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Project Title: Investigating the mechanism of smart grid energy services and develop smart grid energy code draft

Department:	Document for the development of technologies related to the smart grid of the electricity and energy industry	Employer:	Power Research Institute
Project/Program Manager:	Maryam Mohammadi	Executor:	Leyla Abdi
Project Financial Code:	۱۷۹۱۰۳	Project Quality Code:	psp1pn03
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Project Necessity:

Achieve an advanced electricity system through the integration of ICT infrastructure into existing power grid infrastructure and the new generation of distribution systems, in order to full operation of renewable energy systems and maximize the energy efficiency of the entire power grid, are one of the main goals the electricity industry at the present time.

In fact, smart grids enable power companies to have full visibility and comprehensive control of their service assets. In this regard, it is very important to address the various aspects of the smart energy network in the country and explain the institutional and legal relationships that affect them and review the types of related services and products, as well as various aspects of business in this regard.

Project Goals: The main purpose of defining this project is to formulate the necessary regulations for the presence of the private sector in expanding the use of smart energy systems in the country. For this purpose it is necessary:

- Introduce smart energy network services

- Determine the structure of service evaluation in the smart energy network.
- The institutional structure (institutions and main actors) should be identified or proposed and their relations with other institutions should be determined.
- Determine the required legal structure (laws, regulations, instructions and guidelines)
- Implementation and monitoring of services in the smart energy network to be designed systematically and purposefully.

Abstract: This project is defined with the aim of creating a legal basis for the development of smart energy grid by the private sector. The smart energy grid is known for a variety of services, including smart meters, smart homes, electric vehicles and etc. With the potential to create a profitable business for the private sector.

Smart Energy Network Code is a set of rules for the electricity industry that outlines the influential institutions and the relationships between them, and defines the role and tasks of each in the smart energy network system. Although all energy smart grid services can be achieved with proper planning and providing the correct legal. It should be said that not all smart grid services are provided entirely and to create, develop and expand the smart energy grid in this sector, we need strategic planning. Accordingly, the expected results of the project are:

- Introduce services in smart energy grid
- Institutional structure (institutions and main actors) Identify or propose and determine their relationship with other institutions
- Legal structure required (Rules, Regulations, Instructions and Guidelines) To be determined
- Implement and monitor services in the smart energy network to be designed systematically and purposefully.

Steps and Methodologies: first Step: Project methodology (1-1) Analyze and review the expected results of the project (1-2) Determine the steps needed to achieve the specified goals (1-3) Develop an appropriate methodology for this along with Required Support Processes (1-4) Determining the concept, objectives and main output of smart energy grid code

second Step: Study and review the current situation in the smart energy grid (2-1) Study institutional structure and identify the main stakeholders and actors (2-2) Study the existing legal structure and identify laws and regulations in

this area (2-3) Study variety of business in the current situation (2-4) Study, review and summary of studies conducted in this field

third Step: Study and review the optimal model in the smart energy network (3-1) Study the institutional and legal structure of the smart grid system in developed or developing countries with this system (3-2) Study and review the business model, Strategies and goals of the studied countries in the field of smart energy network development (3-3) Summarizing and analyzing the gap between the current and desired situation and providing suggestions (3-4) Determining the goals and strategies of smart energy network development in the country based on upstream documents

fourth Step: Determining smart energy network services and valuing them with the participation of the private sector (4-1) Identifying the types of services and products (4-2) Identification of suppliers and value chain of these services and products (4-3) Review of various business models in this field with the participation of the private or public sector based on the objectives identified in the first stage (4- 4) Determining the economic value of services by considering different scenarios in paragraph 4-3

fifth Step: developing the smart energy grid code and determining its position with other codes as well as monitoring and revision (5-1) Studying and translating valid smart energy codes in selected countries and determining the chapters and sub-sections of each of them And determination of differences and similarities (determination of organizational structure of code execution and application in each country) (5-2) Determination of headings and sections of smart grid code based on the results of paragraph 5 1- Examining the internal rules (instructions, regulations, etc.) and examining its relations with other existing laws and regulations (5-3) Identifying and determining specialized expert groups related to each of the axes of the code and holding panels Specialized to determine the main axes in the development of smart energy network code (5-4) Development of draft smart energy grid code

sixth Step: Crime Guarantee (6-1) Drafting a Code of Criminal Guarantee in the field of smart energy network in the country

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

A report entitled Investigating the mechanism of smart grid energy services and drafting the smart grid energy code