CLIMATE TRANSITION PLAN

ENERJİSA ÜRETİM

CONTENTS

Disclaimer: This document presents Enerjisa Üretim's decarbonization roadmap as an integral part of its broader sustainability strategy. The trajectory and associated projections are constructed based on scenario-based probabilities grounded in up-to-date scientific evidence, prevailing market dynamics, and current policy outlooks. The approach reflects evidence-based modeling and assumptions deemed reasonable at the time of publication.The realization of the targets outlined herein is subject to numerous external and systemic factors beyond the direct control of Enerjisa Üretim. These include the availability and scalability of relevant technologies, the evolution and applicability of regulatory and policy frameworks, and the level of cross-sectoral coordination throughout the energy value chain. In parallel, the transition to a low-carbon energy system must be carried out while safeguarding energy supply security and preserving the resilience and functionality of the overall infrastructure. In view of the rapidly evolving energy landscape and the potential for unforeseen developments, the targets and strategies outlined in this document may be reassessed to ensure continued alignment with emerging realities and to support system stability. All forward-looking statements presented herein are indicative in nature and should not be interpreted as legally binding commitments, representations, or contractual obligations. Enerjisa Üretim explicitly reserves the right to revise, postpone, or withdraw any of the stated targets, assumptions, or their components in response to material changes in external conditions or internal strategic priorities. All forward-looking statements contained herein fall entirely within the scope of this disclaimer. This document was prepared in May 2025 to serve as a reference for Enerjisa Üretim's long-term climate transition planning through 2040. While the strategic pathway remains valid in the long term, technical and quantitative forecasts such as installed capacity, generation projections, and emission estimates have been developed based on the latest available data as of the preparation date and are applicable for a one-year period. The document is subject to annual review to ensure adaptability to material changes in regulatory, technological, or market circumstances.

ABOUT THIS REPORT

This Climate Transition Plan presents Enerjisa Üretim's strategic framework for aligning its operations, asset portfolio, and investment pathways with long-term climate goals and Türkiye's national energy transformation agenda. The report synthesizes sectoral insights, regulatory trends, and transition scenarios to articulate our evolving approach to enabling a low-carbon, resilient energy system.

The report outlines the acceleration of Enerjisa Üretim's decarbonization trajectory, including its net-zero target for 2040, and details the expansion of renewable capacity, integration of hybrid and storage technologies, and the technological transformation of thermal assets into low-emitting, flexible infrastructure. These evolving assets are being repositioned as transition hubs, contributing to grid stability, system adequacy, and the integration of variable renewable energy sources.

The report also highlights cross-cutting pillars of our climate strategy, including just transition principles, ecosystem and biodiversity stewardship, digital innovation, and supply chain engagement. This integrated perspective reflects Enerjisa Üretim's commitment to balancing climate ambition with operational resilience and national energy priorities. It also outlines our growth strategy and sustainable business model, discussing the resilience of our strategic direction under various climate scenarios, and addressing both the risks and opportunities of climate change. Our progress across the TCFD pillars—Governance, Strategy, Risk Management, and Metrics & Targets—demonstrates our commitment to advancing our climate strategy.

A distinguishing feature of this report lies in its methodological advancement introducing a probabilistic treatment of transition uncertainties for emissions intensity reduction trajectory. Rather than relying solely on deterministic projections or fixed scenario narratives, the report incorporates uncertainty quantification into key decarbonization pathways. This approach is designed to more accurately reflect the stochastic nature of transition-related variables, including the pace of technological deployment, regulatory evolution, and macroeconomic shifts. This framework enables a more nuanced understanding of risk-adjusted outcomes under varying conditions, which is particularly salient in the context of energy systems characterized by long investment cycles and interdependent infrastructures.

This document will be updated periodically to reflect material developments in science, policy, legislation, and technology. It is intended to provide stakeholders with a transparent, evidence-based, and adaptive account of Enerjisa Üretim's climate-related strategy and contributions.

Balıkesir Wind Power Plant

SUMMARY

Enerjisa Üretim's Climate Transition Plan outlines a scenario-informed net-zero pathway targeting 2040, more than a decade ahead of Türkiye's national commitment. The plan presents a science-based and institutionally integrated strategy that aligns investment planning, asset operations, and governance with long-term climate objectives. It adopts a probabilistic yet evidence-driven approach that incorporates climate action across core business functions while safeguarding system reliability, market stability, and social inclusion.

The strategy is built on six foundational pillars:

1. Decarbonization as a strategic differentiator
2. Carbon pricing and regulation as enablers of strategic coherence
3. Systems thinking in energy sector transformation
4. Renewable-based energy independence
5. Integration with the global sustainability architecture
6. Energy transition aligned with just transition principles

These foundations guide an operational framework composed of four interlinked focus areas:

1. Renewable energy expansion
2. Technological innovation and operational optimization
3. Repurposing of thermal assets
4. Ecosystem restoration and nature-based solutions

The 2040 net-zero ambition is not defined as a fixed end point but rather as a forward-looking projection shaped by uncertainties in market dynamics, technology deployment, and policy environments. To model these uncertainties, a Monte Carlo-based scenario framework is used, incorporating variables such as renewable build-out rates, scalability of battery storage and carbon capture technologies, the role of thermal generation, and the quantifiable impact of nature-based interventions. While renewable expansion and thermal reduction are prioritized through 2035, asset repurposing and advanced technologies become more prominent in the following decade.

The plan anticipates a phased reduction in emissions intensity, from 463 gCO_2/kWh in 2024 to 218 gCO_2/kWh by 2030, approaching near-zero levels by 2040. This trajectory is aligned with the IPCC AR6 C2 scenario, which models a return to 1.5°C warming with greater than 50 percent likelihood following a temporary overshoot. The pathway supports both national objectives and global climate stabilization goals.

Governance of the transition is anchored in institutional mechanisms. Strategic oversight is provided by the Board of Directors, with executive implementation led by the Sustainability Steering Committee chaired by the CEO. Supporting subcommittees on climate change and just transition ensure accountability and integration across corporate functions.

Through this plan, Enerjisa Üretim reinforces its role as a responsible energy producer while positioning itself as a proactive enabler of Türkiye's energy transition, aligned with global decarbonization objectives.

Head Office, Soilless Agricultural Implementation Area

MESSAGE FROM THE CEO

The global energy sector stands at a critical juncture where the dual imperatives of climate stability and energy security must be addressed in tandem. As Enerjisa Üretim, we embrace this responsibility not only as a business imperative but as a societal obligation to act with foresight, discipline, and scientific rigor.

This Climate Transition Plan outlines our approach to navigating this complexity, offering both a directional vision and a measurable framework for transforming our generation portfolio, governance systems, and value chain operations. It reflects the strategic decisions we are undertaking to ensure that our infrastructure evolves in alignment with climate science, while remaining resilient under a dynamic policy, market, and technological landscape.

We have updated our carbon neutrality target to 2040, underscoring our confidence in the scalability of renewable energy and the technological transformation of our existing assets into flexible, low-emitting systems. These assets are going to be repurposed as integrated transition platforms - hosting hybrid renewable capacity, battery storage systems, hydrogen pilots, and digital optimization tools. This shift exemplifies our philosophy of system contribution over symbolic exits.

Our 2040 net-zero target is a strategic anchor, not a rigid forecast. It reflects our directional commitment to aligning with global decarbonization pathways, while retaining the flexibility to respond to evolving realities in energy technology, regulatory frameworks, and system adequacy. We believe this approach fosters credibility, not complacency.

We are simultaneously expanding our renewable energy portfolio, integrating nature-positive and circular economy principles, and advancing innovation in energy storage, hydrogen, and agrivoltaics. Our ambition is not only to increase capacity, but also to shape the enabling conditions for a future-proof, low-carbon energy system.

Acknowledging the importance of equity and social resilience, our Just Transition Roadmap and local engagement strategies are designed to ensure that the socioeconomic benefits of this transformation are distributed inclusively. Reskilling, rural development, and institutional dialogue are central to our transition efforts, particularly in regions affected by technological evolution.

We are aware that delivering this transformation requires more than internal capability. It requires coordination across regulatory frameworks, financial ecosystems, and technological value chains. Therefore, all forward-looking statements in this report are contingent on the realization of key transition enablers and the ongoing availability of secure and affordable energy supply. This is not a static plan - it is a living, adaptive framework that will evolve with new data, new technologies, and new partnerships.

As we move forward, we will continue to build the future not through declarations, but through measurable progress, cross-sectoral alignment, and science-based strategy. We remain committed to powering Türkiye's energy transition with credibility, resilience, and accountability.

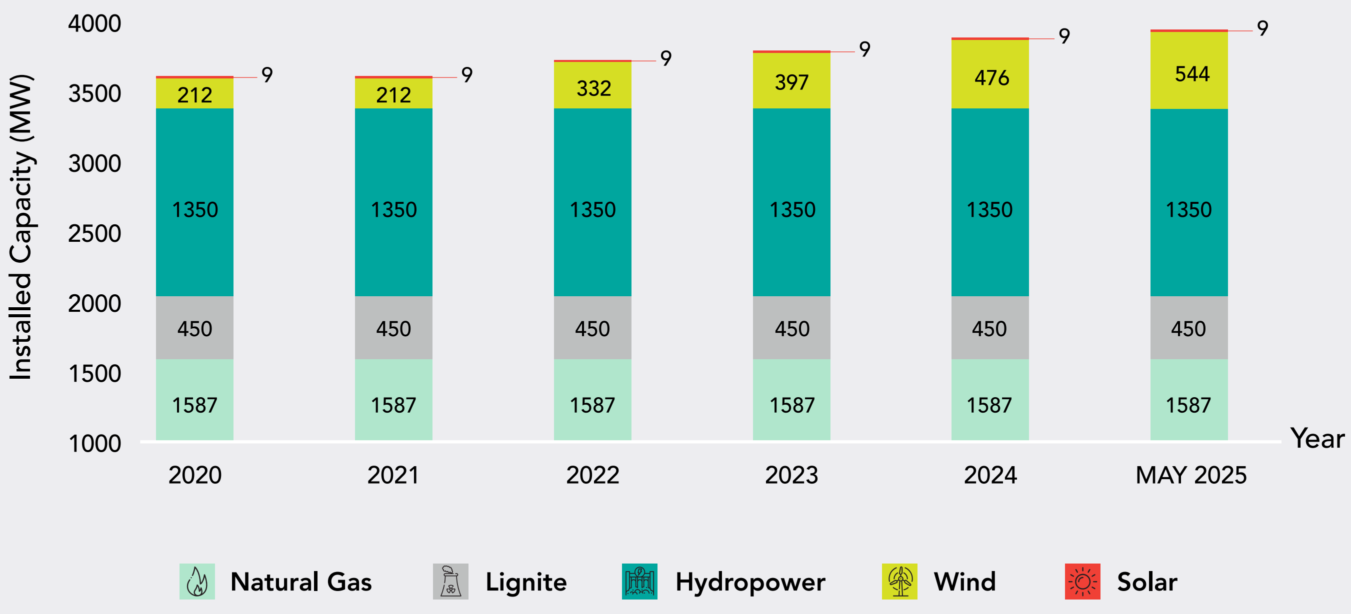
İHSAN ERBİL BAYÇÖL
Chief Executive Officer
Chairperson of the Sustainability Steering Committee

INTRODUCTION

Enerjisa Üretim is a key contributor to Türkiye's private electricity generation landscape, with operational assets totaling 3,940 MW across 30 power plants (Figure 1). The generation portfolio includes wind, solar, hydroelectric, natural gas, lignite, hybrid systems, and storage-ready infrastructure, offering a balanced asset structure that closely aligns with the national energy mix. This diversity supports grid reliability and enables operational flexibility across a range of system conditions. The emissions of the portfolio and a comparison with other entities is provided in the Appendix.

Future capacity expansion is fully focused on renewable energy sources. In line with Türkiye's decarbonization objectives, Enerjisa Üretim prioritizes investments in wind, solar, hydro, and hybrid technologies, while progressively repurposing existing thermal assets to contribute to a stable and inclusive transition. Participation in renewable energy source auctions, development of hybrid applications, and use of digital tools for system optimization form key pillars of this transition-oriented approach. Through this evolving portfolio and strategic focus, Enerjisa Üretim supports the transformation of Türkiye's energy sector by advancing sustainability, system resilience, and low-carbon growth in an integrated and responsible manner.

Figure 1: Enerjisa Üretim Installed Capacity



Balıkesir Wind Power Plant, Maintenance Work

The energy sector stands at the forefront of global decarbonization efforts, where decisions made today will shape the structural integrity, reliability, and environmental performance of energy systems for decades. Against this backdrop, Enerjisa Üretim has developed its Climate Transition Plan as a strategic instrument to align its generation portfolio, capital allocation, and operational practices with Türkiye's climate goals and international benchmarks such as the IEA's Net Zero Emissions by 2050 Scenario.

Figure 2: Enerjisa Üretim's Portfolio, May 2025

This document articulates our pathway to achieving net-zero Scope 1 and 2 greenhouse gas emissions by 2040 - a target that precedes Türkiye's national climate commitment by over a decade. The plan does not present isolated ambitions, but a dynamic, systems-oriented roadmap built on quantitative modelling, cross-functional consultation, and international policy alignment.

The formulation of the plan is guided by a multi-layered methodology:

Scenario-Based Risk and Opportunity Analysis: Enerjisa Üretim conducted detailed assessments under both <2°C and >3.5-4°C warming trajectories using reference frameworks such as IPCC SSP-RCP combinations, the IEA NZE and STEPS pathways, and NGFS policy scenarios.

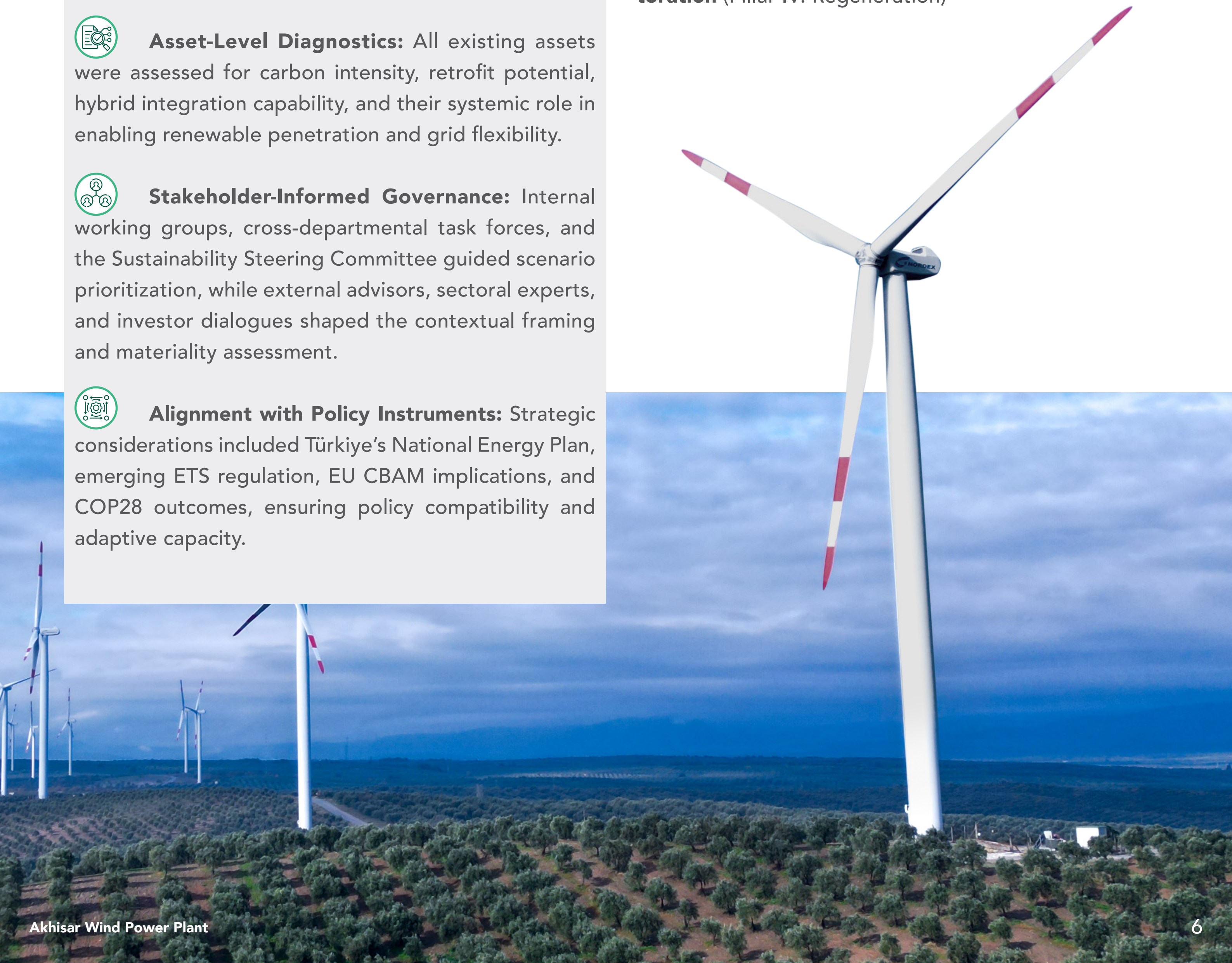
Asset-Level Diagnostics: All existing assets were assessed for carbon intensity, retrofit potential, hybrid integration capability, and their systemic role in enabling renewable penetration and grid flexibility.

Stakeholder-Informed Governance: Internal working groups, cross-departmental task forces, and the Sustainability Steering Committee guided scenario prioritization, while external advisors, sectoral experts, and investor dialogues shaped the contextual framing and materiality assessment.

Alignment with Policy Instruments: Strategic considerations included Türkiye's National Energy Plan, emerging ETS regulation, EU CBAM implications, and COP28 outcomes, ensuring policy compatibility and adaptive capacity.

Resources informing the plan included Enerjisa Üretim's GHG inventories, energy market outlook reports, regulatory impact studies, and plant-level operational data. These inputs were integrated through a science-based approach to define transition levers, interim targets, and enabling conditions required to deliver on long-term objectives. Our transition strategy is built upon four core pillars:

1. **Renewable Energy Expansion** (Pillar I: Renewables)
2. **Technological Innovation and Operational Optimization** (Pillar II: Technology)
3. **Repurposing of Fossil-Based Generation** (Pillar III: Repurposing)
4. **Nature-Based Solutions and Ecosystem Restoration** (Pillar IV: Regeneration)



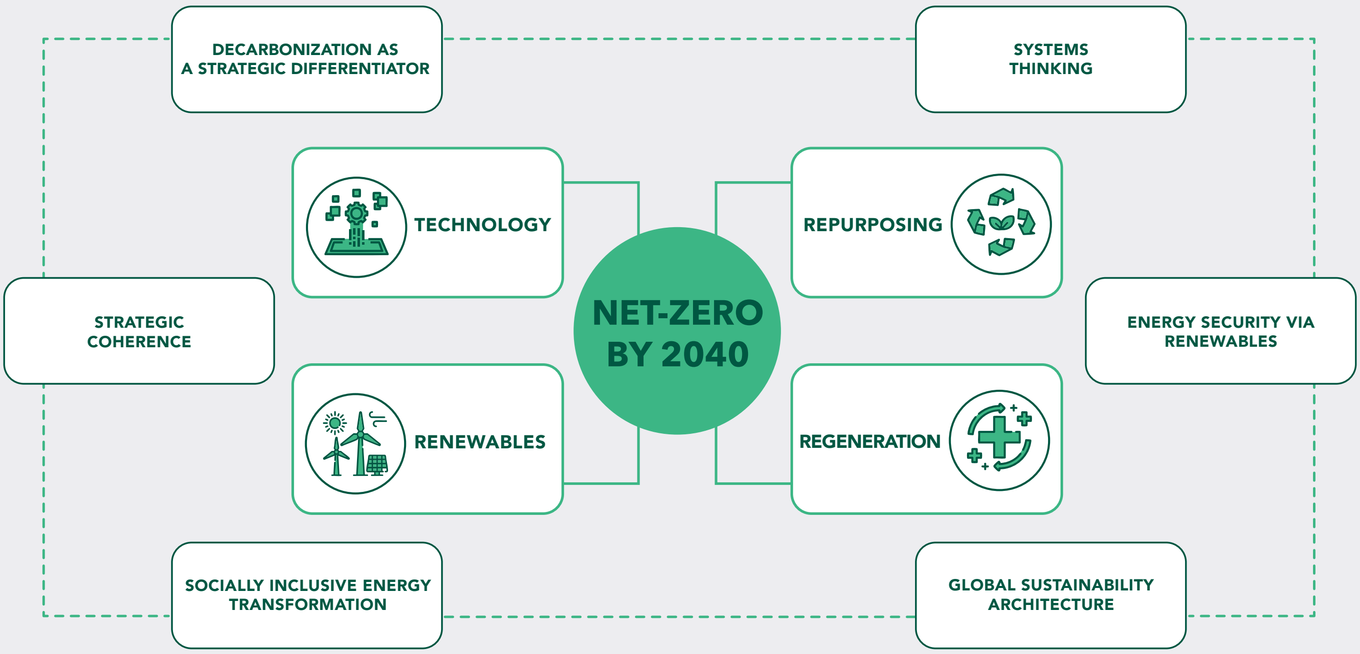
Akhisar Wind Power Plant

The four pillars of Enerjisa Üretim's climate transition are grounded in our strategic synthesis and intentional positioning across six foundational themes. These themes serve as the conceptual bedrock of our long-term vision, informing each pillar's design and execution (Figure 3). Together, they ensure that our actions are not only technically sound and economically viable, but also strategically integrated within Türkiye's evolving energy landscape and global climate imperatives:

1. **Decarbonization as a Strategic Differentiator**
2. **Carbon Pricing and Regulation as Enablers of Strategic Coherence**
3. **Systems Thinking in Power Sector Innovation**
4. **Energy Security Through Renewable**
5. **Engagement with the Global Sustainability Architecture**
6. **Socially Inclusive Energy Transformation**

The plan remains adaptive, reviewed every five years with annual updates and disclosures per IFRS S2 standards (ISSB 2023). All forward-looking statements, including the 2040 net-zero target, are subject to periodic reassessment considering evolving system constraints, geopolitical developments, technological feasibility, regulatory frameworks, and energy supply security considerations. Accordingly, the Climate Transition Plan serves as a transparent, evidence-informed, and adaptively managed framework - intended to guide execution, enable engagement, and institutionalize climate resilience across all levels of the organization.

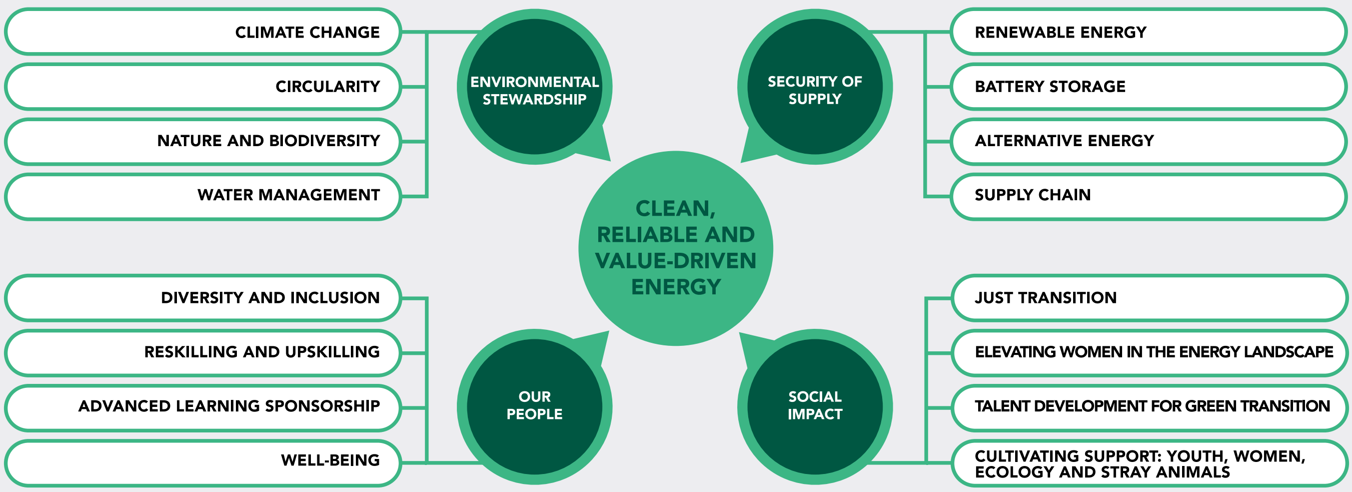
Figure 3: Net Zero Foundations and Pillars of Enerjisa Üretim



OUR CORE SUSTAINABILITY MANDATE

Enerjisa Üretim's core sustainability commitment is the delivery of clean, reliable, and value-oriented energy. This objective necessitates a multidimensional operational and investment strategy that concurrently advances environmental stewardship, system reliability, and socio-economic value creation (Figure 4).

Figure 4: Enerjisa Üretim's Sustainability Focus Areas



Our commitment to environmental performance is underpinned by a continual expansion of renewable energy assets, prioritizing technologies that minimize lifecycle emissions and ecological impacts. Investments are guided by both national decarbonization objectives and international climate alignment frameworks. Equally critical is our operational philosophy: we maintain stringent environmental compliance and regulatory and preventive protocols across all assets, seeking excellence in monitoring, mitigation, and adaptive management.

Reliability, as a foundational mandate, demands robust system resilience against physical, operational, and climatic disruptions. We emphasize high-availability asset configurations, predictive maintenance, and adaptive capacity planning to ensure uninterrupted energy delivery in the context of rising demand and increasing variability in supply.

Our third commitment to delivering value-driven energy encompasses ensuring economically accessible supply, inclusive access for all segments of society, and widespread community benefits. By expanding and operating energy infrastructure, we catalyze employment opportunities, stimulate local economies, and promote regional development. Crucially, these efforts also contribute to national energy independence and help alleviate the structural current account deficit by reducing reliance on imported energy sources, delivering long-term value at both societal and macroeconomic levels.

We recognize that the pursuit of clean, reliable and value-oriented energy can at times place these objectives in tension with one another. We accept this dynamic as an inherent aspect of our mission. We welcome the challenge it presents, understanding that the convergence of competing priorities is precisely where innovation becomes essential. It is in these complex intersections that the most impactful advances can be made, whether through new technologies, adaptive operational models, or integrative planning frameworks. This is not a dilemma to be avoided, but a space to be actively engaged, where our commitment to holistic performance is both tested and strengthened.

CLIMATE CHANGE GOVERNANCE

Enerjisa Üretim has a structured and integrated governance framework to embed sustainability and climate considerations into its strategic, operational, and investment decisions. The governance system is designed to ensure science-aligned climate action, institutional accountability, and adaptive risk management across the enterprise. This governance structure is anchored at the highest level of decision-making, where climate and sustainability priorities are systematically integrated into corporate oversight mechanisms.

The Board's responsibilities span strategic guidance, regulatory alignment, financial oversight, and innovation leadership. These include ensuring policy and reporting compliance, approving climate-related incentives, overseeing scenario analyses, and assessing climate risks and opportunities across the value chain. Climate change is a permanent agenda item at Board meetings, integrating climate considerations into all strategic and operational decisions.

The Board monitors progress on transition plans, informed by CEO updates and the Sustainability Steering Committee. Input from cross-functional working groups is vetted by the Sustainability Management Committee before reaching the Board.

The Sustainability Steering Committee, chaired by the CEO, convenes quarterly to provide strategic directions on the company's climate and sustainability agenda. It ensures high-level alignment across departments, sets corporate priorities, and oversees performance monitoring at the governance level.

Key performance indicators related to climate change are embedded into the executive incentive structure, with 20% of the CEO's annual KPIs linked to climate and sustainability performance.

At the operational level, **the Sustainability Management Committee** is led by the Asset Management and Sustainability Director, who also serves as the acting Chief Sustainability Officer reporting directly to the CEO. This committee is responsible for translating the Steering Committee's strategic guidance into implementable actions, overseeing technical processes, and managing the day-to-day execution of sustainability initiatives.

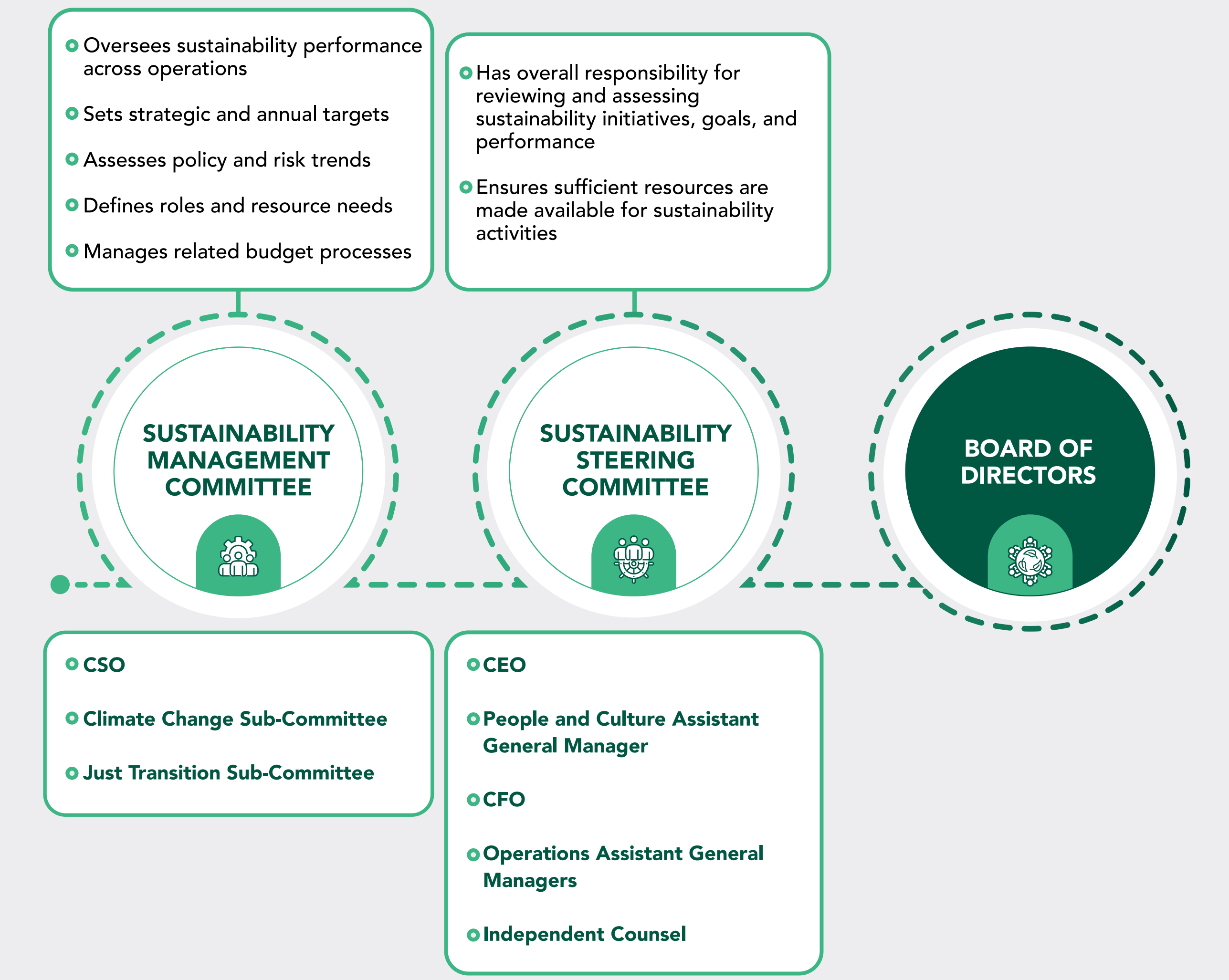
To ensure focused and expert governance over critical components of our sustainability strategy, we have two specialized bodies under the Sustainability Management Committee: *the Climate Change Sub-Committee* and *the Just Transition Sub-Committee*. These committees serve as the operational backbone for translating strategic objectives into actionable frameworks, enabling informed, data-driven decision-making.

Balıkesir Wind Power Plant - Hybrid Solar Power Plant

The Climate Change Sub-Committee is tasked with overseeing the implementation of our climate transition roadmap. This includes tracking progress toward emissions reduction and renewable growth targets, conducting climate risk assessments, guiding scenario analyses, and ensuring alignment with evolving regulatory standards and science-based commitments. The committee also monitors key performance indicators related to carbon intensity, supports the integration of low-carbon technologies, and ensures that climate-related priorities are embedded into investment and operational decision-making processes.

The Just Transition Sub-Committee is responsible for managing the social dimensions of the climate transition plan. It provides governance and guidance on workforce transformation, regional socio-economic development, stakeholder engagement, and risk mitigation strategies as fossil-based assets are phased down. This committee ensures that our transition is equitable, participatory, and aligned with both international best practices and national policy priorities.

Figure 5: Climate Change Governance at Enerjisa Üretim



Governance Networks in Climate Transition

In the current policy landscape, where fully developed frameworks for climate risk internalization are still emerging, corporate leadership plays a pivotal role in shaping the trajectory of decarbonization. Enerjisa Üretim embraces this responsibility by actively collaborating with a diverse network of stakeholders—across Türkiye and internationally—to co-develop pragmatic solutions, adaptive governance models, and resilient investment pathways.

Within Türkiye, our critical partners include regulatory authorities, the Ministry of Energy and Natural Resources, Ministry of Environment, Urbanization and Climate Change, Energy Market Regulatory Authority (EMRA), and Ministry of Labour and Social Security, with whom we engage to ensure alignment with national energy transformation goals and to contribute to policy evolution through data-backed insights and pilot implementations. At the regional and municipal levels, we work with local governments, NGOs, and academic institutions to support just transition planning and build socioeconomic resilience in areas affected by fossil asset repositioning.

Globally, we collaborate with multilateral financial institutions, development banks, research consortia, and corporate sustainability alliances, including the DFC, EBRD, IFC, CDP, and UN Global Compact, to embed international best practices into our climate strategy and enhance our credibility in global climate finance and sustainability reporting ecosystems. These engagements also enable access to emerging knowledge on climate scenario modeling, nature-based solutions, and equitable energy systems design.

The generation license granted by EMRA defines the legal boundaries of a power plant's operation, including capacity, site, fuel type, and duration. While license holders may opt to suspend operations or propose decommissioning based on economic or technical considerations, such decisions are not made unilaterally. Any formal retirement or repurposing of licensed capacity—whether partial or complete—requires prior notification to EMRA and is subject to review under the scope of system adequacy and market stability.

The state retains discretionary authority, particularly through Turkish Electricity Transmission Corporation (TEİAŞ), to assess the strategic value of generation assets for system reliability. This authority becomes especially relevant for thermal plants, which, although potentially uncompetitive in market terms under decarbonization scenarios, may still provide essential services such as inertia, frequency regulation, and emergency capacity. In such cases, the state may condition or delay retirement approvals or alternatively propose the asset's inclusion in a reserve mechanism or capacity payment scheme.

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Enerjisa Üretim Head Office

GLOBAL AND REGIONAL CONTEXT

The imperative to transition to a carbon-neutral global economy is grounded in the commitments enshrined in the Paris Agreement, which mandates net zero greenhouse gas (GHG) emissions by 2050 (U.N., 2015). This collective international commitment to limit global temperature rise to "well below 2°C" above pre-industrial levels - while striving to cap it at 1.5°C - forms the foundational framework for energy system transformation. Despite progress, the current trajectory of Nationally Determined Contributions (NDCs) remains insufficient (IPCC, 2022). The Intergovernmental Panel on Climate Change (IPCC) projects median global warming of 2.1°C to 3.4°C by 2100 under present policy commitments, underscoring the need for intensified mitigation efforts. The IPCC (2022) identifies a significant emissions gap between current policy outcomes, NDC targets, and mitigation pathways consistent with long-term temperature goals. By 2030, the implementation gap between existing policies and unconditional and conditional NDCs is estimated at 4–7 $GtCO_2$-eq. Even if all NDCs are fully achieved, a substantial shortfall remains relative to 1.5°C and 2°C pathways, with median gaps of 19–26 $GtCO_2$-e and 10–16 $GtCO_2$-e, respectively. Current NDCs are broadly consistent with pathways limiting warming to below 2.5°C but fall short of more ambitious targets.

The power sector is expected to lead the global decarbonization effort, with the International Energy Agency (IEA) anticipating a net-zero trajectory for electricity generation by 2040 for 1.5 degree alignment. Renewable energy already constitutes approximately 75% of new global power investments (IEA 2023). However, to align with the Net Zero Emissions by 2050 Scenario (NZE), annual investment in renewables must grow by at least 20%, with concomitant increases in power grid modernization and energy storage infrastructure.

Geopolitical and policy uncertainty is increasingly shaping national energy strategies. The 2022 Russia-Ukraine conflict triggered a global energy security crisis, shifting policy focus, especially in Europe, toward short-term supply reliability. The EU's REPowerEU Plan, introduced in response, reduced Russian pipeline gas imports from nearly 50% in 2021 to under 8% by 2023 (European Commission, 2022), while also accelerating renewable deployment and efficiency measures. However, this rapid realignment has also been accompanied by a resurgence of coal capacity in several countries and long-term LNG contracts, highlighting the tensions between energy security and decarbonization pathways.

While many countries have accelerated their climate ambitions, recent shifts in the United States signal a reorientation of federal policy priorities. Despite prior momentum in clean energy investment and international climate cooperation, the current administration has taken steps to reverse key climate policies, reduce funding for renewable energy programs, and limit the authority of subnational actors pursuing more ambitious decarbonization agendas. This evolving stance emphasizes domestic fossil fuel production and deregulation, reflecting a broader return to energy independence narratives. Such shifts risk undermining national emissions reduction progress, weakening global policy coherence, and delaying systemic transitions, particularly in sectors where U.S. policy direction strongly influences international investment flows and technology adoption.

The phase-out of unabated coal-fired power generation is a central requirement of global net zero scenarios (IEA 2021). The IEA emphasizes that advanced economies must eliminate such coal usage by 2030, and subcritical coal infrastructure in emerging economies must be retired by the same year. However, only 21 countries - representing a minor share of global coal generation - have made such commitments. The continued reliance on coal in high-growth economies such as India and China presents a critical challenge, particularly as coal demand has recently rebounded, contradicting the need for rapid phase-out under climate-aligned scenarios. China has accelerated coal plant construction at an unprecedented pace, commissioning 66% of new global coal-fired capacity additions in 2023 alone. Driven by energy security concerns, this surge in coal investment is intended to serve as reserve capacity rather than consistent base-load generation, reflecting a shift toward coal plants operating at low-capacity factors. Nonetheless, the expansion risks locking in carbon-intensive infrastructure that conflicts with China's official climate targets to peak emissions before 2030 and reach carbon neutrality by 2060. Many of these plants are projected to remain idle or underutilized, exposing both financial risks and potential setbacks to global decarbonization efforts.

Carbon pricing mechanisms have proliferated globally, with 74 pricing instruments now covering approximately 24% of global GHG emissions (World Bank, 2023). Among them, the European Union Emissions Trading System (EU ETS) remains the most developed, with its 2023 revision introducing ETS2 for sectors like transport and buildings and launching the Social Climate Fund to mitigate inequality in energy costs (European Commission, 2023).. Meanwhile, the EU's Carbon Border Adjustment Mechanism (CBAM) introduces a harmonized carbon price for domestic and imported goods, applying pressure on non-EU exporters and reinforcing carbon leakage prevention.

Global clean energy investment reached USD 1.4 trillion in 2022. China, the EU, and the United States lead in investment volume, yet IEA modeling indicates further acceleration is essential: annual renewable investment must increase by 20%, grid investment by 15%, and nuclear power investment by over 15% to achieve the 2050 net zero target. Concomitantly, fossil-based generation must be reduced by 70% by 2030. These shifts must occur alongside a projected tripling of global electricity demand, driven by electrification of transport, heating, and industrial hydrogen production.

Power system operators face additional complexity in balancing decarbonization with reliability and affordability. The integration of renewable energy sources - particularly wind and solar - necessitates substantial investments in grid flexibility, storage solutions, and digital infrastructure to ensure stability. The IEA estimates that investment in transmission and distribution must double to USD 600 billion annually by 2030. Furthermore, ensuring a just transition remains imperative. Structural shifts in energy systems must safeguard access to affordable energy and support vulnerable populations and workers during economic realignment.

Energy security has gained salience since the geopolitical disruptions following Russia's invasion of Ukraine (European Commission 2022). The EU's REPowerEU Plan epitomizes the dual challenge of climate and security policy, with accelerated deployment of renewables, diversified fossil supply chains, and energy demand reductions as core strategic responses. Russian pipeline gas now comprises less than 8% of EU imports, down from nearly 50% in 2021. The bloc has committed to a renewable energy target of 42.5% by 2030, with the ultimate objective of eliminating reliance on imported fossil fuels.

TÜRKİYE'S POLICY LANDSCAPE AND SECTORAL EVOLUTION

Türkiye ratified the Paris Agreement in 2021 and has committed to achieving net zero emissions by 2053 (Republic of Türkiye 2021). Türkiye made a Declaration during the ratification of the Paris Agreement in 2021 that stipulates '*Türkiye will implement the Agreement as a developing country and in the scope of its NDC statements, provided that the Agreement and its mechanisms do not prejudice its right to economic and social development*'. Its updated Nationally Determined Contribution (NDC) at COP27 elevated the 2030 GHG reduction target from 21% to 41% relative to a Business-as-Usual (BAU) baseline, corresponding to an approximate mitigation of 500 million tons of CO_2 by the target year (Republic of Türkiye 2022). According to Türkiye's updated NDC submitted to the UNFCCC, the country intends to peak its greenhouse gas emissions by 2038 at the latest. The Climate Action Tracker notes that allowing emissions to continue rising until 2038 would necessitate extremely steep reductions thereafter to meet the 2053 net-zero target (CAT 2024).

The Türkiye National Energy Plan, referred to as NEP from hereon, (Ministry of Energy and Natural Resources 2022) details the country's projected energy demand, supply mix, and policy measures in alignment with its long-term net-zero emissions target for 2053 with a primary focus on the period between 2020 and 2035. According to the NEP, the electricity demand in Türkiye is forecast to reach 455 TWh annually by 2030 - a 68% increase compared to current levels. To meet this demand, Türkiye is pursuing a significant expansion of generation capacity, targeting 32.9 GW of solar, 18.1 GW of wind, 35.1 GW of hydro, and 5.1 GW of geothermal and biomass by 2030.

Nuclear power will be introduced with the 4.8 GW Akkuyu Nuclear Power Plant. These additions are expected to reduce emissions intensity by 20% by 2030 (Akkuyu 2023). The NEP mentions that coal-fired power plants will remain in operation until the end of their technical lifespans, supporting grid flexibility and reserve capacity. Their share in electricity generation is projected to fall from 27% in 2020 to 21% in 2035—not due to reduced output, but due to the rapid expansion of renewable and other low-carbon technologies. Installed coal capacity is expected to increase from 21.1 to 24.3 GW. The NEP also states that carbon pricing will play a decisive role in determining the dispatch levels of coal-fired plants in the electricity and heat generation sector. Future adoption of carbon capture is considered conditional on cost and efficiency improvements of this technology.

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Following the release of the 2022 NEP, the Ministry of Energy and Natural Resources introduced the 'Energy Transition Renewable Energy Strategy 2035' in October 2024 (Ministry of Energy and Natural Resources, 2024). This new strategy marks a substantial revision of Türkiye's renewable energy targets. While the NEP projected a combined wind and solar installed capacity of 82.5 GW by 2035, the updated strategy raises this figure to 120 GW—an increase of approximately 45%. The revised plan sets annual deployment targets of 7.5–8 GW and incorporates regulatory measures aimed at shortening permitting timelines and enhancing investment flows.

In terms of policy instruments, Türkiye employs several mechanisms to catalyze renewable deployment. The Renewable Energy Resources Support Mechanism (YEKDEM) offers purchase guarantees for producers, recently updated in 2024 to a USD-based tariff structure. The Renewable Energy Resource Areas (YEKA) initiative fosters competition and domestic manufacturing capacity, particularly in solar, wind, and geothermal. Additionally, hybrid generation regulations introduced in 2020 allow storage-linked installations to integrate renewables at existing thermal and hydro facilities, enhancing system flexibility (EMRA 2020).

Türkiye has formally committed to establishing a national Emissions Trading System (ETS) as a central component of its climate policy framework. This commitment is articulated in the Climate Change Mitigation Strategy and Action Plan (CCMSAP) released in May 2024, which outlines the development of a Turkish ETS aligned with the European Union's ETS and the Carbon Border Adjustment Mechanism (CBAM) (Ministry of Environment, Urbanization and Climate Change 2024). A draft law proposing the establishment of a national ETS was submitted to the Turkish Parliament in 2025 (Türkiye Law, 2025), but it was withdrawn shortly thereafter. The three-year pilot phase was anticipated to be launched by 2026, initially covering approximately 500 installations responsible for half of the nation's emissions. The national Climate Change Law, which is currently pending final approval, will provide a legal basis for market-based climate instruments and climate finance mechanisms once enacted. While regulatory design and allowance allocation rules remain in development, our early projections suggest a moderate carbon price corridor of USD 20/tCO_2-e, reflecting current excise taxes and voluntary market benchmarks.

Global and regional climate frameworks, combined with geopolitical developments and market-based instruments such as carbon pricing, are reshaping the electricity sector. Türkiye's response includes a broad set of policy instruments aimed at balancing security, affordability, and decarbonization. As electricity demand accelerates, aligning domestic strategies with international best practices and scaling clean energy investment will be critical to achieving long-term net zero objectives.

STRATEGIC SYNTHESIS AND INTENTIONAL POSITIONING

We view the convergence of climate science, policy frameworks, technological advancement, and shifting societal expectations as a generational inflection point - one that calls for systemic, courageous, and values-aligned leadership in the power sector. This conviction is rooted in a strategic understanding of the climate-energy nexus, but also in a broader sense of institutional purpose and national responsibility. As Türkiye undergoes profound energy transformation, we position ourself not only as a participant in this transition, but as a co-architect - shaping pathways that are technologically robust, economically viable, socially inclusive, and environmentally restorative. We frame our climate and energy strategy upon six strategic domains that serve as the essential groundwork for its strategic pillars.

I. Decarbonization as a Strategic Differentiator

Our decarbonization agenda is anchored in a long-term vision of sustainable power generation that aligns commercial strategy with planetary boundaries. Our investment prioritization is designed to accelerate the deployment of low-carbon technologies, phase down reliance on high-emission processes, and support Türkiye's goal of reaching net zero by 2053. The aim is not simply to reduce emissions, but to build a power system that is modern, modular, and mission-driven - enabling industrial decarbonization, green electrification, and cross-sectoral climate progress. Through proactive capital reallocation and innovation partnerships, Enerjisa Üretim seeks to make climate ambition a source of enduring advantage.

II. Carbon Pricing and Regulation as Enablers of Strategic Coherence

Rather than treating carbon pricing regimes, such as the forthcoming Turkish ETS and the EU's CBAM, as compliance challenges, we view these mechanisms as tools for internal discipline, long-term planning accuracy, and market integrity. We are developing an integrated carbon economics framework that embeds a forward-looking internal carbon price into asset strategy, procurement decisions, and risk-adjusted returns. We will shape our trajectory with conservative assumptions on carbon intensity exposure and actively contribute to the design and evolution of Türkiye's emerging carbon market in a way that balances environmental ambition with economic realism.

III. Systems Thinking in Power Sector Innovation

The transformation of the electricity sector requires systems-based reimagination of generation, storage, transmission, and demand management. We are investing in technological capabilities that advance not only capacity expansion but also system flexibility, digital resilience, and climate adaptation. This includes grid-scale batteries, hybrid plant models, AI-based forecasting, green hydrogen feasibility and beyond. Through the Bandırma Energy Base and other strategic sites, we aim to create living laboratories for net-zero innovation - demonstrating how sector coupling and technological integration can unlock systemic decarbonization at scale.


Akhisar Wind Power Plant

IV. Energy Security Through Renewable

We believe that true energy security lies in the sovereign generation of clean, stable, and locally rooted energy systems. Türkiye's energy independence vision is most effectively realized through accelerated renewable deployment, storage investment, and community-based generation. As part of this vision, Enerjisa Üretim embeds local co-benefit generation into project design - ensuring that clean energy not only powers national grids but also supports rural livelihoods, biodiversity, agricultural productivity, and social cohesion. Our Just Transition commitments reflect a belief that climate justice and energy equity are integral to long-term license to operate. Enerjisa Üretim contributes 4–5% to Türkiye's power supply and will continue this level of strategic supply through 2040.

V. Engagement with the Global Sustainability Architecture

We actively align with international standards and contribute to the architecture of sustainable finance, ESG transparency, and science-based climate action. We disclose climate data through CDP, verify ESG metrics under the ISAE 3000 and 3410 frameworks are a signatory to the UN Global Compact and Women's Empowerment Principles. Beyond compliance, these alignments are instrumental in accessing transition finance, mobilizing blended capital, and reinforcing climate credibility in international markets. Our aim is to remain not only nationally relevant, but globally benchmarkable as a best-in-class transition actor.

VI. Socially Inclusive Energy Transformation

We are advancing an energy transition strategy grounded in principles of social equity and ecological integrity. Programs supporting labor market adaptability, women's participation, and rural livelihoods are deployed alongside ecosystem restoration and biodiversity integration measures. Ecological safeguards follow "no net loss" and "critical habitat" standards, while social outcomes are pursued in alignment with just transition guidelines and national development priorities. This integrated model facilitates a resilient and equitable energy future, where both people and nature are considered essential stakeholders in the decarbonization process.

Balıkesir Wind Power Plant

PILLARS DRIVING THE TRANSITION TO NET-ZERO

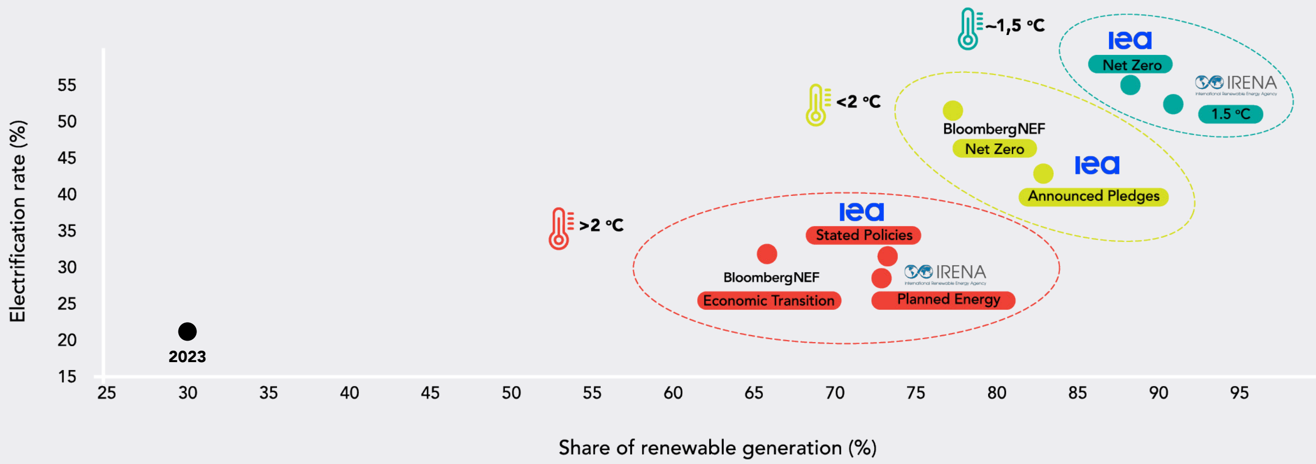
Our climate transition strategy is operationalized through four interdependent pillars that collectively shape our climate trajectory, investment decisions, and system-level contributions. These pillars represent not only technology levers but also pathways to institutional resilience, competitive differentiation, and alignment with Türkiye's and the world's evolving climate expectations. Each pillar anchors a distinct dimension of our six strategic domains and advances our role as a transition orchestrator in the national energy ecosystem.

Pillar I: Renewable Energy Expansion

The primary vector of decarbonization is the systematic expansion of renewable electricity generation within our supply mix. This includes the deployment of wind and solar photovoltaic assets, and grid-connected storage-integrated renewable systems. The capital allocation and project sequencing for these assets will be guided by marginal abatement cost efficiency analyses and life-cycle emissions modeling.

Enerjisa Üretim aims to operate its generation portfolio entirely with renewable energy sources by 2040, pursuing a phased transformation strategy that prioritizes resource diversification and system flexibility.

Figure 6: Renewable Generation and Electrification in Global Transition Scenarios at 2050



Source: based on data from IEA World Energy Outlook 2024, BNEF New Energy Outlook 2024, Irena World Energy Transition Outlook 2023.

Our renewable energy scale-up strategy is underpinned by a multidimensional framework that combines asset optimization, strategic acquisition, competitive procurement, hybridization, and storage integration. The primary mechanisms driving renewable energy expansion are outlined below:

1. Capacity Expansion at Existing Assets: Incremental capacity additions at operational sites enhance generation efficiency and site utilization. In 2023, Erciyes Wind Power Plant was upgraded with an additional 13.6 MW, bringing total installed mechanical capacity to 92 MW, power plant also has approximately 23.9 MW hybrid solar unit. Similarly, the Akhisar Wind Power Plant in Manisa was expanded by 7 MW in 2024. In 2025, a further extension was implemented at Dağpazarı with 13.6 MW capacity, and several other plants, such as Aydos and Dikili, have capacity expansion rights that can also be utilized. These upgrades boost output by optimizing existing permits and infrastructure, eliminating the need for new site construction.

2. New Asset Origination through National Wind Auctions: Türkiye's Renewable Energy Resource Area (YEKA) mechanism serves as a structured vehicle for large-scale renewable development. Enerjisa Üretim secured 1,000 MW of wind capacity across 13 sites under the YEKA-2 WPP process—500 MW awarded by the Ministry in Aydın and Çanakkale, and an additional 500 MW acquired in Balıkesir and Muğla - representing a total investment of around USD 1.3 billion. An additional 750 MW capacity was awarded through the 2024 tender - allocated to Edirne WPP (410 MW) and Balkaya WPP (340 MW) - with commissioning anticipated by 2027.

Upon completion, these plants are expected to prevent approximately 3.6 million metric tons of CO_2 emissions annually. We implement new investment projects in accordance with national law and the Equator Principles, applying technically demanding tools such as independently verified ESIA reports, transparent stakeholder frameworks, and biodiversity-sensitive cumulative assessments.

LEARN MORE ABOUT OUR YEKA WPP-2 PROJECT

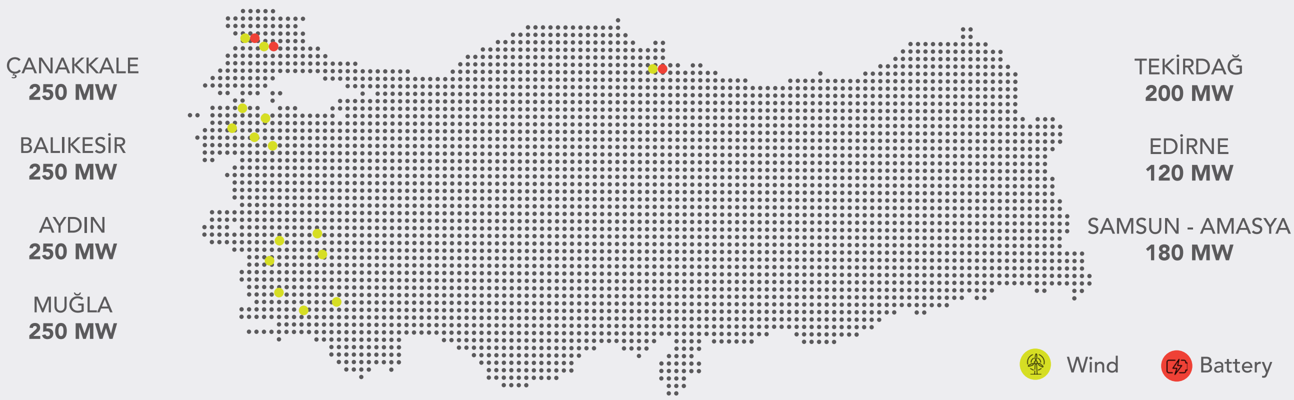
Figure 7: Strategic Rollout of YEKA II Wind Investments

1,000 MW YEKA WPP-2 INVESTMENT

~1.3 bnUSD	100%	>10 yrs.	~10%
WPP Investment	Secured Wind Turbines	FX Revenue Stream	Share in WPPs (Türkiye)

2024 — **2026** — **2027**

25 MW	760 MW	1,000 MW
Akköy in 2023	Operational in 2024 - 2025	Operational in 2026



No Net Loss Framework in YEKA WPP-2 Projects

We adhere to a site-specific biodiversity management strategy across the YEKA Wind Power Project (WPP)-2 portfolio, anchored in adherence to international environmental safeguards, specifically IFC Performance Standard 6 and EBRD Performance Requirement 6. A formal No Net Loss (NNL) objective has been adopted to ensure that residual ecological impacts are counterbalanced through application of the mitigation hierarchy: avoidance, minimization, restoration, and measurable offsets, where residual impacts persist.

During 2024, comprehensive baseline ecological assessments and Critical Habitat Assessments (CHA) were conducted across all project sites, incorporating quantitative field surveys, habitat suitability modelling, and spatial analysis to delineate areas of ecological sensitivity. Endemic and threatened species, including the butterfly *Parnassius apollo* and the grasshopper *Chorthippus bozdaghensis*, were identified, triggering turbine micro-siting adjustments and the rescheduling of construction activities to mitigate disturbance during ecologically sensitive temporal windows.

The derived Biodiversity Management Plans (BMPs) and Biodiversity Action Plans (BAPs) define performance-based mitigation protocols, including real-time curtailment via Shutdown on Demand (SoD) systems during peak avifaunal (birds) and chiropteran (bats) activity periods, and the deployment of avian flight diverters on overhead lines informed by species-specific collision risk models.

To address residual botanical impacts, we have implemented a standardized seed banking program with ex-situ conservation protocols. Propagules from priority plant taxa were collected and stored at the Turkish Gene Bank, supplemented by microhabitat restoration and site revegetation post-disturbance.

BIODIVERSITY ACTION PLAN FRAMEWORK

Biodiversity Monitoring Works, Ovacık Wind Power Plant

3. Strategic Mergers and Acquisitions: Strategic mergers and acquisitions remain a core component of our renewable energy expansion model. The recent integration of Akhisar WPP (62 MW after 7 MW extension), Çeşme WPP (18.9 MW), Dikili WPP (7.2 MW), and Aydos WPP (14 MW) strengthens our spatial diversification and accelerates the scaling of renewable assets within the national generation mix. We have also obtained the pre-license for the 48 MW İvrindi Wind Power Plant, and the full licensing process, including all necessary environmental and regulatory approvals, is currently ongoing.

4. Hybrid Power Plant Development: Hybridization, particularly solar-wind and solar-thermal integration, constitutes a critical strategy for demand-side flexibility and site-level emissions reduction. As of 2025, we have deployed 90.69 MW of hybrid solar capacity, with a forward target of 150 MW by 2027. These systems allow for self-supply of electricity at generation sites, reduce transmission losses, and mitigate Scope 2 emissions. A 60% reduction in Scope 2 emissions (2021–2024), shown in Figure 8, is primarily linked to hybrid plant integration.

Figure 8: Hybrid Capacity vs Scope 2 Emissions Change (2021-2024)

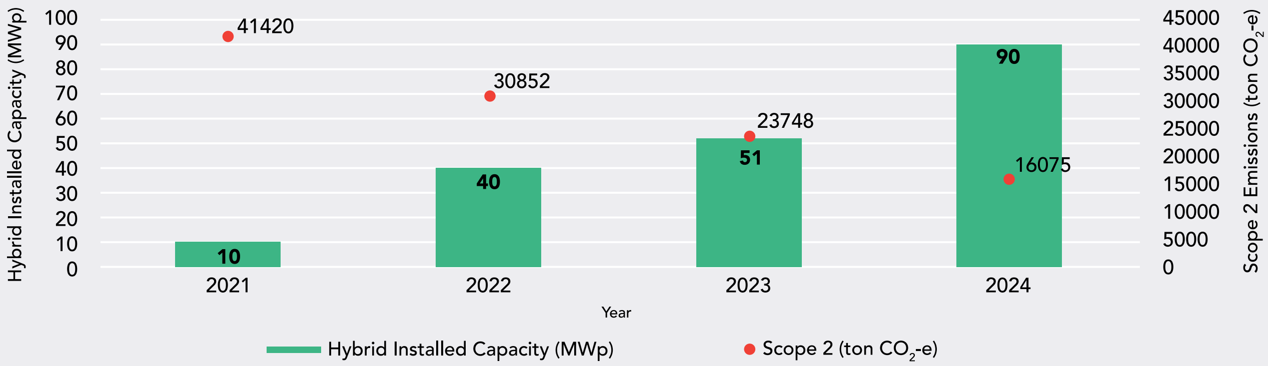
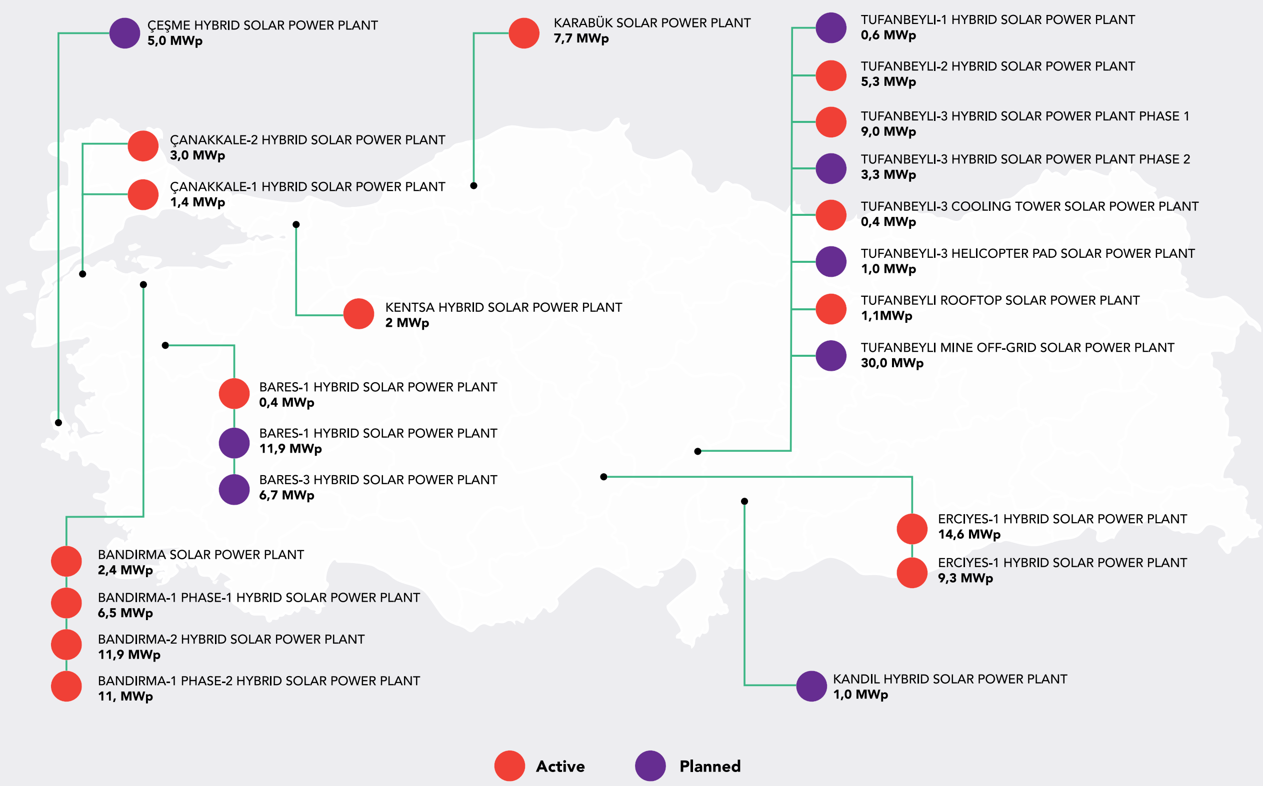


Figure 9: Enerjisa Üretim's Hybrid Solar Power Plants



5. Integration of Battery Energy Storage Systems (BESS): Grid-interactive battery storage systems are being systematically integrated with renewable assets following regulatory amendments in 2022. As of mid-2024, we obtained a 500 MWh pre-license for BESS projects. Pilot applications include a 2 MW / 4 MWh battery installation co-located with a 5 MW solar facility at the Bandırma Energy Base. These systems enhance frequency response capabilities, minimize curtailment, and reduce reliance on thermal peaking units. Their role is particularly salient under scenarios of high renewable penetration, where grid inertia and dispatchability are critical to system integrity.

Pillar II: Technological Innovation and Operational Optimization

The second vector of emissions intensity reduction is structured around the strategic deployment of advanced technologies and operational enhancements across our generation portfolio. This pillar serves as an enabler for residual emissions abatement, particularly in scenarios where direct substitution by renewable energy sources or reductions in thermal dispatch are constrained by system stability requirements, technological limitations, or regulatory dependencies.

IEA (2021) stated that in 2050, almost half the reductions in cumulative decline in CO_2 emissions from energy production and use are expected to come from technologies that are currently at the demonstration or prototype phase and that without a major acceleration in clean energy innovation, reaching net-zero emissions by 2050 will not be possible. The challenge is that the available probabilistic models do not adequately represent the variability in the timing and scale of emerging technologies or the full spectrum of potential emission reduction outcomes.

Our approach to technological innovation is structured across five principal domains:

- **Carbon Capture, Utilization, and Storage (CCUS):** A key initiative under this pillar is the deployment of a prototype carbon capture and treatment technology at the Tufanbeyli Energy Base, located in Adana, designed not only to reduce CO_2 emissions but also to treat other flue gas pollutants including sulfur dioxide (SO_2) and nitrogen oxides (NO_x). Unlike conventional desulfurization systems that primarily target SO_2, this pilot introduces a multi-pollutant approach by capturing CO_x and NO_x compounds and converting them into organomineral liquid fertilizer, thus creating a value-added by-product from flue gas emissions. This integrated treatment system represents a novel pathway for converting environmental liabilities into usable agricultural input, aligning with both circular economy and decarbonization principles. The project, currently in the contracting phase, is scheduled for implementation in 2026 and will operate as a demonstration unit. Lessons from this pilot will inform future replication strategies across the thermal fleet, particularly at sites with similar flue gas compositions and proximity to agricultural regions that could benefit from the fertilizer by-products. The system is being evaluated for modularity, chemical conversion efficiency, energy penalty, and regulatory alignment with national waste valorization and emissions reduction policies.

- **Battery Energy Storage Systems (BESS):** Hybridization of intermittent renewable energy assets with utility-scale battery storage is being pursued to enhance dispatch flexibility, reduce renewable curtailment, and provide ancillary services such as frequency regulation and spinning reserve. These systems indirectly support decarbonization by limiting the need for carbon-intensive ramping capacity from thermal plants during peak load events.

Köprü Hydropower Plant

Balıkesir Wind Power Plant at Winter

- **Hydrogen Technologies:** Green hydrogen production via electrolysis, powered by excess renewable energy, is u ndergoing technical and economic evaluation. Areas of focus include localized hydrogen hubs, co-location with renewable generation for curtailed power utilization, and the exploration of long-duration energy storage configurations. While not currently deployed, the potential role of hydrogen in supporting seasonal balancing and thermal replacement is recognized in long-term transition models.

- **Artificial Intelligence and Advanced Analytics:** We are scaling the deployment of AI-driven asset management systems, with applications in predictive maintenance, outage risk modeling, and real-time dispatch optimization. These tools are enhancing energy conversion efficiency, minimizing unplanned emissions spikes, and enabling optimized scheduling that aligns generation with the lowest emissions intensity pathways available. AI-enhanced digital twins and fault-detection algorithms are also in use to reduce auxiliary power consumption and operational losses.

- **Process and Asset Optimization Technologies:** Advanced thermodynamic modeling, next-generation control systems, and condition-based monitoring are being integrated across the generation fleet. These efforts aim to increase net plant efficiency, reduce parasitic energy use, and optimize heat rate under various load conditions. Waste heat recovery options and low-temperature thermal integration strategies are under exploration for additional performance enhancements.

- **Other Emerging Technologies Under Surveillance:** We maintain a structured technology foresight function to monitor and assess advanced innovations with potential applicability in future power generation decarbonization. In this context, several pathways are being monitored for their long-term integration prospects. Advanced ultra-supercritical (A-USC) cycles are under review as a transitional efficiency-enhancing mechanism for thermal units. In parallel, deep-well geothermal energy and small modular reactors (SMRs) are recognized as emerging baseload-capable technologies with the potential to contribute to future low-carbon energy portfolios. Although these technologies are not currently under development within the company, they are included in our long-term horizon scanning processes.

Successfully leveraging these emerging technologies to achieve meaningful decarbonization and performance gains depends on a complex interplay of technology readiness levels, deployment costs, policy incentives, and system-level integration feasibility. We adopted a phased innovation deployment model, beginning with controlled pilots, progressing through modular scaling, and culminating in full-fleet integration contingent on empirical performance and financial viability. This modular and evidence-based approach enables informed decision-making under uncertainty, allowing us to maintain technological leadership while preserving operational resilience and economic prudence.

Scouting Viable Pathways for Low-Carbon Transition

The decarbonization of thermal power assets remains one of the most complex and unresolved dimensions of the global energy transition. While the strategic imperative is clear, the technological landscape is still nascent, with no singular solution offering a universally applicable or commercially mature pathway for near-term, deep emission reductions. Techniques such as carbon capture, ammonia or hydrogen co-firing, oxy-fuel combustion, and next-generation heat integration remain under development, with significant uncertainties around scalability, cost-efficiency, lifecycle impacts, and system integration.

Enerjisa Üretim approaches this landscape through a structured innovation agenda grounded in applied research, multi-technology assessment, and adaptive planning. Rather than anchoring its strategy in any one technology, we actively monitor, test, and evaluate a portfolio of evolving methodologies—ranging from retrofit technologies and thermal-flexibility enhancements to digital optimization and emissions intensity modeling.

This challenge is not unique to any one actor; across jurisdictions, research institutions, utilities, and industry stakeholders are jointly navigating a fragmented innovation pipeline in pursuit of actionable, low-emission thermal transformation pathways. Enerjisa Üretim engages in this global effort as a data-driven operator, continuously aligning its investment decisions with emerging technical evidence, evolving regulatory frameworks, and the long-term goal of enabling thermal assets to contribute meaningfully within a carbon-constrained power system.

Electrification of Mining and Auxiliary Operations

The MadenNEXT initiative targets the full electrification of the Tufanbeyli lignite mineto eliminate Scope 3 upstream emissions associated with diesel combustion in mining machinery and auxiliary logistics. The first phase has been completed with the deployment of five electric trucks powered by 564 kW batteries and two electric excavators, marking a significant milestone in the decarbonization of upstream operations. Subsequent developments involve the establishment of a dedicated solar power plant, integrated battery storage systems, and autonomous operation technologies, ensuring that the entire mine operation can be electrified with a renewable and smart energy infrastructure. This transition is not only expected to reduce direct emissions but also enhance worker safety, reduce operational noise and vibrations, and lower long-term fuel and maintenance costs. Furthermore, electrified mining operations are aligned with the broader EU Taxonomy-compliant transition of carbon-intensive assets.

Pillar III: Repurposing of Fossil-Based Generation

The third strategic axis involves a calibrated and non-disruptive reduction in generation from fossil-fueled thermal power plants. This process will be implemented without full decommissioning or asset write-down, given role of thermal assets in ensuring grid flexibility, system inertia, and backup capacity under variable renewable energy scenarios. Rather than wholesale asset retirement, thermal plants will be operationally optimized for minimum emissions output, selectively dispatched to maintain generation within an emissions threshold of ≤40 gCO_2/kWh on an annual average basis by the year 2040.

The thermal assets Bandırma 1 Natural Gas Power Plant (by 2035), and Bandırma 2 Gas Power Plants and Tufanbeyli Lignite Power Plant (by 2040), will be strategically repositioned to serve as reserve capacity, remaining offline under normal market and grid conditions and dispatched only under exceptional system stress scenarios.

This transition signifies the end of regular unabated commercial operations, aligning with our low-carbon transition goals while maintaining critical backup capability to ensure grid resilience. Beyond these repositioning milestones, the continued strategic use of these assets may be revisited if carbon abatement technologies, particularly cost-competitive and scalable carbon capture and storage (CCS) solutions, reach sufficient levels of maturity and deployment readiness.

In practical terms, these units will no longer operate routinely under baseline market conditions and will instead shift to a stand-by role. However, maintaining their viability under very low-capacity factors poses operational and economic challenges, such as degradation risks, ramp-up limitations, and reduced efficiency. Potential inclusion in national or regional capacity support mechanisms may be required to ensure economic sustainability of this reserve function, particularly in systems undergoing rapid renewable expansion.

We are advancing a targeted program to repurpose existing thermal power assets in alignment with long-term decarbonization goals. The repurposing program includes the integration of hybrid solar power generation, enabling on-site renewable production within existing grid connections. Energy storage systems will be deployed to enhance system flexibility, provide ancillary services, and support the integration of variable renewable energy. In addition, selected sites are being evaluated for transformation into data processing centers, capitalizing on the robust electrical and cooling infrastructure of thermal plants while minimizing land-use impacts and enabling new economic value creation. Abated generation may be in the mix should carbon capture technologies have matured and become scalable.

Critically, we recognize that the reduction in fossil-based generation must be pursued in congruence with evolving system adequacy standards, electricity market dynamics, and national capacity mechanisms. Therefore, the specific trajectory of fossil generation reduction will remain dynamic, contingent on technological, regulatory, and market developments.

Responsible Operation of Thermal Assets in the Clean Energy Transition

Enerjisa Üretim views responsible, compliant, and high-integrity operation as a foundational component of the clean energy transition. Within this evolving context, our thermal power plants are not static liabilities but strategically managed assets undergoing continuous evolution. Enerjisa Üretim has established a proven track record as Türkiye's leading operator of thermal facilities in terms of technical excellence, environmental compliance, operational efficiency, and stakeholder contribution. We exceed regulatory requirements, implement international best practices, and actively contribute to local ecosystems and communities.

The pathway to a net-zero future cannot rely solely on asset retirement or the transfer of critical infrastructure to entities lacking equivalent operational maturity. Rather, it demands an ambitious agenda of innovation, adaptive asset management, and emission reduction. Enerjisa Üretim is pursuing advanced combustion optimization, fuel flexibility, hybridization with renewables, carbon capture readiness, and real-time emissions monitoring to reduce the carbon intensity of thermal generation. These efforts aim to transform existing assets into lower-emission, flexible sources of firm capacity that support grid stability and enable the integration of variable renewables. Our approach emphasizes evolution over abandonment and leadership through accountability. In doing so, we ensure thermal assets remain aligned with Türkiye's decarbonization goals while upholding the highest standards of environmental and social responsibility.

Role of Fossil Fuels, Firm Capacity, and Grid Infrastructure in a Renewable-Dominated Energy System

While renewable energy deployment is the primary pathway toward climate stabilization, fossil fuels may retain a transitional role if deployed strategically with carbon capture and storage (CCS) technologies (IPCC 2022). Supplying the entire energy system solely with renewables, particularly wind and solar, presents significant technical and economic challenges. High wind and solar penetration introduce spatial and temporal variability, non-synchronous generation, and uncertainty across multiple timescales, which intensify as these renewable shares approach 100%.

To ensure system reliability and adequacy, firm and dispatchable generation, including CCS-equipped fossil units operated at low-capacity factors, nuclear energy and carbon dioxide removal (CDR) technologies among many others—will be essential. Firm capacity provides critical services such as inertia, frequency regulation, and long-duration backup during low renewable energy output periods.

The electricity grid emerges as another pivotal area of focus. The integration of large wind and solar energy requires managing variability across sub-second to seasonal timescales. Deep decarbonization scenarios project that transmission and distribution investments must double or more relative to historical levels, to support geographic balancing, enhanced interconnections, and system flexibility.

A major blackout in Spain and Portugal in April 2025 highlighted the challenges of high renewable energy penetration without corresponding grid infrastructure upgrades. With renewables contributing over 50% of generation, the grid lacked sufficient balancing capacity and inertia to manage sudden fluctuations, leading to instability. While a rare atmospheric event and sudden generation loss were contributing factors, the incident underscores the importance of synchronized investments in grid resilience alongside renewable deployment (The Guardian, 2025).

Pillar IV: Ecosystem Restoration and Nature-Based Solutions

In parallel to direct abatement strategies, we are implementing a series of nature-based solutions aimed at ecosystem restoration, and regeneration through afforestation and land use improvement. These initiatives include tree planting programs, native habitat restoration, erosion control, and biodiversity conservation projects in the vicinity of our operational sites. While the climate mitigation co-benefits of such activities are well-documented in scientific literature, the current absence of standardized, legislated, and verifiable accounting frameworks in Türkiye precludes the inclusion of these contributions in our formal emissions intensity accounting.

We consider these efforts a complementary mechanism, capable of delivering additionality in terms of carbon sequestration, microclimate regulation, and community-based resilience to climate impacts. Until national or international policy instruments allow formal recognition of these impacts in emissions accounting, they will remain non-attributable in our official emissions intensity calculations.

Akhisar Wind Power Plant

Where Climate Action Takes Root

In line with the global consensus articulated by the Intergovernmental Panel on Climate Change (IPCC) and the UN Convention on Biological Diversity (CBD), we recognize that ecosystem restoration is not peripheral but central to achieving long-term climate and sustainability targets. As part of our nature-based climate mitigation efforts, we have implemented a comprehensive afforestation and forest stewardship program, centered on large-scale tree planting, forest fire risk reduction, and ecological resilience building. To date, we have planted over 1.3 million saplings across diverse geographic zones, contributing to carbon sequestration, biodiversity support, and landscape restoration. This program is underpinned by a structured monitoring framework that ensures long-term survivability, health, and ecological integration of the planted trees. Growth rates, species adaptation, and ecosystem compatibility are periodically assessed through field-based oversight and geospatial tools.

As of 2024, according to data provided by the Foundation for Reforestation and the Protection of Natural Habitats (OGEMVAK), Enerjisa Üretim ranks as the single highest sapling planter among corporate actors in Türkiye. We are committed to expanding this initiative by planting annually the number of saplings equal to 10,000 times the age of our company. Based on this trajectory, the total number of trees planted is projected to reach approximately 7 million by the year 2040.

In parallel, we actively support wildfire prevention and control infrastructure. This includes the construction of access roads to improve emergency response capacity in forest areas, the installation of firefighting pools, and the establishment of localized fire control centers. These investments serve to protect carbon sinks, prevent ecosystem degradation, and enhance community preparedness.

Balıkesir Wind Power Plant - Sapling Plantation

Advancing the Food-Energy-Water Nexus

Enerjisa Üretim's agrivoltaics initiative represents a forward-looking climate action strategy that integrates renewable energy deployment with sustainable land and resource use. Agrivoltaics, defined as the dual use of land for solar photovoltaic (PV) energy generation and agriculture, operationalizes the food-energy-water nexus and offers multidimensional benefits for climate resilience, land efficiency, and rural development.

We have implemented agrivoltaic systems at two differentiated sites: the Komşuköy Agrivoltaic Pilot Site in Istanbul and the Bandırma Energy Base. Komşuköy, Türkiye's first agrivoltaic installation employing elevated and sparse bifacial PV panels, was established on an active farming zone using biodiversity-based and pesticide-free methods. Peer-reviewed research published in Verimlilik Dergisi (2024) reported land equivalent ratios (LER) between 1.33 and 3.30, with rosemary yields increasing 2.5 times under PV shading. These results confirm the compatibility of agrivoltaics with medicinal and aromatic plant cultivation, particularly in Mediterranean ecosystems.

At Bandırma, research focuses on evaluating agrivoltaic integration in a post-installation context, where agriculture was introduced after the commissioning of a utility-scale solar plant. Test plots, especially those inoculated with *arbuscular mycorrhizal fungi (AMF)*, have shown improved nutrient uptake (P, K, Fe, Zn), increased essential oil yields in *Mentha* species, and measurable benefits for soil health and biodiversity. This site expands the empirical foundation for retrofitting agrivoltaics into existing energy assets.

Despite these promising results, Türkiye's current regulatory framework limits PV development to marginal lands and lacks provisions for integrated land-use systems. This restricts the scale-up of agrivoltaics and underutilizes its potential to address national goals on food security, decarbonization, and rural sustainability.

To help close this gap, Enerjisa Üretim is launching a new research collaboration with the Manisa Viticulture Research Institute (MBAE) and ODTÜ-GÜNAM. Comparative trials will be conducted on table grape and raisin production, with the aim of producing rigorous scientific evidence to inform regulatory reform.

Through demonstration, validation, and policy engagement, our program seeks to move beyond pilot applications and support agrivoltaics as a scalable land-use innovation. We are actively engaging with the Ministry of Agriculture to develop a formal regulatory and technical framework, accelerating the transition from isolated trials to mainstream, policy-supported deployment across Türkiye.

WATCH FOR OUR AGRIVOLTAIC PROJECT

OUR PUBLISHED JOURNAL PAPER ON AGRIVOLTAICS

Bandırma Energy Base Agrivoltaics Site

EMISSIONS INTENSITY REDUCTION TRAJECTORY

Enerjisa Üretim's emissions intensity reduction trajectory reflects a structured, science-aligned approach to decarbonizing power generation activities. Starting from a baseline of 463 gCO_2/kWh in 2024, the roadmap sets milestone targets of 218 gCO_2/kWh by 2030, 191 gCO_2/kWh by 2035, and approximately zero gCO_2/kWh by 2040 (Figure 10). These stages represent a progressive transformation, beginning with renewable energy integration, followed by system optimization and hybridization, and culminating in deep operational decarbonization supported by grid flexibility and fossil minimization.

To assess the robustness and achievability of these targets, we conducted a probabilistic assessment based on Monte Carlo simulations, generating emissions intensity distributions for each milestone year. This modelling framework quantified the likelihood of meeting each threshold, accounting for uncertainties in technology, policy, and market dynamics.

2030 Outlook

The 2030 target yielded a mean final intensity of ≤218 gCO_2/kWh, with a 78% probability of achieving or surpassing the target. The 5th–95th percentile range spans 192 to 238 gCO_2/kWh, reflecting relatively tight variability and high statistical confidence.

This period features a marked transition to a renewables-led capacity mix, with wind, solar, and hydro accounting for approximately 75% of installed capacity-within an expected 8 GW portfolio. The reduction from 463 to 218 gCO_2/kWh is predominantly enabled by mature YEKA projects, stable policy instruments, and accessible climate finance. This outlook assumes the primary mechanisms are under direct organizational control, with most required technologies and investments already in progress. Emission reductions are attributed as follows:

- Pillar 1 – Renewable Energy Expansion: 55%
- Pillar 2 – Technological & Operational Innovation: 5%
- Pillar 3 – Fossil Dispatch Reduction: 40%

2035 Outlook

The 2035 milestone tightens the threshold to ≤191 gCO_2/kWh with a 59% probability of success. The percentile band widened to 176–206 gCO_2/kWh, indicating increased uncertainty over this five-year interval. thermal reliance is curtailed by over 50% compared to 2024 levels. Additional reduction in emissions intensity required beyond 2030 calls for system-wide integration of battery storage, hybrid assets, and AI-driven plant optimization. Progress becomes increasingly dependent on the deployment and scaling of novel low-carbon technologies. Emission reduction contributions shift as follows:

- Pillar 1 – Renewable Energy Expansion: 30%
- Pillar 2 – Technological & Operational Innovation: 30%
- Pillar 3 – Fossil Dispatch Reduction: 40%

2040 Outlook

The final milestone, ≤40 gCO_2/kWh by 2040, defines the most ambitious and complex phase. The mean final intensity modeled is 41.5 gCO_2/kWh, with a 57% probability of achieving the goal. However, the 5th–95th percentile range widened to 25–89 gCO_2/kWh, revealing sensitivity to long-term uncertainties. Achieving near-zero emissions requires a fundamental overhaul:

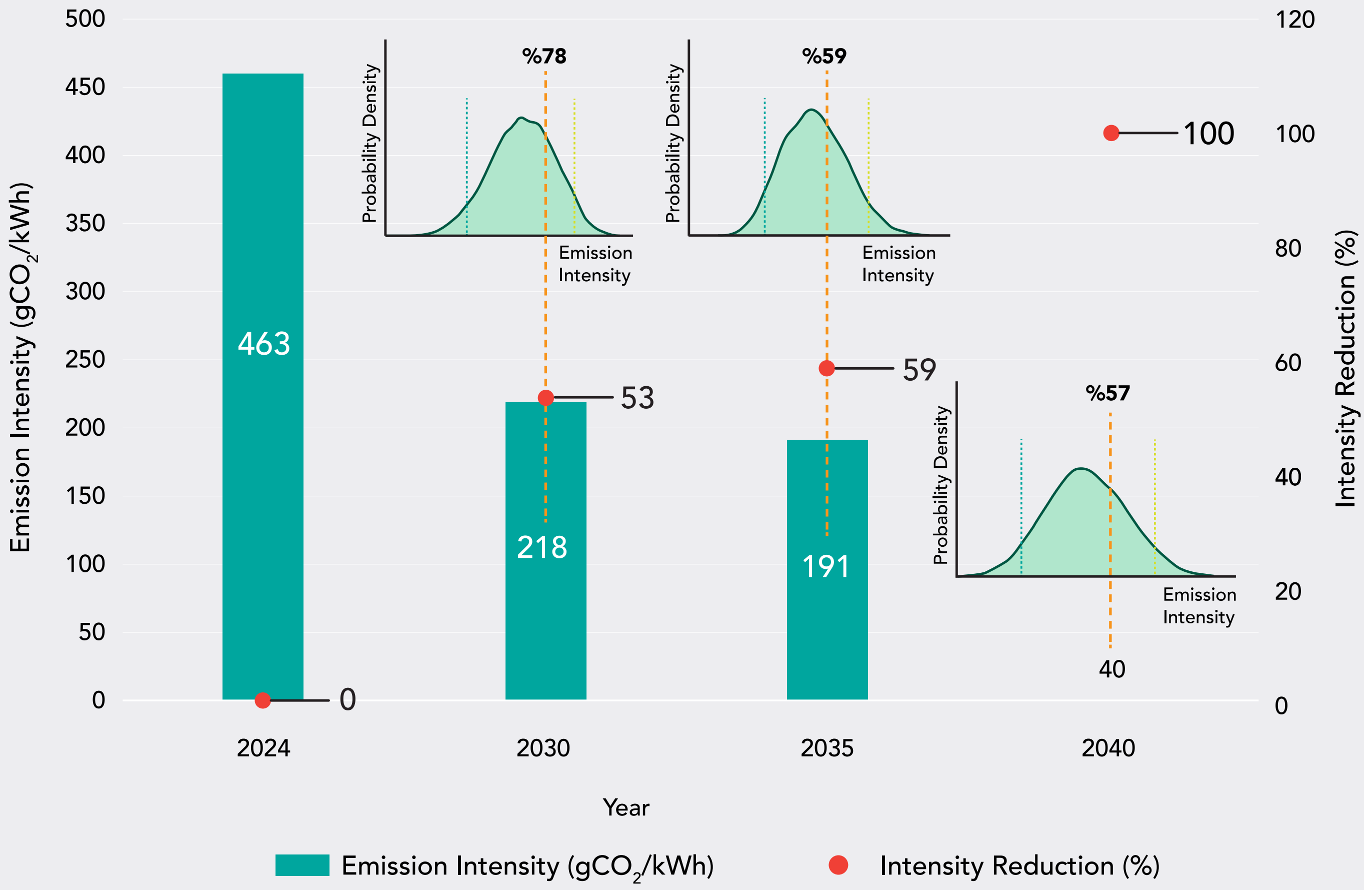
- Fossil-based capacity must be structurally minimized
- Next-gen technologies must be integrated
- Flexible grid systems must mature and scale

Anticipated Reduction contribution structure reflects this complexity:

- Pillar 1 – Renewable Energy Expansion: 5%
- Pillar 2 – Technological & Operational Innovation: 5%
- Pillar 3 – Fossil Dispatch Reduction: 90%

This segment is most exposed to systemic and external risks-policy volatility, technology cost curves, supply chain resilience, and geopolitical stability. Yet, it represents the final inflection point in achieving full decarbonization.

Figure 10: Enerjisa Üretim's Emission Intensity and Reduction Trajectory



Methodological Basis

The probability distributions used to model the emissions reduction potential of each decarbonization pillar were derived from assumptions based on current sectoral understanding of feasibility, maturity, and scalability. In the absence of widely accepted probabilistic datasets that quantify the full spectrum of variability in the deployment timelines, cost trajectories, and systemic integration challenges of emerging technologies, the adopted input ranges represent a synthesis of sectoral knowledge and project-level insights. Their purpose is not to support a structured exploration of uncertainty under plausible and policy-relevant conditions.

It is acknowledged that the evolution of enabling technologies—particularly under Pillar II (Technological and Operational Innovation) - is inherently stochastic and subject to multiple exogenous uncertainties, including innovation diffusion rates, market signals, and regulatory frameworks. Probabilistic characterizations of these dynamics remain scarce in the peer-reviewed literature and industry models. As such, the results should be interpreted as conditional probabilities under assumptions, not as predictions with full epistemic closure.

The Case for Probabilistic Framing in Net-Zero Target Setting

Net-zero commitments have become the normative backbone of corporate and national climate strategies. While they serve as essential markers of intent and alignment with global mitigation pathways, the prevailing articulation of such commitments remains largely deterministic. Targets are typically expressed in absolute terms, achieving zero net emissions by a fixed year, without disclosing the associated probability of success, confidence intervals, or modeling assumptions. This practice, while communicatively straightforward, fails to account for the uncertainties inherent in long-term decarbonization trajectories, particularly in sectors such as power generation where outcomes are shaped by complex, interdependent variables.

Introducing a probabilistic frame to net-zero targets is both methodologically sound and operationally imperative. Emissions outcomes within a power generation portfolio are influenced not only by internal decision-making and strategic planning but also by a range of exogenous variables beyond direct corporate control. These factors include the trajectory of climate and energy policy, the pace of technological development and commercialization, transmission and grid capacity expansion, supply chain dynamics, regulatory and permitting processes, and broader macroeconomic conditions.

In this context, adopting a deterministic or point-estimate representation of future emissions performance may obscure the inherent variability embedded in these drivers and inadvertently convey a false sense of precision or certainty. This is particularly relevant for emerging and developing economies, where additional dimensions of uncertainty may stem from evolving geopolitical dynamics, sensitivity to global capital market trends, and the broader institutional and socio-political landscape, all of which can influence the pace and continuity of investment and infrastructure deployment.

Enerjisa Üretim Head Office

Assessment Against IPCC AR6 Scenario Benchmarks

The IPCC Sixth Assessment Report (AR6), Working Group III, provides a suite of mitigation scenarios (classified as C1 through C8) that outline differentiated emission pathways based on varying degrees of ambition and warming outcomes. Among these, C1 and C2 scenarios represent the most stringent mitigation trajectories, with C1 targeting a >50% probability of limiting warming to 1.5°C without overshoot, and C2 achieving the same temperature outcome but with a temporary overshoot before returning to 1.5°C by the end of the century.

Focusing on the electricity sector, Table 3.1 of the AR6 WGIII report projects a median global CO_2 intensity of 218 gCO_2/kWh by 2030 for C2 scenarios, declining further to net-zero by 2040 (as shown in Figure 6.29a of the report). The interquartile range for 2040 in these scenarios spans from 30 to 81 gCO_2/kWh, reflecting uncertainties associated with regional technological deployment, energy demand evolution, and policy implementation speeds. Our forecast trajectory aligns with these benchmark pathways. Specifically:

- The projected 2030 emissions intensity of 217 gCO_2/kWh is comparablel to the median value in C2 scenarios, evidencing near-term alignment with 1.5°C-consistent pathways.
- The 2040 target of net-zero lies below the C2 median and well within its interquartile range, thereby representing a progressive decarbonization pace compatible with global mitigation objectives.

The trajectory, illustrated in Figure 10, reflects reduction in carbon intensity, beginning from a baseline of 463 gCO_2/kWh in 2024 and targeting interim milestones of:

- 218 gCO_2/kWh by 2030
- 191 gCO_2/kWh by 2035
- ≤40 gCO_2/kWh by 2040

The profile emphasizes structural transformation over end-of-century abatement strategies, avoiding heavy reliance on negative emissions technologies such as Bioenergy with Carbon Capture and Storage (BECCS) or Direct Air Capture (DAC), which dominate net-zero projections in C3–C6 scenarios. Our approach is grounded in early deployment of renewable capacity, thermal generation reduction, hybridization, and digital optimization - characteristics broadly consistent with C1–C2 transition archetypes. Our trajectory supports ancillary system-level enablers highlighted in AR6, including:

- The retirement or repurposing of unabated coal assets,
- The integration of energy storage systems and flexible grid operations, and
- The scaling of non-fossil dispatchable resources (e.g., hydro, geothermal, advanced bioenergy).

In conclusion, when benchmarked against the IPCC AR6 C2 scenario corridor, our emissions intensity pathway exhibits congruence with the median decarbonization pace required for a 1.5°C stabilization pathway. Our orientation - centered on early action, technology deployment, and portfolio adaptation - positions us as a climate-aligned, transition-resilient actor in Türkiye's electricity market and supports its long-term credibility in sustainability-linked investment frameworks.


Bandırma Solar Power Plant

CLIMATE RELATED RISK AND OPPORTUNITY ASSESSMENT

Enerjisa Üretim addresses climate change through a science-based transition strategy focused on decarbonization, resilience, and opportunity capture. Guided by TCFD and global frameworks (SDGs, GBF, planetary boundaries), it integrates scenario-based risk analysis and nature-related considerations to align long-term value creation with the systemic demands of a low-carbon, climate-resilient economy. Enerjisa Üretim employs defined time horizons, short (0–5 years), medium (5–10 years), and long term (10–30 years), to evaluate climate-related risks and opportunities across asset life cycles, regulatory trajectories, and technological transitions. These inform governance and strategic prioritization. Scenario analysis draws on IPCC, IEA, and NGFS pathways, anchored in two reference scenarios: an Ambitious Transition (<2°C), reflecting rapid decarbonization (SSP1-2.6, NZE, NGFS Below 2°C), and a Slow Transition (3.5–4°C), reflecting policy inertia and intensified physical impacts (SSP3-7.0, STEPS, NGFS Current Policies).

The risk typologies and scenario assumptions (details can be seen in Table 1) employed in Enerjisa Üretim's climate analysis are consistent with leading academic and policy literature. The dual exposure to physical and transition risks is well-documented in global assessments, including the IPCC Sixth Assessment Report (IPCC, 2022) and the Network for Greening the Financial System (NGFS) Scenarios (2021). Sector-specific vulnerabilities, such as water stress on hydropower and cooling systems, or carbon pricing implications for fossil assets, are also widely addressed in energy sector research (e.g., IEA Net Zero Emissions by 2050 Roadmap; WRI Aqueduct Water Risk Atlas, (IEA, 2021; WRI, 2023). This alignment reinforces the robustness of the scenario framing and risk mapping conducted by Enerjisa Üretim.

Enerjisa Üretim's climate risk analysis identified 5 material risks—two physical and three transitional—across its upstream, operational, and downstream activities (Table 2). These were evaluated under two IPCC-aligned climate scenarios. Physical risks were found to intensify under a Slow Transition (3.5–4°C), while transitional risks become more prominent in an Ambitious Transition (<2°C) scenario characterized by accelerated climate action. This dual-scenario framework highlights the inverse relationship between adaptation and transition challenges.

Table 1: Scenario Sources for Climate Related Risk and Opportunity Assessment

Scenario Sources	Ambitious Climate Transition (<2°C)	Slow Climate Transition (3.5–4°C)
IPCC*	SSP1-2.6 (radiative forcing, analogous to RCP)	SSP 3-7.0
RCP	RCP 2.6, RCP 4.5 (Only in combination with SSP1)	RCP 6.0, RCP 8.5 (not in combination with highest SSP)
SSP	SSP1, SSP2	SSP3, SSP4, SSP5 (SSP5 only in combination with lower RCPs)
IEA	NZE**	STEPS (associated with a high SSP)
NGFS	Below 2°C	Below 2°C Current Policies

*IPCC AR6 Report, 2021

Physical Risks: Chronic stressors, particularly temperature rise and altered precipitation, pose long-term threats to water availability, critically impacting hydropower output and thermal plant cooling. Acute hazards—floods, wildfires, heatwaves, and hail—present growing risks to infrastructure integrity and operational continuity, reinforcing the need for climate-resilient systems. Water scarcity stands out as the most critical long-term risk, affecting hydropower generation and thermal plant cooling under all climate scenarios, with amplified severity in a 3.5–4°C world.

Transitional Risks: Accelerated decarbonization introduces regulatory, technological, and market disruptions. Chief concerns include carbon pricing, asset stranding, evolving investor and customer expectations, and supply chain volatility—especially in solar and battery technologies. Reputational and legal exposures are increasing under tightening disclosure mandates.

Enerjisa Üretim addresses these risks through an integrated response: diversifying generation, enhancing water efficiency, investing in low-carbon assets, and engaging carbon markets. This approach not only mitigates scenario-specific vulnerabilities but creates synergies across risk categories, reinforcing strategic resilience.

Table 2: Enerjisa Üretim's Climate Change-related risks

Risk	Key Drivers & Scenario Outlook	Impacted Value Chain	Adaptive Mitigation Strategies
Water Stress & Drought (Physical)	Rising temperatures and shifting rainfall reduce water availability. High risk in all scenarios, especially >3,5-4°C	**US:** Water resource constraints. **OO:** Reduced hydro output, cooling limitations. **DS:** Energy supply instability.	Diversify generation mix and locations. Improve water efficiency and resilience in hydropower.
Extreme Weather Events (Physical)	More frequent, severe floods, storms, wildfires, and heatwaves-most acute in high-warming scenarios.	**OO:** Damage to assets, outages. **US:** Fuel supply disruptions. **DS:** Delivery and grid impacts.	Reinforce infrastructure for climate resilience. Expand emergency response plans and insurance.
Carbon Pricing & Regulation (Transitional)	Stricter emission limits, carbon pricing, and policy mandates under <2°C pathways; limited policy in >3,5-4°C worlds.	**OO:** Profitability of thermal generation. DS: Cost pressures for offtakers. **US:** Reduced fossil fuel demand.	Accelerate transition to low-carbon assets. Utilize carbon markets. Proactively engage regulators.
Market & Technology Shifts (Transitional)	Technological disruption and rising clean energy demand shift markets; supply chains face raw material pressures.	**DS:** Declining demand for centralized. **OO:** Need to adapt business models. **US:** Pressure on suppliers.	Invest in distributed and digital tech. Diversify suppliers. Develop flexible, modular capacity.
Reputation & Reporting (Transitional)	Heightened scrutiny, disclosure mandates, and litigation risks increase.	**DS:** Investor, public, and customer perception. **OO:** Governance and compliance burdens.	Embed climate goals in governance. Disclose transparently. Engage with stakeholders and value chain.

US: Upstream **OO:** Own Operations **DS:** Downstream

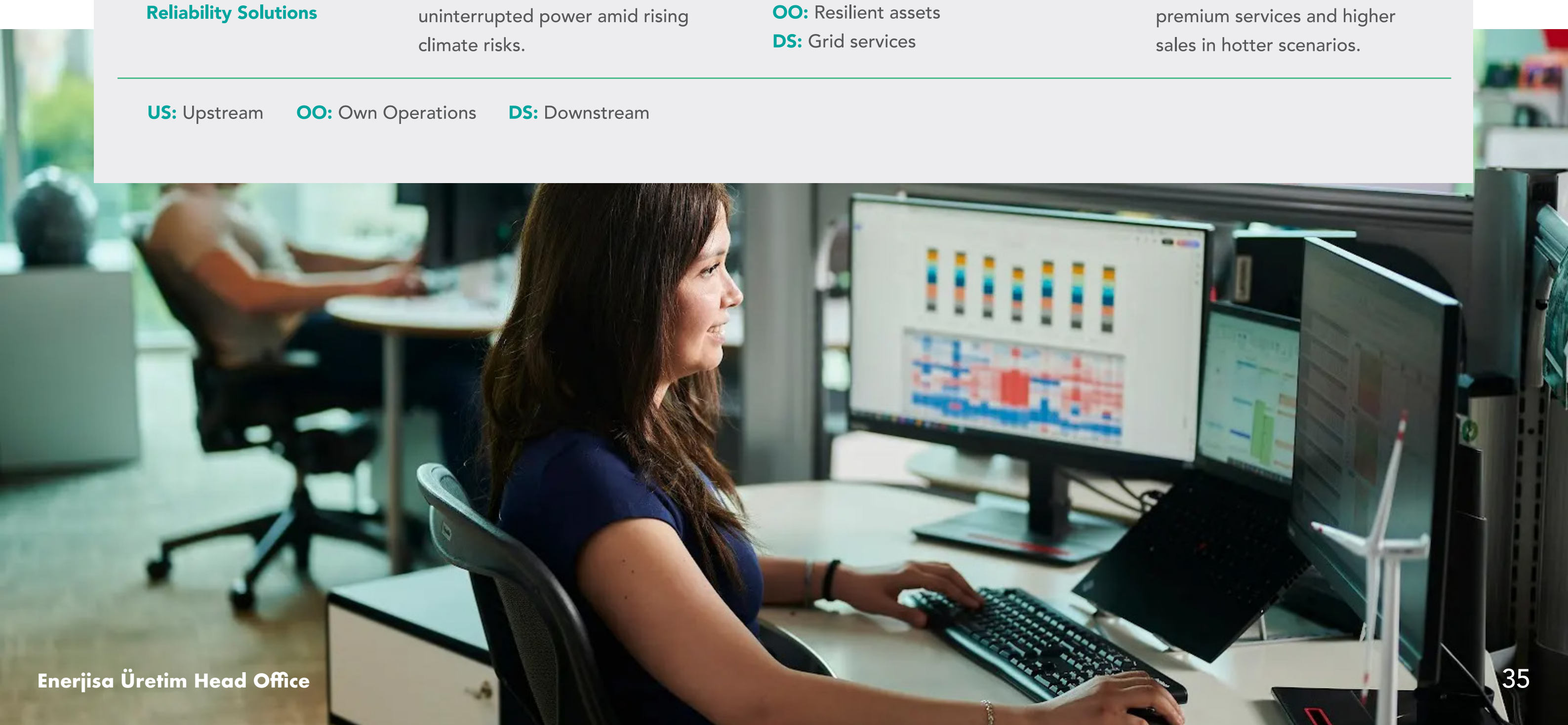
Alongside risks, Enerjisa Üretim's climate scenario analysis highlighted material opportunities for value creation as Türkiye advances toward a low-carbon energy system (Table 3). Four core opportunities were identified across our operations and adjacent activities, shaped by technological change, evolving policies, and shifting energy demand. Our diversified portfolio positions us to effectively capture these opportunities, some of which are already reflected in our strategy, while others present new pathways for growth and resilience.

Opportunity profiles differ by climate scenario. A <2°C scenario enhances access to policy incentives and market momentum for renewables, while a 3.5–4°C world emphasizes operational resilience and rising electricity demand. These insights are actively informing our strategic direction—from scaling renewables and piloting storage and hydrogen projects to expanding corporate PPA offerings and digital energy services. By aligning our growth agenda with climate-related opportunities, Enerjisa Üretim strengthens its role in Türkiye's energy transition and reinforces long-term competitiveness.

Table 3: Enerjisa Üretim's Climate Change-related opportunities

Opportunity	Drivers & Enablers	Value Chain Relevance	Value Creation Mechanism
Policy Support & Carbon Markets	Stronger climate policies, carbon pricing, and emission trading, especially under <2°C scenarios.	**US:** Better investment viability **OO:** Higher returns **DS:** Clean energy more attractive	Grants and carbon credits boost returns; policy-driven demand shift favors renewables.
Renewables & New Technologies	Declining costs, innovation, and policy support for low-emission tech.	**US:** Technology partnerships **OO:** Plant upgrades **DS:** Supplying clean power	Higher generation, efficiency savings, and early tech leadership.
Diversified Services & Markets	Customer demand for green energy, electrification, prosumer growth, and digitalization.	**US:** Partnering on distributed tech **OO:** New services **DS:** PPAs, DERs	New income streams and stronger client ties in high-growth segments.
Investor Confidence & Green Finance	ESG-aligned capital and positive market perception of climate leadership.	**US:** Access to green finance **OO:** Brand value **DS:** Market trust	Lower capital costs, equity premiums, and stakeholder goodwill.
Resilience & Reliability Solutions	Need for climate-adaptive, uninterrupted power amid rising climate risks.	**US:** Secure supply chains **OO:** Resilient assets **DS:** Grid services	Uptime during disruptions, premium services and higher sales in hotter scenarios.

US: Upstream **OO:** Own Operations **DS:** Downstream



Enerjisa Üretim Head Office

JUST TRANSITION

Enerjisa Üretim has initiated Türkiye's first site-specific Just Transition Roadmap for a lignite-fired power plant operated by a private entity, marking a significant milestone in the country's energy and regional development policy landscape. The roadmap outlines the transformation of the Tufanbeyli Energy Base into a socially inclusive, economically diversified, and environmentally responsible facility, aiming to repurpose the site for long-term regional benefit while gradually phasing out coal-based operations.

Developed through an inclusive and evidence-based process, the roadmap draws on structured engagements with a broad spectrum of stakeholders—including local communities, academic institutions, non-governmental organizations, labor unions, the Ministry of Energy and Natural Resources, and the Ministry of Labor and Social Security. This consultative framework ensured that the transformation strategy is rooted in local realities, socially responsive, and aligned with both sectoral policy and community priorities.

The resulting roadmap comprises 17 project proposals, categorized under two transformation pathways:

1. **Employment and Skills Transformation:** Programs focused on labor force adaptation through vocational training, reskilling, and job placement in future-relevant sectors such as renewable energy, sustainable construction, and circular economy services.

2. **Rural and Regional Economic Revitalization:** Interventions aimed at strengthening local livelihoods through sustainable agriculture, rural entrepreneurship, livestock development, and tourism-based income diversification.

Each project is structured with a timeline horizon, employment potential metrics, and lead agency assignments. The roadmap is informed by international precedents across various countries and enriched by direct knowledge exchange with stakeholders involved in the Polish coal transition. Strategic insights from the United Nations, International Labour Organization, and World Economic Forum have also been incorporated to ensure alignment with global standards for a just and inclusive energy transformation.

To ensure operational continuity and long-term impact, Enerjisa Üretim has a dedicated Just Transition Sub-Committee. This task force will coordinate implementation, monitor progress, and update the roadmap in response to evolving socioeconomic and policy dynamics. This initiative represents a first-of-its-kind effort in Türkiye, demonstrating how the transformation of lignite infrastructure can be managed not only as a technical process but as a socially embedded and forward-looking regional development strategy.

READ OUR JUST TRANSITION REPORT

Survey Studies

CONCLUSION

This Climate Transition Plan articulates Enerjisa Üretim's multi-faceted strategy to achieve alignment with national decarbonization priorities and global climate stabilization goals. Developed through a structured, science-informed framework, the plan operationalizes a just and resilient transformation across four principal pillars: renewable energy expansion, technological innovation, repurposing of fossil-based assets, and ecosystem restoration.

A distinguishing methodological feature of the plan is its integration of a probabilistic modeling framework to assess the feasibility of achieving emissions intensity reduction targets under uncertainty. Unlike deterministic forecasts, the adopted approach applies Monte Carlo simulations to quantify the likelihood of target attainment across multiple decarbonization pathways. For the 2040 net-zero milestone—defined as ≤40 gCO_2/kWh—the model estimates a 57% probability of achievement, based on the stochastic behavior of critical variables including technology deployment rates, policy evolution, and systemic enablers. This probabilistic framing allows for a more nuanced understanding of outcome variability and highlights both the ambition and inherent uncertainty embedded in long-term transition planning.

Benchmarking against IPCC AR6 C2 scenarios, the trajectory remains consistent with a 1.5°C-aligned emissions pathway, particularly through early renewable capacity deployment, thermal dispatch minimization, and digital optimization. Importantly, the plan refrains from reliance on speculative negative emissions technologies, emphasizing instead near-term mitigation and systemic reconfiguration.

The integration of a Just Transition Roadmap further reflects the company's commitment to equitable socio-economic adaptation, embedding labor market resilience, inclusive stakeholder engagement, and rural development as core enablers of long-term decarbonization.

This document will be reviewed periodically, with annual disclosures in accordance with IFRS S2 standards. As a living instrument, it is designed not only to guide internal decision-making, but also to enable transparent stakeholder engagement, support climate-aligned capital allocation, and enhance institutional resilience amid a rapidly evolving energy and policy landscape.

Balıkesir Wind Power Plant

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APPENDIX

Appendix 1: Emissions of Enerjisa Üretim

Scope (tonCO_2-e)	Categories	2022	2023	2024
1	Stationary combustion (emissions from thermal power stations) Mobile combustion (car fleet emissions – combustion engines) Fugitive emissions (e.g., SF6, air conditioners, fire extinguishers)	6,871,319	5,939,156	6.,408,020
2	Self-consumption of electricity in power plant if it is supplied by third parties	30,852	23,748	15,719
3	Category 1: Purchased Goods and Services Category 2: Capital Goods Category 3: Fuel- and Energy-Related Activities Category 4: Upstream Transportation and Distribution Category 5: Waste Generated in Operations Category 6: Business Travel Category 7: Employee Commuting Category 8: Upstream Leased Assets Category 11: Downstream Transportation and Distribution	1,102,778	906,185	1,934,250
Emission Intensity (gCO2-e / kWh)	Scope 1 Emissions / Gross Generation	446	465	463

Appendix 2: Emission Intensity of Electricity Generation: Company and Sectoral Benchmarking

Entity	Emission Intensity (gCO_2-e/kWh)
RWE	452
E.ON	152
Uniper	356
Iberdrola	67
EDP	25
G20 Energy Sector	476
Türkiye Energy Sector	465
Enerjisa Üretim	463

ENERJİSA ÜRETİM

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