

## **TERMS OF REFERENCE FOR R&D PROJECT**

**1. Title of the project:** Development of coefficients of modulus of elasticity and creep for various conductors, commonly being used in Indian transmission industry.

**2. Background:**

At present sag-tension calculation for conventional conductors such as ACSR and AAAC conductor is carried out considering final modulus of elasticity & some specific value of temperature compensation to account for conductor creep. In case of HTLS conductor, sag tension calculation is mostly carried out considering coefficients for initial modulus of elasticity as well as for creep. Since, coefficients of only few configurations of conventional as well as HTLS conductor are available, coefficients for other configurations are usually derived theoretically.

In order to obtain better accuracy in sag-tension calculations of commonly used conventional conductors as well as HTLS conductor, stress-strain & creep tests can be carried out to develop the coefficients of modulus of elasticity and creep coefficients.

**3. Scope for R&D:**

- a) The research and development can focus on development of coefficients of modulus of elasticity and creep coefficients of commonly used conventional conductors as well as HTLS conductor, through stress-strain & creep tests carried out in laboratory.
- b) Data from experiments and testing conducted to assess the performance.

**4. Research Methodology:**

The project will involve the following research methodologies:

- a. Conduct an extensive literature survey to review previous studies, research papers, and relevant publications related to coefficients of modulus of elasticity and creep coefficients.
- b. Carrying out stress-strain & creep tests at room temperature in laboratory.
- c. Detailed documentation encompassing reports, technical specifications, and guidelines related to development of coefficients of modulus of elasticity and creep coefficients.
- d. A comprehensive report documenting the research methodology, findings and recommendations.

**5. Expected Deliverables:**

- Submission of analytical report including the data from experiments and study

conducted to develop the of coefficients of modulus of elasticity and creep coefficients of commonly used conventional conductors as well as HTLS conductor, through stress-strain & creep tests

**6. Timeline and Method of Progress Review:**

The review will be carried out in each month along with consultation of other experts if required. The tests and literature review at the end of 1 month, the first draft at the end of 4 months and the final draft along with report at the end of 6 months.

**7. Support BIS will Provide:**

- BIS will provide access to latest editions of standards, required for the project.

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