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Project Title: Identification, needs assessment and prioritization of standards and guidelines in power production field (chemistry part)

Department:	Comprehensive plan for needs assessment, prioritization, development, revision and supplementation of production standards	Employer:	NRI
Project/Program Manager:	Hoda Molavi	Executor:	Mostafa Amirjan
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Project Necessity: The orientation of the electricity industry towards the standardization of items related to this industry requires that the technical specifications, operation and testing of equipment and systems related to the field of thermal power plant production be prepared and compiled as a standard / instruction. Many internal standards / guidelines related to this field have been developed in recent years; while the corresponding international standards are updated every few years. Also, due to the climatic conditions of the country, some existing standards / guidelines need to be amended, revised and rewritten. On the other hand, due to the progress of technology and the emergence of new equipment and technologies, it is necessary to develop standards / guidelines related to them. As a result, it is necessary to review the need to review internal standards / guidelines and assess the need to develop new standards / guidelines in the field of thermal power plant production.

Project Goals: The purpose of this project is to identify and assess the standards and guidelines in the field of thermal power plant production (chemistry part) and prioritize to update existing standards and guidelines or to develop new standards and adaptive guidelines in this area. Also, accurate identification of the required instructions of different production sectors in this field, including delivery instructions in operation and supply and required tests taking into account the opinions of stakeholders is one of the main objectives. The main route of compiling the instructions will be determined in interaction with the representative of thermal electricity company and expert panel meetings.

Abstract:

- Initially, equipment, systems, and topics related to the field of thermal power plant production were identified and categorized in terms of materials and chemical processes. Then internal standards / guidelines for each of the categories were extracted and a list of international references related to each was prepared. In the following a list of international standards for each area was collected. Then, the internal standards / guidelines were compared with their respective reference standards in terms of being up-to-date and also content (by examining the scope of work, the introduction section and the table of contents). Also, due to the existence of specific climatic conditions in some parts of the country, a list of internal standards / guidelines that are affected by climatic conditions and may need to be revised and amended was prepared. In the next stage of the project, by sending a questionnaire and holding a meeting, in relation to the priority of each of the standards, the experts were questioned and surveyed. Then, based on the indicators set in the meeting with the experts, a list of standards / instructions that need to be revised or that need to be adapted, was prepared for final prioritization. In the last stage of the project, based on the criteria set for prioritizing the standard / internal guidelines for review and also prioritizing external standards for comparative development in the meeting of experts, the final prioritization along with the budget and time required to achieve them done.

Steps and Methodologies:

- In the first stage, equipment, systems and topics related to this field have been identified and classified in terms of materials and chemical processes, some of which are: transformers, tap changers, air and fuel filters, oils, papers, lubricants, cooling towers, fuel tanks, purification systems, pre-treatment, desalination equipment, flues, boilers, chemicals (inhibitors, resins, membranes, etc.), periodic inspections and repairs. In the following, internal standards / guidelines related to each of the performed categories have been extracted and a list of international references related to each of them has been prepared. In the following a list of international standards for each area has been collected. In addition, an expert panel has been formed to obtain their views at this stage so that their opinions can be used when necessary.
- In the second step, the internal standards / guidelines have been compared with their respective reference standards in terms of content and being up-to-date. For this purpose, the version of the standard used in the internal standard / instruction has been first compared with the latest version of that standard. If there was an updated version of the relevant standard, the scope part of the standards (Scope) has been studied. In addition, based on the opinion of the project executor and referee, it was decided that the introduction section and also the list of items in the two standards have been compared with each other. As a result, the standard / instructions that need to be modified and updated based on the reference standard have been identified. Also, due to the existence of special climatic conditions in some parts of the country, the reference standards may not meet the needs of the country and therefore it is necessary to review and amend some internal standards / instructions according to the climatic conditions of the country. Therefore, in the second stage, internal standards / guidelines have been reviewed in terms of the impact of climatic conditions on that standard / guidelines, resulting in a list of internal standards / guidelines that are affected by climatic conditions and may need to be revised and amended.
- After extracting the list of standards / instructions that need to be revised or should be comparatively compiled, for the comprehensiveness and completeness of the project and in order to assess the need for revision or comparative compilation of standards in the field of thermal power plant production in the chemical sector, in the third phase of the project the experts have been questioned by sending a questionnaire and holding a meeting. After that, based on the indicators set in the meeting with the experts, a list of standards / instructions that need to be revised or need to be adapted, has been prepared for final prioritization in the fourth phase of the project.

- In the final stage of the project, based on the criteria set for prioritizing the standard / internal guidelines for review as well as prioritizing external standards for comparative development in the expert meeting, the mentioned priorities have been made. Also, the budget and time required to achieve the mentioned priorities have been determined.

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

- The first report entitled “Extraction of existing standards / instructions in the field of thermal power plant production (chemical part), determining the need for comparative development of new standards / instructions in the field of thermal power plant production (chemical part) and forming an expert panel”.
- The second report entitled “Determining the content adequacy of internal standards / guidelines in the field of thermal power plant production (chemistry part)”.
- The third report entitled “Assessing the need to review and compile standards / comparative instructions in the field of thermal power plant production (chemistry part) by inquiring from stakeholders”.
- The fourth report entitled “Prioritization of updating and comparative development of standards / instructions in the field of thermal power plant production (chemistry part)”