



Executive Summary

Net Zero 2053: Energy Sector Policies

About SHURA Energy Transition Center

SHURA Energy Transition Center, founded by the European Climate Foundation (ECF), Agora Energiewende and Istanbul Policy Center (IPC) at Sabancı University, contributes to decarbonisation of the energy sector via an innovative energy transition platform. It caters to the need for a sustainable and broadly recognized platform for discussions on technological, economic, and policy aspects of Turkey's energy sector. SHURA supports the debate on the transition to a low-carbon energy system through energy efficiency and renewable energy by using fact-based analysis and the best available data. Taking into account all relevant perspectives by a multitude of stakeholders, it contributes to an enhanced understanding of the economic potential, technical feasibility, and the relevant policy tools for this transition.

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This report is available for download from www.shura.org.tr. For further information or to provide feedback, please contact the SHURA team at shura@shura.org.tr

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This report and the assumptions made within the scope of the study have been drafted based on different scenarios and market conditions as of June 2023. Since these assumptions, scenarios and the market conditions are subject to change, it is not warranted that the forecasts in this report will be the same as the actual figures. The institutions and the persons who have contributed to the preparation of this report cannot be held responsible for any commercial gains or losses that may arise from the divergence between the forecasts in the report and the actual values.

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The profound and concerning impacts of climate change on societies as well as the planet necessitate a shift toward a low-carbon economy. Within the United Nations Framework Convention on Climate Change (UNFCCC) framework, the Paris Agreement, established in 2015 and operational since 2016, aims to curb climate crisis effects by limiting global temperature rise to well below 2 degrees Celsius above pre-industrial levels, with a focus on achieving 1.5 degrees Celsius (°C). In this regard, many countries, including Türkiye, have committed to achieving a net zero-emission economy by the mid-century.

Discussions revolving around climate change underscore the urgency of accelerating the transition of the energy sector, responsible for roughly three quarters of global greenhouse gas emissions.

Besides international agreements; regional and global developments play a crucial role in driving forward the progress of global energy transition. The global economies and energy supply chains were significantly impacted by the Covid-19 pandemic, which originated in 2019 and intensified in 2020, and subsequent international measures. The energy crisis, exacerbated by the Russia-Ukraine conflict in 2022, notably heightened primary energy prices and raised concerns over energy supply security, revealing vulnerabilities in fossil fuel-dependent energy systems. With these developments, the urgency of energy transition has gained prominence with the need to ensure energy supply security and energy affordability as well as combating climate change.

Energy efficiency, renewable energy and clean electrification stand as the cornerstones of energy transition. In addition to these elements, the driving force of new technologies in achieving a net zero economy is undeniable. In the coming period, the development of innovative technologies will be one of the main factors that will determine the success and speed of this transition. An example is the ongoing efforts for the production of green hydrogen and clean synthetic fuels (e-fuel) to decarbonize the hard-to-abate sectors.

Aligning with the global efforts to combat climate change and accelerate energy transition, Türkiye announced the Green Deal Action Plan in July 2021, targeting a shift to a sustainable and circular economy. In October 2021, Türkiye ratified the Paris Agreement and subsequently committed to achieving a net zero-economy by the end of 2053.

According to the recent data, Türkiye emitted 564.4 million tons of carbon dioxide equivalent (mt CO₂e) in 2021, marking a 7.7% increase from 2020 and a staggering 157.1% surge compared to 1990 emission levels.¹ Notably, the energy sector contributed to 71.3% of the total greenhouse gas emissions and 85.2% of the total carbon dioxide (CO₂) emissions in 2021, with electricity and heat production accounting for the largest share (40.9%) in carbon emissions. Therefore, it is crucial for Türkiye that the Turkish electricity sector taking the lead in the energy transition by prioritizing decarbonization ahead of other end-use sectors.

¹ <https://data.tuik.gov.tr/Bulten/Index?p=Sera-Gazi-Emisyon-Istatistikleri-1990-2021-49672>

Türkiye has made significant strides in decarbonizing its electricity sector over the past two decades, driven by substantial reforms and new regulations. Following the privatization of the electricity sector, private sector investors engaged in electricity production and distribution activities. Alongside these reforms, the declining costs of renewable energy, coupled with technological advancements and offered financial incentives, have spurred heightened interest and investment in renewable energy sources. In turn, the capacity of renewable energy sources in Türkiye has increased rapidly, particularly over the last decade. In the first half of 2023, the share of renewable energy in the installed power and electricity generation constituted 54.4% and 44.6% respectively.

As global and regional dynamics shape energy sector, SHURA Energy Transition Center published “Net Zero 2053: A Roadmap for the Turkish Electricity Sector” study in 2023, which emphasizes Türkiye’s potential to achieve net-zero emissions while maintaining economic growth and welfare. This quantitative modeling study, centering on the electricity sector’s role in transitioning to a net-zero economy by 2053, indicates that the total electricity demand will escalate to 982 terawatt hours (TWh) by 2053, with 90% of this demand being met by renewable energy sources. In the model, total energy demand rises until 2030 in tandem with heightened economic activity. However, it subsequently begins to decrease due to a shift toward high value-added, less energy-intensive sectors and products, alongside amplified levels of electrification and enhanced energy efficiency. As the pace of energy transition accelerates, the total energy demand is projected to diminish to the levels observed in 2020 by 2053.

Within the scope of the modeling study, it is assumed that market conditions supporting energy transition are established in Türkiye. The emergence of market conditions that will accelerate energy transition can only be achieved through policies that prioritize this transition. Accordingly, many countries, primarily the European Union (EU), as signatories to the Paris Agreement, are formulating various framework policies across all sectors of the economy, particularly in the electricity sector, focusing on energy transition and combating the climate crisis.

The EU aims to become the world’s first climate-neutral continent, assuming a pioneering role in shaping both the collective climate policies within the Union and individual climate policies of its member countries. The primary objectives in the EU’s framework policies are summarized as:

- an interconnected European energy market,
- economic and secure energy supply,
- electricity sector characterized by a high share of renewable energy capacity and production.

The key comprehensive policies published by the European Commission and the European Union in alignment with the net-zero emission goal include:

- European Green Deal
- Fit-for-55 Package
- Carbon Border Adjustment Mechanism (CBAM)
- EU Emissions Trading System (EU ETS)
- REPowerEU Plan,
- European Electricity Market Design

- Net Zero Industrial Act and Critical Raw Materials Act
- Renewable Energy Directive

The determined comprehensive policy frameworks are being shaped in alignment with the EU's climate objectives and are being updated in response to global developments. These policies also yield significant implications for countries with strong economic and trade ties to the EU. For instance, the Carbon Border Adjustment Mechanism (CBAM), which aims not only to intensify efforts in combating climate change but also to safeguard Europe's competitiveness against the cost of green transition, proposes subjecting certain products imported into Europe to a carbon tax linked to the EU Emissions Trading System (ETS).

Additionally, new framework policies are being formulated within the context of the ongoing energy crisis and regional geopolitical developments. Announced by the European Commission in May 2022, the REPowerEU Plan aims to diversify the EU's energy supply, promote energy efficiency, and support clean energy production to end the EU's dependency on energy imports from Russia due to disruptions in the energy supply chain². The fundamental goal of the REPowerEU Plan is to significantly increase the use of renewable energy in electricity generation, industry, buildings, and transportation sectors. This plan is based on the implementation of proposals within the Fit-for-55 Package, suggesting raising the share of renewable energy capacity in the total energy mix to 45% by 2030, up from the 40% level set in the Fit-for-55 Package.

According to the Directorate General for Energy (DG ENER) of the European Commission, establishing an integrated energy market in the EU is one of the most cost-effective ways to ensure a reliable, sustainable and economic energy supply³. In response to concerns about energy supply security, alongside the high and volatile electricity market prices observed in Europe in 2022, the European Commission has taken steps to update rules on electricity market design and safeguard the EU against market manipulations in the wholesale energy market. The primary objectives of the electricity market reform proposal presented by the European Commission in March 2023 are to better protect consumers against short-term high prices, to accelerate the integration of solar and wind power plants into the system, to safeguard the electricity market against manipulations and to enhance energy cost predictability and stability. Pursuing these goals, the EU electricity market can be designed to be more competitive and secure. Among the proposed market instruments within the framework of the presented proposal are longer-term contracts such as Renewable Power Purchase Agreements (Renewable PPA) and investment support structured in the form of Two-Sided Contracts for Difference⁴ (CfD).

In addition to the Electricity Market Reform, the announced "Net Zero Industrial Act" and the proposed "European Critical Raw Materials Act" have set up an EU framework to reduce the import of critical products and raw materials vital for energy transition. The proposed legislation addresses components of energy technologies that will serve decarbonization across all sectors of the economy. Within the "Annexes" section of the Critical Raw Materials Act, it is stipulated that the processing capacity of the strategic raw materials defined therein must be increased throughout the value chain, and at

² European Commission, 2022. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowerEU-affordable-secure-and-sustainable-energy-europe_en

³ European Commission, 2023. https://energy.ec.europa.eu/topics/markets-and-consumers/market-legislation/electricity-market-design_en

⁴ Contracts for Difference (CfD) are bilateral financial contracts that provide a payment from the buyer to the seller if the price of an underlying asset is below the agreed strike price, and a reverse payment otherwise.

least 40% of the annual consumption of strategic raw materials needs to be produced domestically. Dedicated incentives will also be provided for these strategic raw materials to ensure their availability and processing within the EU.

The “Renewable Energy Directive” which came into effect in December 2018 and became binding as of June 2021, was revised in October 2023 due to the increasing need of the European Union (EU) to reduce its fossil fuel dependency amidst geopolitical developments. In essence, the Renewable Energy Directive provides a legal framework for the transition to clean energy sources across all sectors of the EU economy (European Commission, 2023d). Among the notable revisions within the Directive, one of the most significant points is the proposed accelerated and simplified permit procedures for renewable energy projects. Additionally, it’s understood that renewable energy projects will be considered as projects of public interest and prioritized. Targets have been updated on a sectoral basis in end-use sectors with low integration of renewable energy (such as transportation, buildings, and industry).

The policies and policy instruments implemented by the EU in the transition to a net-zero emission economy serve as an example for Türkiye during its transition. Particularly since 2021, Türkiye has developed various energy and climate policies, including:

- Green Deal Action Plan (2021)
- Ratification of the Paris Climate Agreement (2021)
- 2053 Net Zero Emission Target (2021)
- Organization of the “Climate Summit” by the Ministry of Environment, Urbanization and Climate Change (2022)
- Announcement of the Nationally Determined Contributions (NDC) at the COP27 Climate Summit in Egypt (2022)
- Publication of the “National Energy Plan” (NEP) and “Türkiye Hydrogen Technologies Strategy and Roadmap” (2023)

As Türkiye has ratified the Paris Agreement and declared its net zero emissions goal by 2053, it is expected that Türkiye will announce the complementary “Climate Law” in the near future. The National Energy Plan (NEP) is crucial in presenting a mid-term roadmap in the fight against climate change. The NEP details the projections for total energy demand until 2035 in harmony with the economic growth forecasts of the Presidency of Strategy and Budget of the Republic of Türkiye. It also outlines the planned developments in energy supply. Furthermore, it provides an overall view for 2053. One notable aspect highlighted in the NEP is the increasing integration speed of renewable energy sources with variable generation such as solar and wind power into the grid. The plan illustrates a decrease in the share of fossil fuels in primary energy consumption from 83.3% in 2020 to 20.8% in 2053. Additionally, the “Türkiye Hydrogen Technologies Strategy and Roadmap” released in 2023, focuses on the role of hydrogen in an economy devoid of carbon emissions by 2053. Accordingly, it presents a roadmap for research and development (R&D) initiatives and implementation programs for green hydrogen production in Türkiye, aiming to develop indigenous and clean hydrogen technologies. Recently announced, the Medium-Term Program (2024 – 2026)⁵ and the 12th Development Plan (2024 – 2028)⁶ both evaluate green and

⁵ Official Gazette, 2023. <https://www.resmigazete.gov.tr/eskiler/2023/09/20230906M1-1.pdf>

⁶ T.C. Presidency of Strategy and Budget, 2023. https://www.sbb.gov.tr/wp-content/uploads/2023/11/On-ikinciKalkinma-Plani_2024-2028.pdf

digital transition themes. Another significant policy preparation expected in the near future, which will provide a comprehensive approach to Türkiye's energy transition, is the release of the Second National Energy Efficiency Action Plan (II. NEEAP). Energy efficiency remains a priority in Türkiye's climate, energy policies, and development plans (SHURA, 2023). Therefore, it's anticipated that the new Action Plan will clarify essential steps required between 2024 and 2030 for energy efficiency implementations.

Energy transition across all sectors of the economy is crucial in combating climate change, and this necessitates profound changes throughout the entire value chain. For this transition to be successful, various elements such as policies and regulations, technological advancements, and altering consumption habits ingrained within society need to be comprehensively evaluated. Globally applied climate change mitigation policies encompass a wide array of options, including carbon pricing, incentives for renewable energy, support for energy efficiency measures and standards, policies to increase electrification, regulations in the electricity system, and flexibility-enhancing practices. It is essential to formulate the right combination from this broad spectrum of policies to expedite energy transition and decarbonization processes more swiftly and cost-effectively.

In this context, areas for improvement in the electricity sector, which is considered critical for decarbonization and leading the energy transition, have been identified, and policy recommendations have been developed in this study. Additionally, fundamental strategies and feasible policy recommendations have been outlined for each sector where energy is utilized. The aforementioned practices and policy suggestions are summarized below (Table 1 and Table 2) in terms of short, medium, and long-term perspectives.

Table 1: Summary table of policy areas and recommendations in the electricity sector

Policy Areas	Summary Policy Recommendations	Short-term (2023-2025)	Mid-term (2026-2035)	Long-term (2036-2053)
Wholesale electricity market design	Introducing various technical standards to the Capacity Mechanism to increase the system flexibility and gradually removing subsidies applied to fossil fuels			
	Reorganising the imbalance penalties and Balancing Market regulations to increase system flexibility			
	Enabling the market prices to reflect system costs			
	Determining the minimum and maximum price limits that reflect the system costs and allowing for the negative prices			
	Increasing the market transparency in a manner that does not disrupt competitiveness in the market			
	Improvements in the Ancillary Services Market			
	While ensuring that prices in the wholesale electricity market are reflected in retail tariffs without subsidies, vulnerable groups are protected from possible high prices			
	Distributed generation and demand side participation and in the markets			
	Ensuring the intra-day market door closing times closer to real time			
	Gradual transition to regional pricing system			
Carbon pricing	Establishment of Carbon Pricing Mechanism following FASTER principles			
	Establishing regulations for carbon tax and Emissions Trading System (ETS)			
	Ensuring that the national carbon pricing mechanism regulation addresses the requirements of YEK-G, Green Tariff and European Green Deal			
	Prioritizing the use of carbon revenues in energy transition practices			
Renewable energy	Distributed Generation and Unlicensed Projects: Improving the data monitoring of the unlicensed power plants			
	Distributed Generation and Unlicensed Projects: Simplifying permit processes for rooftop solar power systems			
	Distributed Generation and Unlicensed Projects: Switching to new pricing systems such as Buy-all Sell-all or Net-Billing			
	Distributed Generation and Unlicensed Projects: Providing financial incentives to homeowners and tenants for rooftop solar power system installations			
	Distributed Generation and Unlicensed Projects: Re-evaluation of Article 5.1.h of the Unlicensed Electricity Production Regulation to prioritize the on-site production and system balance			
	Tender and Competition System Regulations: Ensuring that the processes related to obtaining opinions and permits required during the pre-license period are conducted under the coordination of a single institution			
	Tender and Competition System Regulations: Determining the auction base prices at a level supporting the access to finance			
	Tender and Competition System Regulations: Pre-examining that the potential investors who will participate in the auctions meet the economic and technical criteria to realize the projects.			
	Tender and Competition System Regulations: Conducting the auctions in a predictable and periodic manner, ensuring sufficient time between announcements and bid submission			
	Tender and Competition System Regulations: Determining purchase guarantees by taking LCOE into account and extending the purchase guarantee periods			
	Tender and Competition System Regulations: Ensuring system-oriented allocation of connection capacity			
	Renewable Power Purchase Agreements: Increased predictability and transparency in the electricity market			
	Renewable Power Purchase Agreements: Determining the PPA areas/capacities initially by considering the previously tendered projects but have not been realised			
	Renewable Power Purchase Agreements: Establishing the PPA contract framework comprehensively by consulting with all relevant stakeholders			
	Finance: Providing longer periods of loans to install distributed energy projects for self-consumption			
Finance: Using alternative financing instruments such as green bonds, private equity financing and refinancing in addition to bank loans to cover the long-term repayment period				
Finance: Especially for grid-scale projects, supporting the access to finance by preparation of social, environmental and technical standard guides for the investors				
Energy storage	Clarifying vague areas for the investors in the energy storage legislation and regulating the secondary legislation			
	Improving the legislation for storage facilities to be integrated into renewable energy power plants by enabling the design of such facilities according to the purpose of their installations			
	Carrying out research and development (R&D) activities for the pumped-storage HEPPs; selecting several pilot project regions and carrying out technical and financial feasibility studies to install these facilities in the regions			
	Promoting off-grid applications of battery storage systems			
	Facilitating access to finance			
	Planning mid- and long term storage capacity allocations based on region and technology			
	Creating arbitrage opportunities through market improvements			
	Ensuring the participation of storage facilities (both grid-scale and behind-the-meter) in various markets such as the Balancing Power Market and Ancillary Services Market			
	Switching to pricing models such as Net-billing and Buy-all Sell-all method			
Implementation of Virtual Power Line (VPL) applications				

Table 1: Continued

Policy Areas	Summary Policy Recommendations	Short-term (2023-2025)	Mid-term (2026-2035)	Long-term (2036-2053)
Demand side response	Providing training and information regarding the participation of the demand side response in the market	■		
	Reconsidering the Turkish energy legislation in a consumer-centered manner	■		
	Preparation of legislative regulations regarding the aggregators	■		
	Determining the legislative regulations and incentives in order to disseminate the demand side response, via facilitating the transition to smart meters and time-of-use/dynamic tariffs	■	■	
	Establishing “Energy Efficiency Savings Maps” in end-use sectors	■	■	
	Phasing out regulated retail tariffs	■	■	
	Gradual transition to regional pricing system	■	■	
Power to X	Establishing the technical standards for the production and storage of green hydrogen in the energy sector	■	■	
	Establishment of a legal legislation defining the applications and use of green hydrogen in the electricity and end-use sectors	■	■	
	Within the scope of the legislation, the establishment of a public unit responsible for hydrogen activities, applications and carrying out the collaborations between private sector and public institutions	■	■	
	Establishing a certification system to prove that the produced hydrogen originates from renewable energy sources	■	■	
	Carrying out R&D projects to improve the natural gas grid and infrastructure in order to operate with a blend of green hydrogen and other e-fuels		■	■
	Facilitation of financial incentives		■	■
	Carrying out R&D activities to design electrolyzers	■	■	■
Transmission system and interconnections	Ensuring the participation of electrolyzers in the Ancillary Services Market		■	■
	Planning the grid development in a system-oriented manner	■	■	■
	In the context of achieving the 2053 net zero emission target, the decommissioning of coal power plants in the future should be handled within the framework of just transition principles while utilising from a spatial plan focusing on the grid conditions	■	■	
	Preparation of capacity hosting maps that include point of connections	■	■	
Distribution system and digitalization	In the mid- to long-term, the interconnection line capacities should be increased to allow for higher volumes of cross-border electricity trades		■	■
	Improving the level of data sharing and cooperation between transmission and distribution system operators	■	■	
	Increasing the installation rate of smart meters and transition to smart grid management	■	■	
	Identifying relevant financial incentives	■	■	
Distribution system and digitalization	Allowing distribution system operators to organise “flexibility markets”		■	■

Table 2: Summary of the key strategies and policy recommendations on a sectoral basis within the end-use sectors

Sector	Strategy	Policies	Short-term (2023-2025)	Mid-term (2026-2035)	Long-term (2036-2053)
INDUSTRY	Carbon pricing	Determining the emissions cap considering various industrial sectors and updating these limits in a downward manner periodically			
		Establishment of Emissions Trading System (ETS) and emissions allowance mechanism			
		Establishing relevant emissions control mechanisms (measurement and reporting) and reporting periodically			
		Establishment of instantaneous emissions measurement systems			
		Implementation of a carbon tax mechanism to complement the ETS and prioritizing the use of carbon revenues on energy transition investments			
		Examining the effects of EU CBAM on the industry and determining a mid-term pricing strategy considering gradual increases under a plan			
	Energy efficiency	Preparation of a National Energy Management Program that will help determine the energy efficiency potential of industrial organizations			
		Designing market-based policy mechanisms (energy efficiency obligations and auctions) to support energy efficiency			
		Determining the energy efficiency standards and inspecting industries in line with these standards periodically			
		Facilitating the finance for energy-efficient equipment			
	Resource efficiency	Constituting strategies and incentive programs to support the circular economy in industry			
		Expanding practices such as "green procurement" and "supply chain participation programs"			
	Electrification	Development of business models and services that include various financing packages, including assistance in initial investment financing for the dissemination of heat pumps and other electrified technologies			
		Planning the electrification potential in heavy industry to ensure the transition to value-added production and exports, especially in the iron and steel sector			
	Indirect electrification and new technologies	Regulation of technical and safety standards within a legal framework for the production, storage, transportation and use of green hydrogen in the industry sector			
		Preparing long-term roadmaps for the use of green hydrogen in hard-to-abate sectors and periodically updating these roadmaps			
		Conducting R&D projects to enable using a blend of green hydrogen and other e-fuels in the natural gas network			
		Gradually phasing out the use of fossil fuel-based hydrogen in the industry and providing financial incentives to close the cost gap between green hydrogen and fossil fuel-based hydrogen			
RESIDENTIAL	Energy efficiency	Determination of energy efficiency target performances and development of an auditing mechanism to measure the performances periodically			
		Development of new mobile applications to measure and provide data regarding possible improvements in the energy consumption in residences			
		Establishment of a legal framework that determines the national technical standards for smart home technologies as well as the code of privacy and security between the technology providers and users			
		Designing new buildings to maximize the level of energy efficiency			
		Providing financial incentives to property owners such as tax deductions and low-interest loans for improving energy efficiency of their residences			
	Gradually increasing the renovation rate of the existing housing stock				
	Electrification	Prioritizing heat pump installations in areas with no access to natural gas pipelines			
		Making heat pump installation mandatory in new buildings			
		Leveling subsidies on retail electricity and natural gas tariffs			
		Providing new financial instruments and incentives to encourage the installation of solar thermal systems			

Table 2: Continued

Sector	Strategy	Policies	Short-term (2023-2025)	Mid-term (2026-2035)	Long-term (2036-2053)
Tertiary (Services and Agriculture)	Energy efficiency	Carrying out periodic training programs to increase the awareness in energy efficiency in the services and agricultural sectors			
		Determining measurable and clear energy efficiency and sustainability targets in the tertiary sectors and establishing a timeline to achieve these targets			
		Financial incentive programs to increase the use of energy-efficient equipment			
		Establishing geothermal resource research funds to increase the use of central heating systems for greenhouses based on geothermal			
		Carrying out R&D studies for projects to generate electricity through the installation of specially designed solar power plants (SPPs) while continuing agricultural activities			
	Electrification	Collaborations/partnerships between the energy service providers with public and private sector stakeholders to level up the use of heat pumps in the services sector			
Encouraging the use of mini-grids based on renewable energy sources in the agricultural sector and designating potential regions for mini-grid installations					
Transportation	Carbon pricing	Applying the carbon tax to both fossil fuel producers and importers			
		The use of carbon revenue from the transportation sector primarily in the decarbonization of public transportation			
		Applying an additional tax on vehicles that use higher volumes of fossil fuels and with high emission rates			
	Energy efficiency	Planning the transportation infrastructure to facilitate the transition from passenger vehicles to public transportation			
	Electrification	Preparation of a nation-wide strategy to increase the number of electric vehicle (EV) charging stations			
		Implementation of pilot-scale projects aiming to evaluate the impact of EVs and smart charging			
		Switching to time-of-use tariffs for EV smart charging applications			
		Providing low-interest loans and tax credits to encourage the sales of EVs			
		Implementation of various programs such as the public authorities buying back the existing ICE vehicles under a certain tariff			
	Indirect electrification and new technologies	Defining the relevant obligations and incentives together with special financing packages to increase the electrification of passenger car fleets in the public and private sectors as well as the fleet rental companies			
		Preparing a roadmap which provides the greenhouse gas emissions reduction and hydrogen use targets in the transportation sector and updating the roadmap periodically over time			
For long-distance transportation, strategically planning the placement of hydrogen and e-fuel filling stations					
Implementation of financial incentives to close the cost gap between fossil fuel-based hydrogen and green hydrogen					

In order to achieve the goal of transitioning to a net zero economy by 2053, it is required to maximize the integration of renewable energy sources into the power system, as well as increased levels of energy efficiency and electrification in all end-use sectors. Additionally, it is of importance to rapidly integrate new technologies such as green hydrogen and its derivatives especially to the hard-to-abate sectors. For the effective implementation of these strategies, it is required to establish net zero roadmaps on a sectoral basis and to determine the necessary policies in a comprehensive and holistic manner.

About Istanbul Policy Center at the Sabanci University

Istanbul Policy Center (IPC) is a global policy research institution that specializes in key social and political issues ranging from democratization to climate change, transatlantic relations to conflict resolution and mediation. IPC organizes and conducts its research under three main clusters: The Istanbul Policy Center–Sabanci University–Stiftung Mercator Initiative, Democratization and Institutional Reform, and Conflict Resolution and Mediation. Since 2001, IPC has provided decision makers, opinion leaders, and other major stakeholders with objective analyses and innovative policy recommendations.

About European Climate Foundation

The European Climate Foundation (ECF) was established as a major philanthropic initiative to help Europe foster the development of a low-carbon society and play an even stronger international leadership role to mitigate climate change. The ECF seeks to address the “how” of the low-carbon transition in a non-ideological manner. In collaboration with its partners, the ECF contributes to the debate by highlighting key path dependencies and the implications of different options in this transition.

About Agora Energiewende

Agora Energiewende develops evidence-based and politically viable strategies for ensuring the success of the clean energy transition in Germany, Europe and the rest of the world. As a think tank and policy laboratory, Agora aims to share knowledge with stakeholders in the worlds of politics, business and academia while enabling a productive exchange of ideas. As a non-profit foundation primarily financed through philanthropic donations, Agora is not beholden to narrow corporate or political interests, but rather to its commitment to confronting climate change.



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