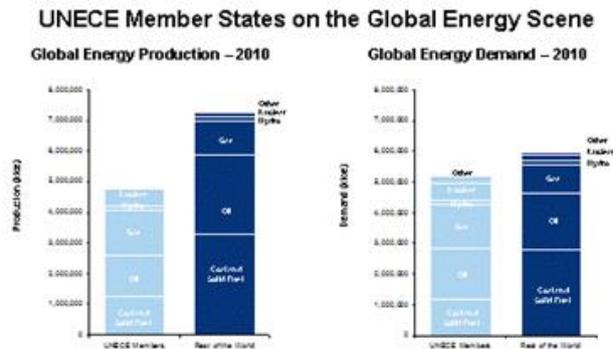




Sustainable Energy Sub-Programme Strategy

Context for Sustainable Energy in the UNECE Region

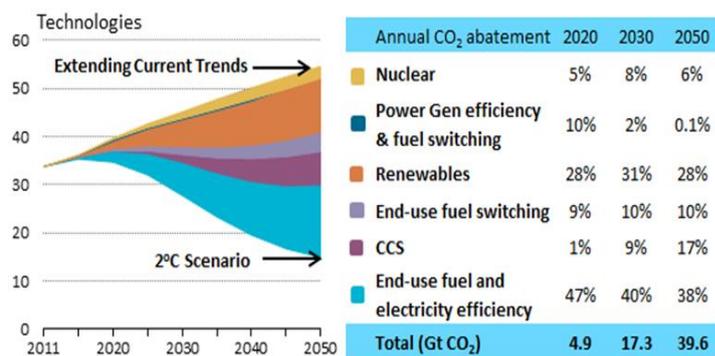
Ensuring sufficient, reliable and environmentally responsible supplies of energy for sustainable development is a key challenge for the countries of the UNECE region. Inasmuch as the global population will rise to 9 billion by 2050, it will be necessary to reduce greenhouse gas emissions by 50% to avert a climate change disaster while supporting economic development and energy access. The UNECE region is of critical importance as it produces 40% of the world's energy while consuming 45%, is home to important energy industries, produces nearly 50% of global economic output, and is dominant in the world's financial infrastructure. Fossil fuels comprise 60% of primary fuel in the UNECE region, making the UNECE region one of the largest emitters of greenhouse gases, accounting for about half of global emissions, and there is no plausible scenario in which that share drops below 50% by 2050. The region is very diverse, comprising high and low income countries, countries that are energy rich and energy poor, and countries that are in the midst of economic transition. All of these features contribute to the growing international dialogue on developing efficient pathways to an energy system that can support sustainable development



The persistent critical challenge is to ensure improving quality of life and economic growth while reducing the environmental footprint of the energy sector. The transition to a sustainable energy system¹ is an opportunity to improve energy efficiency from source to use, minimize environmental impacts, reduce energy and carbon intensities, and correct energy market failures. Seizing the opportunity will require coordinated policy review and reform across many sectors. The region has the potential for economic competitive advantage compared to other regions of the world given the relatively modest distances between energy supply sources and energy demand centres. Full integration of the region's energy markets under an efficient framework would significantly improve the technical, social, economic, and environmental contribution that energy could make. Building a sustainable energy system for the future in the UNECE region will involve a substantial transition from what is in place today. Improving efficiency relates not only to consumer-level energy efficiency issues (such as energy efficient housing, vehicles and appliances), but also to upstream energy

efficiency in production/generation, transmission and distribution. It is an opportunity to accelerate the change from the traditional model of selling energy commodities to one of providing energy services based on innovation. Growth in distributed generation (e.g., heat pumps or solar photovoltaics), shaping energy demand through IT (e.g., home energy management systems), separating time of production from time of consumption through energy storage (e.g., accessing unused vehicle batteries or changing the

Contributions to energy sector annual emissions abatement



Source: ETP 2014, IEA/OECD

¹ The IEA's 6°C Scenario examines the outcomes of a continuation of current policies. The 2°C Scenario explores what would be needed to limit global warming that level. An Intended Nationally Determined Contribution (INDC) scenario looks at what the energy sector will look like in 2030 if all climate pledges submitted up to mid-October are implemented in full.



operations of freezers) and improving high voltage network management (smart grids) are all indicators of an energy revolution that is underway. Central to this agenda is a sustainable electricity system. The development of smart energy networks with common rules of operation is an important opportunity to enhance the collaboration among technologies, thereby enhancing the cost-effective penetration of lower-carbon technologies and improving the resilience of the energy system.

Activities under the Committee on Sustainable Energy

The Committee on Sustainable Energy's activities are conceived with a view to ensuring access to affordable and clean energy to all and to help reduce greenhouse gas emissions and the carbon footprint of the energy sector. Under its current programme, UNECE has begun developing normative instruments, including its work on standards and best practice guidances in energy efficiency, renewable energy, natural gas (reducing leaks, supporting renewables, penetrating transport, and facilitating LNG trade), clean electricity, and coal mine methane. Proper management of methane from source to use in extractive industries will be an effective means of reducing emissions of an intensive greenhouse gas. UNECE is helping countries improve management of their natural endowments through the United Nations Framework Classification and has recently published recommendations to policy makers on carbon capture and storage.

In the longer term and to affirm its value added, UNECE will need to continue and expand its work in three critical areas: reconciling the reality of fossil fuels' enduring share of the energy mix with the need to address climate change, enhancing integration of the region's energy markets, and facilitating the transition to a sustainable energy system. The transition to a new, sustainable and reliable energy system can be accelerated if member States implement in a concrete fashion the measures called for in the Hammamet Declaration².

Each technology and innovation has a role to play since there is no single solution to all problems. The world is changing rapidly in terms of population dynamics, wealth and resource needs, environmental quality, technological progress, and economic globalization. Because the world is changing rapidly, governments cannot afford to gamble on specific technologies. The focus should rather be on the holistic, complementary and sustainable energy system of the future and efficient pathways to get there.

Governments and industry must complement one another, with governments using their instruments to secure a functional legal, regulatory, fiscal and infrastructural framework within which industry interests align with those of government and that allows it to deploy its technology, management and finance to the full capacity. Under the right framework conditions, industry and investors will be in a position to produce the services needed by government and society effectively and efficiently.

Current Activities of Subsidiary Bodies

Group of Experts on Energy Efficiency. The Group of Experts is mandated to carry out concrete, results-oriented activities that help improve energy efficiency significantly in the region, thus contributing to climate change mitigation efforts, and that strengthen regional cooperation in energy efficiency with a view to reducing greenhouse gas emissions. The Group of Experts concentrates on: regulatory and policy dialogue addressing financial, technical and policy barriers to improve energy efficiency; and sharing experience and best practices in the field of energy efficiency in the United Nations Economic Commission for Europe (ECE) region, including on strengthening institutional capacity in energy efficiency to reduce greenhouse gas emissions. The Group of Experts has been asked to identify the state of development of energy efficiency in countries in the region to establish a baseline for further activities. The work is based on existing data and benchmarking indicators in order to identify success stories that can be scaled up. The Group of Experts has also been asked to encourage the exchange of know-how and best practices between relevant experts of all member States on how to significantly improve energy efficiency uptake. Finally, the Group of Experts was requested to provide an overview of smart grids initiatives and activities in the region leading to enhanced understanding of the state of development of smart grids and their impact. Additional possible activities mentioned in the work plan for the Group of Experts included: development of roadmaps to help interested countries of the region implement measures that significantly improve their energy efficiency record, including development of national action plans; development of

² http://www.unece.org/fileadmin/DAM/press/pr2014/Energy_Joint_Statement_Fifth_International_Forum.pdf



technical standards and regulations and labelling programs that support national energy efficiency policies and are relevant for the whole ECE region; can cross-cutting activities related to ongoing activities in ECE, for example in selected sectors including transport, electricity production, sustainable housing and buildings, and renewable energy.

Group of Experts on Cleaner Electricity Production. The Group of Experts on Cleaner Electricity Production from Fossil Fuels is mandated to carry out activities that significantly reduce greenhouse gas emissions from electricity production from fossil fuels. The Group of Experts concentrates on regulatory and policy dialogue, sharing best practices on cleaner electricity production from fossil fuels in the ECE region, carbon capture, and storage, enhanced oil recovery with CO₂, advanced fossil fuel technologies for power generation, and evaluation of efficiency enhancing measures for coal-fired power plants including steam generators, air and flue gas systems, steam turbines, generators. The Group of Experts has been asked to prepare a survey of carbon capture and storage (CCS), including the landscape, recent developments and stakeholders, and to assist the UNFCCC in assessing CCS technologies by preparing a communication to UNFCCC on the use of CCS in reducing Greenhouse Gas Emissions. The Group of Experts was also asked to assess the efficiency of the existing fleet of conventional power plants in the UNECE region and to consider what other activities it might undertake in support of its mandate.

Group of Experts on Renewable Energy. The Group of Experts on Renewable Energy is mandated to carry out concrete result-oriented activities that help increase significantly the uptake of renewable energy in the region and that help achieve the objective of access to energy for all in the United Nations Economic Commission for Europe (ECE) region. The Group of Experts focuses on regulatory and policy dialogue and sharing of best practices on various renewable energy sources, including biomass, with a view to increasing the share of renewables in the global energy mix. The Group of Experts has been asked to identify the state of development of renewable energy sources in the United Nations Economic Commission for Europe region and to identify and support those communities that have no access to energy. The Group of Experts has also been asked to exchange know-how and best practices on how to help significantly increase the uptake of renewable energy. The Group of Experts could also be invited to conduct an analysis of the potential and competitiveness of renewable energy technologies in the region, relative to energy production from fossil fuels.

Group of Experts on Coal Mine Methane. The Group of Experts on Coal Mine Methane is mandated 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. 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 Group of Experts has been asked to disseminate electronically its existing Best Practice Guidance for Effective Methane Drainage and Recovery in Coal Mines as well as to Update and further develop them. The Group of Experts has been asked as well to prepare proposals 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. The Group of Experts has been asked to facilitate establishment of International Centres of Excellence on Coal Mine Methane and to continue to provide advice to UNFCCC and to other international, national and regional organisations on market-based coal mine methane emission reduction mechanisms and coal mine methane related standards.

Expert Group on Resource Classification. The Expert Group is mandated to work on the United Nations Framework classification of energy and mineral reserves and resources. The Expert Group has been asked to disseminate UNFC to all major stakeholders electronically, to finalize the generic specifications to make UNFC operational, to develop ideas on how the UNFC could apply to and integrate renewable energy, to extend application of UNFC to nuclear fuels, to establish and maintain a Technical Advisory Subgroup to conduct on-going maintenance and periodic updates to UNFC in light of ongoing technological developments including in the field of carbon capture and storage, to explore and develop other applications of UNFC, including to injection projects, in particular for storage of carbon dioxide, to invite and facilitate development of case studies on a voluntary and extra-budgetary basis, using the developed specifications and guidelines if any, to assess the suitability of applying UNFC to individual deposits of fossil energy and mineral resources, to encourage, drawing exclusively on extra budgetary resources, the development of education programmes on UNFC, using in particular the capabilities of industry professional societies, and to develop further specifications and guidelines for UNFC recognizing that it is useful that they be tailored to meet, to the extent possible, the needs of applications pertaining to global energy and mineral studies, government resource management functions, corporate business processes and financial reporting standards.



Group of Experts on Gas. The Group of Experts on Gas is mandated to provide 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 areas of work of the Group of Experts are policy dialogue and exchange of information and experiences among ECE member countries on gas-related issues of regional relevance, including the role of gas in the global energy mix, and the relation between natural gas and the environment. Concrete activities that member States agreed for the Group of Experts included studies, delivered in a timely way, on the sustainable and clean production, transport, and use of gas, including on issues that emerge from natural gas market studies carried out in the past, and methods of preventing gas losses and leakages during production and distribution. The Group of Experts has been asked to develop best practice guidance in reducing gas leaks in the gas value chain, on the role of natural gas in significantly increasing the uptake of renewable energy in the ECE region and helping achieve the objective of access to energy for all in the ECE region, and on LNG. The Group of Experts has also been asked to explore how to remove barriers to the use of natural gas as a transportation fuel.