



**United States Energy Association
South Asia Regional Initiative for Energy Integration (SARI/EI)
Request for Proposal – Hydropower Project Planning Training**

REQUEST FOR PROPOSAL – Hydropower Project Planning Training

Closing date of RFP: April 4, 2017

Implementing Agency: United States Energy Association

Funding Agency: United States Agency for International Development

The United States Energy Association (USEA) is inviting prospective organizations or individuals through this Request for Proposal (RFP) to submit proposals for conducting the training on “Hydropower Project Planning.” This is an activity implemented by USEA under the United States Agency for International Development (USAID) South Asia Regional Initiative for Energy Integration (SARI/EI) program.

Proposals are due by 17:00 hours EST of the closing date. Please forward your proposal in soft copy with a read receipt to Ms. Johanna Koolemans-Beynen, Senior Program Coordinator, at jkoolmans-beynen@usea.org

As this is a USAID-funded program, the RFP follows USAID Procurement Regulations and Laws. All bidder details will be kept confidential.

I. INTRODUCTION

The U.S. Energy Association (USEA) is the U.S. Member Committee of the World Energy Council (WEC). Headquartered in Washington, DC, the USEA is an association of public and private energy-related organizations, corporations, and government agencies.

Through a cooperative agreement with the USAID Bureau for Economic Growth, Education and Environment (E3), the USEA implements the Energy Utility Partnership Program (EUPP), available to all USAID-assisted countries and USAID Missions. EUPP supports the efforts of in USAID-assisted developing countries to increase environmentally sustainable energy production and to improve the operational efficiency and increased financial viability of their utilities and related institutions, with the goal of increasing the access of these countries to environmentally sound energy services.

USEA conducts a number of activities under the EUPP mechanism for the USAID South Asia Regional Initiative for Energy Integration (SARI/EI) program. USAID first launched the South Asia Regional Initiative for Energy (SARI/E) program with USEA in 2000 covering the eight countries of Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka. The first three phases of the program focused on cross-border energy trade (CBET), energy market formation and regional clean energy development. The current phase, entitled the South Asia Regional Initiative for Energy Integration (SARI/EI), aims to further the earlier objectives of advancing regional energy integration and increasing CBET.

II. SCOPE OF WORK

At the request of the Bhutanese Ministry of Economic Affairs (MEA) Department of Hydropower and Power Systems (DHPS), USEA plans to arrange a two-module training, each module lasting five days in duration. The training will emphasize hydropower planning skills and knowledge. Approximately 20 executives from the Department of Hydropower & Power Systems (DHPS-6-7), Druk Green Power Corporation Limited (DGPC-5-6), the Department of Renewable Energy (DRE-2-3), Bhutan Power Corporation Limited (BPC-2-3) and Bhutan Electricity Authority (BEA-2-3) will participate, and the trainings will take place in Bhutan (either in Paro or in Thimphu – exact location TBD).

The modules will provide training on best practices in the below listed subject areas:

| Module | Content |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Module 1 | <ul style="list-style-type: none"> • Project site identification • Layout alternative studies • Hydrological analysis (water availability and flood studies) • Power potential & Optimization studies (fixation of capacity, PLF etc.) • Geological mapping • Geotechnical appraisal including geophysical studies • Civil Design <ul style="list-style-type: none"> ○ Selection of diversion structures (Barrage, weir, dam) ○ Intakes, desilting chambers ○ HRT, underground PH, TRT, surge shafts, penstocks • EM Design <ul style="list-style-type: none"> ○ Selection of turbines ○ Fixation of units/Plant sizing ○ Finalization of unit sizing |
| Module 2 | <ul style="list-style-type: none"> • Overall transmission system planning and Optimization in transmission planning in terms of integration, cost & ROW optimization, power transfer capability • Economic Assessment of Technology options for increasing Transmission Capacity • Cost estimations (methods, rate analysis) • Financial & economic assessment (main emphasize on cash flow analysis, NPV, FIRR & EIRR) • Environmental impact assessments of hydro projects • Hydropower project construction methodology • Project scheduling • Project Risk management |

The purpose of this RFP is to solicit proposals from various candidate organizations or individuals, conduct a fair evaluation, and select the organization deemed most suitable to conduct training.

The training will be specifically tailored to Bhutan, and will follow the outline provided above. It will provide the participants in attendance with the background for developing the institutional and human capacity to plan and supervise hydropower projects.

III. BACKGROUND

Over the past several decades South Asia has witnessed the steady growth of electricity cross-border trade between India and Bhutan and, more recently, between India and its other eastern neighbors, such as Nepal and Bangladesh.

However, cross-border trade has thus far remained limited in scope and influence upon energy trade in South Asia, despite the tremendous potential benefits of regional energy trade and co-operation. These potential benefits due to two factors. First, South Asia's energy sector has not been able to keep pace with the needs of the region, including a growing customer base, and it continues to experience chronic problems of shortage of supply and poor quality of service. Cross-border trade could expand the reach of electricity into currently unlit regions.

Hydropower is of particular interest for the cross-border energy trade, since hydropower resources are in plentiful supply in Bhutan and Nepal in particular, and could be exported to India, where the number of unlit households is highest. India's cross-border trade in hydropower with Bhutan, which began in 1961, has facilitated the reduction of atmospheric emissions and helped minimize electricity shortages in India. Concurrently, India and Nepal are in the process of expanding their cross-border transmission lines to further establish the two country's energy trade, which has been beneficial for both countries in developing transmission interconnections and grid connectivity.

India has already assisted Bhutan technically and financially in the development of several hydroelectric projects that send excess energy to India's power grid, reflecting the unique protectorate relationship that colors the countries' historic partnership. As Bhutan possesses approximately 30,000 MW of hydropower potential, the two countries have entered into an agreement for 10,000 MW of hydropower projects to come online by 2020 and supply power to India. Currently, Bhutan supplies about 1400 MW of power exports to India from principally the Chukha and Tala hydroelectric power projects that were developed and financed by the Government of India as a joint venture with the Royal Government of Bhutan.

Given Bhutan's ambitious plans, Bhutan has a strong incentive to make sure that its hydropower potential is developed in a way that brings the highest possible benefits, and least detriment, to the country.

Capacity-building initiatives have been supported by USEA's SARI/EI program through recent focus on capacity-building on hydropower project appraisal. In 2016-2017, with the support of USAID/India, USEA collaborated with PTC India Financial Services and the National Power Training Institute in India, to organize two rounds of training on hydropower project appraisal. Each round included three modules (each a week in duration). A total of 13 Bhutanese attended, 10 from the Ministry of Economic Affairs' Department of Hydropower & Power Systems, 1 from the Druk Green Power Corporation, and 2 from the Bhutan Power Corporation. The aim of these modules was to help representatives from South Asian countries develop the skills on techno-economic appraisal and financial analysis for hydropower project and large transmission development. The first two modules covered project planning, project development, project appraisal, financial analysis, financial negotiations, and financial structuring. The third module included a visit to the Chamera Dam and Hydropower Plant near Dalhousie, India, followed by meetings at relevant agencies in Delhi. While this training was considered very useful for the Bhutanese, they require a more tailored and detailed training in some of the subject areas.

Read more: www.usea.org and www.sari-energy.org.

IV. IMPLEMENTATION AND APPROACH

The consultant will conduct 2 one-week trainings tailored to the DHPS's needs, as described in Section II.

USEA will arrange a number of conference calls between the consultants and BEA in advance of the TA/peer review, in order to best prepare the consultant and tailor the program. DHPS will also provide the consultant with relevant technical information prior to the TA.

USEA will be responsible for all logistical arrangements for up to two consultants for each workshop, including:

- 2 Economy-class roundtrip airfares
- 2 times Per diem (meals and lodging) for six days in Paro or Thimphu, Bhutan (Note: Lodging to be provided at a 4 or 5 star hotel)
- Per diem (meals) allowance for international travel days
- Daily ground transportation in Thimphu or Paro between the hotel and BEA

- Reimbursement for visa fees
- International health insurance

The consultants should have experience with hydropower projects. The consultants should also have expert-level knowledge of various regional markets, including the Indian market.

V. SCHEDULE

The training will commence as soon as possible, no later than May 2017. The schedule will be determined based on the earliest available dates of the contractor.

VI. DELIVERABLES

The following deliverables must be included:

- Annotated proposed outlines of both modules
- Participations in at least 2, and no more than 4, conference calls with USAID, USEA and DHPS to finalize training content
- Copies of all presentations
- Bibliography of proposed preparatory readings
- Bios of each of the proposed presenters for each module
- Two one-week modules with contents as outlined in section II.

VII. PROPOSAL CONTENT

The proposal must contain the following:

- a) A cover letter to the proposal
- b) A technical proposal, including:
 - Demonstration of an understanding of the issues to be addressed under the proposed scope of work specified above by providing a summarized technical approach for each of the tasks listed (Maximum 2 pages).
 - Proposed project schedule to perform the tasks under this project highlighting any deviations to the proposed scope of work specified above.
- c) A financial proposal, including:
 - Detailed justification (i.e. line item budget)
 - Labor, other direct costs, indirect costs, and level of effort for each presenter proposed for this project
- d) Short CVs/bio sketches of proposed presenters
- e) Completed USAID Contractor Employee Biographical Data Sheet forms for each employee proposed for this project (<https://www.usaid.gov/forms/aid-1420-17>)
- f) Summary of the work to be performed by each employee proposed for this project

VIII. EVALUATION CRITERIA

Selection of an offer for contract award will be based on an evaluation of proposals against technical merit and budget justification. Proposals shall first be evaluated from a technical standpoint based on the training proposal (i.e. without regard to proposed budget justification). Once a proposal is determined to be technically acceptable, the budget justification will be evaluated.

END OF RFP