



**“Transformation of Türkiye's Electricity Distribution Sector” Report Published November 2025**

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Traditional electrical systems are defined as centralized, unidirectional power-flow structures in which consumers are positioned at the end of the value chain and whose fundamental components are generation, transmission, and distribution.

In line with countries' mid-century targets for transitioning to net-zero-emission economies, the rapid expansion of renewable generation, distributed energy resources, and clean electrification is shifting energy flows to a bidirectional structure and empowering consumers to take an active role in the evolving electricity system. Although this transformation affects the entire value chain of the power system, the increase in distributed energy resources (distributed generation, electric vehicles, heat pumps, behind-the-meter energy storage, etc.) necessitates a comprehensive transformation of distribution systems.

Enhancing, modernizing, and expanding the distribution system in parallel with these developments is one of the essential prerequisites for this transformation. The success of the energy transition envisioned within the framework of climate and energy targets depends not only on planning distribution systems with a focus on digitalization, but also on defining the new responsibilities and functions of distribution system operators (DSOs).

In the report ‘Transformation of Türkiye’s Electricity Distribution Sector’ published by SHURA on November 6, the necessary steps for the modernization, digitalization, and expansion of distribution systems, as well as the new roles to be undertaken by distribution system operators, are evaluated in detail, while the transformation process is addressed considering different phases.

**SHURASTAT** 21 December 2025  
1952-25

Extreme weather events\* and natural disasters, whose frequency and intensity have increased in recent years, pose significant operational and economic risks to power transmission and distribution infrastructure. These events not only result in loss of life but also cause economic losses due to power outages and disruptions in the supply chain.

In regions affected by climate-related events or natural disasters such as earthquakes, droughts in transmission and distribution networks can prevent end users from accessing energy even when power generation facilities remain undamaged. Accordingly, strengthening grid infrastructure is regarded as a key priority for implementing climate change adaptation strategies and ensuring energy supply security.

**Annual global frequency of natural disasters by type, 1970-2024 (Number of events)**

According to IRENA (2025), infrastructures are exposed to multiple physical hazards, including heatwaves, storms, wildfires, droughts, land subsidence, and sea level rise. Climate change leads to more frequent and severe climate-related hazards, and these events can set off a chain of interconnected effects. Analyses by Climate Central (2024) indicate that between 2000 and 2023, 95% of large-scale power outages in the United States of America were caused by weather-related events.

According to EM-DAT (2025) data, a total of 393 natural disaster events were recorded worldwide in 2024, affecting approximately 147 million people. In 2024:

- Although an annual average of 11 uncontrolled wildfires was observed between 2004 and 2023, this number nearly doubled in 2024, by reaching 21.
- Approximately 33 million people were affected by extreme heat conditions in Bangladesh.
- In the USA, Hurricane Helene caused economic losses of US\$ 54 billion, while Hurricane Milton resulted in losses of US\$ 38 billion.
- Earthquakes in Japan have resulted in total damages amounting to around US\$ 15 billion.

According to ABS-CBN (2025), a magnitude 6.9 earthquake in the Philippines in 2025 caused damage to power transmission lines, resulting in several days of electricity outages for approximately 820,000 subscribers.

These data highlight the significant operational and economic risks that extreme weather events and natural disasters, such as earthquakes, impose on infrastructure systems.

**Number of people in affected countries power outages due to natural disasters and disasters, 2000-2023**

**IRENA (2025) recommended actions for strengthening and enhancing the resilience of electricity infrastructure against the climate risks**

Area	Recommended actions
Transmission and Distribution	• Upgrade transmission and distribution infrastructure to enhance resilience against extreme weather events and natural disasters.
Generation	• Diversify the generation mix to include resilient energy sources.
Energy Storage	• Invest in energy storage technologies to provide backup power during outages.
Grid Modernization	• Implement smart grid technologies to improve monitoring and response capabilities.
Regulatory and Policy	• Develop and enforce standards and regulations for infrastructure resilience.
Investment	• Increase funding for infrastructure resilience projects.
Research and Innovation	• Support research and development of new resilient technologies.
Capacity Building	• Enhance the skills and knowledge of infrastructure operators.
Public Awareness	• Educate the public on the importance of infrastructure resilience.

International examples clearly demonstrate the impact of weather-related outages on system reliability, while high-cost infrastructure damages make energy supply security vulnerable.

The widespread deployment of renewable energy sources is strategically important not only for achieving climate targets but also for enhancing the resilience of the energy system. Strengthening transmission and distribution infrastructure, complemented by distributed renewable generation, storage systems, micro-grids, and on-site generation solutions, can contribute to limiting the impacts of earthquakes and climate-related natural disasters on the electricity system.

Türkiye's location in a seismic belt, along with increasing flood risks due to climate change, presents a significant systemic risk to energy infrastructure. Effective management of these risks requires conducting city-level disaster risk assessments, strengthening infrastructure resilience, and integrating digital technologies into planning processes.

- In developing disaster-resilient infrastructure, Türkiye can effectively enhance energy supply security and system flexibility by integrating distributed generation facilities with storage systems, leveraging its solar energy potential.
- Türkiye, establishing an integrated emergency response and coordination mechanism, in which the roles of sector stakeholders are clearly defined under public oversight, can facilitate rapid interventions to minimize energy supply disruptions during disasters.

# SHURASTAT ISSUE 45: EXTREME WEATHER RISKS TO ENERGY INFRASTRUCTURE / December 2025

SHURASTAT [Issue 45](#) examines the operational and economic risks that extreme weather events and natural disasters pose to energy infrastructure. Key findings from Issue 45 include:

- **Global disaster toll:** In 2024, 373 natural disasters affected around 167 million people worldwide. Hurricanes Helene and Milton caused a combined economic loss of USD 94 billion.
- **Grid vulnerability:** Analyses indicate that 80% of large-scale power outages in the United States between 2000 and 2023 were weather-related. The 2025 earthquake in the Philippines left 820,000 customers without electricity for days.
- **Türkiye's risk profile:** As an earthquake-prone country, Türkiye also faces increasing flood risk linked to climate change, which constitutes a systemic risk for energy infrastructure. Strengthening the resilience of infrastructure and integrating digital technologies into planning are critical.
- **Resilience and transformation:** Renewable energy, storage systems and microgrids help bring the energy system closer to climate targets while also enhancing resilience to disasters.

# New Issues of "SHURA AGENDA" Published

Three new issues of SHURA AGENDA, covering the most up-to-date topics in energy transition, have been published.



The topic of [Issue 10](#), published in October, is the socio-economic impacts of the energy transition. This issue examines the transition's implications for economic development, production and employment. It highlights that the overall benefits of the energy transition are expected to reach approximately twice its costs, while underscoring the need to develop policies to address potential adverse impacts on traditional sectors. The issue also assesses how the energy transition roadmap affects socio-economic indicators and offers recommendations that can help guide policymaking.



The topic of [Issue 11](#), published in November, is Renewable Energy Purchase Agreements (YETA) and the critical role of this mechanism in the energy transition. In line with Türkiye's target to reach 140 GW of wind and 220 GW of solar capacity by 2053, the issue details the opportunities that YETAs offer to accelerate private sector investment. It emphasises that these agreements provide revenue certainty for producers and predictable cost advantages for consumers, and that they play a key role among market-based instruments by supporting diversification of financing.



The topic of [Issue 12](#), published in December, is green financing strategies and the proposal for a "Climate Bank." Building on the fact that Türkiye needs around USD 15 billion in annual investment to transform its electricity system on the pathway to net zero, the issue discusses the financial dimension of this transition. It proposes establishing a public-led "Climate Bank" to coordinate access to international finance, diversify funding sources and ensure that funds are managed through the most effective mechanisms, as a strategic step for Türkiye's green transformation.

# New “Energy Transition Agenda” Podcast Episodes

The programme series “Energy Transition Agenda”, presented by SHURA and addressing the energy transition in all its dimensions, is available on SHURA’s YouTube channel as well as on Spotify and Apple Podcasts. Hosted by Didem Eryar Ünlü, Yael Taranto and Hasan Aksoy, the series featured expert guests such as Uygur Özesmi and Serdar Gökpınar and covers a wide range of topics—from the restorative economy to emerging climate technologies. The series continues to explore the energy transition’s core themes in depth, from renewables to batteries, from Türkiye’s net zero target to a just transition.



## **Episode 22**

**(24 October)** With Uygur Özesmi, Chair of the Prosumer Economy Association (Türetim Ekonomisi Derneği), the programme examines the operating structure and importance of energy cooperatives, successful and unsuccessful international examples, the regulatory and market framework, investment processes, and the societal awareness needed to support the development of this field within the framework of the prosumer economy.



## **Episode 23**

**(28 November)** With Özlem Yakut, Senior Finance Advisor at GEFF, the discussion covered the financing of energy efficiency, how it differs from conventional financing mechanisms, the roles of stakeholders and energy service companies, the impact of innovative financing instruments, key challenges, and potential solutions.



## **Episode 24**

**(26 December)** With Serdar Gökpınar, Director of Innovative Technology Programmes at TTGV, the discussion focused on climate technologies with the potential to make an impact in tackling climate change, the commercialisation of these technologies, domestic technology development efforts, and the role of digitalisation and artificial intelligence.

# SHURA EVENTS

## “Transformation of Türkiye’s Electricity Distribution Sector” Report Launch & Panel / November 2025

**SHURA**  
Energy Transition Center

### “Türkiye Elektrik Dağıtım Sektörünün Dönüşümü” Rapor Lansmanı & Panel

6 Kasım 2025 Perşembe | 10.30-12.00 | Çevrim içi

**10.30-10.35** Açılış Konuşması  
Alkim Bağ Güllü, SHURA Direktörü

**10.35-11.00** Rapor sunumu  
“Türkiye Elektrik Dağıtım Sektörünün Dönüşümü”  
Dr. Sena Serhadlıoğlu, SHURA Kıdemli Enerji Analisti

**11.00-12.00** Panel  
“Elektrik Dağıtım Sektörünün Geleceği”

**Moderatör:**  
Hasan Aksoy, SHURA Araştırma Koordinatörü

**Konuşmacılar:**  
Dr. Oğuzcan Samsun - Enerjisa Strateji, İş Geliştirme ve Birleşme & Devralma Direktörü  
Mert Bayer, MEDAŞ Sistem İşletme Müdürü  
Mevlüt Akdeniz, MRC Türkiye Güç Sistemleri Mühendisi

Kayıt ve Detaylı Bilgi: [www.shura.org.tr](http://www.shura.org.tr)

Türkiye’s electricity system is entering a period of profound transformation. The policies that will shape the direction of this transition, investments in digital infrastructure and the rollout of smart meters are redefining the future of the energy system. Published by the SHURA Energy Transition Center on 6 November, the report titled “Transformation of Türkiye’s Electricity Distribution Sector” examines how Türkiye’s electricity system is expected to evolve and identifies the critical policy needs required to enable this transformation.

In the [online event](#) held for the report launch, key findings were shared and future electricity distribution policies were discussed with experts. The event opened with remarks by Alkim Bağ, Director of SHURA, followed by a presentation of the report’s main findings by Dr Sena Serhadlıoğlu, Senior Energy Analyst at SHURA.

The panel session, moderated by Hasan Aksoy, Research Coordinator at SHURA, was held under the title “The Future of the Electricity Distribution Sector.” Speakers included Dr Oğuzcan Samsun, Director of Strategy, Business Development, and Mergers & Acquisitions at Enerjisa; Mert Bayer, System Operations Manager at MEDAŞ; and Mevlüt Akdeniz, Power Systems Engineer at MRC Türkiye.

# SHURA at Events & Programs



## EIF Enerji Dönüşümü Fuarı 8 - 10 Ekim 2025 İstanbul Fuar Merkezi

"Dünya ve Türkiye  
Enerji Sektörü Gelecek  
Perspektifi Oturumu"

8 Ekim 2025  
11.45 - 12.45  
Kırmızı Salon

Konuşmacı:  
Selahattin Hakman  
SHURA Yönlendirme  
Komitesi Başkanı



**8 October** Selahattin Hakman, Chair of SHURA's Steering Committee, participated as a speaker in the session titled "Future Outlook for the Global and Türkiye's Energy Sector", held on 8 October at EIF.



## III. Yeşil Enerji Zirvesi

Panel 4:  
"AB ETS & CBAM 2026+"

14 Ekim 2025  
14.45 - 15.30  
İstanbul Mandarin  
Oriental Bosphorus

Konuşmacı:  
Yael Taranto  
SHURA Kıdemli  
Enerji Analisti



**14 October** Yael Taranto, Senior Energy Analyst at SHURA, spoke at the session she participated in during the 3rd Green Energy Summit, focusing on the impacts of carbon pricing on exports and related policy recommendations.

On **17 October**, **Sena Serhadlıoğlu** gave a presentation at the **Turkish Cement Manufacturers' Association meeting**, highlighting the importance of renewable hydrogen and carbon capture for decarbonisation. The presentation also shared strategic technological solutions to support the industry's green transition.



## VIII. Elektrik Tesisleri Ulusal Kongre ve Sergisi Tepekule Kongre ve Sergi Merkezi, İzmir

23 Ekim 2025  
Anadolü Salonu

11.20 - 12.20 Oturum 5A  
"Türkiye İçin Batarya Enerji  
Depolama Seçenekleri"  
16.20 - 18.00 Oturum 8A  
"Ulaşım Sektörü Dönüşümü:  
Elektrikli Araçların Türkiye  
Dağıtım Şebekelerine Etkisi"

Konuşmacı:  
Hasan Aksoy  
SHURA Araştırma Koordinatörü



**23 October** Hasan Aksoy, Research Coordinator at SHURA, presented SHURA's reports on battery energy storage and the impacts of electric vehicles on distribution grids at the 8th National Electrical Installations Congress and Exhibition held in İzmir.



## "Enerji Koridoru"

24 Ekim 2025  
10.30 - 11.00  
CNBC-e

Konuşmacı:  
Selahattin Hakman  
SHURA Yönlendirme  
Komitesi Başkanı



**24 October** Selahattin Hakman, Chair of the Steering Committee of SHURA, spoke on Energy Corridor, hosted by Şafak Tükle, about the current state of the energy transition globally and in Türkiye, as well as the key targets ahead.



## ST Endüstri Radyo Çetin Ünsalan ile "İşte Bunu Konuşalım"

10 Kasım 2025  
17.45  
ST Endüstri Radyo

Hasan Aksoy  
SHURA Araştırma  
Koordinatörü



**10 November** Hasan Aksoy, Research Coordinator at SHURA, was a guest of Çetin Ünsalan on ST Endüstri Radyo, where SHURA's report "Transformation of Türkiye's Electricity Distribution Sector" was discussed.



## 15. Türkiye Enerji Zirvesi 8 - 9 Aralık İstanbul Hilton İstanbul Bomonti

"Elektrik Piyasası  
Oturumu I"

8 Aralık 2025  
14.00 - 15.15  
Salon I

Panelist:  
Hasan Aksoy  
SHURA Araştırma  
Koordinatörü



**8 December** Hasan Aksoy, Research Coordinator at SHURA, participated as a speaker in "Electricity Market Session I" held at the 15th Türkiye Energy Summit.

## SHURA at Events & Programs



**8 December** Alkim Bağ, Director of SHURA, spoke at the event titled "From Europe to Asia: Resilience, Supply Chain, Digitalization and Connectivity," jointly organised by the Delegation of the European Union to Türkiye and MEXT.



**12 December** Hasan Aksoy, Research Coordinator at SHURA, attended the 15th Energy Symposium held in Ankara. In the session titled "Current Challenges and Solutions in Energy," he delivered a presentation entitled "Can Coal Power Plants Be Phased Out in Türkiye?"



**17 December** Alkim Bağ, Director of SHURA, was a guest of Pelın Yantur on Bloomberg HT. The discussion covered key themes of the energy transition, ranging from Türkiye's current energy efficiency outlook to 2026 priorities and the implications of the CBAM and COP31 for Türkiye.



**17 December** In an online event organised by the Turkish-German Energy Partnership, Hasan Aksoy, Research Coordinator at SHURA, spoke in a session addressing the current state of smart charging in Türkiye, along with key opportunities and barriers.

## UPCOMING SHURA PUBLICATIONS

- **Enabling Renewable Hydrogen in Türkiye**

This study aims to analyze the opportunities and challenges confronting Türkiye throughout the process of developing a hydrogen ecosystem, structured under specific headings.

- **The Impact of Locational Marginal Pricing on Power System for Accelerating Renewable Energy Integration**

A mid and long-term roadmap for Türkiye concerning the need for moving towards the locational electricity pricing concept.

- **Combating Energy Poverty Through Clean Energy and Efficiency**

A study aiming to contribute to the fight against energy poverty in Türkiye by conducting a comparative analysis of recommendation packages focused on energy accessibility and carbon reduction, and by developing these packages with input from stakeholders.

- **Unlocking Renewable Energy Integration through Power Market Reform: Insights from an International Think Tank Collaboration**

This joint project aims to evaluate and strengthen power market structures in Türkiye, South Korea, Thailand, and Pakistan in order to unlock the full potential of renewable energy integration by identifying and promoting tailored market design, while fostering regional learning and collaboration.



## SHURA IN THE MEDIA

**14.10.2025**

[Installed renewable capacity exceeds 74 GW](#)

**16.10.2025**

[SHURA: Net Zero 2053 could create 432,000 additional jobs in Türkiye](#)

**17.10.2025**

[The overall benefits of the energy transition could be around twice its costs](#)

**06.11.2025**

[Digital transformation of the electricity distribution system is critical for the net zero target](#)

**06.11.2025**

[SHURA: A fundamental transformation of the distribution system is needed](#)

**06.11.2025**

[Digital transformation of the electricity distribution system is critical for the net zero target](#)

**07.11.2025**

[Türkiye's net zero target necessitates a fundamental transformation of the electricity distribution system](#)

**07.11.2025**

[Energy cooperatives need to be scaled up](#)

**17.11.2025**

[SHURA: Wind and solar could generate 77% of Türkiye's electricity in 2053.](#)

**01.12.2025**

Industry is at the heart of the transition

**01.12.2025**

SHURA AGENDA: Renewable Energy Purchase Agreements (YETA)

**07.12.2025**

A new security paradigm: energy nationalism

**24.12.2025**

SHURA: A Climate Bank should be established to finance the energy transition

**26.12.2025**

What kind of "Climate Bank" model does Türkiye need?

Please find all the information on current activities and publications of SHURA Energy Transition Center on [shura.org.tr](http://shura.org.tr). By registering on the website, you can subscribe to SHURA's e-newsletter.

Additionally, you can follow SHURA on social media platforms.



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