transporters** engaged in the transportation of biomass between various stages of the supply chain
- ✓ **Processors** (pelletization, briquetting, torrefaction plants) that convert raw biomass into usable fuel forms

Through primary data collection, the study will assess the social, economic, and environmental dimensions of fuel blending, including income enhancement, job creation, gender inclusion, business viability, and community-level environmental benefits.

3. Research Objectives

To assess the socio-economic and health impacts of biomass co-firing in NTPC plants, with emphasis on:

- Rural Livelihoods: Understanding how biomass procurement and supply create employment, income, and skill opportunities for rural communities.
- Gender-Inclusive Supply Chains: Exploring the role of women in the collection, processing, and delivery of biomass, and promoting equitable participation.
- Air Quality Improvement: Assessing reductions in local air pollution from partial replacement of coal with biomass and the related health benefits.

4. Key Research Questions

The study seeks to address the following research questions for each stakeholder group to evaluate the overall socio-economic outcomes of solid fuel blending:

4.1. Farmers

- How has the sale of biomass influenced household income and livelihood diversification?
- What seasonal or market factors affect residue availability and prices?
- Has the demand for biomass reduced stubble burning and improved air quality?
- What roles do women play in residue collection, sale, and related labour activities?
- What policy or institutional support is needed to sustain farmer participation?

4.2. Aggregators

- How profitable and sustainable is biomass aggregation under NTPC's co-firing program?

- How does seasonal variation in residue availability impact aggregation costs and margins?
- What employment opportunities (permanent, contractual, or seasonal) have emerged from aggregation activities?
- What are the major logistical and financial challenges faced by aggregators in maintaining a reliable supply chain?
- How do aggregators perceive market competition and payment systems from processors and NTPC-linked procurement?

4.3. Transporters

- How has participation in biomass transport for aggregators, processors, and NTPC influenced the income levels, employment generation, and overall livelihood of transporters?
- How do seasonal variations in biomass residue availability impact transport demand, trip frequency, and income stability?
- What are the key operational challenges, such as high fuel costs, poor road conditions, delayed payments, or logistical inefficiencies, that affect the profitability and sustainability of biomass transport?
- How have shifts in biomass sourcing distances and plant procurement patterns influenced transport routes, costs, and workload over time?
- What institutional or policy supports (e.g., vehicle financing, fuel subsidies, road improvements, or faster payment systems) are needed to enhance the efficiency and viability of biomass transport operations?

4.4. Processors

- What are the costs, challenges, and profitability of pelletizing, briquetting, or torrefying biomass residues for NTPC and other buyers?
- How does seasonal feedstock availability affect processing capacity utilization?
- What are the key labour, safety, and gender participation dynamics in biomass processing units?
- How has NTPC's demand influenced business expansion and investment in processing infrastructure?
- What policy interventions or technological supports could improve processing efficiency and market competitiveness?

5. Scope of the Work

The selected **survey agency** will conduct the field-level socio-economic assessment under the supervision of ACPET and in close coordination with NTPC. The assignment will include both quantitative and qualitative data collection from identified stakeholder groups. Scope Includes:

5.1. Primary Data Collection:

- Conduct structured interviews with farmers, aggregators, transporters, and processors using the finalized questionnaires.
- Collect supporting qualitative information through Key Informant Interviews (KIIs).

5.2. Geographical Coverage:

- This assessment will focus on agricultural villages located within the districts of **Karnal, Panipat, Sonipat, Jind, Hisar, Palwal, and Sirsa** in the state of Haryana. Farmers in these areas supply raw biomass to processing units that manufacture biomass pellets for NTPC Dadri and NTPC Jhajjar thermal power stations. These districts represent some of the state's major zones for crop-residue availability, biomass aggregation, and processing.
- **Enumerator Training and Tool Testing:** Translate survey tools into the local language (Hindi), pilot test the instruments in a non-sample village, and refine them with ACPET's feedback.

5.3. Data Management:

- Use **CAPI-based digital data collection**
- Maintain data validation, quality checks, and daily uploads.
- Ensure confidentiality, data protection, and respondent consent.

5.4. Stakeholder Coordination:

- Engage local NTPC teams, biomass suppliers, and FPO representatives to ensure smooth fieldwork and community participation.

5.5. Reporting and Communication:

- Submit biweekly progress updates, field summaries, and feedback reports to ACPET.

6. Proposed Methodology for Sampling

The study will follow a **mixed-method research design**, combining quantitative surveys with qualitative assessments to ensure depth and representativeness.

6.1. Sampling Framework

Stakeholders	Sample Size	Sampling Area
Farmers	100	Villages located within the districts of Karnal, Panipat, Sonipat, Jind, Hisar, Palwal, and Sirsa in the state of Haryana.
Aggregators	10-20	Biomass collection centers and logistics hubs
Transporters	10	Transport operators engaged in biomass residue movement between villages, aggregation centers, processing units, and NTPC Dadri and Jhajjar
Processors	10-20	Pelletization, briquetting, and torrefaction units supplying NTPC Dadri and Jhajjar

6.2. Sampling Approach

- **Stratified Random Sampling:** Villages will be classified based on their level of participation in the biomass supply chain for NTPC Dadri and NTPC Jhajjar Power Plants.
- **Purposive Sampling:** For aggregators and processors, selection will be based on operational relevance to NTPC's biomass supply chain.
- **Data Validation and Triangulation:** Random back-checks of 10% of collected data, cross-verification of data through secondary data.

7. Key Deliverables

The agency will provide the following deliverables as part of the engagement:

Deliverable	Description
Inception Report	Detailing methodology, sampling framework, training plan, and work schedule.
Finalized Survey Tools	Translated, pilot-tested questionnaires and discussion guides.

Training Report	Summary of enumerator training, pilot results, and modifications made.
Cleaned Primary Data	Validated dataset for all respondent categories (farmers, aggregators, transporters, and processors) in Excel/CSV format.
Biweekly Progress Reports	Updates on fieldwork status and quality assurance checks.
Draft Analytical Summary	Preliminary analysis highlighting emerging trends and key indicators.
Final Data Package	Complete dataset, field documentation, photos, and consent forms.
Presentation Deck	Summary of findings for review meetings with ACPET and NTPC.

8. Timeline

Activity	Duration
Finalization of tools & training	1 week
Field survey & data collection	3 weeks
Data validation & cleaning	1 week
Submission of dataset & summary report	1 week
Total Duration	**6 weeks**

9. Copyright

ACPET/IFRE will own the copyright to this study. This will include data, photographs, reports, and any other material created and collected as per the mandate of this study. All the information received for the duration of this assignment from IFRE/ACPET must be treated with confidentiality and must not be shared without prior written permission.

10. Procedure for application and proposal submission

IFRE/ACPET proposes to hire an experienced research agency/consultant to conduct this mixed-methods study through a competitive bidding process. The agency/consultant must present the proposal in two parts:

(i) Technical: This shall provide the technical specifications like study design, methodology, geography, sample size, qualitative data collection proposed, plan of analysis for qualitative and quantitative data, plan of data validation, and proposed timeframe, along with the capability document/experiences of similar assignments.

(ii) Financial: This shall mention the expected budget for accomplishing the complete work with a head-wise breakup. The cost breakdown of consultancy fees and logistics for field visits with taxes must be included in the proposal. The following set of documents is required to be enclosed as part of the application.

- Detailed Proposal - Technical and Financial
- Experience with similar assignments.
- CVs of the persons to be involved in the assignment.

The technical proposal should be written within ten pages. In addition, the curriculum vitae of the core team members and the relevant experience of the firm in the last 10 years should be annexed to the technical proposal. The technical proposal should not contain any financial information. The technical proposal should include the following:

- Understanding of the terms of reference
- Proposed methodology
- Proposed work plan
- Activities and time frame
- Deployment frequency in person days unit.

A soft copy of the technical and financial proposal (duly signed on all pages by a representative of the agency) must be submitted to the points of contact mentioned in Section 12 of the RFP.

11. Marking Criteria

The selection of the agency will be based on a total of 100 marks, considering both technical and financial aspects as outlined below:

Criteria	Marks	Description
Methodology and Work Plan	30	Soundness, clarity, and feasibility of the proposed approach.
Team Composition and Expertise	30	Qualifications and relevant experience of key team members.

Relevant Experience	20	Prior experience in similar socioeconomic impact assessment studies.
Financial Proposal	20	Cost-effectiveness and justification of the proposed budget.

12. Submission Guidelines

- Proposals must be submitted by November 23, 2025
- The subject line of the e-mail should read "Proposal for Socio-Economic Impact Assessment of Solid Fuel Blending in NTPC's Thermal Power Plants".
- All proposals should be sent electronically to acpet@acpet.ashoka.edu.in.
- The following should be copied in the email application:
  - ✓ Mr. Vaibhav Chowdhary, Director, ACPET and PI of the project, (vaibhav.chowdhary@ashoka.edu.in)
  - ✓ Dr. Shubham Jain, Research Associate, ACPET (shubham.jain@ashoka.edu.in)
- For any inquiries regarding this RFP, please contact Mr. C Surendran at +91 9911195954.

13. Terms of Payment

- 40% upon submission of the Inception Report
- 25% upon submission of 100% raw data sets and the field progress report
- 25% on acceptance of the Draft Report
- 10% on acceptance of the Final Report and submission of final quantitative and qualitative data sets/transcriptions, and slides.

14. Terms and Conditions

- Timely Completion: The project timeline is till January 15, 2025. The vendor/partner shall complete the agreed-upon work plan within the stipulated timeframe.
- All-Inclusive Pricing: The budget must cover all costs, including fees, travel, lodging and boarding, taxes, and all statutory expenses. No additional charges are accepted post-contract.

- Requirements from vendor/partner: The vendor/partner must be registered under the Indian Companies Act, 2013, or the Limited Liability Partnership (LLP) Act, 2008.
- Valid PAN card and GST registration are mandatory.
- Minimum three years of experience in executing similar projects in India.
- Successful completion of at least two projects of a similar nature and complexity in the last five years.
- Average annual turnover of at least thirty lakhs in the last three financial years.
- Preference will be given to vendors/partners with established operations and presence in Haryana, Uttar Pradesh, and Delhi NCR, preferably with similar work.
- Submission of all relevant certificates, project completion reports, and financial statements as proof of meeting the above criteria, if required.

Note: The exact requirements may be adjusted based on the specific nature of the work, local regulations, and requirements of the NTPC.

15. Conclusion

This socio-economic assessment represents a critical step in understanding the multi-dimensional impacts of NTPC's biomass co-firing and solid fuel blending program. By integrating field-based insights from farmers, aggregators, transporters, and processors, the study will deliver a robust evidence base to guide NTPC's future biomass strategy, improve community benefits, and strengthen India's transition toward low-carbon energy systems. The findings will contribute directly to policy formulation, local livelihood enhancement, and sustainable supply chain development, enabling NTPC to establish a replicable model for socially inclusive biomass-based energy generation in India.