OKLO NATURAL REACTOR

Scope of work

Designing, Fabricating, Painting & Fixing the OKLO natural reactor scaled own models in suitable materials and required supports for fixing/installing in the cabin size of 1.7x1.1x1 m as per approved design with following specification. Suitable ambiance for each model should be provided. Layout of the diorama is enclosed for reference.

Sl No	Items	Specification	Qty	Unit	Rate	Amount
1	OKLO natural reactor	Fibre glass and Related materials based Hollow scale down model. Width is proportional to the height and length. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.	1	Unit		
			GST			
			TOTAL			

Detailed Specification

1. **OKLO natural reactor**

SOLAR POWER PLANT

Scope of work

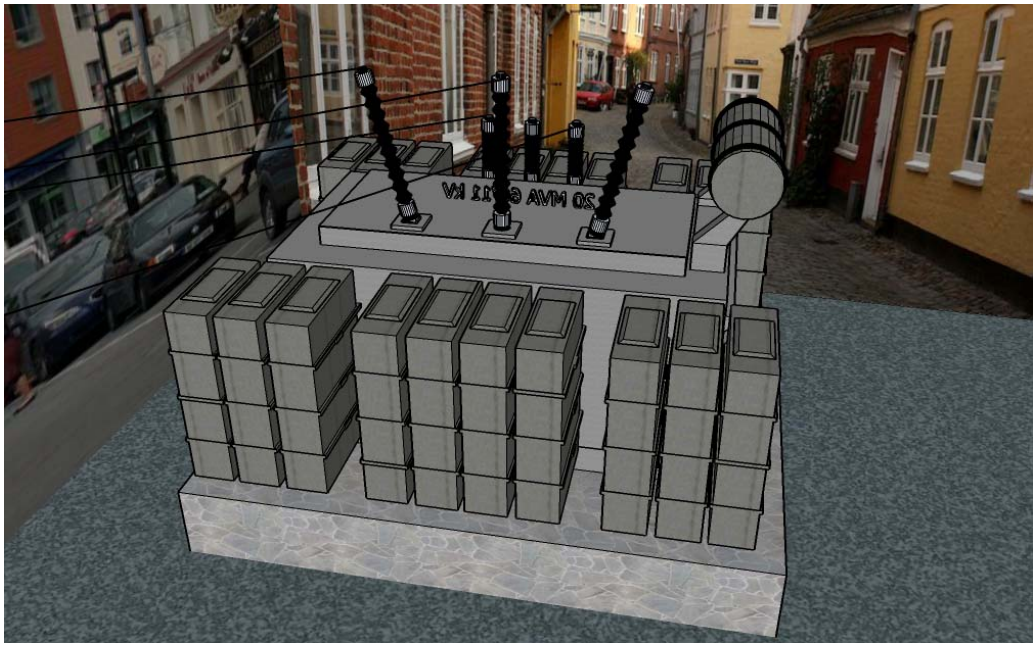
Designing, Fabricating, Painting &Fixing the Solar power plant Scale down models in suitable materials and required supports for fixing/installing in the cabin size of 2x1.2x1.75 m as per approved design with following specification. Suitable ambiance for each model should be provided. In addition to this as a Solar power plant is working diorama requires electrical connections and proper lighting, so the provision for the same should be made.

Sl No	Items	Specification	Qty	Unit	Rate	Amount
1	Solar panels	Actual solar panels sized 14-25 cm width should be placed in 10 sq. ft. area of the model with suitable fittings and stand.	1	Unit		
2	Transformer (Minimum 1 No)	Fibre glass/ 4X sheet based Hollow scale down model. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing with Proper electric connections.				
3	Electric line	Copper string suitable for demonstrate the distribution line.				
4	Electric post (Minimum 1 No)	Fibre glass/ 4X sheet based Hollow scale down model. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
5	House (Minimum 1 No)	Fibre glass/ 4X sheet based Hollow scale down model. Width is proportional to the length and height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
6	Vinyl print	Vinyl print for suitable background in the six side of solar power plant model.				
7	Light (Minimum 4 No)	5-10 W LED Lamp				
			GST			
			TOTAL			

Detailed Specification

1. **Solar panels**

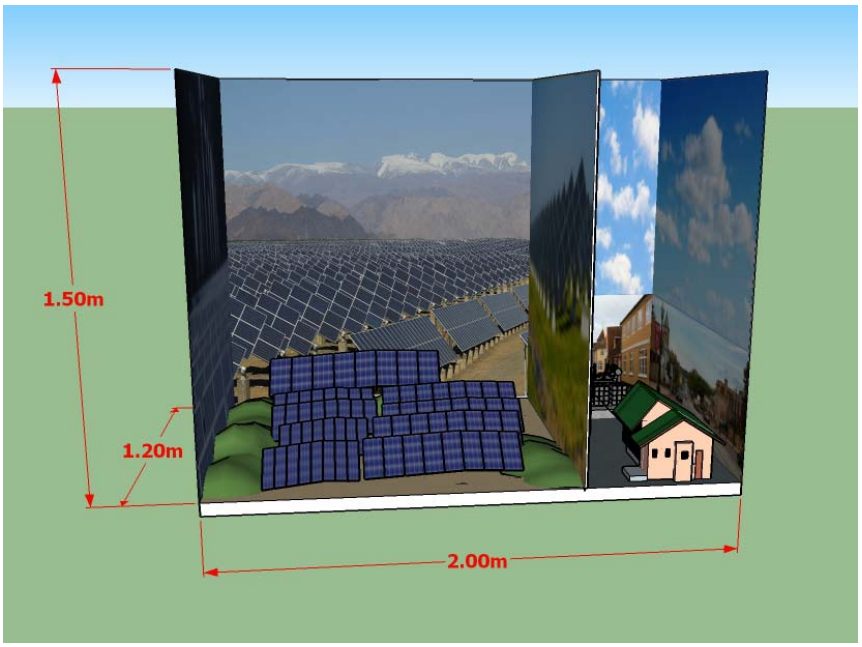
2. **Transformer**



4. Electric post

5. House

Assembled view of dioramas



KERALA STATE
SCIENCE AND TECHNOLOGY MUSEUM
Vikasbhavan P.O. Thiruvananthapuram – 695 033

Tender for the
Fabrication of Exhibits like Thermal Power Plant, Wind Power Plant, Solar Power Plant and Oklo Natural Reactor for Information Centre Building at Kudankulam Nuclear Power Plant, KKNPP, Tamilnadu

Name and address of the Tenderer	:	.....
		.....
		.....
		.....
Last date of sale of Tender	:	31/03/2018
Last date and time for submission of Tender	:	31/03/2018 - 3 Pm.
Date and time of Opening Tender	:	31/03/2018 - 4 Pm.
PAC	:	Rs. 4, 09,975/-
EMD	:	2.5% of PAC ie, Rs. 10,249/-

Tender No.R/173/2018 (1) **15/03/2018**

Tender Notice

The Director, Kerala State science and Technology Museum Thiruvananthapuram invites sealed tenders from reputed manufactures/firms for "Fabrication of Exhibits like Thermal Power Plant, Wind Power Plant, Solar Power Plant and Oklo Natural Reactor for Information Centre Building at Kudankulam Nuclear Power Plant", KKNPP, Tamilnadu

Name of supply/work	**-**	**Fabrication of Exhibits like Thermal Power Plant, Wind Power Plant, Solar Power Plant and Oklo Natural Reactor for Information Centre Building at Kudankulam Nuclear Power Plant, KKNPP, Tamilnadu.**
PAC	**-**	**Rs. 4, 09,975/-**
EMD	**-**	**2.5% i.e. Rs. 10,249/-**
Cost of tender form	**-**	**Rs.820+ 148 (18% GST)**
Last date of sale of tender	**-**	**31/03/2018 - 1 pm**
Last date of receipt of tender	**-**	**31/03/2018 - 3 pm**
Date & time of Opening of tender	**-**	**31/03/2018 - 4 pm**

The tender forms and other details can be had from the office of the undersigned during working hours remitting the cost of tender forms.The Tender documents can be downloaded from WWW.kstmuseum.com. In that case the tenderer has to enclose a D.D for Rs.968/- favoring the director, KSSTM, Thiruvananthapuram towards the cost of tender form and GST. The filled up sealed tenders super scribing "Tender No. R/173/2018/(1) Tender for "Fabrication of Exhibits like Thermal Power Plant, Wind Power Plant, Solar Power Plant and Oklo Natural Reactor for Information Centre Building at Kudankulam Nuclear Power Plant", KKNPP, Tamilnadu will be accepted at the office up to 3pm on 31/03/2018. The Tenders will be opened at 4 pm on 31/03/2018 in the presence of the tenderers available at that time.

Director

Notice inviting tenders

Detailed Tender Notice

1. Sealed tenders are invited by the Director, Kerala State Science and Technology Museum, Thiruvananthapuram for the "Fabrication of Exhibits like Thermal Power Plant, Wind Power Plant, Solar Power Plant and Oklo Natural Reactor for Information Centre Building at Kudankulam Nuclear Power Plant", KKNPP, Tamilnadu.

2. Tenders should be addressed to the Director, Kerala State Science and Technology Museum, Vikas Bhavan P.O., Thiruvananthapuram – 33 super scribed the "Fabrication of Exhibits like Thermal Power Plant, Wind Power Plant, Solar Power Plant and Oklo Natural Reactor for Information Centre Building at Kudankulam Nuclear Power Plant, KKNPP, Tamilnadu and send so as to reach The Director, KSSTM, TVM not later than, ***3pm,*** **on** ***31/03/2018.*** Tenders will be opened in the presence of such tenderers or their authorized representatives as may be present.

3. The Director reserves the right to reject all or any of the tenders and to accept in whole or part of any of the tenders without assigning any reasons for doing so.

4. The successful tenderer will be required to sign an agreement on stamp paper in a form approved by the Director for the due fulfillment of the contract. But the written acceptance of a tender by the Director will constitute a binding agreement between the Director and the persons so tendering whether any formal contract is subsequently entered into or not.

5. Earnest Money. Each tender must be accompanied by EMD of 2.5% i.e., Rs. 10,249/-
in the form of DD drawn in favour of the Director, KSSTM. Tenders not accompanied by the EMD shall not be considered.

6. **Validity of the tender**
   1. The tender shall remain valid for a period of 90 days from the date of opening of the tender.
   2. The tender shall sign at the right hand bottom of each page of the tender documents.
   3. The Director, Kerala State Science & Technology Museum, does not find himself, to accept the lowest or any tender or to assign any reason thereof and also reserves the right to accept the whole or part of the tender and tenderer shall in such an event be bound to perform the contract t at the same rates quoted in the tender o for the different segments of the work.

Contractor

7 **General Conditions of Contract**

The following general conditions of the contract shall be read in conjunction with the conditions of the contract. The following clauses shall be considered as extend and not limitation of the obligations of the contractor. The special conditions attached to the conditions also will form part of the conditions of the contract.

General terms and conditions of tendering, contract and execution.

For this tender and subsequent contract, unless in consistent with or otherwise indicated by the context, the following terms shall have the meaning defined here under:-

i. 'Director'shall mean, Director, Kerala State Science and Technology Museum, Thiruvananthapuram or His representative duly authorized to deal with matters regarding this work on his behalf.

ii. 'Tender' shall mean tender notice, and all pertaining documents related to the tender.

iii. 'Contractor' shall mean the individual, or firm or company who's tender with or without later amendments has been accepted and to whom a letter of intent/work order has been issued by the Director.

iv. 'Contract 'shall mean and include the tender notice/invitation to tender, the tender and all pertaining documents, the letter of intent, the purchase/work order, the correspondence exchanged after receipt of tenders and before issue of the letter of intent, the drawing, technical specification and standards relating to the contract work and the formal agreement executed by the successful tenderer/vendor with the Director, Kerala State Science and Technology Museum.

v. 'Work/Works' means and included all the works specified or set forth and required in any, by the specifications drawings and other documents which form part of this contract or to be implied therefore or incidental there or to be here after specified or required in such further explanatory instructions, drawings etc. as shall from time to time during the progress of the work, be given by the Museum.

vi. 'MUSEUM' shall mean the Kerala State Science & Technology Museum, Vikas Bhavan (PO), and Thiruvananthapuram- 33

Contractor

8. **Earnest Money Deposit and Security Deposit**

The tender must be accompanied by Earnest Money Specified in the tender notice in the form of a Demand Draft as described above.

9. **Security Deposit**

The successful tenderer shall deposit an amount equal to 5% of the awarded contract value towards Performance Security alongwith executing agreement. This shall be furnished in the form of DD/Bank Guarantee from Nationalized Bank as per the format given and should valid for the entire period of supplying plus **Warranty period of 2 year (Two year)** from the date of commissioning and shall submit within one week of the award of the work. E.M.D will be refunded to the contractor after remittance of the security deposit and execution of the agreement. No interest will be payable to contractor on EMD or Security deposits by the Museum.

10. **Tender rates and validity**

i. Tenderer should quote **both in figures as well as in words** the rates and amount tendered by him for each item in such a way that interpolation is not possible. All corrections and alterations in the entries of tender papers will be signed in full by the tenderer with the date. In case of conflict, between words and figures, the lower amount will only be considered as correct.

ii. Tenders submitted by tenderers shall remain valid for acceptance for a period of 90 (Ninety) days from the date of opening of the tender. The tenderer shall not be entitled, during the said period of 90 days without the consent in writing of the Director, to revoke or cancel his tender or to vary the tender given or any term thereof.

11. **Price Escalation**

i. The rates quoted shall be deemed to be free from escalation of any kind. The Museum shall not accept for any reason, whatsoever, price and tax escalations or any other item in respect of any material and or any category of labour during the whole period of operation of contract. The rates accepted by the contract agreement shall not be changed for any reason.

ii. The tenderer should submit a statement along with his tender giving details of the tenderers previous experience of similar works of comparable nature, also the type and size of the organization owned by him.

iii The Director does not bind himself to accept the lowest tender and reserves to himself the right to reject any or all the tenders received without assigning any reason whatsoever. Director also retails the right to negotiate with any one or all the tenderers after the opening of the tender and any of the terms or clauses of the tender. The work may be split up and awarded in part, if considered expedient.

Contractor

iv The rate quoted by the tenderer shall include all cost of labour, materials, supervision thereof, hire for all tools and implements, incidental charges, and cover the insurance, taxes, duties, transportation, delivery, loading and unloading at site etc.

v. The work should confirm to general standards. The selection of materials also will be of general standards.

vi. The work site should always be kept clean of unwanted materials; rubbish etc. and all necessary safety precautions should be taken by the contractor as per safety rules. Insurance coverage of men and materials are the sole responsibility of the contractor.

vii. Tenders which are incomplete in any respect shall be rejected.

12. **Terms of payment, completion time and penalty guarantee**

The payment shall be made as under:-

i. Full payment of the completed works will be paid immediately after satisfactory supply of items as per given drawings and necessary certification from the Engineer concerned of the Museum.

ii. The contractor shall guarantee that all equipments & installation shall be free from any defect and the equipment shall operate satisfactorily and that the performance and efficiency of the equipment shall not be less than the guaranteed values. The guarantee shall be valid for a period of not less than One year from the date of satisfactory reliability and performance tests. Any part found defective during the guarantee period shall be replaced by the contractor free of cost to the Museum. The prompt service of the contractor for such works shall be made available free of cost to the Director.

13. **Inspection and testing**

Director's authorized representative shall have all powers to inspect any portion of the equipment, examine the materials and workmanship at the contractor's work of any other place.

14. **Rejection of defective equipment and materials**

If any portion of material thereof before it is taken over found defective or fails to fulfill the extend of the requirement, the contractor shall on receipt of a written notice from the director forthwith to replace the defective materials within a stipulated period mentioned in the written notice or replace the equipments at no extra cost to Museum. Any damage caused during the transit, testing etc. shall be made good by the contractor without any extra charges to the Museum.

15. KSSTM will not provide any accommodation/transportation for the engineers/representatives for attending installation, commissioning and demonstration work. It is the absolute responsibility of the principal supplier to make their own arrangements.

Contractor

16. **Bye-Laws**

The contractor shall comply with Bye-laws and regulations of local and statutory authorities having jurisdiction over the work and shall be responsible for payment of all necessary notices and keep the Director informed of the said compliance with Bye-Laws, payment made, notices issued and received.

17. **Completion time**

The work covered by the contract shall be commenced and executed in accordance with the schedule within 1 (One) month from the date of award of work.

18. **Extension of time**

If the contractor shall desire extension of the time for completion of the work on the grounds of his having been unavoidably hindered in its execution or on any other grounds, he shall apply in writing to the Director who reserves the right to decide on the matter.

19. **Cancellation of contract and alternative arrangement for affecting the supply / executing the work.**

In case of the failure of the contractor to keep up to the executing and delivery schedules and if in spite of a written notice given to him by the Director he fails to supply within the prescribed time limit, the Director can terminate the contract immediately without any legal notice and thereafter the Director shall have every right to get the work completed through other agency/agencies at the risk and cost of the contractor. Further any loss or extra cost in this regard will be deducted from the amount due to the contractor.

20. **Arbitration**

Arbitration shall not be a means of settlement or disputes or claims arising out of this contract relating to the work. In case of any dispute or difference between the parties of the contract, either during or after the completion of the work or after termination or breach of contract, or as to the interpretation of the provisions of the contract or as to any matter of thing arising there under except as to any matter left to the discretion of the Museum under the clauses of the contract, such dispute or difference shall be referred to the Principal Secretary, Higher Education, Government of Kerala. If not settled then the matter shall be referred to the Civil Courts of Thiruvananthapuram and the jurisdiction of such matter will be confined to Courts Thiruvananthapuram only.

21. **Extra items and additions**

i. **Power to make alterations:-**

The Director shall have the power to make in writing any alterations, omissions, additions or substitutions for original specifications, drawings, designs, patterns and instructions that may appear to him, necessary or advisable during the

Contractor

progress of the work and the contractor shall be bound to carry out the work in accordance with any instructions which may be given to him by the Director or his representative. Such omissions, additions, alterations or substitutions shall not invalidate the contract. Any altered, additional or substituted work, which the contractor may be directed do in the manner specified above as part of the work shall be carried out by the contractor on the same conditions in all respect on which the main work a was agreed to be done, and the rates according to clause 21 (iii). Addition to existing items and quantities will not be constituted an extra item. The agreed rates for all items shall remain unchanged till the completion of the contract.

ii. No alterations, omissions, amendments, additions, substitutions or deviations of the work under the contract as shown by the contract, drawings of the specifications shall be made by the contract except as directed in writing by the Director.

iii. **Rates for additional items**

a) The rates for such additional, altered or substituted work if directly available in the contract for the work, the contractor shall be bound to carry out the work at the same rate as are available in the contract for the work.

b) If the rates for the additional, altered or substituted work are not directly available in the contract for the work, the rates for a similar class of work as specified in the contract shall be worked out and agreed mutually.

c) In the absence of any agreed rate or similar item in the contract, the rate for the extra item of work shall be mutually agreed based in the evaluation of cost and other charges, if ascertained from the market and other agencies.

22. The quoted rate should be inclusive of loading unloading and delivering at KSSTM, TVM.

I/We hereby declare that I/We have read and understood the above instructions and the terms and conditions mentioned above are binding on me/us.

Place:
Date:

Contractor

23. **Particular Specifications:**

I) **Scope of work:-**

The scope of work covers "Fabrication of Exhibits like Thermal Power Plant, Wind Power Plant, Solar Power Plant and Oklo Natural Reactor for Information Centre Building at Kudankulam Nuclear Power Plant", KKNPP, Tamilnadu with specified quality and accuracy as per the direction of the officer-in-charge and site conditions.

II) **Items of supply and work by department**

Unless otherwise specified, the following supply alone shall be made by the department.

III) **General**

Work shall be carried out in accordance with the specifications in the schedule, local rules and relevant standards and as per directions of official-in-charge.

IV) All materials shall have to confirm to relevant technical specification

Contractor

THERMAL POWER PLANT

Scope of work

Designing, Fabricating, Painting & Fixing the Thermal power plant Scaled own models in suitable materials and required supports for fixing/installing in the cabin size of 2x1.2x1.75 m as per approved design with following specification. Suitable ambiance for each model should be provided. In addition to this as a Thermal power plant is working diorama requires electrical connections and proper lighting, (Working flow of thermal power plant shall be shown through running LED) so the provision for the same should be made. Layout of the diorama is enclosed for reference.

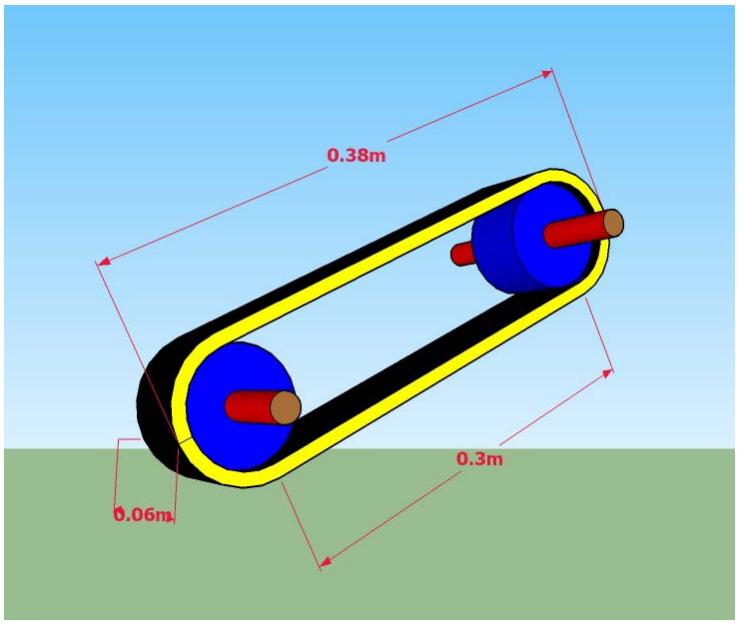
Sl No	Items	Specification	Qty	Unit	Rate	Amount
1	Coal hopper (1 No)	Fibre glass Hollow scale down model. Width is proportional to the length and height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.	1	Unit		
2	Conveyer (1 No)	Fibre glass/ Wooden based Hollow scale down model. Width is proportional to the length and height. .Acrylic paint and varnish or similar material can be used for colouring and surface finishing. This conveyer contains Rubber belt rotating with a motor (30 rpm or above).				
3	Coal Mill (1 No)	Acrylic Based Hollow scale down model. Width is proportional to the length and height. .Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
4	Electric post (Minimum 3 No)	Fibre glass/ wooden based Hollow scale down model. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
5	Ash box (1 No)	Fibre glass based Hollow scale down model. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
6	chimney (1 No)					
7	Boiler (1 No)	Acrylic/Polycarbonate based Hollow scale down model with Acrylic tubes contains running LED lights inside the boiler. Width is proportional to the length & height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing. Suitable metal should be used to fix the base of boiler.				

8	Turbine & Generator (1 No)	Fibre glass/ Acrylic based Hollow scale down size model. Width is proportional to the height. 3mm Polycarbonate sheet fixing both sides of turbine box. Acrylic paint and varnish or similar material can be used for colouring and surface finishing. Metal (GI) based turbine leaf with Rotating Steel shaft. (6V-12V generator also incorporate).				
9	Condenser (1 No)	Acrylic based Hollow scale down model with Acrylic tubes contains running LED lights inside the condenser. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
10	Substation (1 No)	Fibre glass/ wood based Hollow scale down model. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing with suitable electric connections.				
11	Transformer (1 No)					
12	Pole (Minimum 2 No)	Fibre glass/ Metal based Hollow scale down model. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing with suitable electric connections.				
13	Pipe Connections	Acrylic hollow scaled down size models with running LED light shows the path of pipe connections.				
14	Electric line (1 lot)	Copper string suitable for demonstrate the distribution line.				
15	Vinyl Print	Vinyl print for suitable background in the three side of Thermal power plant model.				
			GST			
			TOTAL			

Detailed Specification

1. **Coal hopper**

2. **Conveyer**



3. **Coal Mill**

4. **Electric post**

5. **Ash box**

6. **Chimney**

7. **Boiler**

8. **Turbine & Generator**

9. **Condenser**

10. **Substation**

11. **Transformer**

12. **Pole**

Assembled view of dioramas

WIND POWER PLANT

Scope of work

Designing, Fabricating, Painting & Fixing the wind power plant Scale down models in suitable materials and required supports for fixing/installing in the cabin size of 2x1.2x1.75 m as per approved design with following specification. Suitable ambiance for each model should be provided. In addition to this as a wind power plant is working diorama requires electrical connections and proper lighting, so the provision for the same should be made. Layout of the diorama is enclosed for reference.

Sl No	Items	Specification	Qty	Unit	Rate	Rate
1	Model of wind mills (Minimum 25 No)	Fibre glass/ 4X sheet based Hollow scale down model. Width is proportional to the length and height. .Acrylic paint and varnish or similar material can be used for colouring and surface finishing. Wind mills must rotate in two directions with suitable mechanism (eg. Bearing mechanism)	1	Unit		
2	Air blower (Minimum 2 No)	Power 500W - 1000W range				
3	Electric post (Minimum 3 No)	Fibre glass/ 4X sheet based Hollow scale down model. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
4	Tree (Minimum 3 No)	Fibre glass/ 4X sheet based Hollow scale down model with artificial leafs. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
5	House (Minimum 2 No)	Fibre glass/ 4X sheet based Hollow scale down size model. Width is proportional to the length and height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
6	Substation (Minimum 1 No)	Fibre glass/ 4X sheet based Hollow scale down model. Width is proportional to the height. Acrylic paint and varnish or similar material can be used for colouring and surface finishing.				
7	Electric line (1 lot)	Copper string suitable for demonstrate the distribution line.				
8	Road	Scale down model with suitable materials and colouring.				

9	Car (Minimum 1 No)					
10	Vinyl Print	Vinyl print for suitable background in the three side of wind power plant model.				
			GST			
			TOTAL			

Detailed Specification

1. **Model of wind mills**

3. Electric post

4. Tree

5. House

6. Substation

8 & 9 Road and car

Assembled view of dioramas