

Scope of Work for Preparation of Non Conventional Energy Resource plan under Comprehensive Mela Plan of Simhastha- 2016 at Ujjain

ABOUT UJJAIN

Ujjain stands glamorously among many other Indian sacred and holy cities. The early history of Ujjain is lost in the midst of antiquity. According to ancient Hindu scriptures it was originally called Avantika. later King Shiva of Avanti commemorating his triumph over the demon king of Tripuri, changed it to Ujjainyini (one who conquers with pride). Ujjain is situated on the right bank of River Shipra. It is a very holy city for the Hindus, a site for the triennial Kumbh mela. There are many great mythological legend about Ujjain city. Apart from mythological legends, the city has a long distinguished history. It was governed by the likes of Vikramaditya and Ashoka. Kalidas wrote his souls stirring poetry here. Today, Ujjain represents an interesting blend of an age old legacy and the modern day lifestyle.

ABOUT SIMHASTHA

Simhastha is the great bathing festival of Ujjain. It is celebrated in a cycle of twelve years when Jupiter enters the Leo sign of the zodiac, known as Simha Rashi. Ceremonial bathing in the holy waters of Shipra begin with the full moon day of Chaitra and continue in different intervals throughout the successive month of vaishakha culminating on tee full moon day. Tradition calls for ten different factors to be located for the grand festival at Ujjain. According to the Puranas, the legendary churning of the ocean by the gods (Devas) and demons (Danavas) yielded, amongst other things, a jar (Kumbha) full of nectar (Amrita). Gods did not like to share it with demons. At the instance of Indra, the master of gods, his son Jayanta tried to run away with the jar and was naturally followed by some of the demons.

PROJECT AREA

Preparation of plan for use of non conventional energy resource plan in total area of Simhastha Mela.

OBJECTIVE

The present study aims to develop an integrated Non-conventional Energy plan to efficiently utilize the non-conventional energy resources during Simhastha, 2016 at Ujjain the objective of the project will be.

- ❖ To identify potential renewable energy generation sources and application to service the simhastha 2016 mela area.
- ❖ Utilization of renewable energies and incorporating energy efficiency in the system reduce energy demand during the mela.
- ❖ Adopt energy conservation measures for reduced demand of energy.

SCOPE OF WORK

The study would be carried out for the simhastha mela area. The scope of work would include:

- ❖ Estimating the energy demand, consumption points and pattern at Simhastha 2016.
- ❖ Assessment of renewable energy potential in and around Ujjain, including the overall potential, installation and under-commissioning capacities
- ❖ Assessment of overall electricity demand, generation and transmission infrastructure as expected during Simhastha 2016
- ❖ Assess the application of decentralized and point applications.
- ❖ Developing the Renewable energy assessment framework (REAF) on evaluation parameters and to ensure minimum performance levels
- ❖ Evaluation of the identified options and identification of the optimum mix/combination
- ❖ Identification of Regulatory requirements and Promotional incentives to promote the identified options (by tapping into existing programs or/and through new incentives to encourage private participation)
- ❖ Developing an implementation plan to ensure complete installations by Simhastha 2016

METHODOLOGY

- i. **Data collection and Data Needs Assessment** – the data needs assessment and data collection are important first steps to ensure that both the consultant and the stakeholder understand each other's requirements so that the necessary data is made available for the development of the necessary outputs.
- ii. **Assessment of energy needs** – collection of data on assessment of energy needs during the Mela including –
 - ❖ Cooking requirements
 - ❖ Basic lighting requirements
 - ❖ Street lighting requirements
 - ❖ Commercial requirements
 - ❖ Transportation requirements

These would be estimated based on the empirical data on consumption pattern from Simhastha 2004 and forecast on energy demand and the infrastructure
- iii. **Renewable Energy Resources Assessment** in and around Ujjain.

This would be an extensive study including

 - a. **Grid Connected Electricity** (Evaluate the generation and transmission infrastructure to be in place)
 - b. **Decentralized and point applications**
 - i. Existing point solutions (solar based LED lamps), Hybrid Systems (Micro Wind + Solar) among others
 - c. **Carry out technology specific resource assessment**
 - i. Available secondary databases
 - ii. Primary assessment using specific tools and software

d. Technologies to be assessed

- i. Solar
- ii. Wind
- iii. Biomass
- iv. Micro-hydro
- v. Application of Hybrid – systems

iv. Developing the Renewable Energy Assessment Framework

(REAF):- After an assessment of the energy needs and renewable energy assessment resource at the Simhastha Mela the consultant shall conduct a detailed survey to assess the types and sources of non-conventional energy available for use in the Simhastha Mela and consultant will develop a framework for assessing the most feasible renewable energy option. The components of the framework could be :

a. Technology

- i. Feasibility (resource availability)
- ii. Reliability (generation pattern to meet the demand)
- iii. Flexibility (beyond- Simhastha usage)
- iv. Ease of operation

b. Financial Viability

- i. Investment required (Cap-ex)
- ii. Operational expenses (Op-ex)
- iii. Landed cost of energy

c. Sustainability

- i. Social acceptance
- ii. Direct/In-direct potential for positive CSR impact

v. Cost Analysis -This would be carried out to extrapolate cost forecast for Renewable based power vis-à-vis conventional power.

- vi. **Optimum Combination of Options** - Establish the optimum mix of the identified options using the REAF findings and through discussions.
- a. Reliability
 - b. Viability
 - c. Flexibility
- vii. **Integrated Implementation Plan** -To be developed including the following factors:
- a. **Regulatory** - Identify existing programs for de-centralized applications and look at current viability. To identify ways of implementing the same in a phased manner
 - b. **Financial** - Identify possible modes to finance these projects
 - c. **Energy Requirements** – to be developed including
 - ❖ **Cooking requirements:** Improved Biomass based Stove, Biogas Plants, Solar Cookers, steam cooking.
 - ❖ **Basic lighting requirements:** Solar Home Lights, Solar Lanterns, solar street lighting, singage etc.
 - ❖ **Commercial requirements:** Emergency water pumping, energy for local cottage / security kiosks, VIP area's, Ghat's etc.
 - ❖ **Community requirements:** Street lights, Drinking water pumping, Energy for one proposed community centre (TV, Computer, health centers etc.)
 - ❖ **Transportation:** It is envisaged to use Battery operated vehicles within the mela area to support the security arrangements and to help the physically handicapped mela visitors. Use of bio-fuel operated vehicle may also consider as an energy efficient option.
 - ❖ **Demonstration & Propagation requirements:** As the Simhastha Mela is one of the biggest events in terms of foot falls of the country, it is advisable to have a show case arrangement of new & Renewable sources for public to make them aware about the uses of renewable energy.

PREPARATION OF REPORTS

The Consultant recognizes that a high-quality deliverables shall be the basis for the Client to make an informed decision on the subsequent actions to be taken for achieving the objective of improved use of non conventional energy resources \ at the mega-religious fair. Towards this, the Consultant suggests the following deliverables during the period of study:

- Inception Report
- Data Collection Report
- Draft Project Report
- Detailed Project Report

The Inception Report shall contain the Data Collection and Data Assessment Procedures and the Table of Contents of the Detailed Project Report (DPR) as envisaged by the Consultant so as to enable the Client to review and suggest improvements. The Data Collection Report shall provide an overview of the data collection efforts of the Consultant team and the extent of data that has been made available by various agencies.

GENERAL PROVISIONS

- a) DPR shall be a comprehensive document they shall contain all relevant information, collected and surveyed data, designs of system and components, justifying chosen system and scheme, components thereof and establishing that the cost shown is optimal, specifications, drawings. They shall be documents worked out to details to invite tenders.
- b) DPR shall be prepared on computer. Along with hard copies, a copy of the CD/DVD shall be submitted
- c) Salient features of the DPR shall be given at the beginning of the DPR to have an idea of the DPR at a glance.

- d) Schedule for submission, approval, implementation and completion shall be detailed
- e) CPHED / CPWD / ISS / Local PWD specifications, whichever applicable, may be followed for construction of works.
- f) Cost estimates to be based on current local schedule of rates for standard items of works and market rates for proprietary equipment.
- g) Necessary escalation in costs due to inflation during project implementation period shall be incorporated on a justified rationale.

TIME SCHEDULE

EPCO will commence the services as soon as possible but not later than 15 days after the Client has given to the consultant notice to proceed with the Services. Each stage of work will be completed as per Schedule given.

S.No.	Phase	Months				
		1	2	3	4	5
1	Demand Assessment output Energy demand load and pattern	█				
2	Renewable Energy Resource Assessment Output :Technology specific potential and installed capacities	█	█	█		
3	Cost analysis			█		
3	Development of Renewable Energy Assessment Framework Output : Prioritization of indentified options			█		
5	Optimum Combination of Options			█	█	
6	Integrated Implementation Plan				█	
7	Report Preparation Output : Detailed Project Report with all the final deliverables					█

Schedule for Outputs

S.No.	Outputs	Time
1	Submission of Inception Report	30 days from date of issue of work order
2	Submission of Draft DPR	120 days from date of issue of work order
3	Submission of approved Final DPR	30 days from date of approval of draft report & comments of Client on DPR

FINAL OUTPUT

The consultants shall furnish to the EPCO documents in hard copies along with soft Copy (CD/DVD).

Draft Detailed Project Report: 2 hard copy, 1 Soft copy

Final Detailed Project Report 5 hard copies, 1 Soft copy