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Project Title: Designing a comprehensive information system to meet the information needs of equipment reliability models and designing an appropriate information workflow for reporting information and reliability indicators in the transmission sector

Department:	Transmission network reliability development plan	Employer:	Niroy Research Institute
Project/Program Manager:	Javad Nezafat Namini	Executor:	Nikki Moslemi
Project Financial Code:	147106	Project Quality Code:	PPBPN04-1
Type of Project/Program:	Strategic	Assistant:	Power Transmission Research Institute

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Keywords: Transmission equipment reliability models, data collection and storage Reliability related to transmission network equipment, transmission equipment data collection and storage, comprehensive information system, information workflow, system reliability indicators

Project Necessity: Given the importance of the issue of productivity and the growing need of the country to make optimal use of limited financial resources available, managers, decision makers and energy policymakers are forced to use new quantitative methods such as methods based on reliability. As a prerequisite for this issue, the existence of an efficient, integrated and effective database is the main basis for moving towards new approaches and should be on the agenda as soon as possible.

In Iran Electricity Industry Complex, various information systems have recorded information in different sectors of production, transmission and distribution. In this regard, it is necessary with a comprehensive scientific study as well as recognizing the needs of different departments, existing information systems are evaluated and in order to meet the information needs of maintenance planning and information needs of the legislator and other actors. Design a comprehensive information system.

Project Goals: The final achievements of the project can be summarized in the following areas:

1. Identify the information requirements of standard reliability models of various transmission network equipment, including lines, transformers, protection equipment, etc.
2. Evaluate all common methods of storing information related to accidents, blackouts and maintenance in the transmission sector

3. Identifying all the future needs of the country in the field of reliability and formulating related information needs based on international standards and local needs
4. Assessing the capability of comprehensive information systems in Iran and determining their shortcomings in accordance with the anticipated needs
5. Determining the workflow of information related to the reliability of transmission equipment in order to calculate the reliability indicators of the power system

Abstract: This project aims to design a comprehensive information system to meet the information needs of equipment reliability models at the transmission level and provide an appropriate information workflow method for reporting system reliability indicators in the transmission sector. In this regard, it is necessary to identify the needs of the reliability model of different transmission network equipment, determine what information should be collected in this regard. For this purpose, equipment such as line circuits, transformers, switches, relays, communication equipment and other protection equipment are considered as the main equipment of the transmission network. Reliability models used and approved for them are extracted and based on these models, it is tried to collect equipment information requirements.

Steps and Methodologies: In order to achieve a comprehensive information system for power system reliability studies, the following main phases can be enumerated for carrying out this project:

Phase 1: A Scientific Review of Existing Models of Transmission Equipment Reliability and the Results of Reliability-Based Studies Based on Coming Countries

Phase 2: Develop a comprehensive framework for collecting and storing reliability information related to transmission network equipment

Phase 3: Examining the existing infrastructure for collecting and storing transmission equipment information in Iran and identifying its strengths and weaknesses

Phase 4: Designing a comprehensive information system in the transmission sector to address the weaknesses of existing information systems

Phase 5: Designing an appropriate information workflow to report system reliability indicators in the transmission sector

Main Results (technical outputs, patents, papers, books, reports, etc.):

Due to the completion of the project by performing the first stage alone, the only purpose is to identify the information needs of standard reliability models of various transmission network equipment, including lines, transformers, protection equipment, etc.