



**Centre for High Technology  
(Ministry of Petroleum & Natural Gas)**

**Request for Selection (RFS) document  
for  
Selection of Project Developers  
for  
Demonstration Scale 2G Integrated Bioethanol Projects  
under  
Pradhan Mantri JI-VAN Yojana**

**RFS No. CHT/PM JI-VAN/RFS/Demonstration/2021/03**

**Dated: 24.11.2021**

**ISSUED BY**

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1. Though adequate care has been taken while preparing the RFS document, the Project Developers shall satisfy themselves that the document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Project Developer within **twenty (20) days from the date of notification of RFS/ Issue of the RFS documents**, it shall be considered that the RFS document is complete in all respects and has been received by the Bidder.
2. Centre for High Technology (CHT) reserves the right to modify, amend or supplement this RFS document.
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Place:           Noida

Date:           \_\_\_\_\_

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# **Section 1**

## **INTRODUCTION, BACKGROUND & SCHEME DETAILS**

## Section 1

### **Introduction, Background & Scheme Details**

#### **1.1 INTRODUCTION**

- 1.1.1. Centre for High Technology (CHT) was established as a dedicated technology cell of Ministry of Petroleum & Natural Gas (MOP&NG) in 1987 to assess futuristic requirements, acquire, develop and adopt technologies in the fields of refinery processes, petroleum products, work relating to modernization of technologies etc. CHT takes up programs for performance evaluation, improvement, capability development, technical services etc. for Indian Refineries on a centralized basis. CHT is engaged in promoting indigenous technologies through sponsoring R&D projects and their commercialization in the downstream sector.
- 1.1.2. Government of India through Ministry of Petroleum & Natural Gas (MoP&NG), has notified “Pradhan Mantri Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran (JI-VAN) Yojana” vide Extraordinary Gazette of India no. 1037 dated 08.03.2019 for providing financial support to Integrated Bioethanol Projects using lignocellulosic biomass and other Renewable feedstock with an aim to set up Second Generation (2G) ethanol projects across the country.
- 1.1.3. The scheme envisages setting up of 12 Commercial scale and 10 demonstration scale 2G Bioethanol projects. The scheme will be implemented in Phase-wise manner. Under Phase-I (2018-19 to 2022-23), 6 Commercial projects and 5 demonstration projects will be supported. Under Phase-II (2020-21 to 2023-24), remaining 6 commercial projects and 5 demonstration projects will be supported.
- 1.1.4. For Commercial projects, Viability Gap Funding subject to a maximum of 20% of the project cost OR Rs. 5 crore for every 10 lakh litres summed to Biorefinery’s annual name plate capacity, whichever is lesser, will be provided to make the projects commercially viable. The maximum financial outlay per project has been capped at Rs 150 crore.  
  
For example, for a project cost of Rs 800 crore for generating 3.20 crore litres of 2G ethanol per annum, financial assistance of Rs. 150 crore will be provided. In case, the cost for a project having annual 2G Ethanol capacity of 2 crore litres is Rs. 600 crore, the grant to the tune of Rs 100 crore will be provided.
- 1.1.5. For demonstration projects, the financial assistance will be limited to Rs. 15 crore per Technology.
- 1.1.6. The total cost of the project includes cost of land, cost of total equipment and their erection including biomass supply chain and handling, civil & mechanical work including plant building & sheds, cost of utilities, electrical & instrumentation controls, enabling assets (water & power intake), water and waste management system, pre-commissioning and commissioning charges, working capital, interest during construction and also charges of technology, royalty, charges towards PMC/EPCM services and charges of any special erection involved, besides any contingent expenses.
- 1.1.7. Scientific Advisory Committee (SAC) of Ministry of Petroleum & Natural Gas (MoP&NG) is designated as nodal body for appraising and recommending the eligible Project proposals under the Scheme.

- 1.1.8. Projects deemed fit for seeking grant under the Scheme by SAC will be approved by Steering Committee of CHT under the chairmanship of Secretary, MoP&NG for disbursement of funds under the grant.
- 1.1.9. CHT is designated as Nodal Agency for implementation of the scheme and shall provide requisite Secretarial assistance to SAC for selecting eligible Project Developers under the Scheme.
- 1.1.10. For demonstration projects, the milestones against the VGF payment will be decided by SAC. The payment terms shall be decided by SAC on case to case basis.
- 1.1.11. This Request for Selection document (hereinafter called RFS for Demonstration scale projects) has been prepared in line with the guidelines notified in Gazette dated 08.03.2019 by MoP&NG and subsequently incorporating recommendations of SAC. This RFS is only for Demonstration scale projects.
- 1.1.12. CHT invites proposals for Selection of Project Developers for providing Financial Assistance to set up 9 Demonstration scale 2<sup>nd</sup> Generation Ethanol Projects based on lignocellulosic biomass and other renewable feedstock under Pradhan Mantri JI-VAN Yojana.

## 1.2 BACKGROUND

- 1.2.1 Government of India has emphasized on achieving energy security of the country with a target of reducing import dependence i.e. usage of fossil fuels by 10% from 2014- 15 levels by the year 2022. This target is to be achieved by adopting a five pronged strategy which includes, Increasing Domestic Production, Adopting Biofuels & Renewable, Energy Efficiency Norms, Improvement in Refinery Processes and Demand Substitution. This envisages a strategic role for biofuels in the Indian Energy basket. The growing concern about the import dependence for fuel requirement in tandem with environmental pollution issues have driven the need for biofuels that have superior environment benefits and are economically competitive with fossil fuel.
- 1.2.2 National Policy on Biofuels – 2018 is aimed at accelerated promotion of Biofuels with indicative targets of achieving 20% blending in Petrol and 5% blending in Diesel by 2030. In this direction, Oil Marketing Companies (OMCs) are marketing Ethanol Blended Petrol with percentage of ethanol up to 10% as per the BIS specifications to achieve a target of 10% blending by 2022 on Pan India basis.
- 1.2.3 In order to meet 10% ethanol blending target with a projected demand for petrol in 2021-22, about 450 crore litres of ethanol would be required. The estimated production of bioethanol in the country is around 300 crore litres, a large part of which is required for potable alcohol and chemical industries and the balance is used for Ethanol Blending Petrol (EBP) program. Though new routes (from B heavy molasses, sugarcane juice, damaged food grains & surplus food grains) for enhancing ethanol procurement by OMCs has been opened by the Government of India, the ethanol procurement from first generation route may not be sufficient to achieve 10% ethanol blending during 2021-22.
- 1.2.4 Second Generation (2G) Bioethanol is produced from agricultural residues and by-products, organic wastes; most preferably woody, grassy and waste materials as a feedstock; and biodegradable fractions of municipal & industrial waste. The studies indicate that Lignocellulosic surplus biomass availability in India is around 12-16 crore tons per annum. If

exploited, this has potential to yield 2500 to 3000 crore liters of Ethanol per annum and has potential to reduce India's dependence on imported crude oil considerably.

- 1.2.5 2G Ethanol Bio-refineries, apart from producing Cellulosic Ethanol, also produces Pellets (from surplus lignin); Biogas (which can be upgraded to Bio CNG); liquid CO<sub>2</sub>/ Dry Ice (for supplies to Poly Houses & Cold Storages, which would support Horticulture activity) & assured quality Compost (which will increase farm yields & reduce chemical fertilizer consumption). Thus 2<sup>nd</sup> Generation Bio-refineries would be integrated Bioenergy projects.

### 1.3 **DETAILS OF THE SCHEME**

- 1.3.1 Project Developers (hereafter referred to as PDs) selected by CHT based on this RFS, shall set up Demonstration scale Second Generation (2G) Bioethanol projects (based on non-food biomass feedstocks and other renewable feedstocks) in accordance with the provisions of this RFS document.
- 1.3.2 PDs will have to mandatorily undertake Ethanol Purchase Agreements (EPA) with Oil Marketing Companies (OMCs) in prescribed format for assured procurement of ethanol. If PD is an Oil Marketing Company (OMC), Ethanol Purchase Agreement (EPA) shall not be required.
- 1.3.3 PDs shall have to submit necessary Detailed Project Proposal along with Biomass Assessment / waste assessment, supply chain & logistics report. The Proposal should clearly indicate cost involved on various aspects like technology procurement, establishment of plant, Royalties, consultations and any other incidentals which will require any payment to outside agencies from India. Details in relation to proposed sales revenue generated from sale of 2G Ethanol & other by-products produced in the Biorefinery shall also be clearly stated in the Proposal.
- 1.3.4 Project proposals are expected to be based on integrated approach for end to end utilisation of biomass for production of ethanol and other value added products. Technology demonstration by PD should be in fully integrated manner. However, it may not be necessary to install the entire plant in same premises. PD, in their application against RFS, shall submit the details of entire process including part of any existing/ adjoining facility that is proposed to demonstrate the process/ technology in integrated manner. Bioethanol produced shall be meeting out the BIS standards applicable for blending with petrol.
- 1.3.5 PDs shall have Technology licensing Agreement with their proposed Technology provider. In case, the PD is the Technology licensor, the same shall not be required.
- 1.3.6 The proposed land for the project shall be available with PD before submitting its application to the RFS.
- 1.3.7 PDs shall have committed source for enzymes. PD shall furnish documents regarding sourcing of enzyme before disbursal of 2<sup>nd</sup> installment of financial aid.
- 1.3.8 PDs shall have undertaken trials of proposed Technology and proposed feedstock for the project. Results of such trials (including Mass and energy balance for the complete process) at various stages shall be shared at the time of RFS. For Demonstration projects, the PD shall share laboratory or any other scale results.
- 1.3.9 The eligible PDs under Demonstration project will ensure that the demonstration plant shall be operated for minimum of 15 months (continuous or cumulative) at minimum 50% capacity for ascertaining its performance. However, the plant has to be run for at least 3 years for

demonstration of reliability and credible financials. Ethanol generated from such runs shall be made available to OMCs for blending in Petrol.

- 1.3.10 The purpose of supporting Demonstration projects is to enthuse technology providers to display viability & performance of their novel technologies. Thus, any Demonstration project supported under the scheme shall also share the details of Operational performance with CHT, as & when required.
- 1.3.11 PDs to have entered into EPCM (Engineering, Procurement & Construction Management) Contract/ other execution mode as PMC & EPC/ OBE with reputed organization having proven track record. Preference will be accorded to applicants, whose EPCM/ PMC & EPC/OBE Contractor has established operations in India and, thereby, can optimize local sourcing.
- 1.3.12 The Projects should be designed for inter-connection with the OMC depots. PDs shall ensure the connectivity of OMC depot before commissioning the project for efficient delivery of 2G Ethanol.
- 1.3.13 PD shall have entered into a Three years (with a renewable option of two years) contract for operation and maintenance from the vendor/technology supplier or by the PD himself. PD shall submit the document regarding Agreement for O&M before disbursement of 2<sup>nd</sup> installment of financial aid. In case, PD himself is doing O&M, only self-declaration may be submitted at the time of RFS.
- 1.3.14 PD shall provide credible evidence of tie up / contract with biomass suppliers before disbursement of 2<sup>nd</sup> installment of financial aid by CHT. SAC shall decide payments milestones for demonstration projects while appraising the applications.
- 1.3.15 PDs / Promoters may include working capital as part of the total project cost.
- 1.3.16 For setting up projects, PD eligible under the scheme would be State Govt. enterprises, Central Public Sector undertakings & Private Entities as per eligibility criteria defined under Section-3.
- 1.3.17 CHT shall maintain necessary guarantees and legal formalities for channelizing the grant.
- 1.3.18 Project proposals submitted to CHT will be based on the prevailing Ethanol price fixed by the Government. Projects will also be eligible for policy provisions arising out in future. Till any further guideline is issued by the Govt., the price of 2G ethanol to be taken at maximum rate, as presently applicable for 1G ethanol ex-mill price of ethanol derived from 100% sugarcane juice for those mills (who will divert 100% sugarcane juice for production of ethanol thereby not producing any sugar). As GST and transportation charges are payable additionally, ex-mill price as indicated above shall be used. Price of other products shall be considered as prevailing in the market at the time of RFS.
- 1.3.19 Feedstock (biomass) price on dry basis shall be considered based on tariff proposed by Central Electricity Regulatory Commission vide Order: 31.03.2021 (CERC RE Tariff Order FY 2021-22) and thereafter as advised by CERC from time to time. The state wise rates as per Tariff Order 2021-22 are given in the Annexure-1. The CERC price shall be used only for normalizing the proposals for assessing degree of viability.
- 1.3.20 Under the “Demonstration projects” head, only one (1) project per Technology will be supported under the scheme.
- 1.3.21 The project cannot be transferred or sold to a third party without consent of the Government.



- 1.3.22 PDs and CHT shall enter into suitable Agreement creating a charge over the Project assets in favour of CHT and for ensuring the disbursement of grant to credible PDs.
- 1.3.23 CHT shall have a pari passu charge over the Project assets in case of Projects being financed by other lending institutions/banks.
- 1.3.24 CHT may incorporate suitable provisions regarding arbitration and seat of arbitration in the agreement to be entered between CHT and selected PDs under the scheme.
- 1.3.25 In case the lending institution exercises its right to step in or take over the project, CHT will also have right to step in along with the lending institution.
- 1.3.26 PDs shall be liable for all IPR, licensing and foreign trade issues during the period of the project.
- 1.3.27 PDs shall also ensure that licensor of the technology has appropriate Freedom to operate (FTO).
- 1.3.28 PDs shall obtain all statutory approval before commissioning of plant.
- 1.3.29 PDs shall obtain Statutory clearance under National Biodiversity Act, if applicable
- 1.3.30 Decision of the SAC and Steering Committee with regard to selection of PDs eligible under the scheme shall be final & binding on all interested PDs.
- 1.3.31 The PD, on the award of grant, is required to sign a contract agreement with CHT to ensure the timely completion of the projects set up under the scheme and to safeguard interest of the Government.
- 1.3.32 PD shall inform any change in the project after submission of proposal against RFS and obtain consent of CHT.

# **Section 2**

## **DEFINITIONS**

## Section 2

Following terms used in the document will carry the meaning and interpretations as described below:

### **Definitions**

**2G Bioethanol:** Ethanol produced from biomass and cellulosic materials such as bagasse, wood waste, agricultural & forestry residues, grasses etc. The produced ethanol should meet BIS standards IS 15464 (2004).

**Biomass** resources are the biodegradable and non-edible fraction of products, wastes and residues from agriculture, forestry and related industries as well as the biodegradable fraction of industrial and municipal wastes.

**Waste** is any substance or object which the holder discards or intends or is required to discard. Raw materials that have been intentionally modified to count as waste (by adding waste material to a material that was not waste) shall not be considered as qualifying under this Scheme.

**2G Bioethanol Project Developer (PD)** means any Company, Consortium of Companies or a Joint Venture (JV)/ Special Purpose Vehicle (SPV) interested in seeking the grant.

**Consortium:** Group of Companies that have collectively submitted their interest in availing the benefits under the scheme and agreed to manage the proposed project collectively.

**Lead partner of the PD:** In case PD is a JV/ SPV or Consortium, there shall be one lead member having at least 49% of the shareholding in the JV/SPV or consortium, which cannot be changed till 5 years from the commissioning date of the project.

**Project Commissioning:** Project is termed as commissioned when all equipment as per rated project capacity have been installed, the product of desired specifications is achieved from the process unit and bioethanol supplies to OMCs is commenced.

**SAC:** Scientific Advisory Committee (SAC) of Ministry of Petroleum & Natural Gas (MoP&NG)

**CHT:** Centre for High Technology, a body under the aegis of MoPNG

**Steering Committee:** Steering Committee of CHT under the chairmanship of Secretary, MoP&NG

## **Section 3**

# **BID INFORMATION AND INSTRUCTION TO BIDDERS**

## Section 3

### **BID INFORMATION AND INSTRUCTIONS TO BIDDERS**

3.1 The Salient features of RFS are as follows:

RFS No.	<b>CHT/PM JI-VAN/RFS/Demonstration/2021/03</b>
Purpose	<b>Selection of Project Developer (PD) under PM JI-VAN Yojana for Demonstration scale 2G Ethanol Projects</b>
Inviting Authority	Name: Dr. N.S. Raman Designation: Director Centre for High Technology OIDB Bhawan, Tower A, 9 <sup>th</sup> Floor, Plot No. 2, Sector – 73, Noida, Pin – 201316 Uttar Pradesh, India Phone No. +91 120 2593724 Fax No. +91 120 2593780 Email: <a href="mailto:raman.selai@cht.gov.in">raman.selai@cht.gov.in</a>
Start date & time	<b>24.11.2021 at 14:00 hrs. IST</b>  RFS can be downloaded from CHT website <a href="http://www.cht.gov.in">www.cht.gov.in</a> & <a href="https://eprocure.gov.in/epublish/app">https://eprocure.gov.in/epublish/app</a>
Last Date & time of Submission	<b>23.02.2022 at 14:00 hrs. IST</b>
Mode of submission	Proposals to be submitted in 6 sets of hard copies. In addition, Soft copy (CD, pen drive, email) to be submitted to RFS inviting authority on or before last date of submission.
CHT PAN Number	AAATC0412A
CHT GST Number	09AAATC0412A1ZN

PD shall indicate the full postal address, name of the contact person along with telephonic / tele-fax numbers and email address.

### 3.2 **Technical Pre-Qualification Criteria**

3.2.1 PDs or a partner of the Consortium, JV/SPV shall meet any one of the following criteria:

- a. Experience in Crude Oil Refining or any other industrial domain like Sugar, Food Processing, Paper, Steel, Textile, Cement for at least 2 years continuous operation
- b. Experience in operating continuous process plants for Chemical or Petrochemical production/handling at least for 2 years after PGTR with minimum 20 KTA capacity
- c. Experience in marketing of fossil fuels or Biofuel blended fossil fuels viz., MS, HSD or ATF for 2 years after date of incorporation under the Company Act.
- d. Experience of manufacturing/ marketing of Renewable fuels (Bioethanol, Biodiesel, Biomethanol, Bio-CNG, Drop-in fuels) for 2 years after date of commissioning of manufacturing unit or incorporation of marketing company under the Factory Act.

- e. Experience in Production/handling of at least 0.1 million tonne per annum large quantities of waste biomass
- f. Technology licensor having technology for converting Biomass into 2G Ethanol
- g. A Central Govt. or State Govt. Department, PSU or a local civic body with a mandate of addressing environment pollution
- h. Public funded Research Institution & Educational Institution and Private Research Institution registered with DSIR

3.2.2 PD has to demonstrate technology at Pilot scale.

3.2.3 PD should have published patent application for the technology based on which demo unit is being proposed.

3.2.4 Freedom to operate certificate to be provided through independent IP/ legal agency.

3.2.5 PDs which have commenced mechanical erection of their projects before starting of this scheme will not be eligible to avail the benefits of the scheme.

3.2.6 “Bolt on” plants & “Brownfield projects- are not eligible under the scheme’

3.2.7 Foreign investors proposing to set up 2G Ethanol Project in India are also eligible for availing the benefits of the scheme. However, all statutory provisions related to foreign investment in such projects i.e., FDI limit etc. would be applicable.

“For foreign investor, policy framework on Foreign Direct Investment Consolidated FDI Policy (Effective from August 28, 2017) issued by Department of Industrial Policy and Promotion Ministry of Commerce and Industry Government of India, or as updated/ amended from time to time shall apply”.

### 3.3 **Commercial Pre-Qualification Criteria**

3.3.1 For Demonstration projects; the annual 2G Ethanol generation capacity shall be between 3.75 lakh Litres to 11.25 Lakh litres (Feedstock capacity- 5 TPD – 15 TPD).

3.3.2 Proposed Technology of the PD should have been demonstrated to convert Biomass to Ethanol at laboratory level. Three months (continuous or cumulative) Operational data of the proposed technology needs to be shared with SAC at the time of invitation to RFS for ascertaining the performance of Technology. A team of experts may be entrusted by SAC for due diligence of the data generated from Pilot facility and the recommendation of the SAC shall be final.

### 3.4 **No-Go Condition**

The following categories of projects/promoters will be ineligible for financial support under the scheme:

- Declared willful defaulters, as per RBI norms
- Declared Non-cooperative borrowers, as per RBI norms
- Entities who have availed one time settlement (OTSs); are not eligible under the scheme.

### 3.5 **Process Flow Chart for Approval of financial assistance**

3.5.1 CHT shall issue RFS for selection of PD for providing financial assistance.

- 3.5.2 PDs shall submit Detailed Project Proposal & other documents as per RFS.
- 3.5.3 SAC shall appraise the proposals and recommend to Steering Committee.
- 3.5.4 Steering Committee shall accord in-principle approval for grant of financial assistance.
- 3.5.5 The PD shall report tie-up of Financing Arrangements for the total project cost within 3 months from the date of receipt of in-principle approval. The Validity of the in-principal approval will be 3 months from the date of its issuance.
- 3.5.6 PD shall submit the proposal including financial commitment Letters etc. for Final Approval.
- 3.5.7 SAC shall appraise the proposals if required.
- 3.5.8 Steering Committee shall accord final approval for grant of financial assistance.
- 3.5.9 CHT & PD shall execute Memorandum of Agreement (MoA).
- 3.5.10 Financial assistance shall be disbursed as per MoA.
  
- 3.6 **Documents to be submitted by PD at the time of RFS**
  - 3.6.1 Documents meeting Technical and Commercial Pre-Qualification Criteria
  - 3.6.2 Detailed Project Proposal
  - 3.6.3 Technology licensing Agreement with their proposed Technology provider. In case, the PD is the Technology licensor, the same shall not be required.
  - 3.6.4 Document regarding land availability for the project
  - 3.6.5 Results of trials of proposed Technology and proposed feedstock for the project
  - 3.6.6 Self-declaration, if PD himself is doing operation & maintenance.
  - 3.6.7 Ethanol Purchase Agreements (EPA) with Oil Marketing Companies (OMCs). Format of Agreement shall be uploaded shortly. If PD is an Oil Marketing Company (OMC), Ethanol Purchase Agreement (EPA) shall not be required.

**Please note that decision of the SAC and Steering Committee with regard to selection of PDs eligible under the scheme shall be final & binding on all interested PDs.**

Thanking you,

Yours faithfully,

**(Dr. N.S. Raman)**  
**RFS Inviting Authority**  
**(For and on behalf of Centre for High Technology)**

### Biomass price as per tariff proposed by Central Electricity Regulatory Commission

The Commission, as per Regulation 38 of the RE Tariff Regulations, has specified the Biomass fuel price for first year of the Control Period (i.e. FY 2021-22) in the table below:

State	Biomass Price for FY 2020-21 (Rs/ MT)	Biomass Price for FY 2021-22 (Rs/ MT)
Andhra Pradesh	3326	3492.30
Haryana	3786	3975.30
Maharashtra	3872	4065.60
Punjab	3960	4158.00
Rajasthan	3305	3470.25
Tamil Nadu	3272	3435.60
Telangana	3326	3492.30
Uttar Pradesh	3384	3553.20
Other States	3557	3734.85