ESTABLISHMENT OF ECO CLEAN ENERGY CENTRE

Joint ECO-UNIDO Project

PRESENTATION BY ECO SECRETARIAT
NOVEMBER 2021
The Economic Cooperation Organization is a regional intergovernmental organisation. Member countries from Europe, the Caucasus, Central, West and South Asia. Population count almost half a billion inhabitants. Geography span over eight million square kilometres. Afghanistan, Azerbaijan, Iran, Kazakhstan, the Kyrgyz Republic, Pakistan, Tajikistan, Turkey, Turkmenistan, and Uzbekistan.
The ECO Member States are involved in addressing the challenges/opportunities exposed by the global issues of regional and national impacts.

These include, among others, climatic changes, natural hazards, and sectors and themes addressed by the SDGs.

Over the past few years, ECO has been undergoing an energy cooperation paradigm shift toward energy efficiency and renewable energy. ECO Vision 2025 and ECO Energy Strategy stipulates the enhancement of energy security and sustainability through wider energy access and trade as ECO’s strategic objective.
ENERGY CHALLENGES IN DEVELOPING AND TRANSITION COUNTRIES: GLOBAL PERSPECTIVE

ENERGY POVERTY

➢ In 2030, more than 650 million people may still have no access to modern, affordable and reliable energy services
➢ 80% of the global population living in developing countries consumes only 30% of global energy
➢ Globally, 90% of urban population and only 60% of rural population have access to electricity
➢ 2.5 billion people largely rely on traditional biomass for cooking
➢ The poor spend more income for poor-quality energy services than the better-off for high-quality service

ENERGY SECURITY

➢ In 2030, cities may consume more than 73% of the globally generated energy
➢ Rapidly growing urban electricity demand needs major investment in energy infrastructure in developing/transition countries
➢ High vulnerability of some developing countries and islands due to their dependence on imported petroleum products
➢ High technical and commercial grid losses in some developing countries
➢ Limited oil and gas reserves fail to satisfy the global demand in the long term
➢ There are no functioning regional electricity and gas markets in some regions

CLIMATE CHANGE MITIGATION AND ADAPTATION

➢ Over 80% of the global energy supply is generated from fossil fuels (e.g. coal, oil, gas)
➢ More than 70% of global GHG emissions stem from the energy sector
➢ In business as usual scenarios, a doubling of pre-industrial levels of GHG emissions is very likely; this would lead to a rise in global temperatures of between 2°C to 6°C
➢ Developing countries are most likely to suffer from negative climate change impacts (sea level rise, droughts, extreme weather, etc.)
➢ To stabilize the global temperature rise at the 2°C level until 2050, emissions would have to peak before 2020 and be reduced by 31% to 71% until 2050
➢ Today’s investment determines the amount of GHG emissions for the next decades
POTENTIAL NEGATIVE IMPACTS OF THESE CHALLENGES

➢ Correlation between energy poverty and a low ranking in the Human Development Index

➢ Health problems of women and children due to indoor pollution

➢ Load shedding and power cuts lead to the increase of private back-up generation

➢ Reluctance to pay hardly affordable energy costs. High energy generation costs

➢ High energy spending and productivity losses of businesses and industry. Low efficiency of social facilities (e.g. education, healthcare)

➢ Harmful emissions of conventional energy generation lead to local air, water and soil pollution

➢ Rural unemployment in offgrid areas. Migration to urban areas, especially among younger people
ADDRESSING THE ENERGY CHALLENGES SIMULTANEOUSLY

RENEWABLE ENERGY (RE)

RE can play an important role to satisfy the growing energy demand for electricity, transport, heating and cooling in urban areas, while boosting access to rural energy services.

- Solar (PV, solar thermal)
- Wind (on-shore and off-shore)
- Hydro (large, medium, small)
- Bioenergy (biogas, sustainable biofuel, efficient stoves)
- Renewable hydrogen
- Geothermal
- Wave and tidal

ENERGY EFFICIENCY (EE)

A low-hanging fruit: energy efficiency and energy saving can play a key role in mitigating energy demand and global GHG emissions at relatively low costs.

- Modern technologies and targeted investment can help lower energy consumption, reduce emissions and generate income
- SAVINGS
  - Through sustainable lifestyle patterns
- INDUSTRY
  - More efficient manufacturing
  - ENMS ISO 5001
- SUSTAINABLE TRANSPORT
  - Electric vehicles and mass transit systems
- CO₂↓
- APPLIANCES
  - Complying with national standards for household appliances
- LIGHTING
  - Efficient residential and services lighting
- BUILDINGS
  - Efficient building upgrades
- GENERATION AND TRANSMISSION
  - Reduction of grid losses
  - More efficient power plants

A GLOBAL OPPORTUNITY

Secretary-General Ban Ki-moon launched the Sustainable Energy for All Initiative (SE4ALL) to mobilize action from all sectors of society in support of three interlinked objectives to be achieved by 2030:
- Providing universal access to modern energy services
- Doubling the global rate of improvement in energy efficiency
- Doubling the share of renewable energy in the global energy mix

Barriers for RE&EE markets and industries

Although major progress has been achieved, the uptake of RE&EE markets and investments still faces barriers that have to be eliminated:

- Policy, legal and regulatory barriers
- Institutional barriers (lack of national and regional implementation capacities)
- Technical barriers
- Financial barriers
- Lack of capacity, knowledge, data and awareness
<table>
<thead>
<tr>
<th>RATIONALE: REGIONAL PERSPECTIVE</th>
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<tbody>
<tr>
<td>Energy is one of the priority areas of cooperation within ECO. “ECO Decade for enhanced Energy Cooperation” – VISION 2025 – Energy Strategy 2030</td>
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<td>The strong inter-linkage between the establishment of the Center and increasing energy efficiency has been widely recognized. The functioning of the Center could consequently pave the way for many energy efficiency solutions</td>
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<td>ECO Member States stance for promoting energy efficiency policies</td>
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<td>ECO Region’s tremendous unleashed potential in Renewable Energy Sources, notably solar, wind, hydro, geothermal and biomass</td>
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<td>Ever increasing share and dynamics of RES in the global energy mix</td>
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<td>Growing interest of ECO Member States in cooperation in renewables &amp; energy efficiency, which is in line with their particular complementary role in ECO`s overall energy mandate</td>
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<td>ECO continues to add more weight to the ECO's profile on energy efficiency-related cooperation</td>
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Some eco member states have set ambitious renewable energy targets

<table>
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<tr>
<th>Country</th>
<th>Sector</th>
<th>Target</th>
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<tbody>
<tr>
<td>Azerbaijan</td>
<td>Electricity</td>
<td>1 GW by 2020</td>
</tr>
<tr>
<td>Iran</td>
<td>Solar and wind power</td>
<td>5 GW (by 2020)</td>
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<tr>
<td>Kazakhstan</td>
<td>Electricity</td>
<td>1.04 GW by 2020</td>
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<tr>
<td></td>
<td>Primary energy mix</td>
<td>50% share of RES by 2030</td>
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<tr>
<td>Kyrgyzstan</td>
<td>Renewables</td>
<td>100 MW by 2025</td>
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<tr>
<td>Pakistan</td>
<td>Electricity</td>
<td>10,000 MW by 2030</td>
</tr>
<tr>
<td></td>
<td>Primary energy mix</td>
<td>10% share by 2015</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>Hydropower (small-scale)</td>
<td>100 MW by 2020</td>
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<tr>
<td>Turkey</td>
<td>Bio-power from solid biomass</td>
<td>1 GW by 2023</td>
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<tr>
<td></td>
<td>Geothermal</td>
<td>1 GW by 2023</td>
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<tr>
<td></td>
<td>Hydropower</td>
<td>34 GW by 2023</td>
</tr>
<tr>
<td></td>
<td>Solar</td>
<td>5 GW by 2023</td>
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<tr>
<td></td>
<td>Wind</td>
<td>20 GW by 2023</td>
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Idea of establishment of ECO Clean Energy Centre was initiated by ECO Secretariat as the outcome of ECO-UNIDO consultations over the past few years.

ECO Vision 2025 – a key strategic document of ECO – stipulates the enhancement of energy security and sustainability through wider energy access and trade as ECO’s strategic objective.

ECO Vision 2025 directly refer to clean energy/energy efficiency goals and the establishment of ECO Clean Energy Centre. ECO Vision 2025 Implementation Framework envisages its establishment until 2025.

ECO Plan of Action for Energy/Petroleum highlights strengthening cooperation in energy efficiency and conservation through institutional capacity building and increasing private sector involvement including enhancing public awareness as well as expanding markets for energy efficient products.

The 69th UN General Assembly Resolution (A/RES/69/111) on Cooperation between the UN and ECO (10 December 2014), appreciated ECO for underlining the special, increasing role of RES to support sustainable energy development and welcomed the idea of development of a joint UN-ECO programme for sustainable energy and as its outcome, the establishment of regional energy center with possible assistance of the UN agencies.

ECO Secretariat succeeded in stimulating policy debates for development of appropriate frameworks for regional partnerships during the ECO Experts Group meetings on Renewable Energy Sources.
OBJECTIVES

➢ Support the transformation to cleaner and sustainable energy sources in ECO Region
➢ Contribute to intra-regional trade among ECO Member States through regional connectivity and proper utilization of RE&EE
➢ Increase ECO's awareness on clean energy technologies and promote new relevant projects, investments (including private sector investment) and employment
➢ Create a robust market on clean energy, thus contributing to long-term regional economic growth
➢ Contribute towards increased access to modern, affordable and reliable energy services, energy security and mitigation of negative externalities of the energy system by creating a conducive environment for energy efficiency and renewable energy markets and investments
➢ Act as a regional hub and think-tank for sustainable energy in ECO Region and implement programmes, projects and activities in the following outcome areas (specific objectives) enlisted hereunder:
  ❑ Effective regional RE&EE promotion agency created and efficiently managed, as a centre of the Global Network of Sustainable Energy Centres
  ❑ Implementation of cost-effective EE policies, strategies and technologies are promoted in the ECO Region
  ❑ Share of RE&EE products and services in the ECO Region, and their share in the global market are increased
  ❑ Policy, regulatory and incentive frameworks to promote EE investments and markets are developed/implemented
  ❑ Capacities of the local industry and business sector on various RE&EE aspects are strengthened and applied
  ❑ Availability of investment and market data, awareness and advocacy on EE are enhanced
  ❑ Investments in EE infrastructure, services and businesses are mobilized and implemented
The Centre will support and implement RE&EE activities and projects covering at least 4 ECO Member States.

Focus primarily on activities and projects with regional impact or national projects which demonstrate high potential for scaling-up or regional replication.

The Centre will promote the following sustainable energy solutions:
- Addresses RE&EE equally and holistically
- All appropriate and sustainable EE technologies, incl. partly renewable energy based hybrid systems and mini-grids
- Solar, wind, geo-thermal and bio-fuel projects which prove to be sustainable
- LPG cooking projects are eligible due to their high relevance for low-income population groups

The Centre will promote “soft” activities to enable hardware investment. It may envisage the following components:
- Capacity-building and applied research
- Knowledge-management and awareness-raising
- Policy and regulatory support
- Investment promotion/private sector involvement in energy-efficiency
- Transformation to “green industry” in the ECO Region
EXPECTED BENEFITS, IMPACTS AND RETURNS

Establish the sustainable energy markets and industries

Contribute to better technical coordination, donor harmonization, the assurance of long-term sustainability of project interventions, as well as the documentation of lessons learned

Address major regional thematic opportunity gaps in the areas of capacity development, knowledge and data management, awareness raising, as well as investment and business promotion

Create ample opportunities in stimulating energy cooperation within ECO per se, and notably in renewables, energy efficiency/conservation, sound environmental technologies and green economy

Conforms to the SDGs and the Centre will contribute to this trend via introduction of pertinent partnership framework tailored to the needs and aspirations of its Member States
Policy makers in the relevant government authorities of the ECO Member States

Regional integration systems covering ECO Member States

National regulators, utilities and IPPs

Media and communication institutions, capable to disseminate the benefits of sustainable energy

Local companies and industry in the sustainable energy sector

National research institutions and academia

National and regional financing institutions and banks

Media and communication institutions, capable to disseminate the benefits of sustainable energy
Financing a variety of energy efficiency projects

Focus on activities with high relevance for leveraging investments in EE infrastructure, services, local businesses and industry

- Means to save energy cost
- Solution to environmental pollution (wastewater, CO$_2$ emissions, etc.) in a wide-range of sectors as INDUSTRY, TRANSPORTATION, PUBLIC BUILDINGS, DISTRICT HEATING, etc.

Investment and business promotion as
- Important activity component of the Centre
- Cross-cutting issue across other result areas (capacity development, policy)

Stimulate as much as possible spill-over effects across result areas and national borders

Implementation of specific assignments to be delegated to third parties or NFIs

- Position itself more as a regional clean energy promotion agency rather than an implementer on micro/grass-root levels
- Work action and service-oriented rather than political

Cooperation with a wide range of public/private and local/international stakeholders to maximize the local added-value, technology and know-how transfer
MARKET CREATION STRATEGY

- Awareness and Capacity Building
- Support for Policy Development
- Knowledge Management and Knowledge Exchange
  - Capacity Development and Awareness Raising
  - Investment and Business Promotion
  - Knowledge Management and Knowledge Exchange

Market Development
Time
ECO strives for building up diverse and resilient energy architecture in the ECO Region supported by transformation to renewables, as well as cleaner and sustainable energy sources and achievement of the relevant energy efficiency objectives at the regional level. To achieve this goal, ECO is pursuing proactive cooperative policy with other international organizations, and keen on promoting and implementing UN agenda of RE&EE in the ECO Member States.

The establishment of the Centre is expected to be realized within the framework of ECO Vision 2025 with possible financial/technical support of international institutions. ECO considers the possibility to be engaged in consultations with possible partners/donors, including but not limited with UNIDO, Energy Charter, IRENA, EU, IFIs, as well as international development assistance and cooperation agencies and others for the development of the project.

UNIDO’s best practices seem promising and encouraging for ECO Region. Given the UNIDO’s experience in setting up such centers in Africa, MENA region and Caribbean, ways and means may be explored to establish the Center based on similar models.

ECO Member States resolve in promoting EE policies is instrumental in achieving the goals of the centre.
**INDICATIVE FINANCING STRUCTURE AT START-UP PHASE**

*Small size of energy efficiency projects results in higher transaction costs*

**INVESTMENT**

- **Equity financing/Trust Fund**
  - Partner 1 (Member State)
  - Partner 2 (Member State)
  - Partner 3 (Member State)
  - Own means
  - Loan

- **In-kind contribution/technical support by UNIDO, Energy Charter, IRENA**

- **Financial contribution by IFIs, notably IDB and TDB as well as IDA and Cooperation Agencies**

**INDICATIVE BUDGET REQUIREMENTS**

- Effective regional Centre created and efficiently managed
- Policy, regulatory and incentive frameworks to promote clean energy investments/markets developed and implemented
- Capacities of local industry and business sector on clean energy are strengthened and applied
- Availability of investment/market data, awareness and advocacy on clean energy are strengthened
- Investments in clean energy infrastructure, services and businesses are mobilized and implemented
PROJECT RISKS

- Insufficient public acceptance
- Complex bureaucratic/approval processes
- Disruptions in financing
- Construction risks (costs overruns, damages, completion schedule, technology and innovation risks)
- General operation and maintenance
- Access to facilities (production, transmission, consumer, etc.)
- Market risks (variability of revenue due to weather/resource risk, variability of revenue due to grid availability, variability of revenue due to price volatility)
- Political events, natural and man-made disasters (political disturbance, sabotage, terrorism, flood, earthquakes, arsons, etc.)
- Other legal, regulatory, and policy risks (e.g. labour laws, electricity market structure and regulation, natural resource laws, commercial laws, power purchase agreement, tariff changes...)
- Some of the risks are of the same or similar nature as for the projects limited to a single country
➢ The project location will be the ECO Region
➢ The executing agencies will be ECO Secretariat in the preparatory phase and the Secretariat of the Centre – to be selected through a competitive process to host the Centre – in the operative phase
THANK YOU