

ERRA's Energy Transition Task Force (ETTF) and the Regulatory Roles Towards Energy Transition

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Energy Market Regulatory Authority of Türkiye



Okan YARDIMCI

Education

2019 - 2021 (Postdoc)	Energy Geopolitics	University of Oxford, UK
2010 - 2016 (Ph.D.)	Finance	Hacettepe U., TR
2013 - 2015 (LL.M.)	Law	Penn State U., USA
2008 (Executive P.)	Economics of Regulation, Public Ut.	Michigan State U., USA
1999 - 2004 (B.Sc.)	Petroleum and Natural Gas Eng.	METU, TR

Work Experience

2006 - 2019, 2021 - cont.	Asst. Energy Expert, Energy Expert, Head of Digital Transformation Group, EMRA, TR	
2019 - 2021	Researcher, University of Oxford, UK	
2004 - 2006	Reservoir Engineer, Perenco (a French originated IOC)	

ERRA Experience

2023-2024	Member of the Energy Transition Task Force (ETTF) Lecturer at the 1 st ERRA-RETA Training on Energy Transition Lecturer at the ERRA Summer School
2017-2019	Presenter at the 1 st ERRA Educational Workshop on Innovation and Regulation Presenter at the ERRA Investment Conferences
2011-2013	Lecturer at the ERRA Tariff Trainings / Summer Schools

Energy Transition Task Force (1/2)

Prior to ETTF (2022)

- [E-Mobility: Status Update, Plans and Related Regulatory Issues - ERRA Internal Survey](#)
- [Regulatory Sandboxes Workshop](#)
- [ERRA Research Paper: Hydrogen – A Regulatory Approach](#)

First Meeting of ETTF: February 27, 2023



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Commissioner
Public Services Regulatory Commission
(PSRC), **Armenia**



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Senior Specialist International Affairs
Division
National Energy Regulatory Council
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Mr. Aly Mar Ndiaye

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Mr. Okan Yardımcı

Group Head, Energy Transition Department
Energy Market Regulatory Authority
(EMRA), **Türkiye**

Energy Transition Task Force (2/2)

ERRA
ENERGY REGULATORS
REGIONAL ASSOCIATION

A - Z

**GLOSSARY OF
ENERGY TRANSITION TERMS**

April 2023

**ERRA ENERGY
TRANSITION
NEWSLETTER**

2023/1

ENERGY REGULATORS REGIONAL ASSOCIATION (ERRA)

ERRA **RE TA**
Regulatory
Energy Transition
Accelerator

Hybrid Training

**REGULATION IN
ENERGY TRANSITION**

May 22 – 26, 2023 | Budapest, Hungary | **MEKH**

Supported by:

ERRA Energy Regulators Regional Association
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**STATUS QUO REPORT
ON ENERGY TRANSITION
IN 15 ERRA MEMBER COUNTRIES**

Prepared by:
Ms. İşin ÜNVER, Energy Transition Expert

Publishing by the ERRA Secretariat

October 2023



**ERRA REPORT: POLICY AND REGULATORY
LESSONS-LEARNT FROM COUNTRIES
SPEARHEADING ENERGY TRANSITION**
Sweden, Costa Rica, Brazil, New Zealand and Spain

PREPARED BY: **Ms. İşin ÜNVER**, ERRA ENERGY TRANSITION EXPERT, ERRA ENERGY
TRANSITION TASK FORCE

January 2024

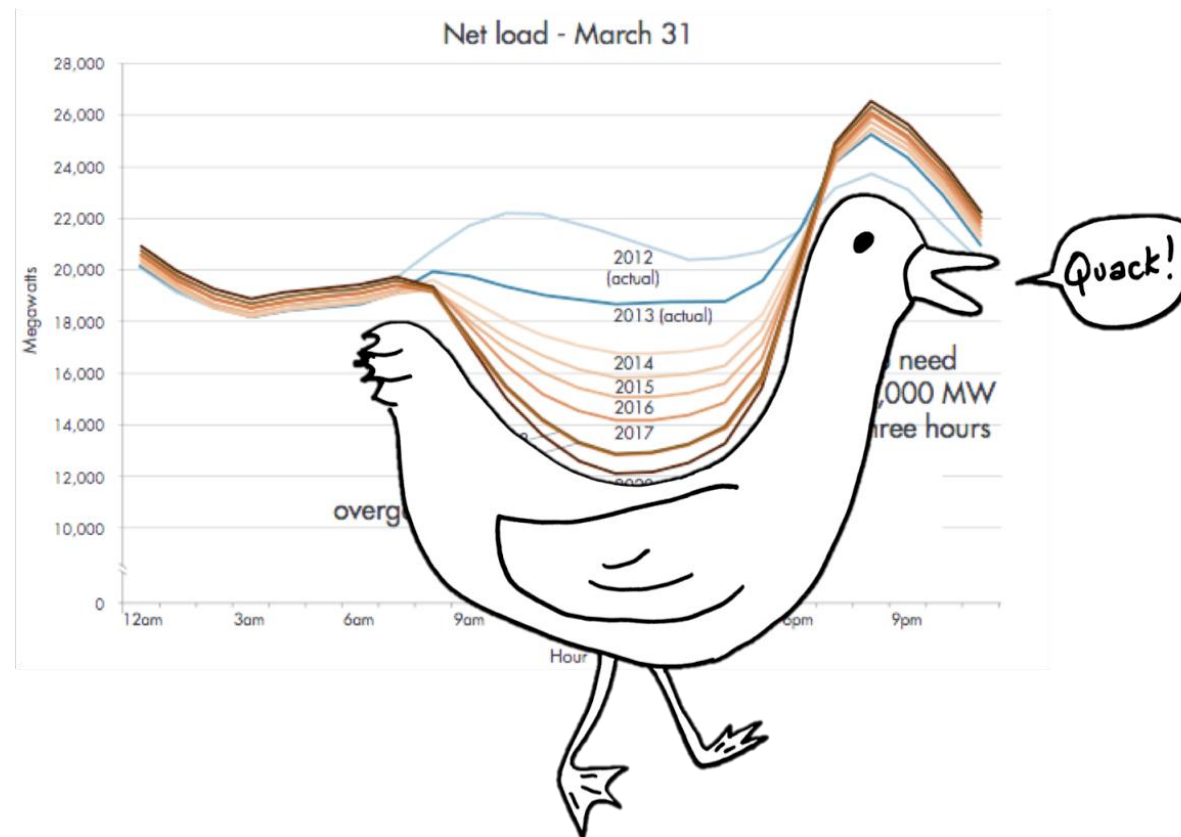
Regulatory Roles Towards Energy Transition (1)

Ensuring fair and non-discriminatory access to the grid for renewable energy producers



Regulatory Roles Towards Energy Transition (2)

Introducing incentives for grid flexibility solutions, such as demand response and flexible grid management



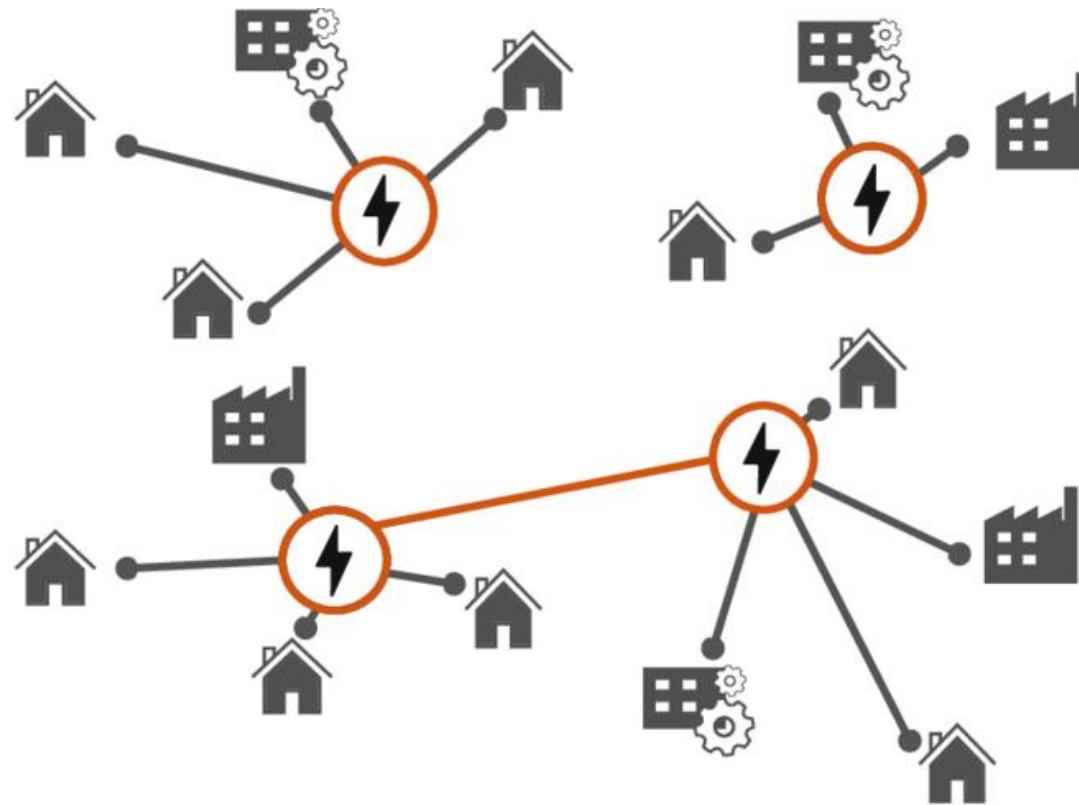
Regulatory Roles Towards Energy Transition (3)

Developing regulations to support the deployment and integration of energy storage technologies



Regulatory Roles Towards Energy Transition (4)

Encouraging the development of decentralised energy systems



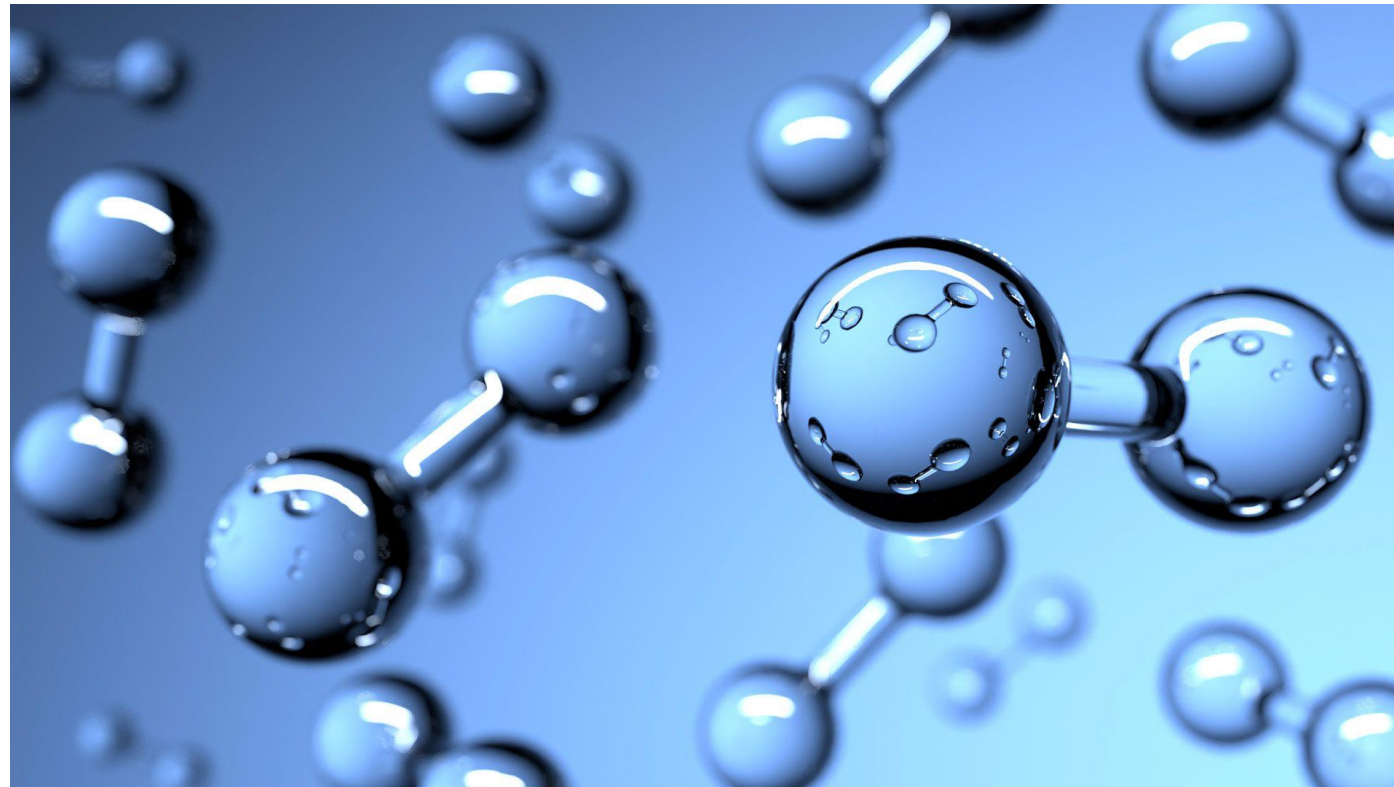
Regulatory Roles Towards Energy Transition (5)

Ensuring a sustainable bioenergy production and setting standards



Regulatory Roles Towards Energy Transition (6)

Formulating regulations to support the development and use of hydrogen as a clean energy carrier, including safety standards and infrastructure requirements



Regulatory Roles Towards Energy Transition (7)

Implementing regulations for the development of EV charging infrastructure



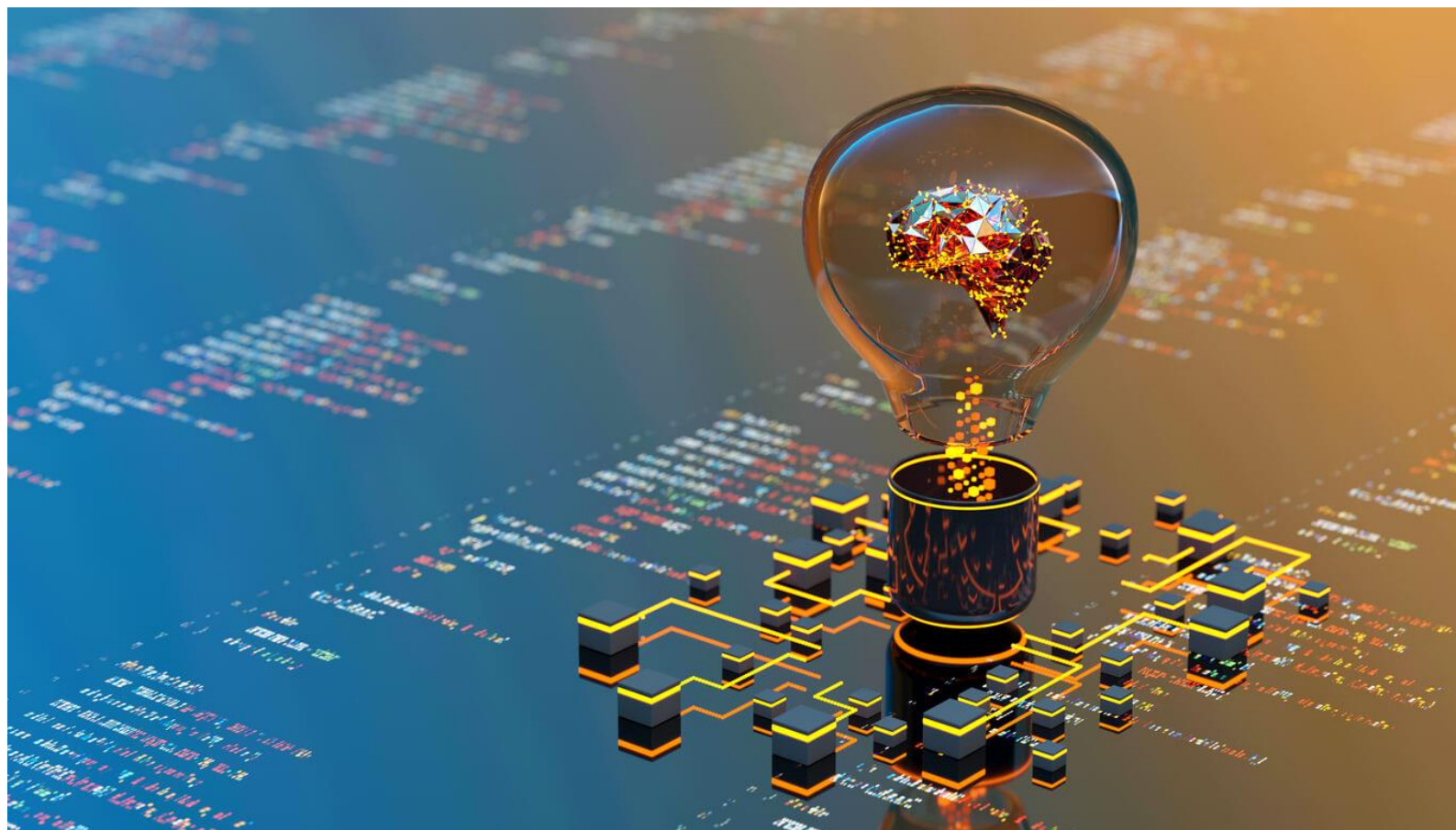
Regulatory Roles Towards Energy Transition (8)

Fostering community and citizen involvement in energy projects through regulations that enable local ownership, benefit-sharing mechanisms, and participatory decision-making



Regulatory Roles Towards Energy Transition (9)

Ensuring that regulations keep pace with innovations



Regulatory Roles Towards Energy Transition (10)

Implementing regulatory sandboxes to allow for the testing and development of innovative energy technologies and business models in a controlled environment, fostering experimentation and learning



Regulatory Roles Towards Energy Transition (11)

Facilitating the integration of digital technologies and smart grids into the energy infrastructure



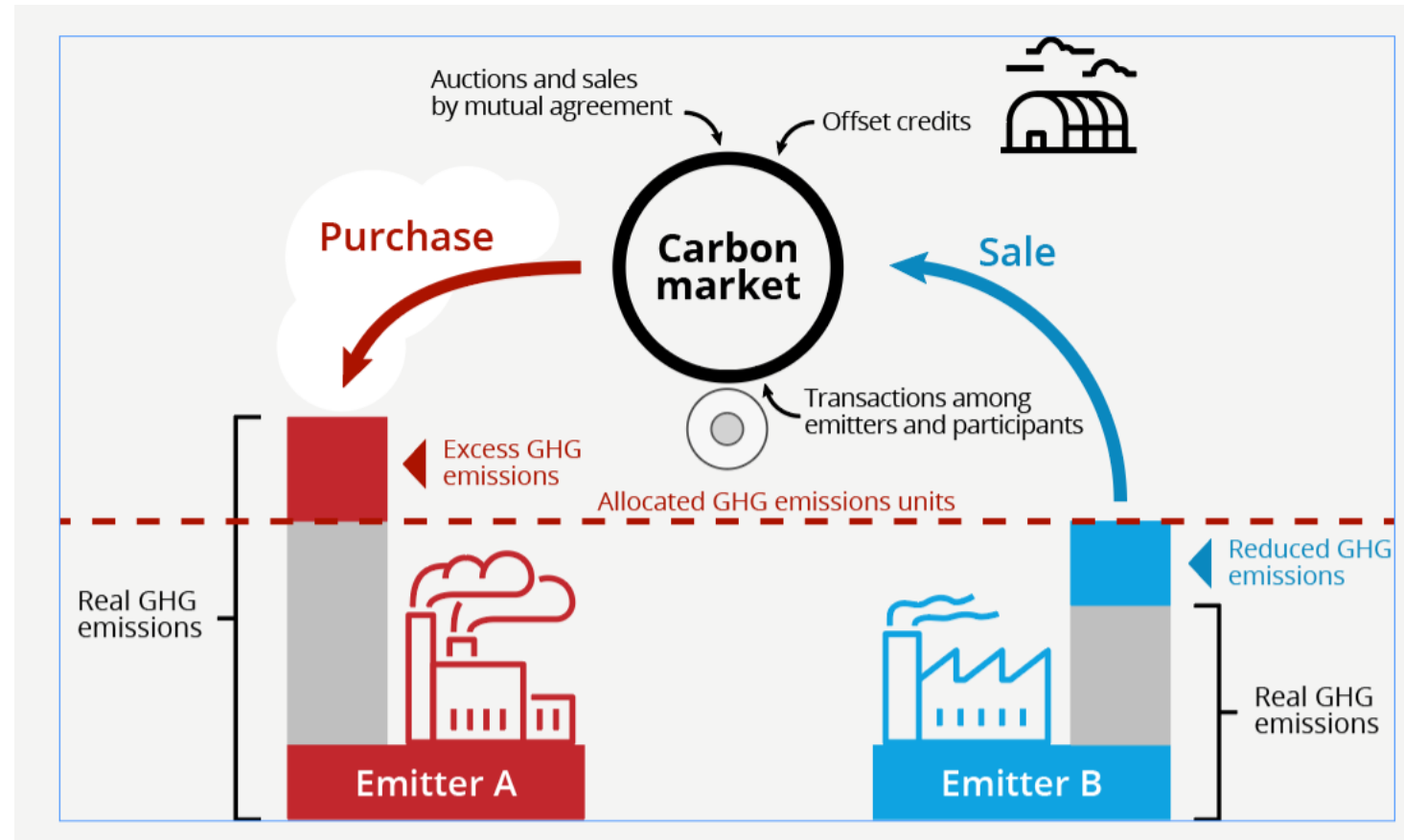
Regulatory Roles Towards Energy Transition (12)

Implementing regulations to safeguard energy infrastructure from cyber threats



Regulatory Roles Towards Energy Transition (13)

Engaging in carbon market

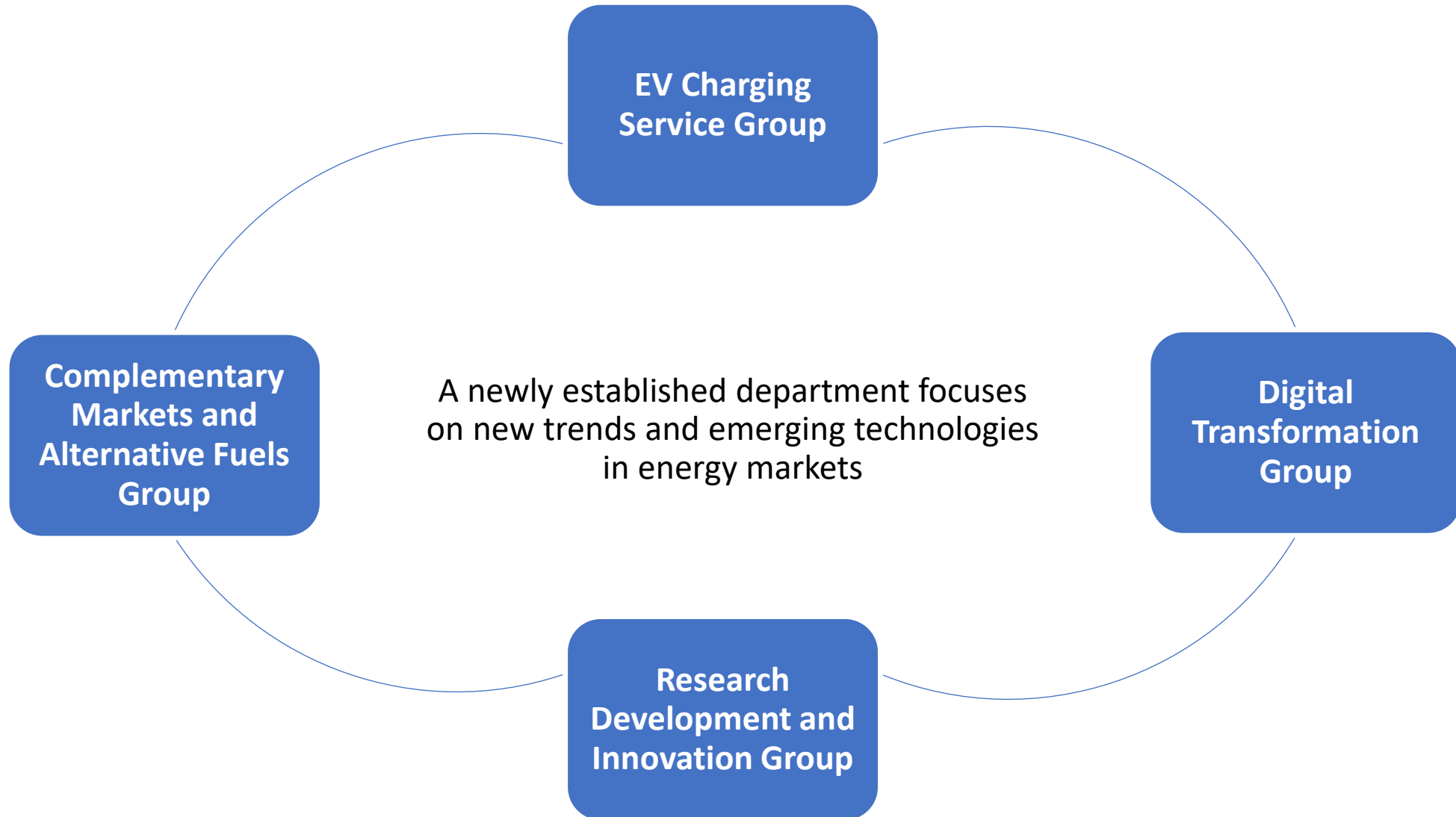


Regulatory Roles Towards Energy Transition (14)

Developing comprehensive energy transition plans and roadmaps that provide a clear vision for the transition, including regulatory milestones and targets.



Energy Transition Department of EMRA

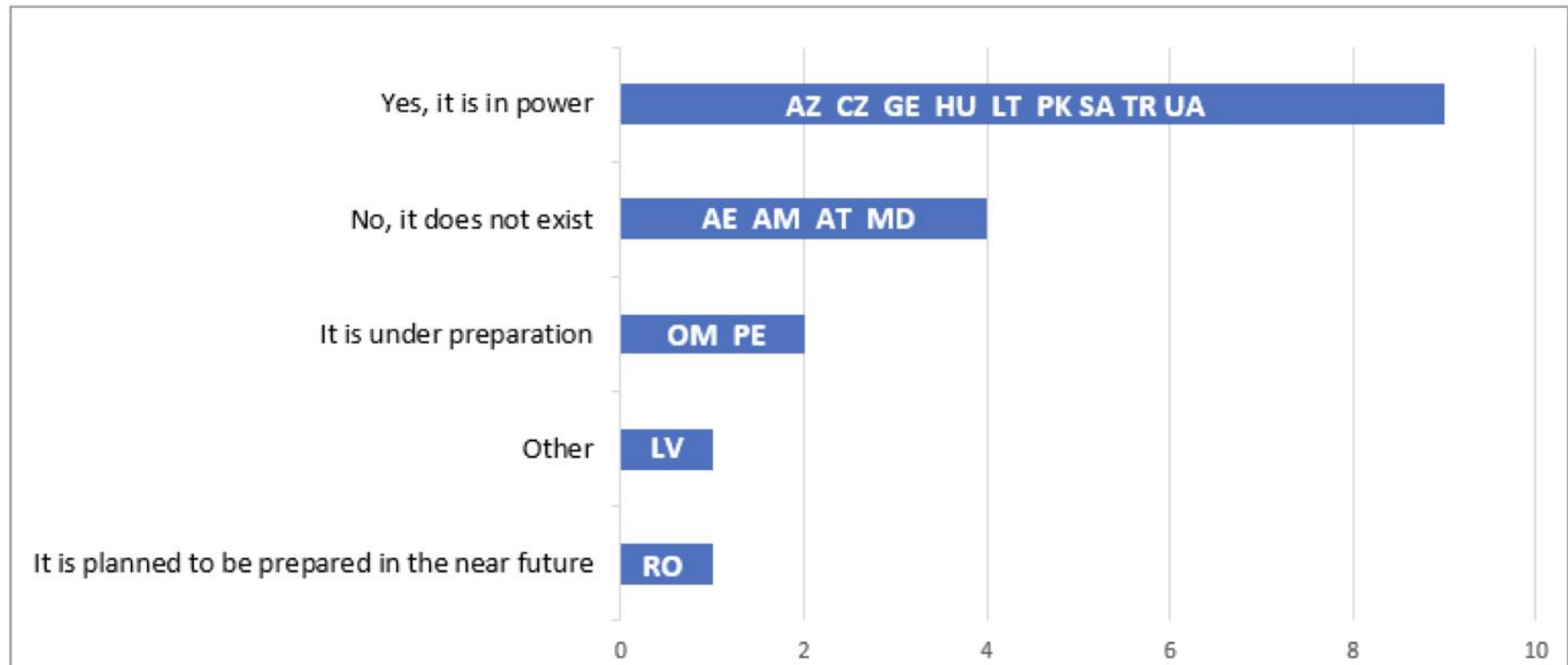


EVs (1840s - 2024)



E-Mobility: Status Update, Plans and Related Regulatory Issues - ERRA Internal Survey

1.1. Is there any legal framework regulating the e-mobility related issues in power in your country?



EV Charging Service – Legislative Steps

1- Law Amendment

- ❑ (With the Additional Article added to the Electricity Market Law No. 6446 on December, 2021) In line with the goal of creating an electric vehicle ecosystem, arrangements have been made to establish an EV charging service market with adequate and sustainable charging infrastructure.

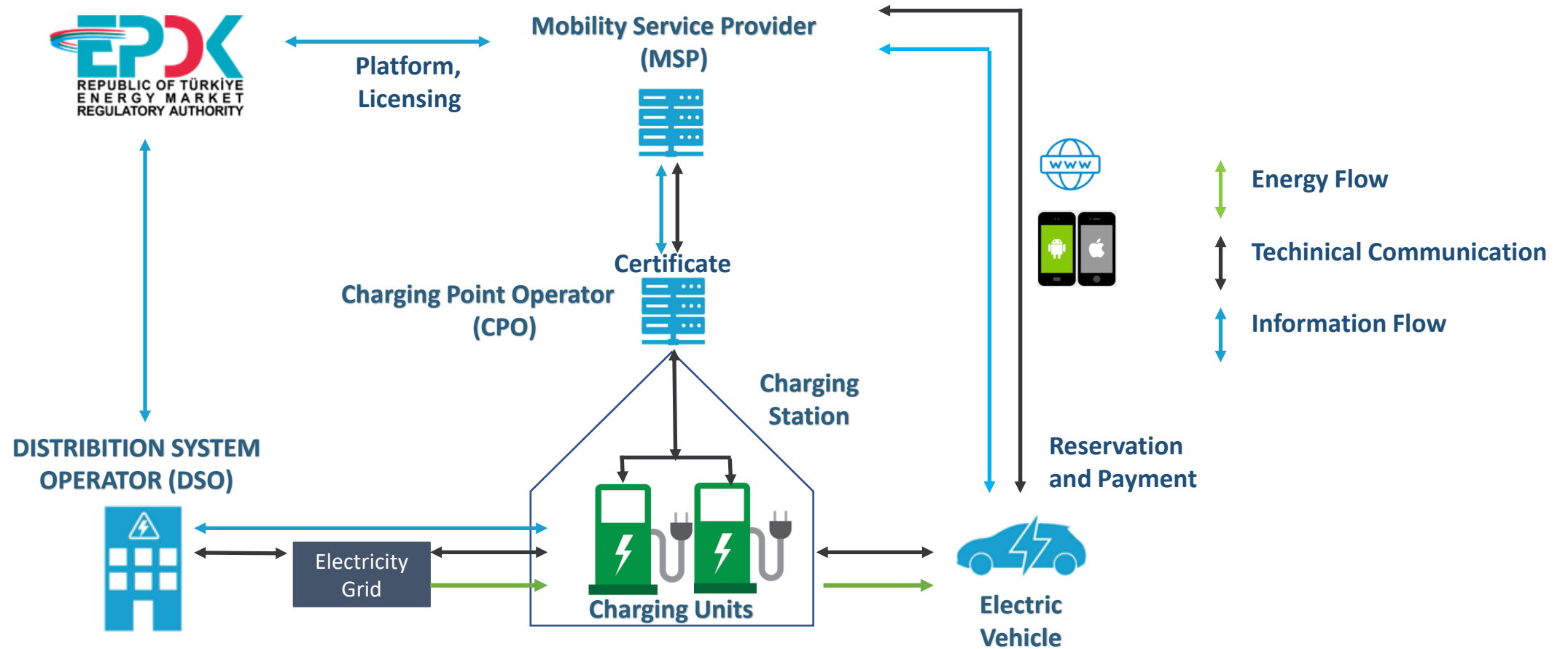
2- Charging Service Regulation

- ❑ Charging Service Regulation has been prepared within the scope of establishment and operation of charging points and charging stations, establishment of charging network, licensing of charging network operators (Mobility Service Providers, MSPs), regulation of MSPs' activities, rights and obligations and establishment/operation of Free Access Platform.

3- Procedures and Principles of Licence Application

- ❑ Requirements (licence fee, etc.) for applications

Topology of EV Charging Service



Projections

	2023	2025	2030
Electric Vehicle	<ul style="list-style-type: none"> Electric vehicle sales market share to reach 3% Electric vehicle stock to reach approximately 45 thousand vehicles 	<ul style="list-style-type: none"> Electric vehicle sales market share to reach 6% Electric vehicle stock to reach approximately 160 thousand vehicles 	<ul style="list-style-type: none"> Electric vehicle sales market to reach 25% Electric vehicle stock to reach approximately 1.6 million vehicles
Infrastructure	<ul style="list-style-type: none"> Having a total of 12,500 public charging points (30% DC) installed 	<ul style="list-style-type: none"> Having a total of 30,000 public charging points (30% DC) installed 	<ul style="list-style-type: none"> Having a total of 160,000 public charging points (35% DC) installed

Rights and Responsibilities of a License Holder (MSP)

Mobility Service Provider

RESPONSIBILITIES

- To provide charging service continuously and in high quality,
- To provide charging service to everyone (all EVs) without discrimination,
- To determine, announce and apply the charging service fee in accordance with the legislation,
- Not to apply an extra fee within the scope of the charging service,
- To establish and keep the necessary management, audit and registration system in operation,
- To set up and operate the charging station in accordance with technical requirements,
- A charging network consisting of at least 50 charging points shall be established within 6 months from the effective date of the license,
- At least 5% of the charging points in the charging network and at least 50% of the charging points on the highways and state roads shall be DC 50 kW charging points.

RIGHTS

- To establish and operate a charging station connected to its own charging network throughout the country,
- To permit a certificated CPO to establish or operate a charging station connected to MSP's charging network,
- To offer loyalty agreements to EV users (price discount is regulated - max. 20%)

Prices

- Prices shall be presented and announced in a simple, clear and easily comparable way.
- Standard unit energy price (TL/kWh) shall be used as a pricing format.
- Not to apply an extra fee within the scope of the charging service.
- Different prices may be applied according to the types and power of charging connectors.
- It is mandatory to provide charging service to all EVs, and the licensee can apply price discounts up to 20% to the users with whom they have signed a loyalty agreement.
- At least one of the mobile payment system options has to be provided for all EV users.

Price Regulations



North America

Based on time (minute/hour)
Based on energy (kWh)
Hybrid (%X time, %Y energy)

From time based to energy based pricing

Europe

Based on time (minute/hour)
Based on energy (kWh)
Hybrid (%X time, %Y energy)

China

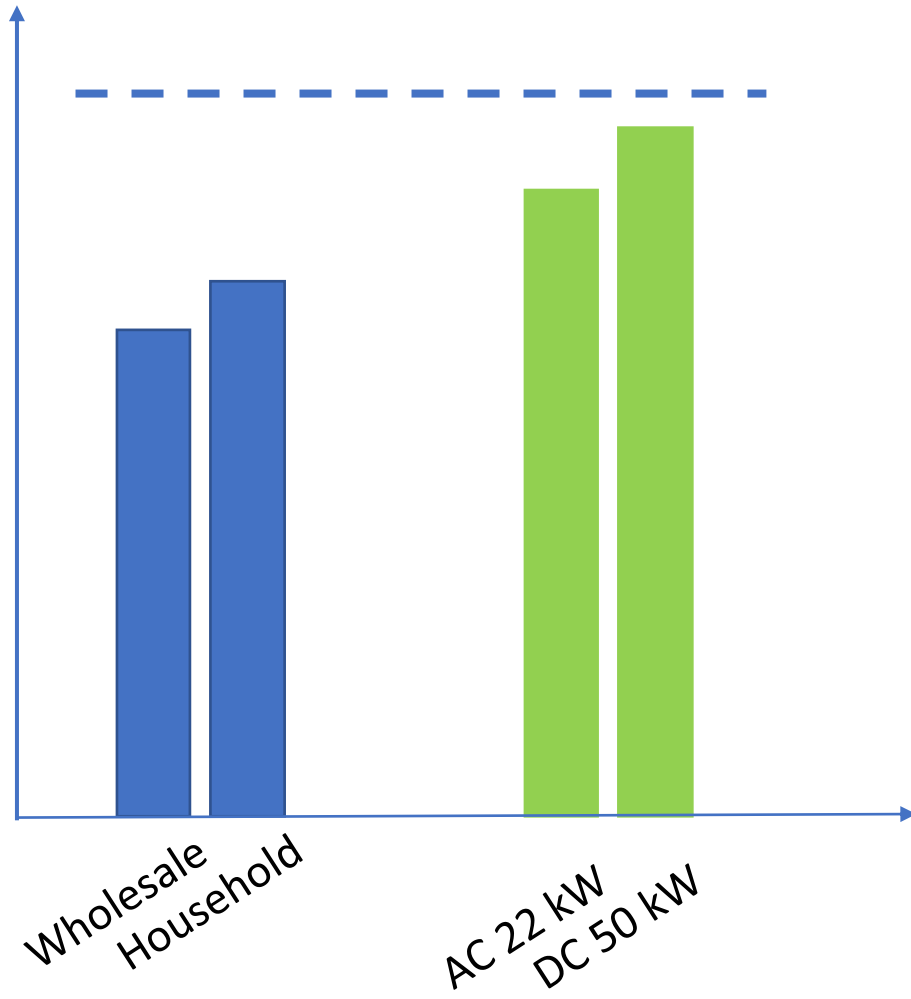
Unit energy price (kWh)

Regional price caps
Nationwide regulations

Monitoring of Prices

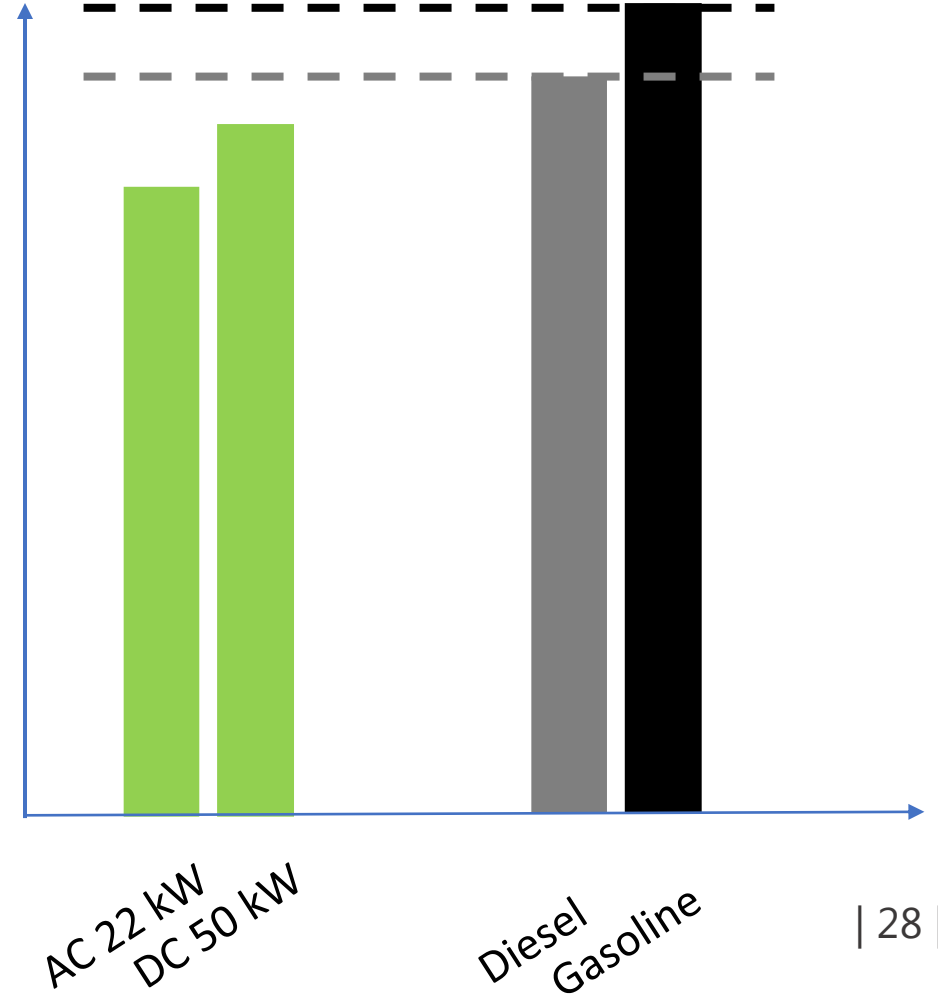
METHOD - 1

(Comparison of charging fees with electricity prices)



METHOD - 2

(Comparison of charging fees with fuel prices)



Monitoring of Prices

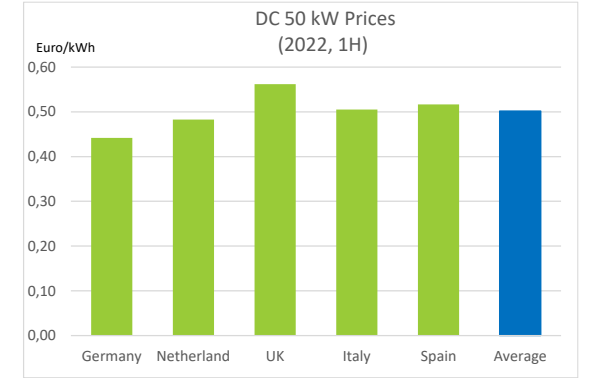
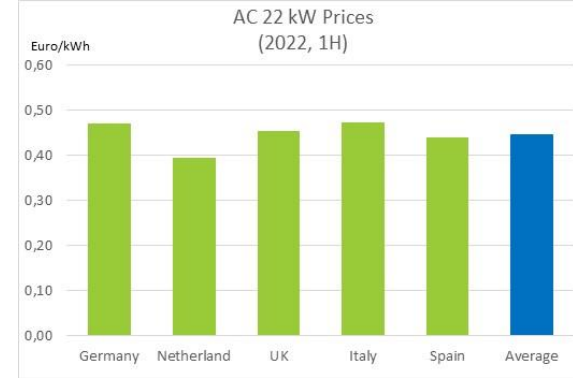
METHOD - 3

(Setting tariffs based on the costs)

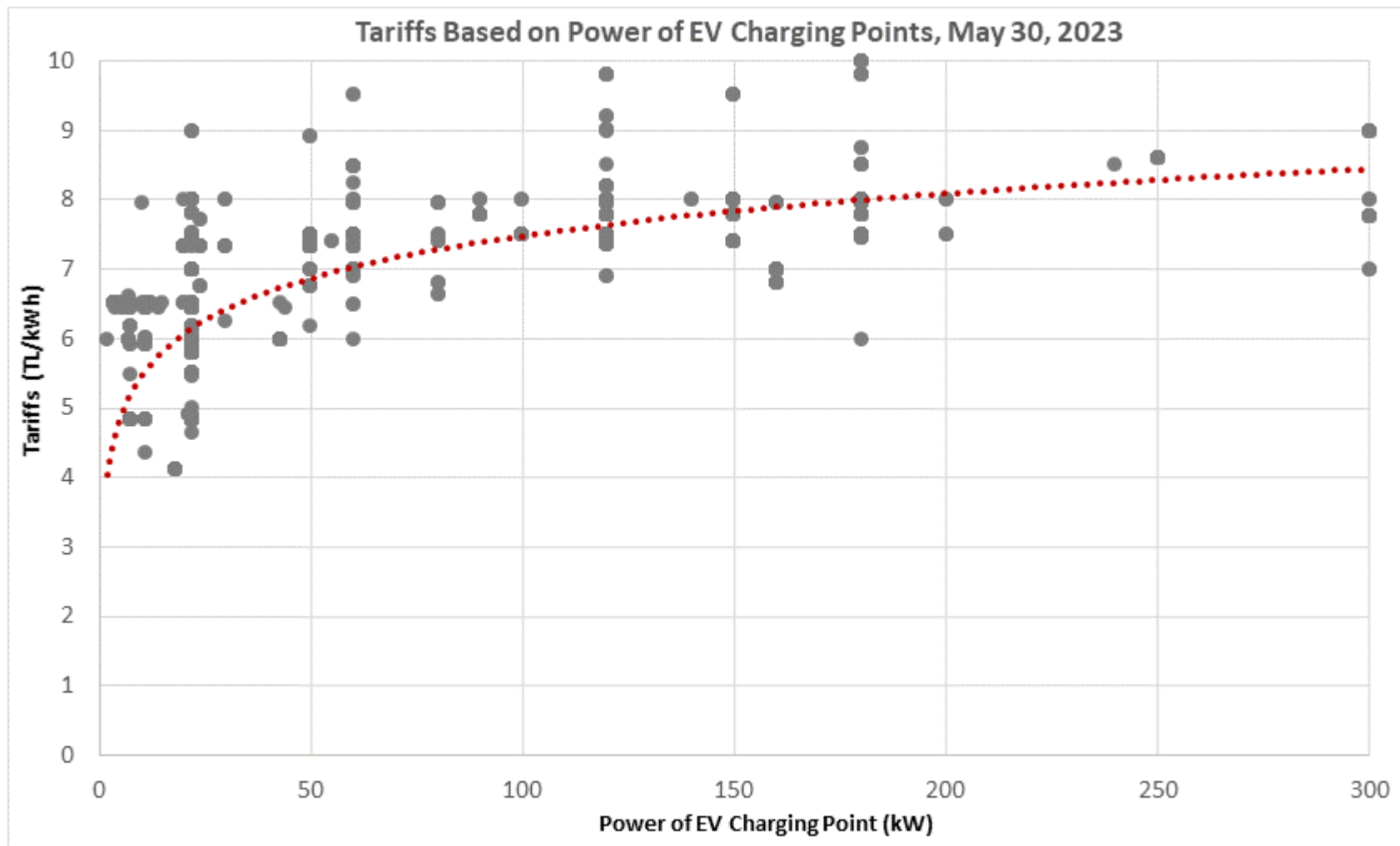
AC 22 kW	
CAPEX	
Ekipman Maliyeti (Euro)	
Ekipmana Yönelik Kurulum Maliyeti (Euro)	
Bağlantıya Yönelik Kurulum Maliyeti (TL)	
Kur (Euro/TL)	
Toplam Ekipman ve Kurulum (TL)	
Lisans Bedeli (TL)	
Ünite Başına Bedel (TL)	
Yazılım Maliyeti (TL)	
Ünite Başına Bedel (TL)	
Ünite Başına CAPEX (TL)	
OPEX	
Aylık Toplam Personel Gideri (TL)	
Genel Yönetim	
Satış	
Proje	
Montaj	
Lojistik	
Yazılım	
Çağrı Merkezi	
Diğer	
Yıllık Toplam Personel Gideri (TL)	
Ünite Başına Yıllık Personel Gideri (TL)	
Aylık Araç-Ofis Gideri (TL)	
Araç Kira	
Yakıt	
Telekom	
Ofis	
Diğer	
Yıllık Toplam Araç-Ofis Gideri (TL)	
Ünite Başına Yıllık Araç-Ofis Gideri (TL)	
Ünite Başına Diğer Giderler (TL)	
Ünite Başına Yıllık Kontrol - Bakım Gideri (TL)	
Ünite Başına Yıllık Sigorta Bedeli (TL)	
Ünite Başına Yıllık Lisans Bedeli (TL)	
Ünite Başına Roaming Maliyeti (TL)	
Ünite Başına Yıllık Yazılım Maliyeti (TL)	
Ünite Başına Diğer Maliyet (TL)	
Ünite Başına Yıllık OPEX (TL)	
TARİFE	
AOSM	
İtfa (TL)	
Makul Getiri (TL)	
Ünite Başına Yıllık Gelir Gereklinimi (TL)	
Üniteden Yıllık Hizmet Verilen Enerji (kWh)	
Elektrik Tarifesi (TL/kWh)	
Şarj Ağı İşletmecisi Makul Pay (TL/kWh)	
Makul Şarj Hizmet Bedeli (TL/kWh)	
Şarj Ağı İşletmecisi Payı / Elektrik Tarifesi	

METHOD - 4

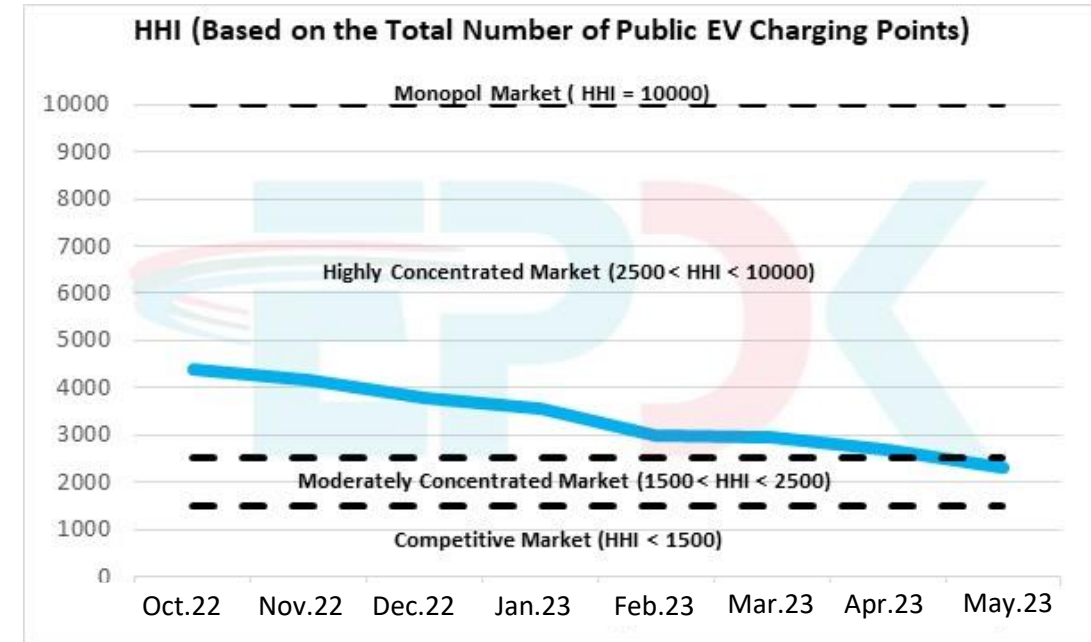
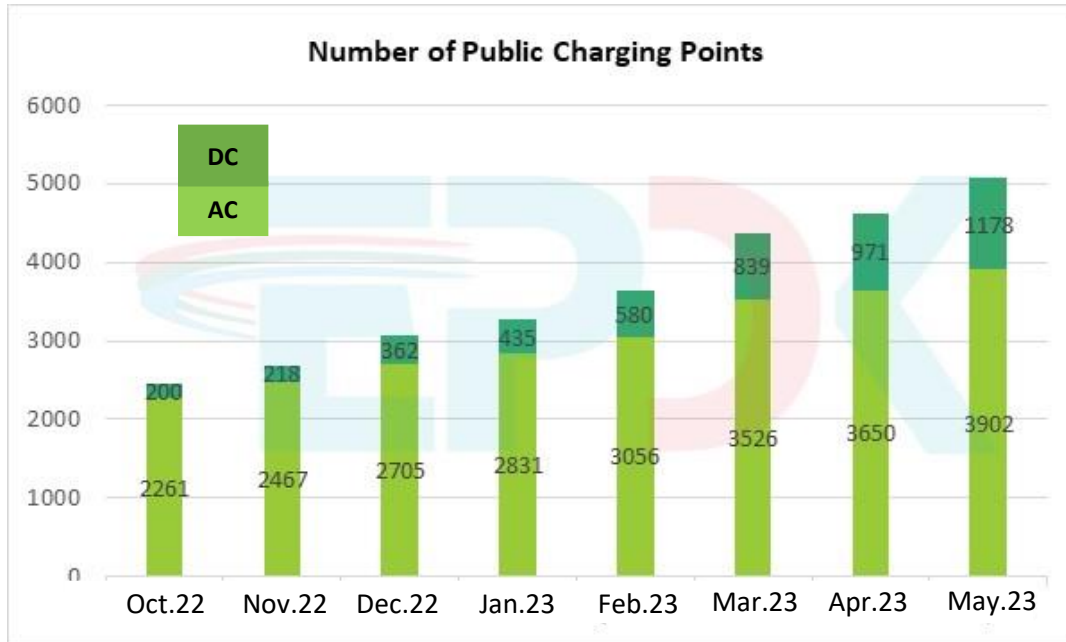
(Comparison of applied charging fees with the fees in other countries)



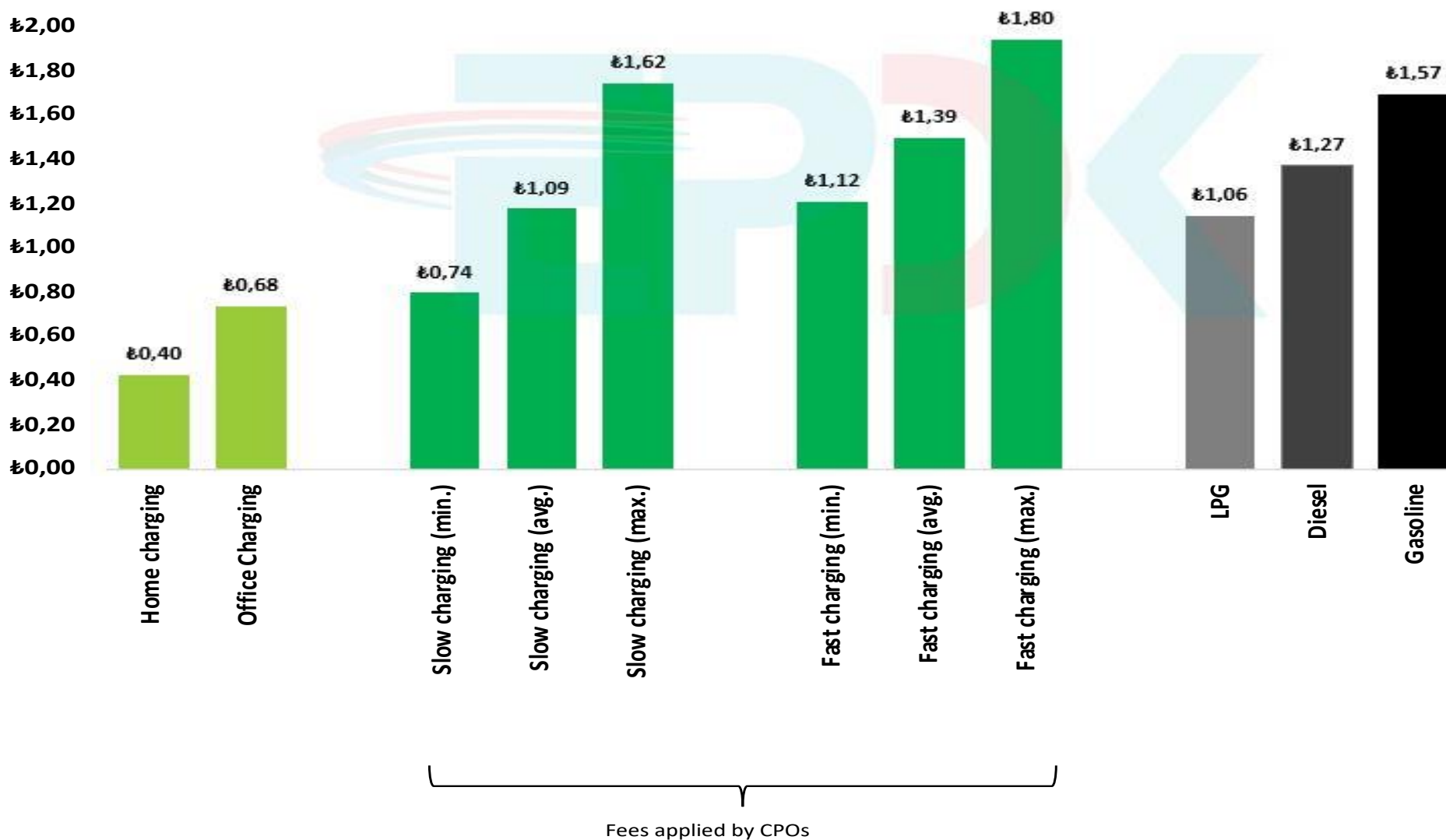
Tariffs (Türkiye)



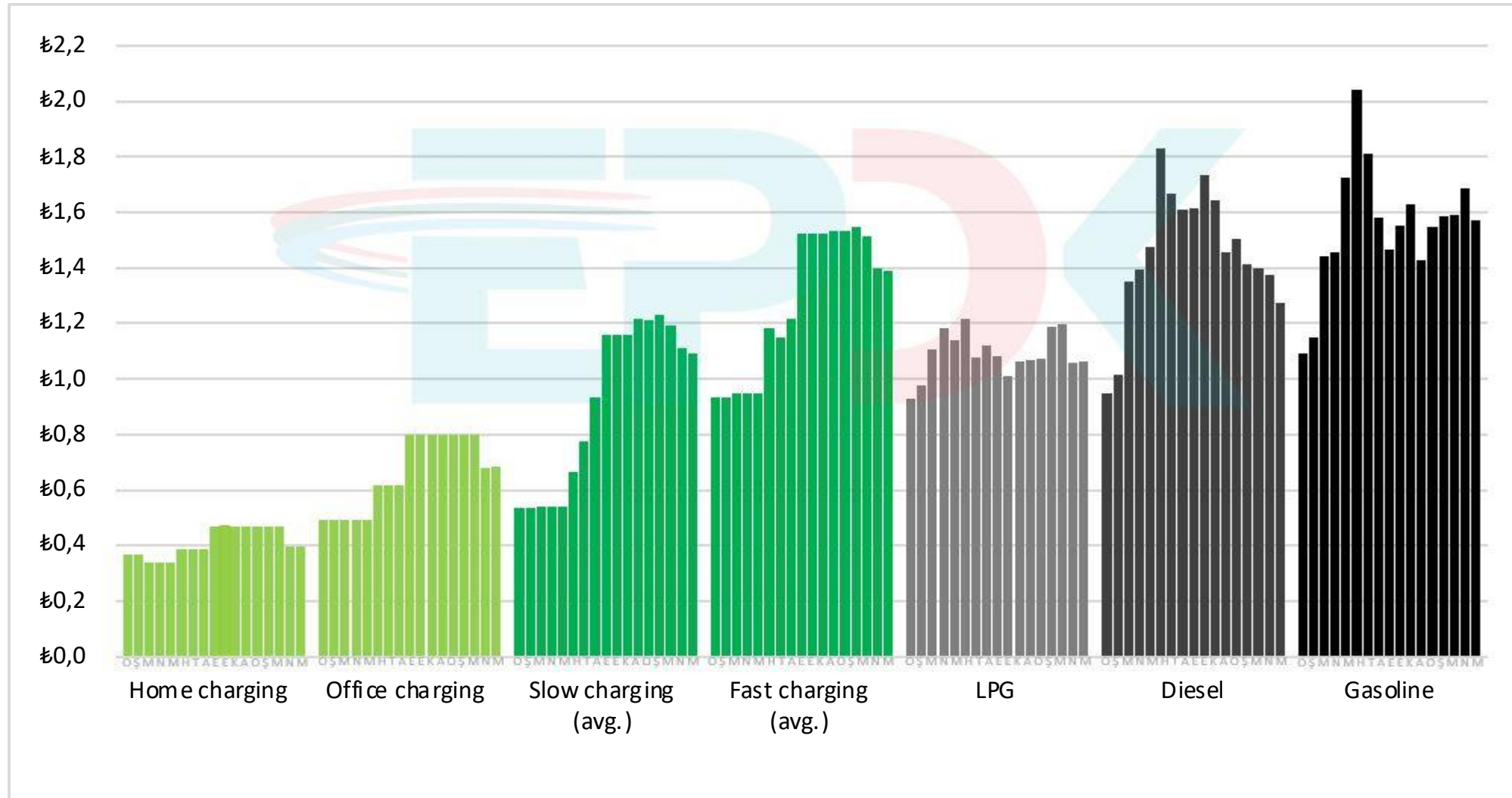
Number of Charging Points and Level of Competition



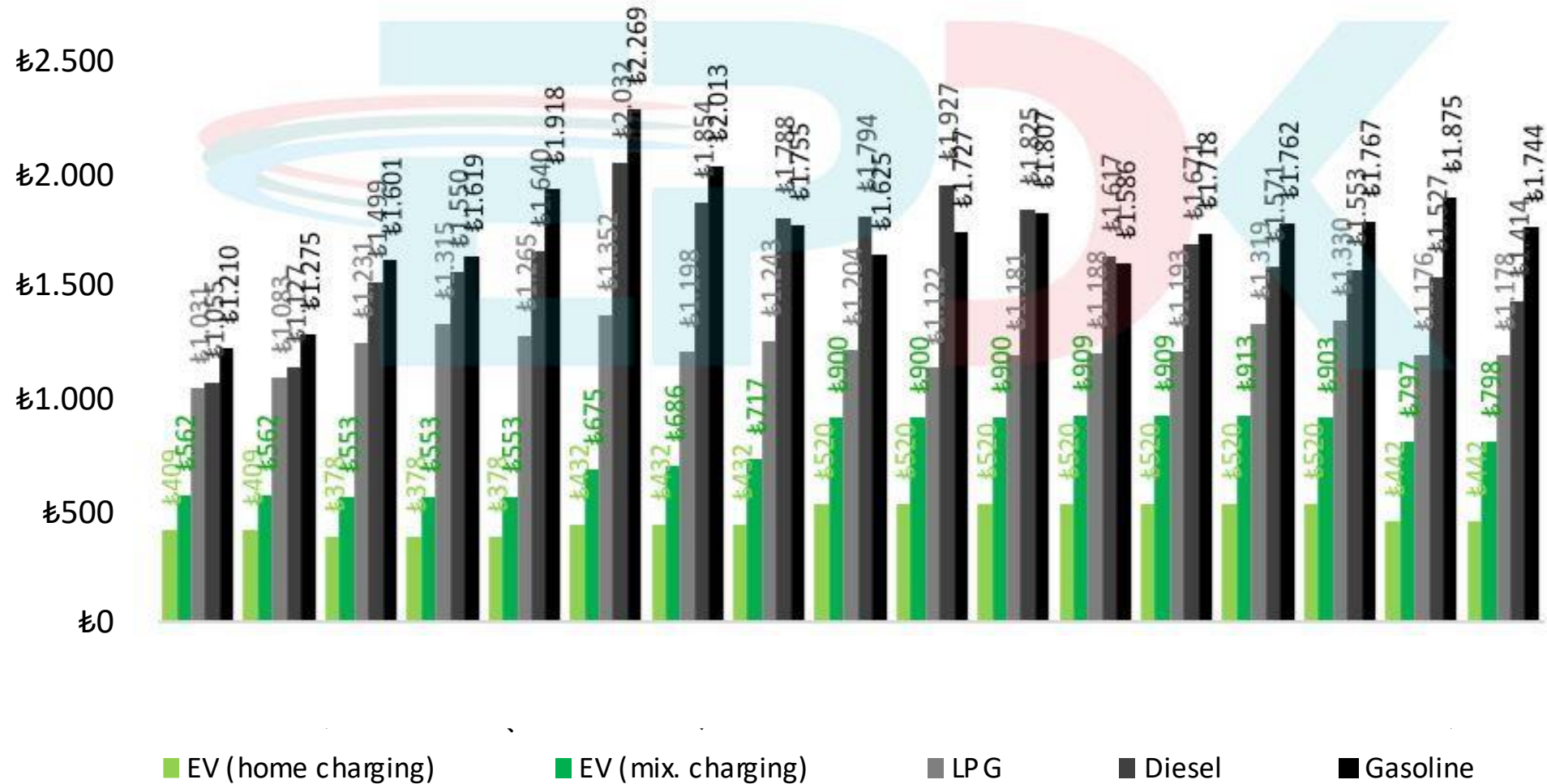
Cost per kilometer (May 2023)



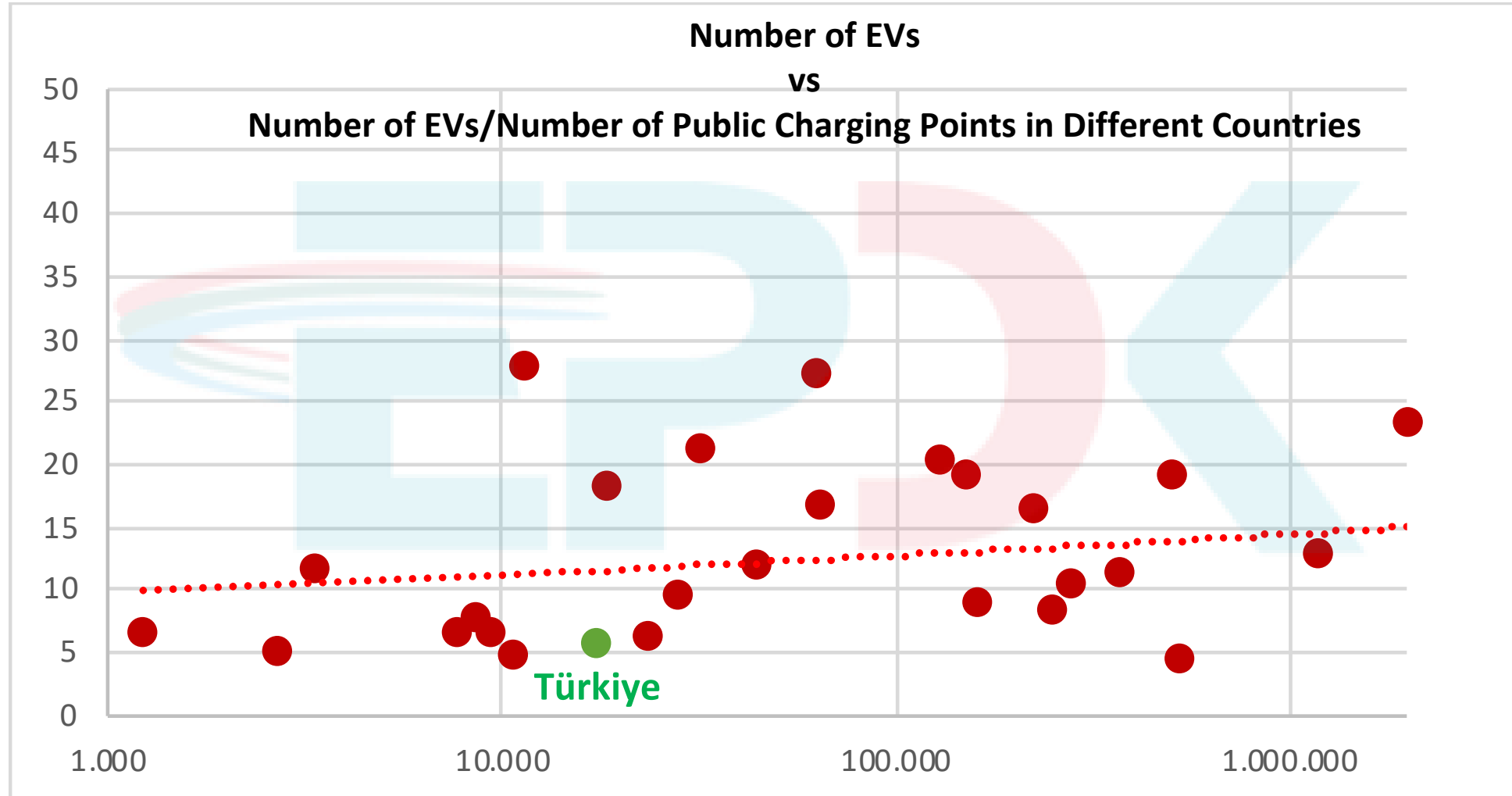
Cost per kilometer (January 2022 - April 2023)



Monthly Fuel Costs (January 2022 - May 2023)



Adequacy of Infrastructure



Free Access Platform

➤ For Public Charging Stations;

- Static Data

Geographical locations charging stations, number of connectors, types and powers of connectors, payment methods

- Dynamic Data

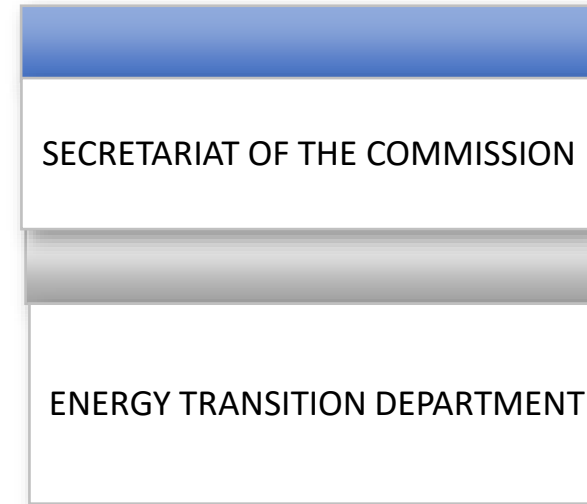
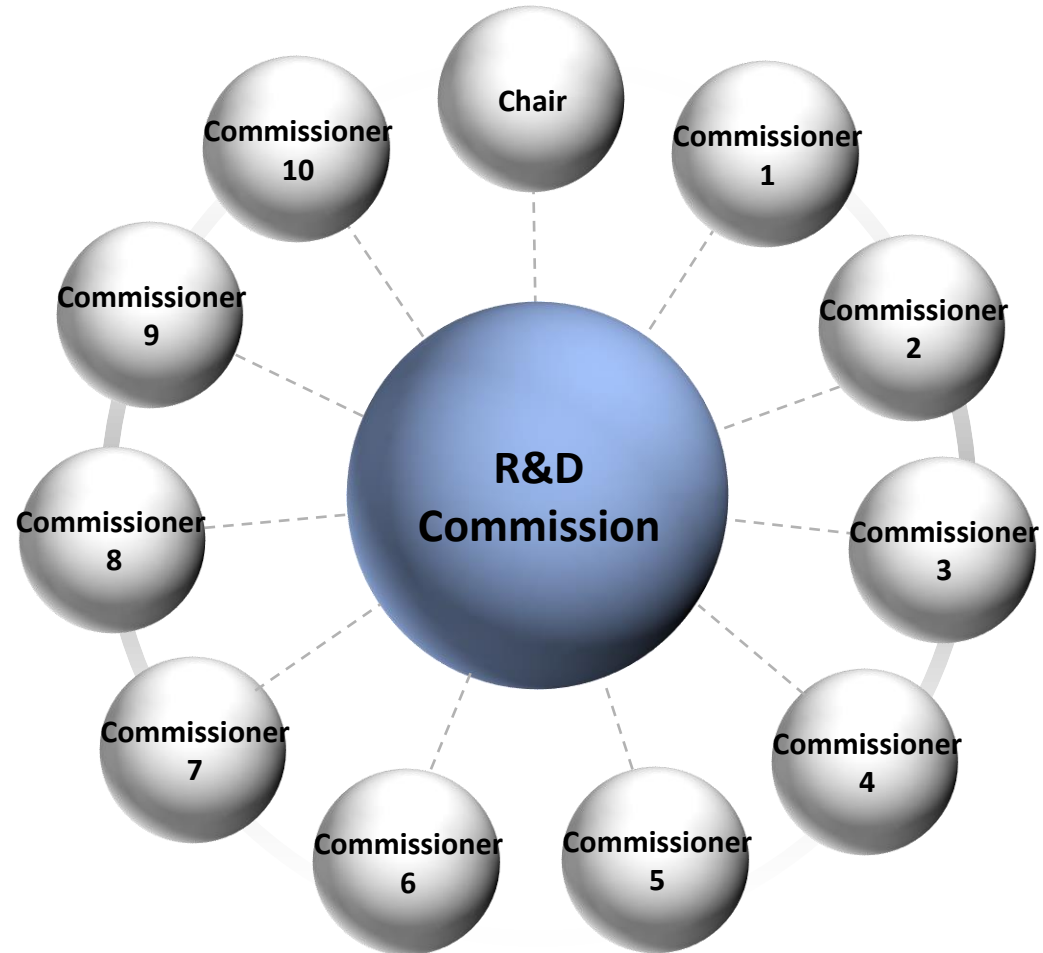
Availability and charging service prices within a 24-hour period displayed on the platform.

Sample interface:

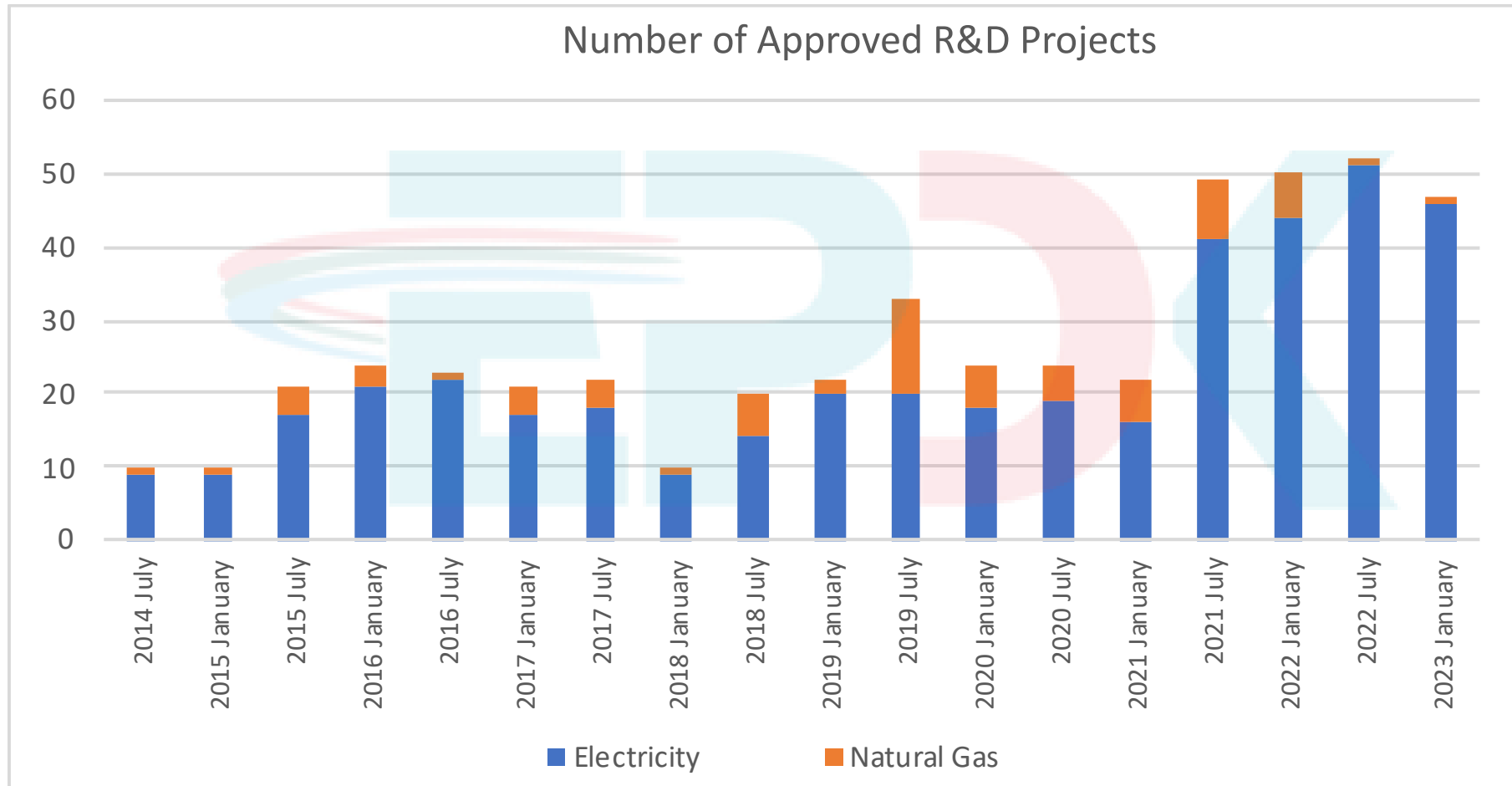
The image displays a mobile application interface for finding and managing public charging stations. The top part shows a map with a search bar labeled 'İstasyon Ara' and a list of nearby stations. The bottom part shows a detailed view of a station named 'Vadi İstasyon' located at 'Yukarı Ayrancı, Mesnevi Sokağı, 1452. Caddde, Çankaya/Ankara'. The station has 2 connectors and is 1.5 km away. The interface shows the status of the connectors: AC type 2 (2 available) and DC CCS (1 available). The pricing is 6 TL/kWh for charging and 5.5 TL/kWh for subscription. The availability schedule is as follows:

Time Period	Status	Duration
09:00 - 12:30	Müsait	3 saat 30 dakika
12:35 - 14:15	Dolu	1 saat 40 dakika
14:20 - 14:50	Dolu	30 dakika
14:55 - 16:20	Müsait	1 saat 25 dakika
16:25 - 19:00	Dolu	2 saat 35 dakika

Approval of DSOs' R&D Projects

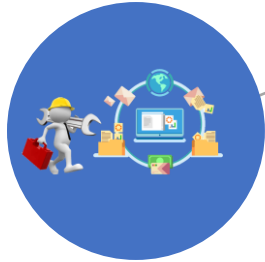


R&D Projects

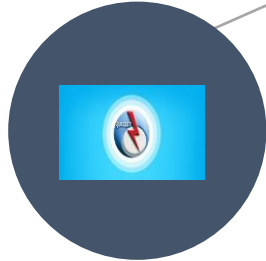


An Example of R&D Projects

Power Outage / Fault Notifications



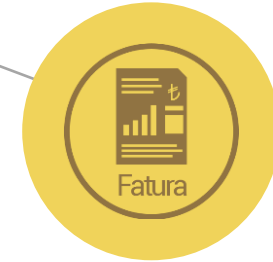
Other Notifications



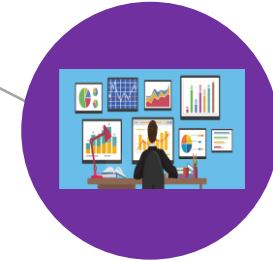
Smart Home Management



MASS Mobile App



Instant and Historical Consumption Data Analysis



Service Quality Surveys



Regulators' Roles on Innovation

Innovation and Energy Regulation

Including Report on ERRA Survey in 2016

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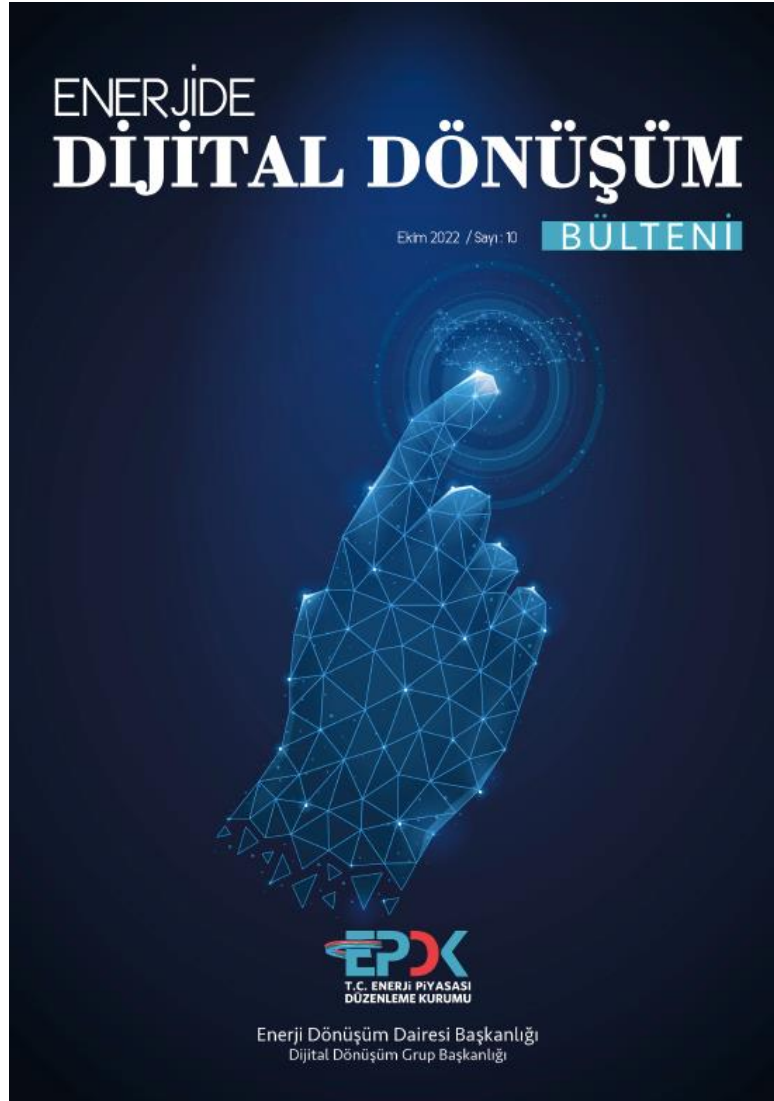
Energy regulators may use following measures to carry on pro-innovative policy:

- *Initializing public consultations and debates;*
- *Gathering and sharing information amongst various stakeholders of energy innovation ecosystem;*
- *Building internal capacity in terms of professional staff and/or units dealing with energy innovations;*
- *Promotion of various types of innovations in the energy sector (incl. starting and participation in public debates);*
- *Using various forms of cooperation with other actors of innovative ecosystem and promotion of such a cooperation between regulated entities and other stakeholders;*
- *Financial incentives like extra rewards in tariffs or incentive schemes for innovators or specific funds;*
- *Creation of friendly environment and adopting non-financial measures enabling the deployment of energy innovations.*

Agenda of the Digital Transformation Group

- Updating the dictionary titled as 'Digital Transformation in the Energy Sector'
- A monthly bulletin to keep up with the latest developments
- Studies on 'Free Access Platform' for EV users
- Monitoring and directing digital technologies related R&D projects of DSOs
- Measuring digital maturity of the regulated companies - Could it be a parameter in the tariff calculations?
- Setting minimum standards for the use of digital technologies
- Implementing a regulatory sandbox
- A study on a data index
- Organizing events where research institutions, academics, tech companies, energy companies are brought together to disseminate best practices for digital transformation

Monthly Bulletin (Digital Transformation in the Energy Sector)



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Bültene yönelik bilgi, görüş ve katkı için:
dijitaldonusum@epdk.gov.tr
 Dijital Dönüşüm Grup Başkanlığı

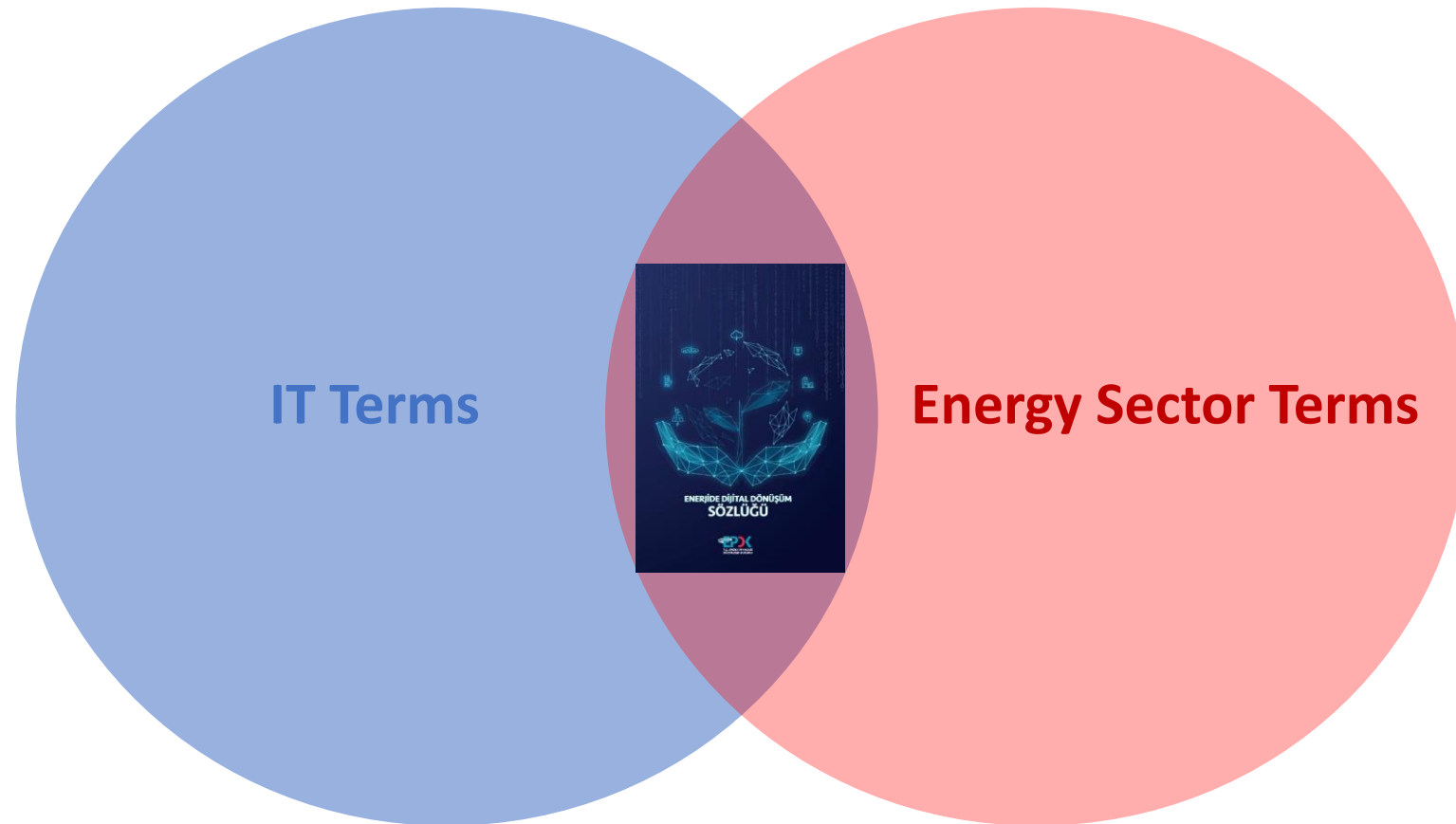
Reports and articles
at international level

International news

Developments at the country level

Data and analysis

Dictionary of 'Digital Transformation in the Energy Sector'



Who Should Regulate the Carbon Market



Renewable Energy Support Mechanism

- Türkiye offers 10-year FIT under support mechanism (so-called YEKDEM).
- Investors have a right to sell under FIT regime or to the market (have to decide before the start of the year)
- YEKDEM mechanism has additional feed-in premiums for the use of domestically manufactured equipment.
- Türkiye also promotes large-scale renewable energy designated areas (so-called YEKA) to be tendered by way of auctions (with the obligations of R&D and domestic manufacturing).
- The share of total installed capacity for renewables (including licence-exempted power plants) is ca 53%.
- EMRA imposed a cap on revenues earned by renewable power plants due to windfall profit in the 2H 2022.



YEKA-1 solar power plant has 1.35 GW installed capacity. The project includes a factory annually producing 2 GW PV modules and R&D Center.

Storage

Global cumulative energy storage capacity installations



Source: BloombergNEF

Notes: 'MENA' refers to the Middle East and North Africa; 'ROW' refers to the rest of the world;

'EMEA' refers to the Europe, Middle East and Africa; 'APAC' refers to the Asia-Pacific;

'AMER' refers to the North, Central and South America;

'Buffer' represents markets and use cases that BNEF is unable to forecast due to lack of visibility.

Regulatory Incentive to Storage Investment

- EMRA has introduced new rules for energy storage in the 2H of 2022.
- The new rules allow storage facilities to operate in combination with unlicensed power plants.

Ratio of the installed capacity of the generation unit to the installed capacity of the storage unit must be equal to maximum one;

For the wind power plant applications, the installed capacity must be minimum 20 MWe, whereas for the solar power plant applications, the installed capacity must be minimum 10 MWe and maximum 250 MWe;

The electricity storage unit should be located within the boundaries of the power plant

Türkiye is planning 30 GW storage facility installation with this newly implemented mechanism. In this context, investors have applied to EMRA for 300 GW (first come first serve)!!!



**THANK YOU
FOR YOUR ATTENTION!**

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