



## **NATIONAL ALUMINIUM COMPANY LIMITED**

A Government of India Enterprise  
Nalco Bhawan, P1 Nayapalli  
Bhubaneswar - 751013  
Odisha, India

Corporate Identity Number: L27203OR1981GOI000920

Phone: 0674-2300013

Website: [www.nalcoindia.com](http://www.nalcoindia.com)

### **GLOBAL EXPRESSION OF INTEREST (EOI)**

**FOR**

**SELECTION OF TECHNOLOGY PARTNER FOR SETTING UP OF  
TITANIUM SLAG PLANT AT ORISSA SANDS COMPLEX (OSCOM),  
ODISHA, INDIA.**

**EOI DOCUMENT NO.: NBC/BD/TSP/EOI/75**

**EOI ISSUANCE DATE: 09/08/2018**

**LAST DATE FOR SUBMISSION OF EOI: 10/09/2018**

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## 1. BACKGROUND:

- 1.1. **BRIEF OF NALCO:** National Aluminum Company Limited (here in after referred to as NALCO) is a Navratna CPSE under Ministry of Mines, Govt. of India. The Company is having integrated and diversified operations in mining, metal and power. It is one of the largest integrated Bauxite-Alumina- Aluminium-Power Complex in the Country with sales turnover of Rs 9377 crore in financial year 2017-18.
- 1.2. The company has a 68.25 lakh TPA Bauxite Mine & 22.75 lakh TPA Alumina Refinery located at Damanjodi in Koraput dist. of Odisha, and 4.60 lakh TPA Aluminium Smelter & 1200 MW Capacity Power Plant located at Angul, Odisha. NALCO as part of green energy initiative have established 198 MW Wind Power Plants in different states of India.
- 1.3. NALCO has formed a JV Company to set up 2.7 LTPA Caustic Soda Plant and 100 MW CPP at Dahej in Gujarat. NALCO has bulk shipment facilities at Vizag port for export of Alumina/Aluminium and import of raw materials.
- 1.4. **BRIEF OF IREL:** Indian Rare Earths Limited (IREL), a Mini-Ratna Category-I company, is a public sector enterprise of the Government of India under the administrative control of the Department of Atomic Energy.

## 2. OBJECTIVE OF THE EXPRESSION OF INTREST (EOI) :

- 2.1 IREL intends to set up a 1, 00,000 TPA Titania Slag Plant for processing Ilmenite produced at OSCOM plant located at Chatrapur, Ganjam District, Odisha. IREL had issued a Request for Proposal (RFP) for **selection of agency** for setting up of Titanium Slag Plant to process Ilmenite produced at OSCOM, Odisha on **Build, Own, and Operate (BOO) basis**.
- 2.2 NALCO intends to explore prospective Technology partners having required qualification, expertise ,experience, resources and interest to team up with NALCO as a consortium and participate in the RFP issued by IREL for selection of agency for setting up 1,00,000 TPA Titania Slag facility on **BOO** basis.
- 2.3 Therefore NALCO invites this Global EOI from interested bidders for shortlisting of qualified and experienced Technology partners to set up a Titania Slag Plant at Chatrapur, Ganjam District, Odisha, using Ilmenite produced at OSCOM plant of IREL, by participating in the RFP process as mentioned above.
- 2.4 Interested bidder may furnish their EOI with an approach paper and all other necessary documents in sealed envelope along with a covering letter duly signed by an authorized signatory in conformity with the details provided in this document.

1.	EOI Notice No.	:	NBC/BD/TSP/EOI/75 Dated 08/08/2018
2.	Type of EOI	:	Global-Open
3.	Name of Work	:	To be a Technology partner of NALCO for setting up 1,00,000 tpa Titania Slag Plant on Built Own Operate (BOO) basis.
4.	Location of Work	:	In and around Orissa Sands Complex, Chatrapur, Ganjam District, Odisha, India
5.	EOI Documents issue/download start date & time from website.	:	<b>09/08/2018</b> at 1030 Hrs
6.	Last date & time of submission of EOI.	:	<b>10/09/2018</b> at 1600 Hrs
7.	Date & time of opening of EOI	:	<b>12/09/2018</b> at 1600 Hrs

8.	Website on which EOI notice available	:	Central Public Procurement Portal <a href="http://www.e-proucre.com">www.e-proucre.com</a> under e-publish & <a href="http://www.nalcoindia.com">www.nalcoindia.com</a>
9.	Address for submission of EOI	:	Assistant General Manager (Business Development) National Aluminium Company Limited Nalco Bhawan, P1, Nayapalli Bhubaneswar –751013 Odisha, India E-mail: <a href="mailto:nagarajan.ravi@nalcoindia.co.in">nagarajan.ravi@nalcoindia.co.in</a>
10.	Contact Person	:	N.Ravi, AGM(BD), NALCO
11.	Venue & Deadline for submission of EOI application	:	EOI bids, complete in all respects as specified in the EOI notice and document, shall be submitted to NALCO at the address specified above on or before the specified due date & time of submission.

### 3. ABOUT THE TITANIA SLAG PROJECT:

- 3.1 Capacity of proposed Titania Slag plant is 1,00,000 tpa. The plant shall be installed in two streams of production of 50,000 tonnes per annum with ore smelting furnace (AC arc furnace) in each line for sulphatable and chlorinatable slag. The plant shall produce about 40,000 tpa marketable foundry grade pig iron (FGPI).

The plant shall have provisions for gas treatment and de-dusting facilities for waste heat recovery and shall be with state of art technology. De-sulphurization & De-phosphorization facilities for metallic iron shall be considered for quality of by-product.

- 3.2 **Location:** The plant shall be located within OSCOM plant boundary located at Chatrapur, Ganjam District, Odisha. Due to logistics considerations it may be located adjacent to existing Mineral Separation Plant of OSCOM.
- 3.3 **Raw Materials and Utilities:** The proposed plant will operate based on Ilmenite produced at OSCOM plant of IREL. The Ilmenite as feed stock will be supplied by IREL.
- 3.4 **Utilities:** All necessary utilities like water, air and electricity etc. shall be arranged by the developer i.e. NALCO. As the process is power intensive, a suitable captive power plant of approximately 50 MW capacity may be installed by the developer or power may be arranged through available grid line.

### 4. INVITATION OF EOI TO FORM A CONSORTIUM WITH NALCO:

- 4.1 NALCO invites EOI from experienced suppliers of Technology to select a Technology Partner for conversion of Ilmenite to Titanium Slag through electro-smelting process by forming a consortium with NALCO and participating in the RFP issued by IREL to set up 1,00,000 TPA Titania Slag facility on BOO basis.
- 4.2 Interested Technology suppliers meeting all the technical requirements of the Eligibility criteria shall be shortlisted for selection of Technology partner through a RFP (Request for proposal) process to be notified later.
- 4.3 The selected Technology partner shall form a consortium with NALCO by signing an appropriate Consortium Agreement with NALCO to bid and execute the Project.
- 4.4 The members of the Consortium so formed shall enter into a binding “Joint Bidding Agreement”, substantially in the form specified in the IREL’s RFP, for the purpose of submitting the Bid.

- 4.5 Thus the Technology Partner will be jointly responsible and accountable for the data and information submitted in the RFP floated by IREL.
- 4.6 Subject to award of the work to the Consortium by IREL, a tripartite Project Execution Agreement shall be signed with IREL before execution of the project.

## **5. INDICATIVE SCOPE OF WORK FOR THE TECHNOLOGY PARTNER:**

### **A. Before and during submission of bid against RFP by IREL:**

- 5.1 The selected Technology Partner (hereinafter referred as "Bidder") and NALCO shall jointly prepare and submit the bid against the RFP floated by IREL. If required, the bidder may have to fully associate with NALCO for this purpose.
- 5.2 The bidder shall prepare a Detailed Project Report (DPR) of the project based on the RFP terms and conditions and provide all technical data, project financial analysis and other necessary information for submitting the bid and for taking investment decision by NALCO.
- 5.3 Based on the DPR, the Bidder will provide basic data on the proposed process, equipment list, volume of work, specific consumption figures, indicative CAPEX and OPEX, project financials indicators etc. and work out the conversion cost.
- 5.4 The bidder need to indicate the CAPEX and OPEX at  $\pm 15\%$  accuracy for the proposed facility on the basis of detailed analysis of Ilmenite as mentioned in **Annexure-1**.
- 5.5 The bidders are to include the optimal requirement of land for plant & auxiliary equipment and for storage of environmentally stable waste residue.

### **B. In case of award of contract by IREL:**

- 5.6 The selected Technology partner shall be responsible for providing the Technology for the Plant, provide extensive process guarantees, basic & detailed engineering, including flow sheets, P&I diagram, material and heat balance, general layout, list of equipment along with their detailed specifications, selection of equipment, etc.
- 5.7 Prepare a detail Tender document with technical specification, scope of work, performance guarantee parameters etc along with the indicative volume of work so that NALCO is able to invite tender and finalize the turnkey contractor for implementation of the project.
- 5.8 Supervision of plant erection, installation of equipment, testing and commissioning of the plant. Carrying out performance guarantee tests and provide service for stabilization in production and operation parameters.
- 5.9 If required the selected Technology partner may also be given the total Turn-key EPC job for design & engineering, supply, installation, testing, commissioning etc for the proposed Ti Slag plant.
- 5.10 Supply of Ore smelting furnace and any other critical equipment as per DPR.
- 5.11 Handholding for regular operation & maintenance of plant for a minimum period of two years so as to achieve a minimum of 95% plant availability.
- 5.12 Technical documents and assistance for complying with the Environmental, Occupational Health & Safety and Security requirements of NALCO & IREL.

**NB:** In case the bidder requires site visit or any relevant site information they are requested to contact NALCO for assistance.

## 6.0 BIDDING ENTITY

The bidder shall be a registered company in India under Indian Companies Act **OR** an overseas company registered in the country of its incorporation under relevant Govt. laws of that country **OR** a consortium of an Indian company & an overseas company. In case of consortium bidding, the Technology supplier shall only be the leader of the consortium and the same shall be identified and mentioned in the EOI (Form II). The Consortium Leader should meet the Technical Qualification Criteria specified at **Clause. No. 7.0** of this Document.

**Note:** *In case of consortium bidding, the Technology supplier shall only be the Consortium leader and shall be the bidder for all purposes of this EOI document.*

## 7.0 TECHNICAL QUALIFICATION CRITERIA OF BIDDERS : (Essential Requirement)

- 7.1 **Technical Qualification Criteria (Technology):** The Bidder should possess the process technology and know-how in the field of Titania Slag using reduction smelting by AC arc furnace based on Ilmenite feedstock. Titania Slag should be suitable both for production of titanium sponge and titanium dioxide pigment by sulphate and chloride route.
- 7.2 The Bidder should have provided the process technology for at least three (3) Titania Slag plants out of which at least one (1) Titania Slag plant should have been set up outside the technology provider's country of registration. Moreover, one (1) of the above three (3) Titania Slag Plants should have a minimum capacity of fifty thousand (50,000) TPA and should have been in commercial operation for at least two (2) years after commissioning prior to the Bid Due Date.

**Note:** *Only the bidders meeting the technical qualification criteria and submitting documents, as acceptable to NALCO, shall be considered for short listing as a technology partner. Shortlisted bidders may have to further furnish information, if required by NALCO*

## 8.0 SUBMISSION OF DOCUMENTS:

- 8.1 The Bidder is required to submit its Expression of Interest for selection of Technology Provider/Partner for the proposed Ti Slag project as per Form-I to Form- IV in this document. In case of Consortium EOI, all the members of the consortium have to submit separate Form-II. Consortium leader shall certify Form-II submitted by the other member. All other Forms are to be signed by the authorised person of the Consortium leader.

### 8.2 Check List for Submission of BID

1. **Attachment-1:** Power of Attorney, Authorization letter for signing EOI, Covering Letter (Form-I)
2. **Attachment-2:** Information about the bidder, Certified copy of consortium agreement if applicable, Company profile including copies of certificate of incorporation / Registration of the Company/ Partnership Deed/Affidavit for proprietorship firm, etc., (Form-II),
3. **Attachment-3:** Technical Qualification, Necessary documentary evidence in support of technical qualification criteria ( as mentioned at Clause no. 7.0) like copies of contracts, work order /completion certificates, etc.(Form-III)
4. **Attachment-4:** Additional Information (Form-IV)

## 9. INSTRUCTIONS ON PREPARATION / SUBMISSION OF EOI

- 9.1 **Submission of EOI bid:** All pages of the EOI bid document shall be stamped & signed by the authorized person of the firm/company/organization of applicant. Power of Attorney in favour of signatory to EOI application shall be submitted along with the Proposal.
- 9.2 **Language of EOI:** EOI and all correspondence related to EOI shall be in English language. Any printed literature and document submitted in any other language should be accompanied by authenticated English translation, in which case, for purpose of interpretation of EOI, English translation shall govern. Responsibility for correctness in translation shall lie with the Bidder.
- 9.3 **Acknowledgement of Understanding of Terms:** By submitting an EOI application, each applicant shall be deemed to acknowledge that it has carefully read all sections of this EOI, including all forms, schedules and annexure here to, and has fully informed itself as to all existing conditions and limitations.
- 9.4 **Cost of bidding:** The Bidder shall bear all costs associated with the preparation or delivery of its EOI, participating in discussions etc. including costs and expenses related with visits to NALCO's office and the site(s). NALCO will in no case be responsible or liable for those costs and expenses regardless of the outcome of the bidding process.
- 9.5 **Documents comprising EOI:** EOI must be complete in all respect leaving no scope for ambiguity. It is in the interest of Bidder to submit complete and comprehensive proposal leaving no scope for NALCO to raise any further questionnaires. NALCO may seek clarifications regarding the Bidder's experience or any other documents / information submitted by the Bidder as part of its Offer. NALCO may evaluate the Bidder on the basis of document(s) submitted.
- 9.6 EOI application shall be prepared and submitted in one (1) Original and one (1) Copy in a sealed envelope super scribing "EOI for Selection of Technology Partner for setting up of Titania Slag Plant at OSCOM". EOI shall be submitted in hard copies. EOI sent through e-mail with covering letter shall be followed by submission of hard copy through courier shall also be accepted. Address for EOI submission is as follows:
- Assistant General Manager (Business Development)  
National Aluminium Company Limited  
Nalco Bhawan, P1, Nayapalli  
Bhubaneswar –751013  
Odisha, India  
Kind Attention: Mr. N.Ravi, Assistant General Manager (BD)  
E-mail: [nagarajan.ravi@nalcoindia.co.in](mailto:nagarajan.ravi@nalcoindia.co.in)
- 9.7 Clarification, if any, can be obtained from: Mr.N.Ravi, Assistant General Manager (BD) through Mobile: 9437489892 and E-mail: [nagarajan.ravi@nalcoindia.co.in](mailto:nagarajan.ravi@nalcoindia.co.in)
- 9.8 Interested Bidders must respond to this notification on or before **10/09/2018**. NALCO may in exceptional circumstance and its discretion extend the dead line for submission of EOI bids by issuing an addendum to be made available on the website mentioned at clause-2.4 table. Any amendment issued prior to due date of submission would be put on the above mentioned website. It would be presumed that bidders have examined all amendment on the website and have submitted their bids accordingly.

## **10 GENERAL TERMS & CONDITIONS**

- NALCO reserves the right to accept or reject any offer received against EOI without assigning any reasons what so ever.
- Finalization of eligible bidders from the bids received will be done by NALCO at its sole discretion and the decision of NALCO shall be final and binding on all bidders.
- NALCO reserves the right to terminate EOI process at any point of time without assigning reason.
- If the information submitted in the requisite format is found to be incorrect at a later stage; NALCO shall have the right to reject / terminate the offer / contract.
- The eligible bidder shall ensure compliance of all the Government regulations / conventions / policies / guidelines / orders etc. in force related to any or all of the above activities. Bidder shall undertake to abide by the statutory requirements of the Indian Government from time to time.
- Eligible bidders meeting the Technical Qualification Criteria under the EOI process shall be shortlisted and considered for further evaluation by NALCO.
- Eligible bidders to study carefully all documents referred to herein before accepting the same.

## **11 REQUEST FOR STATUS UPDATE / CONTACTING NALCO**

NALCO will not accept or respond to bidder requests for information on the status and progress of the EOI process. No Bidder shall contact NALCO on any matter relating to its EOI after last date of submission of EOI unless requested so in writing. Any effort by a Bidder to influence NALCO in the decision making in respect of EOI will result in the rejection of that Bidder.

## **12 OWNERSHIP OF BID DOCUMENTS AND INFORMATION THERIN**

All Bid documents received against EOI will become the property of NALCO upon submission. Where the bidder believes that information provided in response to this EOI is, or should be kept confidential, or disclosure of this information would unreasonable affect bidders business affairs, notice is to be given at the time of delivery of the information or document by clearly marking such information 'confidential'. In so far as is practicable NALCO will give effect to the bidder stated wishes.

## **13 NO CONTRACTUAL OBLIGATION**

NALCO is not bound contractually or in any other way to any bidder to this EOI. NALCO is not liable for any costs of compensation in relation to the consideration of this EOI.

## **14 DISCLAIMER**

The issue of this document does not in any way commit or otherwise obliges NALCO to proceed with all or any part of this EOI process. The EOI request is not the subject of any process contract or any contractual obligations between NALCO and bidder. NALCO may, at its absolute discretion, elect to abandon any part or whole of the process without giving prior notice to the prospective bidder.

**EXPRESSION OF INTEREST (EOI)  
FOR SLECTION OF TECHNOLOGY PARTNER FOR SETTING UP OF TITANIUM SLAG  
PLANT AT ORISSA SANDS COMPLEX(OSCOM), ODISHA,INDIA.  
EOI DOCUMENT NO. NBC/BD/TSP/EOI/75**

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**FORM : I**

**FORMAT FOR THE COVERING LETTER**

*(The letter is to be submitted by the Bidder on its letter head)*

**NATIONAL ALUMINIUM COMPANY Limited**  
P-1, NAYAPALLI  
BHUBANESWAR - 751013  
ODISHA, INDIA

Subject : Expression of Interest (EOI) for technology partner for setting up of titanium slag plant at Orissa Sands Complex(OSCOM), Odisha, INDIA

Dear Sir,

This has reference to your EOI document no. ----- dated ----- on the subject.

We, \_\_\_\_\_ (Name of the Bidder/ Member of Consortium), hereby submit its Expression of Interest (EOI) for **selection of technology partner for setting up of titanium slag plant at Orissa Sands Complex(OSCOM), Odisha, INDIA and to form Consortium with NALCO as technology provider to participate in the RFP floated by IREL** in accordance with the conditions stipulated in the EOI document.

**(SIGNATURE)**  
**(NAME AND DESIGNATION OF AUTHORISED PERSON)**

**EXPRESSION OF INTEREST (EOI)  
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**FORM : II**

**INFORMATION ABOUT THE BIDDER**

(In case of Consortium, please submit information for all the members in separate sheets)

1. Name, Address and website of Bidder / Members of Consortium
2. Name of Consortium leader (*Applicable only in case of Consortium*)
3. Name of the Technology supplier (*In case of Consortium bidding, Technology supplier only shall be the Consortium leader*)
4. Date of Registration of bidder/Members of Consortium  
(*Please enclose certificate of incorporation / registration*)
5. Class of the bidder/Members of Consortium:  
*Registered Company in India or abroad / Limited Partnership (LP) firm / Limited Liability Partnership (LLP) firm / Limited Liability Company (LLC) / Incorporation (Inc.)*
6. Brief description of Bidder's Business/ Members of Consortium Business:  
(*Please enclose a brief history about your company, Titanium Slag process development capabilities, infrastructure facilities, manufacturing plants, R&D capabilities, marketing capabilities, financial standing etc.*)

7. Contact Person

Name : \_\_\_\_\_  
Address : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Contact No. : \_\_\_\_\_  
Email ID : \_\_\_\_\_

**(SIGNATURE)  
(NAME AND DESIGNATION OF AUTHORISED PERSON)**

**EXPRESSION OF INTEREST (EOI)  
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**FORM : III**

**TECHNICAL QUALIFICATION CRITERIA (ESSENTIAL)**

Sl. No.	Technical Qualification Criteria (Minimum requirement)	Bidder's Response	Supporting documents enclosed
1	Willingness to participate in consortium as technology provider for participating in the RFP floated by IREL for selection of BOO operator for Titanium Slag project India		
2	Should possess the process technology and know-how in the field of Titania Slag using reduction smelting by Arc Furnace based on Ilmenite feedstock.		
3	Titania Slag should be suitable both for production of titanium sponge and titanium dioxide pigment by sulphate and chloride route.		
4	Should have provided the process technology for at least three (3) Titania Slag plants out of which at least one (1) Titania Slag plant should have been set up outside the technology provider's country of registration.		
5	One (1) of the above three (3) Titania Slag Plants should have a minimum capacity of fifty thousand (50,000) TPA and should have been in commercial operation for at least two (2) years after commissioning prior to the EOI Bid Due Date.		

**(SIGNATURE)  
(NAME AND DESIGNATION OF AUTHORISED PERSON)**

**EXPRESSION OF INTEREST (EOI)  
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**FORM-IV**

**ADDITIONAL INFORMATION**

S.No.	Description	Bidder's Response
1	How long you are in the business of technology development & technology provider for Titanium Slag process and production from Ilmenite?	
2.	Total installed capacity of the plant with your technology presently in operation.	
3.	Number of plants of minimum 25,000 tpa capacity with same AC technology provided by the bidder and are presently in operation.	
4.	Please provide the sales turnover of your company for last 03 financial/calendar years.	
5.	Is your company rated/certified by any of the leading certification agency? If so, mention the name of the rating agency and enclose the rating report by that agency	
6.	Are you the original Technology developer / patent holder of for Titanium Slag process from Ilmenite ?	
7.	What are the Quality accreditations of your company? Attach the copy of such certificates.	
8.	Will you be ready to collaborate with NALCO in indigenising various equipments/components by evaluating / supporting / sourcing from Indian Industries whenever feasible?	
9.	Any other points, that you may wish to add, which would highlight your capabilities with respect to Titanium Slag technology in India.	

**(SIGNATURE)**

**(NAME AND DESIGNATION OF AUTHORISED PERSON)**

**EXPRESSION OF INTEREST (EOI)  
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AT ORISSA SANDS COMPLEX(OSCOM), ODISHA,INDIA.  
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**Annexure I**

**Technical Specification of Ilmenite ('OSCOM' Grade)**

CHEMICAL ANALYSIS		Qty, Mt/Yr	
Guaranteed			
TiO <sub>2</sub>		50.25% (Min)	
Th		75 ppm (Max)	
U		10 ppm (Max)	
<b>Typical:</b>			
TiO <sub>2</sub>		50.50%	
FeO		34.04%	
Fe <sub>2</sub> O <sub>3</sub>		12.43%	
Al <sub>2</sub> O <sub>3</sub>		0.45%	
SiO <sub>2</sub>		0.71%	
Cr <sub>2</sub> O <sub>3</sub>		0.48%	
MnO		0.51%	
P <sub>2</sub> O <sub>5</sub>		0.022%	
V <sub>2</sub> O <sub>5</sub>		0.23%	
CaO		0.04%	
MgO		0.64%	
Th		43ppm	
U		<6 ppm	
<b>SIEVE ANALYSIS</b>			
MESH (TYLER SCR.)	SIEVE OPENING MICRON	CUM. WEIGHT %RETAINED	
48	300	1.7	
65	212	19.7	
100	150	34.3	
150	106	34.5	
170	90	5.4	
200	75	3.7	
-200	-75	0.7	

Note:

1. Ilmenite being a natural product, its chemical analysis is expected to vary.
2. Variation in the size of grains, occur from time to time. Although not guaranteed, the grain size distributions can be expected to be within the above ranges.