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Report of the High-level Dialogue on Fostering Investment in Electricity Generation in Central and Eastern Europe and Central Asia

Introduction

1. The High-level Dialogue on Fostering Investment in Electricity Generation in Central and Eastern Europe and Central Asia was held on 14 September 2010 in Montreal, Canada.

2. The session was attended by 60 participants from 22 UNECE member-states: Armenia, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Estonia, France, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Norway, Poland, Serbia, Switzerland, the Former Yugoslav Republic of Macedonia, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, and United States of America.

3. Representatives of Japan and South Africa participated under Article 11 of the Commission's Terms of Reference.

4. The European Commission also attended.

5. Mr. Branko Terzic (United States of America) was Chairman of the Session.

Agenda item 1
Opening and Introduction

6. A member of the secretariat of the United Nations Economic Commission for Europe (UNECE), Geneva, Switzerland, in replacement of the UNECE Executive Secretary, opened the event by welcoming all participants and in particular those from the Eastern and Central Europe and Central Asia. He mentioned that the participation of the world leading regulators, top and senior executives from some of the world largest electricity companies and reputed financial institutions was appreciated very much. He briefly addressed the purposes of the meeting and then introduced the moderators of the

first session: a representative of the United States of America, the top executive of American Electric Power, and a senior delegate from the European Bank for Reconstruction and Development (EBRD).

Agenda item 2
Adoption of the agenda

7. The provisional agenda (ECE/ENERGY/GE.5/2010/3) was adopted.

Agenda item 3
Fostering investment in advanced fossil fuel power generation technologies for climate change mitigation and sustainable development in countries with economies in transition and emerging market economies

8. The Dialogue was divided in four sessions:

Session One: Current State and prospects for electricity generation in Central and Eastern Europe and in central Asia

9. Session One was moderated by the top executive of American Electric Power and a senior official of EBRD. The participants focused their intervention on the current state of the electricity industry in their respective countries, the key players, the fuel mix, the state of existing power generation plants, the future needs, and the opportunity of linking markets through interconnections. Country presentations were made by representatives of the Former Yugoslav Republic of Macedonia, the Czech Republic, Poland, Serbia and Estonia.

10. Senior official of EBRD started by giving an overview of the investment in power generation in Europe and the region in general. The lack of long-term investment, especially in power generation, has made infrastructure and technology in the sector obsolete. The recent economic crisis has further slowed down and postponed investment. However, he felt that as countries recover from the economic crisis and investment picks up, it would be concentrated in good power generating projects that are sustainable in the long-run and can improve the overall state of the energy sector.

11. The top executive of American Electric Power reminded the participants about the important role of the world generating companies in diminishing the global carbon footprint by serving the needs of their customers in a more respectful way for the environment. The challenges are great for countries where facilities need upgrading of infrastructure and technology but only collectively we will be able to resolve the global issues of security, development and climate change. In this context, continuity is essential for a good electricity market regulation which will provide the required comfort to potential investors. He further stressed the role of the e8 in promoting sustainable development through partnerships worldwide.

12. Minister of Economy for the Former Yugoslav of Republic of Macedonia presented the economic and related energy situation in Macedonia. The country is facing rapid economic growth and energy demand is increasing about 2.6% per year. The country's challenges reside in diversifying the energy supply and optimizing the use of interconnections. The energy policy will focus on encouraging energy efficiency (21%) and renewable development (20% of the supply by 2020) in view of reducing green house gas emissions by 3%. This will call for investments of the order of 4.2 billion euros of which 500 million will be dedicated to energy efficiency programs, which in return would bring savings of about 1.2 billions euros. He indicated that 30% of the country's electricity needs are supplied by imports. The remaining supply comes from hydro resources (25%) and

thermal sources. In order to attract capital for investing in electricity generation, he stressed the importance of having a predictable and transparent regulatory framework.

13. Director General of the Ministry of Industry and Trade of the Czech Republic, in replacement Deputy Minister of the Ministry of Industry and Trade of the Czech Republic, briefly presented the current state and prospects for the electricity market in Central and Eastern Europe, addressing the issues related to a functional electricity market, the importance of deepening the market, adopting transparent rules and facilitating regional integration. He explained the day-ahead electricity market between Czech Republic and Slovakia, which markets were integrated as per a protocol signed between the two countries. The Czech delegate mentioned that new natural gas generating plants and nuclear plants will be needed in the future. He foresaw that future investments will be made based upon a matching process in which the trade volume and marginal price will be the signals for further investments. The expansion of the regional day-ahead market will be assisted by the development of the Price Coupling of Regions (PCR) Initiative currently in progress.

14. Undersecretary of State, Ministry of Economy of Poland, indicated that Poland is facing rapid economic growth (about 3,5% in the second quarter of 2010) and energy policy will focus on ensuring the security of supply based mainly on domestic production, diversification of supply, and the development of capacity and infrastructure. The Polish power sector is highly dependent on coal generation and energy policy is addressing long-term security by targeting affordable pricing, reducing GHG and increasing use of renewable energy. About 95% of the energy produced comes from hard coal and lignite. The policy seeks to restructure the fuel mix, by looking at the nuclear opportunities and higher efficiency coal fired plants, while supporting mechanisms for efficient biomass and encouraging the promotion of Renewable. By 2020, the portfolio mix should have a 15% of renewable energy and 10% of bio-fuels. She further indicated that a total of 56 billion Euros will be needed over the period 2011-2030 to modernize electricity sources, with 11 million going to investments in the transmission system. In order to achieve this ambitious investment plan, Poland will need the collaboration of the international community to finance a large part of the energy and electricity infrastructure.

15. State Secretary and Deputy to the Minister of Mining and Energy of Serbia, presented the investment needs in the country's energy sector. He addressed the issues of further developing the electricity transmission system and interconnection with neighbouring countries to ensure the security of supply in the country. He detailed the numerous transmission projects under the radar of Elektromreza Srbije (EMS), the national transmission company, and the plans for a second major state-owned company Elektroprivreda Srbije (EPS). EPS's installed capacity is of 8359 MW of which two thirds are from thermal sources and one third from hydro resources. The delegate from Serbia mentioned that the current investment activities aim to modernize the hydro power plants, the refurbish the transmission network and distribution, and to promote energy efficiency on the customer side. Future investments (up to 2015) will focus on more efficient technologies, replacement of aging generation equipment while meeting the environmental standards and ensuring that supply meets demand, expected to grow at 1 per cent per annum. The investment plan up to 2015 is in the order of 9 billion Euros and strategic partnerships will be considered for its realisation. As a source of electricity generation fuel, the coal mining sector will be considered a priority since coal is a primary energy resource in Serbia. Serbia also has some potential for wind energy. The government has adopted a feed-in tariff for electricity produced on the basis of renewable energy to encourage further investments.

16. A senior executive from Eesti Energia, Estonia, indicated that the electricity sector of his country was highly interconnected with other countries and has close to 1600 MW of interconnection capacity. Interconnections exist not only with European Union (EU)

countries but also with non-EU countries. He focused on the issue of developing an integrated market while participating countries are in different stages of the electricity market development. The executive also highlighted the importance of developing generating assets in competitive markets and of finding suitable locations for power generation in face of transmission limitations. As an example, he indicated that the first stage of the Board of Interconnection Action Plan for the South East Europe (Balkans) was completed in April 2010 and that the project was entering the second phase for the development of new interconnections between the South East Europe and the European countries. The delegate from Estonia concluded his intervention by stressing the importance of creating a common policy for non-EU interconnections, enabling new power investment in CO2 free technologies in the region, maximizing the interconnection with regions adopting competitive approaches, enlarging as much as possible the electricity market, further integrating the spot markets and removing the barriers for some countries and finally of revising current policy frameworks to effectively promote CO2 free electricity generation.

17. A senior executive of KEGOC, Kazakhstan, presented the electricity industry situation in his country. He indicated that his country has gone though a market liberalisation where all generating plants are privatized. About 20 distribution companies, mostly privatised, co-exist. The market operator has been established and all segments of the market have been deregulated i.e. the wholesale, the retail and spot markets. Kazakhstan's demand for energy is lower than the supply which allows for a low price of electricity. To revitalise the sector, the country will need investments in the national grid of about $1 billion US. The construction of a new transmission line from South to North will be done through a PPP scheme involving EBRD, World Band and a regional development bank. He concluded by saying that his country was facing similar issues that the Europeans needed to deal with and that investments in the infrastructure will be needed.

18. The delegate from EBRD thanked the panellists for their valuable insights about their respective countries and opened the floor to questions.

19. A journalist in attendance, raised a question about the dependence of Kazakhstan on coal despite the fact the country has an abundance of natural gas. The delegate from Kazakhstan replied by stating that huge reserves of coal were available and that their relatively low cost of production (10$ /ton), combined with the low cost of coal-generated electricity made this fuel more affordable for power generation than natural gas.

20. The top executive of American Electric Power concluded the discussions of Session One by recognizing the numerous challenges facing the electricity industry worldwide in securing the adequate supply, addressing the regional bottlenecks and overcoming the differences in the national electrical systems.

Session Two: Perspectives on policy and regulatory frameworks that foster power project investment

21. Session Two was moderated by a Member of the Monetary Policy Council, National Bank of Poland and the Chairman of the UNECE Ad Hoc Group of Experts on Cleaner Electricity Production. The session addressed the issues related to the investment framework for power generation, possible elements of a benchmark regulatory framework, prices of fuels and final energy, the alternative power markets, the competition policy and the policy influencing corporate capital structure. Equally, the other issues such as regulation for power generation and investments opportunities in a fossil-fuel driven generation environment, rate of return and various incentives to investment including tax incentives were considered. Representatives of companies and regulatory bodies such as ESKOM, National Association of Regulatory Utility Commissions (NARUC), European Energy Regulators, AEP, EDF, Edison Electric Institute (EEI), BC Hydro, and Tokyo

Electric Power Company (TEPCO) expressed their views and experience on the desirable regulatory framework.

22. The Polish representative moderated the session dialogues. She presented her perspectives on policy and regulatory frameworks that foster power project investment. She remarked that in light of the huge amount of investments needed in the electric power sector of the transition countries (more 100 billion Euros in next decades), the regulatory framework should be conducive to attracting such investment levels. With regard to the Polish market, the investment needs will amount to a few billion Euros per year until 2030. She noted that since Poland is a member of the EU, it needed to adopt energy laws compatible with EU laws. While she emphasized the importance of the creation of a common energy market for all the regions of the EU, she stressed that only one appropriate institutional framework will permit to do so.

23. As partial deregulation of the electricity markets is taking place, the Polish representative felt that the actual structure of the supply side was an obstacle to achieve the EU common market. She continued by indicating that the state had to play the role of a supervisor, ensuring the stability of the regulatory regime. In order to foster investments in the electricity sector, she proposed two approaches: (1) creating and operating a system of incentives and (2) mitigating the risks of and removing the barriers to investment.

24. Several coloured energy certificates were introduced in Poland to encourage investments. For investments in new capacity for the EP sector, the concept of the blue certificates seems the most appropriate. She then explained the concept of blue certificates and the availability of other coloured certificates, instruments developed for other types of investments. The Polish delegate concluded by stressing the importance of mitigating the risks, including regulatory risks, and of addressing the barriers to investments to create a stable and transparent market. In this context, the development of public awareness for efficient electricity and energy consumption, the introduction of new technologies and, where appropriate, the reduction of fears toward nuclear generation seemed to occupy important role. She asked the panellists to further elaborate during the High-level Dialogue on policy and regulatory frameworks conducive to large electricity investments.

25. The top executive of ESKOM, South Africa, shared the experience of his company in developing new power generation in a context of fast economic growth (3% per annum), the existence of competitive markets and a developing economy where a segment of population lives with less than $1 per day. In order to foster power project investment, the Department of Energy of South Africa has restructured the energy sector in order to respond to the growing electricity needs. It also published an integrated power plan targeting an energy mix with 85 percent of coal, 4 per cent of nuclear, 5 per cent of natural gas, 3 per cent of hydro and 3 per cent of so-called “pump storage”. A loan scheme with the World Bank and EBRD will permit the development of pilot projects in concentrated solar (100 MW) and in wind (100 MW) power. He underlined that the long lead time for developing projects in the power sector required a new policy framework. In order to create the right enabling policy framework, he considered the role of the UNECE-e8-EBRDWorld Energy Council initiative in facilitating it and hosting a platform for sharing best practices in this area. An enabling environment should also support research and development while also being conducive to Public Private Partnerships. He concluded by pointing out to some selected issues such as affordability, the ways of financing large scale projects and the mitigation of risks.

26. President of National Association of Regulatory Utility Commissions (NARUC), United States of America, shared his opinion as a regulator. He indicated that the basic rules of an enabling environment should be predictable and transparent as investors need certainty about their investment recovery. The US delegate underlined that stable cost and reliable infrastructure were the key for investors. The design of alternative power market

could include solutions such as feed-in tariffs. He acknowledged that the USA does not have a national policy for RE but that each state is responsible to ensure a competition policy and appropriate market rules. The Public Utilities Commission should, he said, have the task to regulate. He advised to pay attention to consumers' issues, to ensure that the rates set are fair, just and reasonable, and to educate the public accordingly. At the end, the US representative also wished that the US Government took a clear position on carbon issues.

27. President of the European Energy Regulators and President of Authority, Office of Gas and Electricity of the United Kingdom, addressed the complexity of the role of the regulator in a context where he needed to create regulation and related policies and understand the new technology. In an environment of the huge investment needs in the power sector in the aftermath of the financial crisis, ensuring the sustainability and security of supply while preserving competitiveness were the key challenges for the regulator. He illustrated his point by referring to the situation with the off-shore wind turbines, related particular technological constraints and their impact on rate settings. President of the European Energy Regulators added that in view of more cross-border electricity activities, the role of the national energy regulator would change. He suggested considering a realistic approach for the regulation of the electricity network for the future based on a long-term vision. In his views, an independent regulator will bring to investors predictability, transparency and continuity, the key consideration for a long-term investor. He closed with the statement that the sector was facing numerous risks which could, if unchecked, could create significant turbulence and interfere with the orderly development of the industry.

28. The top executive of American Electric Power (AEP) concurred with President of the European Energy Regulators on the need of certainty and predictability for utilities to invest and that companies will prefer to invest in states where rules are well known. He also agreed with NARUC and recommended that the price signals be fair and clear for both the investors and the customers. The top executive of American Electric Power (AEP) reflected on the issue of continuity when Public Utilities Commissions in some regions were not bound by prior Commissions' decisions which had dissuasive effects on future investments.

29. A senior executive of Electricité de France (EdF) indicated his company's interest to develop economies of scale models in the UNECE region including countries of Central and Eastern Europe as well as of Central Asia. He recognised the complexity of institutional and regulatory frameworks in the region, which derived from the fragmentation of markets, the presence of multiple power generating technologies, a relatively uniformed market (UK through Italy), and the recent entry of new member-countries, with or without restrictions, in to the EU. In Central Asia, he addressed the complexity of the strategic and geopolitical context, and the confusion vis-à-vis the role of individual institutions and organizations such as EU, NATO, WTO etc. In terms of business perspectives, the EdF executive remarked on the postponement of large investments in nuclear generation and selected investors focusing more on the opportunities in renewable electricity generation. With regards to the fuel supply, the EdF's gas strategy will evolve around a diversification of supply by, for example, contracting gas purchase with Gazprom, Russian Federation, and investing in a LNG terminal on the Western coast of France. To foster more investments, he suggested the enhancement of cooperation among utilities, the creation of a level-playing field, the introduction of standardization in technology (e.g. for nuclear), and the adoption of more converging views by the policy-makers and regulatory authorities. The EdF executive concluded that once the rules would be established there should be less political involvement and more market forces at play.

30. A senior representative of the Edison Electric Institute (EEI), United States of America, stressed that uncertainty would lead investors away. He illustrated his comments by using the case of the Deutsche Bank that decided not to pursue clean energy investments

in the U.S. because of the political uncertainty surrounding the failure of the US Government to set consistent policy dealing with climate change included every changing rules for tax incentives for renewable energy. The delegate underlined the importance of the mitigation of the regulatory risks for investors by adopting policies that provide transparency, predictability and longevity.

31. A top executive of BC Hydro, Canada, agreed with previous panellist that investors needed predictability of the rules, timelines and streamlining of permits. She also indicated that demand-side management (DSM) was often overlooked as a solution to incremental needs. In BC Hydro, 60 per cent of the incremental needs for electricity have been met cost effectively through DSM. This approach has also helped eliminate energy waste.

32. A senior officer of Tokyo Electric Power Company (TEPCO), Japan, presented his views on the nuclear power plant projects. He stated that, based on the plans announced, the number of new nuclear plants to be built worldwide could reach vary between 23 and 54 units per year. However, mainly because of the supply constraints, the most likely number of annual additions will be 18 units. Future development of the nuclear power sector worldwide will require proper safeguards for non-proliferation and peaceful use, security for nuclear material protection and against terrorism as well as safety of the infrastructure. The officer mentioned that the financing of nuclear plants development needed to take into account the large initial capital requirements and the long lead times as well as the appropriate regulation and infrastructure conducive to such huge investment. The regulation and infrastructure included appropriate treaties, policy, regulatory framework, insurance policy, industrial infrastructure and availability of human resources. He continued by stating various risks affecting nuclear investments such as technological risk, stability of policies, licensing issues and various financial risks. The delegate from Japan highlighted that the transparency in the legal system and operations by both electricity regulators and the operators in countries concerned were essential for gaining acceptance of the technology and building the trust with the consumers. The policy-makers and regulators should adopt a long-term view when setting the policies and regulations due to the long lead time of nuclear power plants investments. Such an approach should also provide predictability and transparency to investors.

Session Three: Role of financial institutions and technology vendors in promoting electricity investments

33. The senior official of EBRD (EBRD) and a representative of UNECE) secretariat moderated Session Three. The session discussion focused on the technology progress and investment in electricity generation, affordability of new technologies, the financing of electricity projects including the choice between debt versus equity and the sources of capital from domestic markets versus international sources. Equally, the role of multilateral financial institutions, commercial banks and other agencies (export credit agencies in particular) as well as the key prerequisites for attracting foreign investors for large project development were debated.

34. Representatives from Siemens, ABB, RWE, Black and Veatch Energy, European Commission, International Council on Large Electric Systems (CIGRE) and US Energy Association (USEA) shared their experience and views on frameworks and conditions that facilitate and foster investments.

35. The official from EBRD directed the session. He asked the panellists in particular to characterize the role of the international finance institutions in supporting good power generation investments projects.

36. Deputy Director-General, DG Energy, European Commission, Brussels, recognised that there was an opportunity to overcome barriers to change and adaptation in the electricity markets. In the context of huge investments needed in the electricity generation in European Union countries up to 2030 (estimated at 115 Billion Euros), a large part of the financing will have to come from the market (private sector). The investors will compare the risks and returns offered by each region. The competition will be fierce among the world's key regions to attract the required capital. Attractive market and bankable projects will be conducive to large electricity investments. According to the European Commission representative, the government's role is to set up the pre-conditions for the establishment of a global market. Despite the recent financial crisis, the adoption of sound and stable policies will be crucial to attract capital. The private sector should come and fill in the financing gaps. He continued by addressing the European Union direction for climate change, the agreed goals and the legally binding policies that were put in place. The representative also stressed the importance of working for the de-carbonization of the power sector, deployment of technologies for sustainability and fostering of the competitiveness of Europe as a whole. Accordingly, European Commission introduced several initiatives and incentives for investment in electricity infrastructure and new technology.

37. A top corporate officer of RWE AG, Germany, opened his statement by mentioning that although the European Union had a master plan for energy for 27-plus countries, he advocated the use of tailored regional approaches since the electricity markets responses to large investment needs and deployment of new power generation technologies will be dissimilar from different regions. He called for stability and reliability in regulation which could result in attractive investment locations that could generate the required companies' rate of return on their investments over 20 years. The officer offered to participants to share RWE's expertise on electricity investments at the November Geneva Forum. He ended by addressing the role of international financial institutions in promoting energy investments, mitigating potential risks, and working jointly with investors to finance the introduction of new power generation technologies.

38. A member of senior management from Siemens AG, Germany, pointed out the difference between the financiers and energy project developers where financiers look at the diversification of risks, hedging and exit clauses while the engineers focus on the technical aspects. These two different electricity project dimensions need to be mastered by the regulators. It is the role of different actors in power generation projects to assist the electricity regulators in understanding the consequences of each technological development. He recalled the issue of off-shore wind operations in Germany where under some circumstances the electricity market price went negative. In such situations, the meaning of a hedging strategy becomes important. The role of regulators is becoming more complex and difficult especially in a context of limited budget in the framework of the on-going financial crisis. For this reason, the German delegate called for more exchange of views and experience between regulators and technology manufacturers, as well as with academia in order to understand the complexity of the new technology in view of setting efficient regulations and tariffs.

39. A senior executive from ABB Italy addressed the question of energy mix, the different country policies and the limitations of the transmission system in the EU and in the UNECE region. Given the obsolete power generation in place in many countries, regulation should deal first with increasing energy efficiency and power unit replacement. While the investment rate of return of some power generation facilities, in particular renewable energy, is dependent of subsidies, in his views, the use of such subsidies for renewable energy, which is widely adopted in Europe, could price the Europe power generation industry and its industrial clients out of the global industrial market. As one way to address this increasingly important issue, the executive suggested that all incentives for

renewable energy should come from fiscal measures. At the same time, the widely discussed carbon tax could be dissuasive for some industries which could be tempted to relocate in low cost countries outside of the UNECE region.

40. Secretary General of CIGRE, France, recommended that the electricity industry participants pay more attention to the electrical transmission system necessary to interconnect the existing new power plants from various countries and regions. The scope of the electrical system is evolving to encompass large regions and more efficient technology. He illustrated it with the example of State Grid Corporation of China's system and questions the future of the 765 kV systems in the USA. The efficient and reliable transmission system will be crucial for offering consumers access to the future power generation mix.

41. The top corporate official of Black and Veatch Energy focused his intervention on the issue of transmission efficiency and importance to reduce the transmission line losses. He considered that often prevailing low tariffs are not sustainable and are not conducive to transmission loss reduction. The official recommended also taking the necessary actions to foster the electricity interconnectivity among regions.

42. A representative of the United States Energy Association (USEA) presented the USEA group and its cooperation program with other countries, sharing experience and best practices. He spoke about example of support in the Balkans for the planning of transmission system with appropriate software, and the cooperation of US companies for shale gas, CCS, nuclear, smart grid and ways to improve attractiveness for foreign investments.

Questions & Answers:

43. Regional Coordinator for Europe and Central Asia (WEC), commented on the cooperation needed for further development of the electricity markets in South-East Europe, the fragmentation of their electricity markets, the various stages of liberalization of those markets and the necessity to improve the efficiency of the existing power generators in the region.

44. The delegate from EBRD agreed that improving power generation efficiency was very important but this would materialize if suitable regulation was in place. Otherwise no investment will be done in generation and transmission efficiency improvement.

Session Four: Key policy and corporate strategies to attract foreign direct electricity generation investment in Central and Eastern Europe, Central Asia and the UNECE-e8-EBRD-WEC initiative

45. Session Four was moderated by the top officer of American Electric Power (AEP), Chairman of the UNECE Ad Hoc group of Experts on Cleaner Electricity Production and the delegate from EBRD. The emphasis of the session was put on the best ways to integrate the elements of the previous sessions in the country's national plans of action such as the efficient policies that foster power generation investment, improvement of investment, legal and regulatory frameworks, better handling of risks by regulation and the mechanisms to foster productivity improvements.

46. Country representatives from Bulgaria, Czech Republic, Armenia, Kyrgyzstan, Ukraine and Turkey elaborated on those key issues.

47. The AEP’s top executive introduced the subject urging the participants to focus on the identification of key strategies and policies that would be favourable to power generation investments.

48. Minister of Economy, Energy and Tourism, Bulgaria, presented an overview of the energy sector in Bulgaria, addressing the energy mix, the dependency to energy imports, the energy market, and the institutions in place. He indicated that the energy and electricity policy focused on energy security, GHG reductions, increase of the share of renewable energy, energy efficiency, independence of the regulator and creating a competitive market. He informed the participants about the government's various incentives and measures to attract electricity investments. Several electricity projects are under development while other projects have been identified for future investment (interconnections, hydroelectricity development and CCS).

49. Director General for Energy, Ministry of Industry and Trade of the Czech Republic, indicated that their priority was to ensure a robust electrical grid. In terms of the energy infrastructure development, the major project concerns the gas interconnections also facilitating access to Poland generation. As the primary source of energy is coal, the country envisions replacing the power plant's equipment with the state-of-the-art technology (supercritical plant) and is considering building new nuclear power plants.

50. Deputy Minister of Energy and Natural Resources of the Republic of Armenia pointed out the polices adopted by his government for the energy and electricity sector including the creation of an independent regulatory body, the functional separation of the generation, transmission and distribution, and the creation of system operator and settlement center. The actual electricity generation mix of the country is 45 per cent nuclear, 33-35 percent thermal sources and the remaining coming from hydro resources. The strategy adopted by the regulators aims to ensure 100 per cent cost recovery in the power sector, full access to transmission system, alleviation of transmission congestion, development of interconnections and development of base load generation through public private partnerships. Public private partnership is viewed as a way to leverage on public resources with the private sector, rendering project investments more attractive. The development of renewable energy (small hydro) should contribute in particular to energy security. However, as the financial markets are weak in the country, the financing of electricity investments is supported by government loans and by state guarantees. The goal is to increase the share of renewable energy to eight percent of the total electricity generation. As for the solar development, the technology appears expansive for a poor country where the price of electricity is low. The affordability then becomes an issue.

51. Deputy Minister of Energy, Kyrgyzstan, mentioned that his country is blessed with abundant resources in coal and hydro which offered sizeable opportunities for development. Furthermore, suitable legislation has been adopted for investment in power engineering, electricity generation and for energy efficiency

52. The top official of DTEK, Ukraine, stressed the importance of coal/uranium resources and wind in Ukraine and their potential for development.

53. Deputy General Director, Ministry of Energy and Natural Resources of Turkey, presented recent developments in the energy sector of his country. The focus of the energy policy in Turkey is on the diversification of the primary energy supply, the development of renewable and nuclear power, building competitive markets, GHG reductions and the infrastructure development (pipelines and interconnections). He indicated that several measures were adopted to foster investments in renewable energy such as feed-in tariffs and purchase obligations, reduction in license fees, priority in connection, etc. The delegate from Turkey presented a comprehensive overview of the actual electricity demand, current generation capacity and the perspectives for meeting the growing electricity demand in Turkey. Based on available forecasts, the installed power generation capacity by 2020 will be between 41 000 MW to 57 000 MW. The country's electricity generation mix targets for 2023 are about 30% renewable, 5% nuclear and the remaining share with gas and lignite reserves. He concluded by indicating the opportunity to push forward the development of

clean and efficient generation in a liberalised market with simple licensing procedures and approvals.

Closing remarks

54. In closing, Chairman of the UNECE Ad Hoc group of Experts on Cleaner Electricity Production, thanked all participants for their contribution to the session dialogues and reminded all country representatives of the coming extensive workshop on financing sustainable power generation projects on 22-24 November in Geneva, Switzerland. He invited all UNECE-member countries to delegate their high-level representatives for a more in depth dialogue on the subject in Geneva.

Conclusions and recommendations:

55. Conclusions:

(a) Participants recognized the importance of fostering investment in cleaner electricity generation in countries of Central and Eastern Europe and of Central Asia for their economic growth and social prosperity.

(b) The meeting underlined the need for introduction of predictable and transparent regulatory framework for investment in cleaner electricity production in the region.

(c) The favourable and stable general investment climate in the countries concerned with suitable legal, tax and operational settings were seen as the major prerequisites for attracting very large investments needed very much for replacing outdated and inefficient power plants fleets as well as sustained economic growth.

(d) The presented regulatory and investment experience in the electricity sector of the United States of America, Canada and Western Europe in particular was welcomed as a menu from which countries in Central and Eastern Europe as well as from Central Asia could learn when building their own productive legal and investment framework.

(e) The investment in cleaner electricity production should be accompanied by the appropriate investment in the transmission infrastructure which often acts as a bottleneck in the development of the efficient electricity sector in the region.

(f) Given considerable economies of scale in the efficient electricity generation, it is worthwhile for smaller countries in the region to consider regional cooperation in building sizeable power generation plants.

(g) High-level dialogue on Fostering Investment in Electricity Generation in Central and Eastern Europe and Central Asia successfully brought together high-level government official, regulators and corporate executives who during the event exchanged the first-hand valuable information, experience and insights into the processes and institutions conducive to fostering investment in cleaner electricity production

(h) The country information, provided during the event, allowed to delegates to form an informed insight into the investment situation of each presented country which an invaluable asset for domestic and international investors.

(i) The UNECE member-countries and corporations present expressed their gratitude to the secretariat of the United Nations Economic Commission for Europe, e8, European Bank for Reconstruction and Development and World Energy Council

for the excellent organization of High-level dialogue on Fostering Investment in Electricity Generation in Central and Eastern Europe and Central Asia.

56. Recommendations:

The UNECE member-countries and corporations present:

(j) Requested the secretariat of the United Nations Economic Commission for Europe, e8, European Bank for Reconstruction and Development and World Energy Council to continue their invaluable joint efforts on promotion of investments in cleaner electricity production in the UNECE region.

(k) Asked in particular United Nations Economic Commission for Europe and e8 to explore the possibility of extending this precious joint activity and expertise to other regions with emerging market economies.

(l) Demanded the secretariat of the United Nations Economic Commission for Europe, e8, European Bank for Reconstruction and Development and World Energy Council to continue this High-level dialogue on Fostering Investment in Electricity Generation in Central and Eastern Europe and Central Asia in Geneva on 22-24 November 2010 in the form of Joint UNECE-e-8-EBRD-WEC Clean Electricity Production Forum: Fostering Investment in Electricity Generation in Central and Eastern Europe and Central Asia.

(m) Mandated the UNECE secretariat, which will act as the host of the Forum, to invite high government officials from the UNECE member-countries and in particular ministers, deputy ministers and secretaries of state dealing with energy, electricity and/or investment issues as well as top executives from energy and financial sector to the Geneva Forum.

(n) Requested the UNECE secretariat, in order to create the enabling policy framework, to investigate whether the UNECE-e8-EBRDWorld Energy Council initiative could host an IT platform for sharing best practices in the power generation area.

(o) Invited all UNECE member-states and their corporate sector to support fully the joint efforts of the United Nations Economic Commission for Europe, e8, European Bank for Reconstruction and Development and World Energy Council to promote investments in cleaner electricity production.

(p) Suggested to representatives of countries from Central and Eastern Europe and Central Asia to come forward with potentially interesting investment proposals in cleaner power plant generation and related transmission infrastructure so that UNECE, e8, EBRD and WEC could assist in fostering investment flows and completing the projects.

(q) Requested the UNECE secretariat to produce the High-level Dialogue Report, issues it as the official UNECE document and distribute it to all the High-level Dialogue participants.

(r) Requested the secretariat of the United Nations Economic Commission for Europe to schedule the first Advisory Board meeting of the UNDA on fostering electricity investments on 21 January 2011 in Geneva, subject to the confirmation of the November 2010 annual meeting of the UNECE Ad Hoc Group of Experts on Cleaner Electricity Production from Coal and Other Fossil Fuels.

Agenda item 4
Other business

57. The delegates did not raise any issue during the session that falls within the scope of the terms of reference of the Ad Hoc Group of Experts (Annex to ENERGY/GE.4/2006/2).

Agenda item 5
Adoption of the report of the meeting

58. Based on the Chairman's summary of the key conclusions and recommendations of the High-level Dialogue, participants adopted the report of the meeting and asked the UNECE secretariat to issue it in the official form.