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Project Title: Zero Phase of the electrical industry standards Review in the field of meters, fault indicators and digital astronomical timers

Department:	Comprehensive plan of needs Assessment, Prioritization, Compilation, Revision and Supplementation of Power Distribution Standards	Employer:	Niroo Research Institute
Project/Program Manager:	Neda Yavari	Executor:	Mohamad Goudarzi
Project Financial Code:	700044	Project Quality Code:	PDPN22-1
Type of Project/Program:	Practical and Developmental	Assistant:	Abanaroo

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Keywords:

Electricity metering equipment, Digital meters, Smart meters, Fault detector, Digital Astronomical Timers, Metering equipment tests.

Project Necessity:

Deputy coordinator of distribution as a branch of TAVANIR has intended to revise distribution grid code of Iran's power system due to particular climate conditions and other specific terms of all distribution system operators (DSOs). In this regard, Niroo Research Institute (NRI) is asked to take part to make necessary revisions of some power system standards and protocols. Standards of electricity metering equipment, fault detectors (FD) and astronomical time switch (ATS) are among the considered standards which should be revised. Research group of instrumentation of NRI is responsible for phase zero of this revision task.

Project Goals:

In order to make revision of standards of electric metering, fault detectors and astronomical time switch, and make compensation of shortcomings and deficiencies, and also make updates to existing protocols and standards, it is tried to investigate related issues in this report respectively. Consequently, it is expected that necessary requirements to make revisions of existing protocols and standards should be specified and listed.

Abstract:

Revision of distribution grid code is necessary for satisfaction of security, reliability and technical performance of distribution power system. On the other hand, technological updates of metering equipment and new trends of distribution system management such as energy saving, efficiency increase and reliability of distribution system are led to form a task force by TAVANIR in order to make revision of standards of metering equipment particularly, advanced metering infrastructure (AMI), fault detectors and astronomical time switch. In this report, while browsing recent international standards of electricity metering equipment especially IEC standards and also considering domestic protocols, it is tried to make compensation of selection, testing and operating of electric meters, fault detectors and astronomical time switch. It is worth to mention that these modifications are also a means to make better coordination between DSOs, manufacturers of distribution equipment and TAVANIR as a supervisor.

Steps and Methodologies:

- 1- Searching all recently published standards and protocols with regards to electric meters, fault detectors and astronomical time switch.
- 2- Investigating shortcomings and deficiencies of all existing domestic standards and protocols with regards to technological updates of electric meters, fault detectors and astronomical time switch.
- 3- Comparison of recently published standards and protocols with existing standards and protocols.
- 4- Proposing appropriate modifications for selectin and testing of mentioned equipment due to new operating requirements of distribution systme concering reliabilty, energy saving and particular climate conditions of different regions.
- 5- Conclusion of proposed terms as a modified distribution grid code.

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

- Preparing standard list for review
- Preparing standard list for Compilation
- Estimate Essential resources for Compilation and revision