Climate Council Decisions-25 February 2022

GHG Mitigation Commission – I (Power, Transport, Industry)

1) In line with the 2053 net-zero emissions target, the Long-Term Energy Plan should be prepared before the 27th Conference of the Parties to the UN Framework Convention on Climate Change.
2) Necessary studies should be carried out to ensure the highest level of use of renewable energy resources, to diversify the areas of use and to increase system flexibility for the integration of more renewable energy capacity into the energy system.
3) Necessary studies should be carried out to ensure safer and more efficient grids and to increase distributed generation and self-consumption supports based on renewable energy sources.
4) The use of renewable energy sources should be increased, renewable energy technologies should be enhanced, and support mechanisms should be developed for R&D activities and production for these technologies.
5) In line with the 2053 net-zero emissions target, studies should be carried out in order to reduce emissions from electricity generation, without impeding Turkey's right to economic and social development, in a way that carbon capture, use and storage technologies in electricity production from coal are evaluated, including security of supply and its macro-economic and social effects and a roadmap should be prepared.
6) In line with the 2053 net-zero emissions target, increasing electricity production from low-emission alternative fuels (natural gas, nuclear, etc.) should be evaluated from the perspective of resource diversity and energy supply security.
7) Energy efficiency practices and supports should be expanded in all sectors, and relevant heat legislation should be developed, and incentives should be defined in order to effectively benefit from the waste heat potential originating from thermal power plants and industrial enterprises.
8) During the transition period of the energy sector towards emission reduction, natural gas exploration and production activities should be increased, and national and international transmission infrastructure should be developed.

9) The budget necessary for productivity-enhancing projects should be increased so that its implementation covers all sectors.
10) National Energy Efficiency 2030 Vision and Strategy in line with the 2053 Net Zero Emissions Target should be prepared by the end of 2022, and the National Energy Efficiency Action Plan (2024 – 2030) should be prepared by mid-2023.
11) The Hydrogen Strategy and Roadmap prioritizing green hydrogen should be prepared by the end of 2022.
12) For emission reduction in heating and cooling, heat pump, district heating (geothermal, biomass, etc.) and solar collector heating applications should be expanded.
13) In order to adapt to the low-carbon transformation in the energy sector, digital transformation, storage and demand-side measures should be implemented.
14) Vocational training programs and road maps should be prepared to adapt to the changes in the energy sector, and the number of green employment should be increased.
15) In order to inform the long-term (2053) projections the data on breakdown of transportation types and technologies should be collected and verified, a reference scenario for transportation demand forecast and accordingly emission reduction should be determined, and an action plan should be prepared.
16) Support and incentive mechanisms should be planned for transportation modes (railway, seaway, etc.) and infrastructure studies (electrification, renewable energy, and supplying electricity to ships by land in ports) that have come to the forefront as a result of modeling studies that have been or will be done for emission reduction in the transport sector.
17) In order to contribute to emission reduction in transportation plans and coordination units Intelligent Transportation Systems (IUS) should be implemented.
18) The synergy between the emission reduction strategy and the climate change adaptation strategy in the transportation sector should be ensured, and the vulnerability of the sector should be reduced.
19) Necessary policies should be designed for the development of green combined freight opportunities and logistics centers in national and international freight.
20) Railway and maritime infrastructures should be developed at suitable locations and scales, and the share of railway and maritime in freight and passenger transportation should be increased.
21) Necessary policies should be developed to promote the use of vehicles with zero or low emissions and alternative fuels in road freight and passenger transport motor vehicles.
22) Steps should be taken to increase the use of zero and low emission transportation modes (especially rail systems, public transportation, bicycle, pedestrian, micro/electro mobility types, shared systems) for freight and passenger transportation in cities, and low emission zones should be implemented.
23) All transportation systems in cities should be developed in an integrated manner, and a Sustainable Transportation Planning approach, which includes zero or low-emission energy sources and smart transportation systems, should be adopted in all modes of transportation.
24) For transportation emission reduction planning in cities, integrity and consistency should be ensured between Transportation Master Plans, Climate Change Action Plans, Sustainable Urban Mobility Plans, Bicycle Transportation Master Plans and Spatial Plans.
25) The electrification ecosystem in transportation should be evaluated as a whole and an integrated policy and incentive mechanism should be established. Electric vehicles (rail systems, electric buses and minibuses, hybrid buses, electric cruise ships and boats, etc.), battery systems and charging infrastructure required for private use mobility and urban public transport, intermediate public transport and suburban transport, as well as the electrical generation and charging infrastructure to support them. distribution infrastructure should be developed simultaneously with the electricity sector.
26) In order to support the use of sustainable alternative fuels, by prioritizing food safety and within the framework of the principles of prioritizing waste, biofuels use should be expanded and the share of alternative fuels in air transport should be increased.

27) Infrastructure requirements for hydrogen fueled vehicles should be determined and the share of hydrogen fueled vehicles should be increased.
28) For the transformation of the existing vehicle park into vehicles with low or zero emission unit energy consumption and emissions, a sector-based policy should be developed, a vehicle renewal program should be planned and put into use, in all vehicle groups.
29) Within the scope of green transformation in maritime, the infrastructure of supplying electricity to ships from land should be expanded in ports, transition to hybrid/electric ships, energy efficiency/alternative fuel conversions and sustainable coastal structures should be supported.
30) Within the framework of the 2053 Net Zero Emission Target, the long-term shares of the manufacturing industry and its sub-sectors should be determined, and projections should be prepared, as well as roadmaps and support mechanisms for reducing greenhouse gas emissions in manufacturing industry sectors, especially in carbon-intensive sectors.
31) In order to increase the production of waste-derived fuel for emission reduction, the collaborative work of the relevant ministries, municipalities and industrial facilities should be ensured.
32) Within the framework of circular economy targets, studies should be carried out to determine the compulsory use rates of reuse, use of wastes as by-products, alternative raw materials, and products obtained by recycling/recovery, and enabling support mechanisms should be developed.
33) The infrastructure for the implementation of the Green OIZ and Green Industrial Zone Certification system to include businesses should be established.
34) Studies should be carried out to expand other alternative emission reduction methods such as green hydrogen and its derivatives and carbon capture, use and storage in all sectors, especially in carbon-intensive sectors, and a support mechanism should be developed.
35) Within the plans and strategies for industrial areas, policies should be designed to ensure consideration of climate risks in decision mechanisms, investment decisions and site selection.
36) In line with the principles of sustainable production and consumption, road maps should be prepared, and practices should be encouraged for the sectors covered by the industrial emissions control legislation to transition to low-carbon production within the framework of the best available techniques.
37) A support mechanism for energy and resource efficiency practices should be designed within the scope of clean production activities for the reduction of greenhouse gas emissions in SMEs.
38) In order to contribute to the 2053 Net Zero Emission Target in industry sectors, the use of renewable energy sources should be encouraged.
39) A higher level of dissemination of combined heat power systems in energy use in industry should be ensured.
40) Opportunities should be developed to increase the production of industries with high value-added and low carbon intensity, and to facilitate digital transformation that will contribute to emission reduction.
41) The support budget for the Productivity Increasing Project in Industry should be increased.
42) Within the scope of the Turkish Environmental Labelling System, environmental label criteria for new product and service groups should be determined and expanded, and the circular economy business model should be adopted by the facilities.
43) The human resources (education, certificate, etc.) that will be needed during the transition to green transformation in the industry should be developed in terms of quality and quantity, and its employment in the industry should be provided.
44) In line with the 2053 Net Zero Emission Targets in Industry, a production structuring regarding demand transformation in sectors such as transportation, energy and buildings should be implemented.

GHG Mitigation Commission – II (Agriculture, LULUCF, waste)

1) For combating climate change and reducing greenhouse gases in the agricultural sector short, medium and long-term national strategies and actions should be designed and implemented in a farmer-focused manner.
2) A “Climate Friendly Agricultural Support Model” should be designed and implemented.
3) By creating an ecosystem-oriented food production model through an integrated approach, the agriculture-food value chain should be made sustainable and cyclical.
4) In order to prevent food loss and waste, sustainable food systems should be created by increasing efficiency in practice.
5) For the purpose of increasing productivity and effective management of emissions in agriculture sector a land banking system should be established, national land use plans should be made, and land consolidation studies should be completed.
6) In agricultural production, resource efficient consumption of chemical fertilizers and plant protection products should be ensured and monitored.
7) R&D activities regarding climate change in the agricultural sector should be increased, and agricultural production methods and technologies that mitigate greenhouse gas emissions should be expanded.
8) In order to develop organic agriculture in the country, studies should be carried out to increase the production area and amount.
9) Education, awareness raising and culture creation programs for stakeholders should be supported for climate and nature-friendly agricultural production and consumption.
10) Necessary studies should be carried out within the scope of management and evaluation of methane emissions originating from agriculture and waste sectors.
11) By avoiding permits/allocations that will cause carbon sink losses in forest, agriculture, pasture and wetlands and increase disaster risks such as erosion, flood, landslide, avalanche, drought and desertification, and through integrated sustainable land management systems, the pressure on sink areas should be reduced and the size of protected areas should be increased.
12) Good practices towards increasing carbon sequestration in the LULUCF sector should be supported and Carbon Certification and other incentive mechanisms should be established in line with the EU Sustainable Carbon Cycle strategy.
13) “Green Corridor and Green Architecture” should be given importance by increasing nature-based solution applications in settlements.
14) Marine and wetland ecosystems should be protected and developed and their sink capacities should be enhanced.
15) In LULUCF studies, priorities and targets under the "EU's 2030 Forest Strategy" as announced in accordance with the European Green Deal should be considered, and ecosystem-based forestry practices should be strengthened.
16) Carbon sequestration potentials of sink areas with unknown carbon sequestration potential should be calculated and added to the National Greenhouse Gas Inventory LULUCF sector.
17) The “Land Use Matrix”, which is the important base of Turkey’s National Greenhouse Gas Inventory, should be updated.
18) In order to prevent land degradation and destruction, existing Land Degradation Offset policies should be strengthened to protect and increase natural carbon sinks.
19) National capacity should be developed in areas of expertise such as calculation, verification and reporting within the scope of Greenhouse Gas Inventory in LULUCF sector.
20) The number of tools, equipment and personnel employed in firefighting should be increased and the success indicators used in the evaluation of forest fires should be reconsidered for 'Before Fire' and 'After Fire'.
21) National policies developed in line with global initiatives related to the restoration of all ecosystems such as agriculture, forest, pasture and wetland should be supported and strengthened.
22) A climate-friendly integrated “National Waste Prevention, Reduction and Recovery Strategy Document” “National Waste Management and Action Plan” that guides all sectoral policies and

aims at a sustainable waste management in accordance with the waste hierarchy and product life cycle criteria for the use of waste as raw material. A "Circular Economy Action Plan" should be prepared, which also includes targets that include

23) Within the scope of zero waste practices, the recovery rate will be increased to 60% in 2035.
24) Economic and political tools should be activated for the separate collection of waste at the source, the creation and improvement of at least a dual collection system, and the termination of the landfill and disposal of domestic waste by 2050.
25) In order to increase social awareness within the scope of zero waste practices and greenhouse gas emission reduction, as a priority, applied training modules should be created for educational institutions and for all stakeholders, and capacity should be increased.
26) For the reduction of greenhouse gas emissions in the industry and service sectors, incentive mechanisms should be developed for improving an effective waste management.
27) It should be ensured that necessary studies are carried out in order to establish tools to support the value chain and life cycle assessment and to determine the greenhouse gas reduction effect.
28) In order to increase energy efficiency and renewable energy use in buildings, carbon pricing-based incentive/support mechanisms in existing buildings, and credit/tax support mechanisms and necessary financial infrastructure in new buildings should be designed.
29) In order to limit the energy demand from buildings and to meet this limited demand from renewable energy, the legislative infrastructure regarding green certificate and Near Zero Energy Building for green building/settlement should be improved.
30) The use of integrated building design and building information modeling and modular construction technologies should be developed and promoted in all plans of buildings, using best available techniques throughout the construction and life cycle, increasing resource and energy efficiency, reducing environmental impacts and carbon emissions.
31) Legislation on water efficiency in buildings should be developed, the use of gray water should be encouraged, use of rain water and the establishment of a zero waste system should be made obligatory.
32) A building database should be established in order to clarify the building stock of Turkey and to identify the places in the building stock that may have an impact on climate change.
33) Infrastructure (technical infrastructure, awareness and consciousness) should be developed in order to increase the share of environmentally friendly building materials, energy saving and environmentally friendly products in building construction.
34) Construction wastes generated during the construction and demolition of the buildings should be evaluated in terms of resource efficiency in the context of the circular economy.
35) Legislation should be developed, and joint studies should be carried out with all parties in order to increase the contribution of buildings to sustainable production and consumption, green development, social integration and environmental integrity.

Green Finance and Carbon Pricing

1) In line with the 2053 net zero emission target, the "National Green Finance Strategy" should be prepared by the end of 2023.
2) In order to prepare the national green taxonomy legislation, a "Technical Expert Group" should be formed, convened and the legislative preparations should be completed by the end of 2023.
3) A "Green Finance Expert Working Group" should be formed preferably in the first half of 2022 in order to align financial sector activities with environmental and climate targets.
4) The general principles, criteria and conditions that serve as a guide regarding the financing and support of the green transformation should be prepared by the "Green Finance Expert Working Group" in 2023 and updated when necessary.
5) A regulatory infrastructure should be established for green financing instruments (green loans, green funds, green leasing and others) in line with its standards.
6) A technical infrastructure to identify, measure, analyze and manage climate-related financial risks should be established by 2024.

7) In order to increase the financing of green and sustainable investments, studies should be carried out to develop the green and sustainable bonds, lease certificates and other capital instruments' market.
8) Turkish Sustainability Standards, in line with international standards, should be determined and published, which will provide high quality, comparable and reliable reporting of financial and non-financial information on climate, environment, social and governance issues for businesses of certain sizes, including financial institutions.
9) Including also the aim for avoiding green-wash, necessary studies should be carried out to regulate and supervise the licensing of organizations (including second-party organizations) providing independent external evaluation services regarding the practices of green finance.
10) A protocol setting out the principles of inter-institutional cooperation should be established for financial institutions to access verified climate and environmental data regarding their financing.
11) Vulnerable sectors and potential risks regarding the effects of climate change should be identified, and a framework of special insurance coverage for the relevant risks should be established.
12) In line with Turkey's Nationally Determined Contribution, which is being updated within the framework of Turkey's 2053 net zero target, which also seeks environmental integrity, the efforts for the establishment of the Emissions Trading System (ETS) in Turkey should be accelerated, its legislative infrastructure should be provided through the Climate Law to be prepared in accordance with the European Union (EU) legislation. Work on the implementation of the ETS should be completed by 2024.
13) ETS piloting should start in 2024 and the piloting period should be designed as a minimum of 1 year, considering the schedule of Carbon Border Adjustment Mechanism of the EU.
14) For the activities within the scope of the Regulation on the Monitoring of Greenhouse Gas Emissions, ETS phases should be implemented gradually in 5-year periods. Matters related to expansion of the coverage of ETS should be disclosed at least one year before the start of each period. The expansion of its sectors and operations should be evaluated by considering national and international climate policies.
15) Considering the 2053 net zero target, current carbon prices and CBAM, sectoral economic, financial, social and technical impact analyzes should be carried out, taking also into account the risk of carbon leakage.
16) Considering the Carbon Border Adjustment Mechanism of the EU, technical studies should be initiated for the reflections of the relevant acquis in Turkey. In this context, attempts should be made to preserve the current position of the Turkish Accreditation Agency (TÜRKAK), as a member of the European Accreditation Union and a party to the multilateral recognition agreement, in accreditation studies.
17) Considering the ETS practices and re-evaluating the existing taxes, the issue of converting the relevant taxes to carbon taxes should be addressed, economic, social and financial analyzes should be conducted in order to determine the tax rate and through an inter-institutional/organizational approach, a road map compatible with national conditions should be prepared until 2025.
18) Necessary measures should be taken to avoid double carbon pricing.
19) All of the revenues to be obtained under the ETS should be used in line with the National Declaration of Contribution and in line with the green development goalalso by ensuring a fair transition to a low-carbon economy. At least 50% of the said revenues should be transferred to support activities aimed at reducing greenhouse gas emissions, primarily modernization and innovation-oriented activities aimed at the green transformation of the real sector.
20) The Offset Regulation covering the offset use within the scope of ETS will be prepared until 2024, considering the Paris Climate Agreement Article 6 voluntary certification practices, national offset practices in other countries and national voluntary market conditions.

21) During the establishment of the necessary standardization system for the national offset mechanism, a feasibility study should be carried out by taking into account the international standards, and a road map of the national system should be created. In the feasibility study, the records of the projects carried out in Turkey in international platforms should be examined. A registry system for keeping national records should be developed.
22) In line with Turkey's updated NDC target, a national position document should be created in order to determine the sectors to be included within the scope of Article 6 of the Paris Agreement, by evaluating the reduction potentials, by analyzing the marginal abatement cost curves.

Science and Technology

1) In order to reduce the risk of extreme climate events (such as forest fires, floods, heat waves, storms, cold air mass, drought) and associated integrated disasters and adapt to climate change, in order to increase the resilience of interconnected systems and predicting intersectoral interactions ii) Resilience analytics ii) risk maps and iii) decision support systems should be developed.
2) A Global Climate Model should be developed and scenarios should be run with regional and global models with advanced features in terms of resolution and complexity with a multidisciplinary approach to achieve transformational adaptation and net zero greenhouse gas emissions.
3) Multi-use offshore blue economy platforms should be developed in the seas and at the same time, the carbon sink capacity of marine ecosystems should be increased. In this direction, pioneering opportunities should be provided in terms of i) the establishment of underwater and above-water biomass farms working with renewable energy and marine hydrogen resources and the cultivation of species containing potential biomolecules, ii) the sustainable extraction of precious metal raw materials from the deep seas, and iii) innovative observation platforms.
4) For investigating the impacts of climate change on ecosystems and biodiversity, mitigation and sustainable ecosystem management, high resolution smart and integrated ecosystem and biodiversity monitoring networks should be ensured to cover critical inland water, marine and terrestrial ecosystems throughout the country.
5) Intelligent and artificial intelligence-based technological solutions that evaluate data at national/international level should be developed within the framework of "Single Health", which covers human, food and environmental nexus, in a way that will contribute to the necessary adaptation and mitigation strategies in the fight against climate change.
6) GIS and remote sensing-assisted optimization technologies and platforms should be developed for innovative integrated urban planning with high resilience and sustainability and net zero greenhouse gas emissions.
7) In order to reach low-carbon production in the industrial sectors, membrane, oxy-burning, chemical cycling, capture technologies from the atmosphere as well as renewable energy and green hydrogen-based combustion technologies in high thermal processes, microwave, infrared, plasma, etc., within the scope of carbon capture technologies. technologies should be developed.
8) Innovative and cost-effective chemical, electrochemical and biochemical catalyst and reactor technologies should be developed to convert carbon dioxide captured in the industrial sector into useful products.
9) In order to evaluate wastes and biomass resources, sustainable hydrogen, synthetic fuels and chemicals with high value-added and a wide market should be produced by using new generation gasification and pyrolysis technologies, and green methane production technologies for biogas produced using biochemical technologies should be developed.
10) In order to prevent waste generation, the design of products (eco-design, eco-label, etc.), production and maintenance technologies should be handled with a holistic approach; advanced hybrid wastewater treatment technologies, membrane technologies and

crystallization technologies for the recovery of valuable chemicals from domestic and industrial wastewater within the scope of waste evaluation; Hybrid, chemical and membrane technologies should be developed for the recovery of critical raw materials from electronic waste and household waste.

11) Technologies that integrate digital technology applications such as advanced sensor technologies, artificial intelligence, machine learning and remote sensing and life cycle assessment approaches should be developed for use in all sectors and buildings for the purposes of monitoring greenhouse gas emissions, minimizing waste, optimizing processes and increasing energy efficiency.
12) High-performance innovative materials that provide great energy efficiency in the transportation and construction sector, mechanical systems and industry (superconductors that can be used at room temperature, lightweight materials with high performance and strength, structural materials resistant to harsh conditions, ultra-low friction coating materials, environmentally friendly insulation materials) and material designs (artificial intelligence, additive manufacturing and biomimicry approaches) should be developed.
13) Lightweight, flexible and cost-effective photovoltaic cells, panels and systems should be developed with high efficiency and lifespan; should be integrated into applications such as buildings, vehicles, agriculture and water surfaces synergistically and ergonomically.
14) High efficiency condensed thermal solar energy systems and their components should be developed.
    - Mirrors with high spectral reflectivity (>99%)
    - Receivers with high absorber and low energy loss characteristics which integrate superior coating technologies and phase-changing materials
    - Heat transfer medium with high specific energy and thermophysical properties resistant to high-temperature fluctuations
    - Cascaded thermal energy storage systems supplemented with high-temperature phase-change materials

15) Development of onshore, offshore airborne wind energy systems, and hybrid renewable energy technologies with high efficiency and low energy cost, more compatible with its habitat and can be used for multi-purposes with suitable designs, should be ensured.
16) In the field of geothermal energy, innovative technologies such as deep drilling and directional drilling technologies, systems that can be cascadedly integrated with other energy sources and meet the needs of different sectors, and hot dry rock technologies should be developed.
17) Pioneering technologies should be developed at every stage of the value chain for the use of hydrogen as an energy carrier, as a fuel and a raw material in the production of valuable chemicals.
    - Hydrogen production technologies integrated with carbon capture technologies from renewable and other low carbon energy sources, lignite, biomass and organic wastes
    - Storage technologies such as boron hydride compounds, metal hydrides, liquid organic hydrogen carriers
    - Transport technologies such as cryogenic cooling and liquid hydrogen
    - Ammonia, methanol etc. needed by the industry. obtaining value-added products
    - CO_2 reduction and/or utilization in energy-intensive sectors
    - Technologies for fuel cell applications in transportation, mobile and domestic areas
18) New Generation Small Modular Reactor technologies, which are groundbreaking approaches in clean and safe nuclear energy technologies, should be developed; Small Modular Reactors should be integrated with renewable energy sources; it should be ensured that integrated system technologies that can produce other useful outputs (such as heat, clean water, hydrogen, alternative fuels) in addition to electricity, and nuclear management technologies are developed.

19) Integrated biorefineries and innovative technologies with zero waste, circular economy and multi-product purpose, renewable energy support should be developed for the conversion of organic wastes and micro algae with high added value potential into products such as biofuels (solid, liquid, gas) and hydrogen with biochemical, thermochemical and hydrothermal technologies.
20) In energy systems consisting of Cyber-Physical-Social layers:
    - Aiming at the efficient and cost-effective operation of all activities in the value chain,
    - based on digital technologies,
    - scalable
    - energy by taking into account the interactions between systems with the system of systems approach

    The development of autonomous energy management systems and decision support systems that provide efficiency should be ensured.
21) Against different climatic effects (drought, heat/cold air wave, heavy rain, frost, etc.) agricultural patterns and methods (such as agriculture in desert conditions, agriculture in the sea) should be developed; in order for new and native plant varieties and animal breeds that are resistant to climatic stress conditions, to be developed in a short time, breeding studies supported by classical, biotechnological and molecular genetics (such as CRISPR gene technology) should be carried out and integrated.
22) Innovative biological control methods (such as beneficial insects), biotechnological applications, and biopesticides should be developed to reduce pesticide dependence in agriculture and to expand organic agriculture, so that the export of agricultural products to target markets such as the European Union is not interrupted due to legal regulations that may arise in the future.
23) In order to reduce the use of chemical fertilizers in agricultural production, new generation effective fertilizer production technologies and fertilization systems based on internet of things (IoT), artificial intelligence and sensor technologies should be developed.
24) Unmanned agricultural vehicles, autonomous and/or unmanned agricultural robots and advanced technology environmentally friendly agricultural machinery, data-driven agricultural information including remote sensing technologies should be developed for increasing agricultural production potential, controlling climate conditions affecting agriculture and optimal use of critical inputs.
25) Blockchain-based traceability technologies for reducing losses and waste in the food value chain (production, supply and consumption); Big data-based databases and advanced diagnostic technologies (such as omics technology) should be developed to monitor the composition and superior quality characteristics of foods.
26) To ensure the consolidation of the digital data, which is formed in the agricultural production processes, and its transformation into information; With the information to be obtained from the data to be generated, a large agricultural data pool should be created in order to minimize the climate effect in agricultural production and to enable precision agriculture.
27) In line with the zero waste target, green and environmentally friendly technologies should be developed for the production of high economic value biofertilizer (compost, organomineral, microbial) protein, dietary fiber and bioactive substances from residues in the agriculture and food sector.
28) New generation smart, integrated and high-speed charging technologies (dynamic charging, integrated charging infrastructure, etc.)
29) 29. Energy-dense battery cell technologies (Solid State, Li Metal, Li-Sulfur, Li-Air, Lithium post batteries, etc.), highly efficient battery production processes and efficient battery management systems should be developed.
30) Environmental propulsion and propulsion systems should be developed for transportation vehicles that cannot be electrified with battery technology.

31) Hyperloop, Maglev, etc., which can be an alternative to air transportation. development and integration of transportation systems should be ensured.

32) Integrated, efficient, safe and environmentally friendly smart transportation systems using open data, artificial intelligence and advanced digital technologies should be developed.
33) Transformation of the transportation network should be ensured with connected, cooperative, fully autonomous (driverless) mobility systems containing innovative sensing systems, communication systems, high-capacity electronic equipment.
34) Facilitating and supporting steps should be taken with the joint use of finance, R&D, human resources, technology, entrepreneurship, platform-based collaborations and research infrastructures for the implementation of key and breakthrough technologies that serve to combat and adapt to climate change.

Climate Change Adaptation

1) Adaptation actions of sectors at national, regional and local level should be determined, implemented and monitored by making climate change impact, vulnerability and risk analyzes.
2) In order to increase awareness and capacity on the effects of climate change and adaptation, the curricular and programs of the Ministry of National Education and the Council of Higher Education should be updated and trainings should be given in line with the improvement of the green jobs.
3) River basin management plans and flood management plans should be updated periodically, in line with the efforts to minimize the effects of climate change on water resources and their protection, development and for sustainable use of water resources. The application of these plans should be closely followed.
4) The average loss and leakage rate in drinking and utility water transmission and distribution lines should be reduced to 25% by 2030.
5) Efficient use of water should be ensured in sectors, especially in agriculture and industry, and the reuse rate of used water such as drainage water and treated wastewater should be increased to 15% in 2030.
6) An efficient agriculture sector that is resistant to climate change, which uses technology effectively and takes into account the product control and water budget of the basin should be established.
7) R&D studies should be carried out to determine climate change adaptation options for agricultural products and fields.
8) Climate resilient agricultural practices should be expanded in order to protect ecosystem services and biodiversity.
9) Agricultural insurance (TARSİM) should be strengthened to cover climate disasters.
10) In order to adapt to the effects of climate change, training, awareness-raising and capacity building activities for stakeholders operating in the agricultural sector should be expanded, and technical and financial support mechanisms should be strengthened.
11) Adaptation actions on the basis of preventive medicine against the effects of climate change on public health should be determined and implemented and capacity should be developed in this direction.
12) Adaptation actions should be identified and implemented in order to ensure social resilience against the effects of climate change.
13) Existing marine and terrestrial protected areas should be preserved, the management plans of these areas should be completed, their quality and quantity should be increased, and the restoration of degraded ecosystems should be ensured.

14) Nature-based solutions should be used to adapt infrastructure and superstructure to climate change in urban and rural landscapes, in all sectors and thematic areas.
15) The effects of climate change on tourism and cultural heritage should be analyzed and the adaptation and sustainability of tourism activities to climate change should be ensured.
16) Financial instruments should be developed to access the national and international funds needed for adaptation to climate change, and insurance instruments should be developed in order to manage the risks of loss and damage.
17) Necessary arrangements should be made in the "Environmental Impact Assessment Regulation" in order to make the assessment of the effects of climate change on investments mandatory, prior to the approval of the investment projects.
18) In order to adapt to climate change, early warning systems should be established on a sectoral basis, developed and arranged in such a way that they can work in an integrated manner.
19) Climate change adaptation practices for the protection of forest ecosystems should be planned and implemented.
20) Ecosystem-based fisheries management should be implemented against the effects of climate change, aquatic biodiversity should be protected and developed. In addition, sustainable aquaculture compatible with climate change should be encouraged.

Local Administrations

1) In the fight against climate change, the participation of all stakeholders in the province should be ensured by establishing a climate coordination board in each province, whose authorities and responsibilities are defined by legislation.
2) A climate platform that will facilitate the collection, sharing and use of data and information to be used in the preparation and implementation of Local Climate Change Action Plans should be established within 2023 and should be kept up to date.
3) A methodology to be used in the preparation of Local Climate Change Action Plans in 2022 should be determined and its guideline should be prepared.
4) Existing insurance mechanism should be enhanced within the scope of mitigating the negative effects of climate change, covering the measures to adapt to climate change and the loss and damages of natural disasters, and a central funding mechanism should be established to provide financial resources for activities to be carried out by local governments.
5) In disasters at the local level, management mechanism should be shifted from crisis management to a risk management model, the necessary human, administrative and financial capacity should be developed and the scope of legislation should be strengthened.
6) Resilience indexes of cities against the effects of climate change should be determined and implementation planning should be done within the scope of adaptation to climate risks.
7) Spatial plans should be prepared by taking into account the climate change impact and vulnerability analyzes at national and regional level.
8) Development plans, spatial plans, disaster plans, etc. and other policy documents or strategic plans should be handled with a holistic approach, taking into account Local Climate Change Action Plans, and revised when and if necessary.
9) Local awareness-raising activities, training programs and capacity building studies should be carried out on climate change and its effects.
10) Local level management of forecasting and early warning systems should be ensured and effective communication of this information to the public should be sustained.
11) Landscape atlases should be prepared to define nature-based solutions in settlements and their use in spatial planning should be ensured.
12) In accordance with Paris Agreement and EU Cohesion Strategy and EU Green Deal etc., a national approach should be developed regarding concepts and principles such as nature-based solutions and blue-green infrastructure, and necessary arrangements should be made in the current legislation for the implementation of the principles by local governments.

13) In cities; Ecological corridors that will support the urban ecosystem such as parks, groves, afforestation areas, gardens, bicycle and pedestrian paths should be created.
14) Urban agriculture approach should be adopted in cities. The qualities of the pasture and agricultural lands in the city and on the periphery should be preserved, and in this way, the access of the population living in the cities to the locally produced food should be facilitated, and local food production and consumption should be encouraged by the local governments.
15) Rainwater harvesting and use of gray water should be expanded and guiding legislation should be developed for this purpose. Waste water treated in waste water treatment plants should be reused.
16) Applications that ensure the charging of rain water to groundwater in urban areas should be expanded.
17) In all infrastructure systems in cities, including water network, energy management, waste management, transportation system, the digitalization set forth in the smart cities strategy should be designed in accordance with disaster risk management and in a climate-friendly manner.
18) It should be ensured that the flood management plans in the settlements are implemented primarily on the axis of nature-based solutions.
19) The use of electric public transportation vehicles in urban transportation and infrastructure investments in this regard should be expanded, the choice of transportation types should be changed in favor of green modes (pedestrian and bicycle), and shared mobility systems should be encouraged.
20) In the practices of local governments to combat climate change, financial models should be developed to direct private sector financing and impact investment resources, as well as national and international financing resources.
21) Partnerships with regional and global associations should be established to facilitate compliance with the EU Green Deal and the acquis developed in this context.
22) It should be ensured that the distances between spatial functions in urban areas are planned and structured in a way that minimizes the amount of infrastructure and energy to be used for transportation.
23) The risks posed by climate change on public health at local scale should be examined and local climate and health adaptation plans should be established with local governments in order to reduce possible negative effects.
24) Impact measurement and reporting perspective should be adopted and implemented in order to monitor progress towards actions to combat climate change at local level.
25) In line with the reduction of local greenhouse gas emission sources, the share of local renewable energy sources should be increased in all sectors.

Migration, Just Transition and other Social Policies

1) Climate migration should be addressed as the displacement of individuals and communities that take place within the country by leaving the habitual settlements, or by going abroad temporarily or permanently due to sudden or gradual changes in climatic conditions.
2) Displacements within the country due to climate change (internal migration) and the situation of people who have to migrate from their own country due to climate change (external migration) should be handled separately and different policies should be designed regarding these issues.
3) Preventing the causes of climate change or taking measures against climate change should be handled within the scope of climate legislation; and the situation of the entry of people who had to move due to climate change should be handled within the scope of immigration legislation, taking into account the interaction between climate change and migration phenomena, with an approach focused on "prevention, preparedness and management of displacement".

4) Studies should be conducted on the causes of displacements due to climate change and the determination of the sectors that will be affected by these displacements, and in line with these studies, 'on-site solution-oriented' measures should be taken, support mechanisms for 'on-site employment' opportunities should be determined, and necessary training should be given to the relevant people.
5) Climate migration should be handled with a process management approach. The effects of climate change, including climate migration, on public service provision such as water, energy, transportation, health, education, and employment should be determined, and in line with these determinations, measures should be taken to reduce the problems that put pressure on the ecosystem, studies should be carried out, strategies and regional action plans should be prepared, existing studies should also be evaluated.
6) Studies should be carried out to identify the negative consequences/risks related to climate change, such as food safety and production shrinkage, and the inactivity of agricultural lands, which may arise due to immigration and immigration in rural areas. Fragile groups should be strengthened, and technical and financial support mechanisms should be established to support all producers, especially female agricultural producers.
7) In case of displacements caused by climate change, the vulnerability of urban and rural areas that receive migration and are at risk of emigration from the consequences of climate change should be evaluated, and efforts should be made to cooperate with all parties, especially central and local public administrations, in order for these settlements to become resilient.
8) A methodology should be established to measure the social and environmental impacts of displacements caused by climate change, and studies should be carried out to include them in the impact assessment processes.
9) Studies should be carried out to maximize human and economic development by evaluating the "sector" and "skills" based profile of labor migration that may affect Turkey as a result of displacements caused by climate change.
10) In addition to science-based, technology-oriented, innovation-oriented/innovative studies, the preservation of traditional knowledge should be supported in order to ensure ecosystem integrity and protect biodiversity. Collaboration with relevant stakeholders should be sustained in order to determine and solve the effects of species on biodiversity and the problems that will arise, which are brought to Turkey through migration due to climate change or migrating naturally. A control mechanism should be established at the border gates to prevent invasive foreign species that may enter our country through the border gates due to migration.
11) Studies should be carried out to ensure cooperation and coordination between institutions, local governments, non-governmental organizations, individuals and groups in the fields of “Migration, Environment and Climate Change”.
12) Catastrophe and disaster insurance legislation should be revised to cover climate change-related damages and disasters.
13) Rights-based approaches should be adopted in studies to be carried out on the social dimensions of combating climate change, and gender equality should be taken into account in the policies, actions and legislative arrangements to be developed.
14) Taking into account global developments and national conditions, restorative justice-based approaches should be adopted for the problems that may arise from possible injustices due to climate change.
15) In processes regarding climate justice and taking action to address climate change, human rights, the right to health, right to education, fundamental rights such as the right to development should be taken as a basis; considering the interests of vulnerable people such as children, women, the elderly and the disabled, gender equality, women's empowerment and intergenerational justice should be taken into account. Social determinants should be taken into account in national policies for people and groups affected by climate change.
16) Processes related to climate justice in the context of international politics must be taken into account in the context of supporting global efforts, and should be based on Turkey's “common

but differentiated responsibilities and relative capabilities principle" which is clearly and unequivocally accepted in the United Nations Framework Convention on Climate Change and the Paris Agreement, and should be inline with Turkey's 2053 net zero emission target.

17) In the policies to be determined within the scope of combating climate change, the decoupling of economic growth from environmental destruction should be prioritized by considering climate justice and green transformation.
18) Access to information on climate change should be improved, and opportunities for fair and effective participation in decision-making and implementation processes should be strengthened. In this framework, vulnerable groups, primarily women and youth, should be given an active role in decision-making and implementation processes regarding climate change. Women's leadership should be encouraged.
19) Legislative studies should be carried out to create effective remedies in order to ensure access to climate justice.
20) In line with 2053 Net Zero Emissions and green development goals, all plans, programs and strategies to be produced regarding climate change, including the updated Nationally Determined Contribution that Turkey has to submit under the Paris Agreement, should take into account gender equality and just transition.
21) In order to ensure climate justice, gender-sensitive budget and investment opportunities through a gender lens should be developed in mechanisms that can be considered to be established, and efforts should be made to ensure their integration.
22) By making changes in the EIA legislation, it should be ensured that the environmental, climate change-related and social impacts of the projects are measured by international standards and included in the environmental impact reports.
23) In the arrangements to be made in the context of climate change in disaster action and education plans, behavioral change should be targeted by taking into account the needs of vulnerable groups before, during and after the disasters.
24) Necessary institutional arrangements should be made, taking into account current job descriptions, in order to carry out studies to increase the awareness of public institutions on climate change, to ensure coordination in relevant institutions and organizations, and to establish units in order to carry out studies more effectively.
25) Studies should be carried out to increase environmental and climate literacy of lawyers. Environmental specialized courts should be established and qualified judges and lawyers should be trained in this field.
26) Necessary arrangements should be made in the relevant legislation to punish real and legal persons who cause climate change and ecological destruction.
27) By effectively operating the social dialogue mechanism, a just transition to a climate-neutral economy should be ensured, where no one is left behind, where risks and opportunities in the transformation process are evaluated together, and decent job opportunities are created, by prioritizing vulnerable groups.
28) Decent – "green jobs" that provide full social protection and at the same time have a mitigation effect on carbon emissions should be increased, and programs related to the acquisition of green and digital transformation-oriented skills for the protection of employment of the workforce affected by the climate change process should be developed in cooperation with the social partners.
29) Appropriate social protection measures should be developed for employees and families who will be adversely affected by climate change and its transformation.
30) Studies should be conducted to establish a national loss and demage mechanism, and in this context, to ensure the effective use of existing resources and the transfer of international financial resources.
31) Turkey's Net Zero Emissions Target for 2053 should be determined in the context of international regulations to which the country will be subject, taking into account the supply chains of the sectors that will be subject to transition; Impact assessment studies should be

carried out for a sustainable, fair and equitable transition, especially in sectors such as coal mining and coal-dependent electricity generation, agriculture and sectors such as cement, electricity, fertilizer, iron and steel and aluminum, which are 5 priority sectors in terms of carbon regulation at the border, support mechanisms should be structured and developed within this scope.

32) Incentive mechanisms, financing and investment should be designed and implemented in such a way that they are directed to projects and businesses that meet the principles of just transition. In the context of ensuring a just transition, studies should be carried out to support the green transformation of micro, small and medium enterprises as well as priority sectors.
33) The effects of the NDC, to be updated in accordance with the Paris Agreement and the 2053 Net Zero Emission Target, on employment should be evaluated on a sectoral basis and decent, potential employment opportunities should be analyzed in a medium and long-term perspective.
34) By strengthening inter-institutional cooperation and coordination in studies for a just transition and by establishing cooperation with local governments, it should be ensured that the process progresses with a participatory approach. In the just transition process, policies such as employment, industry, technology, local/regional development, climate and education should be carried out in a coordinated manner, and mechanisms that will enable the participation of public institutions, non-governmental organizations and all stakeholders affected by the process should be established.
35) While determining policies in the context of just transition, social dialogue (public representatives of workers' and employers' unions) should come to the fore as the main element and awareness of all stakeholders should be increased on this issue.
36) 36. The capacities of the relevant institutions should be increased in order to fill the data/information gap in the studies to be carried out to ensure a fair transition.
37) 37. In the context of 2053 Net Zero Emissions Target, the establishment of a fair transition mechanism for the sectors that will be adversely affected should be evaluated and some of the income to be handled from the Emissions Trading System and other carbon pricing mechanisms should be transferred to this just transition mechanism.
38) Social awareness on climate change should be increased with the perspective of “Education for Sustainable Development”. In this context, the execution of studies at local and national level by all relevant actors should be encouraged.
39) Studies should be carried out to increase academic work on climate migration, climate justice, gender equality, vulnerable groups and just transition, and R&D studies should be supported.
40) Climate change should be included in higher education programs (law, education, social sciences, engineering, etc.), and it should be encouraged to open Master's and Doctorate programs in universities that will deal with the issue from different dimensions.
41) Beginning from pre-school, the achievements in the curriculum should be reviewed in terms of sustainable development purposes, the curriculum should be updated and activities on climate change should be prepared for the relevant educational achievements. In this context, in-service training should be given to teachers. Practical studies aimed at raising awareness on climate change should also be expanded in non-formal education.
42) In all decisions and steps to be taken in Turkey's fight against climate change, the demands in the 'Youth Declaration' announced by the Climate Envoys at the Climate Council on February 21, 2022 should be taken into account.
43) Climate literacy programs should be carried out by making use of mass media in order to increase social awareness against climate change. The ultimate goal should be to ensure behavioral change at the societal level, particularly climate literacy and climate and environmentally sensitive consumption habits.
44) In the management of health problems that may arise from climate change; in areas such as public health and new diseases, under the guidance of a single health approach and health impact assessment method, taking into account the triangle of human, animal-plant and

environment, impact assessment, prevention, monitoring, early warning and rapid response studies, in coordination with the participation of relevant disciplines and sectors management should be adopted.

45) Studies should be carried out to take measures to meet the estimated additional service demand that may arise from occupational health and safety hazards, and public health problems arising from climate change.