



SUSTAINABLE ENERGY

Integrating security and sustainability

During 2010, the effects of the global economic crisis of 2008-2009 continued to be felt in the energy sector in the UNECE region. Not only was the detrimental impact of the crisis visible on the operations of many energy companies causing changes in their business strategy and infrastructure investment plans, but the ongoing volatility of energy prices also had a negative impact on energy efficiency and renewable energy investments and energy efficiency market formation. In this context, the Sustainable Energy Division maintained, and where possible strengthened, the focus of its work on energy security, and energy efficiency, with a view to responding to the ongoing challenge of mitigating the environmental consequences of energy production and consumption.

In the light of the necessary role of natural gas for securing affordable and sustainable energy in the region, its low environmental impact relative to other fossil fuels, combined with the continued strong growth in unconventional gas production in the United States and the potential for unconventional gas development in Europe, in 2010 the Committee on Sustainable Energy focused the attention of its expert dialogue on energy security on the theme “**Energy Security and Gas Infrastructure**”. The uncertainty on demand recovery and infrastructure investments affects energy security in the region. The measures discussed in the energy security dialogue promoted the further integration of energy security and sustainable energy in the Committee’s work programme with new projects and activities being undertaken by its subsidiary bodies.

The Committee continued to assess the perceptions of energy security risks, to analyse the impact of sustainable energy policies on such risks, and to study the potential role that international cooperation can play in meeting the energy security goals of UNECE



countries. A key achievement of the Committee and all its subsidiary bodies was the strengthened level of cooperation and collaboration with partners in and beyond the UNECE region.

Major Achievements in 2010

Energy Security

In addition to energy security and gas infrastructure issues, the session of the Committee on Sustainable Energy considered major issues of **international energy cooperation for producer, consumer and transit countries**. The session discussed the possible development of new or modified agreements and institutional arrangements for international energy cooperation and the role that UNECE could play in this context.

In 2010, the effects of the global economic crisis of 2008-2009 continued to be felt in the energy sector in the UNECE region

2010 also saw the completion of the last phase of the three-year project on **"Sustainable Energy Policies to Mitigate Energy Security Risks"**. This project has delivered an overview of the institutional aspect of international cooperation on energy; an extensive on-line facility on identification of energy security risk perceptions, which was successfully tested with a sample of senior representatives from Governments, the energy sector and financial institutions; and the initial version of the Delphi study exercise on energy risk scenarios. This study identified suitable methodological approaches for the identification of individual energy security risk perceptions in the UNECE region, together with the tools for building high-

risk, low-probability and high-damage energy scenarios of interest to UNECE member countries. These tools include the design of appropriate energy risk mitigating policies in the UNECE region.

Other activities in this area included the development of the energy security components of the projects on underground gas storage, liquefied natural gas and liberalization of the natural gas markets.

Cleaner Electricity Production from Coal and Other Fossil Fuels

The main ongoing task of the UNECE Group of Experts on Cleaner Electricity Production from Coal and Other Fossil Fuels in 2010 was fostering investment in cleaner electricity production. This aims at facilitating the move to a more sustainable energy and economic development process in economies in transition and emerging market economies in the UNECE region. The Group of Experts has focused its efforts on enhancing the ability of Governments to attract foreign direct investment (FDI) in advanced fossil fuel technologies for electricity production. Two events were held in this respect: the “High-Level Dialogue” in Montreal, Canada, on 14 September 2010 and the “Cleaner Electricity Forum” held in Geneva on 22-24 November 2010. These events were organized jointly with e8, the European Bank for Reconstruction and Development (EBRD) and the World Energy Council.

Finally, the Group of Experts began preparations for implementation of the project “**Mitigating Climate Change through attracting Foreign Direct Investment in Advanced Fossil Fuel Technologies**”, which is financed by the United Nations Development Account. The project, to be executed in close cooperation with UNDESA, ESCAP and UNCTAD, focuses on facilitating the increased mobilization of financial resources for the cleaner power sector in nine countries: Afghanistan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Ukraine and Uzbekistan.

The United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 (UNFC) was published in 2010

Resource Classification

A revised and simplified version of the **United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009** (UNFC) was approved by the Committee on Sustainable Energy at the end of 2009. UNFC-2009 is the only Classification in the world that applies to minerals, petroleum and uranium. It will thus significantly facilitate the availability of relevant and reliable information on energy reserves and resources in support of international and national resources management,

The adoption of UNFC-2009 represented a significant milestone for UNECE, since the final text is the result of years of negotiation, cooperation and collaboration with UNECE and non-UNECE member countries, other United Nations agencies and international organizations, intergovernmental bodies, professional associations, the private sector and many individual experts.

In 2010, work was undertaken to prepare UNFC-2009 for publication in all six United Nations languages. The Expert Group on Resource Classification met for its first session in April, at which it was noted that substantial progress had been made to promote the Classification worldwide, particularly beyond the UNECE region. This has resulted in additional participation and interest in the work of the Expert Group, including from a wide range of non-UNECE member States. Workshops to build capacity on UNFC-2009 were held in Almaty and Warsaw.



A key focus of the Expert Group on Resource Classification in 2010 was to commence developing generic specifications (secondary rules) for UNFC-2009. A unique piece of research was undertaken to identify the views of stakeholders on what specifications, if any, they considered necessary. The agreement of the Society of Petroleum Engineers and the Committee for Minerals Reserves International Reporting Standards to develop the commodity specific specifications – petroleum and minerals respectively – for the UNFC was a significant outcome.

Energy Efficiency 21 promotes the formation of an energy efficiency market in Eastern Europe

Energy Efficiency

Through its Energy Efficiency 21 (EE21) Programme, UNECE promotes the formation of an energy efficiency market in Eastern Europe so that cost-effective investments can provide a self-financing method of reducing global greenhouse gas emissions. Dedicated financial instruments have been promoted, such as the European Clean Energy Fund (ECEP) raised by SwissRe/Conning Asset Management under a mandate of the EE21 Programme. By the end of 2010, over 90 per cent of the ECEF had been committed to clean energy investment projects in Europe. A project of the EE21

Programme on Financing energy efficiency and renewable energy investments for climate change mitigation (FEEI), supported by the United Nations Foundation (UNF), the United Nations Environment Programme/Global Environment Facility (UNEP/GEF), Fonds Français pour l'Environnement Mondial and the European Business Congress, advanced significantly during 2010.

The study **Regional Analysis of Policy Reforms to Promote Energy Efficiency and Renewable Energy Investments** was completed in April and its findings and recommendations were presented to the project stakeholders. The **International Energy Efficiency Forum and the Workshop on Investments into Energy Efficiency and Renewable Energy Projects** was held in Astana in September. It was organized jointly by the Government of Kazakhstan, UNECE, UNESCAP, UNEP, and UNDP. At the Seminar on **Policy Reforms to Promote Energy Efficiency and Renewable Energy Investments for Policymakers** in October in Geneva, delegates from participating countries reported on progress achieved in implementing recommendations for policy reforms identified in the Regional Analysis Study.

The FEEI regional website, which constitutes an on-line communications network of energy efficiency managers in Eastern Europe, is now fully operational and includes dedicated national websites. The potential lead investor and fund manager for the project's public-private equity and mezzanine fund for twelve countries in Eastern Europe, South-East Europe and Central Asia for energy efficiency and renewable investment were identified. The EE21 Programme also continued the implementation of nine other projects, including "Development of the Renewable Energy Sector in the Russian Federation and in countries of the CIS: Prospects for Interregional Cooperation" and the Global Energy Efficiency 21 (GEE21) project.

Global Energy Efficiency

GEE21, led by UNECE and jointly implemented by the other United Nations regional commissions aims to develop a **systematic exchange of experience** on capacity building, policy reforms and investment project finance among countries of all regions of the world through the regional commissions in order to promote self-financing energy efficiency improvements.

The first collaborative outcome of GEE21 was the publication "Financing Global Climate Change Mitigation" (UNECE Energy Series No. 37, ECE/ENERGY/81), which includes: a wide-ranging review of 22 selected energy efficiency financing mechanisms from countries and institutions in all regions of the world; an assessment of the relevance of the carbon market for energy efficiency financing; a discussion of the purposes and sources of capacity building and technical assistance for energy efficiency financing; a collection of existing energy efficiency programmes, sources of financing and national legislative frameworks; and five overviews of the energy situation and climate for energy efficiency investment in each region provided by the respective regional commission.

The Group of Experts on Global Energy Efficiency 21, which met for its first session in June 2010, will focus on four key elements until end 2011: **establish a network of elected officers of intergovernmental bodies** working on energy efficiency and climate change and the respective secretariats of the regional commissions; **review the energy efficiency and climate change work programmes** with respect to capacity building, energy policy reforms and investment project finance; **determine common priorities and synergies** of the member States and the work programmes they pursue through their United Nations intergovernmental bodies among the regional commissions; and **develop a Global Strategy** for the adoption of regional commissions' work programmes to promote self-financing energy efficiency improvements.

The network was strengthened through the election of a Bureau that will follow more closely the developments of the project. The Extended Bureau met in Geneva in October 2010 and agreed to pool each region's expertise and set up a task force to **develop a Global Strategy** for Energy Efficiency Market Formation, which the Group of Experts should review during its second meeting, scheduled for April 2011.

Natural Gas

The twentieth jubilee session of the Working Party on Gas was held in January 2010 with more than 110 participants from 30 countries. UNECE member States and representatives of the corporate sector addressed a number of major issues such as lessons learnt during the liberalization of the gas industry, the current status and progress in the underground



The UNECE study on Gas Market Liberalization will be published in the first half of 2011

gas storage industry in the UNECE region and the developments and prospects for liquefied natural gas (LNG). In addition, sixteen national reports on the state of the natural gas market were delivered, together with interventions by the International Energy Agency, IHS-CERA and Gazprom. The bottom line that emerged from these in-depth market insights confirmed very dynamic industry developments with a rapidly changing landscape towards more supply flexibility and uncertainty on the price front.

The UNECE member States approved two new studies entitled: **Use of Gas in Transport** and **Development of Efficient Mechanisms for Natural Gas Regulation in the UNECE Region** and launched an invitation to all interested to contribute to the projects. Initial meetings on the launch of the projects were held in Moscow and hosted by Gazprom.

An important milestone in this field was the finalization in the first quarter of 2010 of the UNECE study on **Gas Market Liberalization**. After clearance by the Bureau of the Working Party in the second half of 2010 and the addition of a short LNG chapter in October 2010, it is anticipated that the study will be published during the first half of 2011.

Significant progress on the UNECE LNG and Underground Gas Storage studies was also achieved in 2010.

Gas Centre

The UNECE Gas Centre, which was launched in 1994 as a technical cooperation programme "Promotion and Development of a Market-Based Gas Industry in Economies in Transition - the Gas Centre", continued its work to assist governments and gas companies in Central and Eastern Europe in their efforts to create more decentralized and market-based gas industries. The Gas Centre programme is supported financially by major gas companies, state-owned and private, from Europe and the Mediterranean Basin. The Gas Centre offers a neutral platform for discussion amongst natural gas companies in the region. Its activities stimulate contacts between natural gas companies from UNECE member countries and from other relevant countries.

During 2010, member companies launched new activities such as the Gas Centre Industry Forum to address topical problems of the gas industry and markets in the UNECE region. At the same time, the Gas Centre Bureau is exploring with member companies a new orientation for the Work Programme for 2011 which would involve widening the scope of membership to include gas companies located in Central Asia and North Africa.

The Task Force on Supply, Infrastructure and Market met in Lucerne (Switzerland) and in Cairo. The latter meeting focused on development of infrastructure in the Mediterranean Basin and Middle East with a special highlight on the LNG business in this region. **The Task Force on the Implementation of the EU Gas Directives** held its first meeting for 2010 in Istanbul and the second in Brussels in November, where a range of topics was discussed,



UNECE member countries account for 40% of the world's coal mine methane production



including Third Package, Unbundling, TPA (including tariffs), Regulator competencies and responsibilities (national-European) and regulation development. The Technical Database Committees took place twice in 2010 in order to update the database of the Gas Centre and to discuss its further evolution. The fifteenth UNECE Gas Centre High Level Conference on the "Gas Industry in South-Eastern Europe" was held in June in Zagreb. The Industry Forum on Long Term Contracts took place in Geneva in March.

Coal Mine Methane

The capture and use of **coal mine methane (CMM)** improves mine safety and provides an additional energy source for power or heat needed to run mining operations. Methane is a greenhouse gas 20 times more potent than carbon dioxide. Avoiding methane emissions therefore also contributes to mitigating

climate change. There are many opportunities for CMM capture and use in the UNECE region, which accounts for 40 per cent of global CMM production.

In 2010, the Group of Experts on CMM promoted CMM development in the region and beyond and worked on identifying the key barriers limiting the implementation of CMM projects in Central and Eastern Europe and the CIS. The Group of Experts started work to analyse country-specific laws and regulations that could impact implementation of gas drainage and utilization.

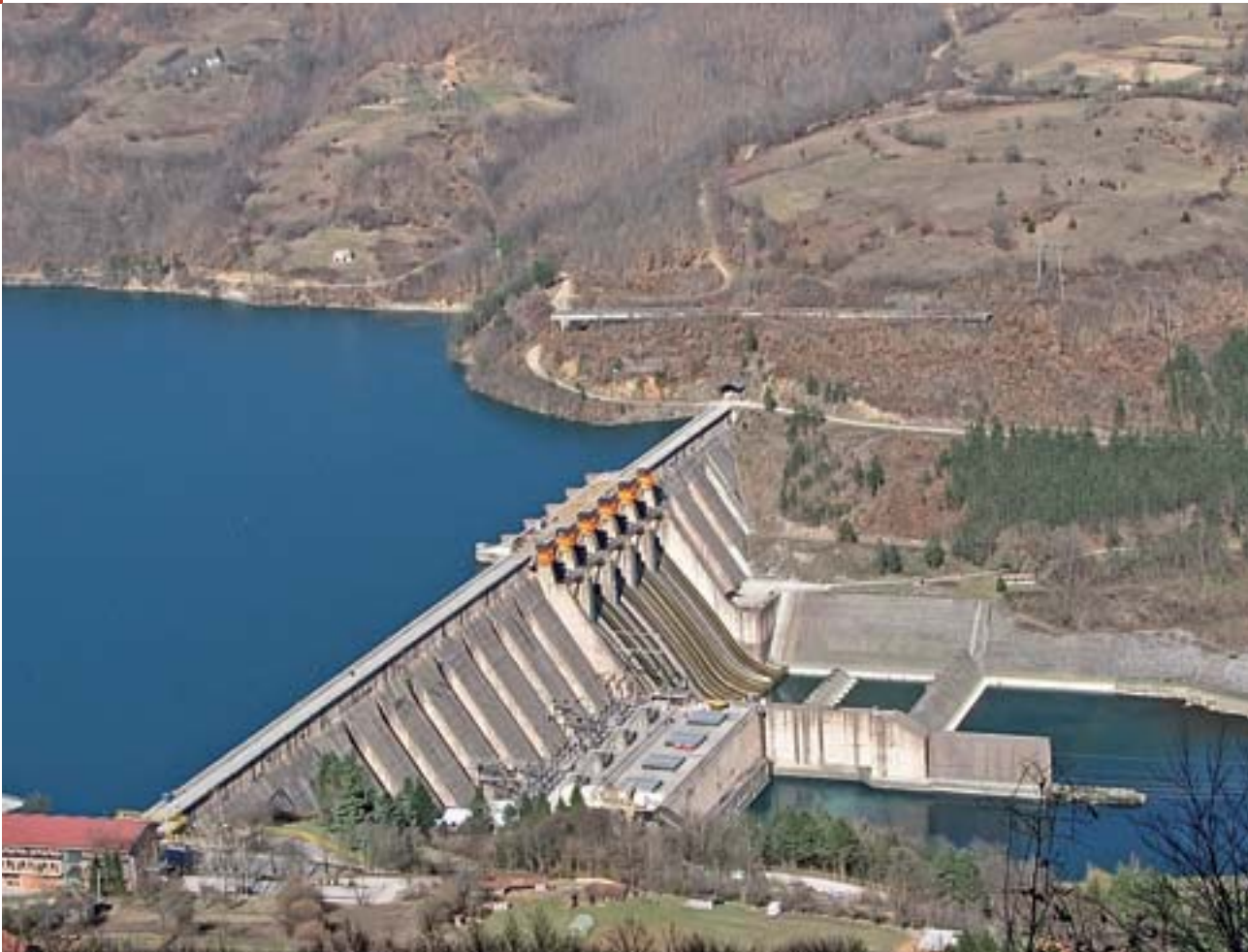
The Group of Expert continued its close and fruitful cooperation with the Methane to Markets Partnership. A result of this collaboration was the publication, "**Best Practice Guidance for Effective Methane Drainage and Use in Coal Mines**" (UNECE Energy Series 31 and ECE/ENERGY/73). This report, the issuing of which was an important landmark for UNECE's work on CMM, details the benefits, objectives, and principles of coal mine methane drainage and utilization in order to reduce fatalities and injuries of mine workers, protect property, reduce greenhouse gas emissions and efficiently utilize a valuable energy resource. The Group of Experts took an active role in the 2010 Methane to Markets Partnership Expo held in India, where the Best Practice Guidance was launched. In October 2010, UNECE organized a workshop in China, financed by the United States Environmental Protection Agency, to further promote the publication.

The Group of Experts has become a recognized source of expertise on CMM worldwide.

Regional Advisory Services

In 2010, the **regional advisory services on energy** included the continued provision of assistance to member States with economies in transition on energy efficiency and sustainable energy development. A special focus was given to the promotion of subregional cooperation and the strengthening of inter-state partnerships, particularly among countries in Eastern Europe, Central Asia and the Caucasus. In these countries, the Regional Adviser assisted national officials and experts to develop programmes

UNECE facilitated the launch of the International Energy Center in Minsk in October 2010



and projects to facilitate implementation of energy policies and strategies; assisted in the planning and implementation of programmes for capacity and institution-building; participated in visits to understand the training and capacity-building needs, in particular for sustainable energy market formation, energy efficiency project development and access to financing.

Oil and natural gas are subject to greater energy security risks than renewable sources of energy, nuclear power or coal

Within the framework of the Energy Efficiency 21 Programme, the Regional Adviser organized three international workshops (in Minsk, Astana and Geneva) under the Project “Development of Renewable Energy in the Russian Federation and the Commonwealth of Independent States: Prospects for Interregional Cooperation”. This Project has produced a renewable energy strategy for the ten participating countries, as well as recommendations to promote an enhanced investment climate for renewable energy.

The Regional Adviser also contributed to the organization of a High-level Dialogue on Fostering Investment in Electricity Generation in Central and Eastern Europe and Central Asia during the 21st World Energy Congress in Montreal as well as the SPECA Project Working Group on Water and Energy Meeting in Astana, both of which were held in September 2010.

Advisory services additionally facilitated the launch of the International Energy Center in Minsk in October 2010. The Center is designed to foster energy efficiency market formation and Public Private Partnerships in Belarus; to contribute to the introduction of best practices, technologies and energy efficiency measures; and to enhance energy efficiency and renewable energy regional cooperation.

Cooperation with Other Organizations

The review of the UNECE reform carried out by the Commission in the first half of 2009, while acknowledging that previous requests to the Committee on Sustainable Energy for cooperation with other organizations (in particular the International Energy Agency and the Energy Charter Secretariat) were successfully accomplished, stated that "this cooperation could be accelerated through the participation of representatives of these organizations in the energy security dialogue during the annual sessions of the Committee on Sustainable Energy."



Engagement of and consultations with the Energy Charter Secretariat have continued throughout 2010 on issues related to both energy security and energy efficiency. UNECE participated as observer in the work of the Energy Charter Strategy Group. Cooperation and collaboration with the International Energy Agency has also been strengthened not only within the work of the Committee, but also within its subsidiary bodies. Efforts have been made to ensure that the programmes of work are complementary and reinforcing.

In addition, the Sustainable Energy Division has further strengthened cooperation within the United Nations system, in particular with the other regional commissions. In this context, UNECE participated in various energy-related side events at the United Nations Climate Change Conference (COP 16) in Cancun.

Major Challenges for 2011

The programme of work in energy will continue to face the challenge of delivering on energy security, whilst addressing the need to reduce energy-related health and environmental impacts and, most notably, emissions of greenhouse gases. The Committee on Sustainable Energy and its subsidiary bodies will need to work with Governments and other stakeholders to ensure that concerns over energy security and energy sustainability can be mitigated simultaneously.

In 2011, the work on energy efficiency will continue with vigour. The FEEI project is expecting to launch an investment fund for energy efficiency and renewable energy projects; to submit a pipeline of potential investment projects to the fund; and for initial investments to be made.

The work on gas will also continue to deliver tangible results in at least four key areas, in particular on the use of gas in transport and the market regulation, where the work of the UNECE member countries will gain momentum while the implementation of the United Nations Development Account project "Mitigating climate change through attracting foreign direct investment in advanced fossil fuel technologies" will be among the key priorities of the Ad Hoc Group of Experts on Cleaner Electricity Production from Coal and Other Fossil Fuels.

The UNECE Gas Centre will work to enhance its cooperation with all natural gas companies on Long Term Contracts, security of supply and development of infrastructure in the Mediterranean Basin. Emphasis will be placed on cooperation with European organizations focusing on Transport System Operators, as well as the consequences of the EU Directives.

Two workshops to disseminate the Best Practice Guidance for Effective Methane Drainage and Use in Coal Mines are planned in 2011, in Ukraine and Kazakhstan. It is expected that the contact initiated by the Group of Experts on CCM with the United Nations Framework Convention on Climate Change will deliver results in 2011. The focus of the collaboration will be on methodologies for methane capture and use for power and various economic incentives, including those provided by the Clean Development Mechanism process, designed to stimulate the development of CMM projects that reduce methane emissions.

The promotion and further development of UNFC-2009 will also continue, with a number of workshops planned and a challenging timetable for the development of specifications for the Classification. It is critical for this work to progress as rapidly as possible since UNFC-2009 will significantly facilitate the availability of relevant and reliable information on energy reserves and resources.

With regard to the Regional Advisory Services, a key challenge will be the implementation of the recommendations prepared under the project "Development of the Renewable Energy Sector in the Russian Federation and CIS Countries: Prospects for Interregional Cooperation". Regional renewable energy projects in participating countries were identified, however the continued economic downturn in many of these countries could make implementation much more difficult.

UNECE countries are increasingly shifting their energy demand towards energy sources that are low in carbon and more environmentally sustainable. However, despite this encouraging trend, the region will still have to rely on fossil fuels and other conventional sources of energy (e.g., nuclear power) for its energy needs for the foreseeable future. A number of these energy sources are vulnerable to supply disruptions and other risks. Oil and natural gas in particular are subject to greater energy security risks than renewable sources of energy, nuclear power or coal. The Committee on Sustainable Energy is well placed to address the challenges faced by the energy sector in the UNECE region, notably through the engagement of committed local experts, the interest of the energy industry, governmental and financial sector decision-makers, and with significant extrabudgetary resources to complement the United Nations regular budget.