

SUBPROGRAMME ON SUSTAINABLE ENERGY

At the 21st session of the Committee on Sustainable Energy (CSE) in November 2012, its members endorsed the Outcome Document from the EXCOM Informal Consultations on Sustainable Energy and recommended that the document be incorporated into the outcome document of the 2005 UNECE Reform Review. Further consultations to render the document operational are to be conducted as foreseen in paragraph 18 of the report of the CSE session. This Document has been prepared by the subsidiary bodies of the CSE and is the starting point for discussions with member States.

*Operationalizing
Document*

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Introduction

At the 21st session of the Committee on Sustainable Energy (CSE) in November 2012, its members endorsed the Outcome Document from the EXCOM Informal Consultations on Sustainable Energy and recommended that the document be incorporated into the outcome document of the 2005 UNECE Reform Review. Further consultations to render the document operational are to be conducted as foreseen in paragraph 18 of the report of the CSE session. This Document has been prepared by the subsidiary bodies of the CSE and is the starting point for discussions with member States.

Outcome from the Informal Consultations on Sustainable Energy

This document is written by the facilitator in the framework of the review of the 2005 Reform process and reflects the consensus reached between UNECE member States.

I. General

The Committee on Sustainable Energy (CSE) is an intergovernmental body that provides member States with a platform for international dialogue and cooperation and is mandated to carry out a programme of work in the field of sustainable energy with a view to providing access to affordable and clean energy to all, in line with the “Sustainable Energy for All” initiative of the Secretary-General, and to help reduce greenhouse gas emissions and the carbon footprint of the energy sector. The Committee and its subsidiary bodies will carry out concrete and results-oriented activities with the aim to achieve the specific objectives identified for each priority area and they will work in accordance with the EXCOM guidelines on procedures and practices for UNECE bodies.

The objectives, areas of work and concrete results-oriented activities indicated under each topic will orient the work of experts, who may suggest additional areas of work and activities within agreed mandates. All activities should have a clear demonstrable value added, be coordinated with and complementary to the work of other relevant international actors without duplicating their work or mandates¹. Specific activities to be carried out within the overall framework of the objectives and areas of work mentioned in this document shall be decided in a member States driven process and be carried out in an efficient and transparent way.

The CSE and its subsidiary bodies will focus on issues related to: energy efficiency, cleaner electricity production from fossil fuels, renewable energy, coal mine methane, UN framework classification and natural gas. The CSE will continue its energy security dialogue.

The UNECE's aim is to promote pan-European economic integration. To do so, it brings together 56 countries located in Western, Eastern, and South-East Europe, the Commonwealth of Independent States (CIS), Turkey, Israel, and North America, and these countries dialogue and co-operate on economic and sectoral issues. The UNECE facilitates greater economic integration and cooperation among its member countries and promotes sustainable development and economic prosperity through:

- policy dialogue,
- negotiation of international legal instruments,
- development of regulations and norms,
- exchange and application of best practices as well as economic and technical expertise,
- technical cooperation for countries with economies in transition.

The member States of the UNECE comprise countries of widely varying states of economic and social development, technological, financial, and managerial capability, and policy experience across the range of energy topics associated with achieving the objectives of the Sustainable Energy for All initiative. The UNECE has a specific role to play in bringing the technological, financial, and managerial capabilities of

¹ See document on modalities of the 2011-2012 Review of the 2005 ECE Reform (ECE/EX/6), para 11.

its leading member States to bear in enhancing the technical, economic and environmental performance of its member States that lag. These capabilities can also be applied in collaboration with the other Regional Commissions of the UN to enhance global attainment of the Sustainable Energy for All objectives.

As noted in the foregoing text from the outcome document of member States' informal consultations on sustainable energy, the CSE and its subsidiary bodies will focus on issues related to: energy efficiency, cleaner electricity production from fossil fuels, renewable energy, coal mine methane, UN framework classification and natural gas. This document has been structured around these issues. For each topic, the text from the outcome document is highlighted, followed by a description of how the CSE intends to meet member States' requirements. The specific list of activities and projects that are proposed is attached as a companion document.

In addition to the listed activities, the CSE is to continue its energy security dialogue. The dialogue will be conducted as a specific agenda item for the annual meeting of the CSE if and as requested by member States.

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2. Energy Efficiency

(a) Outcome of Informal Consultations on Energy Efficiency

II. Energy Efficiency

Objective

- In line with the “Sustainable Energy for All” initiative of the Secretary-General, ECE should focus on activities that help significantly improve energy efficiency in the region, thus contributing to climate change mitigation efforts;
- Strengthening regional cooperation in energy efficiency, with a view to reducing greenhouse gas emissions.

Areas of work

- Regulatory and policy dialogue addressing financial, technical and policy barriers to improve energy efficiency;
- Sharing experience and best practices in the field of energy efficiency in the ECE region, including on strengthening institutional capacity in energy efficiency to reduce greenhouse gas emissions.

Concrete activities

- Improving efficiency of distribution by raising awareness on smart grids;
- Encouraging the exchange of know-how and best practices between relevant experts of all member States, in order to help attract investments into energy efficiency;
- Help share the experience of the ECE and its members in the area of energy efficiency, with member States of other regions, through the Special Representative for the “Sustainable Energy for All” initiative.

In addition, ECE member States could decide to develop other concrete and results-oriented activities within agreed mandates, including specific projects at regional level, aimed at improving regulatory and institutional frameworks for energy efficiency.

(b) Institutional Framework

Energy efficiency activities at the UNECE are implemented in the framework of the EE21 Programme, which assists economies in transition in the region to develop and promote sustainable energy policies, pursue energy efficiency strategies, reduce greenhouse gas emissions and enhance the security of energy supplies by producing specific outputs from operational activities in the industry, housing and services, transport and energy sectors through national actions, bilaterally and multilaterally especially through UNECE. Inasmuch as the Steering Committee of the EE21 Programme has the same quality as a Working Party, the Bureau of the Committee on Sustainable Energy suggests that member States consider changing the name of the body to the Working Party on Energy Efficiency. Its mandate and terms of reference will remain the same as those of the EE21 Steering Committee, adapted in line with agreement among member States regarding its activities.

(c) Background and Proposed Activities

Improving energy efficiency is an essential element of reducing the environmental footprint of the energy sector. Policies that encourage greater efficiency will secure the cheapest, quickest and cleanest energy supply resource. A wide range of cost-effective technologies and management practices are available for improving energy productivity. Improving the efficiency of energy production and transport, as well as in homes, appliances, offices, plants and transport systems, represents almost one half of the global solution. Getting that to happen will take strong policy action to overcome an array of barriers—legal, regulatory,

tariffs, subsidies, contracting, information, financial, and market structure. Notably, North America and western Europe have long-standing experience with energy efficiency policy setting and implementation that provides a foundation for discussing and disseminating best-practices. Their performance on the effective use of energy for economic and social development provides important benchmarks for other countries in the region. UNECE is in a position to facilitate international collaboration, foster framework conditions for investment, help member countries to reform their energy policies and encourage the active participation of all sectors of society, for instance through public-private engagement. As requested by member States, the cooperation with other regional commissions on energy efficiency will be enhanced in order to accelerate attainment of the Sustainable Energy for All objectives globally.

The overall objective for UNECE in the area of energy efficiency, as indicated in the outcome document, is to contribute to the Sustainable Energy for All goal of doubling the rate of uptake of energy efficiency improvements. While the achievement of the desired outcome will depend on member States taking needed action, UNECE will contribute to that goal by providing a platform for exchanges of experience, development of best practice guidance as needed, certification and labelling, performance benchmarking and case studies, policy reviews, strengthening institutional capacity in energy efficiency, and promotion of appropriate investment framework conditions. The programme will focus its activities on addressing obstacles to improving energy efficiency in all economic sectors, but with particular emphasis on energy, industry, and housing and public buildings.

Regarding the first recommended concrete activity on smart grids, this topic is best handled by the Group of Experts on Cleaner Electricity Production. A smart grid is an electrical grid that uses information and communications technology to gather and act on information, such as information about the behaviour of suppliers and consumers, in an automated fashion to improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity. In light of its relationship to electric grids, the experts best placed to address this topic are found in the expert group working on electricity issues. To ensure that energy efficiency elements are properly considered in the activities on smart grids, experts from the energy efficiency community will be asked to contribute to those activities.

The EE21 programme has a number of projects underway that encourage exchange of best practices among member States and to attract investments into energy efficiency. In addition, the EE21 programme proposes a major new initiative to adapt and disseminate the IEA's best practice guidance on energy efficiency to non-OECD countries in the UNECE region and to engage with other regional commissions as they undertake similar activities. The EE21 programme also proposes a concrete activity in support of the "Sustainable Energy for All" initiative for implementation of its objectives in member States with economies in transition.

Specific on-going and proposed projects and activities are detailed in the companion document and are listed below. Some projects included in the EE21 Programme are not implemented by UNECE and do not involve the resources of the UNECE's energy division (*e.g.*, the EU's ATLETE II Programme). They are therefore not described in this document. Certain projects on renewable energy (RE) are implemented under the auspices of the EE21 Programme. If a new intergovernmental body on RE were to be established these projects could be moved under its responsibility. Those projects that contain both EE and RE components would remain under the EE21 Programme. Inasmuch as achieving the goals set for renewable energy would be facilitated by assembling UNECE's renewable energy community in an intergovernmental setting, the Bureau of the Committee on Sustainable Energy suggests that member States consider taking this step.

The objective of the undertaking to adapt and disseminate best practice guidance is to accelerate improvements in energy efficiency and energy intensity. The undertaking would be pursued in parallel by all the Regional Commissions (RCs) of the United Nations, including the UN Economic Commission for Europe (UNECE), the UN Economic Commission for Africa (ECA), the UN Economic Commission for Latin America and the Caribbean (ECLAC), the UN Economic and Social Commission for Asia and

Pacific (ESCAP) and the UN Economic and Social Commission for West Asia (ESCWA). The regional cooperation that exists under the GEE21 platform will be strengthened to ensure full sharing of best practices within the regions of UNECE among the UN's regional commissions. The energy sectors of many developing and transition economies are still inefficient and highly polluting. Most of them are up to four or even more times energy intensive (per unit of GDP) than those of western market economies. The undertaking would: 1) help countries formulate effective energy efficiency policy; 2) encourage countries to implement best practices relevant to their particular circumstances; 3) help countries meet their energy efficiency objectives; 4) contribute to global diffusion of energy efficiency technologies and measures; and 5) foster low-carbon sustainable development by reducing global GHG emissions and improving energy security.

The policy and regulatory framework in developed economies fosters introduction of more efficient technologies, though there remain opportunities for improvement. Economies in transition (*e.g.*, Eastern Europe and central Asia) have an energy efficiency market that is expanding under the auspices of national initiatives that are coupled with sub-regional, regional and international initiatives. However, in some countries, there is not an effective the regulatory and policy framework for energy efficiency market formation (*e.g.*, many lack dedicated energy efficiency legislation). With technical support from international collaborative efforts, these countries could enable energy efficiency market development. The scope of topics to be covered in the undertaking will vary from region to region, but could embrace standards (appliance standards, building codes, etc.), labeling/testing, subsidies (monitoring, reporting, lifting), tariffs, market design, market access, network issues, investment finance, research and development, exchange of experience, and best practices dissemination.

All of the projects listed below and detailed in the companion document address the areas of work specified by member States in the outcome document:

- Regulatory and policy dialogue addressing financial, technical and policy barriers to improve energy efficiency;
- Sharing experience and best practices in the field of energy efficiency in the ECE region, including on strengthening institutional capacity in energy efficiency to reduce greenhouse gas emissions.

Concrete activities as listed for energy efficiency in the Outcome Document

Improving efficiency of distribution by raising awareness on smart grids

Regarding the first recommended concrete activity on smart grids, this topic is best handled by the Group of Experts on Cleaner Electricity Production.

Encourage the exchange of know-how and best practices among relevant experts of all member States and to help attract investments into energy efficiency

All on-going and proposed projects/activities are in line with this item from the Outcome Document:

1. Adapt and Disseminate Best Practices on Energy Efficiency among UNECE member States and Share with Other Regional Commissions (new project: funds need to be raised)
2. Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation (on-going project)
3. Analysis of Advanced Technologies in Energy Efficiency and Renewable Energy in the Framework of the Global Energy Efficiency 21 Project and Preparation of Recommendations on its Application with Special Emphasis on Central Asian Region (on-going project)
4. Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development (on-going project, implemented jointly with the other UN Regional Commissions)

5. Enhancing Synergies in the Commonwealth of Independent States (CIS) National Programmes on Energy Efficiency and Energy Saving for Greater Energy Security (on-going project)
6. Enhancing Energy Security and Improving Access to Energy Services through Development of Public-Private Renewable Energy Partnerships (on-going project, implemented jointly with the other UN Regional Commissions, mentioned in the Renewable Energy section)
7. Energy Efficiency in Housing (on-going project)
8. Enhancing implementation of the Sustainable Energy for All initiative of the Secretary General in CIS member States (new project; funds need to be raised, and preliminary discussions with potential donors have started)

Share the experience of the ECE and its members in the area of energy efficiency, with member States of other regions, through the Special Representative for the “Sustainable Energy for All” initiative

The first three projects/activities listed above regarding the second concrete activity are also in line with this third concrete activity from the Outcome Document.

(d) How does Energy Efficiency relate to the objectives of the UNECE energy subprogramme?

One of the overarching goals of the energy programme is to "help reduce greenhouse gas emissions and the carbon footprint of the energy sector". Energy efficiency is among priority areas UNECE member States agreed upon in their informal consultations. To quote the outcome document: “In line with the “Sustainable Energy for All” initiative of the Secretary-General, ECE should focus on activities that help significantly improve energy efficiency in the region, thus contributing to climate change mitigation efforts.”

(e) Why is the work on Energy Efficiency a priority, and why is UNECE the right venue for it?

Improving energy efficiency globally is a priority for the SE4All initiative. UNECE is not, nor will be, the only venue for international activities on energy efficiency policies. However, UNECE member States have remarkable experience in improving energy efficiency under a range of regulatory regimes and socio-economic conditions. UNECE has established a very strong and fruitful cooperation with all world regions through UN RCs and has created a network of high level government officials, energy experts, private companies and academia in all regions. UNECE provides one of the venues for dialogue needed to accelerate the development of collaborative energy efficiency strategies, harmonizing policy frameworks on promotion of energy efficiency, and reviewing the structure and contents of the energy efficiency policies, legislative framework and strategies.

(f) Resources

Regular Budget: 2 P5s; 2 P4s; P2 [variation over 5 years, please see projects details in the companion document].

Extra-budgetary: Substantial. Please see project details.

In-kind Contributions: Involvement of experts, industry, members of the Group(s) of Experts in an advisory and editorial role. Collaboration with all UN Regional Commissions, UNDP and other organizations, such as the International Energy Agency, UN Foundation and other interested partners will be considered.

(g) Expected concrete results and timelines

- Implementation of recommendations, policies and practices favouring EE policy promotion and strengthening technological capabilities. (2014-2018)
- Adaptation of best practices to non-OECD member States (2014-2018)
- Benchmarking analyses (2014-2018)
- Reports on the record of policy adoption in member States (2014-2018)
- Assessment of enforcement policy in terms of actions and effectiveness (2014-2018)
- Assessment of technology development needs (2014-2018)
- Investment fund launch [FEEI project] (2013)
- Studies of energy policies of Central Asian countries: 1. Analysis of the development and dissemination of advanced technologies in energy efficiency and renewable energy in the world; approach to encourage excellence in energy efficiency and renewable energy, with an emphasis on the possibilities of implementing world best practices in the Central Asian region; 2. Identification of the most effective institutional, legal, financial and other mechanisms to promote energy efficiency and renewable energy technologies in the Central Asian countries; 3. Enhancement of cooperation in the application of EE&RE technologies in the Central Asian region. (2013)
- Sharing of policy reform experience with other regional commissions (2013-2014)
- Analysis of national energy policies aims at recommendations to meet SE4ALL main goals: access to modern energy services, improve energy efficiency, and increase the rate of renewable energies (2014-2016).
- Survey of communities without access to modern energy services (2014-2016).
- Implementation of pilot projects related to SE4ALL main goals (2014-2016).

It has been noted that energy efficiency is the low-hanging fruit for attainment of multiple objectives, including environmental protection, enhancement of energy security, improvement in economic performance and quality of life, and yet it has remained an elusive goal for many years. It is expected as a result of these efforts that there will be significant improvements in mainstreaming basic energy efficiency solutions into the national policy-setting frameworks of UNECE member States, and as a consequence of that mainstreaming there will be significant improvements in energy efficiency from source to use.

3. Cleaner Electricity Production from Fossil Fuels

(a) Outcome of Informal Consultations on Cleaner Electricity Production

III. Cleaner Electricity Production from Fossil Fuels

Objective

The UNECE should focus on activities that significantly reduce greenhouse gas emissions from electricity production from fossil fuels. Activities aimed at cleaner electricity production from fossil fuels should be developed and implemented with the active participation of UNECE member States, representatives from the energy and financial sectors and civil society, independent experts and academia.

Areas of Work

- Regulatory and policy dialogue;
- Sharing best practices in the field of Cleaner Electricity Production from Fossil Fuels in the UNECE region;
- Carbon Capture Utilization and Storage (CCUS);
- Enhanced oil recovery with CO₂;
- Advanced fossil fuels technologies for power generation.

Concrete Activities

- Examples of specific CCUS international activities for UNECE member States to consider are opportunities to collaborate and actively participate in several upcoming Carbon Sequestration Leadership Forum (CSLF) Working Groups on the following topics:
 - a) Technical Working Group Activities in CO₂ Utilization Options;
 - b) CCUS Technology Gaps Closure;
 - c) Carbon Capture Energy Penalty Reduction;
 - d) CCS with Industrial Emissions Sources;
 - e) Technical Challenges for Conversion of CO₂ EOR to CCS;
 - f) Identifying and assessing links between technology-related risks and liability;
 - g) Competition of CCS with Other Resources;
 - h) Stimulating introduction of innovative technologies, notably on electricity with a focus on controlling emissions.
- The International Energy Agency (IEA), Global Carbon Capture and Storage Institute (GCCSI) and CSLF each conduct a wide range of activities related to CCUS, many of which should be of interest to various UNECE member States. Rather than propose a specific set of projects at this time, non-duplicative projects that are of the most value could be developed through dialogue between these organizations and the UNECE;
- Encourage the exchange of know-how and best practices between relevant experts of all member States in order to attract investments in advanced fossil fuels technologies for electricity generation with a view to supporting industrial and economic competitiveness and achieving low-carbon sustainable development;

Work on cleaner electricity production is not limited to CCUS. UNECE member States could decide to develop other concrete and results-oriented activities within agreed mandates.

(b) Institutional Framework

The Ad Hoc Group of Experts on Cleaner Electricity Production from Coal and Other Fossil Fuels was established in 2007 by the Committee on Sustainable Energy. It provides a venue for an intergovernmental dialogue between government-appointed experts and representatives of the electric power industry, international financial sector, and relevant international organisations on investment, technology and regulations for promotion of cleaner electricity production. The Ad Hoc Group of Experts is the only body in UNECE that addresses electricity issues. The mandate of the group has been renewed biennially.

(c) Proposed Activities

In the UNECE region, over 60% of electricity comes from fossil fuels. According to the International Energy agency (IEA), fossil fuels will continue to be the principal source of primary energy and electricity for the foreseeable future. The main challenges in electricity generation, both in UNECE region and beyond, are to improve the electricity industry's efficiency and economic performance while reducing its environmental footprint. Power plants are among the principal emitters of greenhouse gases (GHG).

One effective way to decrease GHG emissions is to improve the efficiency of electricity generation (conversion efficiency) – to produce more electricity from less fossil fuel. The conversion efficiency of coal-fired power plants in some UNECE member states is under 25%. The best available technologies can achieve efficiencies of over 45%. If obsolete, low-efficient generation plants were replaced with modern, efficient ones, almost half of today's GHG emissions from power plants could be avoided (power generation in the UNECE region emitted just under 5 billion tons of CO₂, representing 41% of the global figure). An improvement from 25% thermal efficiency to 35% thermal efficiency could be achieved over the next decade if governments were to pursue the appropriate basket of reforms, notably with regard to market structure, tariff-setting, and investment framework conditions. As with other areas of the energy sub-programme, UNECE provides a platform for exchanges of experience and establishment of best practices. Deploying advanced fossil fuel technologies, however, requires enormous investment. The investment needed to update the world's generation capacities is estimated at USD500 billion a year, according to the IEA. For many countries with economies in transition, such capital requirements far exceed what is domestically available. The Ad Hoc Group of Experts facilitates transfer of technology and capital to countries where deployment of such technologies would have the highest impact.

The deployment of smart grids in the transmission and distribution of electricity will improve generating efficiencies and enable smoother integration of ephemeral renewables and distributed generation into the energy mix by virtue of their real-time communications and automated responses. Standardization of smart grids in UNECE region brings important benefits through achieving a higher overall efficiency and reliability of the electricity sector. Smart grids primarily improve the performance of transmission and distribution networks and help consumers make rational economic decisions.

Even if the most efficient technologies were deployed, fossil fuel-fired power plants would still be significant GHG emitters. Carbon Capture Use and Storage (CCUS) technologies that sequester CO₂ could significantly reduce net power plant CO₂ emissions. There are, however, significant differences among UNECE member States in the level of CCUS-related activities and the perception of the impact that CCUS could have in terms of both volumes and economic efficiency. The proposed activities of the Ad Hoc Group of Experts would improve understanding and awareness of CCUS technology and possibly extend the interest in the technology to non-OECD countries.

The activities proposed in the tables below are in various stages of development. Most of them are in an early stage of development, where, for example, the Ad Hoc Group of Experts on Cleaner Electricity Production from Coal and Other Fossil Fuels has expressed willingness to pursue the activity, but the required extra-budgetary resources still need to be identified:

- Improving the conversion efficiency of coal-fired power plants
- Clean coal strategies to increase conversion efficiency
- Benefits of pre-treatment of coal and other fossil fuels
- Coal-fired electricity production clustering and its efficiency gains
- Smart grid standards in the UNECE region (requested by member States under the energy efficiency section of the outcome document).
- Unconventional fossil fuels and their use in cleaner electricity production
- Opportunities for deployment of carbon capture, use and storage (CCUS) technologies in the UNECE region;

The result of these activities will be a clear understanding by member States with low performance on the use of fossil energy sources for power generation that there are substantial environmental, technical, and economic benefits to be gained from pursuit of best practices in power generation (including market structure and access, prices and tariffs, and contracting conditions).

(d) How does Cleaner Electricity Production relate to the objectives of the UNECE energy sub-programme?

One of the overarching goals of the energy programme is to "help reduce greenhouse gas emissions and the carbon footprint of the energy sector". Deploying highly efficient, advanced fossil fuels technologies for power generation, enhancing technical efficiency of power production through implementation of smart grids, and reducing net emissions of CO₂ through development of economic CCUS technology are all directly aimed at the goals of the energy programme. Performance benchmarking will be a key area to monitor progress toward the Sustainable Energy for All objectives.

(e) Why is the work on Cleaner Electricity Production a priority, and why is UNECE the right venue for it?

Member States have requested the Ad Hoc Group of Experts to focus on activities that significantly reduce greenhouse gas emissions from electricity production from fossil fuels, and in particular advanced fossil, smart grids, and CCUS technologies and the related financial flows.

UNECE is not the only venue for international dialogue on these topics. Specifically for CCUS projects to materialize, concerted work on several fronts is required. UNECE is a platform for inter-governmental dialogue that may provide an additional venue to accelerate the transfer of knowledge, technologies, capacity and capital, without which CCUS projects might not be possible.

(f) Resources

Regular Budget: P3;

Extra-budgetary Resources: variable, please see individual projects

In-kind Contributions: Expert members provide advice, peer review of outputs, supervision, and editorial assistance. Governmental organizations, representatives from the energy/financial sectors and civil society, independent experts and academia would be invited to assist.

(g) Expected concrete results and timelines

- A study/literature review/survey of actors, activities, and issues related to improving the conversion efficiency of coal-fired power plants; financial flows and technology transfer; economic, social and environmental implications, including the effects on climate; comparison with alternative, non-fossil fuel technologies (*e.g.*, renewables or nuclear energy; Nov 2013).

- Assessment of the environmental-economic impacts of innovative technologies and the financial needs to harness unconventional fossil fuels as feedstock in electricity production in a sustainable way. (2013-2015).
- Assistance to selected member States in developing long-term national clean coal strategies based on deploying the next generation of high-efficient, low-emission, and fuel-flexible technologies. National strategies (studies); capacity-building workshops to share best practices and lessons learned; database of case studies. (2013-2018).
- A study on the benefits of pre-treatment of coal and other fossil fuels (e.g. lower quality solid fuels, such as lignite or peat) including the possibility of gasification and briquetting as methods of reducing greenhouse gas emissions from electricity generation. (2013-2014).
- Analysis of efficiency gains and benefits of having coal mining, coal treatment, and electric generation co-located, possibly including CCUS. A study: "Coal-fired electricity production clustering and its efficiency gains", that analyses the pros and cons of clustering, with a possible collection of case studies from various UNECE member States. (2013-2015).
- Analysis of smart grid standards activities, actors, and mechanisms in the UNECE region and beyond. The main deliverables would be to find out where UNECE, as an intergovernmental mechanism, might provide assistance to its member States and help them accelerate development of highly efficient smart grids. A study: "Smart Grid Standards: Who Does What in the UNECE Region and Beyond?" (2013-2015).
- A study/survey of most promising CCUS technologies, concrete examples of CCUS international activities, and status in the UNECE region and selected UNECE member States. (2013-2015).

As with energy efficiency, improving the overall thermal and environmental efficiency of existing power plants will help attain of multiple objectives, including environmental protection, enhancement of energy security, improvement in economic performance and quality of life. The barriers to improving generation performance are significant, and one of the results of the efforts at UNECE will be a clear roadmap for countries on how to proceed toward the desired end result (improved thermal efficiency and reduced net emissions). It is expected as a result of these efforts that there will be significant improvements in mainstreaming basic solutions into the national policy-setting frameworks of UNECE member States, and as a consequence of that mainstreaming there will be significant improvements in the thermal efficiency of fossil fuel generation in the UNECE region.

4. Renewable Energy

(a) Outcome of Informal Consultations on Renewable Energy

IV. Renewable Energy

Objective

In line with the “Sustainable Energy for All” initiative of the UN Secretary-General, the UNECE should focus on activities that help significantly increase the uptake of renewable energy in the region and that help achieve the objective of access to energy for all in the UNECE region.

Areas of Work

Regulatory and policy dialogue and sharing best practices on various renewable energy sources, including biomass, with a view to increasing the share of renewables in the global energy mix.

Concrete Activities

- The CSE will help member States, at their request, to identify those communities in the UNECE region that, at present, have no access to energy, and it will help suggest ways to ensure that these communities have access to renewable or alternative sources of energy as soon as possible. Energy companies could be asked to help to achieve that objective.

- In view of existing UNECE expertise, the CSE will work:

- (a) on increasing energy production from renewable sources throughout the region;
- (b) on activities that will increase access to heat from renewable energy sources throughout the region by means of activities that will improve access to heat and power from renewable energy sources in the UNECE region, including for communities referred to in the first bullet under this heading;
- (c) on sustainable development of non-forest based biomass production.

- Encourage the exchange of know-how and best practices between relevant experts of all member States in order to attract investments in energy production from renewable sources, such as in wind, solar and hydro power projects as a means of sustainable development and climate change mitigation.

In addition, UNECE member States could decide to develop other concrete and results-oriented activities of CSE within agreed mandates. The activities of the sustainable energy subprogramme are complementary to and implemented in cooperation and coordination with other UNECE subprogrammes, in particular with the ECE-FAO Forestry and Timber subprogramme.

(b) Institutional Framework

Renewable energy (RE) projects are implemented under the auspices of the EE21, which assists economies in transition to develop and promote sustainable energy policies, pursue renewable energy strategies, reduce greenhouse gas emissions to meet international treaty obligations and enhance the security of energy supplies. The general objective of EE21 is to enhance regional cooperation on

renewable energy market formation and investment project development to reduce greenhouse gas emissions in economies in transition. Some projects on renewable energy are conducted in collaboration with the Committee on Economic Cooperation and Integration and Timber sub-programmes (woody biomass).

If a new intergovernmental body on RE were to be established some of the projects could be moved under its responsibility. Some projects contain both EE and RE components and would remain under the EE21 Programme. The work proposed will be conducted in close collaboration with IRENA, the International Energy Agency, and industry. Inasmuch as achieving the goals set for renewable energy would be facilitated by assembling UNECE's renewable energy community in an intergovernmental setting, the Bureau of the Committee on Sustainable Energy suggests that member States consider establishing an Expert Group on Renewable Energy. To off-set any potential additional costs associated with a new body (e.g., additional conference services), the Bureau suggests replacing the Group of Experts on the Supply and Use of Gas with the Expert Group on Renewable Energy. The activities of the Group of Experts on the Supply and Use of Gas could be integrated into the activities of its parent body, the Working Party on Gas.

(c) Proposed Activities

Increasing the share of renewables in the global energy mix is one approach to reducing the carbon intensity of the energy sector as well as improving energy security and contributing to access to modern energy services for those communities that lack adequate access. It involves enhancing the cost-effective contribution of renewables across networked power grids, improving their performance in distributed generation applications, and ensuring balanced technology choices. Beyond 2015 it is generally considered necessary to achieve a paradigm shift if the world is to achieve its sustainable development objectives that the sustainable energy for all initiative is intended to support, and renewable energy could play an important part in that paradigm shift.

The goals that have been set for implementation of renewable energy vary significantly across the member States of the UNECE, and attainment of the established goals is likewise variable. Also, the policy tools that have been deployed to date are very heterogeneous and there is not a consensus on which tools contribute cost-effectively to attainment of the development, security, and environmental goals. Finally, the technological, financial, and managerial capability of member States to enhance the contribution from renewable energy sources shows a wide gap between leading and lagging member States. The work of the UNECE in the area of renewables, as determined in the Outcome document, is intended to address the challenges in all of these areas. In addition to the specific activities proposed below, and in the absence of an existing group of experts dealing with renewables in UNECE, member States are invited to suggest priorities and timelines for activities related to renewable energy. In the future, an Expert Group on Renewable Energy could provide its suggestions for activities in this area.

In addition, one of the activities proposed in the area of natural gas below is to assess and enhance the role that natural gas could play in facilitating the introduction of renewable energy in grid-based applications.

Concrete activities as listed for Renewables in the Outcome Document

Identify those communities in the UNECE region that, at present, have no access to energy, and help suggest ways to ensure that these communities have access to renewable or alternative sources of energy as soon as possible.

- Help member States expand energy access for those who do not have any (or only very poor) electricity supply, improve energy efficiency and increase the use of renewables.

Work on increasing energy production from renewable sources throughout the region; work on activities to increase access to heat from renewable energy sources; work on sustainable development of non-forest based biomass production.

- Promote Renewable Energy Investments for Climate Change Mitigation and Sustainable Development, including heat production
- Develop and disseminate renewable energy policy best practices through UN Regional Commissions (to be implemented under the framework of the proposed MOU with IRENA)
- Enhance non-forest-based biomass production in the UNECE region including technology, best practices policy, and case studies (proposed under CECI and not detailed here).

Encourage exchanges among experts in order to attract investments in energy production from renewable sources.

- Promote Renewable Energy Investments for Climate Change Mitigation and Sustainable Development, including heat production
- Develop and disseminate renewable energy policy best practices through UN Regional Commissions (to be implemented under the framework of the proposed MOU with IRENA)
- Enhance the capacity of member States to pursue robust renewable energy programmes.

(d) How Renewable Energy relates to the objectives of the UNECE energy subprogramme

One of the overarching goals of the energy programme is to "help reduce greenhouse gas emissions and the carbon footprint of the energy sector". The outcome document directly refers to this activity in "The Committee on Sustainable Energy (CSE) ... is mandated to carry out a programme of work in the field of sustainable energy with a view to providing access to affordable and clean energy to all, in line with the "Sustainable Energy for All" initiative of the Secretary-General, and to help reduce greenhouse gas emissions and the carbon footprint of the energy sector."

(e) Why is the work in renewables a priority, and why is UNECE the right venue for it

UNECE member States have the technology, experience, and capital to enhance the access to modern energy services of communities who lack it and to improve the overall contribution that renewable energy makes to the energy mix of the countries of the region.

(f) Resources

Budgetary: P5, 2 P4s: distribution varies over time as outlined in the project specifics below.

Extra-budgetary: USD2160k (over 5 years)

In-kind contributions. The main activity on enhancing access to modern energy services through increased penetration of renewable energy sources will be conduction in collaboration with IRENA and with industry. Support of project activities of the national participating institutions; providing experts to work as consultants on a non-reimbursable basis; organizing and hosting meetings; preparing technical and economic reports, statistics, energy data and other information related to Programme activities;

(g) Expected concrete results and timelines

- Analysis and assessment of policies to meet SE4ALL goals: access to modern energy services, improve energy efficiency, and increase the rate of renewable energies (2013-2016)
- Survey of communities without access to modern energy services (2013-2016)
- Recommendations to enhance access through increased use of renewable or alternative sources of energy (2013-2016).
- Implementation of pilot projects related to achieving SE4ALL main goals (2013-2016).

5. Coal Mine Methane

(a) Outcome of Informal Consultations on Coal Mine Methane

V. Coal Mine Methane

Objective

To promote 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.

Areas of Work

Best practice guidance for Effective Methane Drainage development and dissemination.

Concrete Activities

- Electronically disseminate Best Practice Guidance for Effective Methane Drainage and Recovery in Coal Mines to all major stakeholders in the UNECE region and beyond as recommended by ECOSOC (Decision 2011/222) before August 2013;
- Prepare suggestions, by August 2013, on how to develop, as appropriate, similar best practices guidance for aspects of CMM management that are not covered in detail by the current document such as best practice drilling or low-concentration methane drainage;
- Prepare proposals, by August 2013, for case studies, where appropriate and financed by extra-budgetary resources, on the application of best practice guidance in specific coal mines in different regions of the world.

If the activities carried out by ECE coal mine methane experts reveal broader safety issues, they may communicate these to the ILO for consideration in its coal mine safety guidelines.

(b) Institutional Framework

The primary focus of the Ad Hoc Group of Experts on CMM is to promote best practices in methane management. The Group comprises experts in coal mine methane management from around the world, and the current Bureau comprises representatives from the United States of America, Ukraine, United Kingdom, Germany, Poland, and the Russian Federation. The Group reports directly to the CSE, and its activities are coordinated with the ILO and the Global Methane Initiative.

(c) Proposed Activities

The primary focus of the Ad Hoc Group of Experts (AHGE) on Coal Mine Methane (CMM) is to promote best practices in methane management. Adoption of best practices reduces the environmental footprint of coal mines and improves their economic performance. Methane is 21 times more potent greenhouse gas than CO₂, so burning methane into CO₂ actually reduces overall greenhouse gas emissions. Methane totals 14% of global anthropogenic greenhouse gas emissions and coal mines release 6% of global anthropogenic methane emissions (about 400 million tonnes of carbon dioxide equivalent per year). CMM emissions are projected to increase through 2020, with estimates as high as nearly 800 MtCO₂e by 2020. Adopting best practices also helps coal mines avoid accidents, in particularly those associated with methane drainage, leakage and explosions. In 2004, the AHGE on CMM noted that the global coal mining industry lacked a set of recommended principles and standards to guide mine operators, regulators,

government officials and technical professionals to manage methane effectively. The need for such principles was especially the case in emerging economies. To address this challenge, the "Cooperative Project on Methane Capture and Use to Improve Mine Safety", financed by the United States Environmental Protection Agency, was launched in October 2008. The project results were published in the "Best Practices Guidance on Effective Methane Drainage and Use in Coal Mines". The publication was followed by a series of workshops held in China, Kazakhstan and Ukraine as a first step toward disseminating information and encouraging adoption of best practices by opening dialog among world recognized experts and industry professionals within these countries. In 2010, UNECE, in cooperation with the Global Methane Initiative, released "Best Practice Guidance for Effective Methane Drainage and Use in Coal Mines", intended to encourage use of coal mine methane and to reduce greenhouse gas emissions while improving mine safety at active underground coal mines.

In July 2011 the Economic and Social Council invited all UN member States, international organizations and the regional commissions to consider the possibility of taking appropriate measures to ensure the application of *Best Practice Guidance* worldwide. The ECOSOC decision recommended *Best Practice Guidance* as a global standard for coal mine safety through better methane management.

Underground coal production has shifted away from some traditional coal-producing UNECE member States (e.g., Germany, the United Kingdom and Spain) to countries outside UNECE. The coal production in the UNECE region as whole has been on decline since at least 2003. Globally, this has not been the case: in the last 10 years, coal production in the world has increased around 40 per cent. Such increased coal production is associated with increased methane emissions and more frequent accidents. The merit in better management of methane in underground mines is not only the greenhouse gas issue, but also the health and safety issue. In the last four years in the UNECE region 183 miners died in underground coal mines in accidents caused by methane explosions. Inasmuch as coal mine safety is a topic addressed at the International Labour Organisation (ILO), the AHGE will communicate the broader safety issues to the ILO for their due consideration. The ILO will be invited to join the Bureau of the AHGE in order to facilitate that communication.

The following activities are proposed under this element of the energy sub-programme:

- Dissemination of existing best practice guidance and review of success of dissemination in encouraging implementation.
- Initiate and develop additional electronic publications on best practice drilling and low concentration methane drainage (aspects of methane management not covered in the existing document (proposals by August 2013))
- Development and dissemination of case studies on the application of best practice guidance in coal mines;(proposals by August 2013)
- Demonstration projects on application of best practice guidance (proposals by August 2013).
- Establishment of an International Centre of Excellence on Coal Mine Methane

The success implementation of these activities should lead to an improved set of best practices that go beyond the current document, and a significant improvement in the uptake of best practices in regions where methane management is an issue.

(d) How "does work on Coal Mine Methane relate to the objectives of the UNECE energy subprogramme

The UNECE energy sub-programme is mandated to carry out a programme of work in the field of sustainable energy with a view to providing access to affordable and clean energy to all and to help reduce greenhouse gas (GHG) emissions and the carbon footprint of the energy sector.

Methane is 21 times more potent greenhouse gas than CO₂, so capturing methane from coal mines and burning it into CO₂ actually reduces overall GHG emissions. The primary focus of the Ad Hoc Group of Experts on CMM is to promote best practices in methane management. Adopting and implementing best practices helps decrease environmental footprint of coal mines and improve their economic performance. It also helps coal mines avoid accidents associated with methane drainage, leakage and explosions.

(e) Why is the work on Coal Mine Methane a priority, and why is UNECE the right venue for it?

The merit in better management of methane in underground mines is that greenhouse gases are captured and burned and that explosions can be prevented.² The merit in disseminating the best practices guidance at a global level is that lately underground coal production has shifted away from some traditional coal-producing UNECE member States (e.g., Germany, the United Kingdom and Spain) to countries outside UNECE such as China.³ Since there are still methane explosions occurring within the ECE region and globally, there is need for broader dissemination, improved implementation of best practices, and extension of the best practices to embrace topics not covered in the current document.

The UNECE Ad Hoc Group of Experts on Coal Mine Methane is the repository of significant expertise in methane management, and it has been working to put that expertise to good use, in UNECE region and beyond. Sharing knowledge, technology, experiences and good practices within UNECE and with other regions contributes to climate change mitigation efforts and saves lives. There are still methane explosions occurring within the ECE region, which begs for broader dissemination of the best practice guidance, improved implementation, and extension of the best practices to embrace topics not covered in the current document.

The UNECE Ad Hoc Group of Experts on Coal Mine Methane is the right venue because:

- It is the repository of significant expertise in methane management;
- It has been working to put that expertise to good use, in the UNECE region and beyond, by sharing knowledge, technology, experiences and good practices within the UNECE and with other regions. This has contributed to climate change mitigation efforts and has saved lives.

The work of the group is coordinated with the Global Methane Initiative, the ILO, and other international organizations, thereby avoiding duplication of work and mandates. Worker-related health and safety issues, including coal mine safety, are addressed by the ILO. ILO organizes meetings of experts on safety and health in coal mines and has developed several instruments on mine safety in general (including Convention C-176 of 1995 on safety and health in mines, Recommendation R-183 of 1995 on safety and health in mines) and on coal mine safety in particular (including the 2006 Code of practice on safety and health in underground coalmines). The AHGE will transfer broader safety implications that emerge from its work to the ILO for their due consideration. The ILO will be invited to join the Bureau of the AHGE in order to facilitate that transfer and avoid duplication of work and/or mandates.

(f) Resources

Regular Budget: 1 P3 (65%)

Extra-Budgetary Resources: USD226,000

² In the last four years in UNECE region 183 miners died in underground coal mines in accidents caused by methane explosions. On 11 February 2013, 18 Miners died in Vorkutinskaya, Russia. On 29 July 2011, 26 Miners died in Suhodolska, Ukraine. On 8 May 2010, 90 miners died in Rapsadskaya, Russia. On 5 April 2010, 29 miners died in Upper Big Branch in the United States. On 18 September 2009, 20 miners died in Wujek-Slask in Poland.

³ The coal production in UNECE region as whole has been on decline since at least 2003. Globally, this has not been the case: in the last 10 years, coal production in the world has increased around 40 per cent. Such increased coal production is associated with increase methane emissions and more frequent accidents. According to some estimates, China accounts for over 80% of fatalities in underground coal mines. In 2006 alone, according to the Chinese State Work Safety Supervision Administration, 4,749 Chinese coal miners were killed in thousands of blasts, floods, and other accidents.

In-kind Contributions: Experts and members of the Ad Hoc Group of Experts provide industry contacts and advice. Governmental organizations, representatives from the energy and financial sectors and civil society, independent experts and academia participate in the activities, contributing their time and expertise.

(g) Expected concrete results and timelines

The activities proposed below therefore undertake to:

- Electronically disseminate the existing best practice guidance for effective methane drainable and recovery in coal mines by August 2013
- Initiate and develop a series of publications "Best Practices in Sound Methane Management", for aspects of methane management not covered in the existing document (2013-2015, proposals by August 2013)
- Development and dissemination of case studies on the application of best practice guidance in coal mines (2013-2015, proposals by August 2013)
- Application of Best Practice Guidance in Operating Coal Mines as demonstration projects(2013-2015, proposals by August 2013)
- Establishment of an International Centre of Excellence on Coal Mine Methane (2013-2016). By December 2015: one or more Member Countries will set up and host an International Centre of Excellence on Coal Mine Methane to promote and disseminate best practices in cooperation with the UNECE International PPP Centre of Excellence;

6. Framework Classification for Fossil Energy and Mineral Reserves and Resources

(a) Outcome of Informal Consultations on UNFC

VI. "UN Framework Classification for Fossil Energy & Mineral Reserves & Resources

Objective: Classification of energy and mineral reserves and resources

Areas of Work: UN Framework Classification

Concrete Activities:

- Electronically disseminate UNFC to all major stakeholders by August 2013.
- Finalizing the generic specifications by December 2013 to make UNFC operational.
- Develop ideas on how UNFC could apply to and integrate renewable energy by December 2013.
- Develop proposals on how to conduct on-going maintenance, technical advice, guidance and periodic updates to UNFC in order to ensure the system remains relevant, useful, and operates efficiently in light of on-going technological developments including in the field of carbon capture and storage."

(b) Institutional framework and synergies with other international actors

The work on UNFC is carried out by the UNECE Expert Group on Resource Classification (Expert Group) and its sub-groups: Specifications Task Force, Technical Advisory Group (when established), Communications Sub-Committee. The Expert Group currently has a five-year mandate that expires in December 2014. UNFC stakeholders or end-users need the assurance of continuity and long-term governance offered by a five-year mandate. Resource classification is a lasting, dynamic issue, as demonstrated by the periodic modifications and updates experienced by commodity-specific resource classification schemes. In particular, the development of new technologies means that any resource classification system cannot remain static. There is a need for on-going maintenance, technical advice, guidance and periodic updates in order to ensure that the UNFC remains relevant, useful, and operates efficiently. All stakeholders using the classification system need the assurance that technical advice and improvements to UNFC will be provided as necessary to adapt and refine its capabilities.

Cooperation on UNFC is undertaken with the four principal stakeholders/end-users whom UNFC has been designed to serve: (i) Creators of international energy and mineral studies – to facilitate the formulation of consistent and far-sighted policies; (ii) Governments (both UNECE and non-UNECE) – to manage their resources accordingly; (iii) Industry – to provide data and information necessary to deploy technology, management and finance in order to serve the host countries, shareholders and stakeholders; and (iv) Financial community – to provide information necessary to allocate capital appropriately, so reducing costs. Cooperation is also undertaken with relevant professional societies and associations, academia and individual experts.

(c) Proposed Activities

UNFC⁴ provides a global communications tool applicable to all extractive activities, covering solid mineral and fossil energy resources, including oil, natural gas, coal and uranium. As the only global system that allows different classifications to be unified to a single representation of the entire mineral or hydrocarbon system, UNFC has a significant impact on the ability to accurately understand the

⁴ United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009

availability of non-renewable resources and hence facilitate the development of appropriate long-term energy policies. The work related to the further development and promotion of UNFC is undertaken by the UNECE Expert Group on Resource Classification, which operates with a global mandate provided by ECOSOC Decision 2004/233. UNFC has been developed to meet the needs of four key groups of stakeholders to the extent possible: those formulating international energy and mineral studies, governments for resource management functions, industry and the financial community. There is also the potential for UNFC to address renewable energy resources, which would for the first time allow development of a classification system for renewable and non-renewable energy projects so allowing for a better view of energy sustainability.

Ongoing priority activities of the Expert Group are:

- (i) finalizing the generic and solid minerals and petroleum-specific specifications (to make the UNFC operational), and
- (ii) electronically disseminating UNFC (with the specifications) to all main stakeholders.

Additional proposed activities listed in the tables below are:

- (i) assessing the possible extension of UNFC to renewable energy;
- (ii) creation of a technical advisory group to advise on implementation and interpretation of UNFC and to conduct ongoing maintenance and periodic updates;
- (iii) assessing the potential use of UNFC in classifying injection projects;
- (iv) education and outreach on UNFC;
- (v) developing documentation for the application of UNFC to nuclear fuel resources;
- (vi) compiling information on UNFC case studies and pilot projects;
- (vii) monitoring developments in financial reporting, in particular any potential development of an International Financial Reporting Standard for extractive activities (superseding IFRS 6).

These activities were developed in cooperation with and subsequently approved by the Chair, First Vice Chair and fourteen Vice Chairs of the Expert Group. The Bureau members are representative of the full range of UNFC end-users, including UNECE member States.

(d) How does work on UNFC relate to the objectives of the UNECE energy subprogramme

The UNECE energy sub-programme is mandated to carry out a programme of work in the field of sustainable energy with a view to providing access to affordable and clean energy to all, in line with the “Sustainable Energy for All” (SE4All) initiative of the UN Secretary-General, and to help reduce greenhouse gas (GHG) emissions and the carbon footprint of the energy sector.

(a) Provide access to affordable and clean energy to all: In order to improve the performance of the energy sector in terms of production and consumption, measurements will be needed – if you cannot measure something, you cannot manage it. UNFC provides a universally applicable system that is compatible with existing classifications and which will allow a consistent, reliable and accurate comparison of energy reserves and resources globally. The location of fuel for clean energy production and efficient production of the hydrocarbons that will be needed for a sustainable energy future is dependent on knowing where the resources are, as well as their magnitude. The emphasis on projects and their social and environmental impact in addition to commercial analysis is unique to UNFC. By translating “quantities” from existing systems to the UNFC, the real socio-economic and environmental impacts of the various proposed projects can be seen and compared. The application of UNFC will facilitate efforts to develop global resources optimally. Efficient use and development of resources will both enhance their contribution to development and reduce their cost.

(b) **Reduce GHG emissions and the carbon footprint of the energy sector:** The potential application of UNFC to renewable energy resources and also to injection projects, including the storage of carbon dioxide, will provide a better view of energy sustainability. 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.

(e) Why is the work of the Expert Group on Resource Classification a priority, and why is UNECE the right venue for it?

The work of the Expert Group and the development of UNFC is a priority because a global classification system for reserve and resource estimates, one that incorporates across fuel and non-fuel resources, is a vital tool in encouraging sustainable resource development and use. Since the UNFC is not yet complete and hence operational, its tangible impact in the energy world can neither be judged nor measured. However, the level of support by the key stakeholders involved in developing UNFC, which in many cases is over a period of more than five years and in some cases up to 20 years, clearly demonstrates a firm belief in the enormous value of such a system. A standardized system of classifying and hence comparing non-renewable and renewable reserves of energy will enable investors to easily compare 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, this will facilitate the most efficient allocation of investment capital to competing energy projects, aiding the development of the rapidly changing global energy complex.

Classification activities are currently carried out worldwide by a number of actors including UNECE, the Committee for Mineral Reserves International Reporting Standards (CRIRSCO), the Society of Petroleum Engineers (SPE), and a range of individual countries and regulatory bodies. For example, within the UNECE region a range of EU countries, as well as Norway and the Russian Federation have their own national classification systems and securities regulators in the United States and Canada have systems for corporate reporting. Other than the UNFC, all these systems are specifically designed either for petroleum or for solid minerals and do not cover both. In addition, these systems often use the same terminology, but defined differently. There are so many classification systems worldwide that a standardized system, covering both petroleum and solid minerals, and using harmonized terminology is urgently needed to facilitate the reporting of reserves and resources nationally, at EU-level, UNECE-level and globally. No other body/organization is working on a global classification system such as UNFC.

The UNECE is the right venue for work on UNFC because:

- It has a positive track record in developing norms and standards and UNFC is a global standard for classifying reserves and resources.
- It offers the only platform where all UNFC stakeholders – including UNECE and non-UNECE member countries, the private sector, international organizations and the financial community – are able to come together in a neutral setting to develop a globally applicable system. UNECE provides the catalyst for bringing together Governments, organizations and individuals with common interests in the area of resource classification who otherwise would not meet.
- It is, within the UN system, the only body with relevant expertise (UNECE has worked on developing energy-related classification systems since the late 1940s) and it is structured to ensure its activities are conducted through an open and transparent process with no formal limitations on participation.
- Periodic reviews are made by the Expert Group to ensure that UNECE continues to be the “optimal home” for this work and to ensure that the activities are not duplicated elsewhere.
- UNECE is collaborating closely with other relevant bodies such as CRIRSCO and SPE, who are providing valuable inputs to the framework classification, in the form of the solid minerals and

petroleum-specific specifications, which serves to avoid duplication and also ensure quality, comprehensiveness, and inclusion.

(f) Resources

Budgetary: 1 P4

Extrabudgetary:

In-kind contributions: the development of UNFC would not have been possible without the very significant and long-term in-kind contributions of the members of the Expert Group, including Governments, the private sector, professional societies and associations, international organizations, academia and individual experts. These in-kind contributions have been provided in the form of time (man hours for direct work and travel time to and during events), direct sponsorship of events (including meetings, workshops, conferences, receptions) and travel (travel encompasses flights, hotel and other associated costs of participating at events). It is estimated that current in-kind contributions to the work of the Expert Group are in the order of USD one million per annum. This level of in-kind contributions will need to be maintained for the work of the Expert Group to continue or alternatively be replaced by an equivalent level of extrabudgetary funding.

(g) Expected concrete results and timelines

- (a) By August 2013: on the basis of input from the Expert Group, the Secretariat will compile an enhanced database of contacts to allow electronic dissemination of UNFC;
- (b) By end 2013: Expert Group will develop generic and commodity specific specifications for petroleum and solid minerals;
- (c) By end 2013: Expert Group will develop a written assessment of UNFC application to renewable energy;
- (d) By end 2014: Expert Group will develop a written assessment of UNFC application to injection projects;
- (e) By end 2014: Expert Group will develop a written assessment of UNFC application to nuclear fuels;
- (f) 2013-2017: Members of the Technical Advisory Group will provide assistance and advice on implementation and interpretation of UNFC, and will carry out maintenance of UNFC and suggest periodic updates;
- (g) 2013 and ongoing (subject to annual review): Communications Sub-Committee will further develop the communications and education strategy for implementation by members of the Expert Group;
- (h) 2013 and ongoing: on the basis of input from the Expert Group the Secretariat will compile information on UNFC case studies and pilot projects;
- (i) 2013 and ongoing: monitoring developments in financial reporting, in particular any potential development of an International Financial Reporting Standard for extractive activities (superseding IFRS 6).

7. Natural Gas

(a) Outcome of Informal Consultations on Natural Gas

VII. Natural Gas

Objective

Provide a forum for multi-stakeholder dialogue on ways to promote the sustainable and clean production, distribution and consumption of gas in the UNECE region

Areas of Work

Policy dialogue and exchange of information and experience among UNECE member countries on:

- (a) Gas-related issues of regional relevance, including the role of gas in the global energy mix;
- (b) The relation between natural gas and the environment.

Concrete Activities

- Studies, delivered in a timely way, on the sustainable and clean production, transport, and use of gas, including on:
 - (a) Issues that emerge from natural gas market studies carried out in the past;
 - (b) Methods of preventing gas losses and leakages during production and distribution.
- Maintain a transparent dialogue between governments and the gas industry through the extra-budgetary Gas Centre programme.

(b) Institutional Framework

Work on Natural Gas is undertaken under the auspices of the Working Party on Gas. The market analyses and studies are undertaken in collaboration with member States, gas companies, and other natural gas stakeholders such as the International Gas Union, UNECE's Gas Centre, the NGVA, and the IEA. The Gas Centre is a purely extrabudgetary activity that was launched in 1994 as a technical cooperation programme to assist governments and gas companies in Central and Eastern Europe in creating more decentralized and market-based gas industries. Today the Gas Centre activities are focussed on exchanges among member companies on gas market developments, especially between member companies with experience in free-market conditions and companies in countries with an economy in transition; and exchanges of information and views between the gas industry, the ECE and governments on issues of relevance for the gas industry. Current contributing companies include:

AFRIQUIA GAZ (Morocco);	KazMunaiGaz (Kazakhstan);
BOTAS Petroleum Pipeline Corporation (Turkey);	Moldovagaz (Moldova);
EDF (France);	NJSC NAFTOGAZ/ UKRTRANS GAS AC (Ukraine);
EDISON (Italy);	OMV Gas & Power GmbH (Austria);
Egyptian Natural Gas Holding Company (EGAS) (Egypt);	PLINACRO (Croatia);
Eni Gas and Power (Italy);	ROMGAZ (Romania);
GasNatural Fenosa (Spain);	PLINOVODI (Slovenia);
GasTerra (the Netherlands);	SOCAR (Azerbaijan);
GAZNAT (Switzerland);	SONATRACH (Algeria);
GAZPROM (Russia);	SRBIJAGAS (Serbia);
GDFSUEZ (France);	STEG (Tunisia);
	SWISSGAS (Switzerland)

The Gas Centre is working to attract additional companies to reflect the range of UNECE member States and stakeholders in gas topics that affect UNECE gas markets. Relations with gas associations are also being enhanced.

(c) Proposed Activities

The Working Party on Gas serves as a forum for assessing changes and trends in the European gas situation. It promotes the exchange of information and experience between and among ECE member-countries, considering policies, fostering international cooperation in problems of common interest and demonstrating the significant benefits to consumers from the use of a valuable natural resource. The work of the Working Party on Gas is supported not only by the gas community of member State governments, but also by private and public companies from the North American, European, and Central Asian gas industry that contribute their experts to the various studies and activities.

With respect to issues that have emerged from natural gas market studies carried out in the past, the Working Party on Gas proposes to undertake the following studies:

- Enhancing interoperability of the gas pipelines and LNG terminals in the UNECE region
- Fostering development of natural gas filling stations for natural gas vehicles

With respect to gas losses and leakages, the Working Party on Gas proposes to undertake the following study:

- Methods of preventing gas losses and leakage during production and distribution of gas in the UNECE region

Finally, the Working Party on Gas proposes to undertake the following new studies:

- Use of gas to enhance the penetration of renewables
- Study on Security of Gas Supply and Ways to Enhance it in the ECE Region

The Working Party on Gas also proposed to undertake a follow-up to the study on underground gas storage by evaluating the storage segment of carbon capture and storage, but since this topic will be taken up by the Ad Hoc Group of Experts on Cleaner Electricity Production, the Working Party will ask its experts on underground gas storage to participate in the work of the Ad Hoc Group and report back on the findings.

In addition to contributing to institutional capacity development and training for the benefit of economies in transition, the Gas Centre activities are focussed on:

- Exchange of information and data among the member companies on the gas markets and gas industry and especially between member companies with experience in free-market conditions and companies in countries with an economy in transition;
- Exchange of information and views between the gas industry, the UNECE and governments on policy issues;
- Serving as a platform for discussions on topics of interest and policy development.
- To cooperate with other agencies/international organisations (IGU, EU, WEC, IEA, World Bank, other UN regional commissions, etc.)

The UNECE Gas Centre interacts with the Working Party on Gas on the approved activities of the Working Party to provide an industry perspective. The activities undertaken annually and the programme of work that is approved are developed by the Chair and the Executive Board of the Gas Centre.

(d) How does the work on natural gas relate to the objectives of the UNECE energy subprogramme

The UNECE energy sub-programme is mandated to carry out a programme of work in the field of sustainable energy with a view to providing access to affordable and clean energy to all, in line with the “Sustainable Energy for All” (SE4All) initiative of the UN Secretary-General, and to help reduce greenhouse gas (GHG) emissions and the carbon footprint of the energy sector. It will be necessary to

reduce greenhouse gas emissions by 50% to avert a climate change disaster while supporting economic development and energy access. USD 48 billion per year of energy investments, will be required to 2030 to provide access to modern energy services to the billions people who are deprived of it. Attaining this ambition will require deep public-private engagement in the form of effective framework conditions for investment and industrial commitments. Natural gas is an important fuel for the transition, and gas-fired power plants are an important factor in enabling the uptake of renewable energy.

(e) Why is the work on natural gas a priority, and why is UNECE the right venue for it?

The projects under the Working Party on Gas foster increasing interconnectivity of the gas infrastructure, the key issue for gas markets today, on a platform that includes all stakeholders in natural gas in the UNECE region. Apart from the fact that there is no other venue for such activity, UNECE has all required infrastructure and constituency to facilitate such major efforts.

The current platform of the Gas Centre for dialogue between and among the industry and member States has been effective and is a strong foundation for continued engagement in line with the Secretary-General's initiative on public-private engagement.

(f) Resources

Working Party on Gas:

Regular budget: 1 P5.

Extrabudgetary: none

In-kind contributions:

Gas Centre:

Budgetary: 1 P3; normally the gas centre also has had a P5 running it, but with current budget constraints this post has been temporarily frozen.

Extra-budgetary: The entire budget of the UNECE Gas Centre is extrabudgetary.

In-kind contributions. Participating companies offer the time and travel costs of experts and executives, they often provide facilities or host events.

(g) Expected concrete results and timelines

- Interoperability standards for gas pipelines/LNG terminals in UNECE (2013-2015).
- Complete set of UNECE-wide standards for the efficient operation of natural gas filling stations (2013-2015).
- Either a best practices guidance or standards and operational practice with regards to the maximum allowed gas losses and leakage during production and distribution of gas. (2013-2015).
- Best practices for the efficient use of gas to enhance a larger use of renewable energy in the UNECE region (2014-2015)
- A compendium of the key gas supply security risks and related mitigation instruments on the national and international scales. (2014-2016)
- Transparent dialogue between and among governments and the gas industry through the extra-budgetary Gas Centre programme.

8. Resource Summary

The following table summarizes the resources called for in the range of activities and programmes that are described in the companion document. The Regular Budget of the Energy Sub-programme covers only staff costs, with modest additional amounts for travel and consultancies. In the following tables, projects that are shown as with both regular budget and extra-budgetary resources, the regular budget contribution is limited to secretariat staff time for project management.

		2013				2014				XB ('000s)	
		3 P5	4 P4	2 P3	1 P2	3 P5	4 P4	2 P3	1 P2	2013	2014
Energy Efficiency											
	1 Adapt and Disseminate Best Practices on energy efficiency	0.00	0	0	0	0.14	0.8	0	0	600	600
	2 Financing Energy Efficiency Investments for Climate Change Mitigation	0.80	1	0	1	0.70	0	0	0	750	
	3 Analysis of Advanced Technologies in Energy Efficiency and Renewable Energy in the GEE21 Project	0.12	0.4	0	0	0.10	0	0	0	70	
	4 Promoting Energy Efficiency Investments for Climate Change Mitigation and Sustainable Development	0.25	1	0	0	0.20	0	0	0	45	45
	5 Enhancing Synergies in CIS Programmes on Energy Efficiency and Energy Saving for Greater Energy Security	0.41	0.1	0	0	0.40	0	0	0	50	
	6 Enhancing Energy Security and Improving Access to Energy Services through Public-Private Partnerships	0.20	0	0	0	0.20	0	0	0	20	
	7 Energy Efficiency in Housing	0.00	0.05	0	0	0.00	0.05	0	0	25	
	8 Enhancing implementation of the SE4All initiative of the Secretary General in member States	0.00	0	0	0	0.14	0.8	0	0	300	300
	SubTotal	1.78	2.55	0	1	1.88	1.65	0	0	1860	945
CEP											
	1 Opportunities for deployment of carbon capture, use and storage technologies	0.03	0	0.25	0	0.03	0	0.25	0	25	25
	2 Improving the conversion efficiency of coal-fired power plants	0.02	0	0.15	0	0.00	0	0	0	20	
	3 Unconventional fossil fuels and their use in cleaner electricity production	0.01	0	0.1	0	0.01	0	0.1	0	14	14
	4 Clean coal strategies to increase conversion efficiency	0.01	0	0.1	0	0.01	0	0.1	0	30	30
	5 Benefits of pre-treatment of coal and other fossil fuels	0.01	0	0.1	0	0.01	0	0.1	0	10	10
	6 Coal-fired electricity production clustering and its efficiency gains	0.01	0	0.1	0	0.01	0	0.1	0	10	10
	7 Smart grid standards in the UNECE region	0.01	0	0.1	0	0.01	0	0.1	0	15	
	SubTotal	0.09	0	0.9	0	0.08	0	0.75	0	109	104
RE											
	1 Enhancing Access to Modern Energy Services	0.00	0	0	0	0.02	0.4	0	0	300	
	2 Promoting Renewable Energy Investments for Climate Change Mitigation and Sustainable Development	0.10	0	0	0	0.24	0.8	0	0	85	
	3 Renewable Energy Policy Fora through the UN Regional Commissions	0.11	0.2	0	0	0.14	0.8	0	0	200	
	SubTotal	0.21	0.2	0	0	0.40	2	0	0	0	585
CMM											
	1 Disseminate Best Practice Guidance for Effective Methane Drainage and Recovery in Coal Mines	0.01	0	0.1	0	0.00	0	0	0	2	
	2 Develop Best Practices for aspects of CMM management not currently covered in detail	0.01	0	0.1	0	0.01	0	0.1	0	25	25
	3 Development and dissemination of case studies on the application of best practice guidance in coal mines	0.01	0	0.1	0	0.01	0	0.1	0		
	4 Application of Best Practice Guidance in Operating Coal Mines as demonstration projects	0.03	0	0.25	0	0.03	0	0.25	0	38	38
	5 International Centre of Excellence on Coal Mine Methane	0.01	0	0.1	0	0.01	0	0.1	0	7.5	7.5
	SubTotal	0.07	0	0.65	0	0.06	0	0.55	0	72.5	70.5
UNFC											
	1 Finalize generic specifications for UNFC	0.03	0.25	0	0	0.00	0	0	0		
	2 Electronic dissemination of UNFC	0.02	0.15	0	0	0.00	0	0	0		
	1 Potential application of UNFC to renewable energy	0.02	0.15	0	0	0.00	0	0	0		
	2 Technical Advisory Group	0.03	0.25	0	0	0.04	0.35	0	0		
	3 Use of UNFC in classifying injection projects	0.01	0.05	0	0	0.01	0.05	0	0		
	4 Application of UNFC to nuclear fuel resources	0.02	0.15	0	0	0.02	0.15	0	0		
	5 Education and Outreach	0.03	0.25	0	0	0.04	0.4	0	0		
	6 Testing UNFC	0.01	0.1	0	0	0.02	0.2	0	0		
	7 Financial Reporting	0.01	0.05	0	0	0.01	0.05	0	0		
	SubTotal	0.14	1.4	0	0	0.12	1.2	0	0		
Natural Gas											
	1 Enhancing interoperability of the gas pipelines and LNG terminals in the UNECE region	0.30	0	0	0	0.15	0	0	0		
	2 Fostering development of natural gas filling stations for natural gas vehicles	0.20	0	0	0	0.10	0	0	0		
	3 Methods of preventing gas losses and leakage during production and distribution of gas in the UNECE region	0.20	0	0	0	0.10	0	0	0		
	4 Use of gas to enhance the penetration of renewables	0.00	0	0	0	0.10	0	0	0		
	5 Study on Security of Gas Supply and Ways to Enhance it in the ECE Region	0.00	0	0	0	0.10	0	0	0		
	7 Gas Centre Dialogue among and between the gas industry and governments	0.00	0	1	0	0.00	0	1	0	377	400
	SubTotal	0.70	0	1	0	0.55	0	1	0		
Energy Security Dialogue											
		0.30	0.9	0	0	0.15	0.6	0	0		
GRAND Total		3.28	5.05	2.55	1.00	3.23	5.45	2.30	0.00	2041.50	1704.50