**BRIEF INFO SHEET ON SMART GRID STATUS OF TURKEY**

ELDER - Association of Electricity Distribution System Operators

[www.elder.org.tr](http://www.elder.org.tr)

In the Turkish electricity sector, transformation of electricity distribution network infrastructure has started along with major changes like privatization, unbundling of distribution companies and supply/retail companies and steps taken for liberalization of the market completed in 2013. 21 electricity distribution companies are active in Turkey, started realizing this transformation on different levels, with modernization of grid elements as well as start to use of information and communication technologies in grid operations with high investments.

In the current status, 3 types of meters are used by the consumers: smart, electronic and mechanical meters in total ~38 Million. Since 2013 the new installed meters are owned by the DSO; previously consumer property. Consumer owned mechanical meters must be replaced with the DSO owned electronic ones when necessary. As of today, electricity distribution companies obliged to install smart meters for consumers with over 800.000 kW h consumption per year. On the other hand, electricity distribution companies are free to decrease this consumption value for smart meter implementation with the approval of EMRA – Turkish Energy Market Regulatory Authority.

The table below shows the number status of electric meters for Turkey for each electricity distribution region.



Turkish electricity sector has a growing interest on Geographic Information Systems (GIS) GIS benefits organizations of all sizes and in almost every industry. Most of Turkish electricity distribution companies implemented GIS and started collecting information from the field and integrating with the other industrial systems.

The transformation journey of the Turkish sector for over the last decade is getting ready to pass another major milestone with **Turkey Smart Grid 2023 project (TAS2023)**.

**TAS2023** project is coordinated by **ELDER – Association of Electricity Distribution System Operators (**[www.elder.org.tr](http://www.elder.org.tr)**)** with the support of **EMRA - Turkish Energy Market Regulatory Authority** and handled by all 21 electricity distribution companies and planned to be completed in the second half of year 2017. ELDER is the umbrella organization of all electricity distribution companies and representing the whole sector in Turkey.

Within the scope of project, under main headlines like Smart Grid Management, Smart Embedded Systems, Smart Customers and Tariffs with Smart System Integration; many smart network technical domains like renewable energy integration, smart meters, demand side management, advanced network management systems (SCADA/DMS/OMS etc.), Geographical Information Systems, IT systems and integration, Cyber Security, Storage systems, Electric Vehicles, Communication Technologies are studied.

In this context, main objectives of TAS2023 are as follows;

* Planning the best timeline for DSOs’ transition to Smart Grid and defining unique strategy and road map for Turkish Electricity Distribution with benefiting from world’s best practices
* Defining benefits for every shareholder considering interoperability created with integration between IT (Information Technologies) and OT (Operational Technologies) used for Smart Grids
* Preparing methodology guide for cost benefit analysis for DSOs, Energy Market Regulatory Authority (EMRA), sector shareholders and whole country in the direction of developed smart grid strategy and planning a cost benefit efficient smart grid transformation
* Analyzing related legislations, recommending changes for updates to enable establishing smart grid systems and pave the way of smart network vision accordingly

With the aim of deciding national smart grid transition scenarios, definition of competency and maturity levels of systems currently used and planned to be used, definition of current situation of 21 electricity distribution companies with smart grid aspects considering the developments and expectations on smart grid technology. Along with these, evaluation of smart grid visions, goals, realized and decided to realize smart grid applications of different countries and international organizations are a part of the project. As a result of the project, with cost benefit analysis road map is being defined. Also, goals on legislation and human resources areas are being defined. With all these processes ELDER makes the coordination and effective communication between especially Ministry of Energy and Natural Resources and EMRA, with all shareholders.

TAS2023 project is planned to work in a comprehensive way with contribution of other shareholders related to smart grid technologies and supports of different organizations and institutions like Ministry of Energy and Natural Resources, Turkish Electricity Transmission Corporation, Information and Communication Technologies Authority, Ministry of Transport Maritime Affairs and Communications, Ministry of Environment and Urbanization. Besides, road map designed for Turkey’s transition to smart grid aimed to support highest possible participation of local technology and setting reference for all 21 electricity distribution companies.

With realizing smart grid applications it is expected to meet many expectations, like increasing efficiency with decreasing loss & theft, supply sustainability and improvement of energy quality, increasing network resiliency, providing consumer/demand side contribution, increasing connectable capacity for renewable production and reducing foreign dependency on energy supply, optimal use and management of network assets, providing transition to dynamic substructures having double sided energy and information flow from static networks, providing alignment with the EU acquis, R&D, supporting local technology and market development. On TAS2023 project, road map for transition is being designed accordingly. Within the scope of this project, current knowledge of sector is considered as a major project input with benefitting electricity distribution companies conducted R&D outputs subject to Smart Grid supported by EMRA.