

Terms of reference (ToRs) for the procurement of services

	Project number
Terms of Reference (ToR) for engaging the consulting firm to conceptualise structure and design for setting up Biomass exchange in India	17.2166.1-001.00

1.	Context	2
2.	Background:.....	3
3.	The Areas of Activities for IGEN Access-II Programme	3
4.	Objective	4
5.	Break-up of Tasks to be performed	5
6.	Timeline and Reporting	9
7.	General Deliverables for the Project Management	9
8.	Program Steering and Reporting	10
9.	Qualification Criteria of the firm	10
10.	Human resource requirement	11
11.	Quality Assurance and Other Bidding Requirements	13
12.	Structure of the Proposal	14
13.	Further Requirements.....	14

Terms of reference (ToRs) for the procurement of services

1. Context

The Indo-German Energy Programme (IGEN Access - II) is a bilateral cooperation project carried out by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and the Indian Ministry of New and Renewable Energy. IGEN Access - II aims to improve the energy supply in rural areas of selected federal states.

India has emerged as the fastest growing economy in the world with impressive growth rate of 7.3% for the year 2018-19 and is predicted grow at 7.5% in the following two years. India's current economic and social development is the result of systematic policy driven proactive governance. The government has initiated policies and programmes dedicated towards poor, marginalized strata of the society. Some of the activities initiated by the government for social and economic development are Swachh Bharat Mission (Clean India Mission) for improved quality of life, minimum pension for workers, social security for the common man, universalizing the banking system, rejuvenating the Ganga river, providing 24X7 power to all, connecting India through roads and rail, building affordable housing for the poor, and developing smart cities.

Though India has emerged as the world's fastest growing economy, still a quarter of its population lack access to basic electricity. The Government of India has achieved 100% household electrification by April 2019 and has set out an ambitious agenda to provide 24/7 supply to all households by 2022. In addition, the government has also incorporated renewable energy in its strategy with ambitious targets of 175 GW of renewable energy by 2022 to reduce the fossil fuel dependence and increase the environmental and social benefits.

Besides conventional source of energy, smart and interactive RE systems are an efficient, effective and complementary option for India that paves the way forward to a low carbon economy. To do so, RE planning as well as associated systems and processes should be far more flexible and efficient to balance dynamism of supply and demand. Considering, inefficiencies associated with long distance transmission as well as unmet local energy demand RE can be used in isolation or to compliment the central grid. RE can be quickly deployed and they carry the environmental and social advantage of reducing emissions; improving air quality; spurring local job creation and education and can also facilitate productive uses for economic benefit.

The Government of India faces the challenge of sustaining economic and industrial growth alongside providing affordable and reliable power to its people, at the same time reducing the country's carbon footprint.

This unmet energy demand and global consensus to move towards clean energy presents a huge business opportunity. Renewable energy solutions like decentralized renewable energy (DRE) systems and grid tied RE systems have a huge potential and an important role to play in providing access to energy to in India and especially the rural population of India.

Terms of reference (ToRs) for the procurement of services

2. Background:

India has significant biomass resources, which traditionally has contributed to a third of its primary energy requirement, primarily towards cooking and water heating in rural areas. Such resources can however be utilized more efficiently to generate energy, which is not only renewable and carbon neutral, but also contributes to energy security and resilience of local communities. Further, such projects generate electricity that can be scheduled/is dispatchable due to its high availability and plant load factor. The energy generation potential from the biomass surplus from agro-residues¹ alone is estimated at 25 GW (electricity from combustion/ gasification) or 51.53 Billion Liters (bioethanol for transport). To promote the development of such biomass energy projects, the Ministry of New and Renewable Energy has provided both capital subsidies as well as feed-in tariffs over the past two decades, which has resulted in a capacity addition of 9.8 GW to date.

However, several project developers have indicated their inability to operate at full capacity primarily due to feedstock challenges, both in terms of availability as well as pricing, despite some state governments defining catchment areas for specific biomass projects. Further, the non-utilization of these resources often leads to burning of such crop residues, especially in North India, resulting in significant and potentially hazardous air quality levels.

Beyond the energy usage of Biomass there are multiple other usages where Biomass can be utilized for e.g. Pulp, paper and plywood industries etc. Utilization of the waste biomass is key to prevent burning of wasted crop residue on fields, hence preventing GHG emissions and air pollution.

To reduce the above-mentioned risks to projects and mitigate the effects of crop residue burning on the environment, MNRE is keen to explore the feasibility of setting up an exchange/marketplace for bioenergy feedstocks. This platform will eliminate the need for projects that are co-located with a single bioenergy feedstock, where the disruptions in feedstock availability due to poor yield or contractual disputes, feedstock quality (calorific value, moisture content, ash content, etc.), etc. affect the plant performance. Such a platform intends to provide incentives for investment on the demand side in larger, location independent and more economically viable bioenergy projects and on the supply side for processed & standardized bioenergy feedstock products. Development of projects to collect and process biomass has also proven to generate additional employment opportunities in rural areas.

3. The Areas of Activities for IGEN Access-II Programme

IGEN Access-II Programme is geared to specialists and managers at state-run and private energy companies, to providers of financial and other services and to private and public training facilities and networks. Acting through these intermediaries, the module will indirectly reach the rural

¹ Agro-residues - 150 MT (MNRE); 178 MT (TIFAC, 2018); Agro + Forest residues - 249 MT (Biomass Energy Atlas, IISc, 2005)

Terms of reference (ToRs) for the procurement of services

population who will then benefit from a modern, environment-friendly, high-quality energy supply, irrespective of gender, age, income or ethnicity.

It is expected that implementing the below-mentioned measures will increase the share of RE in rural areas of the partner federal states, and thus boost diversification in the Indian energy matrix (results hypothesis). In the long term, expanding RE will reduce the need to operate conventional power plants and thus increase their capacities. The upshot: fuel savings and reduced emissions of climate-noxious gases. In this way, the project will make another important contribution to a sustainable and above all eco-friendly energy supply in India, thus contributing directly to the achievement of the programme objective.

The module aims to improve rural energy supply in selected Indian federal states. Therefore, one of its key elements centres on strategic advice for decision-makers (e.g. relevant Ministries, State Nodal Agencies and other departments) regarding the initiation of a cross-sector energy planning process for rural areas. Secondly, the module will work on improving overall sector environment by facilitating access to finance, improving capacities and awareness for demand and supply side stakeholders. In addition, development of concepts to explore role of decentralised renewables in special conditions, like disaster prone areas, livelihood generation etc is also planned. All this will lead of more affordable and reliable access of power in rural areas.

Module objective of IGEN Access-II programme: The energy supply is improved in rural areas of selected federal states.

Module objective indicators:

1. The number of RE systems sold to rural users by module-backed providers has quadrupled.
2. 4 recommendations elaborated by the module for improving the quality of the energy supply under certain specific conditions are implemented.
3. 40% of women-led Village Level Enterprises (VLEs) that disseminate RE confirm that their standard of living has improved by two points on a scale from 1 to 5.
4. Implementation of one component from the energy plans (e.g. remuneration system for integrated decentralised energy systems, subsidy programme for promoting electric mobility) is funded in 2 federal states respectively.

4. Objective

To explore feasibility and implementation design to set up biomass exchange in India.

Terms of reference (ToRs) for the procurement of services

5. Break-up of Tasks to be performed

IGEN Access-II intends to engage a consulting firm to design the detailed structure and framework of biomass exchange in India. In order to take up the pilot area, the exchange may focus on agro and forest residue from the northern regions including states of Punjab, Haryana, Himachal Pradesh, Rajasthan, and Uttar Pradesh.

Key tasks:

The key tasks are broadly categorised into four work packages:

Work package 1: Best practices (international biomass exchanges)

Analyse the existing Biomass exchange from different countries (at least 5 of different types)

1. The experts/agency will have to collect, after in depth consultation, instances of best practices by Biomass exchanges(marketplace). the entire range/types of ownership - Privately Owned-Biomass Exchange, Government Owned-Biomass Exchange, Public private partnership-Biomass exchange shall be covered.

Best practices would include examples of different activities taken place over such exchanges.

- real and exact example of trade happen between biomass supplier and Biomass purchaser.
 - real example of any dispute happened between buyer and seller.
 - real example of dispute settlement mechanism.
2. Collect, review and analyze all studies/documents relating to all kinds of activities happening over different types of Biomass exchanges. Also highlights the key regulations (if any) which governs the operations of the Biomass exchange

Note: The estimated time to accomplish the above work package 1, should be not more than 8 human days.

Work package 2: Pre-requisites for setting up a biomass exchange

2.1 Feasibility analysis and prerequisites for setting up the biomass exchange

2.1.1 Demand-Supply analysis (TIFAC and ASCI report may be referred)

2.1.1.1 A broad-based market assessment needs to be done

The consultants will undertake an analysis vis a vis market assessment of the biomass supply as well as the demand side. This activity would primarily be a desk-based research and online consultation with demand and supply side stakeholders. The consultants may consider various reports published on the availability (supply) and the potential consumption (demand) of biomass. As far as

Terms of reference (ToRs) for the procurement of services

demand side is concerned the consultants may advised to consider all the potential demand side consumers who would require biomass for their business activities for e.g. Paper and pulp industry, Timber and other furniture sector, power producers etc. This analysis needs to be done in the states mentioned above.

2.1.2 Categorisation of different Biomass to be considered for trading based on the availability.

The categorisation (example processed or raw biomass) and standardisation of biomass are the critical aspects for the biomass to be considered as tradable commodity. The consultants need to suggest the different categories based on which classification of biomass can be done on the exchange.

2.1.3 Logistics assessment (Detailed assessment on Collection, handling, transportation and other storage activity)

As per various reports published and feedback from various sector experts, it has been noted that due to unavailability of proper logistics mechanism most of the biomass simply gets wasted or burnt. The logistics also plays a major role in the tariffs of biomass; hence this is a very important aspect as far as smooth functioning of biomass exchange is concerned. The consultants will have to do a desk-based assessment of all the logistics related activities and should come up with the recommendations in view of operationalising the biomass exchange. The consultants will primarily focus on the states mentioned above for this activity, but it is advisable to develop algorithms while considering all the factors associated with logistics, which can be used for other states also. Consultations with relevant stakeholders like SNAs, industry, aggregators etc should be undertaken to get a grounded view.

2.1.4 Other required infrastructure assessment

It is anticipated that while setting up the biomass exchange various other infrastructures would also be required. The consultants will recommend what are the infrastructures that would be required, this may be in line with all the associated activities starting from pre harvesting of biomass to delivery point.

2.2 Convergence with other commodity exchanges in India.

2.2.1 Detailed analysis (pros and cons) and other details on how to converge biomass exchange with existing exchanges like E-NAM or MCDEX.

Terms of reference (ToRs) for the procurement of services

2.2.2 The consultant may come up with a logical rationale for setting up a separate exchange for biomass in the region if the existing exchanges can not be used for biomass trading

Work Package 3: Structure of a biomass exchange in India

Develop and design the implementable framework for biomass exchange. The consultant may come up with suggestions on setting up the exchange at the National level with operations at regional level or state level enabling the smooth trading and transaction of biomass as commodity. Other approaches may also be suggested.

Based on the analysis done on the previous two work packages, the consultant is required to suggest at least two working models for the exchange to be set up in India. These models may include (but not limited to) the following points:

3.1 Structure of the exchange;

- A. A buyer-seller match making biomass exchange
- B. Auction based biomass exchange
- C. Any other feasible mechanism

3.2 Development of Biomass indexing in line with the other commodities which are traded. (for e.g. Coal)

An index will need to be developed with various parameters related with the quality of the biomass to be traded. This may be in line with other commodity indexing but the consultants need to develop the index which will facilitate in the transparent and reliable trading.

3.3 Algorithm or mechanism to quickly determine the logistics cost.

The logistics cost constitutes the maximum share in the overall price of the biomass. Often the activities related to the logistics have to be done by the sellers and the cost to be bear by the buyer.

3.4 Guidelines for the trading sessions.

The consultants need to develop the working principle of the biomass exchange based on the analysis of various factors which affects the operations of Biomass exchange in the context of Indian scenario, subsequently a detailed guideline needs to be developed for the trading session. It is assumed that based on the nature of trading (for e.g. Auction based biomass exchange or buyer seller match making exchange), the guidelines for each type of proposed exchange will be different.

Terms of reference (ToRs) for the procurement of services

3.5 Trading fees and other charges.

The consultants are also expected to analyse and suggest all types of charges and fees that the biomass exchange will charge from its user based on the services it offers to them.

3.6 The contracting mechanism or the recommendations for the legal framework.

It is assumed that once the trading is done between buyer and seller, an obligation to deliver the biomass and the respective price to pay is committed. The consultants are supposed to develop the procedure and other framework that will enable buyer and seller to get into an agreement.

3.7 Price discovery mechanism for the seller to determine the base price of the biomass that will be traded.

It is envisaged that the proposed exchange will facilitate a simpler trading environment even for the farmers to sell their biomass in the exchange. A simpler price discovery mechanism will help in the initial decision making. The consultants need to analyse whether price discovery mechanism for the base price of biomass is required or not. If yes how the same can be included in the overall operation of the exchange.

3.8 The regulatory mechanism of the exchange

Any regulatory framework that is required to govern the exchange, will need to be developed.

3.9 Ownership of the exchange

The consultants are also required to analyse the ownership models of the exchange. This should be suggested with proper justification, which model as far as ownership is concerned should be taken into consideration.

Work package 4: Role of different govt bodies and other key stakeholders.

4.1 Identification of key regulatory recommendations and/or policy reforms.

To set up and operationalise the biomass exchange in India (National level/ Regional level / State level), it is envisaged that government agencies need to play a facilitative role. Key central and state level Ministries/Department which need to be involved include Ministry of New and Renewable Energy, Ministry of Agriculture, Ministry of Environment and Forest, Ministry of Rural Development, Ministry of Power, Ministry of Petroleum and Natural Gas, National and State livelihood missions, IREDA amongst other. The consultants are expected to come up with key recommendations and roles for these Ministries to bring in the convergence for setting up the exchange.

Terms of reference (ToRs) for the procurement of services

4.2 Organising one (01) inter-ministerial consultation.

The consultants are expected to organise and present the overall findings, suggestions and recommendations to relevant authorities including the key ministries of GOI.

4.3 Other recommendations for the Piloting of the intervention.

The overall objective of this assignment is to explore all the details that will help in setting up the biomass exchange in India, either on national level or regional level or state level (based on the analysis). The consultants are expected to provide other recommendations which will help the concerned authorities to pilot the initiative.

6. Timeline and Reporting

The expected duration of the project to be around **75 human-resource days** spread over **4 months period** from the date of award of the contract. GIZ may also require the organisation to prepare short reports / concept notes / discussion papers / minutes of meeting from time to time. Please note that the assignment needs to be completed latest by **15 Feb 2021**.

Following are the estimated Human resource requirement envisaged in this assignment

Human Resources	No.	Days
Team Leader	1	10
Sector Expert (Biomass)	1	30
Commodity trade expert	1	15
Research analyst	2	20

It is anticipated that the nature of this assignment would allow the consultants to conclude the work with minimal or no travel to the fields. This is also advised, due to the current COVID situation, no or minimum travel should be done, however the consultants can provide a very strong justification if they require to do any field visit or other travel.

7. General Deliverables for the Project Management

The organisation is expected to provide the following deliverables

- One inter-ministerial meeting/workshop
- At least 2 working model of Biomass exchange with detailed guidelines and recommendation.

Terms of reference (ToRs) for the procurement of services

- Inception report within the first two weeks of the project
- Project monitoring sheet (template to be provided by IGEN Access-II) within the first two weeks of the project
- Final Report with detailed analysis of key activities mentioned in section 5.
- Updates (conference call or one to one meeting) on a fortnightly basis on project progress with GIZ and MNRE.

8. Program Steering and Reporting

- The organisation will report to a Technical Expert (to be nominated) from IGEN Access-II programme of GIZ India.
- The organization is to designate a team lead; who should take all key decision on behalf of firm and should act as a point of contact for all communication.
- During the period of assignment, the organisation is expected to report on a fortnightly basis regarding the progress on the assignment. The organisation is expected to develop a Project Monitoring Sheet (PMS) for regular tracking of progress made on the assignment. The format of PMS will be shared with the organisation.

9. Qualification Criteria of the firm

The bidder needs to demonstrate following ability through adequate references and documents.

- Provide evidence of at least 5 reference projects / assignments in “Biomass energy sector” with at least 5 references “in Setting up Institutional structure” in the last Five years. The commissioning value of the reference project must be a minimum of 10000 euros.
- Average annual turnover for the last three financial years for the firm should be more than 50,000 euros. Demonstrate ability to work in a highly collaborative environment with teams that are subject to time and skill constraints.
- The bidding firm should have at least 10 persons working as their employees.
- It is also desirable that the firm should have experience of development projects (ODA financed). This will be considered while evaluating the eligibility of the bidding firm for this assignment.
- The bidding firm should also have the technical experience of the following (Refer Grid for assessing eligibility of consulting firm)
 - Experience of projects on biomass handling, collection, processing and other logistics.
 - Experience of drafting institutional framework for Energy or related sector.
 - Experience of developing recommendations on policy reforms for Energy or related sector.
 - Experience of projects on market assessment in Energy or related sector.

Terms of reference (ToRs) for the procurement of services

10. Human resource requirement

The organisation is expected to provide a pool of expert to accomplish the overall assignment. The pool of experts should encompass:

- a. Project Management specialist/Team Lead
- b. Other expert with experience in Biomass sector
- c. Commodity trade expert
- d. Research analyst (two in number)

10.1 Project Management Specialist/Team Leader

Reports to – GIZ (assigned GIZ's Technical expert and GIZ's IGEN Access-II lead)

Core Responsibility	Core Competencies & Requirements
<ul style="list-style-type: none"> First point person of contact for the project Ensure transparency and quality standards Proof reading of documents Acts as back stopper for the project on any human resource gap during course of project period Checks on the fund utilisation and financial planning in consultation with the officer responsible for the commission at GIZ Develops a detailed action plan for the team members based on the agreed deliverables for the project Responsible for reports and other reporting compliances as per ToR 	<ul style="list-style-type: none"> Master's degree in energy or related field and at least ten (10) years of overall experience. (Refer 2.1.1 in the Technical assessment grid) Minimum of five (5) years of work experience in programme management (Refer 2.1.3) Possess personal qualities of integrity, credibility, and commitment to execute mandate by showcasing leadership qualities (2.1.5) Knowledge of spoken Hindi in addition to English (Refer 2.1.2) Should have regional work experience in the mentioned in this TOR. (2.1.6) Should have at least five (5) years of experience in the project execution of development sector (2.1.7) Should have remarkable experience of conducting market assessment study and institutional building work.(refer 2.1.4)

10.2 Biomass Expert

Terms of reference (ToRs) for the procurement of services

Core Responsibility	Core Competencies & Requirements
<ul style="list-style-type: none"> Support team in various scenario building. Technical feasibility of the solutions. Validating the solutions with actual ground. Support team in developing documents 	<ul style="list-style-type: none"> Should have bachelor's degree in energy or development studies or related field and at least five (10) years of operational experience (Refer 2.2.1 and 2.2.3) Should have knowledge of local Indian language and fluency in English (speaking and writing) (refer 2.2.2.) Minimum of ten (10) years of work experience in biomass sector and thorough understanding of biomass collection, handling etc. (refer 2.2.4) Minimum 5 years of experience in program management. (2.2.5) Should have regional work experience as specified in the TOR. (2.2.6)

10.3 Commodity trade expert

Core Responsibility	Core Competencies & Requirements
<ul style="list-style-type: none"> Responsible for developing the scenario for Biomass trading. Validating the trade mechanism Ensure transparency and quality standards Acts as back stopper for the project on any human resource gap during course of project period Supports in developing a detailed action plan for the team members based on the agreed deliverables for the project 	<ul style="list-style-type: none"> Bachelor's degree with at least ten (10) years of overall specified experience. (refer 2.3.1) Minimum of five (5) years of work experience in programme management refer 2.3.3) Possess personal qualities of integrity, credibility, and commitment to execute mandate Knowledge of spoken Hindi in addition to English (refer 2.3.2) Should have regional work experience in the mentioned in this TOR. (refer 2.3.6) Should have remarkable experience of trade management or related field. (refer 2.3.4)

Terms of reference (ToRs) for the procurement of services

--	--

10.4 Research analyst (2 nos.)

Core responsibility	Core Competencies & Requirements
<ul style="list-style-type: none"> • Support in the implementation of the project. • Support in the monitoring and evaluation of the assignment. • Support the team in any research related activities. 	<ul style="list-style-type: none"> • Bachelor's degree in business administration/Science/Maths or related field. (refer 2.4.1 and 2.5.1) • Knowledge of spoken Hindi and English (2.4.2 and 2.5.2) • Should have experience of working with rural communities and have specific expertise of conducting research-based projects. (refer 2.4.3 and 2.5.3) • Minimum of three (3) years of work experience in implementation of projects related to Biomass sector.(refer 2.4.4 and 2.5.4) • Should have regional work experience as specified in the TOR (refer 2.4.6.and 2.5.6)

11. Quality Assurance and Other Bidding Requirements

To ensure the quality of the outputs the organisation must meet the following requirements:

- GIZ honours intellectual copyrights and strictly prohibits any copyright violations and plagiarism
- GIZ will not be providing any fund to be used to create assets on ground. The bidder must keep this checked while preparing the technical as well as financial proposals.
- Reports or documents pertaining to the project and prepared by the organisation need to be thoroughly verified prior to submission. Sub-quality deliverables would not be accepted
- It is expected that all documents will undergo a final proofread by the team leader
- The organisation ensures that GIZ staff is briefed continuously on the progress of the project and informed immediately on any changes whatsoever (e.g. delays, availability of information etc.)
- All meetings will be documented by the organisation. The minutes of meetings need to be approved by the staff of GIZ

Terms of reference (ToRs) for the procurement of services

- The organisation is not allowed to replace project staff without prior approval by the staff of GIZ
- All the steps of the scope shall be coherent and complimentary in nature and they should not be considered as individual isolated steps
- GIZ encourages to share the results achieved from the assignment including relevant data with the larger audience for better sectoral learnings.
- The bidder organisation can refer to the parameters mentioned in the Technical assessment grid (attached in the Tender document) to prepare the technical proposal.

12. Structure of the Proposal

- The proposal should contain a very brief company profile followed by a detailed approach and methodology to execute the project. The proposal should also contain the project timeline highlighting milestones and deliverables. Please elaborate the roles and responsibilities of the different team members in the proposal;

The entire proposal including approach and methodology proposed, CVs etc., needs to be in English. Each CVs need to be in uniform format with a maximum of three pages; The length of technical proposal should not exceed 25 pages (excluding CVs & other supporting company documents; as mentioned in grid for assessing eligibility of firms). all other items including CV, other legal details etc should be added in the proposal as annexures;

- The template for financial quotes has been attached with the tender documents. The potential bidders are advised to follow the attached budget template;
 - The bidder is expected to keep separate detailed budgetary provision for flights, other (local/national) travel costs, per diems and accommodation costs for their team.
 - Consideration of local resources should be clearly outlined in the proposal. Local resources could be used for coordination purposes and local logistics.
- Further Requirements

- All reports, slides, presentations and other media and information material need to be submitted to GIZ in soft copy and in hard copy as required;
- Timelines shall be strictly adhered and delay in any of the deliverable shall be reported and aligned with GIZ in advance.

Terms of reference (ToRs) for the procurement of services

- The bidder may be required to make technical presentation to GIZ before final selection at GIZ office. In case it is required, the bidder will be informed in advance.

Note

- In order to select a suitable organisation, GIZ may invite shortlisted organisations to present their methodology and approach to a committee which will help GIZ in making final selection.
- It may also be foreseen that GIZ may consider termination of the contract prematurely in case of limited participation or due to any other unforeseen events. All communications through any media (e.g. print, newspaper, journals and any other mass/social media) must be approved by the responsible person of GIZ.