UNECE

ENERGY

Pathways to Sustainable Energy

Subregional capacity building

15 May 2019, Geneva

ENERGY

- **How can the Framework on Sustainable Energy be adopted in Eastern Europe, the Caucasus and Central Asia subregions**

Reactions by:

- Nazir Ramazanov (Azerbaijan)
- Natalia Jamburia (Georgia)
- Sergiu Robu (Moldova)
- Oleksandr Diachuk (Ukraine)
- Nurzat Abdyrasulova (Kyrgyzstan)
- Tatiana Vedeneva (Kyrgyzstan)
- Nizomiddin Rakhmanov (Uzbekistan)
- Baltugan Tazhmakina (Kazakhstan)

Azerbaijan
-
Nazir Ramazanov

Georgia
-
Natalia Jambulia

Key Insights: *What is sustainable Energy in Georgia and how it is attaining in the country? National agenda of achieving the Energy Development in a Sustainable manner*

- *Through the efficient utilization of local renewable energy resources to ensure security of supply and diversification of supply sources, and increase the energy independence/decrease import dependence, increase the export – ensure increase of energy security.*
- *construction of hydro power plans, rehabilitation of existing HPPs.*
- *Introducing non hydro-RE technologies, at large scale (implementing auction rules) + promotion micro generation via net metering. Piloting sustainable biomass heating.*
- *Becoming hub for electricity trade and facilitate flow of green energy a region to a region. Black see submarine cable projects;*
- *Alternative ways of heating supply need to be identified and implemented.*

Policy Recommendations:

- Strengthen sustainable energy relationship with the region, facilitation of common understanding for action to make sub-regional consensus on sustainable energy development of the region. Tyrin to find common interest of parties other then expert-import.
- Involvement of all countries from sub-regions.
- Modeling for sub-regions;
- Involvement of office of statistics offices' of sub-regions.

Next Steps and Priorities

- Please share any further recommendations you may have on
  - What are the priorities for the region to attain Sustainable Energy?
  - What are the synergies and Nexus area opportunities
    - Clean water and sanitation (SDG8) cross boarde rivers.
    - Responsible Production and Consumption (SDG12)
    - Decent Work and Economic Growth (SDG8)
    - Industry, Innovation and Infrastructure (SDG9)
    - **Sustainable Cities and Communities (SDG11) to link with CoM**
    - Partnerships (SDG17)
  - Deep-dives / Zoom-ins
    - Deep-dives on Role of Gas / Role of Coal / Role of Renewables in Sustainable Energy Future
    - End-use energy efficiency
    - CCS
    - Storage
    - Power-to-X
  - In which direction should we go next?
  - Recommendations for the Phase 2

Republic of Moldova
-
Sergiu Robu

Key Insights:

- Policy objective of energy system of Moldova is – energy for economic growth (Energy Strategy 2030). GDP growth – 3,5%/year
- The power generation units (CHPs of: 240 MW; 64 MW; 24 MW) are old and need to be decommissioned.
- Biggest power plants of 2400 MW and a HPP of 42 MW are located in Transnistria region, not controlled by GoM
- No hydro power potential
- Plans to build up to 200 MW new renewable power units of wind and solar.
- Biomass potential is limited, and now about 41 MW installed units of biomass –to-heat. 26% of energy balance of the country.
- 80% electricity imported: from Ukraine or Transnistria
- About 100% of fossil fuels imported

Policy Recommendations:

- Paris commitment is 64% reduction of CO2 by 2030 (base year 1999).
- 10% of electricity consumption produced by RES, or more
- 20% of RES in energy balance by 2030, or more
- 35% reduction of CO2 by 2030 (base year 2009)
- 20 improved EE
- New public buildings – to be NZEB
- Role of new gas pipeline “Iasi – Ungheni – Chisinau” for a new power generation unit of 600 MW ?
- Interconnection (together with Ukraine) to ENTSO
- CCS for new PP

Next Steps and Priorities

ENERGY

- Deep-dives / Zoom-ins
  - Deep-dives on Role of Gas / Role of Renewables in Sustainable Energy Future
  - End-use energy efficiency
  - CCS
  - Storage
  - Power-to-X
- Next direction: reduction of CO2 to zero; increasing share of renewables to 50% by 2050, affordable energy for economic growth
- Recommendations for the Phase 2:
  - consideration of common targets on RES, EE and CO2 for UBM to 2050;
  - market liberalization;
  - Future gas route for UBM (Turkish stream? Reverse from Europe? Existing system?) and costs
  - Decarburization of Transport Sector
  - All new PP in the UBM with CCS

Ukraine
-
Oleksandr Diachuk

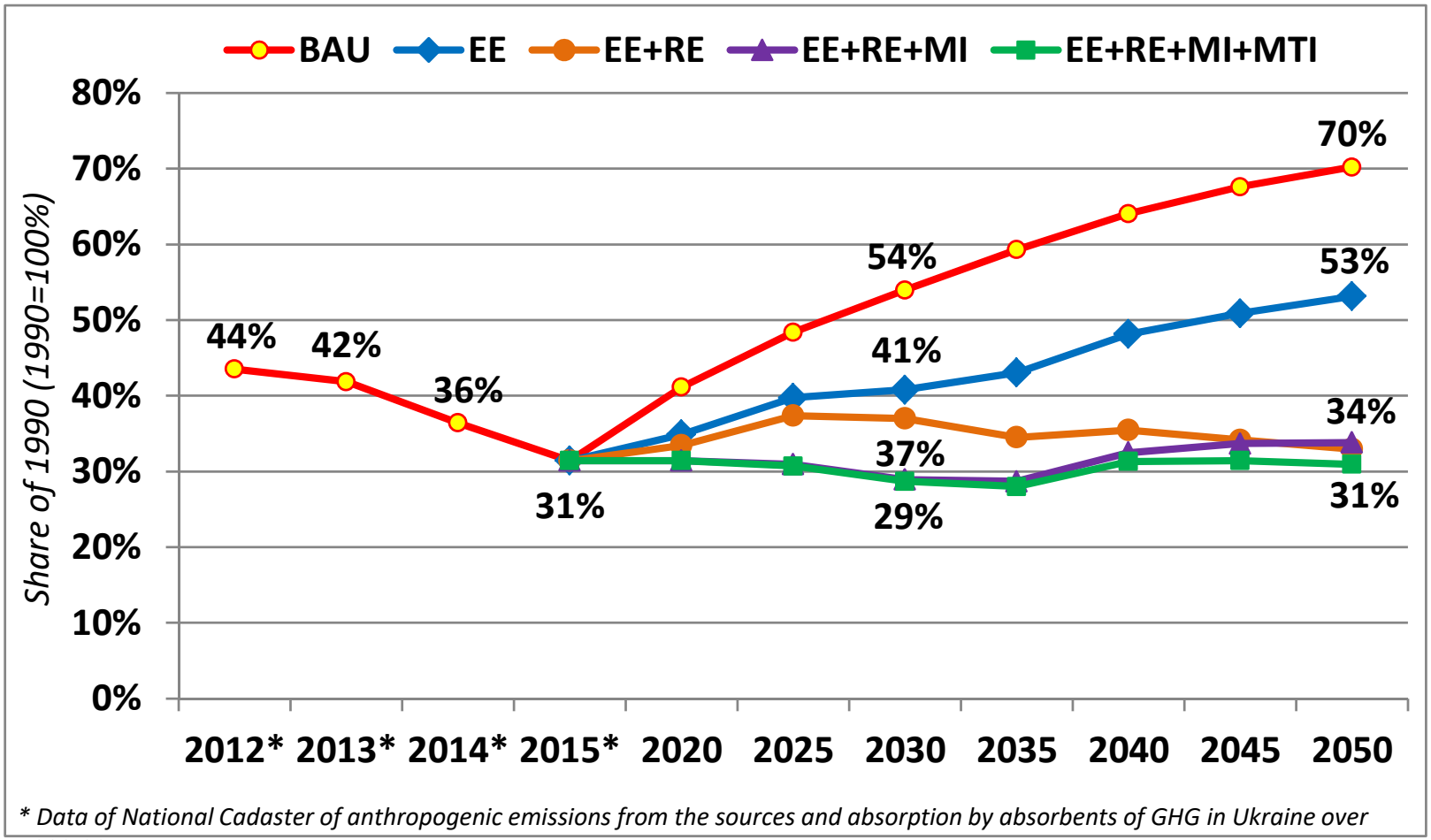
Policy Recommendations (based on LEDS of Ukraine):

- **Energy efficiency** – includes policies and measures which aim to increase efficiency in the use of energy resources and energy saving accompanied with enhanced quality in energy services and energy resources supply.
- **Renewable energy** – includes policies and measures which aim to support and stimulate the renewable energy development.
- **Modernization and innovation** – includes policies and measures which aim to modernize the fixed assets used in traditional energy (energy resources generation, transition and consumption) and implementation of innovation technologies (such as smart networks, industrial production and use of hydrogen etc.).
- **Market transformation and institutions** – includes business measures, which directly or indirectly affect structural shifts in economy and in goods and services markets; regulatory and management practices at the national and sector level; standards and codes; public awareness measures; policy on education, science and technology development etc.

Policy Recommendations

ENERGY

- In the LEDS of Ukraine till 2050 presented four scenarios: **BAU** – Business As Usual, **EE** – Energy Efficiency, **RE** – Renewable Energy, **MI** – Modernization and Innovation, **MTI** – Market Transformation and Institutions.



** Data of National Cadaster of anthropogenic emissions from the sources and absorption by absorbents of GHG in Ukraine over 1990-2015*

Next Steps and Priorities

- The priorities for the region to attain Sustainable Energy
  - Energy Security
  - Economic Development
  - Climate Change
- The synergies and Nexus area opportunities
  - Decoupling in economic growth and energy consumption / GHG emission
  - Waste management
  - Resource Efficiency
  - Circular economy
  - Decentralized or Distributed Generation
  - Partial or Full Self-sufficiency of Energy in Residential Sector
  - Partnerships in access to global green finance and develop new national green financial instruments, popularization of best available technologies

Next Steps and Priorities

- Deep-dives / Zoom-ins
  - Deep-dives on Role of Gas / Role of Coal / Role of Renewables in Sustainable Energy Future
  - End-use energy efficiency
  - CCS
  - Storage
  - Power-to-X
- Recommendations for the Phase 2
  - Improving the modelling on the nation and regional level (new EE, RE, GHG targets, goals)
  - Developing a set of modelling scenarios for by sub-region / country
  - Developing a list of sustainable development policies, measures by sub-region / country
  - Provide economic impact assessment (macroeconomic analysis) of scenarios implementation

Kyrgyzstan
-
Tatiana Vedeneva

ENERGY

Key Insights:

- Over 90% of Kyrgyzstan's energy is generated by large hydro, around 8% - by cogeneration based on coal, and 1,5% - by renewable small hydro;
- Overall installed capacity – 3,9 GW, technical capacity for doubling the install capacity with large hydro;
- Access to energy grid is 99,8%, but quality and downtime hours are below standards;
- A 14% increase in the number of household consumers of electricity from 2007 to 2017 was accompanied by a 70% increase in consumption, growth by 20% is expected by 2030;
- Generation capacity is used fully, with production = consumption (14-15 billion kWh)$
- 78% of electricity (and 91% of heat energy) is used for communal, cultural and domestic needs;
- Prices of heat and electrical energy are heavily subsidized by Gvt, price for households is 42% of cost, businesses = 140% of costs;
- Total energy costs below 7%, electricity costs - less than 3%;
- Costs do not include needs for renovation, repairs, new infrastructure;
- 45% of generation capacity is obsolete, having been built in 1970s, local technical and financial capacity is virtually non-existent.
- Main plans include construction of new large hydro Kambarata 1,8 GW, and Karakeche coal plant of 1,2GW.

ENERGY

Policy Recommendations:

- Kyrgyzstan's main generation load is now managed and can and should stay with large hydro;
- Awareness-raising campaign, coupled with implementation of new technologies and policies to prevent corrupt practices and increase transparency of energy sector are the first and most important steps to take;
- Demand management should start with optimizing tariff structure to reflect costs of operating, modernizing and increasing capacity of generation capacity.
- Province and rayon analysis should be carried out to ascertain energy demand up to 2050, available resources, renewable and otherwise, costs of keeping grid or installing distributed generation capacity calculated;
- Develop comprehensive country's economy model, including energy system, taking into account and showing interdependence of sustainable energy pillars and SDGs;
- Develop clear national policies, strategies and action plans for energy efficiency and renewable energy, based on above analysis and model results;
- Develop comprehensive secondary legislation and standards to implement these policies, etc;

Next Steps and Priorities

- There is a global budget of GHG emissions that can not exceed a certain number -+900 Gtonnes of CO2 equivalent.
- If we imagine the **ideal system** that would work to control emissions to stop climate change:
  - We would have to calculate full "**Life-Cycle GHG Cost"** for each generation option, production system, demand system;
  - The LC costs should include the costs of GHG affected environmental services, human health, etc., including restoration of environment, if possible, and costs of capturing emitted GHG;
  - These calculations should be readily available, understandable and known to governments, industry, households, etc., so that they can estimate the costs of activity options prior to implementation;
  - We should have the universal global agreements that when undertaking activities that emit GHG the actor will have to pay for them on local and global levels;
  - We would have a transparent system that could detect emissions from different sources and processes, and to price them accordingly;
  - We should be able to enforce the costs upon the emitters;
  - We should be able to capture and store emitted GHG;
  - Hopefully we should be able to restore environmental services and biodiversity.

In each of these directions, there are already some solutions, and already some steps taken. Perhaps we can reverse engineer this ideal system and to look where we have to move to reach that ideal system.

Kyrgyzstan
-
Nurzat Abdyrasulova

Uzbekistan
-
Nizomiddin Rakhmanov

Key Insights:

- Reserves of fuel and energy resources of Uzbekistan: oil -177 mil.t., natural gas - 2.28 T m3, coal - 1900 mil. t.
- Natural gas production 53,4 bil. m3:

  Domestic consumption -41,6 bil.m3(78%), Export-11,8 bil.m3 (22%).
- Installed capacity for power generation is ~14100 MWt(2018).
- Power generation is 60700 GWh with ~80% coming from gas, 13% coming from HPP.
- Power consumed by Industry-41%, Residential consumers-24%, Agro consumers- 21%, Commercial entities-12% and Transport-3%.
- Targeting up to 21% renewable energy by 2031, Uzbekistan also plans to install at least 4 GW of solar capacity.
- In 2018, the government has announced plans to develop a nuclear power generation starting with two units 1200 MW each.

Policy Recommendations:

- Long-term master plan development
- Institutional and structural reforms
- Improve the legal and regulatory framework for PPP through the development of a modern policy, legal and institutional framework for PPP projects
- Develop a capacity building workshop on PPP for renewable energy development/competitive procurement of renewable projects
- Support the Government to prepare solar PV projects, and attract and select private sector investors through a competitive and transparent process
- Support preparation of renewable energy by laws and regulations that need to be developed

Next Steps and Priorities

- Further recommendations
  - Modernization and construction of additional capacity of thermal power plants with a gradual reorientation investment in green energy
  - Transition to the use of the most efficient and environmentally friendly energy sources, an increase in the share alternative energy
  - The synergies and Nexus area opportunities
    - Providing quality services to the public water supply and sanitation, as well as the rational use of water resources (SDG6)
    - Reduced freshwater consumption and diversification of agricultural production (SDG6)
    - Gradual rejection of subsidies in the fuel and energy complex. Energy consumption reduction up to 40% by 2030(SDG12)
    - Promotion of innovation activities of small enterprises, wide access to financial services(SDG8)
    - Resource and innovative development of the fuel and energy complex (SDG9)
    - industrial diversification and increased value added in primary industries(SDG9)
    - Access to affordable housing in rural areas and in cities (SDG11)
    - Increased international cooperation between neighboring countries (SDG17)
  - Deep-dives / Zoom-ins
    - The introduction of the TPP instead of steam gas-steam technologies will increase the efficiency of the units from 35% to 60%
    - Increasing the share of coal and shale in electricity generation
    - Targeting up to 21% renewable energy by 2031, Uzbekistan also plans to install at least 4 GW of solar capacity.
    - Transition from resource and raw material to resource-innovative development of the fuel and energy complex
    - Introduction of hydropower and pumped storage stations

Kazakhstan
-
Baltugan Tazhmakina

Key Insights:

- Reviewing goals within our program documents, National action plans (for example: Eco code, Green economy concept etc.) on the following directions:
- 1. Development of oil and gas and petrochemical industries
- 2. Development of electric power industry, coal industry and use of atomic energy
- 3. Stabilization and improvement of environmental quality

Policy Recommendations:

- 1. Systemic measures:
- To improve the investment attractiveness of oil and gas industry and resource base replenishment, legislative reforms have been carried out, and new Tax Code and Code on Subsoil and Subsoil Use have been adopted. Under the Subsoil Code and the Tax Code, rules on stimulate geological exploration, simplify the procedure for granting rights subsoil use, simplification of procedures for the coordination of contracts, project documents and reporting.
- Creating a legislative framework for the practical implementation of the 50, 51, 52 steps of the Plan of the Nation “100 concrete steps”:“Reorganization of the electric power industry. Implementation Single Buyer Model. "Consolidation of the regional power grid companiesю "The introduction of a new tariff policy in the power industry,stimulating investment in the industry ".
- Kazakhstan is considering the issue of the possible application of new technologies in Kazakhstan, presented at the international pavilions of the Expo. The expert working group selected 105 foreign and 28 domestic technology, demonstrated at the exhibition.
- In order to develop the field of recycling of solid waste (hereinafter - MSW) the regulatory legal base has been improved. AT In particular, the Environmental Code has been amended
- In the framework of the new Environmental Code of the Republic of Kazakhstan planned to make changes on issues of state controlling greenhouse gases, ozone-depleting substances and climate change adaptation.