

**Invitation for Proposals**

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**TRANSMISSION UNDERGROUND CABLES INTEREST GROUP (TUCIG)**

**CEATI PROJECT No. IFP 12.01**

**SPARE PART STRATEGY FOR TRANSMISSION CABLE SYSTEMS**

CEATI International Inc. (CEATI) invites the submission of proposals to perform research work on the following topic:

**TITLE**

*Spare Part Strategy for Transmission Cable Systems*

**INTRODUCTION**

An underground transmission cable system is one of the most important components in transmission systems. These circuits are used to connect key substations in urban centers serving large number of customers.

An outage to one of the cable circuits will put the system in an “N-1” condition; a system condition that System Operators aim to avoid. If the substation is supplied by two circuits and a piece of associated equipment in the second circuit fails during this “N-1” condition, the substation will go out of commission and potentially impact many people. An extended outage will significantly increase risk to the system.

The repair time of an UG cable failure could take days or weeks if spare parts are readily available. If however some spare parts are missing, the circuit restoration time will be significantly increased due to the delivery lead time of certain components (ex. porcelain, joints and terminations, etc.).

System Operators and Managers wish to avoid circuit failures resulting in extended outages because spare parts were not readily available. On the other hand, carrying unwarranted inventory and having too many spare parts on hand incurs extra costs and overhead. It should be noted that cables and associated accessories are much more expensive and tend to have limited shelf lives (ex. Components in join and termination kits) than overhead line and distribution spares.

Proper planning and management of cable spare part inventory is a critical element for any asset management program. Asset managers are in need of well-planned spare part strategies which will assist them in determining the appropriate quantity of spare parts to meet maintenance and emergency repairs.

**PROJECT OBJECTIVES**

The objective of this project is to conduct a review of current cable spare part strategies used in TUCIG utilities and develop a set of best practices to guide the advancement of a cable spare part strategy.

As a result of this investigation, a methodology will be developed that can be used by utilities to justify the appropriate quantity of spare parts for specific underground cable systems. Some of the influencing factors on determining the appropriate quantity of spare part include the quantity

of circuits in the system, cable types, operating history and failure record of the circuits, “health condition” of the circuits, relative importance of the circuits, etc.

### **SCOPE OF THE STUDY**

The scope of this study will include a review of the cable spare parts strategies used in TUCG utilities including the rationale/process to arrive at the appropriate quantity of spare parts required.

It may be necessary to conduct a survey of the TUCIG utilities to gather information regarding their present practices, strategies, and experiences. Some of the considerations may include supplier relationship management, mutual aid arrangements with other utilities, outsourced asset maintenance, etc.

### **POTENTIAL BENEFITS**

The project will provide a spare part strategy with methodology to determine appropriate quantity of spare parts to be maintained to meet maintenance and emergency repair requirements. The cable spare part strategy will assist utilities to execute repairs effectively, minimise outage duration and optimize maintenance costs associated with inventory.

### **PROJECT STAGING**

The following tasks are envisioned:

1. Conduct a review of the cable spare part strategies used in TUCIG utilities.
2. Prepare a questionnaire to TUCIG utilities to gather information about present practices and experiences with present strategies.
3. Prepare a set of best practices to guide the development of a methodology to determine appropriate quantity of spare parts.
4. Present findings and proposed methodology at a future TUCIG General Meeting.
5. Prepare a report.

### **DELIVERABLES**

The successful proponent is expected to prepare a ready-to-publish report on the results of the investigation and present the results to funding consortium members. The report should contain details of the investigation and a methodology to determine the appropriate quantity of spare parts. The completed report must be submitted for CEATI approval in editable, electronic format (Microsoft Word). In addition, the platform and version should be specified for any software or programs to be developed.

Progress reports will also be required on either a quarterly or milestone basis - normally these are scheduled to coincide with the completion of the identified tasks.

The successful proponent is also expected to provide the following:

- A ten to fifteen (10-15) slide Power Point Presentation. This should be composed of three main sections:

1. The factors motivating the initiation of the work;
2. A description of the main findings;
3. Summary of the conclusions and recommendations for future research.

- Contents for the Project's Technical Brief. This is a summary of the report (between 1,000 and 1,500 words), which is published separately by CEATI. Proponents are not responsible for the preparation of a ready-to-print Technical Brief, but solely to provide the contents for the following 4 sections: Background, Summary, Conclusions and Recommendations.

1. The Report Background section should be short (approximately 200 words) and should detail the reasons the work was conducted.
2. The Summary section should be approximately 700 words. It must provide a general description of the work program.
3. The Conclusions section should be about 150 words and should provide a general outline of the key results (do not include specifics).
4. The Recommendations section should be about 200 words and should include a description of the potential applications of the results.

Please note that all reporting must be submitted in English. If written English is not the author's strong suit, it is recommended that a technical writer be hired to review the document prior to submission.

### **BUDGET AND SCHEDULE**

The proposal must contain a schedule and a quote of required remuneration for the work in US or Canadian dollars. All prices shall be presumed to be in Canadian dollars (CAD) unless explicitly specified otherwise in the proposal. Proponents' responses to this section must include a full breakdown of the budget and schedule, including an indication of rates and hours and the task allocation for the key personnel by task and must correspond to any phases or milestones outlined above. (Please refer to the Proposal Template for more information).

It is expected that this project can be completed (draft final report submitted for review and approval) within six (6) months of initiation.

The proposal must include the names and qualifications of the key individuals who will be involved, as well as the name of the accountable manager.

**CEATI is not bound to accept any proposal but any selection will take into account technical merit, qualifications, price and schedule. A proposal may be accepted in whole or in part. A commitment to proceed with the first phase of a multi-phase project does not automatically imply that the work of the subsequent phases will be undertaken.**

## **ALTERNATIVE WORKS**

Proponents shall generally follow the above description of work, but are encouraged to offer alternative works if these alternatives will meet the objectives and provide a better end product to the utilities sponsoring this work. Alternatives shall be fully described including logistics explaining why the alternate works are being offered and the benefits to be realized by the funding utilities. Where alternatives are proposed, separate budgets shall be calculated for each alternative.

## **SUBMISSION OF PROPOSALS**

The consideration of proposals received will be limited to those who indicate their intent to employ a suitable experienced project team and who possess proper facilities to perform the work. Receipt of this “IFP” does not necessarily constitute a prior determination by CEATI that your organization has the requisite experience and facilities.

The proposal must be properly completed and executed in accordance with the CEATI guidelines available at <http://www.ceati.com/technology-providers/submission-guidelines>, and shall be submitted to CEATI as an attachment in Microsoft Word at the following website: <http://prs.ceati.com/proposals/>. Be sure to indicate project number “**TUCIG IFP 12.01**” on the submission form. For assistance, please contact us at 514-866-5377.

The successful proponent will be required to sign the CEATI Standard Agreement upon project initiation. Proponents are encouraged to download a copy of the Standard Agreement for review from <http://www.ceati.com/technology-providers/submission-guidelines> prior to submitting a proposal, if they are not already familiar with these terms. Proponents may contact CEATI at [projects@ceati.com](mailto:projects@ceati.com) to discuss any questions or concerns regarding these terms.

## **CLOSING DATE FOR RECEIPT OF PROPOSALS**

**Thursday, February 16, 2012, 4:00 pm EST**