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SEVENTH INTERNATIONAL FORUM ON ENERGY FOR SUSTAINABLE DEVELOPMENT

Summary

*Baku, Azerbaijan
18 - 21 October 2016*

The Seventh International Forum on Energy for Sustainable Development was held in Baku, Azerbaijan, on 18-21 October 2016. The International Forum on Energy for Sustainable Development, an annual event since 2010, has made major contributions to the global dialogue on implementing the Sustainable Energy for All (SE4All) initiative and achieving targets of the Sustainable Development Goal 7 (SDG7) on energy. The Seventh Forum was jointly organized by the Government of Azerbaijan, the United Nations Regional Commissions, the United Nations Development Programme (UNDP), the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA), the World Bank, the United Nations Industrial Development Organization (UNIDO), the Copenhagen Centre on Energy Efficiency (C2E2), the Renewable Energy Policy Network for the 21st Century (REN21), and the Global Environment Facility (GEF). It combined a high-level policy dialogue with plenary sessions, parallel workshops and seminars over four days. Over 500 delegates from 43 countries attended the Baku Forum.

International energy experts, government officials, and representatives from the business community, financial sector, academia and civil society shared perspectives on how the SDGs can be implemented. The Seventh Forum included International Renewable Energy Conference and the annual sessions of the UNECE Group of Experts on Renewable Energy and Group of Experts on Energy Efficiency for the first time. Among the parallel events were the Seminar on Policy Reforms for Renewable Energy Investments, the Workshop on Pathways to Sustainable Energy, the Workshop on Promoting Energy Efficiency in Azerbaijan and Other Countries of the Region, the Workshop on Global Energy Efficiency Accelerator Platform, the Workshop on Energy Trade and Inter-grid Connectivity in Central Asia and the Caucasus, the SPECA Thematic Working Group on Energy, Water and Environment, the Workshop on data quality and interpretation in the context of the Global Tracking Framework, and the Workshop on the Role of Strategic Environmental Assessment (SEA) in Renewable Energy Planning.

The Seventh Forum explored how to deliver on the national commitments, such as the Nationally Determined Contributions (NDCs) in support of achieving the climate change mitigation and adaptation goals outlined in the Paris Agreement, including investment in renewable energy as a means of reducing the carbon intensity of the energy sector. The potential solutions to be agreed at an

Energy Ministerial at the outset of the Eighth International Forum on Energy for Sustainable Development in Astana, Kazakhstan, on 11 June 2017, as a major stepping-stone in the history of this international fora process, were discussed in the framework of the Baku Forum.

At the closing session of the Seventh International Forum on Energy for Sustainable Development, the delegates called on the governments and international organizations to take urgent steps for transformation of energy systems. The outcome document of the Baku Forum (**Baku Call for Action**) is a request to Member States to commit to concrete measures in energy to support achieving the energy-related Sustainable Development Goals (SDGs) and contributing to the Paris Climate Agreement.

Mr. Igor Didenko, Deputy Minister of Energy and Coal Industry of Ukraine expressed the interest of Ukraine to host the Ninth International Forum on Energy for Sustainable Development in 2018. The proposal was welcomed by the Forum. An official letter from the Minister of Energy and Coal Industry of Ukraine to the Executive Secretary of UNECE with the proposal to host the Ninth Forum in Ukraine in 2018 was received on 1 November 2016.

Baku Call for action to achieve energy-related Sustainable Development Goals and contribute to the Paris Climate Agreement and other Forum materials are available on the website: www.unece.org/index.php?id=42643#.

Opening Session

The Seventh International Forum on Energy for Sustainable Development and International Conference on Renewable Energy opened at 9:00 on 18 October 2016 in Baku.

At the official opening of the event, Mr. Akim Badalov, Chairman of the State Agency for Alternative and Renewable Energy (AREA) of Azerbaijan, highlighted the importance of the Forum, emphasizing that it opened on the day when the country celebrated the 25th anniversary of its independence. Energy-rich Azerbaijan plans to increase the share of alternative and renewable energy sources in the country's energy balance from 16 to 20 percent by 2020 and reduce carbon dioxide emissions by 35 percent by 2030.

Mr. Magzum Mirzagaliev, Deputy Minister of Energy of Kazakhstan, stressed the significance of the development of the sustainable and green energy for his country, including renewable energy, and reminded the delegates that next year Kazakhstan will hold EXPO-2017 "Future Energy" and the Energy Ministerial Conference and the Eighth International Forum on Energy for Sustainable Development at its opening in June 2017. Open discussion of the role of traditional energy sources such as oil and gas and unimpeded transit are also extremely important for Kazakhstan, and it values the International Forum as a platform for these frank discussions.

Mr. Ghulam Isaczi, UN Resident Coordinator/UNDP Resident Representative, emphasized the efforts that different countries are putting into achieving the Sustainable Development Goals.

Mr. Andrei Vasilyev, UNECE Deputy Executive Secretary, emphasized that the Forum has grown and evolved, and it has become the reference point for the United Nations on the global energy conversation. The objective this year is to explore how countries can deliver on their commitments in support of the Paris climate agreement and in the 2030 Agenda for Sustainable Development. He outlined the main topics to be discussed at the Forum, including the role of fossil fuels in a future energy system, principles-based performance standards for buildings, energy efficiency in industry, renewable energy, best approaches for managing methane emissions from fossils, and critical role of data and indicators. He expressed his firm belief in the ability to achieve real progress by 2030 through targeted action on the energy-related sustainable development goals and targets.

High-Level Policy Dialogue

Follow-up to the Fifth and Sixth Fora: Call for Action to Energy Ministers

The High-Level Policy Dialogue was chaired by Mr. Akim Badalov, Chairman of the State Agency for Alternative and Renewable Energy. The panelists discussed the challenges of reconciling the emissions pathway with development aspirations and the diversification of fossil-based economies.

Main topic for discussion at **Panel A** was **how to overcome gaps to achieve energy related Sustainable Development Goals and the Paris Climate Agreement**. The panel was moderated by Mr. Scott Foster, Director of UNECE Sustainable Energy Division.

Mr. Firdovsi Aliev, Deputy Minister of Ecology and Natural Resources of Azerbaijan, reflected on the role of renewable energy in the transition of global economy. He emphasized that Azerbaijan is concerned about climate change, committed to climate change initiatives and strongly believes that global collaboration is important.

Mr. Mahfooz Ahmed Bhatti, Joint Secretary (Development), Ministry of Water & Power of Pakistan, stated that a big question for countries is how to make choices and set priorities. He mentioned the China-Pakistan economic corridor and its role in closing the energy gap. In Pakistan, an increase of renewable energy share from 1 percent to 5 percent in national energy supply, which is currently fossil fuel based (mainly coal) is planned in next 5 years. Demand is increasing and large capacity additions are necessary. He also mentioned introducing building codes and energy efficiency standards in country.

Mr. Igor Didenko, Vice Minister of Energy and Coal Industry of Ukraine, stated that an alignment of interests is needed to mobilize different stakeholders to achieve the desired objectives. Ukraine has a unique energy system in Europe, with a large share of energy supply from nuclear. It is looking for more investment in the energy sector. Transition to sustainable energy is viewed as vitally important. The International Forum is the right platform for this discussion. Mr. Didenko proposed Ukraine as the host country of the Ninth International Forum on Energy for Sustainable Development in 2018.

Mr. Zhipeng Liang, Deputy Director, New Energy and Renewable Energy Department, National Energy Administration of China, spoke about Chinese experience in developing renewable energy. He stressed the importance of RE in global and Chinese economy and noted the approaches that China has taken: building manufacturing capacity, using business opportunities, increasing its share of the global market, and taking advantage of the decreasing costs of RE equipment. Next five years are critical for RE in China. By 2020 cost of energy production from RE sources is expected to be 7 cents per kWh, which means parity with coal fired power plants. Achieving RE goals without resorting to subsidies is possible through selecting best technology at best price.

Mr. Urban Rusnák, Secretary General, Energy Charter Secretariat, expressed his view that the 21st century will be the century of RE, just like the 20th century was the century of coal. While coal is still widely used its use has to be made cleaner. He emphasized the role of investment in energy transition and the need to create conducive investment climate through frameworks and basic set of rules that attract and protect investments. The transformation that Energy Charter process is undergoing could provide the instruments to interact in a more predictable and softer way and to resolve disputes.

Mr. Shahmar Movsumov, CEO, State Oil Fund of Azerbaijan, described how the State Oil Fund set up in 1999 as a sovereign wealth fund transforms oil reserves into economic assets and protects the economy from fluctuating oil prices. It is a fiscal tool for the government to protect the economy

from instability. The Fund views climate change investments as important. It has been investing in climate projects and solar wealth funds globally.

Ms. Vivien Foster, Global Lead, Energy Economics, Markets & Institutions, the World Bank Group, described how tracking progress can lead to concrete actions. She shared insights from the SEforALL Global Tracking Framework (GTF) and the Readiness for Investments in Sustainable Energy (RISE) initiative and their influence on policy makers. She compared the attitudes toward renewable energy and energy efficiency. Policy makers pay more attention to RE than EE even though the impact is the other way round. She stressed that the evolution of RE policies is ahead of EE policies even in developed countries. She also indicated that power utilities have the possibility to promote EE but this ability has not been harnessed.

Ms. Tuya Altangerel, Deputy Resident Representative, UNDP Office in Kazakhstan, suggested that upcoming Energy Ministerial Conference and EXPO-2017 “Future Energy” can be used as a platform to promote sustainable energy. Over 130 countries and more than 80 international organizations have already committed to participate. She emphasized importance of creation of international green technology center as an outcome of the EXPO. Key messages need to focus on how can countries can adopt clean technologies faster and how can SMEs be better involved in this. Incentive mechanisms, enabling environment, and affordable financing are crucial. Pathways to develop more efficient and more collaborative mechanisms and instruments need to be discussed and chartered. She also emphasized that we are walking a very narrow pathway towards 2 degrees. There is very little space and no time for maneuvering and it is imperative to develop transition solutions. The role of UN system and its agencies in this is critical.

Main topic for discussion at **Panel B** was the **interplay of rapid decarbonization and renewable energy**. The panel was moderated by Mr. Hongpeng Liu, Officer-in-Charge of UN ESCAP Energy Division.

Mr. Gulmammad Javadov, Deputy Minister of Energy of Azerbaijan, and Mr. Jamil Malikov, Deputy Chairman of AREA, spoke about the recent developments in the Azerbaijan energy sector, its targets for increasing the share of renewable energy in the total energy mix, and increasing investments in specific RE technologies, with the order of priorities as follows: biomass, hydropower, wind, and solar PV.

Mr. Bolat Akchulakov, General Director of Kazakhstan Association of oil-gas and energy sector organizations “KAZENERGY”, said that the country feels the stress of the currently low oil prices on the market and the oil price volatility. He underlined the importance of finding a balance between fossil fuels and RE. The approach needs to be careful and based on commercial considerations. The challenge for RE is competitiveness, and it is difficult to reject coal as energy source when it “is cheaper than air”. Competitive RE technologies should be supported. Additional challenge for investments into Kazakhstan economy is that they are in dollars but returns are in local currency. The ultimate question is how we can make existing fossil fuel based technologies cleaner and RE cheaper and find the right balance. He mentioned that there is an unprecedented high level of RE investments but very little impact on the ground.

Mr. David Hobbs, Director Research, KAPSARC talked about options to diversify. There is a need for political urgency that allows reform and greater efficiency and productivity. He stated that current energy efficiency policies fail because “what we care about is that what we consume is more environmentally friendly, not how much it is worth not to consume it”. An example was given of Gulf countries’ economies that are energy intensive with capital intensive industries. When oil prices

are low there is an urgency to act. As a result, transformation plans emerge and there is a focus on increasing competitiveness. However the challenge is that in times like this money available for investments are scarce. He also emphasized that energy productivity targets should be more aligned with social welfare than EE alone. He also suggested that the approach should be pragmatic to achieve the successful outcome and all options can be considered, including decarbonization of fossil fuels if it can be done cost effectively.

Mr. Rossen Papazov, CEO of Holcim Azerbaijan, mentioned that building materials sector is the largest recipient of foreign direct investments (FDI) in country. Holcim Azerbaijan, a subsidiary of LafargeHolcim, has been present in the country since 1999. Mr. Papazov stated that an energy intensive industry such as cement production may become less fossil fuel dependent. There are plans to replace coal and pet coke with energy derived from wastes and fuel sludge. There is technical potential to use from 60% to 95% of wastes as fuels. Holcim works on applying principles of circular economy in its production processes.

Mr. Roland Ullmann, Director Industry Affairs Building Automation / Energy Efficiency, Siemens Switzerland, emphasized that building sector is an ideal field for integrating energy efficiency and support productivity. As construction that takes place now will exist for the next 25 to 50 years the characteristics and properties of buildings need to be defined in such a way that the next generation of buildings is energy efficient. Technology is available. Application of sustainable building principles and fast implementation of building codes is critical. The buildings can and should be allowed to produce and use their own energy.

At the closing of the panel, the panelists suggested that the following messages could be given to the energy ministers at the Astana Forum and Energy Ministerial:

- Set energy productivity targets and anchor them in national policies
- Increase role of co-processing and waste management
- Reinforce economic policies in all countries
- Reinforce building codes in all countries
- Effectively use existing technologies and policies

UNECE Group of Experts on Energy Efficiency, 3rd session

The third session of the UNECE Group of Experts on Energy Efficiency (GEEE) was held on 18-19 October 2016. It was organized outside Geneva for the first time. Over 230 delegates from UNECE and non-UNECE member States, and representatives of international organizations, non-governmental organizations, private sector and academia, as well as independent experts participated in the session.

The Group of Experts elected the new chair – Mr. Aleksandar Dukovski (the former Yugoslav Republic of Macedonia) and new vice chairs. The Bureau of GEEE currently comprises 14 members.

The Group of Experts expressed its support for the draft **Outcome Document of the Seventh International Forum on Energy for Sustainable Development** and for the Concept Note and draft Outcome Document of the Eighth International Forum on Energy for Sustainable Development and Energy Ministerial. It welcomed presentations by Ms. Zoe Lagarde, IPEEC and Mr. Tyler Bryant, International Energy Agency (IEA) on the importance of energy efficiency to achieve Sustainable Development Goals.

The Group of Experts reviewed **best practices in selected economic sectors to improve energy efficiency**. The delegates shared existing practices of implementation of energy efficiency policies and measures in their countries as well as challenges to their implementation and discussed the opportunities for exchanging experience among the ECE member States. Presentations were made by Mr. Zlatko Pavicic (Croatia), Mr. Hannes Mac Nulty, BG Ingenieur Conseils (Switzerland), Mr. Christian Noll, DENEFF (German Industry Initiative for Energy Efficiency), Mr. Andrei Miniankou, Department for Energy Efficiency of the State Committee on Standardization (Belarus), Mr. Robert Tromop, Efficient Energy International Limited (New Zealand), Mr. Stefan Buettner, EEP – Institute for Energy Efficiency in Production (Germany), and Mr. Nicholas Howarth, KAPSARC. A particular focus was given to improving energy efficiency in industry as a sector where significant improvements can have one of the most tangible impacts overall. The importance of baseline data and measuring energy efficiency improvements and multiple benefits was highlighted and the concept of energy productivity discussed. The Group of Experts supported organizing a series of workshops that aim to reconsider how to develop industrial energy efficiency policies through a bottom-up approach, which is an important step in identifying and overcoming barriers.

The delegates discussed developing UNECE-wide **principles-based performance standards and guidelines** and importance of standards to investors. Presentations were made by Mr. Rob Bernhardt, Passive House Canada, Mr. Helge Schramm, Danfoss, Mr. Christian Noll, DENEFF (Germany), Mr. Mongi Bida, UN ESCWA, Mr. Panama Bartholomy, Investor Confidence Project (ICP) Europe, Ms. Kankana Dubey, KAPSARC, and Ms. Ksenia Petrichenko, Copenhagen Centre on Energy Efficiency. It was emphasized that international standards in energy efficiency can play a valuable role in promoting good energy practices, harmonization of public policies, improving investors', consumers' and users' understanding and confidence, avoiding technical barriers to trade related to energy policies, and enabling the creation of world markets for energy technologies. Experience from other regions, in particular ESCWA region, was presented. The Group of Experts supported the proposal to develop a principles-based energy performance standard in buildings.

The Group of Experts discussed presentations by Ms. Alisa Yushchenko, University of Geneva (Switzerland), Mr. Nicolae Zaharia, UNDP Office in the Republic of Moldova, and Mr. Matija Vajdić, Energy Institute Hrvoje Pozar (Croatia) on the **role of utilities and energy service companies in improving energy efficiency** and noted that utilities and energy service companies will play a significant role in the transition to clean energy system of the future and that the focus needs to shift to customer-driven service models, greenhouse gas emissions controls, affordability and reliability.

At the **Workshop on promoting energy efficiency in Azerbaijan and other countries of the region** the delegates discussed best practices and lessons learned from several countries in the region related to improvements in energy efficiency with a focus on public and residential buildings. The discussion was focused on the barriers to increased investment in energy efficiency as well as the means and tools that Governments can use to best overcome these barriers and specific programmes and policies to promote energy efficiency in countries of the region. Experience in implementing energy efficiency projects supported by the United Nations Development Programme (UNDP) through the Global Environment Facility (GEF) was presented. Please see more **detailed summary of the Workshop below**. One of the outcomes of the Workshop is a brochure on promoting energy efficiency in countries of the ECE region prepared jointly by UNDP, GEF and UNECE: http://www.unece.org/fileadmin/DAM/energy/se/pdfs/eneff/publ/EERE.Project.Success.Stories_Oct2016.pdf.

The Group of Experts reviewed **regulatory and policy dialogue addressing barriers to improve energy efficiency**. Presentations were made by Mr. Panama Bartholomy, ICP Europe, Mr. Oleg Dzioubinski, UNECE, Mr. Alejandro Moreno, The World Bank, and Dr. Steven Fawkes, KAPSARC.

The delegates discussed policies and actions that increase the bankability of energy efficiency projects and measures and energy efficiency finance options in the region.

At the **Workshop on Global Energy Efficiency Accelerator Platform and Progress in Accelerating Industrial Energy Efficiency**, representatives of the United Nations Industrial Development Organization (UNIDO) and invited speakers provided information on their work in the area of the Industry accelerator with a focus on Energy Management Systems (EnMS). The delegates highlighted the significance of energy management and energy efficiency as a key driver for inclusive and sustainable industrial development and a substantial opportunity area to support the achievement of the Sustainable Energy for All (SEforALL) goal and SDG7 target on energy efficiency, while mitigating climate change. Examples were provided demonstrating EnMS as the prominent best practice for sustainable energy efficiency in industry, achieving multiple benefits including substantial cost reductions. The Group of Experts supported promotion of Energy Management Systems (EnMS) as a proven best practice methodology for organizations to achieve sustainable energy efficiency and continually improve energy performance, especially in industry. Please see more detailed summary of the Workshop below.

The Group of Experts conveyed a set of **conclusions and recommendations** for consideration by the UNECE Committee on Sustainable Energy. The report of the session, other official and informal documents, and presentations are available at: <http://www.unece.org/index.php?id=42244#/>.

Workshop on Promoting Energy Efficiency in Azerbaijan and Other Countries of the Region

The workshop was jointly organized by the United Nations Development Programme (UNDP), the Global Environment Facility (GEF), and the United Nations Economic Commission for Europe (UNECE) on 19 October as part of the 3rd session of the UNECE Group of Experts on Energy Efficiency (see above). The workshop had a focus on presenting best practices and lessons learned from GEF-sponsored and other projects in Azerbaijan and other countries of Europe and Commonwealth of Independent States (CIS) region related to improvements in energy efficiency with a focus on public and residential buildings.

The first session of the workshop focused on various approaches for implementing energy efficiency programmes and projects in selected UNECE member states from Europe and CIS region.

Dr. Ming Yang, Senior Climate Change Specialist, GEF delivered the keynote presentation sharing information on experience, lessons learnt, and knowledge management in energy efficiency investments of the GEF, with a special focus on the region. He also elaborated on GEF 2020 prospects for Climate Change mitigation projects in Europe and CIS region. Mr. Yang outlined the effectiveness of GEF-funded projects. On average, whenever the GEF invests USD 0.53 in energy efficiency, it leverages almost ten times as much in total investments (USD 4.87) and mitigates one tonne of CO₂.

Representatives of ministries and government agencies from Azerbaijan, Ukraine, Serbia, the former Yugoslav Republic of Macedonia, and Georgia, and an expert from France presented information policies and programmes in energy efficiency and on energy efficiency financing in their respective countries and in the wider region. Presentations focused in particular on the existing support facilities for energy efficiency investment projects and the necessity to improve the incentives and specific tools to support them. The following discussion that followed looked at the most pressing policy issues related to energy efficiency financing and at the best practices in energy efficiency legislation. Delegates also discussed whether these best practices could be replicated and scaled up in other countries of Europe and CIS.

The second session focused on lessons learned in UNDP and GEF climate change mitigation projects across the region and promoting energy for sustainable development.

Mr. John O'Brien, Regional Technical Advisor on Climate Change Mitigation in UNDP Istanbul Regional Hub, made the keynote presentation on global and regional overview of UNDP portfolio on sustainable energy. He particularly focused on barriers to energy efficiency and lessons learned from UNDP-GEF projects in the Europe and CIS region. Mr. O'Brien outlined the importance of proactive approach, emphasizing the fact that energy efficiency is about people and people need to be given responsibility and empowered to make sure that there is a difference between words and action. So many low-cost and no-cost measures can be undertaken to improve energy efficiency but they require people to be actively involved.

Representatives from Romania, Azerbaijan, Ukraine, Russian Federation, Armenia, Turkey and Kazakhstan presented the outcomes and achievements of the UNDP-GEF projects on energy efficiency in buildings and in industry in these countries and shared experience from their implementation.

The panel members discussed the barriers to energy efficiency and lessons learned from tackling these barriers:

- **Legal and regulatory barriers:** In general, there is a lack of clear policy at the national level to address fuel poverty; municipalities are not oriented towards end-users of energy efficiency – especially poor people. In addition, there are no national strategies put in place on energy security as well as on communal sector and tariffs reform.
- **Financial barriers:** Application for government programmes is complex and requires technical analysis that is duplicated. There is a lack of money for thermal rehabilitation works, in particular among households in the old multi-story apartment who cannot afford co-financing. Effective and innovative financial mechanisms are not in place and the communal infrastructure is outdated and dilapidating.
- **Institutional barriers:** There is a lack of institutional support and coordination among government actors. Every country is dependent on energy, but most of the countries – even those who import a large share for domestic consumption – use traditional sources of energy such as gas and oil, while little importance is given to diversification and practical steps to improving energy efficiency.
- **Technical barriers and need for awareness raising/capacity building and:** There is a lack of energy efficiency knowledge among building professionals. Municipalities are not able to effectively tender and check on the quality of projects. In rural areas, most people implement projects in a do-it-yourself manner and their knowledge of implementing energy efficiency in houses is at a very low level or is completely lacking.
- **Lack of information:** There is a lack of information and data from utilities for municipalities, national authorities, potential donors and investors on energy use to prioritize of buildings refurbishment. There is also a lack of information about the economic benefits of energy efficiency.

In both sessions, representatives from different countries talked about the existing tools to overcome these barriers as well as specific programmes and policies to promote energy efficiency in the region. They focused on energy efficiency in buildings and related renewable energy technologies in achieving the goals in climate change mitigation and sustainable development.

It was noted that many of the existing support schemes, for example social aid, are a burden on the economy as they are not oriented towards end-users of energy efficiency – especially low income households. A good example of tackling this problem was presented by a representative from Ukraine. The country has adopted **secondary legislation** to support a new law, which includes financial incentives provided to Energy Service Companies (ESCOs) to invest in energy efficiency in public buildings. However, ESCO markets often do not work properly in many countries in this region due to remaining legal, regulatory, technical, financial, and awareness barriers.

Many countries are at the stage of developing demonstration and pilot projects. For example, the UNDP-GEF Project “Building Energy Efficiency in the North-West of Russia” implemented an energy efficient design and construction for a municipal multi-apartment building in the Pskov and Novgorod regions. Belarus invested in reducing energy consumption and related GHG emissions from the residential sector with a focus on new residential buildings. These projects also helped to increase awareness, capacity and support of energy efficiency at the national level. In Armenia, the “Green Architecture” bilingual Armenian-English textbook was developed for students with the majors in Architecture and Civil Engineering, faculty and acting professionals in the building sector. In Romania, two locally produced sustainable energy efficient insulation materials were identified and the GEF provided support for the accreditation process of both to obtain the necessary technical agreements for using them for public buildings.

One of the outcomes of the Workshop is a brochure on promoting energy efficiency in countries of the ECE region prepared jointly by UNDP, GEF and UNECE: <http://www.unece.org/index.php?id=44145>. It is to be distributed at the 22nd session of the Conference of the Parties to the UNFCCC (COP 22) in Marrakesh.

Workshop on Global Energy Efficiency Accelerator Platform and Progress in Accelerating Industrial Energy Efficiency. Business and policy value through Energy Management Systems in industry

The Workshop was jointly organized by United Nations Industrial Development Organization (UNIDO), Copenhagen Centre on Energy Efficiency (C2E2), and United Nations Economic Commission for Europe (UNECE) on 19 October as part of the 3rd session of the UNECE Group of Experts on Energy Efficiency (see above). Its objective was to provide an update about work of the SEforALL Global Accelerators Platform, in particular of the recently established Industrial Energy Efficiency Accelerator, and to present Energy Management Systems (EnMS) and ISO 50001 as key best available policy tool and technology for increased and sustainable energy efficiency in industry.

The first workshop session set the international scene for accelerating energy efficiency globally and in industry particularly. Mr. Robert Tromop, Efficient Energy International Limited (New Zealand), chaired the first session.

Mr. Tim Farrell, C2E2, opened the session by introducing the SEforALL Accelerators Platform as a key partnership and leadership mechanism for implementing energy efficiency by showcasing government and private sector commitments, sharing information and creating/brokering implementation partnerships, tracking progress and identifying priority opportunities, and bridging the gap to energy efficiency finance.

Mr. Al-Karim Gorindji, Carbon Trust, and Mr. Robert Tromop talked about the importance of industry in achieving international energy efficiency and CO₂ emissions reduction goals and the role that the SEforALL Global Industrial Energy Efficiency Accelerator co-led by UNIDO and Carbon Trust aims to play. They introduced the Accelerator and its objectives of building capacity, embedding best practices, and stimulating technology and business innovation for increased industrial energy efficiency and productivity. The Accelerator plans to support activities in up to 15 countries in the first few years across a range of interventions (such as policy design, EnMS programmes implementation, and financial support

through multilateral funders). While country specific stakeholders were not yet defined, leading partners seek active engagement from a range of country actors.

Mr. Padu S. Padmanabhan, KAPSARC, gave a presentation on enabling policies to support industrial energy productivity. After stating difference between energy efficiency and energy productivity, Mr. Padmanabhan discussed the importance of better data to design more effective policies and outlined a proposal to improve quality of energy efficiency benchmarking at industry level. He outlined possible industrial energy efficiency (IEE) policy pathways and highlighted how industrial policy and the efficient development of energy intensive sectors will be key to the achievement of GCC countries' Intended Nationally Determined Contributions (INDCs).

Mr. Liam McLaughlin, Lead UNIDO EnMS Expert, provided an overview of how EnMS in line with ISO 50001 provide a methodology for introducing a systematic and structured approach to the management of energy in organizations that can drive continual improvement of energy performance. EnMS enable and assist organizations in better bringing together technology, people and data for increased efficiency, productivity, cost reduction and innovation. Mr. McLaughlin emphasized the critical importance for industry, and organizations in general, to properly measure and monitor energy performance in order to make savings and secure management commitment and resources on a long-term basis. He provided examples of the shortcomings of current practices and outlined best available techniques for energy performance measurement and monitoring.

The second session, chaired by Mr. Tim Farell, looked into the business and policy value of energy management systems in industry. The session was opened by two presentations from industrial companies that implemented EnMS within the UNIDO-GEF Global IEE-EnMS Programme. Mr. Alexander Rodionov, JSC Coal Company "Kuzbassrazrezugol" (Russian Federation), and Mr. Zlatko Gjurchinoski, Vardar Dolomit (the former Yugoslav Republic of Macedonia) presented the EnMS implementation experience of their companies, highlighting the energy, operation and business benefits achieved as well as challenges faced and the work that remains ahead of them. Vardar Dolomit, a medium-size company, achieved 5% electricity savings within 9 months just through no-cost loss reduction and operations control optimization measures identified as a result of systematic energy management and proper energy performance measurement and indicators. Mr. Rodionov reinforced evidence of EnMS substantial cost reduction and operational benefits providing a few examples of management, technical and operation measures implemented in his large coal mining company, which led to more than 20 GWh of energy savings in less than a year almost at no financial cost for the company.

Mr. Marco Matteini, UNIDO, provided an update about global progress in the adoption of ISO 50001 before presenting an overview of various policy approaches and specific measures that have been used and could be used to promote and support EnMS-ISO 50001 implementation in industry. Mr. Matteini also elaborated on a number of opportunities offered by EnMS-ISO 50001 to policymakers and energy efficiency market players that should be taken into account when developing long-term frameworks and programme portfolios for energy efficiency in industry as well as in other economic sectors. Looking ahead more work is needed with government counterparts, energy efficiency service providers and industrial enterprises to build market demand and capacity for EnMS implementation as well as policy programmes promoting and supporting broader dissemination of EnMS-ISO50001.

Mr. Hannes Mac Nulty, BG Ingenieurs Conseils, concluded the session's presentations discussing ways to develop IEE policies through enhanced bottom-up approaches, by bringing together two key stakeholder groups that rarely talk to each other: the national policymakers with experience of energy efficiency policy and programmes and the energy managers and engineers from industry who are responsible for implementing energy efficiency. Mr. MacNulty announced the organization of a workshop to be hosted by UNECE in Geneva in January 2017, whose objective will be to have policymakers hearing from those who

are directly involved on the ground and who have to face the everyday corporate, management, financial and technical barriers related to implementing energy efficiency measures within a manufacturing site.

The panellists and the participants of the Workshop and the session of the Group of Experts on Energy Efficiency supported the importance of continuing and enhancing promotion and support of Energy Management Systems as a proven best practice methodology for industry and organizations to achieve sustainable and continually improving energy performance. The critical role of partnership, knowledge transfers and brokering platforms such as SEforALL Global Industrial Energy Efficiency and other Accelerators was also acknowledged and further development supported.

Workshop on data quality and interpretation in the context of the Global Tracking Framework

The Workshop was jointly organized by the World Bank and the United Nations Regional Commissions on 18 October. The objectives of the Workshop included:

- Providing an overview of the 2017 Global Tracking Framework (GTF) and the newly introduced region-specific reports
- Demonstrating how GTF indicators will evolve and can be useful to policy makers and national statistical agencies
- Hearing firsthand from national statistical agencies regarding their capabilities for energy data collection, validation and dissemination and challenges they face

Ms. Vivien Foster, Lead Economist, World Bank, presented an overview of the GTF – a multi-partner initiative coordinated by the World Bank and the International Energy Agency that tracks progress towards global sustainable energy targets. The GTF tracks four primary “indicators” that correspond to the Sustainable Energy for All (SE4All) objectives and the Sustainable Development Goal 7 targets, both globally and country-by-country. The four indicators are: 1) the percentage of population with access to electricity; 2) the percentage of population with primary reliance on clean fuels and technology; 3) energy intensity measured in terms of total energy supply and GDP; 4) renewable energy share in the total final energy consumption. GTF data for renewable energy and energy intensity comes from national energy balances prepared by the IEA and United Nations Statistics Division; electrification data comes from World Bank statistics and is based on household surveys; and clean cooking data comes from the World Health Organization.

Representatives from each of the five United Nations Regional Commissions – Mr. Scott Foster, Director, Sustainable Energy Division, UNECE; Ms. Radia Sedaoui, Chief, Energy Section, Sustainable Development Policies Division, UN ESCWA; Mr. Hongpeng Liu, Officer-in-Charge, Energy Division, UN ESCAP; Mr. Manlio Coviello, Chief, Natural Resources and Energy Unit, UN ECLAC; and Mr. Soteri Gatera, Chief, Industrialisation and Infrastructure Section, Regional Integration and Trade Division, UN ECA – provided brief remarks discussing the role of the Regional Commissions in the GTF process and data collection challenges among their member States. In 2017, stand-alone regional reports will be published by the five Regional Commissions. The reports will explore important regional trends, successes and challenges in sustainable energy development in far more depth than allowed by the high-level primary GTF indicators. The reports will also provide space for alternative regional or national level data sources to complement GTF data and paint a more comprehensive picture of current regional activity and developments. The reports will discuss challenges to collecting accurate and timely energy data in each region, and suggest resources or approaches that could help improve existing capacities.

Representatives from five national governments from UNECE, UN ESCWA and UN ECA regions— Ms. Olga Dovnar, Deputy Chairperson, National Statistical Committee of the Republic of Belarus; Mr. Gogita Todradze, Deputy Executive Director, National Statistics of Georgia; Mr. Joseph El Assad, Advisor, Ministry of Energy and Water, Lebanon; Mr. Mohamed Shaheen, Division Head, Central Bureau of Statistics, Palestine; and Mr. Eltag Musa, General Director, Central Bureau of Statistics, Sudan – presented their existing efforts to collect and validate energy data. Each speaker emphasized the importance of accurate data on electrification, quality of supply, and consumption. Most governments have made significant strides in recent years, including formal inter-ministerial partnerships, dedicated household surveys (or modules), and comprehensive online databases. Many countries, however, noted difficulties in collecting accurate data, especially for quality and reliability of electricity service, as well as the inability of traditional binary electrification indicators to reflect the nuances of data that do exist. In addition, country-specific geopolitical or demographic circumstances – for example the large population of Syrian refugees in Lebanon – can have significant impacts on both energy access and energy efficiency indicators.

Workshop on Challenges and Prospects for Regional Electricity Cooperation and Trade in Central Asia and the Caucasus

This workshop was jointly organized by the United Nations Economic Commission for Asia and the Pacific (ESCAP) and Electric Power Council of the Commonwealth of Independent States (EPC CIS) on 18-19 October.

Given the existing electricity infrastructure in the countries of Central Asia and the Caucasus as a legacy of the Soviet era the region broadly remains interconnected with transmission lines previously used to provide secure transboundary electricity flows. Nowadays however power trade between the countries is mostly characterized as bilateral. As a result the opportunities of mutually beneficial wider regional electricity cooperation on multilateral terms remain untapped.

Recognition of the crucial role energy plays in attainment of sustainable development goals, including those beyond SDG 7 on energy, justifies a strong need to identify major issues in power sector of the countries of Central Asia and the Caucasus that limit their international cooperation in terms of development of cross-border electricity trade and to discuss means to overcome these obstacles in a sustainable manner.

The workshop gathered experts from Afghanistan, Azerbaijan, China, Kazakhstan, Kyrgyzstan, Pakistan, Russian Federation, Tajikistan, and Uzbekistan, representatives of international organizations and financial institutions, including UN Regional Commissions, EPC CIS, EURELECTRIC, One Belt One Road Initiative, Global Energy Interconnection Development and Cooperation Organization (GEIDCO), Eurasian Development Bank, and International Energy Charter, as well as energy experts from national power sector companies and academia.

At Session 1, the nominated country experts provided the following information in their presentations: role of national energy sector in the respective country's socio-economic performance; power sector structure and regulatory framework; tariffs, subsidies and financial resources for power sector development; existing physical energy infrastructure and its development strategy; energy transit; and cross border electricity trade.

The participants emphasized great diversity of electricity production structure among the countries of the region. Several countries strongly rely on hydropower resources. Others attempt to increase share of renewable resources in order to diversify their fossil-based economies. And there are countries that aim to improve energy security through enhancement of cross-border energy infrastructure.

The experts emphasized that a huge potential exists for energy security improvement through enhanced international energy cooperation and development of resilient-cross border power infrastructure, while maintaining existing country-specific structure of the energy mix. However further efforts are required to improve coherence of energy strategies among the countries.

The experts agreed that the countries have a number of common energy issues. Those include issues related to the potential for further tariff-setting policies improvement. It was stated that the electricity prices mostly reflect social policies of the governments and include subsidies. Therefore, they may not be broadly influenced by either micro- or macroeconomic volatility factors. This limits the investment potential of power companies to execute projects aimed at modernization and development of power infrastructure relying purely on the economic principles. Consequently, lack of investments in modernization and rehabilitation implies comparatively large share of energy losses due to the aging and low efficiency of energy infrastructure and equipment. At the same time, a strong social component raises the issue of implementation of these principles in cross-border trade procedures.

At Session 2, the initiatives in the area of interconnectivity of regional energy systems were tackled more broadly. Presentations were delivered by representatives of international organizations and financial institutions. They reported on the existing connectivity initiatives and the role of organizations in coordinating national energy policies and promoting regional electricity cooperation. Fundamental principles that underlie successful regional electricity markets integration were considered more closely. In addition, gaps and missing links of subregional power grid connectivity were addressed.

The experts underlined lack of mutual trust among the countries in region-wide energy planning issues and emphasized low awareness of both potential investors and governments of each other. Complemented by a lack of harmonized standards, this mostly leads to economic inefficiency of investments that often proves to be below the initially planned levels. In addition, execution of multilateral energy connectivity projects reveals a lack of common understanding of sustainability among the countries, which requires further work on addressing the issue of convergence of the perception of energy sustainability.

It was stressed that the execution of large-scale power infrastructure projects does not completely solve internal energy problems of the participating countries, especially in hydropower-rich countries due to annual variations of energy deficits and surpluses. Therefore, it cannot be a substitute for holistic energy cooperation between the countries to improve sustainability of energy supplies. In addition, feasibility studies of such projects suggest that they remain economically viable only subject to certain previously defined national circumstances.

At Session 3, participating energy experts shared their thoughts and vision on the common energy market in Central Asia and the Caucasus and as on required conditions for its emergence in roundtable format. Built on the outcome of previous sessions, the roundtable discussion aimed to review and analyze the means of overcoming identified common energy challenges tailored to national and regional circumstances. It raised a number of questions that are crucial for the planning of further steps towards the attainment of sustainability in power sector.

The experts agreed that the countries are at different stages of market liberalization, with several of them still having monopolized markets and others being in the process of market liberalization and unbundling. Thus it remains unclear if the market reforms may lead to a market design that is common for all the countries allowing them to enhance efficient cross-border electricity trade and facilitate the attainment of a higher rate of access to affordable, reliable, sustainable and modern energy.

The experts agreed that given the inertial nature of investments in infrastructural projects, it is critical to maintain the multilateral electricity planning process in a synchronous mode and with equal horizon of projections in order to provide consistency of the strategies and enable their evaluation and feasibility studies. The countries should consider possibilities of multilateral long-term engagement in a system-wide

energy sector institutional transformation planning and implement knowledge-sharing practices and capacity building. There remains a need to maintain a dialogue at the expert, corporate and governmental levels in order to strengthen integration of national energy development plans into common regional infrastructure development framework. This would enforce complementarity of concurrent projects execution, conscious of synergy and balance of national interests.

However, the experience of world regions in electricity markets integration proves that even if there is a political will of the parties, it is insufficient for the emergence of common market because its creation requires a number of economic and regulatory preconditions. It was also stressed that the common market should not be considered as a goal in itself. Participants emphasized that energy should be considered as an instrument for overall development. At the same time, a prerequisite for agreed steps towards energy sustainability is a structured framework for multilateral dialogue, allowing synchronization of economic, social, environmental and technical issues and transformation of the institutional structure of national power sectors. The alignment of institutional structure of the energy systems must be achieved in order to set the baseline, from which further steps may be taken. The most economically feasible and rational development of electric power grid infrastructure in the region could be achieved through balancing the national energy strategies. The higher level of cooperation will contribute to more efficient projects execution, while exchange of information will increase the accuracy of forecasts in national energy strategies. The experts endorsed the proposal for more frequent substantive meetings.

Regarding the development of renewable energy sources in the countries of Central Asia and the Caucasus the experts supported the initiative for development of renewable energy atlas that is consistent with common methodology for classification of renewables. Studies on possibilities for technical cooperation and awareness-raising regarding local content in manufacturing and proper labeling of equipment are needed. The experts also agreed that there is a need for the development of a set of generic renewable energy solutions that might be implemented in order to provide access to electricity for households in rural areas. At the same time, distributed power generation must be economically viable and customized. Given an already relatively high share of hydropower sources in total energy mix of the region, drastic acceleration of renewable energy development at any cost is not required and may lead to negative economic consequences.

The participants thanked the organizers for holding the workshop and confirmed their interest in further engagement in discussions on the matter.

Regional Seminar on Enabling Policies to Promote Financing Renewable Energy Investments

The seminar was jointly organized by ESCWA and UNECE on 19-20 October as an activity in the framework of implementation of the joint United Nations Development Account project “Promoting Renewable Energy Investments for Climate Change Mitigation and Sustainable Development”.

ESCWA and UNECE representatives introduced the objectives and activities of the project and outlined the work already accomplished by the two UN Regional Commissions in facilitating improved investment environment for renewable energy (RE) projects in countries of their respective regions.

The first session of the seminar ***Policies and Institutional Frameworks to Promote Investments in Renewable Energy – Part 1***, considered National Case Studies from selected ESCWA member States.

The session started with a keynote presentation on “The Dynamics of Renewable Energy Policies Development: Key stakeholders, process and barriers” delivered by Dr. Dhamir Manai, Former

Member of the Tunisian Parliament, Parliamentary Advisor / Regional Director, Africa and Middle East - Climate Parliament. Policies are the highest level of governance for renewable energy and the process of developing renewable energy policies differs from one country to another, but is generally a complex process that involves a variety of stakeholders. Furthermore, the dynamics of developing RE policies involves setting up clear objectives and goals backed up by a strong political will and the process requires reaching a consensus between all concerned stakeholders. In fact, the first step in the process, is to identify the stakeholders, to understand them, and define their roles and relationships (responsibilities / collaborations). No stakeholder should be excluded in the development of renewable energy policies. These policies need to be implementable and require the development of adequate institutional and legislative frameworks.

The four case studies on renewable energy policies, identified for four ESCWA member States, were presented and used to feed three panel discussions:

- Panel discussion 1 on the Maghreb region based on the Morocco case study
- Panel discussion 2 on the Mashreq region based on the Jordan and Lebanon case studies
- Panel discussion 3 on the Gulf Cooperation Council (GCC) region based on the United Arab Emirates (UAE) case study

Panel discussion 1 focused on the Maghreb region, and in particular, Morocco. In addition to the ESCWA consultant that prepared the case study for Morocco, the panel included representatives from China, Morocco, Sudan, and Tunisia. Morocco is facing some major challenges due to the water stress, land degradation, strong energy dependence and vulnerability to climate change. The Morocco Case study showed that renewable energy is a strategic orientation for the country, with very ambitious targets (42% of installed power capacity from renewable energy by 2020 and 52% by 2030). The country already invested in major renewable energy project, and made significant progress at the institutional and policy levels. However, some issues still need to be addressed in order to remove some of the remaining barriers. These include institutional and policy frameworks for small scale projects and their access to financing. Also, some technical issues regarding connecting renewable energy to the grid. Several recommendations were formulated to meet the existing challenges.

Tunisia had recently adopted a law to promote renewable energy and provide a framework for renewable energy activities and projects. However, some of the associated decrees and application texts include clauses that can make certain renewable energy projects less attractive.

For Sudan, renewable energy can be an important vector for significantly improving access to energy services especially in rural areas. However, some demonstration work needs to be conducted in order to show RE capabilities.

Panel discussion 2 focused on the Mashreq region, and in particular, Jordan and Lebanon. In addition to the two ESCWA consultants that prepared the case studies for the two countries, the panel included representatives from Jordan and Lebanon.

Both Jordan and Lebanon are net energy importing countries. Both countries have been heavily affected by the flow of Syrian refugees. The potential for renewable energy is very important in both countries and renewable energy can easily become a major component of their energy mix. In terms of renewable energy policy development, Jordan has developed a comprehensive set of renewable energy legislations and regulations. Several large renewable energy projects are under consideration, and a dedicated fund (Jordan Renewable Energy and Energy Efficiency Fund) is being set up to finance renewable energy and energy efficiency in the country. The Lebanese renewable energy policy development context is quite different. Indeed, the regulatory framework of the electric power sector is still under revision and development. No clear contracting procedure (PPA) is available, and

there is no clear code for connecting renewable energy projects to the grid. However, some successful small-scale renewable energy projects were implemented under the Lebanese “National Energy Efficiency and Renewable Energy Action” (NEEERA). Furthermore, the new “National Renewable Energy Action Plan” (NREAP) includes several renewable energy projects with LCOE lower than the present electrical generation costs. The NREAP can provide a national framework for implementing RE projects, but only a comprehensive institutional and policy framework can insure a sustainable development of renewable energy in Lebanon.

Panel discussion 3 focused on the GCC region, and in particular UAE. In addition to the ESCWA consultant that prepared the case study for the UAE, the panel included two senior experts. As an oil exporting country, UAE was affected by the drop in oil prices. Nevertheless, the UAE has been considering new options for its energy mix, and is one of the leading countries in the GCC that made a strategic choice to develop renewable energy technologies. The country has a number of advantages that can favour the development of renewable energy, including a strong and well-built infrastructure. However, many challenges are facing the sector. Some are technological, such as the presence of high levels of dust and humidity that can result in additional cleaning costs for PV modules and CSP mirrors. Other challenges are related to the renewable energy market in the country, where commercial and bankruptcy laws can be inhibitive of entrepreneurial risk taking and direct foreign investments in the renewable energy sector. Nevertheless, UAE has rebuilt its momentum in renewable energy especially in the power sector, where an LCOE as low as 2.42 US cents per KWh was achieved for solar PV. But the renewable energy sector in UAE remains mostly operated by foreign companies through the industry business value chain. It is therefore important that the federal government play a more active role in renewable energy and leverage knowledge between all Emirates. It should also insure that more collaboration and coordination is reached between all stakeholders. Furthermore, RE policies should address the potential of renewable energy applications in desalination.

The **second session** of the seminar, *Policies and Institutional Frameworks to Promote Investments in Renewable Energy – Part 2*, considered National Case Studies from selected UNECE member States and examples of UNDP-GEF projects in renewable energy.

Mr. Yuechun Yi, Deputy Director-General, China Renewable Energy Engineering Institute, P.R. China made a keynote presentation on China’s experience in developing renewable energy projects, including barriers, challenges and incentives. Representatives of Serbia and Ukraine opened **Panel discussion 4** (UNECE Eastern and South-East Europe Sub-regions) by presenting case studies on renewable energy financing in their respective countries. Representatives of government agencies, UNDP Offices, and academic institutions from Republic of Moldova, Serbia, and Ukraine participated in the panel discussion, which focused on reviewing most pressing policy issues related to RE financing. It was stressed that countries of South-East Europe and Eastern Europe aim to harmonize their legislations with the European Union (EU) and to have access to EU funds for RE projects.

Representatives of Georgia and Kazakhstan opened **Panel discussion 5** (UNECE Caucasus and Central Asia Sub-regions) by presenting case studies on renewable energy financing in their respective countries. They demonstrated both similarities and differences in the approaches to promoting RE financing in Georgia and Kazakhstan: existing obstacles; roles of donors and investors; and effectiveness of policies, government institutions and incentive mechanisms. While existing legislation stimulates RE projects in Kazakhstan, Georgia is still working on introducing new legal framework for RE development.

Representatives of government agencies, UNDP Offices, and academic institutions from Azerbaijan, Georgia, Kyrgyzstan, and Uzbekistan participated in the panel discussion. Major discussion points included: main players in RE field; major needs as related to policies – new legislation or enforcement of the existing one; relationship between international donor aid and national policy reforms and their

respective roles; and proposals for next steps. It was noted that countries in the Caucasus do not have yet a well-developed market for RE projects. Creation of favourable market conditions through appropriate legislation and its enforcement is a critical element to enhance renewable energy development.

In both panel discussions representatives from the different countries talked about opportunities and challenges for renewable energy. All stakeholders agree that renewable energy is green and clean but has both advantages and disadvantages. In the countries of the region, it needs various types of support, mostly through proper legislation and appropriate financial incentives.

The Concluding Session of the seminar was held on 20 October as part of the International Conference on Renewable Energy and the third session of the UNECE Group of Experts on Renewable Energy. The session included presentations of lessons learned from ESCWA, and from UNECE, case studies, and a panel discussion on the role of policy reforms in promoting renewable energy investments. The panelists included government officials from both regions in addition to senior experts that are familiar with the energy situation in the region.

For the ESCWA region, the four case studies show that there are certain complementarities between the RE policy experiences led in the four countries. Countries can therefore learn from each other's experience by looking at how certain activities were developed, and how certain barriers were surpassed. Morocco's focus was on large-scale projects, with small-scale projects left without much incentives. Lebanon has no experience in terms of large-scale projects, but has made good progress on small scale ones. Jordan can be considered as the leading country in the Mashreq region that developed needed RE legislation and regulation. Finally, the UAE has succeeded in integrating a dose of RE in its energy mix, and provides a good example of energy resource management involving RE and fossil fuels.

For the UNECE region, it was noted that many of the existing financing support schemes are burden on economy and on consumers. There are also specific technical problems associated with introduction of electricity produced from RE sources (wind and solar) into the grid. It may even cause damage to the grid if not integrated properly. For example, in Georgia the energy system is not yet fully prepared for the uptake of wind power. Many countries are at the stage of developing demonstration and pilot projects, which help increase awareness and general support of renewable energy uptake.

Regarding the role of policy reforms in promoting RE investments, it was noted that good policies are key catalysts for RE development and are essential for generating/attracting investments. Effective policies can in fact trigger RE market initiation and its development. However, policy frameworks have to be complete and implementable, and should have full political support. Furthermore, the objectives and guiding principles of the policies must enjoy a good level of consensus amongst the various stakeholders. Finally, each country must develop its own business models that are compatible with its conditions in order to facilitate the implementation of the developed RE policies.

International Conference on Renewable Energy

UNECE Group of Experts on Renewable Energy, 3rd session

The third session of the UNECE Group of Experts on Renewable Energy Efficiency (GERE) was held on 20-21 October 2016. It was organized outside Geneva for the first time. Over 270 delegates from UNECE and non-UNECE member States, and representatives of international organizations, non-governmental organizations, private sector and academia, as well as independent experts participated in the session.

The Group of Experts elected the new chair – Mr. Nazir Ramazanov (Azerbaijan) and new vice chairs. The Bureau of GERE currently comprises 12 members.

The Group of Experts expressed its support for the draft Outcome Document of the Seventh International Forum on Energy for Sustainable Development and for the Concept Note and draft Outcome Document of the Eighth International Forum on Energy for Sustainable Development and Energy Ministerial.

The International Conference on Renewable Energy was opened by its Chair, Mr. Nurali Yusifbayli, Deputy Chairman, AREA, at the same time of the third session of the Group of Experts on Renewable Energy which was led by its Chair Mr. Ulrich Benterbusch, Deputy Director General, Federal Ministry for Economic Affairs and Energy, Germany.

The first discussion of the Group of Experts was focused on **Tracking progress of renewable energy uptake and synergies with energy efficiency**.

The UNECE Renewable Energy Status Report, prepared together with REN21 and in close collaboration with the IEA, was launched during the Paris Climate Conference in December 2015 as a tool for tracking the uptake of renewable energy in 17 ECE countries¹. Key findings from the report confirm that renewable energy investments have shown a marked decrease in many of these ECE countries in recent years.

At the session, the IEA representative, Ms. Ute Collier, pointed out how to support future renewable energy deployment in the best way. Experience has shown that renewable energy needs to be considered as integral part of a future energy system and not in isolation for optimal uptake. Its linkages to energy efficiency also play a key role for the planning of future systems and for industry. In this context, the session was held jointly with the Group of Experts on Energy Efficiency and Mr. Tyler Bryant discussed key factors for synergy between renewable energy and energy efficiency. The discussion focused on policy experiences and “enabling” factors that can help set the basis towards enabling markets for renewable energy and energy efficiency for future holistic policy making and try to make a link with other sessions about increasing investor confidence in the region. Other presentations were made by Mr. Vugar Aliyev, Director of Training Center, Azerishiq OJSC, and Mr. Martin Hullin, Project Manager, REN21 who provided useful data and information on the renewable energy progress made globally and in the UNECE region. Mr. Gurbuz Gonul, Senior Programme Officer, IRENA, contributed to the discussion with information on the renewable energy potential in South East Europe and on the various tools developed by IRENA, including Remap, to determine the realistic potential for countries, regions and the world to scale up renewables in order to ensure an affordable and sustainable energy future.

The discussion continued reviewing **Best practices on how to increase the uptake of renewable energy**. The session focused on possible ways to support the uptake of renewable energy in the ECE region through selected case studies. Best practices must also be considered for the identification and preparation of an economically feasible and well prepared renewable energy project concept - a crucial requirement to attract investors and secure project financing. Best practices in project proposal development, followed by matchmaking among project developer and owners, investors and financial institutions, could be a future activity of the Group of Experts and its network in support of this process.

The discussion was based on the findings of the report “Status and Perspectives for Renewable Energy Development in the ECE Region”, prepared by dena, the German Energy Agency for the Group of Experts. Several country case studies were presented by Mr. Oliver Frank, Head of

¹ The full report is available at <http://www.unece.org/energy/welcome/areas-of-work/renewable-energy/unece-renewable-energy-status-report.html>

Division, Renewable Energy and Energy Efficient Mobility, Dena, which are covering a series of options and providing useful information for the GERE Group. Other presentations on best practices were made by Mr. Milos Banjac, Assistant Minister, Ministry of Mining and Energy of Serbia, Mr. Gianluca Sambucini, UNECE, Ms. Annukka Lipponen, UNECE, Mr. Ayaz Salmanov, Deputy Head, Department on Environmental Projects, SOCAR, and Ms. Jovita Lauciute, Market Manager, Power Systems Network Management, ABB.

Among good practices, integrated (nexus) assessments and instruments such as Strategic Environmental Assessment were highlighted in the meeting of the Group of Experts on Renewable Energy as opportunities for developing more sustainable renewable energy generation. Integration of intersectoral and environmental considerations, including water resources, into energy policies and investment plans was called for.

Central Asia Regional Consultation Meeting

The Meeting was jointly organized by the International Renewable Energy Agency (IRENA) and the United Nations Economic Commission for Europe (UNECE) on 20 October 2016 as part of the International Conference on Renewable Energy and 3rd session UNECE Group of Experts on Renewable Energy. It convened experts on renewable energy, government representatives, and key national and regional stakeholders from Central Asia and Azerbaijan, with the objective of enhancing dialogue in the renewables area and exploring needs and priorities of the region in the development of renewable energy resources.

The Meeting was composed of two sessions and began with introductory remarks from Mr. Gurbuz Gonul, Senior Programme Officer, IRENA, who stated the positive developments towards renewable energy in Central Asia and noted that there is a need for additional efforts in the region to facilitate renewables deployment. It is imperative to put in place an enabling environment through dedicated policies and regulatory frameworks to catalyze private sector investments.

The first session, *Opportunities and Challenges for the Development of Renewable Energy in Central Asia: Understanding the Needs*, was chaired by Ms. Vanessa Interiano, Senior Adviser, IRENA. The scene setting presentation was delivered by Mr. Martin Hullin, REN21, who presented the renewable energy status in Central Asia and the UNECE Renewable Energy Status Report 2015. The presentation drew attention to the wide difference in the adoption of renewables among Central Asian countries. According to Mr. Hullin, Kazakhstan is expected to be the biggest renewable energy player and is taking the first steps towards utilizing its wind energy potential, while Uzbekistan is expanding its solar capacity with support from the Asian Development Bank.

Subsequently, country representatives from Azerbaijan, Kyrgyzstan and Uzbekistan provided overview of the renewable energy development in their respective countries. Mr. Jamil Malikov, Deputy Chairman of State Agency for Alternative and Renewable Energy Sources (AREA) of Azerbaijan, welcomed IRENA's first Central Asia Consultation Meeting and expressed his hope to develop cooperation further to encourage exchange of best practices and technology transfer and to identify methods for more efficient utilization of renewables. Development of renewable energy is a priority for the government of Azerbaijan, with a target of achieving 20% of renewables in the electricity generation by 2020.

Mr. Shamil Dikambaev, Kyrgyzstan, stated that 90% of electricity generation in the country is coming from hydropower plants, and the main driver for renewables is providing electricity to remote rural areas in the mountainous part of the country. Specifics of the landscape significantly contribute to the economic competitiveness of renewables compared to fossil fuels. Off-grid renewable energy solutions are very promising in the country.

According to Dr. Rakhimjan Babakhodjaev, Uzbekistan, the country is working towards establishment of national producers for renewable energy equipment and providers of services for the sector by introducing tax exemptions. The country has integrated the adoption of renewables in their programme for buildings, which involves using solar resources in 30,000 public buildings.

The second panel discussion, *Unlocking Renewable Energy Potential in Central Asia: Identifying the Priority Actions*, was chaired by Ms. Katarina Uherova Hasbani, Revelle Group. Mr. Nazim Mammadov, UNDP Azerbaijan, opened the discussion with the introduction of the Nationally Appropriate Mitigation Actions (NAMA) for low-carbon end-use sectors in Azerbaijan. The objectives of the project include preparation of GHG emission reduction targets and monitoring, development of mitigation actions for oil and gas end-use sectors, and implementation of the Measurement, Reporting and Verification system.

The region's huge renewable energy potential was highlighted by Mr. John O'Brien, Regional Technical Advisor on Climate Change Mitigation, UNDP Istanbul Regional Hub, who added that despite the abundance of wind, solar, hydro and small biomass, Central Asia is still facing a number of issues hindering its energy transition. Dr. Ming Yang, Senior Climate Change Specialist, GEF, noted that the population, and specifically decision-makers, lack awareness about the benefits of renewable energy. Involving stakeholders from other industries, such as construction, agriculture, and sustainable cities, could bring more value added in the development of renewables due to the holistic approach.

For successful monitoring of the progress of renewable energy adoption, reliable data collection tools are required, as stressed by Mr. Rasim Mamedov, Azalternativenerji LLC. Ms. Stefanie Held, Chief of Sustainable Energy Section, UNECE, noted that the Forum in Baku is an opportunity for experts to lay foundation for next year's Forum and Energy Ministerial Conference, which will be held in Astana, Kazakhstan within the framework of EXPO-2017 "Future Energy".

The concluding component of the discussion was presented by Mr. Manas Puri, Food and Agriculture Organization (FAO), who focused on the application of bioenergy in the region. Energy Smart Food (ESF), a multi-partner initiative that works with countries on reducing fossil fuel dependence within the agriculture sector, was presented. A Sustainable Bioenergy Assessment tool, and a case study conducted in Turkey were also presented.

The panellists concluded that the countries of Central Asia and Azerbaijan have potential to increase the share of renewables in their energy mix, however they need to address certain barriers, which include high subsidies on fossil fuels and deficiencies in domestic equipment manufacturing, private sector participation and application of financial instruments and mechanisms. In addition, the bureaucratic procedures and vague renewable energy targets without specific implementation plans were highlighted as obstacles. It was also noted that development partners need to provide a platform for open dialogue on renewables among the policymakers in the region in order to increase awareness of the socio-economic benefits.

The Group of Experts discussed the **Integration of renewable energy in future energy systems** with presentations from Mr. Valeh Nasibov, Deputy Director, Scientific-Research and Design-Prospecting Power Engineering Institute, Azerbaijan, Mr. Scott Foster, Director, Sustainable Energy Division, UNECE, Mr. Georgy Ermolenko, Head of the Center for the Development of Renewable Energy, Energy Institute, Moscow Higher School of Economics, Ms. Katarina Uherova Hasbani, Revelle Group, and Mr. Brice Henry Louis Tranie, Vice President, Aloe Private Equity Company.

This session explored how the integration of renewable energy technologies can be strengthened in each industrial sector, i.e. electricity generation, heating and cooling, gas and liquid fuel distribution

as well as autonomous energy supply systems. Of particular importance is the relationship between renewable energy and fossil fuel based systems and how they will evolve over the short- and medium term to meet the Sustainable Energy Goals. Participants in the discussion pointed out the need to consider constraints, explore opportunities and share information on good practices for the deployment of renewable energy within future energy systems and to consider future activities in this direction in close cooperation with the Committee on Sustainable Energy and its subsidiary bodies.

The session on **The interplay between renewable energy and fossil fuels: the post-Paris agenda**, moderated by Mr. Ulrich Benterbusch, Chair of the Group of Experts on Renewable Energy, was focused on the profound dynamics of the energy market and the challenges in reconciling the tight emissions pathway with development aspirations. The role of fossil fuels and their synergies with renewable energies and the modernization/diversification of fossil-based economies in a strategic and forward-looking fashion was discussed toward a sustainable energy future.

The panel comprised of energy experts from governmental agencies, international organizations, research institutes and private companies, discussed the energy outlook in the coming decades and the opportunities and synergies towards a future energy system. Ms. Radia Sedaoui, Chief of Energy Section, Sustainable Development Policies Division (SDPD), ESCWA, Ms. Ute Collier, Senior Programme Manager, Renewable Energy Division, IEA, Dr. Mostefa Ouki, Vice President Energy & Chemicals, Nexant, United Kingdom, and Dr. Toufic Mezher, Professor at Masdar Institute and ESCWA Consultant, provided their views and perspectives to the discussion.

First, it was recognized that a realistic and achievable energy outlook would recognize that improving energy efficiency and increasing the share of renewable energy in the global energy mix would be insufficient to ensure access to affordable, reliable, sustainable and modern energy for all. Indeed, it was highlighted that the number of people without access to electricity globally has diminished only slightly according to the SE4All Global Tracking Framework 2015. In addition, reconciling the tight emissions pathway with sustainable development aspirations would suggest that 15,000 Gigatons of CO₂ from fossil fuels that are still in the ground have to remain where they are. An opinion voiced on the structural shift in the global energy markets that have undergone substantial changes in recent years with oil prices decline creating growing source of concern. Downside economic risks have not disappeared with threat to energy security as investment sinks, not only in the oil industry but also in gas and power sectors.

The panellists acknowledged that fossil fuels still make the world go round – their share is 80% of the energy mix – and that energy systems are dependent on them. A transition away from using fossil fuels will not happen smoothly or evenly; under all presented projections, coal, oil, and natural gas are providing 70 percent or more of total primary energy in 2040, except the IEA 450 scenario where the fossil share declines to 59 percent in 2040.

It was highlighted that renewable energy sources have considerable potential to meet mainstream electricity needs thanks to various forms of policy, public and private partnership, and government support have sustained this growth. Electricity remains a minor fuel for the world's transportation energy use while Natural Gas (NG) have potential to displace liquid fuels. An opinion was voiced on the partnership energy model between RE and NG that certainly will play an important bridging role when it comes to shaping the common low-carbon future due to its cleanliness and abundance. Carbon capture and storage (CCS), management of gas leakage, and reduction of gas flaring would support further penetration of NG in power generation as well as transportation sector.

The session also addressed the needed paradigm shift that fossil-based economies face with an example of United Arab Emirates strategies for future energy mix. It was suggested that for the large fossil fuel exporting countries, the uncertainty about the pace of transition is problematic. The lower oil price has already sent a clear message that energy systems must be hastened and economic

diversification can play an important role to ease the tension between the climate goals and a sustainable exit strategy for fossil-based economies.

The panellists concluded that if the world is to meet its sustainable development and climate goals it is crucial to engage in a dialogue on the role of fossil fuels in the coming decades to identify solutions for the most effective use of fossil fuels with minimal possible environmental and climate change impact.

The Group of Experts on Renewable Energy continued the discussion on **Developing a common assessment methodology for renewable energy projects** with the following panellists: Mr. Scott Foster, Director, Sustainable Energy Division, UNECE, Mr. Frank Denelle, Vice-President Reserves, Shell, and Mr. Martin Hullin, Project Manager, REN21. For renewable energy to play a significant role in future sustainable energy systems it requires, inter alia, a uniform approach to assess, classify and report renewable resources for energy generation. Mr. Frank Denelle informed delegates about recent ECE activities in developing specifications for geothermal, bioenergy, solar, hydro, and wind energy projects. Delegates were invited to engage in the work of the Expert Group on Resource Classification, in particular in the task force focusing on the application the United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 (UNFC-2009) to renewable energy resources.

Among other tools, the assessment and monitoring of bioenergy sustainability at the national level could be also promoted by the Group of Experts, in particular through the cooperation with the mechanism developed by the Global Bioenergy Partnership (GBEP) of the Food and Agriculture Organization of the United Nations, with the production of a set of twenty-four indicators.

Workshop on the Role of Strategic Environmental Assessment (SEA) in Renewable Energy Planning

The workshop was organized by the UNECE on 21 October as part of the session of the Group of Experts on Renewable Energy and as an activity within the framework of the ‘Greening Economies in the Eastern Neighbourhood’ (EaP GREEN) programme.² The event aimed to illustrate application of SEA in the field of renewable energy emphasizing its role in facilitating investments in renewable energy through identifying and mitigating potential risks early in the planning cycle, and thus streamlining project level development.

Mr. Nazir Ramazanov, Adviser to Chairman, the State Agency on Alternative and Renewable Energy Sources (AREA) of the Republic of Azerbaijan, in his opening remarks emphasized the role of renewable energy in building a more sustainable future. He also pointed out that Azerbaijan has recently implemented the pilot SEA on the National Strategy of Azerbaijan on the Use of Alternative and Renewable Energy Sources 2015–2020 and acknowledged its contribution to developing the Strategy.

Mr. Martin Smutny, Consultant, UNECE secretariat to the Convention on Environmental Impact Assessment in a Transboundary Context, launched his presentation by a short video introducing benefits of a harmonized SEA procedure set by the UNECE Protocol on SEA. He informed that SEA can be seen as a tool, which helps to maximize environmental and social benefits resulting from renewable energy development, while avoiding or minimizing potential adverse impacts.

The session on benefits of SEA application in the renewable energy sector was opened by Ms. Marta Brkić, Managing Director, Dvokut ECRO d.o.o, Croatia, who summarized the status of SEA application in energy and renewable energy sectors – mainly related to the wind and hydropower – in

² The EaP GREEN programme is funded by the European Union and other donors, and is jointly implemented by the four partner organisations: OECD, UNEP, UNECE and UNIDO.

the countries of South-East Europe. Ms. Brkić shortly described several examples of outcomes the SEA can deliver and concluded that while SEA application is essential to prepare plans and programmes which integrate relevant environmental and health concerns, its avoidance may result in higher possibility that an individual project might be rejected due to its significant adverse environmental risks.

Ms. Aysel Babayeva, Ministry of Ecology and Natural Resources of Azerbaijan, presented the pilot SEA of the National Strategy on the Use of Alternative and Renewable Energy Sources 2015–2020 of Azerbaijan and its main objectives: to ‘test’ SEA procedure as outlined in the draft national SEA legal framework and to provide recommendations for environmental optimization of the Strategy and further development of renewable energy in the country. She introduced an approach to SEA and main analyses conducted. She then presented the main results of the pilot SEA. It provided opportunities to avoid potential conflicts between energy resources development and other economic sectors and formulated recommendations to be considered in the Action Plan to the Strategy, as well as the framework for environmental assessment to be carried out at the project level.

Ms. Olena Borysova, European Bank for Reconstruction and Development (EBRD), presented the EBRD’s experience with SEA from the perspective of an international financial institution (IFI). On two practical examples – from Ukraine and Kazakhstan – the types of outputs and deliverables SEA can generate were illustrated. Ms. Borysova explained that spatial analysis can indicate environmental sensitivity to potential renewable energy projects where development of renewable energy is likely to require developers to demonstrate with certainty that impacts can be avoided or minimized to acceptable levels.

Concluding discussion confirmed that SEA can ensure that renewable energy development is in line with environmental and health objectives and commitments a given country has adopted. SEA can streamline development of specific projects and relevant project-level environmental impact assessment (EIA), for instance by identifying locations where major environmental or health risks can be excluded or mitigated. Therefore, development and approval of specific projects including EIA can be carried out without major problems. At the policy level, SEA can facilitate the discussion on scenarios for renewable energy development. Thus it can contribute to selection of the most appropriate energy mix, which considers environmental and health risks as well as benefits of all reasonable alternatives and thus enables objective comparison. In addition, SEA applied to policies and strategies can support proper consideration of renewable energy development in subsequent planning schemes (e.g. spatial or land-use planning) by providing recommendations on priority renewable energy resources to be further developed and/or locations to be primarily explored.

United Nations Special Programme for the Economies of Central Asia (SPECA), 20th session of the Thematic Working Group on Water, Energy and Environment

Given the close links between the energy, water management and environmental protection sectors, improved cooperation between the countries in Central Asia is crucial to achieve the relevant Sustainable Development goals. This was the main conclusion of the 20th session of the SPECA Working Group on Water, Energy and Environment organized on 20-21 October in Baku by UNECE and UNESCAP.

The upstream countries’ dependence on hydropower that limits water availability for irrigation downstream in the sub-region was openly and frankly discussed against the background of Sustainable Development Goals 6 (water) and 7 (energy). Among other initiatives, the discussion was informed by presentations on an assessment of intersectoral links, trade-offs and benefits between managing water resources, energy, land and environment (nexus) in the Syr Darya River Basin,

carried out under the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention). Several options to improve the situation such as re-connecting the Central Asian energy grid, increasing the share of renewables as well as increasing energy and water efficiency were discussed.

It was noted that the Working Group can provide a platform for supporting progress. In this work the further development of water-food-energy-ecosystems nexus assessments was seen as an opportunity.

The recommendations of the session of the Working Group are posted at:

<http://www.unece.org/index.php?id=42643#/> (tab Forum outcomes). Direct links:

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/eneff/7th_Forum_Baku_Oct.2016/SPECA_wg_recomm_e.pdf (English) and

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/eneff/7th_Forum_Baku_Oct.2016/SPECA_wg_recomm_r.pdf (Russian).

The final report of the session will be posted at the website of the Working Group:

<http://www.unece.org/speca/wer.html>.

Natural Gas: Challenges and Opportunities

The workshop on methane management in the extractive industries was jointly organized by the UNECE and ESCWA on 20 October. The workshop participants discussed methods of monitoring in the natural gas industry, results and responses, methane management in the coal industry, and the World Bank's gas flaring reduction initiative. Also included were consideration of a methane management questionnaire and a proposition for a Gas Industry Advisory Board (GIAB) that is under consideration by the UNECE Committee on Sustainable Energy.

Regarding methane management in the extractive industries, the premise of the workshop was that the information that is available regarding methane emissions is relatively sporadic and often based on estimates/guesstimates. There is neither a common technological approach to monitoring and recording methane emissions, nor a standard method to reporting them. The extent of the challenge and opportunity to manage such emissions remains largely undefined. The UNECE Committee on Sustainable Energy had recommended that work be undertaken to agree on common philosophies, standards, and technologies for monitoring, recording, and reporting methane emissions at each stage of production, processing, storage, transmission, distribution, and use of fossil fuels, whether coal, oil, or natural gas, while recognizing that there will be adaptation to specific situations. Additionally, it was agreed that there is a need to mitigate methane emissions, including identifying appropriate mechanisms for mobilizing needed resources, and to fund a detailed study, on a common basis across the entire UNECE region.

Presentations were made by Carbon Limits on the key issues related to methane management in the gas industry, by KazMunaiGaz on their findings from an applied programme of methane management, by PNiG on methane issues in coal mines in Poland, and by Nexant on the World Bank's gas flaring reduction programme. Each presentation led to an extended discussion of the issues. The key takeaways from the presentations and the discussions include:

- The data on methane emissions are extremely uncertain, but there is nevertheless a large abatement potential. It is estimated that 50% of emissions would be economic to reduce. The technology and procedures for monitoring, reporting, and verifying emissions exist, but there is very little awareness of the extent of the challenge and the opportunity.
- KazMunaiGaz applied an aggressive project to measure and mitigate methane emissions. The extent of the emissions was not known prior to the project, and in many cases the methane emissions were mitigated on the spot. The majority of emissions (60%) were economic to mitigate

in a very short period, and it is considered that most of the remainder can be mitigated economically over a longer timeframe.

- Accumulations of methane in coal mines has both a safety aspect from explosions and a climate change aspect from fugitive methane emissions. Capture and use of coal mine methane is beneficial from both perspectives. In the current market environment, the development of methane in coal beds is not economic unless it is in the context of active coal mining operations.
- Flaring of gas worldwide is a lost opportunity to use gas commercially, thereby obviating the need to produce other energy sources to meet energy needs. Countries and companies are encouraged to stop flaring gas at their facilities, and the World Bank has an on-going initiative to stop gas flaring. The work on flaring has not addressed the challenges of venting, which have not only the economic consequences of flaring but as well the added consequences of emitting methane.

Following the presentations and discussion on methane management, there was a brief presentation of both the draft survey that had been developed to explore current practices in methane management and the GIAB concept paper. Because of time constraints, the documents were distributed to participants for written comments. The main comments received include the following:

Draft Survey

- Recommend splitting out the mid-stream oil and gas from the upstream and downstream segments.
- If asking about regulatory requirements, please ask as well to cite specifically which regulations.
- When asking about which components are monitored, ask as well about which processes are monitored and why.
- It will be useful to explore how monitoring results are standardized, and if standardization is mandated by law.
- Likewise, with the monitoring methods and technologies – are those required by law and, if so, which law?
- What percentage of the methane emissions are included in Maximum Allowable Emission Targets?
- Are payments or penalties applied for methane emissions? What percentage of total payments for pollutant emissions into the atmosphere are due to methane and volatile organic compounds (VOC)?

GIAB concept note

- A gas industry advisory board would be of interest to stakeholders beyond the UNECE region, notably in Africa and ESCWA.
- It will be important to exchange views and lessons learned on the right policies and regulations in addition to the technical work of developing standards.
- It will also be important for a GIAB to engage with the range of stakeholders to ensure both completeness and non-duplication.
- The GIAB should use the full arsenal of modern technology to gather and disseminate relevant information.
- The analytical work proposed for the GIAB should include capacity building in countries that are seeking to develop their gas industries.
- The budget does not match the ambition – it will be important to explore the range of avenues for delivering the ambition without creating a full internal capability.

The survey will be disseminated in early December 2016, and the preliminary results will be discussed at a workshop in Geneva. The GIAB concept note will be developed further in consultation with key stakeholders and will be submitted for formal decision at the 26th session of the UNECE Committee on Sustainable Energy in January 2017.

Workshop “Pathways for sustainable energy: National approaches to a global challenge”

The workshop was organized by the UNECE on 21 October as the first regional *deep-dive* under the UNECE project *Pathways to Sustainable Energy*, which was officially launched in September 2016. The Pathways project seeks to explore how countries can achieve sustainable energy in the future, by modelling four distinctive sustainable energy pathways scenarios towards 2050. The modelling results will inform a policy dialogue among countries and sub-regions and eventually lead to the development of policy recommendations on technology and policy pathways, as well as the development of an early-warning system that tracks implementation of national strategies to achieve the SDGs and related climate targets under the Paris Agreement, that are included on the country level in the Nationally Determined Contributions (NDCs).

The workshop sought to explore the concepts and strategies towards achieving sustainable energy of the future, with a focus on the larger neighbouring region of the Forum’s host country – Azerbaijan. Representatives from Azerbaijan, Croatia, Republic of Moldova, and Jordan presented their national strategies and solutions to achieve sustainable energy in the future. The country perspectives established the basis for the following discussion on very differing interpretations on how to address energy security while at the same time contributing to climate change mitigation and striving for improved quality of life.

Participants of the workshop included government representatives, statisticians, independent researchers, and representatives of industry associations and international organizations from several sub-regions of UNECE and ESCWA: Central Asia, the Caucasus, South-East Europe, Eastern Europe, and Western Asia. Azerbaijan, Belarus, Croatia, Georgia, Jordan, Kyrgyzstan, Poland, Republic of Moldova, the Former Yugoslav Republic of Macedonia, and Ukraine were represented.

After the initial presentations, the group was split to discuss in more detail how participants would define sustainable energy on sub-regional level. A sustainable energy triangle highlighting energy security, environmental sustainability, and quality of life as the three key dimensions was identified as one possible solution to describe the sustainable energy system of the future. Further key questions to explore were important regional and sub-regional trends and disruptive factors impacting future energy systems. For example, for Central Asia the availability of water was identified as one of the key influencing factors.

The workshop discussed regional trends and messages, the importance of key influencing factors on sub-regional level, and the overall implementation of the Pathways project, including the modalities of cooperation with member States. Participants expressed their strong interest to continue the exchange and dialogue in the framework of the Pathways project and will be included in the larger project community of regional energy experts.

Wrap-up Session of the Forum. Adoption of the Final Document of the Forum: Baku Call for Action

At the closing session of the Seventh International Forum on Energy for Sustainable Development on 21 October, the delegates called on the governments and international organizations to take urgent steps for transformation of energy systems. There is a gap between current actions taken by governments and the commitments they have made both to the 2030 Agenda and in the Paris Climate Agreement, and another gap between their commitments and the ambition of limiting temperature rises to well below 2°C. Practical steps are needed to close these gaps. The outcome document of the Baku Forum is a request to Member States to commit to concrete measures in energy to support achieving the energy-related Sustainable Development Goals (SDGs) and contributing to the Paris Climate Agreement.

Participants of the Forum requested that all of the United Nations partners submit the draft Ministerial Declaration to their Member States for consideration for adoption at the Energy Ministerial Conference organized in the context of the Eighth International Forum on Energy for Sustainable Development and the EXPO-2017 “Future Energy” that will take place on 11 June 2017 in Astana, Kazakhstan. The actions proposed in the document are designed to fill the identified gaps and accelerate the transition to a sustainable energy system through an agreed common agenda. The declaration seeks to propose potential solutions and focuses on the need for an urgently needed paradigm shift in policy making and the way we produce and consume energy. All events during the four days of the Forum – High-Level Policy Dialogue, International Conference on Renewable Energy, workshops, seminars, and meetings of two UNECE Groups of Experts – on Energy Efficiency and on Renewable Energy – fully supported the Baku Call for Action and recommended consideration of the draft Ministerial Declaration at the Eighth International Forum in Astana.

Mr. Andrey Vasilyev, Deputy Executive Secretary of the United Nations Economic Commission for Europe (UNECE), emphasized in his speech that there is no “one size fits all” solution and each country will choose its approach optimally given its national circumstances to both implementing the 2030 Agenda and achieving the targets of the Paris Climate Agreement.

Baku Call for action to achieve energy-related Sustainable Development Goals and contribute to the Paris Climate Agreement and other Forum materials are available on the website: www.unece.org/index.php?id=42643#.