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Progress Reporting: The Committee on Sustainable Energy and its six subsidiary bodies

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Expert Group on Resource Classification

How have activities contributed to attaining the sustainable energy goals in the UNECE region?

The Expert Group on Resource Classification is a unique forum, comprising representatives from government institutions from both UNECE and non-UNECE member countries, the private sector, international organizations, and professional associations and societies dealing with regulations, evaluation, classification, exploration, exploitation and investment in energy and mineral resources. The Expert Group encompasses the solid minerals, uranium, thorium, oil and gas and renewables sectors. There is no comparable gathering worldwide.

The Expert Group is responsible for the further development and promotion of the United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 (UNFC). UNFC is unique amongst the major resource classification schemes in that it is the only system that includes consideration of commerciality, social license and environmental impact equally with project feasibility and uncertainty in potentially recoverable quantities. It allows for the first time the comparison of projects with differences in location, commodity type and value (including not just economics, but also impact).

UNFC provides the basis for ensuring that development of all energy resources is sustainable. Importantly, it serves the needs of Governments when managing their natural resources; the needs of industry for information while deploying technology, management and finance to secure energy supplies and capture value efficiently within the established frameworks to serve their host countries, shareholders and other stakeholders; the needs of the international organizations developing energy and mineral studies for reliable and coherent data to formulate robust and long-sighted policies; and the needs of the financial community for information to allocate capital appropriately, providing reduced costs.

Renewable Energy: Renewable energy projects face the same issues and development issues as fossil energy projects; they need a license to operate (both statutory and social), a final investment decision to commit to the capital costs, a technical assessment of the resource available, a viable route to market, etc. A standardized system of classifying and hence comparing non-renewable and renewable quantities of energy that an investment will make available will enable investors to easily rank diverse portfolios of both alternative and conventional forms of energy with a high degree of confidence in the underlying methodology and resulting metrics. By providing a common basis for comparing different energy resources, UNFC will facilitate the most efficient allocation of investment capital to competing energy projects, aiding

the development of the rapidly changing global energy complex. Application of UNFC to renewables is a priority for the Expert Group.

Storage of Carbon Dioxide: In addition to extraction projects, another priority area for the Expert Group is the application of UNFC to injection projects, notably for the geological storage of CO₂ which will be of benefit for CCS projects.

Energy efficiency: In order to improve the performance of the energy sector in terms of production and consumption, measurements are needed – if you cannot measure something, you cannot manage it. Efficiency improvements are needed at all stages in the energy chain from production through to end-use. UNFC offers a valuable tool to deliver efficiency improvements in the upstream sector by distinguishing between the resources that a project will bring to market, the ones it consumes in the process and the ones it leaves behind in the ground or as water over the spillways. Its application will facilitate efforts to develop global energy efficiency from source to use by addressing the efficiencies at the source. Efficient use and development of resources will both enhance their contribution to development and reduce their cost, affecting access to energy.

Energy Access: UNFC offers a universally applicable system compatible with existing classification systems and that will provide a consistent and thorough comparison of volumes/quantities of reserves across the globe. This is particularly important in determining the correct utilization and mix of energy sources. The location of fuel for clean energy production and efficient production of the minerals and hydrocarbons that need to be used in the run-up to a sustainable energy future is dependent on knowing where and what quantities are available.

Gas Flaring: UNFC directly addresses the SE4All goal to reduce gas flaring by explicitly categorizing non-sales production quantities; conventional classification systems do not categorize these quantities.

UNFC will be of significant value to those investors who want to make investments based on principles of sustainability and concern for impact on the local community and environment. It is overly simplistic to rule out conventional fossil fuel or mining processes. Moving towards a truly sustainable future means using the right resource where it makes sense. An efficient gas fired power plant with CCS may have less impact on the local community than a large wind power system. UNFC allows the principled investor to make informed decisions on a level playing field. Any investor will find UNFC of value, as the issues of environmental impact and social license, have real economic impact.

Key achievements over the period/perceived impacts

There is growing support for and interest in UNFC worldwide with an increasing number of countries committing to apply it nationally or map or bridge to it, including Bulgaria, Cameroon, China, India, Nigeria, Norway, Portugal, Romania, Russian Federation, Tanzania, Turkey, Uganda and Ukraine. Over 250 experts from over 50 countries registered for the sixth session of the Expert Group. The UNFC Workshop held as part of the sixth session included a focus on Central Asia, with Tajikistan confirming its intent to apply UNFC nationally.

Over 80 experts sit on the Bureau and the other nine sub-groups of the Expert Group. 26 experts contribute to the work of the Bureau which meets on average every six weeks and communicates frequently by email between calls/meetings. The 80 experts are fully representative of the Expert Group stakeholders. The participation and support of all experts (time, travel, sponsorship and expertise) is provided on a voluntary basis. This demonstrates a very significant commitment to UNFC, its further development and capacity building – it would be difficult to secure sustained

extrabudgetary funds to replace this level of in-kind contributions. The voluntary contributions are serviced by 50% of one P5 and 20% of one G6 staff member.

A presentation on UNFC and the work of the Expert Group is delivered on average at one event every week around the world. UNFC is also now included in the curriculum at universities globally including in Bulgaria, Greece, Spain, Turkey, Ukraine and UK.

The close cooperation and collaboration with the International Atomic Energy Agency, in particular over the last four years, has been invaluable in building capacity on UNFC worldwide and facilitating development of case studies which have ensured testing of the system.

The Memorandum of Understanding between UNECE and the International Geothermal Association (IGA) of September 2014 to develop an international system and a standardized terminology for reporting geothermal resources based on UNFC was a significant achievement and secured a new community of experts in the work. Adoption of a global standard such as UNFC for assessing and financing projects can accelerate geothermal projects in East Africa, Europe and elsewhere.

As UNFC only became operational at the end of 2013 it is still too early to fully assess its impact, but the increasing interest in its application is clearly evident from the level of global participation in the annual sessions of the Expert Group and its sub-groups.

Deliverables and potential challenges ahead

The Expert Group has delivered on all the elements in its Work Plan for 2013–2015. Most items included in the work plan are ongoing activities and the Expert Group continues to progress its work annually (visit annual session web pages: <http://www.unece.org/energy/se/reserves.html>). Updates on the work of all sub-groups are provided to the Bureau at its meetings between annual sessions (minutes of Bureau meetings are available at: <http://www.unece.org/energy/se/egrc.html>).

The work on developing the documentation for application of UNFC to renewables faces a number of challenges. The MoU with IGA has allowed the work on geothermal energy to progress with a completely new community of experts – however, similar organizations or partners need to be identified and agreements established for bioenergy, hydro, solar and wind to ensure that these areas are supported by key stakeholders in each of these specific and distinctive aspects of renewable energy generation.

Responding to the growing interest in UNFC worldwide is an increasing challenge. Regular requests are received, including for: technical assistance on how to apply UNFC and its specifications, additional guidance on how to apply UNFC in specific circumstances, travel support to attend workshops and Expert Group meetings, and support to organize national and regional workshops.

The need to secure extrabudgetary funding remains a challenge. Any extrabudgetary funding, however would need to supplement and not replace the significant in-kind contributions provided by Expert Group members annually. The voluntary nature of the Expert Group helps to ensure the needed degree of independence for the work on UNFC.

Elements for 2016-2017 work plan for the Expert Group

The Expert Group at its sixth session, 28 April – 1 May 2015 agreed on the Work Plan for 2016–2017 that it recommended to be submitted to the Committee on Sustainable Energy for

endorsement and to the Executive Committee for subsequent approval. The recommended Work Plan is available at:

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/egrc/egrc6_apr2015/EGRC.Recommended.WorkPlan.2016_2017.pdf.

Recommendations to the Committee

- (a) The Expert Group reconfirmed at its sixth session the pressing need to secure extrabudgetary funding to supplement but not replace the significant voluntary contributions of EGRC members. The Committee is recommended to assist the efforts to identify extrabudgetary funding.
- (b) In spite of ECOSOC Decision 2004/223, the support of the other UN regional commissions in ensuring worldwide application of UNFC is limited. The Committee is encouraged to facilitate broader engagement of the other regional commissions.
- (c) Following discussion and careful review and in the light of the expanded scope of application of UNFC, the Expert Group at its sixth session agreed that its seventh session needs to be held over four days, including an educational and training session on UNFC-2009, but with the option for the total number of days to be reduced subject to the agenda items required. The Committee is recommended to support the annual meetings of the Expert Group being held over four days.
- (d) In view of the highlighted challenges in developing the documentation to broaden application of UNFC to renewables, the Committee is recommended to encourage closer collaboration with and support from the Group of Experts on Renewable Energy.

Group of Experts on Cleaner Electricity Production from Fossil Fuels

How have activities contributed to attaining the sustainable energy goals in the UNECE region?

Over two thirds of the world's electricity is supplied by fossil fuels, with coal alone accounting for 42% of global electricity. In the UNECE region over 60% of electricity generation comes from fossil fuels. Despite rapid development of renewable and other advanced energy technology, fossil fuels will remain the most important energy source in the region in the foreseeable future.

The Group of Experts has assessed the efficiency of the existing fleet of coal-fired power plants as a basis for developing best practices on the implementation of modernization measures from an economic and environmental perspective. The work in 2014 also focused on assessing carbon capture and storage (CCS) and on developing a specific set of recommendations to the United Nations Framework Convention on Climate Change (UNFCCC) on how CCS, including CCS for enhanced recovery of hydrocarbons, can positively contribute to net climate change mitigation outcomes as part of the policy portfolio established to support the post-2015 instrument.

Key achievements over the period/perceived impacts

The Group of Experts developed recommendations to the United Nations Framework Convention on Climate Change (UNFCCC) on how carbon capture and storage in cleaner electricity production and through enhanced oil recovery should be treated in a Post-Kyoto Protocol Agreement. The recommendations were approved by 56 member States and then submitted to UNFCCC (see following table for link to recommendations). The CCS recommendations were then disseminated to select Environment Ministers (from countries where fossil fuels play critical role for power generation) as well various industry organisation and non-governmental organisations. The work on the CCS recommendations was picked up by the main stream media with over 60 articles published.

The work accomplished thus far on CCS and other topics has solidified the reputation of the CEP as a partner on substance for member States and international organizations. The process demonstrates how UNECE offers a neutral platform that allows solutions to be developed that would otherwise not happen. The convening power and regional coverage of the UNECE provides a unique niche in electricity system development.

Status of Activities

The below table shows the deliverables set out in the work plan, indicating progress of implementation. The deliverables of the work plan have largely been completed and several task force topics were agreed upon at the 10th Session of the Group of Experts of CEP with the main purpose to inform the post-2015 work plan. Task forces were established in on the following topic areas: Increasing efficiency of fossil fuel-fired power plants and potential normative instruments, Collaboration with global and regional development banks, Goal, targets and indicators on efficiency of fossil fuel-fired power plants, CCUS technology transfer and Capture readiness of power plants. Initial work has either been completed or is ongoing for the task forces.

Deliverables	Status	Comments/Links
<i>Prepare a survey of CCS landscape, recent developments and stakeholders</i>		
CCS landscape survey report	Draft report completed	Document delivered at 10th Session of the Group of Experts of CEP
http://www.unece.org/fileadmin/DAM/energy/se/pdfs/clep/ge10/CEP.10.2014.INF.2.pdf		
<i>Assist UNFCCC in assessing CCS</i>		
Recommendations to the UNFCCC on how CCS can be used to reduce CO ₂ emissions	Completed	Document delivered at 10th Session of the Group of Experts of CEP
http://www.unece.org/fileadmin/DAM/energy/se/pdfs/clep/ge10/ECE.ENERGY.2014.5.Rev.1.pdf		
<i>Asses efficiency of existing fleet of conventional power plants in UNECE region</i>		
Baseline Efficiency Analysis of Fossil Fuel Power Plants	Draft report completed	Document delivered at 10th Session of the Group of Experts of CEP
http://www.unece.org/fileadmin/DAM/energy/se/pdfs/clep/ge10/CEP.10.2014.INF.5.pdf region		
Further work on efficiency and potential normative instruments	In progress	
<i>Define other activities through electronic exchanges</i>		
Create several task forces to be active from Nov 2014 – Dec 2015 with key objective to inform post 2015 work plan	Completed	Approved as part of the 10 th Session of the Group of Experts of CEP. Work has proceeded under all task forces.
Recommendations on potential future work regarding definition of capture ready for fossil fuel fired power plants	Completed	To be posted on website
Investigate opportunities for collaboration with regional development banks	On-going	Initial investigation has been completed and recent meetings have identified further opportunities.
Recommendations on potential future work regarding best practice guidelines in energy efficiency of fossil fuel-fired power plants	Completed	Includes summary of historical and recent work by other organisations on this topic. To be posted on website
Survey to determine country specific needs for CCUS	On-going	Questionnaire was prepared and distributed among countries with economies in transition.

Challenges ahead: further data gathering and analysis on ways to increase the efficiency of power plants (with an initial focus on coal-fired power plants) and reduce GHG emissions with a view to developing best practices; assessment if further work could be undertaken on the transfer of Carbon Capture Use and Storage (CCUS) technology.

Elements for 2016-2017 work plans for the Expert Group

The work of CEP to date has focused solely on clean fossil power generation technology. This is an essential topic for the UNECE region (and globally) due to the continuing use of fossil technology and economic fuel resources. But inefficient use of coal is a significant barrier to sustainability goals as well as contributing to poor air quality and resultant negative health

impacts. Future work plans will continue to focus on this area, furthering existing work on efficiency of fossil fuel power plants and CCS highlighted above. Potential new efforts could include the following:

Coal gasification: Coal gasification is one of the most promising technologies for energy plants of the future. It offers one of the most versatile and clean ways to convert coal into electricity, hydrogen, and other valuable energy products. Introduction of coal gasification technologies that enhance efficiency, environmental performance, and reliability is critical for countries, which electricity generation based on coal. The evaluation of coal gasification best practices across the UNECE region and globally could provide members the opportunity to adjust policy and regulation in a way that could find the right answer to dirty coal requirements.

Distributed Generation: The use of smaller scale, distributed generation technologies is a growing trend in global electricity systems. This often is discussed in the context of renewable energy such as wind and solar photovoltaics but also includes Internal Combustion Engine (ICE) power generation, Combined-Heat and Power (CHP), Micro Turbines and Fuel Cells. Such technologies can provide cost effective generation and system service solutions, supporting electrification and reliability of existing systems in a cost effective manner. Additionally such systems could be applied in mini- or micro-grid systems to provide access to electricity to remote regions where transmission extension is not practical. Efforts under this topic area could enable member countries to add to their suite of electricity development tools.

CCS: Following the positive development and dissemination of the 25 Recommendations for CCS, UNECE has been positioned as one of the UN's key organisations with expertise in this area. This creates an opportunity to expand efforts in this area. Potential topics of further study and analysis could include: development of policies that support CCS in parity with other low-carbon generation technologies, capture ready definition and deployment policy and practices, engagement in global CO₂ storage mapping initiatives (focusing especially on areas where little knowledge is currently available), mapping of significant CO₂ sources in the region and relations to potential storage areas and ongoing support of UNFCCC activities to ensure CCS remains an important topic for climate negotiations. Building on the success of previous work, UNECE is in a strong position to provide leadership across a range of CCS aspects that are important for many portions of the region.

Flexible Fossil Power Generation: All electricity systems must balance supply and demand and therefore dispatchable power generation technologies must ramp up and down to maintain system reliability. As increased shares of variable renewable technologies such as solar PV and wind are installed in systems, the need for flexibility increases. Flexible power generation typically is most typically considered with gas based power generation, but there are many examples where coal based generation is called upon for such balancing. In the future this may also be an important consideration for systems with CCS. Understanding the importance of this for both existing and new coal based power generation will be of value for UNECE member countries in the ongoing development of power systems. Initial work on this on a global level is reasonably nascent and therefore CEP could take leadership in this area.

In addition to the focus on clean fossil based power generation, the work of CEP could be expanded to include broader electricity system topics. Such topics would not preclude ongoing work in clean fossil based generation solutions – as this is an essential topic for the UNECE region and on a global basis. Topics below are meant to provide a list of potential new areas of focus:

Integrated Sustainable Electricity Systems: Electricity systems are often developed through the approach of unidirectional flow of electricity from large scale generation to end-uses, using

historically based demand trends to dimension the system. Sustainability initiatives have often focused on individual aspects of the electricity system such as generation or end-use. These approaches have yielded some progress and generally worked well in the past, but new technologies are offering opportunities to optimise system design and operation, as well as anticipate future needs (electric vehicles, variable renewable deployment, storage technologies and others). All electricity systems globally need to consider the rapid rate of technology development and data analytics and evaluate the opportunities to lower the cost of sustainable electricity system development and lessen the potential for stranded assets and higher costs of electricity production and use. An evaluation of electricity system technologies and electricity system development and modernisation approaches could enable UNECE member countries to operate and plan more optimal electricity systems.

Utility business models of the future: The delivery of electricity as a simple commodity (kWh's or MWh's) has demonstrated a number of limitations in the long term sustainable operation of generation and network assets. Such models favour a limited set of generation resources (primarily dispatchable generation) and do not incentivize use of electricity during periods of excess system capacity, nor reduced consumption during periods of scarcity. They also do not adequately support the range of system services (such as flexibility) needed, impacting design and operation at the network and generation level. Additionally, liberalization of electricity systems have offered some benefits to UNECE member countries, but also introduced new challenges. The impacts of the weaknesses of current business models add both cost and complexity to the operation of the electricity system and may limit increased utilisation of electricity in the future. Potential focus on valuing cost of service or quality of service regulation and the impacts on current generation fleets and evolving generation fleets could be of significant interest to UNECE members. The evaluation of best practices across the UNECE region and globally could provide members the opportunity to adjust policy and regulation in a way that could support beneficial changes to business models for utilities.

Recommendations to the Committee

- (a) Member States are encouraged to continue to support and promote the activities of the Group of Experts on Cleaner Electricity Production from Fossil Fuels.
- (b) UNECE member countries could consider the CCS recommendations to be included to the twenty-first session of the Conference of the Parties (UNFCCC COP 21) in Paris, December 2015, with the goal to achieve a universal agreement to address climate change.
- (c) Member States are asked to consider proposed topics of focus for the CEP and offer opinion on the inclusion of such topics in the next work plan. In addition, Member States are asked to suggest topics of interest for the Group of Experts to focus on, specifically for the UNECE sub-region.

Group of Experts on Coal Mine Methane

How have activities contributed to attaining the sustainable energy goals in the UNECE region?

The Group of Experts on Coal Mine Methane promotes the reduction of greenhouse gas emissions from coal mines by means of activities that may help the recovery and use of methane in order to reduce the risks of explosions in coal mines. The principal area of work of the Group of Experts is best practice guidance for effective drainage, recovery and usage of coal mine methane.

The above activities are in particular related to Sustainable Development Goal 7: “Ensure access to affordable, reliable, sustainable and modern energy” through expanding infrastructure and upgrading technology for supplying modern and sustainable energy services.

Key achievements over the period/perceived impacts

The best practice guidance for effective drainage, recovery and usage of coal mine methane was translated into several additional languages, which expanded its reach.

The Group of Experts on Coal Mine Methane is also progressing as planned in the work plan on the establishment of an International Centre of Excellence on Coal Mine Methane. The first critical steps have been made towards a Memorandum of Understanding between UNECE and the Central Mining Institute in Katowice, Poland. The MoU will define the activities needed to establish the International Centre of Excellence on Coal Mine Methane in Katowice.

The future International Centre of Excellence on Coal Mine Methane would further facilitate capacity building through dissemination of best practices.

Outstanding deliverables and potential challenges ahead

The work of the Group of Experts on Coal Mine Methane is progressing according to its 2014-15 work plan. See overview on the next page.

Deliverables	Scheduled	Status	Comments/Links
Electronic dissemination of Best Practice Guidance for Effective Methane Drainage and Recovery in Coal Mines			
Best Practice Guidance on Effective Methane Drainage and Use in Coal Mines in Spanish	January 2015	Completed	
Best Practice Guidance on Effective Methane Drainage and Use in Coal Mines in Mongolian	April 2015	Completed	
Best Practice Guidance on Effective Methane Drainage and Use in Coal Mines in Bosnian/Croatian/Serbian	November 2015	Completed	
Best Practice Guidance on Effective Methane Drainage and Use in Coal Mines in Korean	September 2015	Not started	According to the work plan, this activity depends on the availability of funds
Best Practice Guidance on Effective Methane Drainage and Use in Coal Mines in Vietnamese	June 2015	Not started	According to the work plan, this activity depends on the availability of funds
Update and further development of Best Practice Guidance for Effective Methane Drainage and Recovery in Coal Mines			
Presentation to the Group of Experts with recommendations on a new content for the Best Practice Guidance	November 2014	Completed	
Prepare proposals for case studies, where appropriate and financed by extrabudgetary resources, on the application of best practice guidance in specific coal mines in different regions of the world			
Case studies on the implementation of best practices in methane management		On track	Scheduled: November 2015
Facilitate establishment of International Centre of Excellence on Coal Mine Methane			
Decision the host country	November 2014	Completed	
Memorandum of Understanding on ICE-CMM	November 2015	On track	Draft MoU available
Continue to provide advice to UNFCCC (on the matters related to ACM0008) and to other international, national and regional market-based coal mine methane emission reduction mechanisms and coal mine methane related standards			
Report on coal mine methane management, inventories and standards	November 2015	On track	

Elements for 2016-2017 work plans for the Group of Experts

The Group of Experts on Coal Mine Methane would like to continue its work on developing and disseminating best practices in effective drainage, recovery and usage of coal mine methane.

Building on its core expertise, the Group of Experts on Coal Mine Methane is looking into possibility to expand its scope of work through, e.g., engaging in mitigating methane emissions and methane management not only in working coal mines but also of coalbed methane and other

unconventional deposits. To this end, the Group of Experts on Coal Mine Methane has already offered to the Committee its participation in the Committee's work on methane management in extractive industries.

In 2016-17 the Group of Experts on Coal Mine Methane will try to be more active in standard-setting activities through providing advice to and working together with other international organisation, such as ISO (the International Organization for Standardization) and its Technical Committee 263.

Recommendations to the Committee

- (a) The Group of Experts on Coal Mine Methane meets once a year, having only one meeting day to complete its work. Consideration should be given to increasing the duration of future meetings of the Group of Experts to one and a half or two days.
- (b) The Group of Experts would also request that its future meeting be scheduled during the same week as the annual Committee on Sustainable Energy meeting. It is important that members of the Group of Experts have the opportunity to attend meetings of the Committee on Sustainable Energy and that the Chair be present as a member ex officio of the Extended Bureau.

Group of Experts on Energy Efficiency

How have activities contributed to attaining the sustainable energy goals in the UNECE region?

Energy efficiency was one of the most prominent topics of the 5th International Forum on Energy for Sustainable Development in Hammamet, Tunisia organized by UNECE and the other UN Regional Commissions on 4-7 November 2014. The Joint Statement (“Hammamet Declaration”) was signed by all five Executive Secretaries and its intent endorsed by UNECE member States at the session of the Committee on Sustainable Energy on 19-21 November 2014. The Declaration is a roadmap for achieving the objectives of the Sustainable Energy for All (SE4All) Initiative and for greening the energy sector and the economy as a whole.

The report entitled "Best Policy Practices for Promoting Energy Efficiency" presents practical solutions for policy makers in UNECE countries on implementing policies to improve energy efficiency that have been proven as successful. The report also identifies sources for policy makers they can access to get advice and/or technical assistance in implementing relevant policies.

Key achievements over the period/perceived impacts

The work accomplished thus far has solidified the reputation of the Group of Experts on Energy Efficiency as a partner on substance for member States and international organizations. UNECE was the lead agency to drive the 5th International Forum on Energy for Sustainable Development and the “Hammamet Declaration”. The Group of Experts and its Bureau are in place to implement UNECE energy efficiency activities, which are well under way.

Initial review of energy efficiency in the UNECE region was prepared in October 2014 and presented to the first session of the Group of Experts on Energy Efficiency on 17-18 November 2014:

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/geee/geee1_Nov2014/Discussion_paper_1_Initial_review_of_EE_in_the_ECE_region.pdf

Draft publication Analysis of National Case Studies on Policy Reforms to Promote Energy Efficiency Investments was prepared in October 2014 and presented to the first session of the Group of Experts on Energy Efficiency on 17-18 November 2014:

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/geee/geee1_Nov2014/DraftPrePublicationAnalysisCaseStudies_AS_Latest.pdf

Fifth Forum on Energy for Sustainable Development was held in Hammamet in November 2014 (jointly organized by the Government of Tunisia and five UN Regional Commissions). Among the Forum events, there was Global Workshop on Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development. Executive Secretaries of five UN Regional Commissions signed the Joint Statement, in which they affirmed that the objectives of energy sustainability are attainable, and need not contradict more short-term considerations, if the world embarks on a determined, collective effort.

<http://www.unece.org/index.php?id=35706#/>

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/ee21/Forum_November_Tunisia/Joint_Statement_Fifth_International_Forum_Final_All.pdf

The report "Best Policy Practices for Promoting Energy Efficiency" was published in May 2015 after several rounds of consultations with energy efficiency experts from UNECE member States.

It is in the process of being published. This report presents existing energy efficiency policies that stand out as best practices. The policies identified include exemplars of best practices in energy efficiency policies from around the globe drawn from respected and objective policy evaluations and databases. For countries starting to develop energy efficiency programmes, the policies outlined offer guidance into what works and can offer confidence when exploring and selecting options. For countries with established energy efficiency programmes, this report can assist by validating policies and offering a set of policy benchmarks.

<http://www.unece.org/index.php?id=39075&L=0>

The Inter-regional Workshop and Study Tour on Energy Efficiency and Renewable Energy Projects and Policies, held on 8-12 February 2015 in Israel, was jointly organized by the UNECE and MASHAV – Israel's Agency for International Development Cooperation and Ministry of Foreign Affairs of Israel. Twenty-one government officials, project developers and experts from 13 countries of South-Eastern and Eastern Europe, Caucasus, and Central Asia participated in the event. The Workshop strengthened capacity of decision makers and practitioners from these countries to increase share of renewable energy in energy mix and to improve energy efficiency. In this context, the participants learnt about the experience of Israel in promoting and implementing energy efficiency and renewable energy policies and measures. The experts also shared success stories in this field and explained the challenges for the sector in their respective countries. At the same time, the sessions served as a platform to discuss possibilities for enhancing international cooperation in energy infrastructure and development, as well as financing and investment opportunities from the private and public sources, both domestic and international. <http://www.unece.org/index.php?id=38564#/>

The Committee on Housing and Land Management (CHLM) and the Committee on Sustainable Energy (CSE) and its Group of Experts on Energy Efficiency (GEEE) jointly hosted an Expert Consultation on Energy Efficiency Standards in Buildings in Geneva on 20-21 April 2015. The Chair and several members of the Bureau and of the Group of Experts participated in the Expert consultations. The meeting served as a platform for discussion about UNECE's role in energy efficiency standards in buildings and on broader issues of improving energy efficiency in buildings. Preliminary results of the regional survey to obtain stakeholders' opinion on the role that UNECE can play to better assist member States and the outcomes of the meeting show that energy efficiency standards in buildings will play a major role towards improving energy efficiency in buildings but that a more integrated, holistic approach is sought. The meeting proposed to establish an informal Joint Task Force on Energy Efficiency Standards in Buildings.

http://www.unece.org/housing/expertconsultation_ee1.html#/

Comments have been provided on the Concept of Energy Strategy of Ukraine at the request of the Committee on Fuel and Energy Complex of the Verkhovna Rada (Parliament) of Ukraine. Regional Advisor on Energy participated in the round table organized by the Verkhovna Rada Committee where the Energy Strategy had been reviewed and discussed. The draft Energy Strategy is currently being reviewed by the Government of Ukraine.

Outstanding deliverables and potential challenges ahead

Overview of activities and players active in smart grids – in the process of preparation. Expected timeline: June 2015. First draft has been prepared and posted on the SED website:

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/geee/News/Smart_Grids_Overview_05-19-15.pdf

Elements proposed for 2016-2017 work plan of the Group of Experts

Exchange of know-how and best practices in selected economic sectors on how to significantly improve energy efficiency in the UNECE region

- Identify the key operational policy priorities for member States and provide platforms for collective action.
- Provide an effective platform for expanding already developed policies and measures across countries in the region. In particular, cooperate with IEA on its Policies and Measures Databases on Energy Efficiency and on Building Energy Efficiency Policies.
- Organize information sharing activities (workshops, seminars, roundtables, etc.) for exchange of experience on energy efficiency best practices and policies.
- Identify existing gaps in standards and regulations and cooperate with other relevant organizations in addressing them.
- Monitor and promote the results of World Bank's Readiness for Investment in Sustainable Energy (RISE) Initiative that will assess the legal and regulatory environment for investment in sustainable energy, which plans to include 31 UNECE member States in 2015.

Exchange of know-how and best practices in UNECE on how to significantly improve energy efficiency in the UNECE region through utilities

- Identify barriers to and options for developing utility delivery of energy efficiency in the UNECE region.
- Identify policies and legislation that will help governments address existing gaps.

Assess the opportunities to enhance energy efficiency improvements through quality of service regulation

- Review the state of play in quality of service regulation both in the energy sector and in other industries that could have relevant lessons for energy.
- Assess the relationship between the costs of service and the quality of service in UNECE markets.
- Recommend best practices for quality of service regulation in the UNECE region.

Regulatory and policy dialogue addressing financial barriers to improve energy efficiency

- Identify policies and legislation that increase the bankability of energy efficiency.
- Identify best practices in finance strategies.
- Analyze energy efficiency finance options in the region.
- Improve the dialogue between the private financial sector, development banks and countries on the business case of energy efficiency financing.

Facilitate engagement in the Global Energy Efficiency Accelerator Platform

- Facilitate engagement of national and local governments, private sector and other stakeholders in the Accelerator Platform. This engagement would encourage UNECE member States to sign up to the Platform.
- Promotion of activities and communications materials on updates, menu of options and 'offer documents' to UNECE member States.

Recommendations to the Committee

- (a) Member States are encouraged to continue to support and promote the activities of the Group of Experts on Energy Efficiency.
- (b) The Report Best Policy Practices for Promoting Energy Efficiency could be used as a framework for member States that are prioritising accelerating action on energy efficiency.

- (c) Member States could use the Group of Experts to facilitate a focus on specific energy efficiency issues prioritised by a UNECE sub-region.
- (d) The Committee on Sustainable Energy endorses the key items of the 2016-17 work plan.

Group of Experts on Gas

How have activities contributed to attaining the sustainable energy goals in the UNECE region?

Group of Experts on Gas (GEG) provides a forum for multi-stakeholder dialogue on ways to promote the sustainable and clean production, distribution, and consumption of gas in the United Nations Economic Commission for Europe (ECE) region. The GEG constituency consists of a broad base of actors from public and private sector from the UNECE region, providing a value added input to the global natural gas dialogue. Any realistic future scenario the share of natural gas will increase in the total global primary energy demand. The UNECE region makes up a large portion of global production and consumption of gas and therefore, sustainable and responsible production, transport and utilization of natural gas will continue to be important in support of broader sustainable energy goals. These efforts also align with the role that natural gas will have in achieving the three objectives of the Sustainable Energy for All initiative (ensure universal access to modern energy services, double the global rate of improvement in energy efficiency; and double the share of renewable energy in the global energy mix)¹.

Through broad engagement with both member states and the expert community, the GEG has a work plan that supports key areas of interest for the region, but in no way precludes the need to consider other topic areas. The members of the GEG have decided to focus on several key areas and currently oversee 4 task groups that consider relevant activities in this area:

Best practice guidance in reducing gas leaks along the gas value chain

In many UNECE member States, there is an opportunity to improve efficiency in the gas supply chain from source to use. The differences between the volumes of gas produced at the source and the volumes delivered to end users show significant variances across UNECE member States. Reducing the differences by improving the performance among laggards will improve the overall energy efficiency, gas affordability and producers' competitiveness. It will also reduce methane emissions from leaks in the gas value chain. Since methane is a potent greenhouse gas, reducing emissions will have a significant positive impact on the environment. The proposed activity is therefore to prepare the building blocks for developing Best Practice Guidance in reducing gas leaks in the gas value chain. This work is being carried out in coordination with the Group of Experts on Coal Mine Methane.

Recent activities:

- Early stage investigational work has been completed on the key aspects of topic area. This has been done in parallel with the development of additional partners that can join this initiative. The Secretariat has recently approached other key players (US EPA and IEA) about their collaboration on the task force. Meetings are arranged in the 2nd quarter 2015 to progress their involvement.

Best practice guidance on the role of natural gas in increasing the uptake of renewable energy

In order to increase the uptake of renewable energy sources, there is a need to have a reliable source of energy and capacity when the renewable energy sources are not available. There is also a need for rapid-response capacity to maintain balance in power networks in light of oscillations in the output of intermittent energy sources. Gas could be such a source. This activity

¹ Given the level of economic and social development in the UNECE region, the first objective of the Sustainable Energy for all initiative (ensure universal access to modern energy services) needs to be defined more precisely, to reflect the realities of the UNECE region that largely already has a developed energy infrastructure.

would be based on a policy dialogue and exchange of experiences and practices on the role of natural gas in enabling renewable energy policies. That dialogue could lead to development of guidance on best practices and policies on the role of natural gas in significantly increasing the uptake of renewable energy in the UNECE region and helping achieve the objective of access to energy for all in the UNECE region. This work, undertaken from the perspective of the natural gas industry and gas-fired power plant operators, would complement and take into account the work to be undertaken by the Group of Experts on Renewable Energy in developing best policy practices for renewable energy. Relevant lessons could be learned from the development policies carried out by a majority of UNECE countries in the past years.

Recent activities:

- In co-ordination with the Group of Experts on Renewable Energy, focus will be on exploring alliances and co-existence of renewable energy and gas players in the context of a future sustainable energy system and applying learnings specifically to UNECE countries.
- Investigation and analysis into best practice examples in this area has begun.

Best practice guidance for liquefied natural gas

This activity would engage a dialogue on the contribution that natural gas could make to the transition to a sustainable energy future. The dialogue will involve comprehensive analysis of the costs and cost trends through the whole gas and LNG value chains, and discussion of possible best practice guidance. The impact of LNG on security and diversification of supply, flexibility, liquidity, prices, and competition and market integration can be significant. There are opportunities for improvement in LNG specifications, liquefaction plants, receiving facilities, local operating procedures, LNG tankers designs, and so forth. Some harmonization of LNG quality specifications is needed to ensure it is acceptable at all LNG terminals and to a majority of end users. Players throughout the LNG chain, including regulators, will be encouraged to standardize and exchange information. Such efforts would improve compatibility and efficiencies and maintain safety levels throughout the industry. Attention should be paid as well to the development of small-scale LNG that is flexible, has lower capital costs, and can service smaller markets.

Recent activities:

- First draft of "Comprehensive Assessment of Trends in LNG", which is part of the Best Practices on LNG, finalized in March and the peer review process has been started. The assessment is to be published on the UNECE website and circulated to a wider audience.

Removing barriers to the use of natural gas as a transportation fuel

Natural gas and bio-methane represent the easiest, most practical, and most realistic way to reduce pollution coming from road transportation. Methane/hydrogen blends represent a huge potential for the transport sector, and represent an ideal bridge to more sustainable mobility using the existing natural gas/bio-methane distribution infrastructure. Natural gas—with its environmental, economic and availability advantages—will remain the only alternative to oil and diesel in the short and medium terms, and is the only primary fuel that is fully technically and economically applicable in any mode of transportation: on-road vehicles, scooters, heavy duty vehicles, ships, aircrafts, locomotives, and so forth. Using natural gas as a transportation fuel is a critical area for natural gas demand growth, with specific relevant benefits such as improving environmental impacts (CO₂, SO₂, and NO_x). This activity would explore removing barriers to the use of natural gas as a transportation fuel in the UNECE region.

Recent activities:

- On 21 January organized an exhibition and test drive of the natural gas vehicles at the Palais des Nations. The event was attended by the Executive Secretary and was promoted on UNECE website.

- On 24 March another meeting of the Task Force held in Brussels, where the division of labour among the Task Force members was defined.

Key achievements over the period/perceived impacts

The work of the GEG is in the early stage of development, but there is a strong interest in the topics covered and initial efforts. Over 130 people attended the Second Session of the GEG, a significant increase over the First session held 9 months earlier, demonstrating the importance of this work in the region and the strong convening power of UNECE. As the work is developed and partnerships considered, positive feedback is continuously provided regarding the four chosen areas of focus.

One example key partnership have been formalised with the completion of a Memorandum of Understanding between UNECE and the International Gas Union (IGU). IGU and UNECE will collaborate through the GEG. They will promote the exchange of know-how and best practice amongst relevant experts to accelerate the deployment of affordable energy. From UNECE's perspective, the collaboration with IGU will facilitate the development of best practices that will help reduce leaks along the gas value chain and foster a more efficient use of gas globally. This will help our member States to strengthen sustainable economic and social development and meet their near and medium term climate change mitigation commitments.

Status of Activities

The table on the next page shows the deliverables set out in the work plan, indicating progress of implementation. Any delays are largely due to challenges in resources within the UNECE secretariat. The secretariat resources have now been resolved and renewed effort is expected to bring more support and assistance to individual task forces.

Elements for 2016-2017 work plans for the Expert Group

The current work plan that is at the early stage of execution, and all task forces include activities that extend into late 2016 (including one task force with plans to mid - 2017). Based on this, modest effort has been given to determine additional activities at this time, but work will begin in Q2 and Q3 2015.

Recommendations to the Committee

- a) The topics of the current work plan continue receive strong support from the participants and greater natural gas stakeholder community. Cross cutting topics, such as the Best practice guidance on the role of natural gas in increasing uptake of renewable energy is being done in close collaboration with the UNECE Expert Group on Renewables. Therefore, despite delays experienced, it is recommended that the work plan remains as written, while continuing to seek guidance to identify gaps and potential for future work.

Deliverables	Status	Comments/Links
<i>Best practice guidance in reducing gas leaks along the gas value chain</i>		
Systematic assessment of gas leakage rates in UNECE member States	Delayed – under development	Scheduled: December 2014
Review of techniques deployed across the UNECE region	In progress	Scheduled: June 2015
Preparation of Draft Best Practice Guidance on Reducing Gas Leakage Rates	In progress	Scheduled: December 2015
Publication of Best Practice Guidance on Reducing Gas Leakage Rates	In progress	Scheduled: April 2016
<i>Best practice guidance on the role of natural gas in increasing uptake of renewable energy</i>		
Assessment of the systemic consequences of renewables uptake	Delayed – under development	Scheduled: April 2015
Economic analysis of natural gas in a context of green policies	Delayed – under development	Scheduled: April 2015
Initial Draft Best Policy Practices on the Role of Natural Gas to Support Renewables Uptake	In progress	Scheduled: November 2015
Publish Best Policy Practices on the Role of Natural Gas to Support Renewables Uptake	In progress	Scheduled: June 2017
<i>Best practice guidance for liquefied natural gas</i>		
Draft Comprehensive Assessment of Trends in LNG	Completed	Scheduled: April 2015
Best Practice Policy Guidance for LNG	In progress	Scheduled: April 2015
Publish Comprehensive Assessment of Trends in LNG	On track	Scheduled: October 2016
Publish Best Practice Policy Guidance for LNG: October 2016.	In progress	<i>Scheduled: October 2016</i>
<i>Removing barriers to the use of natural gas as a transportation fuel</i>		
Development/approval of detailed project description/ToR by Task Force	In progress	Scheduled: July 2015
Draft Recommendations on Removing Barriers to the Use of Natural Gas as a Transportation Fuel	In progress	Scheduled: April 2016
Publish Recommendations on Removing Barriers to the Use of Natural Gas as a Transportation Fuel	In progress	Scheduled: November 2016

Group of Experts on Renewable Energy

How have activities contributed to attaining the sustainable energy goals in the UNECE region?

- *In 2014, renewable electric generating capacity in the UNECE region amounted to 652.7 GW, or 47.9% of global renewable capacity (1,364 GW).*

The Group of Experts on Renewable Energy (GERE) was established at the end of 2014 and focuses on activities that help significantly increase the uptake of Renewable Energy (RE) in the region and that help achieve the objective of access to energy for all in the United Nations Economic Commission for Europe (UNECE) region, in line with the “Sustainable Energy for All” initiative of the United Nations Secretary General.

The Joint Statement (“Hammamet Declaration”) signed by all five Executive Secretaries of the UN Regional Commissions pointed out the need for renewable energy policies to be redesigned and integrated in optimized future energy systems. The Declaration indicates a roadmap for achieving the objectives of the Sustainable Energy for All (SE4ALL) Initiative and refers to the renewable energy as a way to reduce the net carbon intensity of the energy sector, improve energy security, and encourage economic development.

The Group of Experts is also contributing to attaining the objective of the SG’s initiative to ensure universal access to modern energy services. Access to reliable and modern energy services is one of the SE4ALL basic concept.

There are significant data gaps on RE technology and policy in Eastern Europe, Central Asia and the Caucasus. This has implications for the understanding and tracking progress of the global and regional uptake of RE. As a response, a renewable energy status report in the UNECE region is under preparation in cooperation with renowned partners, the Renewable Energy Policy Network for the 21st Century (REN21) and the International Energy Agency (IEA). The goal of this report is to provide an overview regarding where the UNECE region stands in RE uptake and implementation of RE policy frameworks and to discuss possible RE best practice guidelines, taking into account global technical and structural barriers.

GERE is contributing to global processes related to sustainable energy such as:

- The UN Summit for the adoption of the post-2015 development agenda, NY, 25-27 September 2015; inputs by UNECE on the SD goal and targets on energy;
- COP21/ UNFCCC, Paris, 30 Nov - 11 Dec 2015: REN21 event/ presentation of the UNECE RE status report 2015.

Key achievements over the period/perceived impacts

- First session of GERE on 18-19 November 2014: 79 participants from 22 countries; Work Plan and Report with C&Rs approved at the annual session (see at: http://www.unece.org/fileadmin/DAM/energy/se/pdfs/geee/geee1_Nov2014/ECE.ENERGY.GE.7.2014.2_e.pdf)
- Initial review of the status of renewable energy development in the UNECE region identifying information and data gaps – November 2014 (see at: http://www.unece.org/fileadmin/DAM/energy/se/pdfs/gere/gere1_18.11.2014/ECE_ENERGY_GE.7_2014_INF.1_Revised.pdf)

- Initial review on energy access in the region raising the need to identify the communities with no access to energy in the UNECE region - November 2014. The UNECE region score high electrification rates: between 98,6 to 100 percent and only nine countries are below 100 per cent. Energy access related issues in the UNECE region are more related to the quality aspects, in terms of sustainability, affordability and reliability (see at: http://www.unece.org/fileadmin/DAM/energy/se/pdfs/gere/gere1_18.11.2014/ECE_ENERGY_GE.7_2014_INF.2.pdf)
- An initial Framework for Developing Best Practice Guidelines to Accelerate Renewable Energy Uptake - November 2014. The consideration of examples on Supportive Policy Measures, Best Practices and Lessons Learned pointed out the need to promote the exchange of experiences, lessons learned and best practices between experts of member States based on a menu of technologies and policies to promote them – November 2014 (see at: http://www.unece.org/fileadmin/DAM/energy/se/pdfs/gere/gere1_18.11.2014/ECE_ENERGY_GE.7_2014_INF.3_Revised.pdf)
- MoU with the International Renewable Energy Agency (IRENA) signed on 25 September, The two organizations will promote the exchange of know-how and best practice among relevant experts to accelerate the deployment of renewable energy (see at: <http://www.unece.org/info/media/presscurrent-press-h/sustainable-energy/2014/unece-signs-mou-with-the-international-renewable-energy-agency-irena/unece-signs-mou-with-the-international-renewable-energy-agency-irena.html>)
- MoU with the Renewable Energy Policy Network for the 21st Century (REN21) signed on 19 November. This cooperation will include - inter alia - the joint preparation of the Renewable Energy Status Report for the UNECE Region in 2015, in cooperation with other key partners and stakeholders. (see at: <http://www.unece.org/info/media/presscurrent-press-h/sustainable-energy/2014/unece-signs-mou-with-the-renewable-energy-policy-network-for-the-21st-century/unece-signs-mou-with-the-renewable-energy-policy-network-for-the-21st-century.html>)
- A draft menu of technologies and policies to promote them has been developed with inputs by GERE Bureau members and other stakeholders – Food and Agriculture Organization (FAO), and the German Energy Agency (DENA) with the intention of developing a practical tools to exchange lessons learnt, best practices, high-impact measures and procedures for an energy transition which leads to significantly increase the use of RE. A first draft was reviewed by Bureau members in April 2015
- Cross-cutting issues and coordination of work of the GERE Bureau with – inter alia - the Group of Experts on Gas (GEG), the Expert Group on Resource Classification (EGRC) for the implementation of the UNFC-2009 classification to renewable energy, and the Group of Experts on Cleaner Electricity Production from Fossil Fuels (CEP).

What lies ahead

- Launch of the UNECE Renewable Energy Status Report 2015 with REN21 and IEA in December 2015, kick-off of the process with the selected authoring team on 11 May, see ToR at http://www.unece.org/fileadmin/DAM/energy/se/pdfs/gere/UNECE_RE/TOR_UNECE_RE_Status_Report.pdf).

- Challenges ahead/ gaps: availability and collection of the right data/ information, analysis of findings toward constructive recommendations. Additional project sponsors. Seeking outreach possibilities in the region.
- Identification of the communities with no access to energy within the UNECE Renewable Energy Status Report, by November 2015
 - Challenges ahead/ gaps: availability and collection of the right data/ information
- A menu of technologies and policies to promote them will be further developed by the GERE session on 12-13 October 2015. An ad hoc seminar on best practice policies will be hosted by Azerbaijan on 13-14 October 2015 (tbc) to facilitate the exchange of information and the practical use of this tool.
 - Challenges ahead/ gaps: Collection of relevant case studies/ examples/ information that are considered useful by the GERE constituency to increase the uptake of RE. Strengthen the GERE constituency in UNECE countries. Integration of renewable energy into future energy systems.

Elements for 2016-2017 work plans for the Expert Group

Tracking of the progress made in the uptake of renewable energy sources in the United Nations Economic Commission for Europe region

- Review the state of development and monitor the progress made after the baseline 2015, therefore working with other partners and contributing to existing global monitoring frameworks.
- Identify key barriers and options for supplying electricity and heat from renewable energy sources to identified areas, based on the findings of the status report 2015 on how to improve a quality access to energy.
- Organize outreach activities in selected countries in the region to promote and use the baseline report (workshops, seminars, roundtables, etc.) on key needs and obstacles on renewable energy uptake and on energy access with the aim of strengthening a multi-stakeholder dialogue.
- Identify ways to support the implementation of national plans and for strengthening framework conditions and instruments that help significantly increase the uptake of renewable energy in the region.

Exchange of know-how and best practices in the United Nations Economic Commission for Europe region on how to help significantly increase the uptake of renewable energy.

- Identify the key operational policy priorities for member States and provide platforms for collective action.
- Provide an effective platform for expanding already developed policies and measures across countries in the region.
- Identify barriers to and options for technological development of renewable energy in the UNECE region.
- Organize/ participate in information sharing activities (workshops, seminars, roundtables, etc.) for exchange of experience on best practices and policies.
- Identify existing gaps in policies, legislation, standards and regulations and cooperate with other relevant organizations in addressing them.

Integration of Renewable Energy in Future Sustainable Energy Systems in the region

- Identify best practices about existing policies and policy reform to meet a higher renewable energy share within present and future energy systems.

- Analyze renewable energy investment opportunities within future energy systems and energy market optimization.
- Identify key needs for capacity building to develop renewable energy framework conditions to facilitate market conditions.
- Organize capacity building and information sharing activities (workshops, seminary, roundtables, etc.) on renewable energy investment promotion, the consideration of renewables in energy systems, the assessment of renewable energy potential and costs and the development of hybrid power for increased system efficiency.

Recommendations to the Committee

Chair's steering message:

- (a) Member States are encouraged to continue to support and promote the activities of the Group of Experts on Renewable Energy.
- (b) The UNECE Renewable Energy Status report 2015 could be used for selected outreach activities in capitals to promote the status and uptake of renewable energy. Volunteers to host media activities are sought in line with proven activities by key partners, in this case the IEA and REN21.
- (c) The UNECE Renewable Energy Status Report 2015 could be used by the Group of Experts to identify obstacles and opportunities for RE deployment and, together with shared experiences and case studies, provide specific recommendations to member States.
- (d) Member States could use the Group of Experts to facilitate a focus on specific renewable energy issues prioritized by an UNECE sub-region.
- (e) The Committee on Sustainable Energy endorses the key items of the Work Plan 2016-2017.
