Energy Efficiency & ESCO Market in Turkiye

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EYODER

About Us

- Established in 2010
- 80 members

EYODER

● the only NGO in Türkiye that aims to create synergy by bringing together Ministry of Energy and Natural Resources accredited Energy Efficiency Consultancy (EVD) companies, ESCOs, certified energy efficiency professionals and managers, academia, financial institutions, insurance companies and technology developers and suppliers.

● goal is to develop healthy ESCO market and elevate its members to international standards in terms of technological and organizational levels.

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Trainings

Our Trainers

International and National Institutions / Organizations we are members of

- DGGN (Danish Green Growth Network)
- Global ESCO Network
- SEDEFED (Federation of Sectoral Associations)
- TOBB (Union of Chambers and Commodity Exchanges of Türkiye) / Climate Control Assembly
- Türkiye İMSAD (Association of Construction Material Producers)
- TÜRKONFED (Turkish Business Confederation)

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Sectoral Collaborations

- ÇEDBİK (Environmental Friendly Green Building Association)
- DOSİDER (Natural Gas Appliance Manufacturers and Businesspeople Association)
- ENSİA (Energy Industrialists and Businesspeople Association)
- ENVER (Energy Efficiency Association)
- İSKAV (Heating Cooling Air Conditioning Research and Education Foundation)
- MÜKAD (Engineer and Architect Women Association)
- SEPEV (Zero Energy and Passive House Association)
- TTMD (Turkish Society of HVAC and Sanitary Engineers)

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Türkiye Overview

Türkiye Overview

- **Energy efficiency** plays a crucial role in mitigating climate change by reducing greenhouse gas emissions and overall energy consumption.

- **Efficient use of energy resources** helps minimize environmental impact, enhances energy security, and fosters sustainable economic growth.

- **Transitioning to energy-efficient technologies** and practices is vital for achieving global climate goals and ensuring a cleaner, greener future for generations to come.

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Türkiye Overview

- Türkiye is a **rapidly growing** economy with a rising demand for energy across various sectors including residential, commercial, industrial, and transportation.
- Historically, Türkiye has been heavily reliant on imported fossil fuels such as oil and natural gas to meet its energy needs.
- In recent years, there has been **a notable shift towards diversifying the energy mix**, with increasing emphasis on renewable energy sources such as wind, solar, hydropower, and geothermal.
- The Turkish government has been actively **promoting renewable energy development** as part of its broader strategy to enhance energy security, reduce dependency on fossil fuels, and achieve sustainability goals.
- Despite progress in renewable energy deployment, **challenges** such as grid integration, financing, and regulatory hurdles remain, underscoring the need for comprehensive policies and initiatives to accelerate the transition towards a more sustainable energy future.

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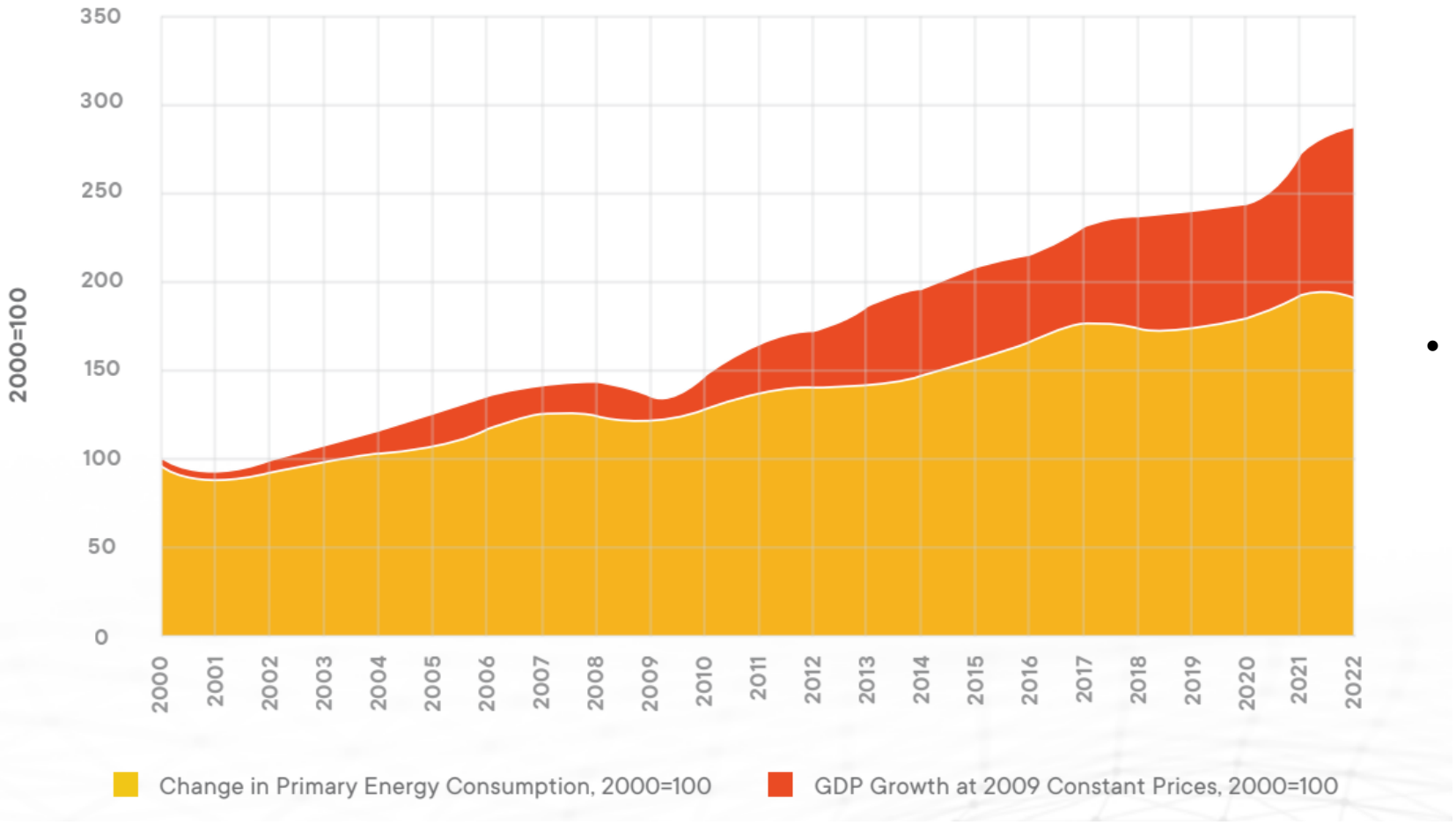
Türkiye Overview



- Change in GDP and Primary Energy Consumption by Years / Türkiye

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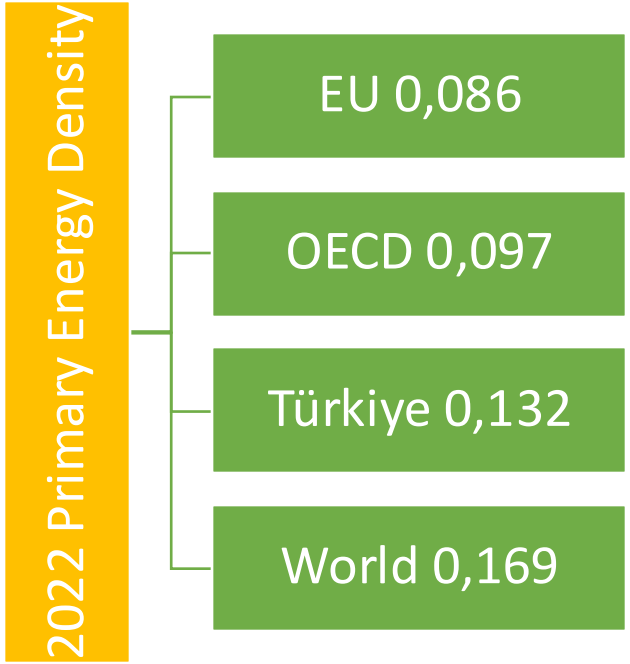
Türkiye Overview

Indicators (TOE/ Thousands 2015$)	2000	2005	2010	2015	2020	2021	2022
PRIMARY ENERGY DENSITY	0.192	0.169	0.172	0.149	0.145	0.141	0.132
FINAL ENERGY DENSITY	0.149	0.134	0.130	0.115	0.112	0.109	0.101



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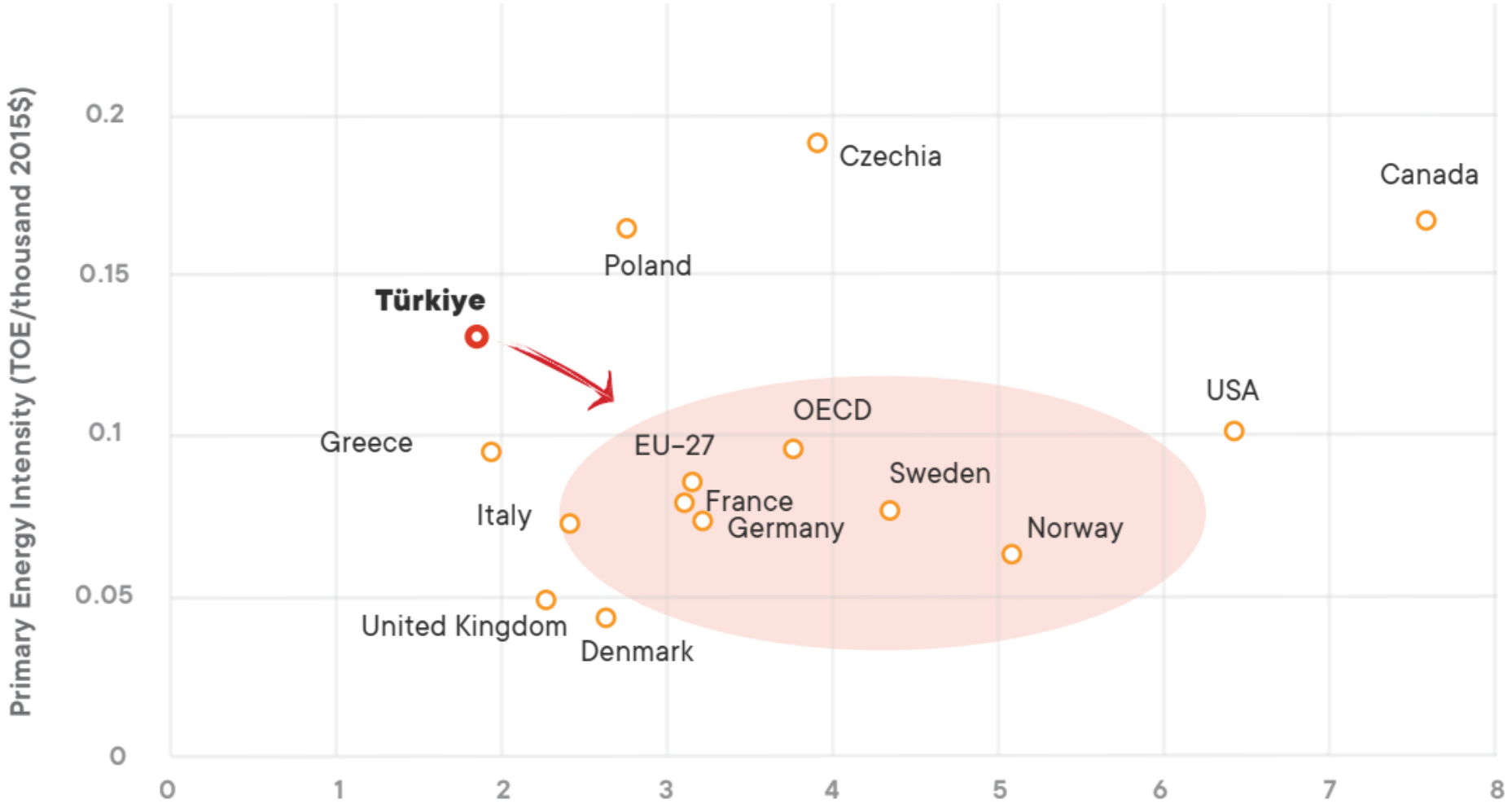
Türkiye Overview



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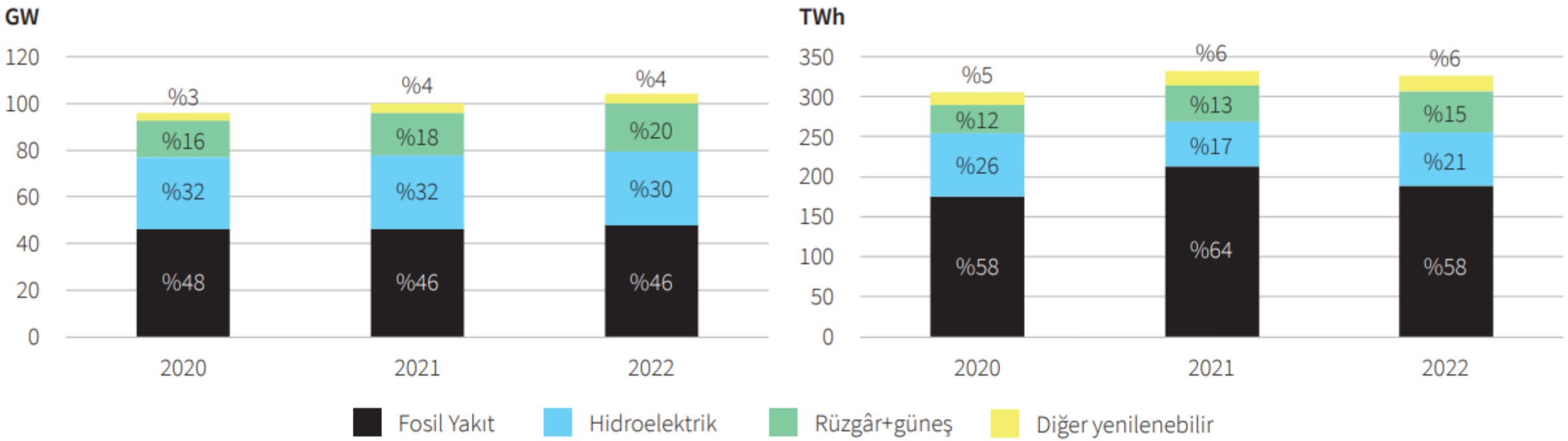
Türkiye Overview

ELECTRICITY
INSTALLED CAPACITY vs. PRODUCTION PORTFOLIO



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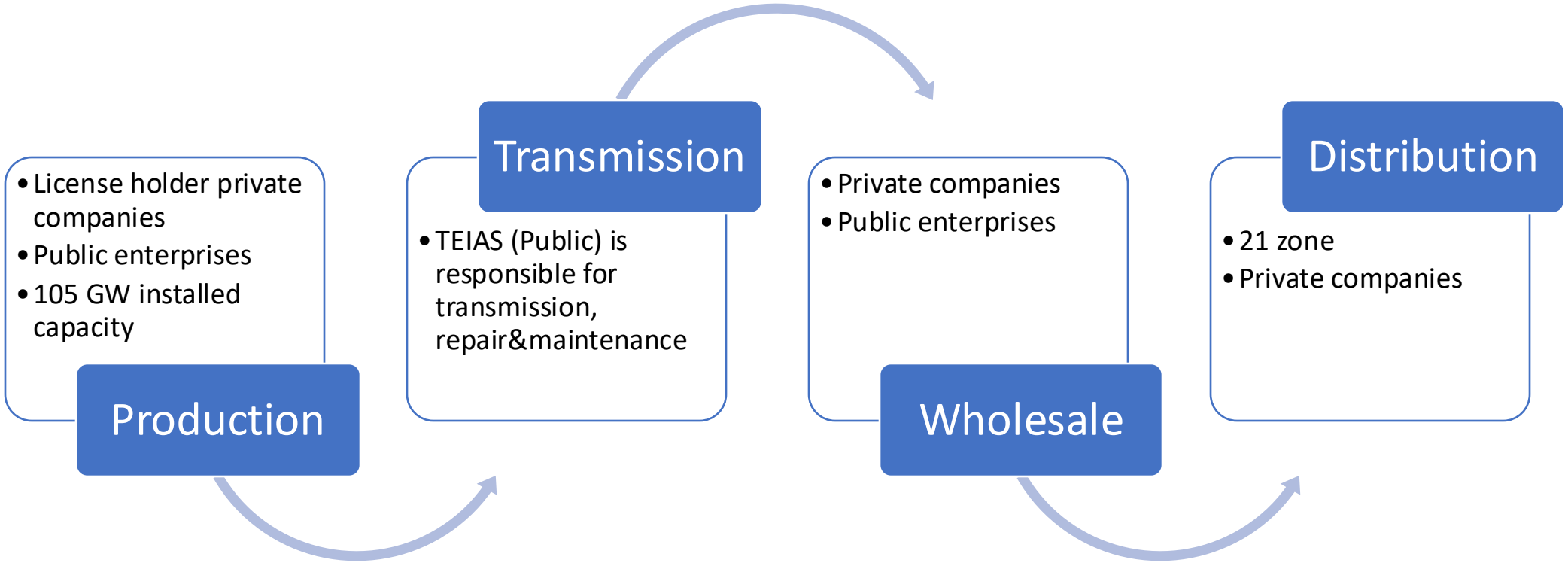
Türkiye Overview



Electricity Price : 123,60 USD/MWh 2025Q1 (incl. Tax)

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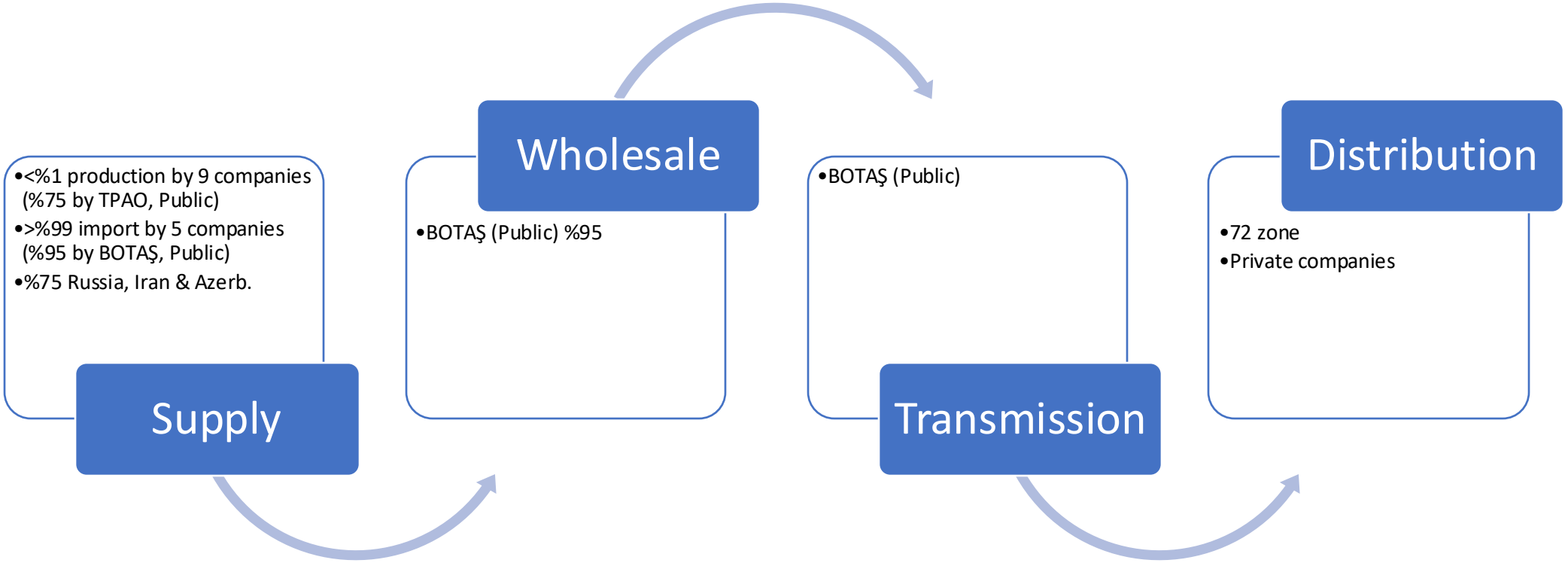
Türkiye Overview



Gas Price : 29,50 USD/MWh 2025Q1 (excl. Tax)

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Türkiye Overview

2005 – Renewable Energy Law

2007 – Energy Efficiency Law

2008 – Energy Efficiency Regulation, Building Energy Performance Regulation, Building Insulation Regulation, Energy Efficiency in Transportation Regulation

2010 – Climate Change Strategy

2011 – National Climate Change Action Plan

2014 – Energy Efficienct Strategy Document, X. Development Plan

2015 – MENR Strategy Document, INDC

2017 – National Energy Efficiency Action Plan

2018 – Energy Efficiency Control Regulation

2019 – XI. Development Plan, MENR Strategic Plan, Energy Conservation in Public Buildings Circular

2020 – Energy Performance Contracting in Public Buildings

2022 – Climate Council, Climate Law Studies, National Energy Plan

2023 – II. National Energy Efficiency Action Plan

2025 – Climate Law (under final discussion=

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Türkiye Overview

Ministry of Energy and Natural Resources (MENR):

- Responsible for formulating and implementing policies related to energy efficiency, renewable energy, and natural resources management.
- Oversees the development of national energy strategies, plans, and programs to promote sustainable energy development and enhance energy security.

Ministry of Environment and Urbanization (MoEU):

- Charged with protecting the environment, promoting sustainable urban development, and ensuring compliance with environmental regulations.
- Works closely with other government agencies and stakeholders to integrate environmental considerations into policies and projects, including those related to energy efficiency.

Energy Market Regulatory Authority (EMRA):

- Regulates and supervises the energy market in Turkey, including electricity, natural gas, petroleum, and renewable energy sectors.
- Develops regulations, standards, and licensing requirements to promote competition, consumer protection, and efficient operation of the energy market.

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Türkiye Overview

Ministry of Industry and Technology (MoIT):

- Promotes industrial development, innovation, and technology adoption to enhance competitiveness and sustainability.
- Implements programs and initiatives to support energy efficiency, clean technology adoption, and industrial energy management practices.

Ministry of Treasury and Finance:

- Responsible for fiscal policy, budget management, and financial regulation in Turkey.
- Administers financial incentives, subsidies, and tax incentives to support energy efficiency investments and renewable energy projects.

Union of Municipalities of Turkey (UMT):

- Represents municipalities and local governments across Turkey, promoting collaboration and knowledge sharing on sustainable development initiatives.
- Supports municipalities in implementing energy efficiency measures, renewable energy projects, and climate action plans at the local level.

Turkish Standards Institution (TSE):

- Develops and maintains standards and technical regulations in various sectors, including energy, environment, and sustainability.
- Establishes energy efficiency standards, labeling requirements, and certification programs to ensure product quality and promote energy-saving technologies.

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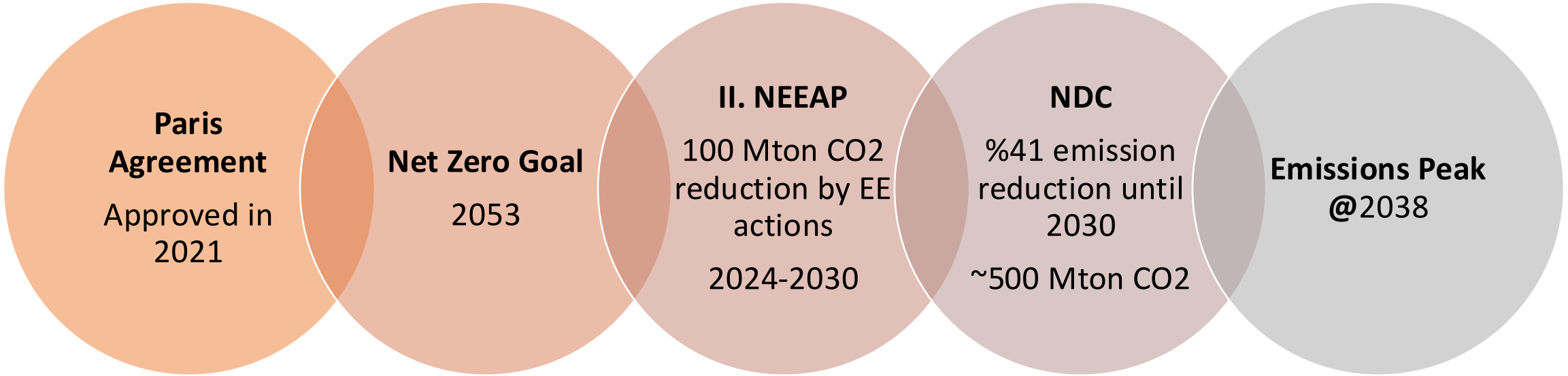

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Türkiye Overview

National Climate Change Mitigation Strategy and Action Plan (2023)

- Mainstreaming energy efficiency in all sectors
- Maximizing the use of renewable energy
- Reducing the carbon footprint of industry on a product basis
- Mainstreaming almost zero-energy buildings
- Electrification in all areas of the transport sector
- Increasing sinks in support of the fight against climate change
- Ensuring the conscious use of fertilizers
- Mainstreaming environmentally friendly agricultural practices
- Preventing and reducing waste before it occurs
- Establishing a carbon pricing mechanism
- Investing in low-emission technologies
- Achieving digitalization in all sectors
- Providing incentive and support mechanisms
- Planning the transition to a low-emission economy based on the principle of equitable transformation
- Integrating Türkiye's net zero emission targets into all levels of the education system.

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Türkiye Overview

European Green Deal Action Plan (2021)

- Carbon at the Border Regulations,
- Green and Circular Economy
- Green Finance
- Clean, Economical, and Secure Energy Supply
- Sustainable Agriculture
- Sustainable Smart Transportation
- Combating Climate Change
- Diplomacy
- European Green Deal Information and Awareness-Raising Activities.

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Türkiye Overview

EE 2030 Strategy and National EE Action Plan (2023)

- Establishing Energy Management Systems and Increasing Their Effectiveness
- Improving Energy Efficiency Financing Opportunities
- Improving the Energy Efficiency Investment Environment
- Supporting Energy Efficiency Projects with Energy Efficiency Competitions
- Development of Energy Efficiency Portal in Line with Net Zero Goals
- Conducting Awareness, Training and Awareness Raising Activities
- Adopting Sustainable Business and Procurement Approach in the Public Sector
- Development of Energy Efficiency Obligation Program
- Taking Administrative Measures to Expand the Use of Heat Pumps
- Strengthening R&D Activities to Increase Energy Efficiency

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Türkiye Overview

National Energy Plan (2022)

Up until 2035;

- Primary Energy consumption 205,3 MTOE
- Electricity consumption 510,5 TWh
- %35,3 decrease in energy intensity
- Electricity capacity 189,7 GW
- Solar 52,9 GW,
- Wind 29,6 GW,
- Nuclear 7,2 GW
- The share of intermittent renewable energy sources in electricity production increases to 34.2% and renewable energy sources to 54.7%.
- The share of intermittent renewable energy sources in electricity installed capacity increases to 43.5%, and the share of renewable energy sources increases to 64.7%.
- In order to meet the flexibility requirement; Battery capacity reaches 7.5 GW (2 hours charging time), Electrolyzer capacity reaches 5.0 GW, Demand side participation reaches 1.7 GW

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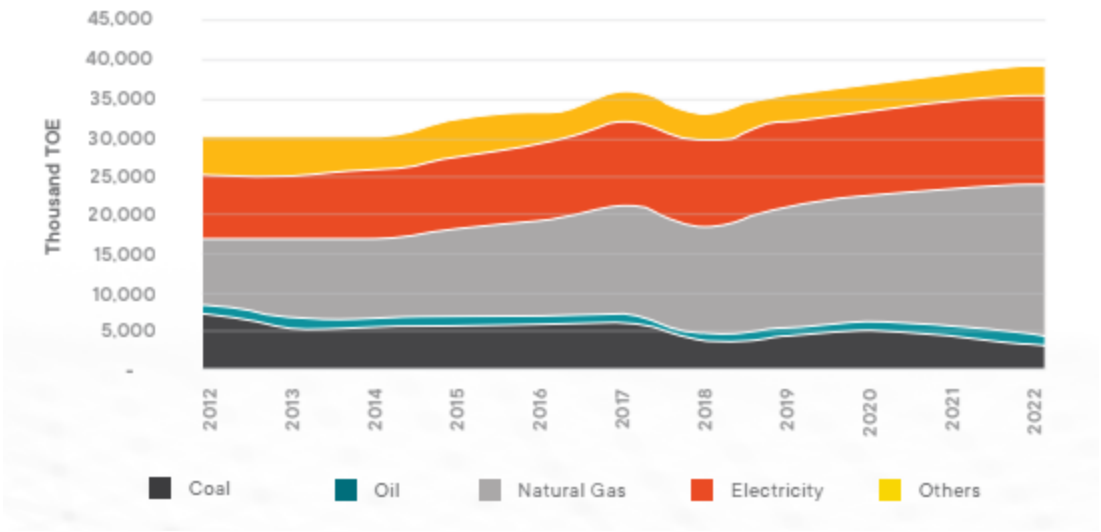
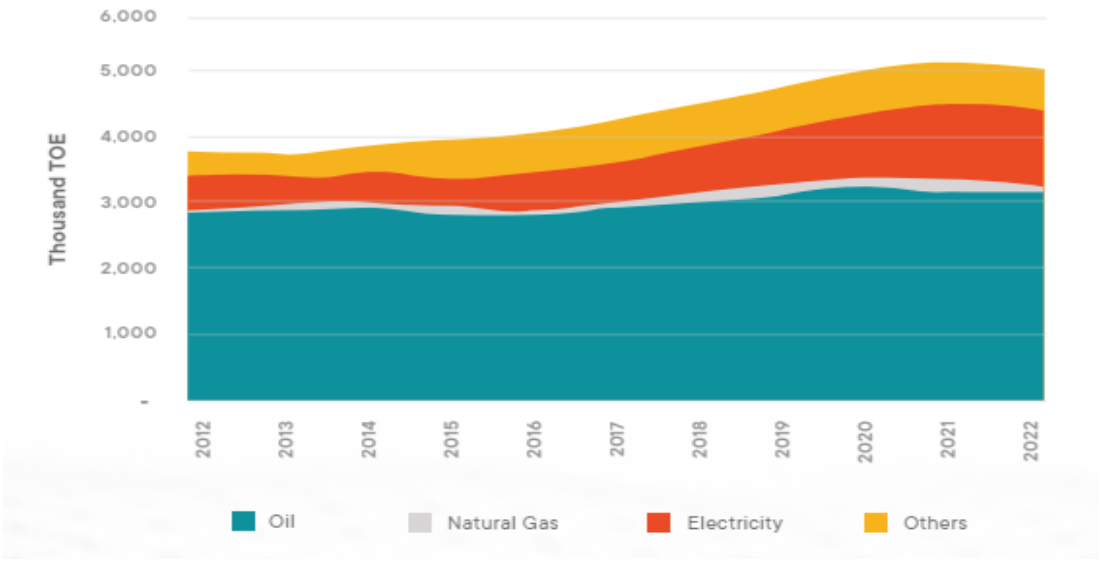
Energy Conservation Efforts





Residential Sector:

- **Energy-Efficient Appliances:** Encouraging the use of energy-efficient appliances such as refrigerators, air conditioners, and lighting fixtures through consumer awareness campaigns and appliance labeling programs.
- **Building Retrofit Programs:** Implementing building retrofit programs to improve the energy performance of residential buildings through insulation, weatherization, and installation of energy-efficient windows and doors.
- **Energy-Efficient Heating and Cooling:** Promoting the use of energy-efficient heating, ventilation, and air conditioning (HVAC) systems, as well as solar water heaters, to reduce energy consumption in residential buildings.

Agriculture Sector:

- **Resource Management Techniques:** Implementing resource management techniques such as precision agriculture and drip irrigation systems to optimize energy use and enhance sustainability in agricultural operations.
- **Energy Efficiency Measures:** Upgrading equipment to energy-efficient models, optimizing irrigation systems, and adopting renewable energy solutions like solar-powered pumps to reduce energy consumption and enhance productivity on farms.
- **Sustainable Farming Certifications:** Encouraging participation in sustainable farming certification programs like USDA Organic and GlobalGAP to promote energy-efficient practices and environmental stewardship in agriculture.

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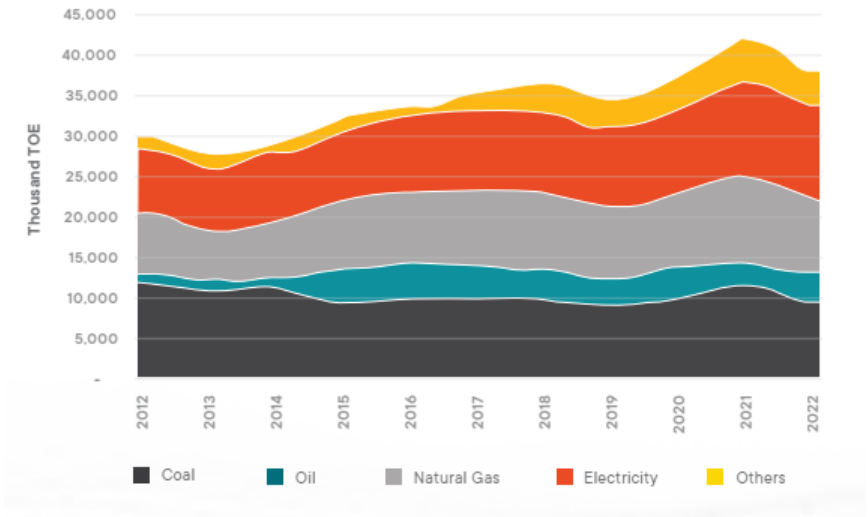

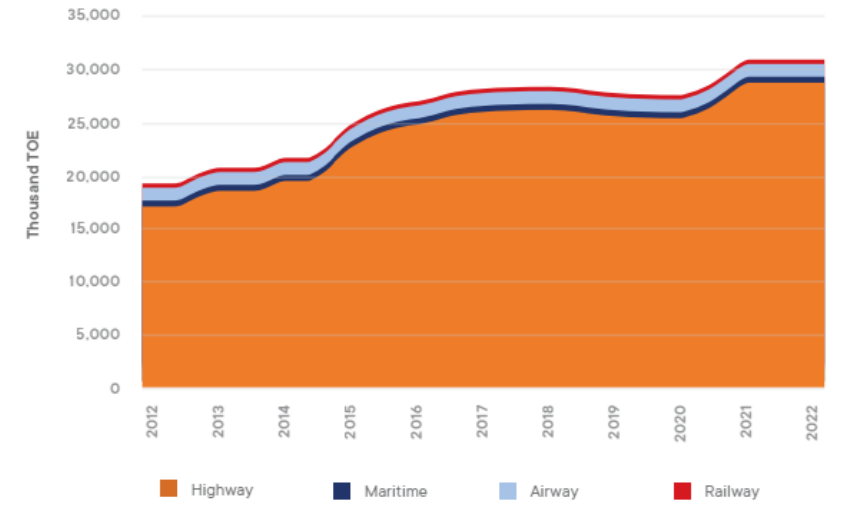

Industrial Sector:

- **Energy Efficiency Assessments:** Conducting energy efficiency assessments and audits in industrial facilities to identify opportunities for energy conservation and efficiency improvements.
- **Process Optimization:** Implementing process optimization measures, equipment upgrades, and operational improvements to reduce energy consumption and enhance productivity in industrial processes.
- **Energy Management Systems:** Adopting energy management systems and best practices such as ISO 50001 certification to systematically manage energy use and drive continuous improvement in energy performance.

Transportation Sector:

- **Sustainable Mobility Solutions:** Promoting sustainable transportation options such as public transit, cycling, and walking to reduce reliance on fossil fuel-powered vehicles and decrease emissions.
- **Vehicle Efficiency Standards:** Implementing vehicle efficiency standards, fuel economy regulations, and incentives for the adoption of electric vehicles (EVs) and other low-emission vehicles.
- **Alternative Fuels and Infrastructure:** Investing in alternative fuels infrastructure such as electric vehicle charging stations, hydrogen refueling stations, and biofuel distribution networks to support the transition to cleaner transportation technologies.

EE Potential

Industry

Sector	Saving Potential (%)	Investment Cost (USD/TOE-saving)	Simple Pay Back Period (Year)
Packaging&Plastic	16,20%	2.042	2,96
White Goods	20,00%	1.184	2,04
Glass	17,50%	2.559	3,29
Cement	15,50%	3.083	4,81
Ceramics	22,60%	765	2,24
Metal	27,20%	1.671	2,72
Food&Beveraes	39,00%	1.409	2,62
Pharma	19,20%	3.136	2,82
Paper	40,20%	1.167	1,8
Chemistry&Petro	26,00%	1.600	2,57
Wood	54,30%	1.459	3,18
Automotive	23,40%	2.217	2,59
Textile	17,10%	1.452	5,58
Commercial Building	67,40%	3.115	3,98

Average Inv. Cost ~1.900 USD

Average Saving Pot. ~%32

Average Payback <3 years

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Building

Total Buildings (Million)	9,6
Residential	75%
Commercial	6%
Office	11%
Annual New Building	106.000
Over 30 years of age	50%
Energy Consumption	32,6%
Energy Consumption (milion TEP)	39,20
Energy Demand Increase (Annual)	3%
Energy Efficiency Potential	50%

SEC	**SET**	kWh/m2-yıl
Hospitals	348	kWh/m2
Office	140	kWh/m2
Public Admin. Buildings	115	kWh/m2
Shopping Malls	103	kWh/m2
Hotels	204	kWh/m2
Airports	270	kWh/m2
Universities	115	kWh/m2

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2030 Goals

Energy Efficiency Targets (2024-2030)	2024	2025	2026	2027	2028	2029	2030
Savings (kTEP)	1.197	1.120	1.266	1.403	1.589	1.703	1.884
Investment (Million USD)	2.452	2.656	2.544	2.513	3.086	3.227	3.574

- GHG : 41% Reduction by 2023, Net Zero by 2053
- Public Buildings : 30% Energy Consumption Reduction by 2030
- Green Building Certification by 2026

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Incentives

Verimlilik Artırıcı Projeler (ETKB)

2009-

Efficiency Improvement Projects

Gönüllü Anlaşmalar (ETKB)

2009-

Voluntary Agreements

Beşinci Bölge Yatırımları (STB)

2014-

Investment Incentive (5th zone)

Enerji Verimliliği Destek Programı (KOSGEB)

2008-

Energy Efficiency Support Program for SMEs

Yeşil Sanayi Destek Programı (KOSGEB)

2023-

Green Industry Support Program for SMEs

Yeşil Dönüşüm Destek Programı (STB)

2024

Green Transformation Support Program

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ESCO Market

Market

- Current EE Market : e. 2 Billion USD (Target 6 Billion USD)
- ESCO Market : e. 2,5% of EE (+e. 5% RE)
- No. of EVD Companies : 67
- No. of ESCOs : 7 EE + 6 RE

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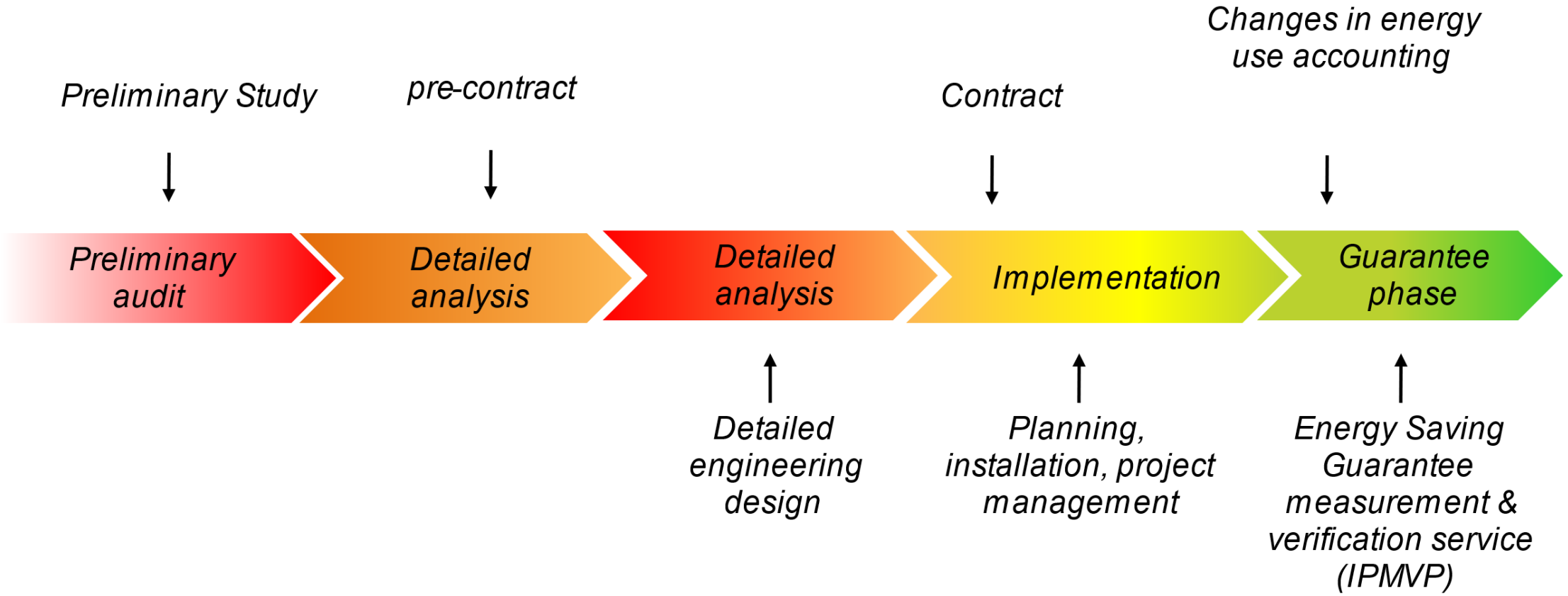
Process



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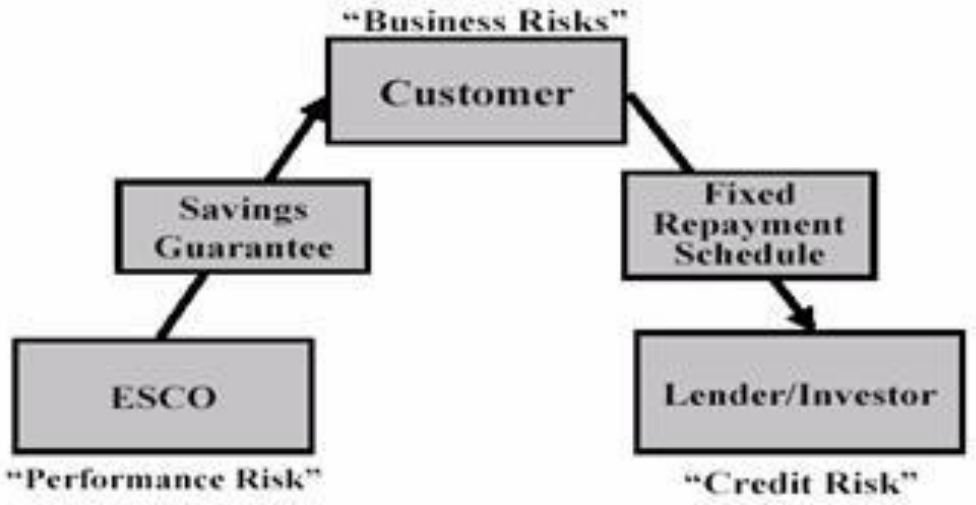
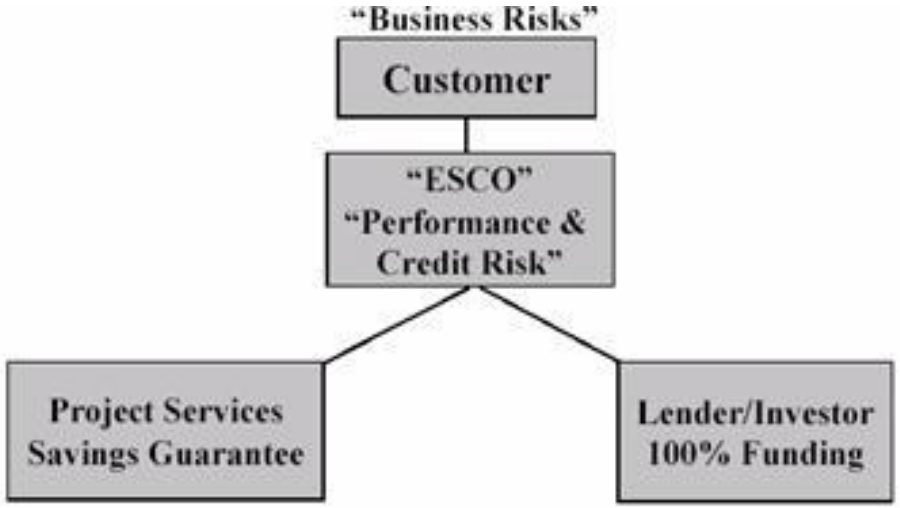
Contract Types

- **Guaranteed Savings**
  - Investment is done by the customer
  - ESCO guarantees the savings (Performance Guarantee)
  - ESCO covers technology and application risks
  - ESCO provides service & maintenance (seperate contract)



Contract Types

- **Shared Savings**
  - ESCO provides financing
  - ESCO guarantees the savings (Performance Guarantee)
  - ESCO covers technology and application risks
  - ESCO provides service & maintenance
  - Monthly payments based on savings



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Contract Types

- **Energy Supply Contracting**
  - ESCO provides financing
  - ESCO guarantees the savings (Performance Guarantee)
  - ESCO covers technology and application risks
  - ESCO provides service & maintenance
  - Monthly payments based on energy produced

Contract Types

- **Leasing**
  - ESCO provides financing
  - ESCO guarantees the savings (Performance Guarantee)
  - ESCO covers technology and application risks
  - ESCO provides service & maintenance
  - Monthly fixed rental payments

Contract Types

- **EPC + F**
  - Investment is done by the customer (ESCO to bring FI)
  - ESCO guarantees the savings (Performance Guarantee)
  - ESCO covers technology and application risks
  - ESCO provides service & maintenance (seperate contract)

Pros & Cons

- **Pros**
  - Contractor portfolio
  - Strong HVAC Industry
  - Geographical location
  - NGO infrastructure
  - Green Finance (WB, EBRD etc.)
  - Hedge energy imports

- **Cons**
  - Legislative issues (Especially Public Sector)
  - Insurance (to be devoleped)
  - Macro Economics (High interest rates)
  - Uncertainty (Technical measures & guranteed savings)
  - Perceived risks

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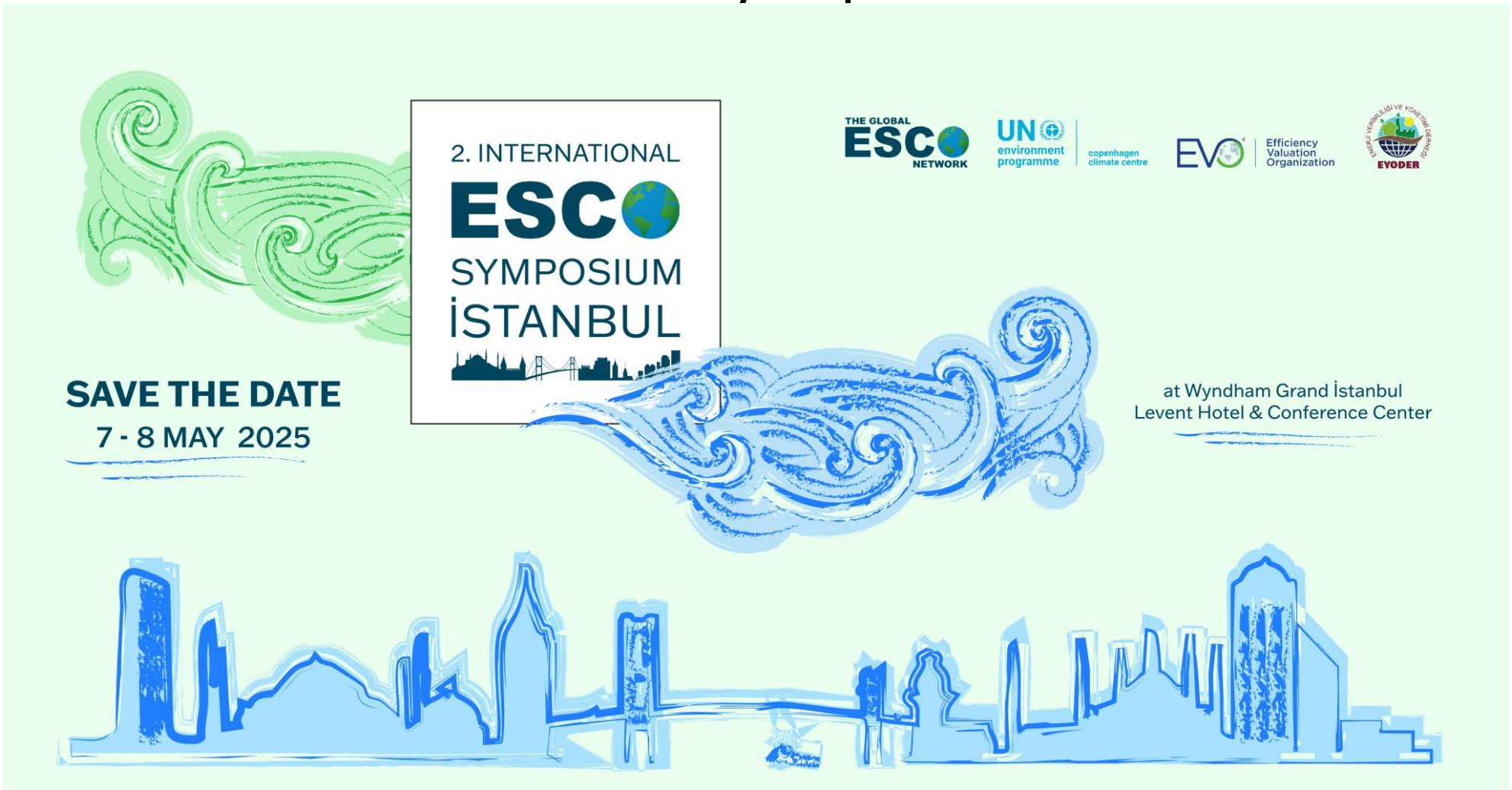
2nd International ESCO Symposium



https://escosymposium2025.com

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Thank You!