Digital Transformation Effect on the Economics of the Gas Market

Roundtable input by *Türkiye*
EMRA

ERRA Natural Gas Markets and Economic Regulation Committee
March 7-8, 2024 / 19th Meeting (Bratislava, Slovakia)

Digitalization Level

- *Are some digitalization targets set from by the goverment side?*

- In the Eleventh Development Plan of our country, the subject of "Digital Transformation" is especially included. In this context, it is aimed to increase productivity and competitiveness in priority sectors by accelerating digital transformation.

- In addition, with the "National Technology Move", it is aimed to take the necessary steps to establish an economic order based on innovation and generating value from data in our country by applying Artificial Intelligence in all areas of socioeconomic life and increasing localization in the development of Artificial Intelligence technologies.

- Additionally, efforts are being made to provide many public services online.

Digitalization Level

- *What is the digitalization level in TSO and DSO side? Are there any official indicators to measure it (by the regulator/government)?*

- Via e-Government and mobile applications;
  - Services such as subscription termination and security fee payment are provided,
  - Interior installation projects can be presented digitally and passed through the approval process,
  - Consumers can follow the project presentation, approval and gas opening processes in the digital environment,
  - Call Center Applications provide uninterrupted service to consumers twenty-four hours a day,
  - It is possible to calculate estimated invoices and inquire about consumptions for at least the last 3 (three) years,
  - The consumer is allowed to access retrospective invoice-based information through the system,
  - In case the meter cannot be read, invoicing can be done if the index information is notified to the distribution company via mobile, fixed or electronic communication channels,
  - Consumption invoices, security fee and subscriber connection fee can be calculated through various modules on the distribution company's website,

Digitalization Level

- Consumers who exceed the annual consumption limit of 300,000 Sm^3, consumers who purchase natural gas to produce electrical energy, and cogeneration facilities that produce electricity and heat energy can perform remote reading operations as follows;
    - Ability to terminate gas supply remotely,
    - Early detection of meter failure,
    - Ability to track past consumption quantities and amounts,
    - Ability to examine some parameters such as temperature, pressure and upper calorific value of the consumed gas.

Digitalization Level

- **<u>One of the digital tools for natural gas market is the implementation of Organised Natural Gas Wholesale Market</u>**
- In line with Turkey's objective of becoming natural gas trading center, organized natural gas market has been **operational since 1st of September 2018.**
- Organised Natural Gas Wholesale Market is operated by Turkish **Energy Exchange (EXIST)**.
- This market design aims to let the market players trade **anonymously** in an **organised liberal market** operated under **continuous trade** principles, additionally letting the transmission system operator **balance the system** by entering into the continuous trade platform when needed.

Digitalization Level

Organised Natural Gas Wholesale Market

- Serves as a tool for the TSO to maintain the physical balance of the system,
- Serves as a platform where the market players can trade gas day- ahead, intraday and end of the day,
- Is the means for the market players to balance themselves,
- Indicates Market based reference prices,
- In the future will be a tool for demand side response.
- The whole transactions are held on line platform.

Digitalization Level

- **Another digital tool for natural gas market side is the Spot capacity tenders held carried out online platform.**

- **By 2020** Spot Capacity is introduced to the Turkish Natural Gas Market.
- The procedure is like Capacity Allocation Mechanism yet instead of Marginal/Rolling auctions the auctions will be **`Pay as bid`.**

- The capacity products currently are annually (30%)/quarterly (40%)/monthly (30%) but by mid 2020 day ahead and withinday auctions has been introduced.

- The entire application procedure and tender transactions are carried out, monitored and finalized online.

Digitalization Level

- *What is the share of smart meters? Are there any benefits to system operators and gas market for smart meter roll-out?*
- Although distribution companies do not have any mandatory practices regarding the use of smart meters as a legislative infrastructure, they carry out the use of smart meters through pilot applications within the scope of various R&D activities.
- Within the scope of studies carried out in pilot regions by distribution companies, the results are monitored by using smart meters within the scope of domestic consumption. The studies carried out include studies on establishing the communication infrastructure of the targeted smart gas meters and the development and integration of IOT platforms and system analysis programs.
- Additionally, using the LoRa WAN network; Remote reading of residential, commercial and consumer natural gas meters is included.

Digitalization Level

- In order for smart meter applications to become widespread, costs must be reduced, and the regulatory infrastructure must be prepared by regulatory authority. It seems likely that regulations will be made in this area in the future, following the increase in the practices of distribution companies in our country.
- There are three major benefits of popularizing smart meters. These are issues such as operational efficiency, smart energy distribution and customer satisfaction.

Digitalization Level

- *What is the cost & efficiency gain?*

- ***Costs;***
  - initial investment cost,
  - meter investment cost,
  - operating cost,
  - meter reading costs,
  - calibration costs,
  - depreciation cost and
  - communication costs.

- ***Benefits;***
  - -operational benefits,
  - -measurement difference - precise measurement,
  - -reduction of commercial losses,
  - -benefit on issues related to problematic customers,
  - -situations related to gas cutting and
  - -issues related to customer complaints.

Digitalization Level

- *Are there any cybersecurity measures in place?*

- At the end of 2014, our institution first made it mandatory for the sector to bring the corporate information and industrial control systems they operate into compliance with the standards.

- Studies to determine the penetration test methodology to be applied in the energy sector have been completed, taking into account the sensitivity of the relevant industrial control systems, and the procedures and principles for Industrial Control Systems Used in the Energy Sector have been published.

- Finally, the "Cyber Security Competence Model Regulation in the Energy Sector" has been issued in order to improve the cyber security of industrial control systems used in the energy sector according to constantly evolving needs and threats, to define the minimum acceptable security level and to increase the cyber resilience, adequacy and maturity of these control systems.

THANK YOU FOR YOUR ATTENTION!

fkaya@epdk.gov.tr