

PUBLIC TENDER

for

Supply & Installation of Solar Powered Cold Storages

Tender Number: 91144759

Date: 06.11.2020

Particulars	Description
Purpose of Tender	To procure 10 units of Solar Powered Cold Storage for our project locations in Karnataka & Maharashtra as part of COVID '19 measures.
Tender reference number	91144759
Date of tender announcement	06.11.2020
Last date to submit pre-bid queries by the interested bidders	11.11.2020
Last date to provide clarification to the queries. All the queries will be answered in the form of (Frequently asked question) FAQ and will be uploaded on the website www.tendernews.com	12.11.2020
Last Date and time for submission of bids	19.11.2020
Mode of Submission	Technical and Financial bids to be submitted via email as per the given instructions.
Validity of Bids/ Offered Price	90 days from the last date of submission of bids i.e 19.11.2020. The selected supplier shall not be able to vary from their financial bid until the completion of the Order, if awarded by GIZ.
Address for Bid Submission	Email bid submission.
Location of services	Karnataka & Maharashtra.

BACKGROUND:

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is owned by the German Government and works in the field of international cooperation for sustainable development. GIZ is also engaged in international education work around the globe and currently operates in more than 130 countries worldwide.

One of the projects of GIZ, “Green Innovation Centres for the Agriculture and Food Sector” (hereafter called as the project or GIC) is part of the special initiative “One World – No Hunger” (SEWOH) of Germany’s Federal Ministry for Economic Cooperation and Development (BMZ). The project addresses poverty and hunger by establishing Green Innovation Centres for the agriculture and food sector in 15 countries, amongst them India, with a global steering structure established in GIZ headquarters in Germany.

The project in India is focused on supporting tomato, potato and apple-based value chains in selected district of the Indian states Karnataka, Andhra Pradesh, Maharashtra and Himachal Pradesh. The project is being implemented since 2015 and field operations are ongoing since early 2016.

In this hour of a global outbreak, the wastage of food can prove to be another disaster we can't afford. The COVID-19 outbreak has spread in India at a time when the crops are ready to be harvested. Due to restrictions on non-essential travel/movement, a shortage of farm workers has led to delay in the harvesting of crops which will hamper our food production. The farmers and farm labourers are at the receiving end of this undesirable situation and the food is getting lost due to issues in the supply chain. The wastage and loss of food could be minimised with a better prevalence of cold chain market and infrastructure in the country.

GIZ GIC now wishes to procure 10 units of Solar Powered Cold Storage for our project locations in Karnataka & Maharashtra as part of COVID '19 measures.

The solar powered cold storage is to reduce the loss during pre-production and post- production phase of potato by introducing cold storage infrastructures in the selected districts of Karnataka (Hasan and Chikmagalur) and Maharashtra (Pune & Ahmednagar). The pre-production phase of the potato to support the potato seeds and new concepts like Rooted Apical Cutting seedlings (especially generation one seed potato). The postproduction phase to focus on storing of table potatoes to fetch better price and observe the market volatility.

Objective:

- a) To increase productivity by introducing quality potato seeds using solar powered cold storage.
- b) To increase the shelf life of table potato and able to overcome market driven volatiles for potato through cold storage.
- c) To capacitate farmer on the use of solar powered cold storage.

SCOPE OF WORK

The Green Innovation Centre India project foreseeing to procure 10 units of the solar powered cold storages from a technically and financially sound manufacturers in the selected districts of Karnataka (Hasan and Chikmagalur) and Maharashtra (Pune & Ahmednagar).

- Total of 10 units of Solar powered cold storage (hybrid and or chemical based storage) with a capacity of 10 MT to be installed in the above-mentioned geographies and a detail list of beneficiaries will be shared to the successful bidder.
- The agency should closely work with The Green Innovation Centre India team during the time of installation. A Farmer Producer Company based business model to be developed by the agency / bidder.
- The solar powered cold storage unit must have a valid test certification in the name of the bidder from MNRE/NABL/BIS accredited test laboratory. Adequate protection must be provided as per the requirement of the site by taking lightening and other climatic conditions.

Requested services (including suggested methodology)

a. Installation and Commissioning

1. The successful bidder to transport the systems to the site, install and commission it on the field of beneficiaries as given in the list by GIC project.
- 2. Before submission of the bid bidders may in their own interest may visit the sites and do the feasibility analysis in consultation with GIC project local partner.**
3. The installation process to be documented with specification of place, date and acknowledgement from the farmer and the FPO who receives.
4. Post installation each unit must be tested and commissioned in the presence of farmers, local partner of GIC and GIC project team.

b. Capacity Building (Separate consulting assignment):

1. The successful bidder shall organize training programme for the beneficiaries on operation and maintenance of the unit.
2. A list of DO's and DON'Ts shall be displayed at a prominent place at the site along with warning signs wherever necessary.
3. Operational manual for beneficiary to be prepared in local languages and English.

Technical specification for solar powered cold storage with a capacity of 10 MT

Specifications	Values / Description
Type	Pre-painted Modular Container
External dimensions in feet	40 ft ISO Marin Container
Internal capacity	1870 CFT
Storage capacity	Minimum 10 MT (As per MIDH standards of 120 CFT / 1 MT)
Temperature Range, °C	3 - 20 °C
Cooling Storage Capacity	Not less than 200MJ (equivalent 2,000 kg of pre-cooling)
Product storage	Potato and other vegetables
Product incoming temperature	as per location climatic average temperature Max 30%
Product loading / unloading	Precooling of 3000 kg/day from 20 to 3 °C
Pull down desired time	18 hours
No. of door openings / day	2 opening per 6 hours for 30 sec
Thermal Insulation Specifications	
Wall and ceiling insulation & thickness	100 mm Poly Urethane Foam, 40kg/m ³
Floor insulation and thickness	100 mm Poly Urethane Foam + Anti-skid
Door type	100mm Poly Urethane Foam as per BIS standards use for selecting insulations. The selection of design parameters based on (IS 661:2000) and method of application of thermal insulation (IS 661 & 13205)
Door curtain	Sensor based automatic PVC curtain before the door to reduce Heat infiltration on door opening
Product stacking details	On racks (to be provided by supplier)
Ambient temperature	40 °C Note: Based on the prevailing climate zone temperature
Designed solar radiation levels	5 kWh/m ² -day global horizontal irradiance Note: Please calibrate the equipment based on respective location irradiance
Back up duration	24-30 hours (non-door opening & 5 kWh/m ² -day global horizontal irradiance)
Power Source	
Photovoltaic panels type	Polycrystalline/Monocrystalline
Size	Minimum 7.6 kWp
Solar VFD drive	As per motor drive and should have P.F not less than 0.95 *P.F – Power Factor
Solar charge controller	Maximum Power Point Tracking

Electrical Batteries (Auxiliary Power)	As per auxiliary load requirement for mentioned autonomy. (Auxiliary loads such as fans, lights, valves & control system). The VRLA/T-Gel. Batteries should be used. Please also share the technical and cost comparison with Li ion battery
Array Structure	
Mounting Structure	The mounting structure should be designed over the roof area of cold storage or super structure should be designed.
Make & Property	<ul style="list-style-type: none"> • Hot dip galvanized MS mounting structures may be used for mounting the modules / panels / arrays. Minimum thickness of galvanization should be at least 120 microns or greater. • Each structure should have angle of inclination as per the site conditions to take maximum insolation. • Structure should withstand the speed for the wind zone with min (wind speed of 150 km/ hour). • The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall comply of latest IS 4759 • Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. • The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m² • The minimum clearance of the structure from the roof level should be 300 mm.
Alternative Power input facility	Grid & DG. 1ph/3-ph grid
Condensing unit	Condensing unit for -5°C evaporating and 40°C condensing temperatures
Evaporator unit	Minimum 2 Nos. of Fans and minimum air through of 750CFM each
Refrigerant	Heat transfer medium should be eco-friendly , safety, and energy efficiency and should have minimum Ozone depletion potential
Charging duration	5 to 7 hrs. (ambient temperature dependent)
Thermal storage medium	Storage medium should be economical and energy efficient. For example: Phase change materials, Polyalkylene glycol etc. Water / other
Heat transfer medium from thermal storage to the evaporator unit of cold storage	Heat transfer medium should be eco-friendly , safety, and energy efficiency and should have minimum Ozone depletion potential
Thermal storage capacity indication	Linear with minimum 4 graduations between maximum and minimum thermal cooling capacity

Self-leakage from thermal storage	Maximum 300 Watt at the ambient temperature of 40 °C also please calibrate with local environment temperature
Thermal storage configuration	Completely stops providing cooling in the cold storage when temperature of cold storage is achieved to the desired levels. Configuration should be automated while considering IoT, and or Sensor or innovative techniques.
Maintenance	Should have IOT Enabled Predictive Maintenance
External humidification for 90 to 95 % RH	Fogger type external humidification system with 2 to 10-micron particles with automatic regulation
Air Purger	Either manual or automatic (It is desirable to remove air and other non-condensable gases from the refrigeration circuit to)
RH control	RH indicator & controller
CO 2 control	CO ₂ sensors for regulation of ventilation system
PLC control systems	For overall control of various parameters
Lighting in Storage, outside and other areas	Typical installations for lights may be 2 to 3 W / m ² of floor area as per (IS 15111) A central switch should be provided outside each chamber
Power and control cabling, earthing etc for various electrical circuits	Aluminium armoured conductors for main power lines for various electrical circuits & equipment lines & copper conductors for lighting, control wiring etc.
Safety Measures	
Fire protection	Fire sensors in cold chambers & machine room. Dry & water- based fire-fighting systems as per specs below. Sprinklers for high pressure receivers Lightning arrestors for the building as per local regulations
Emergency lighting system	May be solar PV cells with batteries & controller
Emergency alarm system	To be provided with switches near all cold store doors and alarms located in common public areas
Installation and commissioning	The storage plant shall be installed, tested & commissioned as per IS 660 / ASHRAE. Std 15.

Solar PV Module / Array

- i. Solar Photo Voltaic (SPV) modules/ array shall be of high efficiency made of crystalline silicon solar PV cells and shall also satisfy the MINIMAL TECHNICAL REQUIREMENTS / STANDARDS FOR SPV SYSTEMS specified by MNRE and BIS
- ii. The terminal box on the module should have a provision for opening for replacing the cable, if required.
- iii. The rating of each individual module should not be less than 250Wp (with minimum of 24V) Multi/Mono Crystalline MNRE approved solar modules with 60/ 72 cells with minimum 15% Module Efficiency) at Standard Test conditions (Higher ratings can be used) and shall meet following minimum requirement as specified by MNRE: Efficiency of module ≥ 15% Fill factor shall be greater than 70%. General requirements for PV module:
 - a. Module shall be made up of mono or poly crystalline silicon cells.

- b. The interconnected cells shall be laminated in vacuum to withstand adverse environmental conditions.
- c. The module frame is made of corrosion resistant materials, preferably having aluminium anodized finish.
- d. The minimum clearance between the lower edge of the modules and the developed ground level shall be 400 mm.
- e. Surge arresting device to be provide at junction box and module shall be provided with bypass diode. The SPV module must be IEC 61215 and IEC 61730 Part I and Part II certified from any of the accredited certifying agencies.
- f. Each solar PV module shall be warranted by the manufacturer for at least 90% of its rated power after initial 10 years.
- g. Each PV module deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each module. (This can be inside or outside the laminate but must be able to withstand harsh environmental conditions).
 - Name of the manufacturer of the PV module
 - Month & year of the manufacture (separate for solar cells and modules)
 - Country of origin (separately for solar cells and module)
 - I-V curve for the module
 - Wattage, Im, Vm and FF for the module
 - Unique Serial No and Model No of the module
 - Date and year of obtaining IEC PV module qualification certificate
 - Name of the test lab issuing IEC certificate
 - Other relevant information on traceability of solar cells and module as per ISO 9001.

ELIGIBILITY CRITERIA

- Average annual turnover for the last three financial years {last- but- four financial can be included in case of invitation to tender held within six months of end of last financial year} must be **at least EUR 300,000**.
- Minimum no. of **8 employees as on 31.12** of the previous year
- The company must have in past experience, a **minimum commission (Sale / Purchase Order) of EUR 100,000**.
- GIZ Prefer direct bids from the company and not from individuals/franchise. In case of bid from dealer/franchise the same shall be validated by company in its letterhead.
- The agency / company must possess a valid PAN, TIN, and GST Number with minimum client list of 05 medium / large size companies.
- The company shall have all licenses/permission for sale of Solar Powered Cold Storage Units in India.
- Having past experience of providing similar services in Karnataka / Maharashtra would be an added advantage.

SUBMISSION OF TENDER- PROCESS

- (a) The tender documents / bid should be signed, stamped and in pdf format with email title – **“Supply of Solar Powered Cold Storages – 91144759”**.

CRITERIA FOR EVALUATION OF BIDS

(A) Technical Bid

- Documents pertain to the legal status of organisation (Certificate of Incorporation/Registration/Memorandum/Partnership deed etc)
- Copy of PAN, TIN and GST Registration- Mandatory.
- At least **3** reference projects in the technical assessment of similar projects and at least **1** reference project of supplies to Government in the last **three years**.
- The company must have a minimum experience of 05 years in supply of Solar Powered Cold Storage. At least 3 years of experience working in Agriculture Sector. Also, 2 different projects implemented with a volume of 10 MT capacity of Solar Powered Cold Storage.
- Detailed profile (Technical) of the Solar Powered Cold Storage technology.
- Copy of annual statement of income tax return – last three financial year.
- List of all clients.
- Reference of 5 established clients for reference check.
Following details should be provided for each client:
 - Name of Company
 - Name and Contract of person
 - Total order volume
- **Desirable**- any ISO, Quality or any Green certification though not mandatory.

Apart from above mentioned mandatory documents, GIZ would also like to understand the infrastructure and supply chain operations of the company in respect of ecological and sustainable aspect, Therefore all the companies shall also state briefly-

- ***Any green initiative towards balancing ecological standards.***
- ***Any self commitment towards ecological and sustainable eg- promoting biodegradable products, recyclable items etc.***

Company shall also declare that no child labour are engaged in their organisation directly or indirectly.

Self certification to the effect that the tenderer has not been blacklisted by any company or its contract has been terminated on account of any reasons whatsoever.

(B) Financial Bid

The Financial bids will be evaluated only in respect of those firms, which meet the technical bid criteria mentioned above.

GENERAL CONDITIONS (Maintenance & Services)

- The successful bidder is required to undertake scheduled maintenance as well as corrective maintenance for a period of 3 years starting from the date of commissioning of each unit.
- The bidder to appoint technically qualified person for maintenance and quality assurance.
- The cold room to be tracked through a remote monitoring system for monitoring its performance which will feed into the maintenance service of unit.
- Scheduled maintenance plan to be developed for half yearly for each unit and the compliance to be reported.

Further, the successful bidder will also provide Consulting (Technical) Services for up to Nine months (March 2021 to November 2021) of closed monitoring support, training of local farmer, repair, and maintenance (if any) support to be provided by the successful bidder. **A separate Consulting Contract will be signed with the bidder during the installation of cold storage.**

PAYMENT PROCESS

- 40% advance shall be released against the Bank Guarantee of total order value after signing the contract.
- 60% after complete deliverables, invoice submission and confirmation of services.

Or

- An interim payment request can also be considered after 50% progress in the work which will be reviewed by GIZ representative only.

(please mention on your company's letter head about your preferable payment terms).

DURATION OF THE AGREEMENT

- The initial period of agreement would be for **6 months (starting from 01 December 2020 until 30th May 2021)**, after successful formalisation of agreement. GIZ India will provide

letter of intent to the winning company in order to proceed with the purchase of Cold Storage units.

- As already stated in General Conditions above, the successful bidder will also provide Consulting Services (separate consulting contract) for up to Nine months (March 2021 to November 2021) of closed monitoring support, training of local farmer, repair, and maintenance (if any) support to be provided by the successful bidder.
- In case of gross misconduct/unfair trade practices the GIZ will have the right to cancel the contract / purchase order with immediate effect.
- Modifications or supplements to agreement are only valid when made in writing. Verbal communications / amendments in this regard are not valid.

A detailed time line (proposed) is appended below for reference:

Product	Specifications	Deadline
Design of installation plan	In Word-format	15 December 2020
Consent sheets	A letter of consent from FPO that is to be signed by directors of the FPO. Consent letter from land leasing / land rent on the technology to be installed (GIC partner to support).	15 Jan 2021
Finalising farm to introduce technology	AFC Team to share final farmers list	15 Dec 2020
Orientation to Farmers	Farmers to be capacitated on the use of technology	10 Feb 2021
Technical detail report about the feasibility of installation of technology.	Detail technical specification related to list of identified land, type of agreement process to use Solar powered cold storage and reasons for not accepting certain location.	20 Feb 2021

Installation of Solar Powered Cold Storage	Installing the technologies in the field.	21 Feb 2021 to 30 May 2021.
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Beneficiary Details

The installation of solar powered cold storage to be done in the identified farmer producer organisations locations.

- HOYSALA FARMER PRODUCER COMPANY LIMITED – 5 Units of Solar Powered Cold storage
Address: Muladudda Road, Near SBI, Dudda, Hassan Taluk, Hassan, Karnataka, 573118
C/o, ETC Consultants (GIC Project partner)
Contact person: Suhas
Mobile: +91 95382 41688
- SATGAON FARMER PRODUCER COMPANY LIMITED– 3 Units of Solar Powered Cold storage
Address: H NO 370, BHAWADI, KHED, Pune, Maharashtra, 410505
C/o, ETC Consultants (GIC Project partner)
Contact person: Sangeeta Patil
Mobile: +91 82086 02508
- BHAMA-BHIMA FARMER PRODUCER COMPANY LIMITED– 2 Units of Solar Powered Cold storage
Address: AT POST KIWALE, KURKUNDITAL, KHED, Pune, Maharashtra, 410505
C/o, ETC Consultants (GIC Project partner)
Contact person: Sangeeta Patil
Mobile: +91 82086 02508

PREPARATION OF THE PROPOSAL

- Company should carefully check the specification/details of the material listed at Annexure-B.
- Company should fill up the prices in the format given at Annexure “B”, print it and should sign and stamp on each page.
- The company should make sure that the documents are duly signed and stamped. Incomplete/unsigned proposal shall be summarily rejected.
- The company should prepare a covering letter detailing out the non-agreement, if any, to the bidding / supply conditions and should attach it to the price proposal.
- The company should make sure that all the requisite documents (self-attested copies) are attached to the proposal as per the details given at Annexure “A”.

- The company should prepare the client list as per the format given at Annexure “A” and must attach it to the proposal.
- Company should also submit a short company profile and business card of contact person along with the proposal.

CLARIFICATION TO THE BIDDERS & BID SUBMISSION

Please note the details for deadlines and email address:

<u>Description</u>	<u>Deadline</u>	<u>Please send it on Email ID</u>
Query from Bidders	11.11.2020	Shimpa.kalra@giz.de and johney.reberio@giz.de
Clarifications by GIZ	12.11.2020	It will be shared on tendernews.com and tender247 .
Bid Submission	19.11.2020	Qn_quotation@giz.de

Subject Title for queries: **“Query on Solar Powered Cold Storages – 91144759”**.

Subject Title for bid submission: **“Supply of Solar Powered Cold Storages – 91144759”**.

Personal/telephonic/telex contact on the subject of this tender will not be entertained and must be refrained.

SELECTION OF SUPPLIER

- A complete proposal shall be eligible for evaluation and will be evaluated by the tender committee.
- GIZ shall seek necessary clarifications from the suppliers, if any, during the evaluation process.
- GIZ may also ask the shortlisted suppliers(s) to show the product sample(s), if required.
- The supplier with most technically sound technology, competitive prices and matching the required standards, will be considered for the award of contract.
- GIZ reserves the right to conduct a reference check, with existing clients, before finalization of agency.
- Only shortlisted / selected supplier shall be contracted by the GIZ.

Enclosures:

- Annexure-A: Documents Check List / Client reference
- Annexure-B: Technical & Price Submission Sheet
- General Terms & Conditions

Documents Checklist / Clients' References

Annexure - A

Checklist	YES	NO
<ul style="list-style-type: none">Legal status of the Company (Certificate of incorporation/Registration/Memorandum/Partnership deed etc)		
<ul style="list-style-type: none">Copy of PAN, TIN and GST Registration- Mandatory		
<ul style="list-style-type: none">Copy of annual statement of income tax return – last two financial year.		
<ul style="list-style-type: none">ISO, Quality or any Green certification (though not mandatory)		
<ul style="list-style-type: none">Self certification to the effect that the tenderer has not been blacklisted by any company.		

Five existing clients for reference check

S. No.	Name of the client & address	Contact Person	Contact Number	Email ID	Years of Association
1					
2					
3					
4					
5					

Price Schedule : Annexure – B is attached in excel format.