



**ECO STRATEGY
FOR
ENERGY COOPERATION
2030**

June 2021

LIST OF TERMS AND ABBREVIATIONS

BAT	Best Available Techniques
BP	British Petroleum
CNG	Compressed Natural Gas
CO ₂	Carbon dioxide
EE	Energy Efficiency
GHG	Greenhouse Gas
GDP	Gross Domestic Product
HHI	Herfindahl-Hirschman Index
IEA	International Energy Agency
IRENA	International Renewable Energy Agency
LNG	Liquefied Natural Gas
LPG	Liquified Petroleum Gas
LTES	Long-term Energy Strategy
NCCSD	National Coordination Council for Sustainable Development
NDG	Nationally Determined Contribution
PV	Photovoltaics
RES	Renewable Energies
SDG	Sustainable Development Goal
SMEs	Small and Medium Sized Enterprises
UN	United Nations

CONTENTS

LIST OF TERMS AND ABBREVIATIONS	1
I. INTRODUCTION.....	5
II. RATIONALE.....	5
III. BACKGROUND AND STATE OF PLAY.....	6
IV. MACROECONOMIC PROJECTIONS	7
a) Population.....	7
b) Economic growth.....	7
V. STRATEGIC COMPONENTS/PILLARS	8
1. MAINSTREAMING SUSTAINABLE ENERGY TRANSITION.....	8
1.1. Renewable Energy.....	10
1.2. Energy Efficiency.....	12
1.3. Energy intensity.....	13
1.4. Green Economy.....	14
2. ENERGY SECURITY	15
2.1. Enabling policy environment and upgrading the regulatory framework.....	16
2.2. Enhancement of energy connectivity and its role in establishment of economic corridors	16
2.3. Strengthening the role of the ECO Region in global energy architecture	18
3. REGIONAL ELECTRICITY MARKET.....	18
4. INVESTMENT IN ENERGY SECTOR	19
5. DOWNSTREAM ENERGY SECTOR	20
6. ENERGY RESEARCH, DEVELOPMENT, INNOVATION AND TECHNOLOGIES	22
7. ENERGY ACCESS AND ENERGY POVERTY ERADICATION	23
8. INTERNATIONAL COOPERATION ON ENERGY	25
9. MONITORING MECHANISMS	26
VI. THE ACTION PLAN	27
VI. THE ACTION PLAN	Error! Bookmark not defined.
A. Implementation of the Action Plan	28
B. Structuring ECO Energy Platform	29

Essential Action: Enhancement of institutional capacities in sustainable energy through regional collaborations	30
C. Key Action Areas and Activities	32
Implementation Plan of Key Action Areas and Activities	32
Key Action Areas 1: Mainstreaming Sustainable Energy Transition	32
Core priority 1.1: The ECO Petroleum (Oil & Gas) Pipeline(s) /Trade Infrastructure Projects	32
Core priority 1.2: Renewable energy.....	34
Core priority 1.3: Energy efficiency and conservation.....	35
Core priority 1.4: Coal related issues	35
Key Action Areas 2: Energy Security	36
Core priority 2.1: Strengthening the role of the ECO Region in global energy architecture	36
Core priority 2.2: Legal framework and energy standards	37
Core priority 2.3: Energy security and safety.....	37
Core priority 2.4: Converting ECO Energy Corridor into an Economic Corridor for the ECO Region	38
Key Action Areas 3: Regional Electricity Market	39
Core priority 3.1: The ECO power grid.....	39
Core priority 3.2: Price and taxation	40
Key Action Areas 4: Investment in Energy Sector	40
Core priority 4.1: Financing for energy infrastructure development and investment needs	40
Core priority 4.2: Risks in financing	41
Core priority 4.3: The channels and sources of financing for energy infrastructure projects	41
Core priority 4.4: Establishing a regional capital investment Fund	41
Key Action Areas 5: Downstream Energy Sector	42
Core priority 5.1: Development of downstream energy sector	43
Core priority 5.2: Micro, small and medium enterprises and startups	43
Key Action Areas 6: Energy Research, Development, Innovation and Technologies	44
Core priority 6.1: The fossil energy system	44
Core priority 6.2: Clean energy technologies emerging and advanced energy technologies	45
Core priority 6.3: Driving ambition in carbon capture storage and use deployment	45
Core priority 6.4: Increase safety in the use of nuclear energy	45
Core priority 6.5: Promotion of renewable energy technologies.....	46
Core priority 6.6: The smart technologies and services	46

Core priority 6.7: Development of new materials and technologies for energy-efficient systems	46
Core priority 6.8: Sustainable transport and battery sector	46
Key Action Areas 7: Energy Access and Energy Poverty Eradication	47
Core priority 7.1: Economic growth.....	47
Core priority 7.2: Enhancing capacity building	48
Key Action Areas 8: International cooperation on energy	49
Core priority 8.1: Establishment of regional cooperation	49
Core priority 8.2: Establishment of international cooperation	49

I. INTRODUCTION

Perhaps not since the 1970s has an energy policy, technology, and security been so intensely discussed as today. Whether it is the race for energy resources among the nations, roller-coaster oil prices, the transition toward low carbon sources of energy, or concerns over nuclear safety, energy continues to make international headlines. Today hardly any part of the world is untouched by the interplay of oil and international politics. Consumers as well as producers are concerned about the impact of national and international events that increase or restrict the supply of energy. West and Central Asian region holds the world's largest residual oil and gas resources.

Economic Cooperation Organization (ECO) is an intergovernmental regional organization encompassing countries from Europe, Caucuses and Central Asia, Middle East, and South Asia with more than 500 million inhabitants and over 8 million square kilometers connecting Russia to the Persian Gulf, and China to Europe. The overall objective of the Organization is the sustainable economic development of its Member States and the Region as a whole.

Energy is a top priority in cooperation among member states of ECO regarding “ECO Vision 2025”. The strategic objective of this sector is “to enhance energy security and sustainability through wider energy access and trade within the ECO Region and beyond”.

The document is based on existing literature and statistics of the energy, environment, and economy sectors for the Member States of ECO. The expected evolution of international energy conditions and analyses on recent long-term assessments of international energy and economic organizations, especially the signed multinational agreements on climate change, have been considered.

II. RATIONALE

The Strategic Rationale provides an intentional description of processes in terms of process elements and the rationales behind them. It describes the intentional relationships that are “internal” to actors, such as means-ends relationships that relate process elements, providing explicit representations of “why” and “how” and alternatives.

The regional energy cooperation within ECO is driven by the need to increase the energy market integration; provide adequate and equitable distribution of energy resources among the Member States; enhance existing partnerships and achieve affordable and cost-efficient solutions to energy constraints.

The energy orientations of ECO Member States are divergent given their development plans and levels, resource endowments as well as energy infrastructure. This divergence leads them to set national energy priorities and targets contrasting with each other. Developing regional goals and translating them into tangible steps relevant for all ECO Member States necessitate the formulation of Regional energy policies in an integrated manner by finding synergies and complementarities between global, regional, and national dimensions. This three-dimensional model could enable ECO to design inclusive and agile energy strategies responsive to the needs of all Member States for further intra-regional cooperation and to the rapidly evolving global energy landscape.

Building up the architecture requires embarking upon the energy market reforms and advocating policies targeted on cleaner and sustainable technologies, stronger energy efficiency and conservation, and improved energy intensity by particularly developing countries in concert. The dynamics and sustainability of these responses has been confronted with certain inadequately addressed structural shortcomings. In this regard, the following sets of reforms may seem promising in the regional level:

1. Enhancement of institutional capacities in sustainable energy through regional collaborations
2. Scaling up regional sustainable energy investments
3. Close interaction and participatory approach with all relevant stakeholders
4. Revision of long-term policy frameworks and capital assignments
5. Diversifying the domestic energy mix and transition to cleaner types of energy
6. Launching proactive regional business models to enhance energy value chains and manage supply cut-offs
7. Uptake of climate change and environment-friendly policies in the whole chain of the regional decision-making process with a focus on their social and economic impacts
8. Application of best innovations and know-how in sustainable energy development policies

In this regard, the reform complexes indicated in the action plan, which is an integral part of the strategy, may seem promising at the regional level.

III. BACKGROUND AND STATE OF PLAY

The adoption of “ECO Vision 2025” laid down the long- and mid-term regional objectives and expected outcomes in the energy sector, while Vision’s Implementation Framework identified the required action, timeframes, result areas, and accountabilities. Meanwhile, ECO Plans of Action (PoA) for Energy and Petroleum Cooperation has long served as the mid-term policy framework documents and umbrellas for energy cooperation within the Organization.

The last ECO PoA for Energy and Petroleum Cooperation (2011-2015) was adopted at the 2nd ECO Ministerial Meeting on Energy/Petroleum (1 October 2010, Dushanbe). The 27th Meeting of the Regional Planning Council (5-8 December 2016, Tehran) extended this PoA until the next - 4th ECO Ministerial Meeting on Energy/Petroleum.

The subject PoA envisaged priority cooperation areas of common interest in ECO power grid; ECO oil and gas pipelines; energy security and trade; coal; energy efficiency and conservation; renewable energy; and regional energy/petroleum policy and planning.

Nevertheless, during this period new dynamics on the global energy landscape, particularly environmental, economic, geopolitical, and financial dimensions are getting national and regional levels thus creating challenges and opportunities to be addressed in line with new momentum.

Henceforth, ECO had to undergo the process of development of its fundamentally new Strategy on Energy Cooperation for the period of 2020-2030 in lieu of the revised PoA.

IV. MACROECONOMIC PROJECTIONS

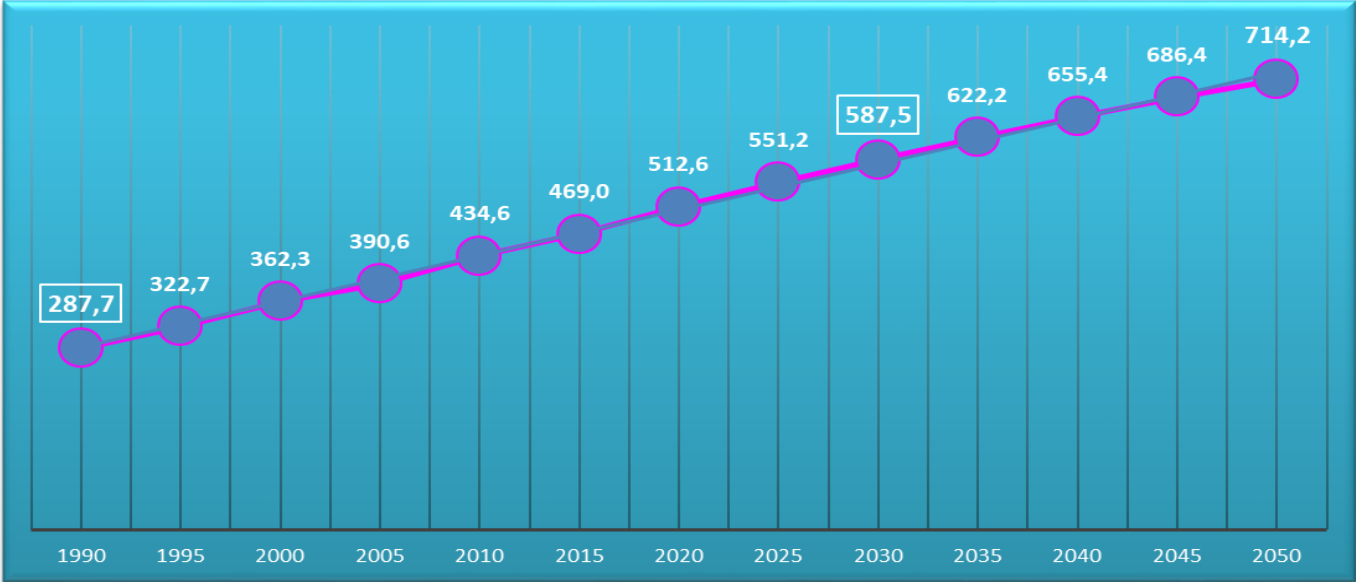
In order to be able to assess the results of the implementation of strategy activities towards fulfilling their targets in the period 2020-2030, as they have presented under this strategy, we need to assume on macroeconomic projections of the ECO countries.

a) Population

The macroeconomic assumptions build on demographic and economic projections for ECO Member States based on official data from the State Statistical Committee of Member States and on information by international organisations such as United Nations (UN), International Monetary Fund (IMF) and World Bank.

Figure 1 presents the population projection in thousand inhabitants for ECO region until 2050. While historically the population increases in an average growth rate of approximately 6%, the UN report projects that this increase keeps slowing down to below 6% by 2030, while after 2040, it starts to diminish reaching 714 200 000 inhabitants.

Figure 1. ECO Population projection in million inhabitants. Source: Grampinder, HYDE & UN (2021)

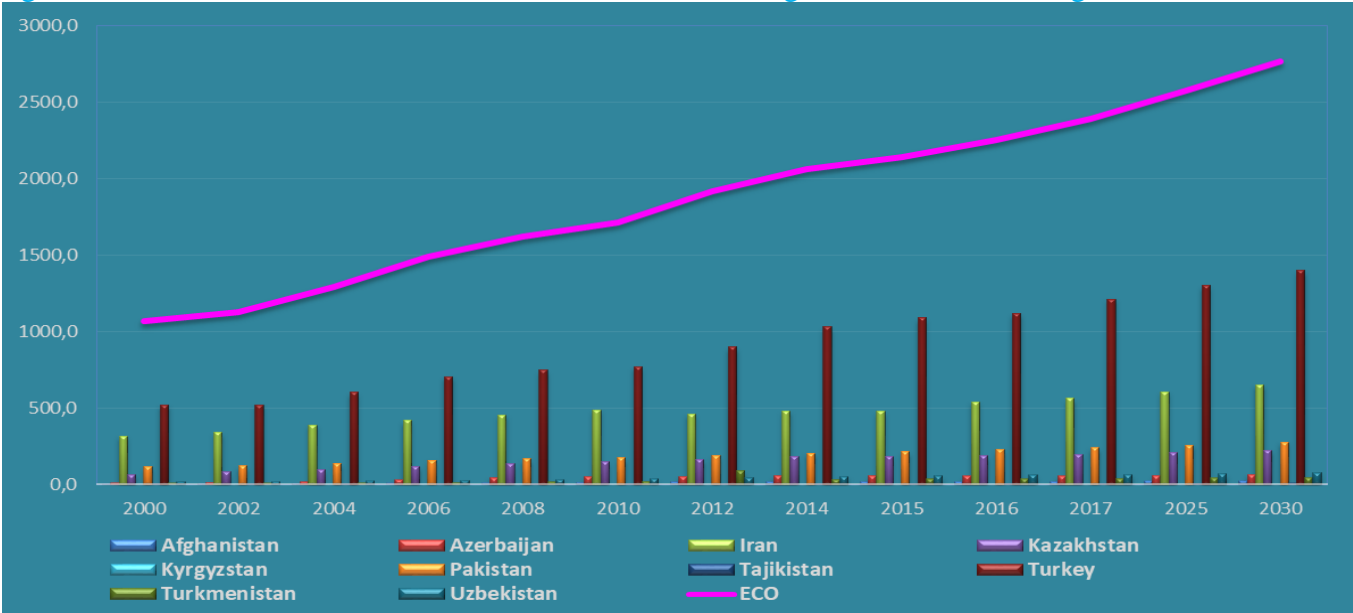


b) Economic growth

The economic growth data include the projection of the Gross Domestic Product (GDP) in constant monetary terms, of the value added by sector and sub-sector, and of the GDP per capita.

Figure 2 presents the projections of the GDP of the ECO countries until 2030 (Data are in constant 2010 U.S. dollars. Dollar figures for GDP are converted from domestic currencies using 2010 official exchange rates). Economic growth is projected to growth up in the mid-term (until 2030) which has a general steady trend driven by the projected evolution of the population. In particular, it is projected that the average GDP growth rates will be in the order of 2.2 % for the period (2020 – 2030).

Figure 2. Projections of Gross Domestic Product for ECO, in a million constant US dollars 2010. Dollar figures for GDP are converted from domestic currencies using 2010 official exchange rates.



V. STRATEGIC COMPONENTS/PILLARS

The Strategy focuses on the following key components/pillars/clusters, all of which are interlinked with each other to certain degrees:

1. Mainstreaming Sustainable Energy Transition
2. Energy Security
3. Regional Electricity Market
4. Investment in Energy Sector
5. Downstream energy sector: Consolidating regional cooperation and raising competitiveness
6. Energy Research, development, innovation and technologies
7. Energy Access and Energy Poverty Eradication
8. International cooperation on energy
9. Monitoring mechanisms

1. MAINSTREAMING SUSTAINABLE ENERGY TRANSITION

Over the past decade, global energy architecture has been undergoing an unprecedented, multifaceted, and far-reaching transformation to a sustainable energy future. This irreversible energy transformation trend will have significant political, economic, and social implications encompassing multiple dimensions of sustainable development. In view of this ongoing transformation, it is imperative for all stakeholders, *inter alia* the regional intergovernmental organization as ECO to fine-tune them for a new energy age, forge integrated approaches to regional energy challenges and elaborate strategies for adapting to smooth transition. It is widely acknowledged that regional cooperation represents a *sine qua*

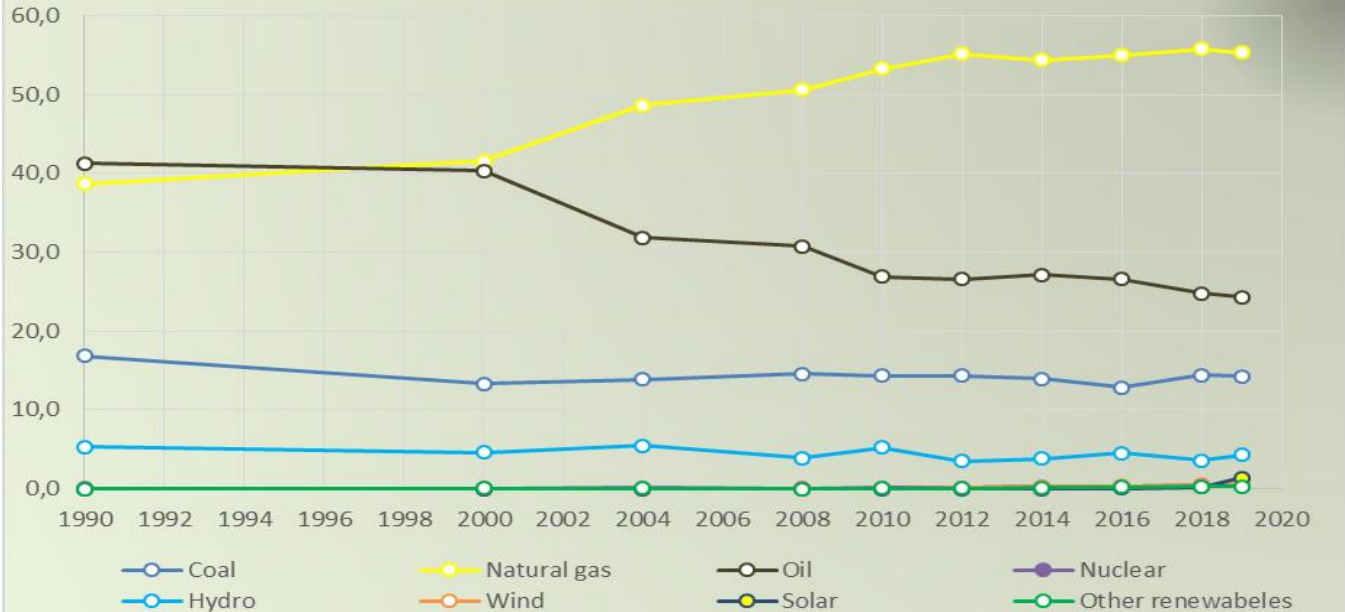
non for transformation of the global energy architecture in terms of raising the efficiency of this process and better deployment of renewables and clean energy technologies.

Meanwhile, the limited accessibility to sustainable, affordable and modern energy services serve as additional catalysts for economic declines and shrinking socio-economic development (see *Figure 3*).

The energy transformation could thus have multiple diverse social and economic implications on ECO Region given the configuration of economies, regional commitments and transition strategies being pursued. Its success heavily depends on feeding into business interests and the degree to which intra-regional supply chains could respond to new economic trends fuelled by the transition. Henceforth, the regional intergovernmental organizations may wish to put forward a wide range of policies to reinforce resilience and equitably distribute the gains of transition.

With these in mind, the comprehensive analysis of the positive and negative implications of this transformation is instrumental for ECO policy-making. Driven by this imperative as well as the growing pace and dynamics of renewables and energy efficiency in the global energy agenda, the revised energy policies and roadmaps should envisage consolidated national, regional and global scenario options and be elaborated with particular focus on the aforementioned nexus approach and implications of energy transformation on social and economic development.

Figure 3. Share of energy consumption by source, ECO region, %: Source: Our World Data on BP Statistical Review of World Energy (2020)



In sum, there are increasing options for ECO to streamline the future energy landscapes, while granting its accessibility, affordability, supply security and resource-use efficiency, as well as supporting climate change action in parallel.

Recently, the uptake of economic growth, interconnectivity, environment and climate change, water, food, poverty reduction and other related cross-cutting areas are instrumental in the process of revisiting the comprehensive regional energy policies. In this vein, the subject thematic diversification necessitates the revision of ECO energy agenda with a view to put the strong focus on nexus approach in the initial

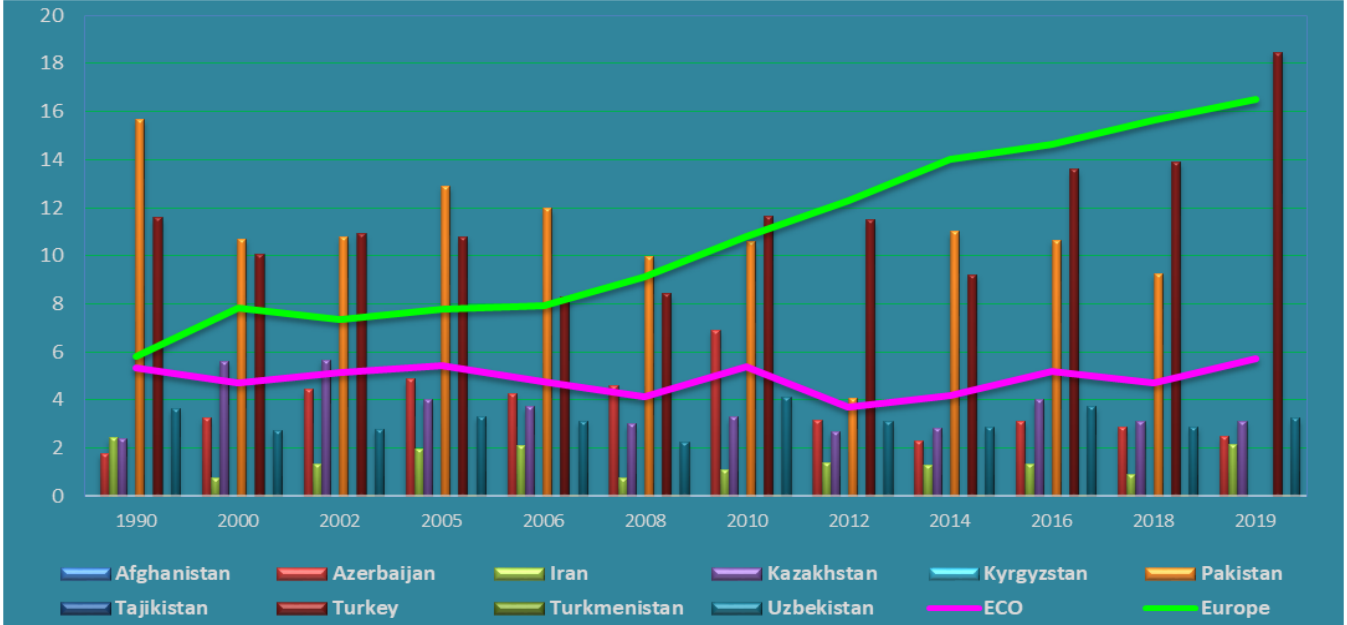
phases of decision-making, as goal setting, option formulation, planning, and programming. As in other regions, the “nexus management” is of critical importance for ECO Region to ensure efficient use of natural resources. The implementation framework of the “ECO Vision 2025” envisages measures and actions to be taken collectively for realization of its expected outcomes. As per the nature of the activities involved, there are a series of interlinked areas, which necessitates identification of existing nexuses.

New policies are assumed to be a reasonable extension of past trends and a reflection of the current debate on policy issues. The concept of sustainable energy development is conceived as a growth and improvement of energy sector with due focus on environmental sustainability and social development. The concept was evolved in terms of a recognition that the ongoing trend of fossil-fuel based energy sector development has led to environmental challenges.

1.1. Renewable Energy

Apart from the vast fossil fuel resources, the ECO Region avails significant sustainable energy potentials. Numerous studies give evidence of the enormous untapped potential for power generation from sun, wind, biogas and small hydro in ECO countries. Even cautious estimates indicate that the potential for renewable generation in ECO Region is comparable with the current total regional energy consumption. Nevertheless, the share of renewables in the energy mix is (5,6 % including hydro energy) miserable compared to Europe (Figure 4).

Figure 4. Share of primary energy from renewable sources, for ECO region, %: *Source: Our World Data on BP Statistical Review of World Energy (2020)*

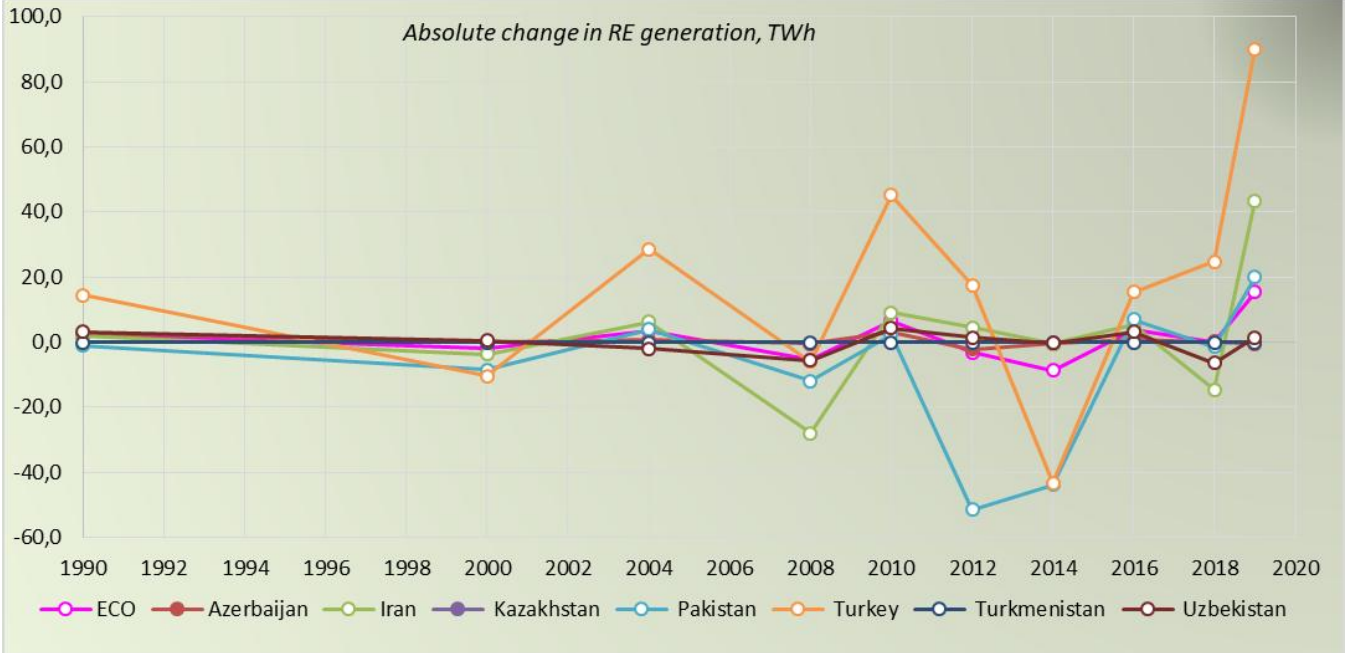


Despite the ongoing efforts, the actual deployment of renewable energy (excluding large hydro) annual change in renewable energy generation across most of ECO countries remains low (Figure 5).

In a number of areas, the implementation of policy commitments has not been transformed into reality and vibrant markets for sustainable energy technologies and services. The introduction of sustainable energy solutions continues to face certain policy and regulatory, financial, economic, technical, knowledge, awareness, and capacity challenges. The major challenges of promoting renewables in the majority of ECO Region stem from the current pricing and lack of sufficient incentives for a large-scale development.

ECO Member States have realized the significance of renewable energy in terms of its economic, environmental and health implications. Although late entering the game, ECO has started to make strides to properly address renewable energy thus contributing to building up the diverse and resilient energy architecture in the ECO Region. This trend has been supported by stimulating multilateral policy debates and pursuing proactive cooperative policy with other international organizations, particularly UN System. The joint ECO-UNIDO Project on establishment of ECO Clean Energy Centre (CECECO) is an explicit example of these sustainable energy transformation efforts.

Figure 5. Annual change in renewable energy generation for ECO region - this is calculated as the difference from the previous year, TWh. Source: Our World Data on BP Statistical Review of World Energy (2020)



In this rationale, and in pursuance of “ECO Vision 2025”, since mid of 2017, ECO Secretariat has been engaged with the United Nations Industrial Development Organization (UNIDO) in establishment of subject Centre. The establishment of the Centre will complement and significantly contribute to the existing efforts of ECO to promote energy and transport connectivity in the region.

Leveraging sustainable energy investments and the introduction of appropriate regulations and standards go hand in hand with the need for local institutional capacities and qualified human resources. Some ‘soft’ barriers for renewables and energy efficiency can be addressed more effectively and at a lower

cost through regional approaches and methodologies. Furthermore, the climate change-related aspects and Paris Climate Agreement¹ is sought to be focused in the Preparatory Phase of the subject project.

It is worth noticing that important issue is the incorporation of storage facilities so that the power system can absorb and take advantage of the increased deployment of RES. After 2035-2040, when high RES penetration in the power system occurs, investments on hydro pump storage, batteries and Power-to-X technologies are assumed to be quite competitive. Storage plants consume electricity (charge) at low marginal cost times and provide electricity to the grid (discharge) at high marginal cost times. In the case of Power-to-X plants, they consume excess (renewable) electricity and produce clean fuels (e.g., clean gas, hydrogen) to be used for direct demand.

Furthermore, taking in to account that all ECO member states are going through same steps in introduction of renewables, the member states will benefit from creation knowledge sharing platform and adoption of separate roadmap with focus on introduction renewables and reaching goals of clean energy transition.

The evolution of the share of renewables, especially in electricity generation, becomes higher as economy grows and has to adapt to climate change obligations; thus, the new situation of the electricity system has to consider additional functions, like storage, and proper operation of transmission and distribution grids. Good housekeeping and necessary investments in electricity grids are of the highest priority to be able to support investments in RES.

1.2. Energy Efficiency

The sustainable energy sector can be also considered as a future growth sector, which offers business and employment opportunities particularly for Small and Medium Sized Enterprises (SMEs). Most of the ECO countries have adopted to some extent renewable energy and energy efficiency policies and incentives (e.g., tax exemptions, feed-in tariffs) or are in the process to do so. In this vein, setting targets for energy efficiency and conservation is also becoming increasingly crucial particularly for such emerging economies as ECO Member States, which require efficiency-raising in industries and utilities.

There is significant potential for energy efficiency improvements with regard to lighting, appliances, buildings, transmission and distribution, transport, and industrial processes. Both energy intensities in industrial and housing sectors vary substantially across the ECO Region. Industrial sector index varieties – attributed to the structure of the production and energy efficiency of the processes – and housing sector index varieties – attributed to services level given first of all, different climate conditions and energy efficiency – imply significant challenges for ECO Region in addressing energy efficiency. The challenges are divided into two major clusters – related to the need for reducing energy wasting and with measuring energy efficiency per sector (e.g., lack of data impedes delivering comparable indices for transport sector).

In sum, energy inefficiency is one of the major challenges confronted by the ECO Region in the energy sector and must be targeted at production, distribution and consumption stages. Even moderate estimates

¹ Turkey has signed but not ratified the Paris Climate Agreement.

assume that driven by the current state of technology, the average of 30% of energy is currently wasted in the countries of Central Asia due to inefficiency. With this in mind, the main policies for promoting energy efficiency and energy conservation and carbon finance mechanism need to be adopted:

- Renovation of buildings and strict building codes (e.g. insulation of buildings)
- Eco – design regulations
- Best Available Techniques (BAT) in Industry
- Transport electrification, CO₂ and energy efficiency standards for vehicles

Significant energy savings are required particularly as the climate change obligations are fulfilled and/or GDP growth increases. In these cases, high investment expenditure is necessary in all main sectors.

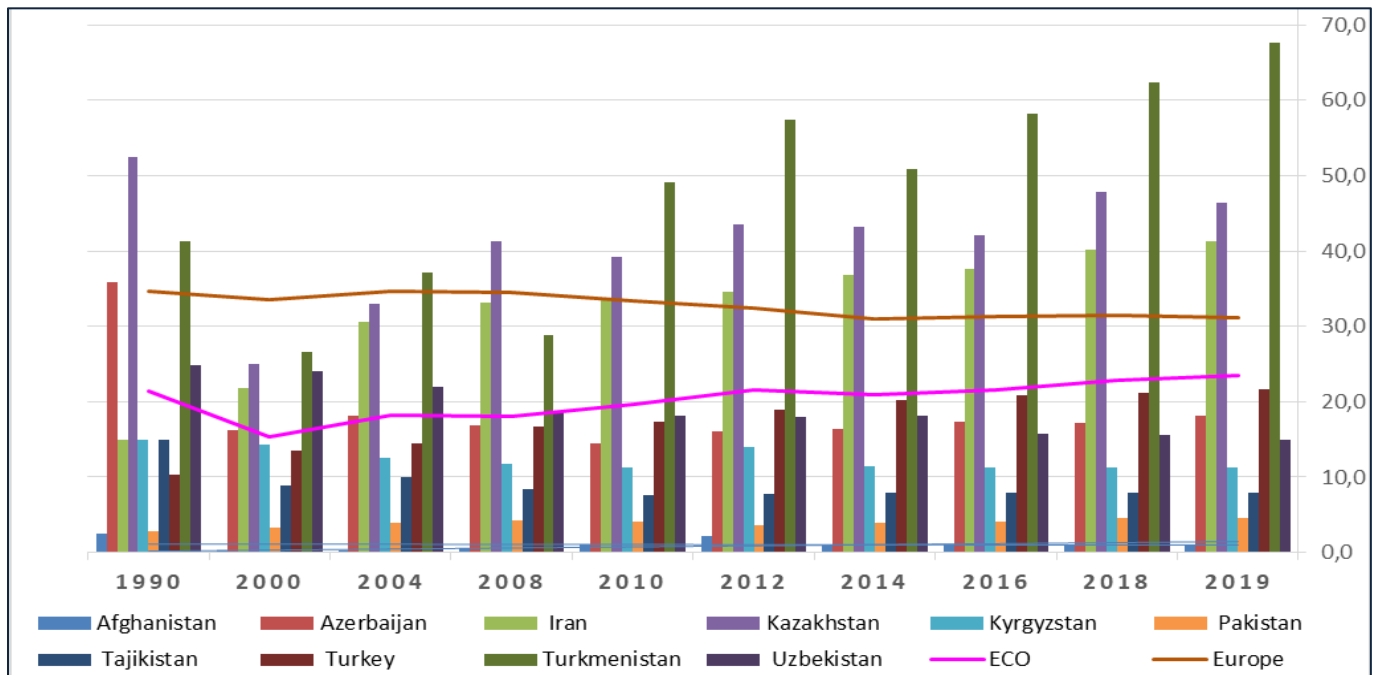
1.3. Energy intensity

Energy intensity in ECO region has decreased in the last decade by 15%, (see *Figure 6*) showing almost the same trend as with the European Union. However, Total Primary Energy Supply per capita in ECO Member States has been relatively lower than that of the European Union, (see *Figure 7*).

Figure 6. Energy Intensity trend (TPES/GDP, toe per thousand 2011 USD PPP). *Source: World Bank, International Comparison Program database, 2019*



Figure 7. Energy use per person, kWh. source - Our World in Data based on BP & Shift data Portal



1.4. Green Economy

Low-carbon, resource-efficient and socially inclusive economy is the phenomenon that in fact, ECO Member States, individually, Regionally and globally are also striving to avail the benefits for their overall development and prosperity. Prioritizing the Green Economy as mid and long-term development policy may not only bring dividends to ECO region, but also motivate Member States to unite under the universal value which would contribute speaking up with single voice in global arena within the shared interest of energy, environment and other cross-cutting areas.

In the ECO Region, the already very high dependence on hydrocarbons (*see Figure 3*) to satisfy the rapidly growing demand for electricity, heating and transport services is ever growing. The volatile prices for fossil fuels remain an energy security concern for both the countries with high import dependency and net hydrocarbon exporters. More efficient energy systems are highly desirable for economic competitiveness, low-carbon intensity, and reliable and affordable energy services to consumers. Financing decisions to be taken in the energy sector in this region will highly impact global climate change mitigation and adaptation efforts. It is possible to produce hydrogen from renewable energy sources by electrolysis method from electricity to be obtained especially at night when the demand is very low, and by blending this green hydrogen with natural gas, the carbon dioxide emission of natural gas can be realized at even lower levels. According to International Energy Agency statistics, during 2016-2018 data, total volume of CO₂ emissions of ECO region was 1583 mt which is about 4,8% of total share of the world. Though the amount was not considered as a troublesome, few ECO Member States are increasing emitters of GHG and will play an important role to achieve the commitments of the Paris Climate Agreement.

Due to its geographical location, the region is also vulnerable to climate change impacts. In recent decades there has been an incidence of extreme weather events, which have been affecting the life of people, property and overall development of the countries; leading to people moving across borders due to climate-related consequences. Therefore, the climate change-related aspects and Paris Climate Agreement should to be focused while addressing sustainable energy agenda in the ECO Region. The greening of the power sector through the rapid deployment of renewable energy and acceleration of energy efficiency is a key in formulating a climate change responsive approach to energy sector planning in the ECO region.

Consequently, the reuse or recycling of natural resource inputs; enhancing production and consumption of renewable sources of energy; preservation of critical (or non-substitutable) natural capital; and minimizing pollution and other environmental impacts – including greenhouse gases (GHG) emissions – will be key vision to guide by ECO Secretariat. At the same time, best practices will be sought to open wider discussions for the policy measures to encourage broader socio-economic objectives including economic growth, equality, employment, health and wellbeing, and poverty reduction.

2. ENERGY SECURITY

In its fifth decade of existence, ECO's potentials for advancement of regional energy agenda still remains untapped and require focused attention by all stakeholders. In this vein, diversification of source of energy and energy connectivity plays a fundamental role in the ECO Region taken the unique geostrategic location and land-locked status of the majority of ECO Member States. ECO's energy mix is composed largely of fossil fuels, which account for almost 94% (*see Figure 3*). The ECO Region predominantly represents a set of inadequately connected and isolated energy markets lagging behind its huge potential. However, intra- and inter-regional connectivity in ECO Region is being diversified thanks to the large-scale energy and transportation infrastructure projects under different multilateral formats.

It is noteworthy that trans-boundary infrastructure networks can help increase energy security, reduce vulnerability, and cooperation should help develop energy solutions and ensure environmental protection of cross-border resources and ecosystems. Regional energy cooperation will also facilitate better energy connectivity which in turn will have spillover effects and increase access to services such as education, health and housing as well as electricity and markets for marginalized populations.

The key drivers of the energy security shall be the launching of the domestic energy market, enhancement of energy connectivity and diversification of the energy mix of the overall ECO Region.

Ensuring energy security in the ECO Region requires the integrated and coherent approach, including via providing support to nurturing behavioural change towards more efficient energy consumption, capacity building and awareness raising, etc. Further development of national legislations and harmonization of legal and regulatory frameworks in Member States is a crucial factor to achieve energy security. Energy trade is one of the critical elements that can greatly contribute to enhancing energy security both within the sub-regions and the entire ECO Region.

2.1. Enabling policy environment and upgrading the regulatory framework

Having recognized that to address challenges and opportunities stemming from national priorities to meet needs of energy and technology transition as well as to respond to Global trends in SDG7, capability of energy related institutions to provide appropriate policy and regulatory environment will play crucial role. To reach particularly at regional level, necessitates collaborative approach. For the sustainable, reliable and resilient energy market in ECO space, institutional framework and broad reform agenda in energy are of utmost important.

Notwithstanding from exclusive national interests, ECO Member States enjoys high level political and good neighbourhood relations, which is one of the core values to maintain and further enhance regional energy cooperation under this Strategy.

Sustainable, equitable and affordable energy requires more interconnectivity, efficiency and cost-effectiveness to achieve energy security favouring consumer satisfaction. It does so by developing and providing frameworks, good practice guidelines, standards and statistics to help measure progress. Good practices from Member States, the private sector, research and academia, as well as relevant circle of international community will be collected and shared back with Member States.

Transformation of energy mix towards meeting the needs in the ECO Member States through cooperation in the regional level and responding to the priorities in the global level must be in compliance also with appropriate enforcement mechanisms. Implementation of existing regulations and enacting new legislations are such an essential development that ECO Secretariat shall provide opportunities for its member states to review best international practices and methods.

2.2. Enhancement of energy connectivity and its role in establishment of economic corridors

ECO represents the heterogeneous region, where the recent population growths, economic and industrial development, as well as the climate change have started to pose challenges to traditional development strategies of the ECO Member States. The success of social and economic development strategies in the ECO Region evidently depends on future investments in energy infrastructure and services. The volatile prices for fossil fuels remain an energy security concern for both the countries with high import dependency and hydrocarbon exporters in the ECO Region.

The abundance of energy resources and favourable geostrategic location of ECO Region as a whole are built-in regional advantages making ECO Region more competitive vis-à-vis neighbouring and other regions. In the ECO Region, Iran, Kazakhstan, Azerbaijan, Turkmenistan and Uzbekistan are rich in fossil fuels, whereas hydropower resources are concentrated in the mountainous Tajikistan and Kyrgyz Republic. ECO Region is geographically located to trade both surpluses and periodic shortages externally. In fact, the energy supply and demand balance in the region is such that trade is an obvious and in the near term, the only path to unlocking the value of its significant energy resources. Turkey, Pakistan, and Afghanistan are heavily dependent on hydrocarbons as net importers. But it is important to note that, Turkey discovered 'Sakarya' natural gas field in August 2020 and later 'Amasra-1' gas field in June 2021 with a total estimated reserve of 540 bcm gas. The development task is still ongoing

and Turkey's dependence on imports is expected to decrease after the first gas is scheduled to be produced in 2023.

The detriments of the low pace and magnitude of cooperation within ECO are most evident in energy and transport connectivity although they have always been priority areas of our collaborations. With this in mind, the multi-vector connectivity, most notably supporting development of a reliable network of interconnectors in the ECO Region features as a strategic dimension of cooperation within ECO in the context of “ECO Vision 2025”. Greater stability, security and reliability of energy supply and demand in the Region; energy trade and transit to increase economic value, and energy security within and beyond the Region are among the policies ECO is pursuing under the current arrangements.

Diversification of energy supply and transport connectivity plays a fundamental role in our region, considering this unique geostrategic location as well as the land-locked status of the majority of the ECO Member States. Intra- and inter-regional connectivity in ECO Region are enhancing through implementation of some regional projects with global importance under different multilateral formats. This is where ECO Member States have found critical mass of common interests. There are also ongoing pipeline and transport projects in the ECO Region at feasibility study to construction stages aiming at diversification of connectivity beyond ECO framework.

Maximizing connectivity, mobility and accessibility by making major ECO transport corridors commercially viable and operational, and transformation of the selected transport corridors into a sort of economic corridors that would integrate transport, energy, telecommunication and other links in the long-term perspective are among the policies ECO is pursuing under the current arrangements. Ample opportunities hence exist to upgrade our region into an energy hub through consolidated efforts. With this in mind, ECO is currently engaged in promotion of the East-West, North-South and South-West transport corridors.

ECO Region is the nest of many energy infrastructures and capacities onshore and offshore. Interconnectivity among the abovementioned capacities should be considered deeply. Pipelines among the Member States also play a key role on energy movement. Gas pipeline from Iran to Turkey, Trans Anatolian Natural Gas Pipeline (TANAP), Baku-Tbilisi-Erzurum Gas Pipeline, Turkmenistan-Afghanistan-Pakistan-India gas pipeline (TAPI), Turkmenistan-Azerbaijan Trans Caspian gas pipeline, Iran-Azerbaijan swap of gas by pipelines for sending to Nakhichevan, Iran-Pakistan-India gas pipeline, and oil products pipeline of Iran-Afghanistan border and Baku-Tbilisi-Ceyhan Gas Pipeline are major carriers of energy among the Nations. The abundance of energy resources in one hand and big markets for consumption in another hand, create a complimentary economy for Member States. For example, designing a loop between gas resources of southern Iran, Pakistani market, TAPI, Turkmenistan, Azerbaijan, and Turkey should create a loop of cooperation and high trade-offs among the ECO and beyond.

ECO Secretariat is working on the concept of “ECO Economic Corridors (EEC)”. The energy sector of EEC should connect the infrastructures, maritime routes, and pipelines in broader geographical region in three major continents.

In sum, the Strategy focuses on the multi-vector connectivity, most notably supporting development of a reliable network of interconnectors in the ECO Region.

2.3. Strengthening the role of the ECO Region in global energy architecture

Volatility of hydrocarbon markets and its further challenges are inevitable. Drastic price shrinkage in global energy market in 2015 and 2020 have proved that still vast majority of economies in the world are easily vulnerable on spillover effect of price instability. In fact, one of the main reasons is discrepancy in demand and supply interaction, either emanated from short-term national interests or market behavior. ECO region, is of course also are one of affected ones. In this regard, enhancing regional cooperation to find possible solutions in preventing the causes of price volatility, along with eliminating its adverse effects will be included on the regular agenda of ECO Energy Ministerial meetings.

Strengthening the role of the ECO Region in global energy architecture through undertaking *integrated, coordinated, and complementary common position* is of utmost importance. The strategy of ECO member states in advancing its energy policy towards existing and new partnerships in global landscape will be based on the values such as *shared interests, equality and coherence*. Upon joint decisions, ECO member states will coordinate their positions in global energy agenda complementing to their shared interests.

ECO intends to put forward common policies supporting rationalization of supply and demand both in regional and global level. Eventually adjusting coordination of supply quota in the markets where two or more ECO Member States participate, will contribute to the stability of price and energy security. Besides, it will improve to speak with one voice in other multilateral fora, thus further strengthen the role of ECO region in global energy landscape.

3. REGIONAL ELECTRICITY MARKET

Notwithstanding their huge electricity potential, some ECO countries have relatively low energy demand and others, in contrast, possess high and ever-growing energy demand, even though their indigenous supply options are comparatively limited. Currently, in some ECO Member States energy demand growth is far outstripping domestic supply, and in the foreseeable future, the demand-supply gap will become even wider unless the domestic supplies are supplemented by imports.

The establishment of the electricity market in the ECO Region will evidently play a catalyst role in better energy supplies, boost economic growth and have a multiplier effects in other sectors. These trade opportunities could be realized via progressive exploitation of solutions, from bilateral trade between neighbours and via a transit country, via dedicated trade arrangements between synchronized systems and sub-regions, to eventually achieve a regional electricity pool/loop. Enhancing the intra-regional trade could initially take place, in which certain interconnected grids already exist, however needs to provide for adequate supplies of energy and security of supply across the ECO Region. The major course of action should be loss reduction, rehabilitation programmes and tremendous new generation

and transmission investments. In this regard, the medium- to long-term potential lies in developing the significant opportunities to produce low-cost energy.

The key areas where institutional support for trade can be fostered and extended to promote trade and mitigate some of the risks are as follows:

- Promotion of investment climate (macroeconomic grounds, regulatory framework, property rights, etc.).
- Forging certain intergovernmental agreements for specific trade arrangements like private investments ;
- Building on existing institutional and multi-country agreements in the ECO Region;
- Advocacy for the bottom-up rather than top-down approach so that to empower business circles and local utilities, which should increase the voice of a commercial and business-oriented stakeholders in electricity trade.
- Embarking upon complex activities ranging from studies to key infrastructure investments.
- Continuation of strong partnership with the International Energy Charter and other external frameworks to support the ECO-REM Project;
- Addressing further cooperation on technical, environmental and regulatory issues.
- expand private sector involvement in electricity trade

The required initial activity is a comprehensive and inclusive study followed by enhancement of existing arrangements, building confidence and perceptions of shared gains by undertaking progressively more complex and ambitious activities.

The role of international partners is instrumental to attract financial and technical support to the ECO-REM Project. Notably, ECO and Energy Charter has built upon mutually beneficial cooperation and assumed reciprocal Observership Status, and in this rationale, the Energy Charter expressed its readiness to be engaged in establishment of ECO-REM through a consortium for joint coordination of this project based on the previous experience of Energy Charter.

4. INVESTMENT IN ENERGY SECTOR

Investment made today in energy infrastructure will leave its mark for decades to come, so the energy sector presents exceptional opportunities, but also challenges for investors and governments who must deliver capital at the right time and in the right place, while also considering long time horizons. Almost all investment activities have faced some disruptions due to natural disasters, climate change, political changes in countries or terrorist attacks. The ECO region is full of energy opportunities in both demand and supply sides.

Investments are one of the crucial crosscutting elements at the heart of ECO Energy Strategy covering the period of achieving its short and midterm targets. Undoubtedly, ECO region has been one of the attractive and dynamically advancing for local and international investors during the last 30 years especially in conventional energy production, transit, and consumption.

Current tendencies in investments should be aligned with future prospects, particularly to meet appropriate demands in oil and gas, along with allocating sufficient capital required to bring investment in lieu of 2015 Paris Agreement, as well as other Sustainable Development Goals. The energy strategy faces rather double challenges during the period of transitions: to enhance and expand investment in cleaner, smarter and more efficient energy technologies, while ensuring at the same time that all the key elements of energy supply, including electricity networks, remain reliable and well-built.

Access to financing is one of the key points. Today, financing in national level and from international donors, in particular with private funding are primary sources to run the energy projects at regional level. To enable transition toward sustainable, affordable and reliable energy, ECO Energy Strategy proposes to institutionalize this framework through launching initiative to establish regional financing tool that will mobilize those funding sources under one umbrella of **ECO Fund for Strategic Investments**. This so-called fund would be able to provide additional assistance allowing access to finance for projects of regional significance such as renewable energy, energy efficiency, and energy networks. It will also takes into consideration ECO strategy targets over rationalization of conventional energy in the framework of regional cooperation. Over the coming years, ECO Secretariat will open particular debate in close collaboration with ECO Trade and Development Bank to study best international practices thus bringing this new initiative into the life.

As one of other vital steps to ensure investor confidence and to attract investments from international funds is the **building of new market designs, governance structures, target-oriented regulatory, and institutional frameworks**. Comprehensive international expertise and set of assistance will be introduced to ECO Member States for their effective implementation. It is of course, the role of incumbent ECO Clean Energy Center will immensely be expedient.

Moreover, to boost the transparency of regional projects in ECO area, **pool of online investment data base can be set up to make information accessible for the potential investors**. All Member States would have access to own domain to update investment projects to share in regional and global level for additional investment promotion endeavors.

In the light of strategic targets and new initiatives, annual meeting of public-private partnership of energy cooperation stakeholders would be able to convene for reporting and discussing further deeds at regional level, entitled as **Energy Investment and Cooperation Forum**.

5. DOWNSTREAM ENERGY SECTOR

Today, both large producers and consumers in energy sector are confronting with serious challenges in elaborating coherent minerals policies. Meanwhile, these policies are the cross-cutting issues that combine economic policy, trade, investments, environmental protection and development agenda. Energy demand will continue to increase in many parts of the world in the future, population growth continues to rise at the global level, and the debates on climate and global warming continue to gain momentum. From the global perspective of the downstream energy sector, the response of refiners to the need for capacity rationalization, transformations in the future crude state quality, regulations pertaining to the product quality specifications and the development of the additional routes for oil movements, among others, will significantly affect the industry.

These global trends and developments create extensive opportunities for the ECO Region to build upon partnership frameworks in downstream energy sector. The existing endeavours, particularly with respect to the establishment of public and private sector energy consortia, and refinery association among the Member States seem promising. Unlocking these opportunities requires steady efforts towards the ‘Expected Outcome ii.’ of “ECO Vision 2025” to underpin “enhancement of energy trade, production, consumption and transit patterns”.

Notwithstanding certain progress achieved in the track of cooperation within the High-Level Experts Task Group (HLETG) on ECO Oil & Gas Pipeline Route(s) in the past, ECO has so far confronted with serious constraints in advancement of its hydrocarbon agenda and the Member States were quite reluctant in engagement in oil and gas cooperation within ECO. As a matter of fact, despite the prioritization in the past, the activities of the ECO HLETG could not succeed to facilitate (i) the realization of the ECO Oil & Gas Pipeline Infrastructure Projects and trade; and (ii) to ensure greater economic value and security of export/import from these forms of energy within/outside the region. Furthermore, promoting regional energy/petroleum policy and planning with a view to enhance national and regional energy policy analysis and planning towards sustainable development, as set out in PoA for Energy/Petroleum Cooperation (2011-2015), did not produce the expected outcome.

To address existing challenges and grasp opportunities, ECO needs for establishment of the lasting, self-sustainable and efficient network of relevant downstream stakeholders, namely line agencies/downstream authorities; businesses; think-tanks; academia and training/excellence centres; as well as other public and private sector stakeholders of our Member States. Besides, worldwide institutions and partners may also be identified and initial communication made with them with a view to involve them in the subject network.

Framework of primary actions will be comprised of advancing its environmental and carbon stake from liquids to natural gas and renewables for energy and electricity, material and process efficiencies, low-carbon processes and products, energy efficient transportation systems, and growing recycling and reuse of end-products. As an end result for policy-makers, will be the entitlement of “Sustainability at the core of every decision-making” *inter-alia* feedstock and portfolio strategy, technology selection, branding for stakeholders, and relationship with suppliers and partners.

Moreover, information technologies led by automation, analytics, and artificial intelligence are recognized to have a profound impact on the downstream industry. These novelties will be further documented and used as an advisory contribution to the agenda of public and private sector energy consortia, and refinery association among the Member States.

The strategic vision of downstream agenda will be to ensure sustainability both for producer and consumer countries. Final policy concept for consideration in the context of the role of oil and gas companies in the low carbon transition is to be selected the circular economy based on national agenda. Opportunities for circular economy to leverage oil and gas companies include initiatives such as feedstock recycling from plastics and tires and using waste to generate heat energy. Circular economy policy activities are envisaged to be driven from the bottom up, in terms of actions from cities, universities, and companies, as much as by national or international action.

End users in ECO area will also benefit from sustainability of downstream by focusing on more environmentally friendly products through information sharing, social promotion and central government's policy preferences. By doing so, it will contribute supporting of green economy agenda of ECO region.

The consolidation of regional cooperation will have a pillar to boost sub-regional trade in downstream products amongst ECO Member States.

6. ENERGY RESEARCH, DEVELOPMENT, INNOVATION AND TECHNOLOGIES

ECO's policy on energy research, development, innovation and technologies (RDI&T) aims to support its regional energy policy priorities, boosting the use of renewable energy technology, and helping to develop a national manufacturing industry.

The transition towards climate neutrality by 2050 (SDG 13) gives energy a central role, as energy is today responsible for more than 75% of the ECO's greenhouse gas emissions. In this context, inspired by the uptake of innovation and its core energy objective, "ECO Vision 2025" has identified the "deployment of environmental-friendly energy technologies" (Outcome iv.) and "promotion of energy investments through advocating innovative incentives" (Outcome vi.) among major expected outcomes in the energy sector, to be achieved in the coming years.

ECO Region is endowed with enormous energy resources, but mostly encompasses the land-locked developing countries in need of energy access, and innovations for energy transition and sustainable growth. The remaining but still significant policies benefiting oil, coal, and other carbon-intensive fuels, including subsidies by some Member States, should be seen as an obstacle to clean-energy innovation and technologies.

The sustainable economic development in the ECO Region underpins increasing demand for more efficient, higher-quality energy industry and services in Member States. The ECO Region's energy markets are becoming increasingly international and evolve dynamically in line with the technological, economic and political changes. Therefore, driving innovation in energy sector plays a fundamental role for ensuring energy security and sustainability, notably efficient use of natural resources in the ECO Region. Promoting foreign investments is a key to support new technologies, enable resource and technology transfer as well as increase efficiency and innovation in the ECO Region. However, it requires investment in energy efficiency and renewable technologies, and the development of clean energy business models, embracing the new opportunities and consumer empowerment brought about by digitisation.

Furthermore, the scale and depth of the goals of this Strategy necessitate a fundamentally innovative and proactive approach together with notable scientific breakthroughs and technological advancements. This approach will enable enhancement of efficiency and impact of our efforts to meet the ambitions of the Strategy.

ECO may assume an outstanding role in cross-fertilizing the huge regional expertise and experience, and supporting knowledge sharing of sustainable innovation and technology solutions (SDG 9) for collaborative action.

The following core pillars of effective innovation system for inclusive and sustainable energy development will be focused:

- Strengthening mobility of researchers and the flow of knowledge.
- Incentivise investing in RDI&TS, improving public funding of innovation and commercialisation of clean energy technology, to leverage larger private and international innovation funding, in line with priorities of the national energy strategy, technology progress and global Mission (Innovation goals).
- Strengthen the coordination of energy technology RDI&TS programmes across ECO region, universities, business and other research and exploit synergies for commercialisation.
- Visionary and integrated leadership and effective conceptual framework set economic, social and environmental imperatives at the heart of this Strategy and policies.
- Effective institutions create necessary grounds for physical and virtual infrastructure on which a knowledge energy economy is built.
- To create a single, borderless market for fundamental research (better understanding, new concepts), applied research (bringing concepts from the lab to building prototype) innovation and technology across the ECO.
- Boost ECO's clean energy innovation ecosystem and technology development in the fields of renewable energy and energy efficiency by developing stronger synergies between the business and science.

Therefore, ECO's Strategic objectives on energy research, development, innovation and technologies should be:

- Prioritizing investments and reforms in energy research and innovation, to support the digital and green transition and ECO's recovery from the social and economic impact of the coronavirus crisis.
- Strengthen its resilience against future crises.
- Enhance access to excellent energy research and innovation for researchers across the ECO region; transfer results into the economy to ensure market uptake of energy research output and ECO's competitive leadership in technology.
- Making progress on the free circulation of knowledge, energy researchers and technology through stronger cooperation with ECO countries.

The free circulation of energy researchers and knowledge enables better cross-border cooperation, building of critical mass and wide competition.

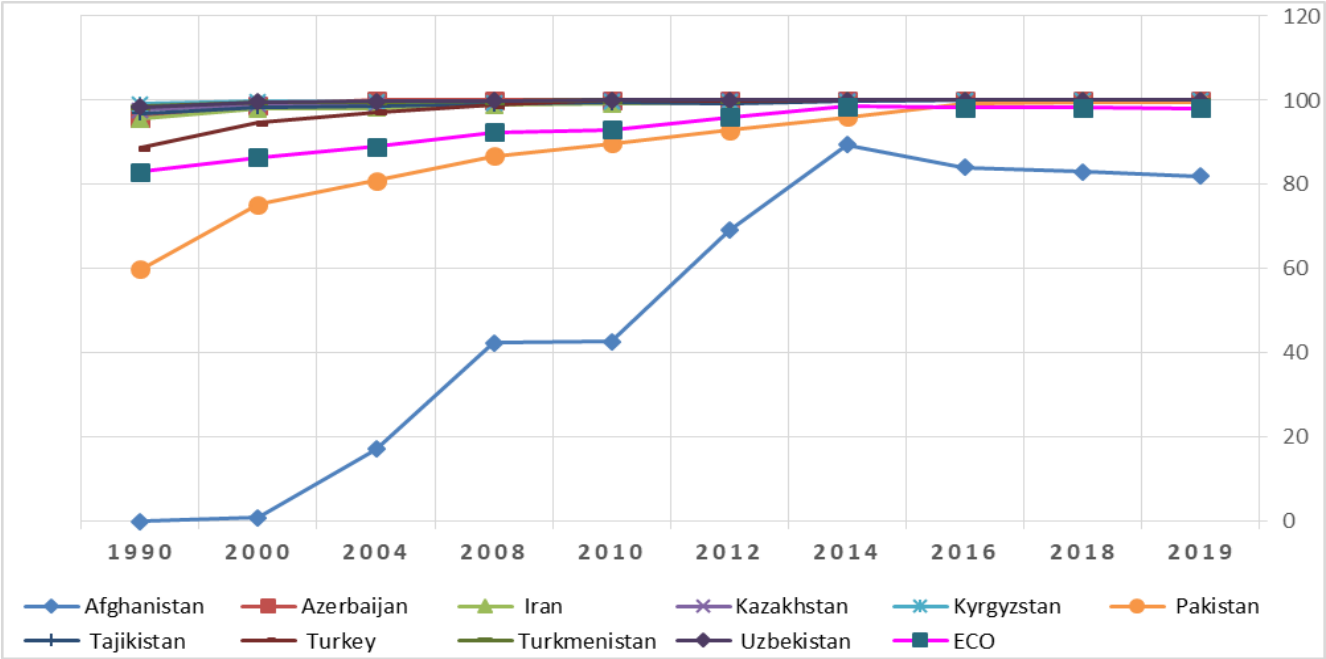
7. ENERGY ACCESS AND ENERGY POVERTY ERADICATION

Sustainable Development Goal 7 is a global goal to “ensure access to affordable, reliable and modern energy for all by 2030” including universal access to electricity and clean cooking (SDG 7.1), a greater share of renewables (SDG 7.2) in the energy mix, and a doubling of the rate of improvement of energy efficiency (SDG 7.3).

ECO has made impressive progress in electrification. In 2019, the share of the rural population having access to electricity reached 98.1%, compared with just 83.1% in 1990 (Figure 8).

The importance of energy in the context of growth and poverty reduction cannot be over-emphasized. For economies, modern energy is a key to productivity in all sectors. For individuals, access to modern and sustainable energy services transforms lives. The supply of energy services is essential not only for economic growth, but also for the provision of social services, for education, lighting, cooking, access to water, transportation, etc. Although access to energy services is not a primary energy-related challenge in the ECO Region, the concerns associated with it exist particularly in some vulnerable Member States, for instance in the context of forced seasonal blackouts and rationing in electricity sector or lack of access to electricity (Figure 8).

Figure 8. Electricity access - share of the population with access to electricity for ECO Member States, %. Source: World Bank, Sustainable Energy for All (SE4ALL) database from the SE4ALL



Having reaffirmed energy as a priority area of cooperation, “ECO Vision 2025” stipulates the enhancement of energy security and sustainability through wider energy access and trade as one of ECO’s core strategic objectives. Energy access is therefore in the very heart of the Vision’s objective.

The strong inter-linkage between the modern energy access and human well-being is widely acknowledged by empirical studies. Due to relatively low pace and dynamics of energy transition to renewables, ECO Region will continue to ensure energy access via conventional energy sources in mid-term perspectives. Promoting energy access in ECO Member States requires leapfrogging the technologies and innovation in financing, regulation and business models with a view to extend the energy supply to remote areas and increase energy productivity potentials.

The underlying assumption behind sustainable energy development is also evidently the fact that poverty reduction is a key to accomplish social development goals but indispensable for preserving environment, while the poor can adversely affect the environment by overusing natural resources.

As regards energy poverty, it is widely recognized that energy poverty negatively impacts living conditions and health. Energy poverty can only be overcome or at least mitigated by a synergy of actions, notably within the social protection context under the competence of authorities on the national, regional or local levels. While lifting regulated prices, the Member States are required to set up a mechanism for protection of vulnerable consumers, which could preferably be provided through the general welfare system.

Notwithstanding the notable achievements of the Member States on poverty eradication, poverty is still persistent in the ECO Region and limits the opportunities for well-being for a large number of people. Beyond poverty challenges, inequality also threatens to disrupt efforts to achieve the goals of the Strategy.

8. INTERNATIONAL COOPERATION ON ENERGY

Indeed, it is neither viable nor necessitating for the ECO to carry out all the initiatives proposed in this strategy on its own. The comprehensive vision for ECO energy strategy brings new opportunities for partnerships between ECO and professional institutions. International organizations, particularly UN System play important role in assisting ECO Member States in formulating and implementation of energy policy and in development of intergovernmental cooperation on energy.

There are five pillars of international cooperation (*trade, investment, innovation, security of supply, and cross-border externality*) within the energy sector. These pillars are critical when analysing the effectiveness of agreements and actions taken at the international level.

Despite the nascent transformation of the energy sector, energy *trade* remains dominated by fossil fuels. In the past 15 years, traded volumes of oil have increased 14%, coal has more than doubled, and natural gas and liquefied natural gas (LNG) have increased by almost 60%.

Finance and investment regimes are fast becoming new frontiers of energy cooperation, driven in part by efforts to shift capital from high-carbon to low-carbon energy sources. More than 60% of global emissions are caused by investments in, and operation of, long-life infrastructure. The IEA 2°C pathway requires a tripling of annual investment in low-carbon power infrastructure by 2035, and an eightfold increase in energy efficiency investments. Today, shadow carbon prices are already used as investment screening tools by many oil majors, and attention is growing among financial regulators and policymakers.

Despite rapid progress on some technologies such as solar PV, wind power, LED lightbulbs and batteries, the pace of deployment is too slow in the ECO region. Chatham House research has found that innovations within the energy sector take 20-30 years to penetrate the mass market.

There is increasing interest in the potential for new business models to unlock energy and resource savings through substitution, digitalisation, sharing and reuse, among others.

With instability in the Middle East unlikely to recede in the foreseeable future, and the possibility of a supply crunch from conventional resources on the horizon, *security of supply* remains a political priority for ECO Member States. In theory, international cooperation can help manage the risks of major supply disruption by setting rules and modalities for how governments will coordinate in the event of a shock, so avoiding an all-out scramble for supply that could heighten a crisis. In addition, the growing penetration of renewable energy sources and transformation of electricity grids create new challenges of supply security in ECO region. Key issues are likely to include: (i) cooperation to improve battery technology and seasonal storage investment to bring down the costs of electricity storage; (ii) expansion of grid infrastructure between Member States can smooth supply–demand imbalances and exploit opportunities to export electricity from regions with high renewable capacities; (iii) and coordinating reforms of power markets in line with grid expansion to enable capacity markets, or equivalent market mechanisms, to provide adequate and affordable fast-reacting generators to balance intermittent renewable supply.

By its very nature, a *cross-border externality* cannot be resolved without cooperation.

Many of the recommended measures can be valuable from cooperating with specialized institutions to leverage high-quality results.

The proposed Regional Electricity Market, Clean Energy Center, Green Economy modeling or Sustainability of downstream with reference to circular economy, for example, may be established in collaboration with organizations and countries that have built up years of experience in gathering market research data and creating outlook documents for the achieving successful utmost goal. The ECO shall also consider new partnerships with renowned global centers of excellence to support the development of renewable energy in the region and other important areas targeted under this strategy.

9. MONITORING MECHANISMS

The Strategy is a key tool for the ECO countries to promote its energy policy aimed, in principle, at improving efficiency and effectiveness of the Member State’s energy sector, strengthening the penetration of renewables, achieving the climate change goals and delivering the energy market reform targets. To achieve the actual implementation anticipated by the Strategy and to meet its expected targets/objectives, the feedback of the monitoring function is an energy system crucial component. Ultimate target of the monitoring process is to ensure, to the extent possible, the successful implementation of the Strategy provisions.

The mid-term horizon of the Strategy provides a view of the necessary evolution of the ECO Member State’s energy system within the context of a dynamic technological and international market.

A key question looking forward will be how to deliver quality levels of governance in order to ensure that sufficient, large-scale investment continues to flow into innovative energy systems at the international level. Investment flows, particularly private foreign investment, will not likely materialize unless attractive signals are received by investors from both governments and markets.

ECO energy strategy objectives	KPI to monitor and evaluate
Building the necessary institutional capacity for promoting energy security and sustainable energy in ECO Region countries, enhancing energy efficiency and energy savings, renewable energy	<p>Monitor progress in the sphere of sustainable energy development made by other relevant international energy organizations, particularly UN Commissions, IEA, IRENA, G20, SE4ALL etc.</p> <p>Share of renewables (excluding big hydros) in overall primary energy supply of the country</p>
	<p>Energy efficiency increases as expressed via the indicators: final energy consumption per capita and energy intensity of total primary energy supply per GDP unit</p>
Improvement of energy infrastructure to enhance energy security in the ECO region, realization of new oil, gas and electricity transportation initiatives, aimed at strengthening cooperation among the ECO Member States, promotion of already existing infrastructure projects in the region.	<p>Organizing workshops, seminars and expert meetings concerning the exchange of information in the field of energy infrastructure development.</p> <p>Preparing reports and/or detailed information concerning new energy projects in the ECO region.</p>
Economic operation of energy markets	<p>Diversifying the firm presence in the energy market to protect economic competitiveness by calculating Herfindahl-Hirschman Index (HHI).</p> <p>Providing Antitrust Law that regulates and prohibits certain kinds of market behavior, such as monopoly and monopolistic practices.</p>
Decreasing emissions of energy sector substantially	Climate Change Performance Index (CCPI)
	Emissions reduction in the energy sector compared to 1990 base year (%)

VI. THE ACTION PLAN

The ECO Energy Strategy for Cooperation comprises a clear PoA to be delivered for each strategic component/pillar.

The PoA also proposes a new Working Group structure under Sectoral Steering Committee for achieving the deliverables and determines which groups shall be responsible for which actions.

The PoA is integral part of the ECO Strategy for Energy Cooperation.

A. Implementation of the Action Plan

ECO region should make clear-cut speedy process to apply cost-effective renewable energy and increase the efforts on energy efficiency to address sound policies towards climate change, as well as long-term sustainable regional energy design. Two key flagship projects of ECO, namely Clean Energy Center and Regional Electricity Market will help member states in expanding their national policy agenda to respond the greening of the regional energy system, namely ECO. On the other hand, the reality of climate change will prompt ECO Member States to take it into account as a priority on energy investment decisions. In the light of strategic targets and new initiatives, annual meeting of public-private partnership of energy cooperation stakeholders would be able to convene for reporting and discussing further deeds at regional level, entitled as Energy Investment and Cooperation Forum.

Alleviating the share of hydrocarbons in energy mix and to explore more diverse clean and renewable energy sources undoubtedly are the primary measures in addressing challenges such as mitigating dependence on limited fossil-fuel intensity and carbon emissions. One of the main tasks to achieve this goal ahead of ECO region is to put renewable energy into the country's grid system. Within the period of realization of ECO Vision 2025, the Secretariat will endeavour to provide to its member states possible support and promote to attract more clean energy production in the regional energy mix, through proposing best international practices.

The action plan was prepared in the light of reform complexes mentioned in ECO Strategy for Energy Cooperation 2030 and United Nations' "Transforming our world: the 2030 Agenda for Sustainable Development."

The implementation of this Plan of Actions shall be the responsibility of the concerned authorities in the member states. In order to facilitate the implementation of this Plan of Actions, each member state shall designate a national focal point to coordinate and oversee the implementation of its in-country components. The management and coordination of the program shall be pursued by the ECO Secretariat, in collaboration with national focal points and relevant institutions/authorities in Member states, and coordinate and closely monitor the activities of the action program.

The Sectoral Experts Steering Committee shall also have overall responsibility in the supervision, coordination and producing necessary reports for submission to ECO decision making bodies for the implementation as well as review/improvement of ECO Energy Plan of Actions 2030, with the following specific responsibilities:

- Undertake all measures for its implementation through ECO Secretariat, each member state National Focal Point, including determining priorities, carrying out periodic reviews, and the approval of the necessary cooperating programs, projects and activities;
- Serve as the principal coordinating body to address all issues relating to its implementation;
- Identify financial support, technical and legal assistance, as well as relevant technologies from within and outside ECO region, to include but not limited to the private sector, the ECO neighbours and Dialogue Partners and relevant international and regional organizations; and
- Report on the overall implementation progress to the ECO decision making bodies.
- ECO Member states shall collectively determine the implementation priorities; develop work program or plans, for consideration/approval by ECO decision making bodies. Participation of the ECO region private or business sector, ECO neighbours and Dialogue Partners and the

relevant regional/international organizations shall be encouraged in the development and implementation of this Plan of Action.

B. Structuring ECO Energy Platform

Implementation for Structuring ECO Energy Platforms plan as follow:

- The High-Level Experts Group establishes a rolling agenda for Sectoral Experts Steering Committee meetings in which all the key actions are to be discussed and decisions taken on priority setting and implementation. Each action will be discussed as often as necessary in order to review progress and discuss possible adjustments, in principle at least once per year.
- For each meeting, on the basis of the ECO Strategy for Energy Cooperation and the ECO priorities, and with the objective to prioritise the ECO Strategy for Energy Cooperation, Plan of Action, the High-Level Experts Group prepares issues papers. These papers aim to trigger the discussions towards agreed targets/priorities and implementation measures and/or policy measures.
- Once finalised by the High-Level Experts Group, the issues papers will be published on ECO website in order for all interested stakeholders to provide their comments and inputs.
- In addition, the issues papers will be sent, by email, to selected stakeholders. The selection of stakeholders is done on the basis of the Integrated Roadmap development process and stakeholders involved at that time but may also involve new stakeholders. The selection will depend on the items addressed in the issues paper(s). The issues papers will also be sent to the Sectoral Expert Steering Committee and members.
- All stakeholders are asked to respond within a given timeframe in the form of (short) input papers which will be shared with the Sectoral Expert Steering Committee. The input papers will have to take position on the priorities/targets proposed in the issues paper. They shall represent the consolidated view of each technology sector/platform/organization consulted unless this is not possible in which case the majority and minority positions should be provided. Consulted stakeholders are strongly encouraged to organize themselves accordingly.
- The High-Level Experts Group analyses the input papers received from the stakeholders.
- The High-Level Experts Group will inform those stakeholders who will be invited to the Sectoral Expert Steering Committee meeting, where the key actions addressed in the issue's papers will be discussed.
- The invitation will be based on the inputs received, on the relevance of stakeholders for the delivery of the targets. Strong attention will be paid to the representative nature of the different views expressed, if any. Given the importance of such targets/priorities, the High-Level Experts Group will also seek to invite an appropriate level of participants while being representative for the sector as a whole.
- Based on the inputs provided by the stakeholders and the discussions in the Sectoral Expert Steering Committee meeting, it is the intention to come to a common agreement between stakeholders (research organizations, industry, member states and the ECO) on the targets/priorities.
- The Sectoral Expert Steering Committee will then define the level of ambition for the Plan of Actions.

Essential Action: Enhancement of institutional capacities in sustainable energy through regional collaborations

According to the international financial institutions, the increased reliance of energy industry on capital markets will continue in upcoming years. The energy prices thus remain volatile in global markets and the world economic prospects still looking gloomy in short-run horizons. Numerous uncertainties and volatilities seem to continue negatively affecting global energy architecture and shaping the government decisions on future energy scenarios.

Building up this architecture requires embarking upon the energy market reforms and advocating policies targeted on cleaner and sustainable technologies, stronger energy efficiency and conservation, and improved energy intensity by particularly developing countries in concert. The dynamics and sustainability of these responses have been confronted with certain inadequately addressed structural shortcomings. In this regard, the following sets of reforms may seem promising in the regional level.

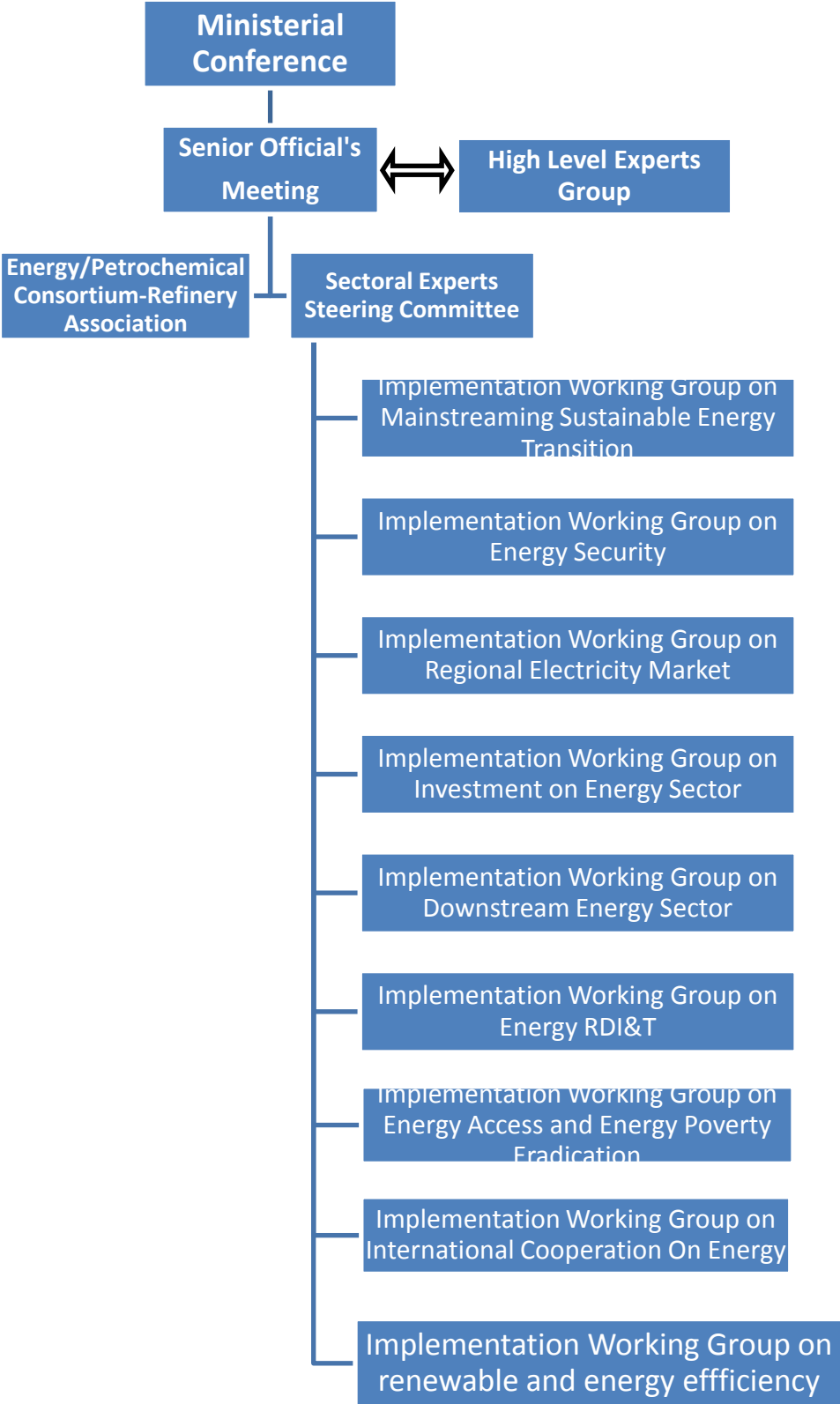
The general blueprint of this new institutional framework is to provide enhanced outcome, a stronger sense of ownership, and greater accountability in energy deeds of ECO. Additionally, effective functioning of ECO's main discussion platforms for energy are essential for lasting results and value added for the regional energy community.

The aim of the High-Level Group is to gather views, advice and expertise from different stakeholders (including i.e. ECO Member states, industries and organizations representing energy sector, industries and related other industries and other public entities). The High-Level Group allows the ECO to consult the main stakeholders on a regular basis in order to constantly interact and receive feedback on the development and implementation of the ECO policy relevant to energy cooperation. The head of the High-Level Experts Group is the Secretary General of the ECO.

To translate the key actions of the ECO Strategy for Energy Cooperation into specific recommendations for actions and/or policy measures to be implemented at regional level. These recommendations will have to consider the needs of the energy system as a whole, i.e. integration aspects will have to be embedded in each of the key actions. For each of these actions, these recommendations will be instrumental for the Sectoral Experts Steering Committee to define: a) the level of ambition (in terms of priorities and funding); b) modalities of implementation and c) expected deliverables and timing to achieve results.

Each Implementation Working Group will be established to support, identify common priorities and coordinate Key Action Areas activities in ECO Member states. The Implementation Working Groups that meets on a regular basis that will allow several advantages:

- The progress of the outlined Energy and Sustainable Development activities can be monitored. If necessary, adaptations can be discussed and made during the implementation process.
- A regular exchange between the member states can motivate those member states, who did not participate in the development of the Implementation Plan so far, to join and exercise their responsibility to participate. Possible gaps or weak spots, caused by the low participation, can be adjusted.
- A permanent and long-term dialogue between the ECO Countries and relevant stakeholder groups can be established. If required or needed the exchange with other groups of interest can be arranged for bilateral advantages.



C. Key Action Areas and Activities

Implementation Plan of Key Action Areas and Activities

- Hold the kick off meeting of the Implementation plan of key action areas and activities
- Set out actions required to achieve the challenging targets for plan of key action areas and activities
- Identify projects
- Propose new activities to address gaps where previous activities have left space for further optimization
- Develop the Implementation Plan of Financing for key action areas and activities
- Monitor the progress of the outlined activities
- Discuss and make adaptations during the implementation process
- Adjust possible gaps or weak spots, caused by the low participation
- Meet on a regular basis
- Establish a permanent and long-term dialogue between the ECO, ECO Countries and relevant stakeholder groups
- Keep working in parallel with both subgroups in order to achieve a more holistic approach

Key Action Areas 1: Mainstreaming Sustainable Energy Transition

In the light of growing global desire to bring the region closer to important bilateral and multilateral partners that could support ECO energy initiatives, various cooperation activities have been undertaken to pave the way for an enhanced regional cooperation. The ECO strongly recognizes the urgent need for closer and enhanced cooperation within and outside the region. In addition, ECO is to play an important key role with the integration of the world economy to ensure that the ECO member states are on equal footing to face global uncertainties. Therefore, the organization's objectives necessitate introduction of the Strategic Planning and Management (SPM) Framework for Sustainable Energy Development as a tool in crafting the new ECO Vision 2025.

The European Union (EU) has been a major source of financing for energy projects in the ECO Member States in the Central Asia, Caucasus, Caspian Sea and Afghanistan. ECO also pursues cooperation with the Energy Charter Secretariat based in Brussels.

ECO Member States should work toward removing barriers to the uptake of cleaner fuels, through such means as the gradually harmonizing its energy mix policies with the Sustainable Development Goals 7. New technologies must be actively considered as part of any new generation capacity development plan. Cross Border investment policy frameworks can also be revised to facilitate projects in relevant areas.

Core priority 1.1: The ECO Petroleum (Oil & Gas) Pipeline(s) /Trade Infrastructure Projects

The ECO Oil and Gas Pipeline(s) program is a very important task expected to provide the region with a secure supply of energy. Since natural gas is expected to play a role as “transition fuel” in reaching the target of reducing greenhouse gas emissions, the transmission and trade of natural gas and other products among member states is an issue that should be given importance. Assessment and review of national and regional legal and institutional frameworks for oil, natural gas and petroleum/petrochemical products, concerning cross-border issues relative to the commercial/trade and economic feasibility,

construction, financing, operation and maintenance of the pipeline(s) and export/import, transportation/transmission, trade and distribution of oil, natural gas, electricity and petroleum/petrochemical products to member states and beyond shall be undertaken.

Actions	Activities
To facilitate the implementation and realization of the ECO Petroleum (i.e. Oil & Gas) Pipeline Infrastructure Projects and trade	Consider available financing modes or arrangements relative to the construction, operation and maintenance of the pipelines, as well as the export/import, trade transportation/transmission and distribution of oil, natural gas, electricity and petroleum/petrochemical products to member states and beyond. This considers the important role of the private sector, especially for the provision of needed capital investment
To ensure transit rights	Determine acceptable measures to facilitate issuance of permits, licenses, consents or other authorizations for export/import, trade and transit pipelines of oil, natural gas, electricity and petroleum products being transported/transmitted through the territory of member states.
To handle taxation and tariff issues	Determine arrangements for the mutually as well as regionally agreed imposition of, or exemption from import, export or transit fees, duties, taxes or other government-imposed fees and charges on the construction, operation and maintenance of the pipeline/power networks as well as the oil, natural gas, electricity and petroleum products in transit.
To abandon pipelines / power networks	Exploring possible cooperation and coordination measures concerning the potential further economic use of abandoned pipelines/power networks without undermining each member state's right to enforce its own national laws concerning the abandonment of pipelines/power networks within its territory.
To handle access and use issues	Determine effective and stable contractual arrangements for the export/import, trade, distribution and transportation/transmission of oil, natural gas, electricity and petroleum/petrochemical products and adherence to the open access principle as well as management of the pipelines/transmission networks in accordance with the internationally accepted standards by the oil, gas and electricity industry.

Core priority 1.2: Renewable energy

Actions	Activities
To promote of renewable energy	<p>Harmonize renewable energy legislation with the UN SDG acquis,</p> <p>Build capacity to implement renewable energy programs,</p> <p>Increase the technical capacity of energy service companies (ESCOs),</p> <p>Support MSMEs and micro enterprises to improve competitiveness,</p> <p>Develop infrastructures to measure, monitor and report on energy savings and greenhouse gas emissions,</p> <p>Raise awareness and disseminating information on energy efficiency targeted to industry, commerce and households.</p>
To increase renewable energy sources	<p>Set targets for an increase in the share of renewable energy (e.g. Renewable Portfolio Standards)</p> <p>Subside for renewable energy- based electricity generation (e.g. feed- in tariffs, grid connected photovoltaic roof- top programmes)</p> <p>Promote RD&I on renewable energy</p> <p>Shift to smaller- scale and distributed technologies through funding renewable- based distributed generation systems in rural areas (e.g. solar home system, hybrid system)</p>
To increase the use of renewable energy	<p>Aim to make much greater use of renewable energy sources—including biomass, hydropower, wind, solar, geothermal and biofuels.</p> <p>Improve patterns of energy production and consumption</p> <p>Use improved cooking stoves and cogeneration concentrating biomass into small pellets or briquettes</p> <p>Convert it to biogas in digesters, or gasification, which involves heating biomass to generate “producer gas”</p> <p>Provide capital, entrepreneurship and linkages to modern technology providers through public- private partnerships</p> <p>Reduce greenhouse gas emissions and energy costs, including measures for energy conservation and Improve end-use energy efficiency in residential, industry and transport sectors along with cleaner production and changing consumption patterns and lifestyles</p>
To switching and diversification	<p>Set targets for biofuel use (e.g. 5 per cent blending with gasoline);</p> <p>Diversify energy mix away from oil (e.g. switching from oil to natural gas);</p> <p>Develop alternative fuels (e.g. gasohol, biodiesel).</p>

Core priority 1.3: Energy efficiency and conservation

Energy efficiency aims to reduce energy consumption without decreasing the use of energy-consuming plant and equipment. It intends to make better use of energy, resulting to the promotion of individual behaviour, working methods and manufacturing/industrial practices which are less energy-intensive. Various measures to promote energy efficiency form part of the objectives of the ECO Vision 2025 program.

Actions	Activities
To increase energy efficiency and conservation	Set legislative measures for energy efficiency Set mandatory targets for energy efficiency (e.g. vehicle fuel efficiency standards, building energy standards, energy labelling standards for appliances energy monitoring) Subsidies energy- efficient technologies Higher taxes for larger vehicles Fund RD&I for energy/carbon efficient demonstration/pilot projects Boost efficiency either by retrofitting old utilities or building new ones and using alternative fuels
To promote Energy Efficiency in the Transport Sector	Share the ECO Information on EE Policy and Measure for Transportation Sector Explore possible cooperation activities within ECO Transport sector Implement various ECO Energy Efficiency Reports

Core priority 1.4: Coal related issues

One of the core priorities of the ECO is to cooperate and promote sustainable development and utilization of coal while addressing environmental issues and facilitating intra-ECO coal-related issues.

Actions	Activities
To strengthen institutional and policy framework	Provide assistance in policy reviews
To promote clean coal technology (CCT)	Organize seminars on CCT Organize technical visits on CCT Facilitate feasibility studies on CCT for rural electrification Facilitate/organize technical training on CCT including coal bed methane
To promote public and private sector investments in coal projects	Organize investment seminars Facilitate feasibility studies on coal infrastructure projects and low rank coal projects
To promote intra-ECO coal trade	Update directories of coal specifications of consumers and producers

	Facilitate feasibility studies on establishing an ECO coal commodity market/trade Organize coal market/trade seminars
To promote environmental assessment of coal projects	Provide assistance on environmental impact assessment of projects Organize seminars on environmental impacts

Key Action Areas 2: Energy Security

Core priority 2.1: Strengthening the role of the ECO Region in global energy architecture

Actions	Activities
To maximize long- term environmental sustainability	Promote more eco- efficient growth Foster eco- efficient energy consumption—in production processes, buildings, transportation and electric appliances
To share information and build network	Develop a compendium of the following for circulation to member states and general public: <ul style="list-style-type: none"> • ECO Policies / Strategies / Programs • ECO Products and Technologies • ECO Pool of Experts and Institutions • ECO Best Practices / Researches
To expand private sector involvement	Enhance dialogues with private sector, other countries and organizations outside ECO region Conduct Seminars and Workshops jointly with ECO Industry and Businesses Expand ECO Energy Awards/Competitions for Industry Sector and Individual Achievements
To enhance energy audit procedures	Establish ECO energy audit procedures Implement ECO energy audit training Implement/Disseminate recommended improvements Develop system for energy database, benchmarking and guideline Develop ECO Energy Management System/Network Develop Certification system for ECO Energy Managers including Energy Auditors Develop ECO energy Management Training for Trainers Develop ECO Energy Management Guidelines

Core priority 2.2: Legal framework and energy standards

Actions	Activities
To set ECO energy standards and labelling	<p>Review country Energy Standards and Labelling programs and testing capacity</p> <p>Study international experiences through study tours and joint workshops</p> <p>Formulation and establishment of common Technical Bases for energy labelling and standards</p> <p>Development of Control Mechanisms and Implementation process</p> <p>Dialogues with stakeholders and promotion</p>
To handle standardization issues	<p>Determine appropriate standardization of technical specification for both up stream and down stream sectors of energy industry, such as pipelines, but not limited to, design and construction standards, operation and maintenance guidelines, safety, environment and measurement standards which are internationally recognized by the oil, gas and electricity industry.</p>
To promote legal framework	<p>Develop ECO Energy Performance Contracting Legal Framework and Standard Form of Contract</p> <p>Develop ECO Project Management and Institutional Guideline</p> <p>Development e-commerce for ECO energy services</p>

Core priority 2.3: Energy security and safety

Actions	Activities
To ensure energy security of supply	<ul style="list-style-type: none"> ❖ Encourage conservation and energy efficiency ❖ Maintain diverse energy supplies ❖ Maximize economic efficiency ❖ Accelerate research and development to create and deploy advanced energy technologies ❖ Develop and implement effective contingency and emergency plans ❖ Diversification of generation capacity ❖ Develop interconnection of energy systems, ❖ enhance accessibility to different energy sources and routes to achieve a diverse energy mix
To ensure security of export/import, trade and emergency arrangements	<p>Determine appropriate measures to ensure security and safety of the pipelines/power transmission grid and the uninterrupted flow of contracted oil, natural gas, electricity and petroleum products for</p>

	transportation/transmission through the pipelines, power grids, ports and terminals including a framework for cooperation in the event of serious export/import disruptions, subject to mutual and regional consultations.
To ensure security, safety and clean environment	Determine a framework for cooperation to mitigate risk and environmental impact which the construction, operation and maintenance of the pipelines/transmission networks may pose to affected communities, recognizing each member state's rights in accordance with its own national laws, safety measures and environmental requirements which are to govern the construction, operation and maintenance of the pipelines/transmission networks constructed within its territories, including the designation of its own safety and environmental inspectors.

Core priority 2.4: Converting ECO Energy Corridor into an Economic Corridor for the ECO Region

Actions	Activities
To generate business and employment opportunities and to enhance energy security	<p>Stimulate growth through infrastructure investments, policy reforms, and institutional development</p> <p>Emphasize long-term development that would stimulate the growth of the ECO areas and raise the incomes of their residents.</p> <p>Accelerate economic growth along the corridor area through increased regional cooperation based on exploitation of underlying complementarities and development of competitive advantages</p> <p>Provide a road map for facilitating the efficient exploitation of underlying sub-regional complementarities and developing a range of competitive advantages that could enhance the overall competitiveness of the area for value-added processing in regional and global markets.</p> <p>Improve spatial planning and physical infrastructure to create the basis for the realization of the corridor concept</p> <p>Simplify policies and procedures to reduce barriers to the efficient cross-border movement of goods and services</p> <p>Support programs to enhance the capabilities of enterprises of the ECO Economic Corridor to engage in regional trade and co-investment</p>

	<p>Provide capital and other types of financing for the ECO Economic Corridor</p> <p>Develop skills to upgrade the capabilities of the ECO Economic Corridor residents and businesses for the long-term competitiveness of the ECO Economic Corridor</p>
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Key Action Areas 3: Regional Electricity Market

Regional trade in electricity and other energy products can be a powerful force for market integration and sustainable development. In the ECO region, there are great potential benefits from increasing electricity trade beyond its current, very low level.

Regional markets require the harmonisation of market rules for electricity to flow freely in response to market-based price signals.

Core priority 3.1: The ECO power grid

To strengthen collective cooperation among ECO power utilities/authorities in pursuing the ECO Power interconnection and parallel functioning program for optimum use of energy resources for ECO economic development, new objectives, strategies and directions/actions have been formulated.

Actions	Activities
To create regional electricity market	<p>achieve a fully integrated regional market with an interconnected and coordinated synchronized electricity network</p> <p>establish an effective, transparent institutional governance framework</p> <p>Conduct feasibility studies to establish electricity market</p> <p>Establish of an electricity regulatory board among member states</p> <p>Supporting of development of sub-regional electricity markets for electricity trade.</p> <p>Achieve a integrated REM for electricity, natural gas and carbon emissin</p>
To facilitate the implementation of the ECO power grids' interconnection and to further the establishment of policy framework of the electricity trade	<p>Develop the existing ECO Power Grid by Interconnection</p> <p>Optimize the generation sector vis-à-vis indigenous energy resources</p> <p>Invite private sector participation to develop the ECO Member States power generation capacity.</p> <p>Address barriers in interconnection & parallel functioning of ECO power systems.</p> <p>Conduct Feasibility Study on power generation and</p>

	transmission projects Conduct studies/organize workshops/meetings on policy, regulatory, legal, financial and commercial frameworks
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Core priority 3.2: Price and taxation

Sustained energy price and taxation reforms can intervene in the market place and have a major impact on economic behaviour towards more benign resource and environment friendly patterns.

Actions	Activities
To tackle the energy pricing issue	<p>Create a regional market environment by introducing an innovative and rational methods as a tool to increase market competitiveness</p> <p>Stimulate the market, more incentives to develop energy-efficient and clean energy technologies could be developed</p> <p>Create a fund for energy infrastructure development in terms of energy efficiency technologies</p>

Key Action Areas 4: Investment in Energy Sector

Utilities that are publicly owned are typically short of investment funds, but all face a number of problems, including concentration of supply in wholesale markets, bottlenecks in transportation capacity from abroad; and the cost of new import infrastructure“

In recent years, it has been recognized that energy may be supplied more efficiently by privately owned systems. Many countries have therefore been opening up their energy markets to competition, allowing a number of private companies to compete with the government-owned utilities in the import and supply of oil and gas to large customers and distribution companies.

Core priority 4.1: Financing for energy infrastructure development and investment needs

The core vision in subject matter for the period of implementation within this strategy is to improve financial condition in the energy sector of the region by optimizing Country companies and introducing modern management practices and cost-reflective tariff. In that sense, ECO will thus extend necessary efforts to provide to the policy makers realistic and result-oriented assistance to make appropriate decisions towards process of reforms in the field of energy mix. One of the key points to achieve desired results in ECO Energy Strategy depends significantly on capability of expansion of private sector in order to ease expenditure of public budgets. The framework of our actions should comprise assisting methods designed for public–private partnerships and the possible creation of business association of ECO Member States to improve conditions for entrepreneurship and support mutual trust amongst business circles.

Energy infrastructure offers large economies of scale, which has resulted in huge investment requirements, particularly in the fossil fuel and electric-power sectors.

Multilateral institutions such as the World Bank believe, therefore, that if the energy sector is to attract large-scale private capital, it will need to be reformed. The characteristics of an energy policy that will attract capital will be strength, clarity and stability. The energy sector will also have to compete with other sectors for capital.

Actions	Activities
To attract large-scale private capital	Reform the energy sector Implement an energy policy based on strength, openness, clarity and stability
To boost the transparency of regional projects	Set up the pool of online investment data base to make information accessible for the potential investors

Core priority 4.2: Risks in financing

Actions	Activities
To mitigate the risks associated with energy infrastructure	Fix forward rates Adjust energy prices in accordance with the exchange rate Guarantee the availability of currency
To limit the risk of financing energy infrastructure	having an effective loan guarantee mechanisms
To share the risk of investing in energy infrastructure	Promote private-sector involvement Promote “build-own operate” and “build-operate-transfer” structures

Core priority 4.3: The channels and sources of financing for energy infrastructure projects

The channels of finance will vary considerably with the size of the project. While microprojects may be replicated from elsewhere, mega-projects are more distinct and project managers have fewer lessons to draw from. They need, therefore, to approach megaprojects with an open mind and place the emphasis on learning while doing.

Actions	Activities
To finance energy infrastructure projects	Learn and practice new financial methods and engaging in complex process of planning, budgeting, evaluating other investment opportunities and the relevant rate of return, and, lastly, making the financing decision.
To finance energy-efficient projects	Encourage domestic funding Set realistic conditions and, through performance standards, Provide incentives to use the best available environmental

Core priority 4.4: Establishing a regional capital investment Fund

Actions	Activities
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<p>To invest in infrastructure development</p>	<p>Use ECO Fund for Strategic Investments Start establishing a regional revenue bond initiative Create a regional special purpose vehicle for energy infrastructure development. The special purpose vehicle is a legal entity created by a sponsor by transferring assets to it to carry out a specific purpose. Use the World Bank and the Asian Development Bank's Clean Energy, Environment Program which are consistent with the Investment Framework for Clean Energy and Development and other regional initiatives. The Program includes (a) the Energy Efficiency Initiative with a regional strategy for Promote greater investments and activities in energy efficiency; (b) the Carbon Market Initiative to provide upfront financing and technical support for Clean Development Mechanism projects; (c) an initiative for Energy for All to establish strategic approaches that are scalable and replicable for providing greater access to modern forms of energy for the rural and urban poor; (d) the Sustainable Transport Initiative to improve energy efficiency in the transport sector, which is growing as a serious challenge in Asian mega-cities; and (e) the establishment of knowledge hubs on clean energy in Asia.</p>
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Key Action Areas 5: Downstream Energy Sector

These global trends and developments create extensive opportunities for the ECO Region to build upon partnership frameworks in downstream energy sector. The existing endeavours, particularly with respect to the establishment of public and private sector energy consortia, and refinery association among the Member States seem promising.

In fact, ECO's transition to more sustainable, affordable as well as clean energy will implicate its downstream energy agenda too. Though most of ECO Member States possess considerable volume of downstream industry, it is necessary to harness more complementarities, effectively use available resources, and build cross-country energy capacities in order to establish resilient regional cooperation.

The strategic vision of downstream agenda will be to ensure sustainability both for producer and consumer countries. Final policy concept for consideration in the context of the role of oil and gas companies in the low carbon transition is to be selected the circular economy based on national agenda.

Gradual liberalisation of energy markets, opening up some parts of value chain to competition as well as capacity building and knowledge sharing will greatly contribute saving the costs, fostering the technological development and ensuring efficiency in favour of consumers.

Core priority 5.1: Development of downstream energy sector

Though most of ECO Member States possess considerable volume of downstream industry, it is necessary to harness more complementarities, effectively use available resources.

Actions	Activities
To sustain development of downstream energy sector	<p>Build upon partnership frameworks in downstream energy sector</p> <p>Promote the establishment of public and private sector energy consortia, and refinery association among the ECO Member States.</p> <p>Establish the lasting, self-sustainable and efficient network of relevant downstream stakeholders, namely line agencies/downstream authorities, businesses, think-tanks, academia and training/excellence centres, as well as other public and private sector stakeholders of the ECO Member States.</p> <p>Avoid harmful competition and in turn attain comparative advantages, dimensions such as asset optimization, driving of synergies and product differentiation and portfolio optimization will be core issues to achieve fully-fledged consolidation both between producer-producer and producer-consumer actors in the region</p> <p>Envisage circular economy policy activities to be driven from the bottom up, in terms of actions from cities, universities, and companies, as much as by national or international action.</p> <p>Promote exchange of experience and best practices among the ECO Member States.</p>

Core priority 5.2: Micro, small and medium enterprises and startups

Micro, Small and Medium Enterprises (MSMEs) comprise the major share of business entities worldwide. In developing countries, MSMEs contribute to most economic activities. They are crucial forces for employment creation, economic growth, poverty alleviation as well as promoting inclusive and sustainable development. They provide tremendous contributions to economic growth and sustainable development globally, in terms of decent job creation, income generation and poverty reduction in any country.

Systematizing formalization of MSMEs is important for promoting industrial growth in the ECO countries.

A number of policy initiatives will be unleashed to support MSMEs growth. These include tax exemption and reduction measures, entrepreneurship incubators and financing mechanisms designed to address challenges faced by MSME entrepreneurs.

Actions	Activities
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Tax Exemption	Three to five years profit tax exemption for MSMEs in energy sectors, including innovation and in the RD&I sectors
To address the challenges faced by MSMEs	Optimize efficient MSME operations Improve integration of MSMEs within the global market Strength RD&I capacities of MSMEs Enhance access of MSMEs to financial resources Promote MSME entrepreneurship and their roles as agents for innovation
To support startup	Support successful growth of youth-led startups by enhancing entrepreneurship and innovative capacities, especially in the innovation and high-tech energy sectors.
To support MSMEs	Expand access to financial resources: as registered businesses, MSMEs would be able to open bank accounts, improve creditability and enhance access to financial resources from banks and financial institutions Expand access to the market: business registration would support MSMEs to obtain export permits and licenses necessary for their integration in the global value chain Expand access to business development service programmes: business registration would help inform demands and challenges faced by MSMEs to the design and delivery of business development support programmes led by government departments and international organizations

Key Action Areas 6: Energy Research, Development, Innovation and Technologies

Smart solutions are not only vital in technologies, but also in policy-making to ensure affordable, reliable, adequate energy provision, while addressing environmental impacts in all level. The trends in the space of energy innovation requires engaging all levels of society – from communities, regions and governments to various other stakeholders across the public and private sectors. To adapt itself to the current and mid-term trends policy makers of ECO region will marginalize renewed approach on policy and regulations; finance innovation; resources and capacity building; and products and services innovation.

Core priority 6.1: The fossil energy system

The most formidable challenges facing the fossil energy system are likely to be achieving near-zero emissions of air pollutant and CO₂ emissions.

Actions	Activities
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To guide a high rate of innovation toward super-clean fossil energy technologies	Designing advanced fossil energy technologies to be compatible with sustainable development
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Core priority 6.2: Clean energy technologies emerging and advanced energy technologies

The fossil energy system can evolve in ways consistent with sustainable development Actions. Innovations are also proceeding in many other types of energy technology. Translating these into useful applications, however, will continue to rely on multidisciplinary, multisector and multinational cooperation.

Actions	Activities
To control pollution and adopt emerging and advanced clean energy technologies with multidisciplinary, multisector and multinational cooperation.	Support research, development and innovation (RD&I) in conventional energy technology such as: <ul style="list-style-type: none"> • Gas to liquids, coal to liquids • Liquefied natural gas • Gasification of coal • Hydrogen • Nuclear power
	Support RD&I in non-conventional energy technology such as: <ul style="list-style-type: none"> • Biomass (densification and gasification) • Biofuels (ethanol and biodiesel) • Wind power • Solar PV & thermal • Landfill gas • Geothermal
	Support RD&I in non-conventional energy technology such as: <ul style="list-style-type: none"> • Cogeneration • Integrated gasification combined cycle • Advanced-technology vehicles • Fuel cells • Carbon capture and storage

Core priority 6.3: Driving ambition in carbon capture storage and use deployment

Actions	Activities
To renew efforts to demonstrate carbon capture and storage (CCS) in ECO region and developing sustainable solutions for carbon capture and use (CCU)	Initiate the RD&I challenges driving ambition in carbon capture storage and use deployment.

Core priority 6.4: Increase safety in the use of nuclear energy

Actions	Activities
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To maintain a high level of safety of nuclear reactors and associated fuel cycles during operation and decommissioning, while improving their efficiency	Set up a working group on Implementation plan identifies a set of concrete RD&I Fission/Fusion activities and key enabling conditions needed.
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Core priority 6.5: Promotion of renewable energy technologies

Actions	Activities
To sustain technological leadership by developing highly performant renewable energy technologies	Build integrated PV includes the integration of PV into the infrastructure Develop technologies for silicon solar cells and modules with higher quality
To reduce the cost of key renewable energy technologies	Develop PV technologies for highest efficiencies at reasonable costs
	Develop wind energy technology including wind energy turbine also to be considered.

Core priority 6.6: The smart technologies and services

Actions	Activities
To create technologies and services for smart homes that provide smart solutions to energy consumers	Set up a working group on Smart solutions for energy consumers. Set up a working group on Smart cities and communities.
To increase the resilience, security and smartness of the energy system	Set up a working group on Optimised ECO Countries power grid/ Integrated local and Regional energy systems

Core priority 6.7: Development of new materials and technologies for energy-efficient systems

Actions	Activities
To develop new materials and technologies for, and the market uptake of, energy efficiency solutions for buildings	Initiate the RD&I challenges for developing and strengthening energy efficiency in buildings.
To make ECO region industry less energy and resources intensive, more carbon-neutral and competitive	Initiate the RD&I challenges for developing and strengthening energy in industry

Core priority 6.8: Sustainable transport and battery sector

Actions	Activities
To become competitive in the global battery sector to drive e-mobility forward	Initiate the RD&I challenges on batteries for e-mobility and stationary storage
To strengthen market take-up of renewable fuels needed for	Initiate the RD&I challenges for renewable fuels and bioenergy.

sustainable transport solutions, and bioenergy cost reductions aspects	
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Key Action Areas 7: Energy Access and Energy Poverty Eradication

Core priority 7.1: Economic growth

To sustain economic growth and raise living standards, energy shortages could be met by increasing supplies. But there are two other important considerations: environmental sustainability and social development.

The ECO region is endeavouring to build up the next generation of energy professionals, who are capable and equipped with contemporary knowledge. To address the SDG challenges, this strategy envisages increasing the involvement and visibility of women in the energy sector as well. Comprehensive knowledge sharing and expertise across societies, countries, and governance are the main elements for long-term cooperation in a closely interconnected region.

Actions	Activities
To sustain economic growth and raise living standards	Increase supply taking into account environmental sustainability and social development
To grow economically and sustainably	Boost competitiveness Boost efficiency Extend energy services Reduce the financial burden of loss- making public utilities
To reduce production costs, conserve limited energy resources, increase productivity and offer lower prices to consumers	Increase energy efficiency Taking a number of measures, among energy intensive industries, including changing pricing policies, and introducing economic and fiscal incentives Save energy particularly in the five most energy- intensive industrial sectors —iron and steel, petroleum refining, cement production, pulp and paper and chemicals
To promote partnerships for development	Establish innovative collaboration mechanisms between governments, civil society and the private sector, which can ensure that the benefits of new energy technologies are widely shared and practiced in an affordable manner.
To increase level of welfare	Make available energy services to provide communities with social services and opportunities for income and employment.
To reduce poverty	Offer affordable and clean energy services to the rural poor

	Integrate energy issues within rural development
To improve health conditions	<p>Make available electricity, improves facilities in health clinics, providing illumination for night-time deliveries and treatment as well as for refrigerating vaccines and sterilizing medical equipment</p> <p>Provide energy for boiling water will help reduce waterborne infections, and replacing traditional fuels—fuelwood, charcoal, local coal, kerosene, crop residues and dung—with modern fuels, such as liquid petroleum gas, can reduce the incidence of respiratory diseases.</p>
To reduce gender equality	<p>Provide better access to modern fuels, women spend less time gathering fuelwood and can cook more efficiently, and will thus have more time for educational, economic and other income-generating activities—as well as being less exposed to air pollution and waterborne illnesses.</p> <p>Meet the energy needs of poor households to improve education and empower women and girls</p>

Core priority 7.2: Enhancing capacity building

Capacity building activities are aimed at strengthening and maintaining the capabilities of states and societies to design and implement strategies that minimize the negative impacts of current social, economic and environmental crises and emerging challenges. Knowledge sharing, learning by doing, pilot studies, education and capacity building programmes are a few examples of capacity-building interventions. Energy-related technical training is mentioned most frequently in other capacity-building activities.

Strengthen and maintain the capabilities of states and societies	<p>Support governments and stakeholders to strengthen the contribution of MSMEs</p> <p>Strengthen the capacity of MSMEs</p> <p>Strengthen the capacity of countries to integrate the ECO Strategy into national development plans and sustainable development strategies</p> <p>Promote multi-stakeholder and participatory approaches through the provision of both workshops and online training courses</p>

Key Action Areas 8: International cooperation on energy

International energy cooperation will help to promote the transition to clean, low-carbon, efficient and secure global energy; and drive high-quality development of global energy.

Core priority 8.1: Establishment of regional cooperation

It is necessary to build cross-country energy capacities in order to establish resilient regional cooperation.

Actions	Activities
To enhance regional cooperation on energy	Build cross-country energy capacities in order to establish resilient regional cooperation Ensure sustainability both for producer and consumer countries

Core priority 8.2: Establishment of international cooperation

International cooperation is critical to achieving global energy objectives.

Actions	Activities
To collaborate with International Organisation and maintain International cooperation	Establish an international framework and forum for cooperation on energy security, open and competitive markets, and sustainability Maintain good relations with supplier, consumer and transit countries of energy resources Collaborate with international organisations and participates in several international initiatives and events Collaborate with International Renewable Energy Agency for promoting the sustainable and widespread use of all forms of renewable energy Collaborate with International Solar Alliance for cooperation among solar resource-rich countries to address their special energy needs Collaborate with International Atomic Energy Agency for promoting use of safe, secure and peaceful nuclear energy globally. Collaborate with International Energy Agency for bolstering energy security, economic development, data management and clean energy worldwide