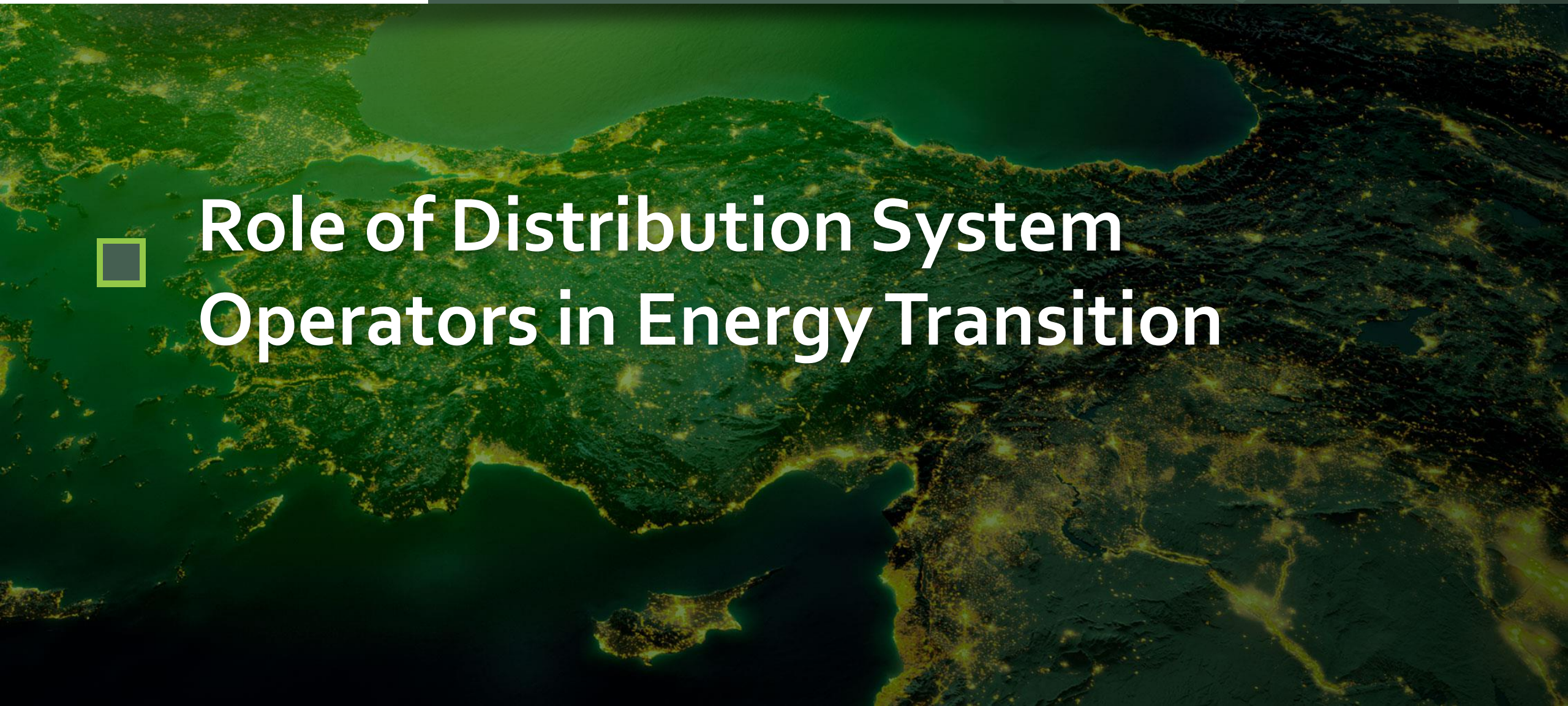
Elder

Elektrik Dağıtım Hizmetleri Derneği



Role of Distribution System Operators in Energy Transition

AGENDA

1. WHO IS ELDER?
2. ENERGY TRANSITION TRENDS IN TURKEY
3. ROLE OF DSOs IN ENERGY TRANSITION

Elder

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WHO IS ELDER ?

Electricity Distribution Services Association (ELDER) is a non-governmental organization that continues its activities as an umbrella organization of all 21 electricity distribution companies in Türkiye since 1999

VISION

- Conducting research about electricity distribution service within the framework of economy, energy policies, legislation and international regulations,

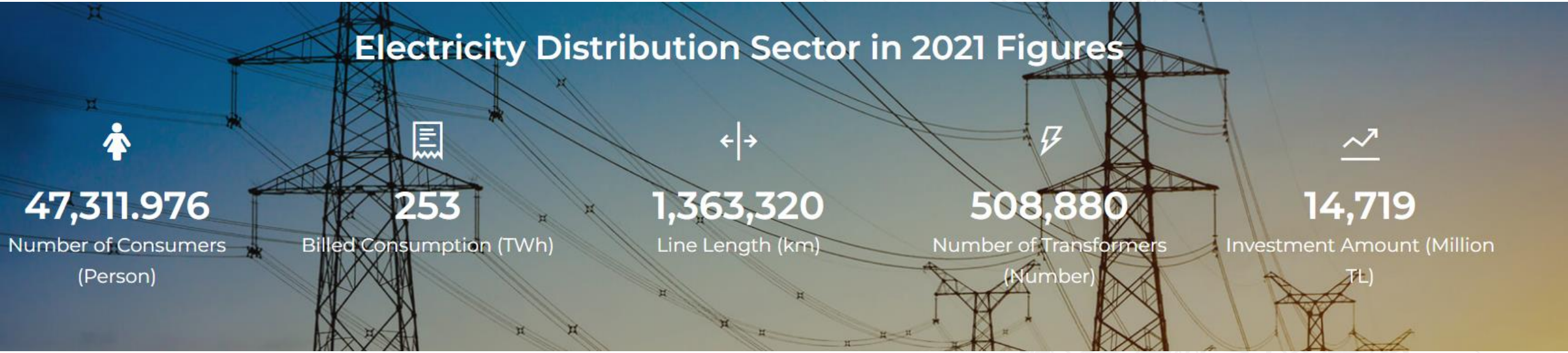
MISSION

- Providing electricity distribution service in accordance with value creation for the country.
- Supporting enterprises in order to support country's development.

VALUES

- Trust
- Transparency
- Participation
- Innovation
- Agility

BUILD & OPERATE THE DISTRIBUTION NETWORK



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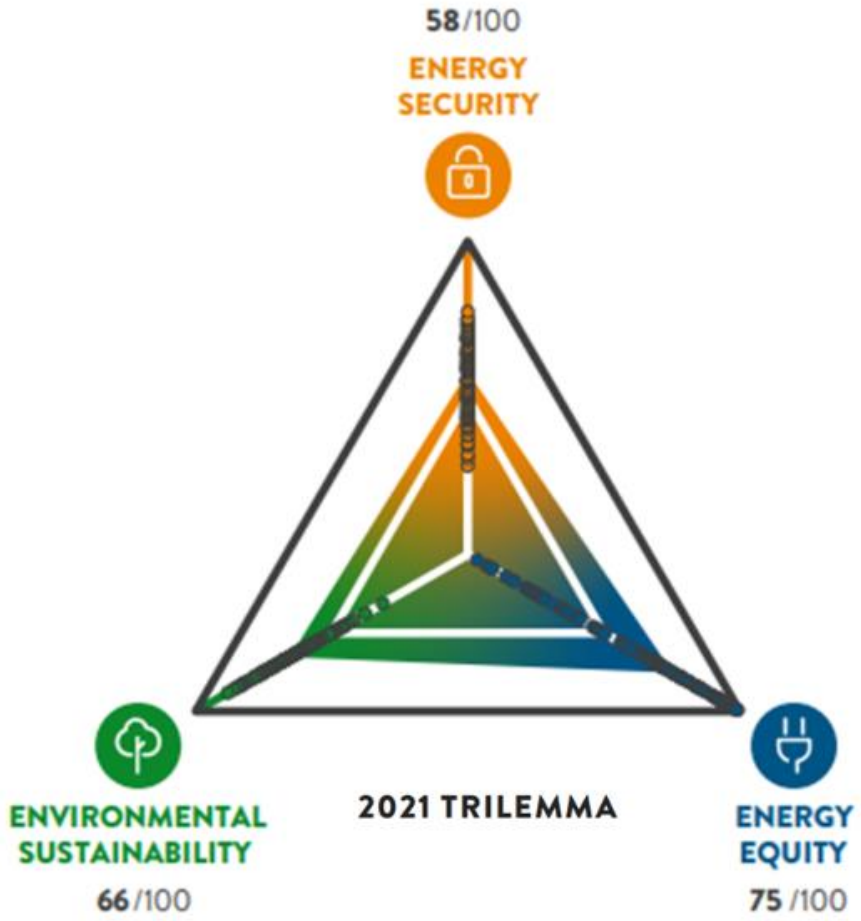
ENERGY TRILEMMA

WORLD ENERGY COUNCIL (WEC)



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ENERGY TRANSITION TRENDS IN TURKEY

TECHNOLOGICAL BREAKTHROUGH & NEW GENERATION WORKFORCE IS THE ONLY WAY OUT

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ENERGY TRANSITION TRENDS IN TURKEY

DISTRIBUTED GENERATION and STORAGE

2 Billion $ of network investment until 2030 for distributed generation and renewable energy technologies for the integration to the distribution network which is the backbone of electricity system.

ROOF TOP PV

SOLAR

WIND

STORAGE

ENERGY EFFICIENCY

Unlicenced facility number **8.907**; installed capacity **7.622 MW** in order to supply self-consumption.

Application number of storage integrated wind and solar investments **1.243**; installed capacity **67.349 MW**

- Proactive and extensive investment
- Dynamic demand management
- Micro Grids
- Hybrid Solutions and New Business Models

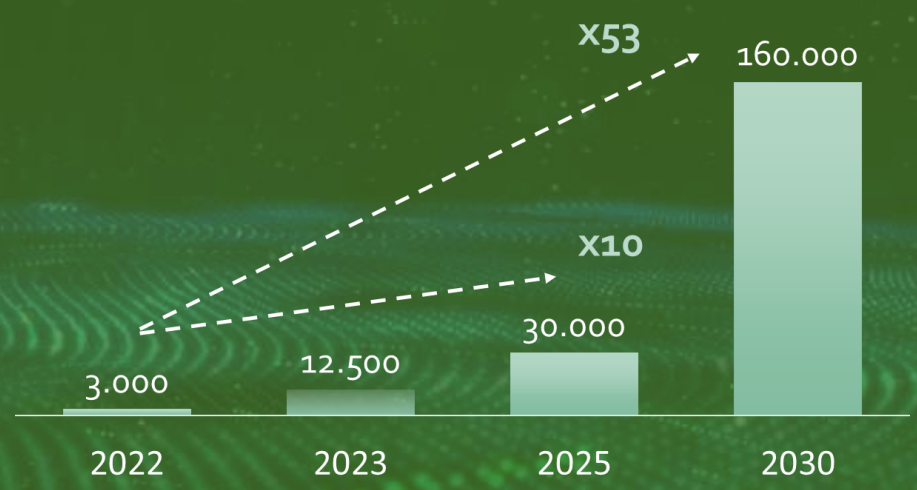
ENERGY TRANSITION TRENDS IN TURKEY

ELECTRIC VEHICLES

1 Billion $ network grid and charger socket investment until 2030 for **1.6 Million** electric vehicles for the integration to the distribution network which is the backbone of electricity system

Number of Electric Vehicles

Number of Public Sockets



Source: Ministry of Industry and Technology support program for Electric Vehicle charging stations

- Proactive and extensive investment
- Dynamic demand management
- Micro Grids
- Hybrid Solutions and New Business Models

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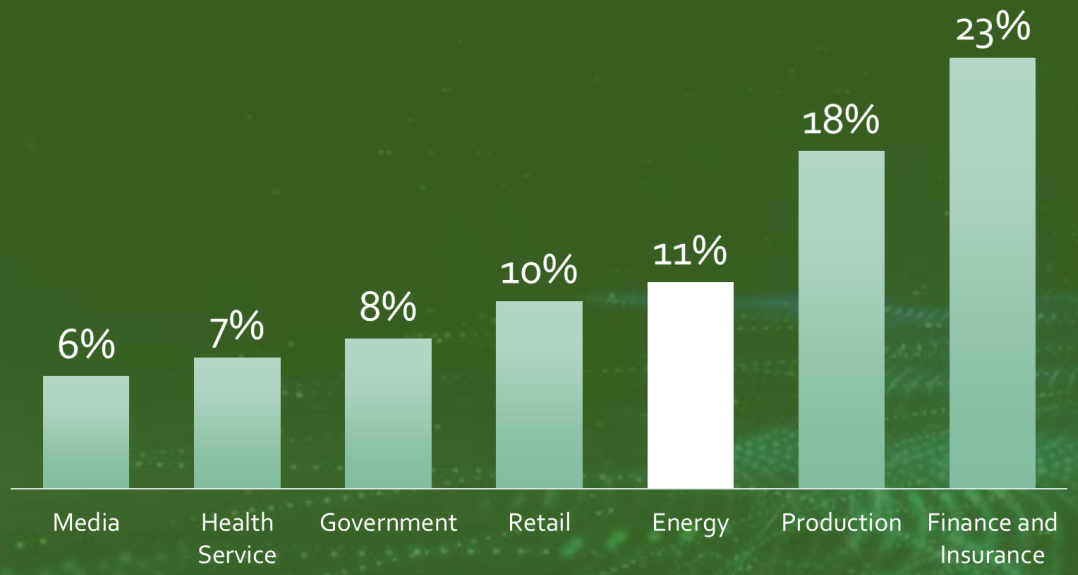
ENERGY TRANSITION TRENDS IN TURKEY

DIGITALIZATION AND CYBER SECURITY

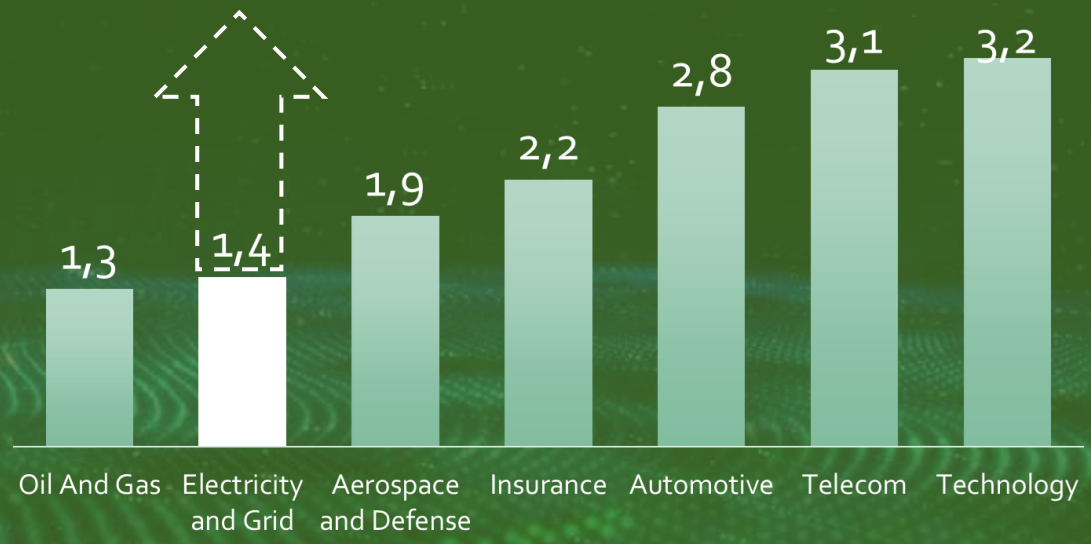
Digital transformation and Cybersecurity are critical elements of distribution service for **85 million** people via **1.4 Million km** electricity distribution network

Cyber Attacks in Terms of Sectors



Source: Ministry of Industry and Technology support program for Electric Vehicle charging stations

Sectoral Dijital Maturity Levels



Digital Maturity

Digital System and Services

Quality of Data

Security

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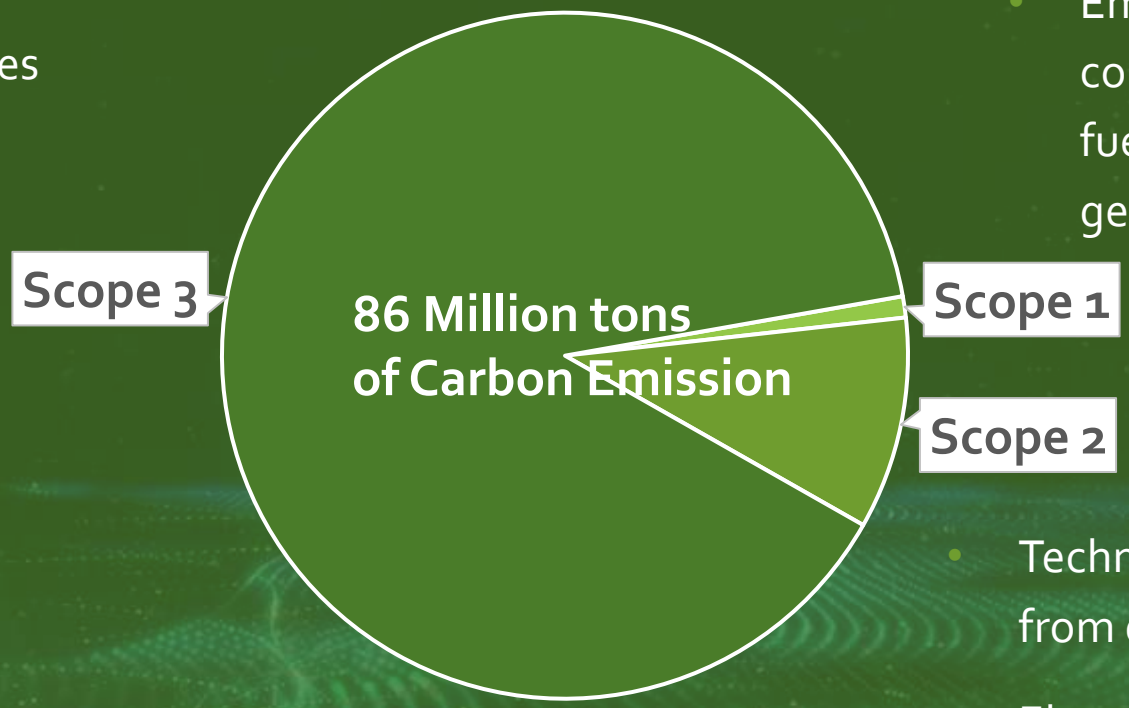
ENERGY TRANSITION TRENDS IN TURKEY

SUSTAINABILITY: CARBON FREE OPERATIONS and SUSTAINABILITY-FOCUSED GREEN FINANCE

- Purchased Goods and Services
- Fuel and Energy Related Activities
- Employee Commuting
- Business travel
- Waste



- Emissions due to own consumption: Vehicles, F-gases, fuels used inside the buildings, generators (diesel)
- Technical and non-technical losses from distributed electricity-99,9%
- Electricity consumption-0,01%

TARGETS:

- **ACCESS TO GREEN FINANCE REQUIRES COMPLIANCE WITH FINANCIAL INSTITUTIONS' CRITERIA.**
- **21 COMPANIES IS TO ACHIEVE THE SAME MATURITY LEVEL**
- **INVESTMENTS FOR DECARBONIZATION: GREEN ENERGY INVESTMENTS AND MICRO-NETWORKS FOR LOSS ENERGY**

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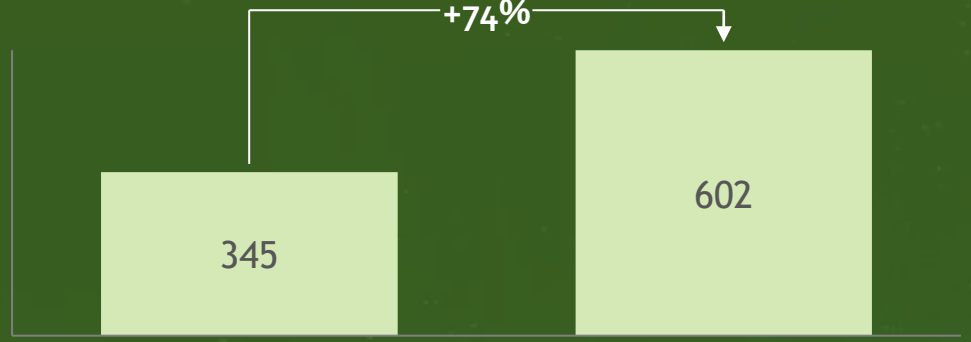
ENERGY TRANSITION TRENDS IN TURKEY

NEW GENERATION WORKFORCE

(#) Distributed Generation Related Capabilities

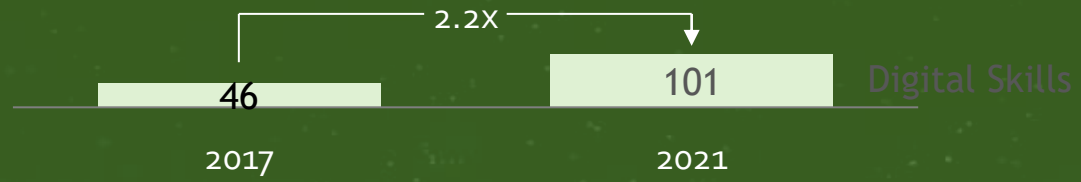


Number of affected business families

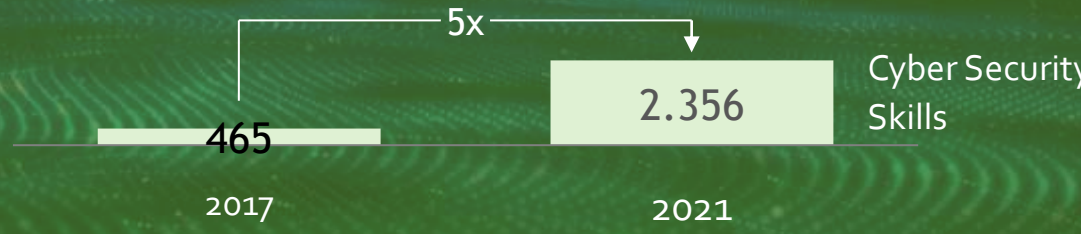
Affected Business Lines:

- Network Technologies and Security
- Network Modernization Field Technician
- Distributed Generation & Energy Efficiency
- Network & Customer Operations Technician
- R&D Generalist

Digital skills including digital design, communications, circuit design, and mapping are **growing rapidly.**



With the **increase in the use of digital** in corporate ecosystems, **securing data** has become a key problem



Even in **support roles** like sales, marketing and finance **digital skills are increasing in demand**

Decentralization

Electrification and Cyber Security

Digitalization and Cyber Security

Agile Working Methods

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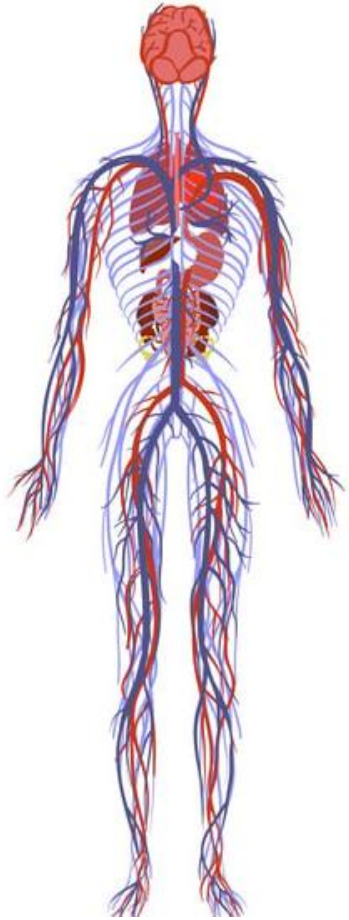
VEINS IN THE BODY

DSO'S ARE THE VESSELS THAT CARRY THE CLEAN BLOOD PUMPED BY THE HEART TO THE WHOLE BODY



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ROLE OF DSOs IN ENERGY TRANSITION

3 MAJOR TARGETS

1- DSOs as FACILITATOR OF ENERGY TRANSFORMATION

i. Grid Modernization *(Renewal of old network infrastructure)*

ii. Integration of the emission free Distributed Generation Sources

2- DECREASING LOSSES

i. Technical Losses

ii. Non-technical Losses

3- CARBON FREE PROCUREMENT & SUPPLY CHAIN

i. Production

ii. Transportation

iii. Processes

FOCUS AREAS

DSOs as FACILITATOR OF ENERGY TRANSFORMATION

1- CONVENTIONAL INVESTMENTS

i. Grid Modernization *(Renewal of old network infrastructure)*

ii. Integration of the emission free Distributed Generation Sources

2- ELECTRIFICATION

i. Buildings & Industry *(heat pumps, microgrid, etc.)*

ii. E-Mobility

iii. Grid Scale Storage

3- RESILIENCY

i. Load management *(multiple prosumers in the grid)*

ii. Increase in natural disasters due to climate change

4- TECHNOLOGY

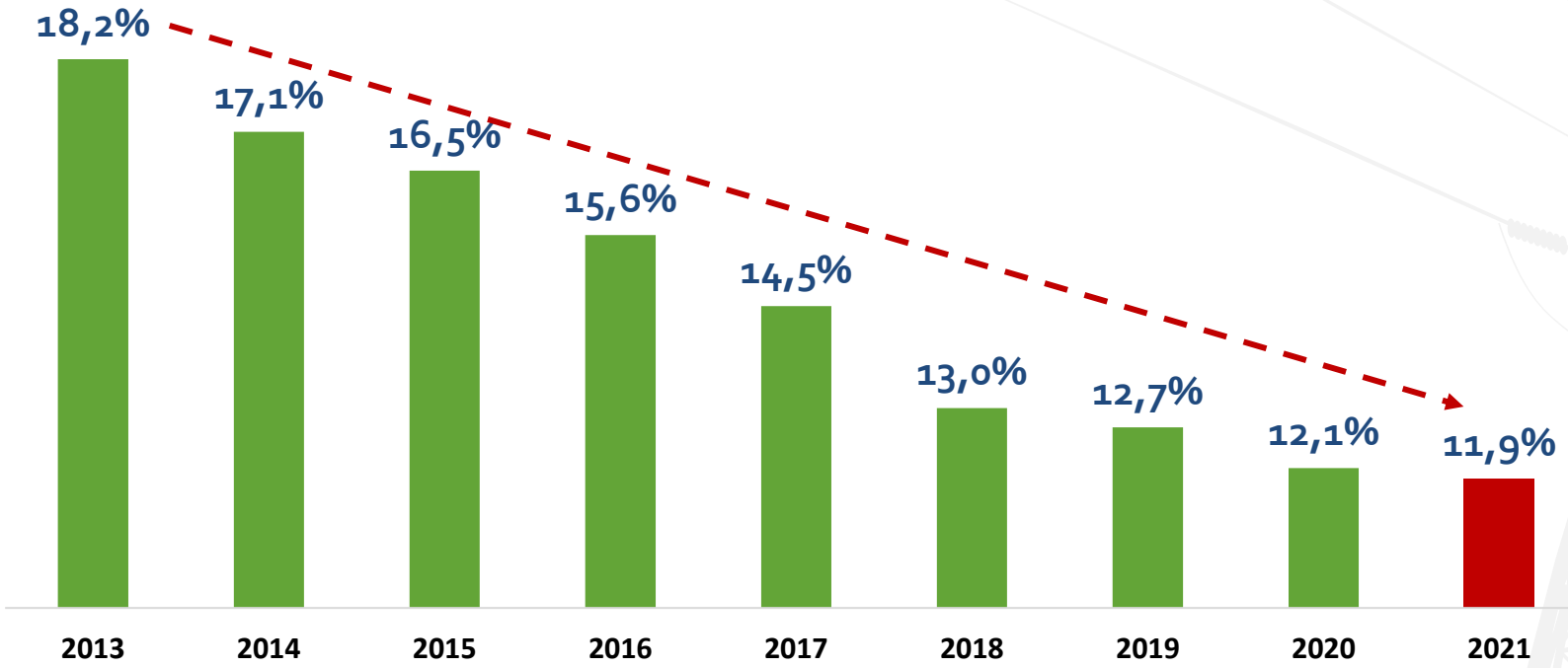
i. Smart Meters

ii. Digitalization and Automation *(IT/OT Systems, communication, cybersecurity, real-time grid management, etc.)*

FOCUS AREAS

LOSSES AND CARBON FREE PROCUREMENT & SUPPLY CHAIN

DISTRIBUTION NETWORK LOSSES in TURKEY



CARBON FREE PROCUREMENT & SUPPLY CHAIN

1. CARBON FREE EQUIPMENT PROCUCTION
2. CARBON FREE TRANSPORTATION
3. CARBON FREE PROCESSES

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ELDER'S ROLE in ESG COMPLIANCE

CARBON FREE OPERATIONS AND SUSTAINBILITY LINKED – GREEN FINANCING

- 21 DISTRIBUTION COMPANIES AT THE SAME MATURITY LEVEL.
- COORDINATED POLICIES WITH THE PUBLIC.
- FULL COMPLIANCE WITH THE REGULATIONS.

COMPLY WITH PERFORMANCE REQUIREMENTS OF FINANCIAL INSTITUTIONS

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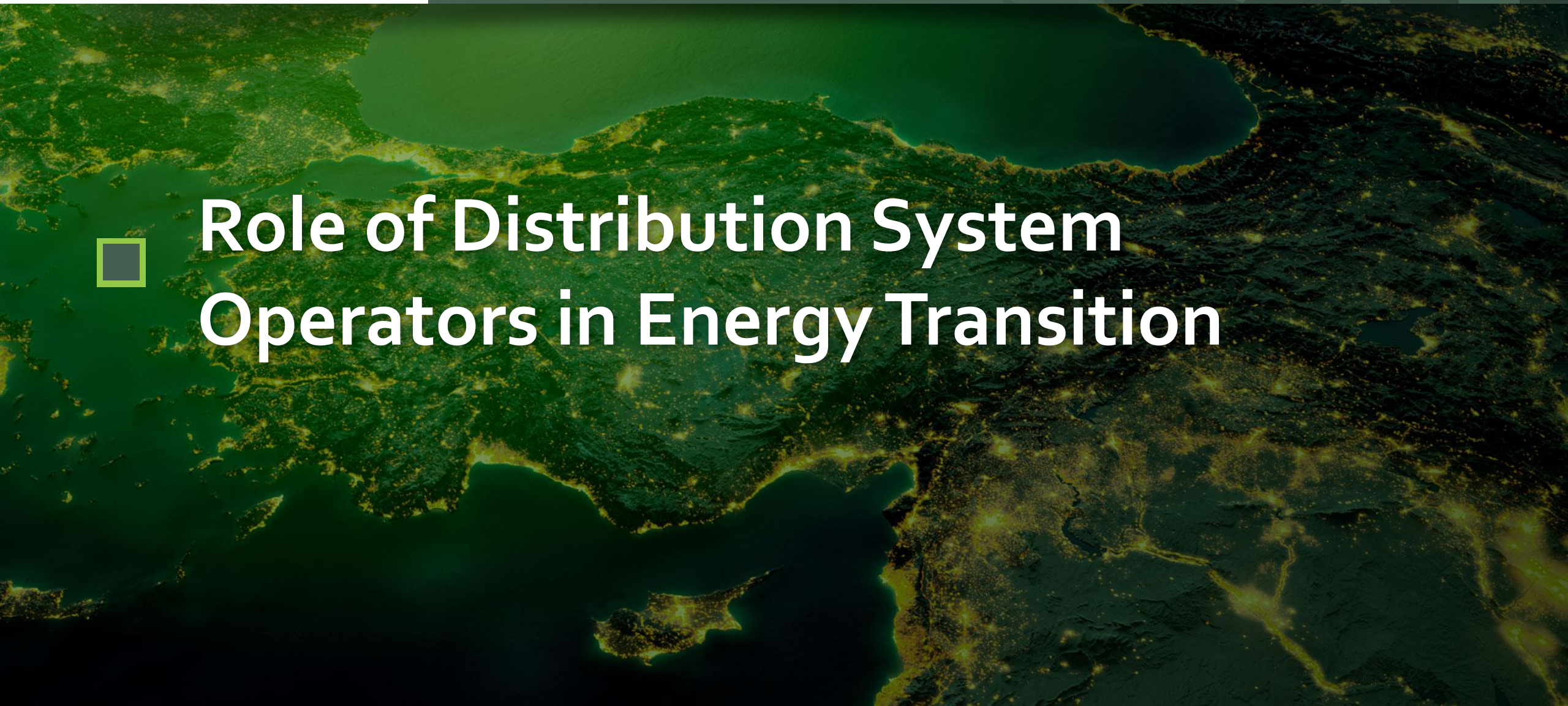

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