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Group of Experts on Renewable Energy

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Item 3 of the Provisional Agenda

Status of development of renewable energy in the United Nations Economic Commission for Europe region**Report on selected international actors on renewable energy
in the ECE Region****Note by the secretariat***Summary*

Following recommendation of the Committee on Sustainable Energy at its twenty-second session on 21-22 November 2013 (ECE/ENERGY/91) and decision of the Executive Committee at its sixty-fifth meeting on 4 December 2013 (ECE/EX/7), the Group of Experts on Renewable Energy is mandated until December 2015, with a possibility of extension, to carry out concrete, results-oriented activities that help significantly increase the uptake of renewable energy in the region.

This report summarizes the activities of key relevant international actors in the field of renewable energy taking into account that all activities of the United Nations Economic Commission for Europe (ECE) on energy should have a clear demonstrable value added and be coordinated with and complementary to the work of other relevant international actors without duplicating their work or mandates (Appendix II of the Outcome of the review of the 2005 reform of ECE, E/2013/37, E/ECE/146). This document, primarily based on a research made by consultants from the German Agency for International Cooperation (GIZ) of internet websites, information provided through direct contacts and the UN-Energy secretariat, is intended as noncomprehensive background material to facilitate the discussion at the first session of the Group.



I. Introduction

1. The ECE member States mandated the Group of Experts on Renewable Energy to carry out action-oriented, practical activities to significantly increase the uptake of renewable energy, in line with the UN Secretary General's Sustainable Energy for All (SE4ALL) Initiative. The region has significant economic, cultural, and energy diversity, and it plays a large role in the current and future global energy architecture.
2. The Group of Experts intends to facilitate the dialogue between government representatives and key stakeholders from private sector, international organizations, NGOs, academia and financial community. Two informal preparatory meetings took place with selected experts from member States and key RE thought leaders, one on 26 June 2014 in Geneva and one on 11 July 2014 in Paris, respectively. Participants of the informal meetings discussed the state of development of RE with a particular focus on the challenges in the ECE region, exchanged views on the role that the Group could play to increase the uptake of renewable energy.
3. The specific goals of this report are to (i) identify key international actors that are promoting renewable energy activities in the ECE region and allow the Group to be informed on the level and scope of their activities and commitment to international cooperation in the subject area and the ECE region; (ii) provide information to identify potential gaps in their activities as niches / opportunities for possible increased involvement of ECE in the future, in line with the received mandate; and (iii) facilitate the discussion on possible strengthened future cooperation between the ECE and other key international organizations and actors.

II. Other United Nations organizations, specialized agencies and relevant initiatives

4. The **United Nations Conference on Trade and Development (UNCTAD)**. In the energy field, UNCTAD focuses its activities on energy commodity development, greening international trade and decarbonizing the clean energy commodity supply chains. To this end, UNCTAD has introduced (i) the Energy Commodity Development Programme, (ii) the Natural Resources Information Exchange (note: it is not addressed to the ECE region) and (iii) the Biofuel Initiative. Also, UNCTAD emphasizes the role of sustainable energy as a tool for economic growth in developing countries. In this context, UNCTAD implements a work programme on energy, trade, and development based on three pillars of work: (i) policy oriented research and analysis, (ii) consensus building, and (iii) technical cooperation. On renewable energy, UNCTAD has issued several publications on renewable energy technologies and trade related issues.
5. The **United Nations Department of Economic and Social Affairs (UNDESA)**. UNDESA is contributing, inter alia, to achieving the objective of the SE4ALL initiative of securing universal access to modern energy services. In relation to that, UNDESA leads a public-private partnership initiative on Minimum Electricity Access that promotes electrification in rural isolated communities with stand-alone renewable energy systems. UNDESA will continue playing a key role in the coordination of activities of UN-Energy and will support the coordination and implementation of planned activities for the 2014-2024 UN Decade for SE4ALL. As the UN-Energy Secretariat, UNDESA is coordinating the participation of member organizations in the post-2015 consultations on energy. In particular, UNDESA is providing key support during the inter-governmental negotiations

on the definition of Sustainable Development Goals (SDGs), targets and indicators on energy for the Post-2015 Development Agenda. UNDESA, through its Statistics Division and the Division for Sustainable Development, is also supporting the SE4ALL Global Tracking Framework effort.

6. The **United Nations Development Programme (UNDP)**. UNDP is involved in many activities promoting the use of new and renewable sources of energy. One of UNDP's main initiatives is the creation of a hub for decentralized energy solutions designed to focus capacities and resources from all agencies on off-grid areas. UNDP provides technical assistance to develop sustainable energy solutions, particularly decentralized energy options. Through its Programme on Promoting Access to Clean and Affordable Energy Systems and Services, UNDP promotes distributed clean energy systems, focusing mainly on sustainable use of biomass and other renewable energies, delivering on-grid and off-grid electricity solutions and providing clean fuel for heating and cooking. UNDP's support for the SE4ALL Decade also includes the establishment of national targets and policy frameworks for renewable energy and energy efficiency, and developing regulatory frameworks that provide technical regulations and conditions for the installation of renewable energy generation plants and their connection to the grid. UNDP has identified sustainable energy and addressing the challenges of climate changes as priorities in its 2014-2017 Strategic Plan. As an implementing agency of the GEF since 1991, under the work of the UNDP-GEF, UNDP will support the SE4ALL Decade by implementing three signature programmes: (i) Clean Energy: Promoting Access to Clean and Affordable Energy Systems and Services, (ii) Urban Infrastructure: Promoting low emission and climate resilient urban and transport infrastructure, and (iii) Access to New Finance Mechanism. UNDP has country offices in 22 UNECE member States. As of July 2014, RE projects are under implementation in Albania, Azerbaijan, Bosnia and Herzegovina, Croatia, Georgia, Kyrgyzstan and Republic of Moldova.

7. The **United Nations Environment Programme (UNEP)**. UNEP has provided support to countries on promoting new and renewable sources of energy and energy efficiency measures along three main work streams: (i) assessments and analysis enabling science-based decisions considering the country specific context; (ii) policy tools to design and implement an enabling framework for the uptake of sustainable energy technologies; and (iii) innovative finance and risk management for sustainable energy technologies, goods and services in developing countries. The UNEP Medium Term Strategy 2014-2017, includes programmes on renewable energy, energy efficiency and decentralized energy solutions among others. These are to be achieved through a transition to an inclusive Green Economy. UNEP and other partners are building the Solar and Wind Energy Resource Assessment (SWERA) initiative. SWERA brings together solar and wind energy resource data sets and analysis tools from a number of international organizations in a dynamic user-oriented environment. The information and data provided on the site are freely available to the public and intended to support the work of policy makers, project planners, research analysts and investors. The underlying renewable energy information SWERA database is available to a user as Geographic Information System (GIS) data.

8. The **United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)**. ESCAP has the core mission to encourage economic cooperation among its member States. It includes 14 ECE countries. With the guidance and backing of its member States, the secretariat convened the Asian and Pacific Energy Forum (APEF) at the ministerial level in May 2013 hosted by the Russian Federation. The outcome documents, among others, include a regional plan of 15 supported actions that establish ESCAP's overarching 2014-2018 energy development agenda. Among them, there are several areas particularly important for promotion and uptake of renewable energies as means for poverty eradication, technological development, minimization of negative environmental impacts, regional cooperation and so forth. In facilitating the implementation of the APEF outcome

documents, ESCAP took the initiative to provide a platform for policy makers – the Policy Dialogue that reviewed and agreed in establishing APEF Review and Assessment Mechanism, which will facilitate in developing a more focused regional cooperation mechanism towards the next APEF planned for 2018. This process is expected to also support the implementation of the “Decade”. ADB, UNDP and ESCAP have agreed to jointly establish an Asia-Pacific “regional hub” hosted by ADB to support the implementation of the SE4ALL. In addition, with funding support from IFAD and the UN Development Account, ESCAP is implementing a multi-year initiative to widen access to modern energy services for rural communities through programme, Pro Poor Public Private Partnership (5P) for Rural Development. 5P develops national and local capacities to attract private sector investment in rural energy access with the locally available renewable energy resources. As second initiative ESCAP is supporting is the creation of the Asian Energy Highway, aimed at advancing regional energy planning, infrastructure development, and power trading across Asia and the Pacific, e.g. through an integrated regional grid. ESCAP developed a project on “Strengthening South-South cooperation to increase the affordability of sustainable energy options in Asia and the Pacific.”

9. The **United Nations Educational, Scientific and Cultural Organization** (UNESCO). In the area of renewable energies, UNESCO’s strategy includes assistance to its member States to take concrete actions through effective policies and institutional frameworks toward enhancing the use of renewable energy technologies. UNESCO launched the Global Renewable Energy Education and Training (GREET) Programme. GREET provides awareness raising, capacity building, and serves as a framework for promoting the development of human and institutional capacity. Under this programme annual summer schools on renewable energy training are organized in Africa, South East Asia and Central and Eastern Europe. The Renewable Energy Futures for UNESCO Sites Initiative (RENFORUS) promotes the use of UNESCO biosphere reserves and World Heritage sites as field observatories on the sustainable use of renewable energy sources. RENFORUS will provide good practice case studies, demonstrating positive impacts of renewable energy installation projects that are transferable. The International Sustainable Energy Development Centre established by UNESCO in the Russian Federation provides courses on alternative and renewable energy.

10. The **United Nations Commissioner for Refugees** (UNHCR). In 2014, UNHCR launched its new “Safe Access to Fuel and Energy” (SAFE) strategy. It elaborates the integration of energy into emergency preparedness and response, as well as the increased use of renewable energies.

11. The **United Nations Framework Convention on Climate Change** (UNFCCC). UNFCCC is an international environmental treaty negotiated at the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro (Brazil) from 3 to 14 June 1992. The 195 Parties of the UNFCCC as of today have been undertaking analyses of the gaps and barriers to finance climate change technologies. At the sixteenth session of the Conference of Parties (COP16) in 2010 in Cancun, Mexico, the Parties decided to establish a Technology Mechanism with a Technology Executive Committee (TEC) and the Climate Technology Centre and Network for the transfer of relevant technologies including renewable energy technologies. Elements in the agreement from COP16 include a total of US\$ 30 billion in fast track finance from industrialized countries to support climate action in the developing world up to 2012 and the intention to raise US\$ 100 billion a year by 2020. In addition, the decision was made to establish the Green Climate Fund. During the seventeenth session in 2011 in Durban (South Africa), the Conference of Parties (COP17) agreed on the details for operationalizing the Technology Mechanism comprising the TEC, the Climate Technology Centre and its Network. It is expected that both the proposed Climate Technology Centre

and Network and a possible new technology facilitation mechanism as proposed at the RIO+20 Conference on Sustainable Development in 2012 will contribute to facilitating the deployment of new and renewable energy technologies. The TEC works with stakeholders to produce Technology Roadmaps (TRM) which identifies good practices in regards to the development, transfer, and implementation of technology for climate change mitigation and adaptation. TRMs are produced in collaboration with the private sector, intergovernmental organizations, non-governmental organization, academia, and governmental organizations. To date, the TEC has produced 55 renewable energy TRMs. In addition, TEC works with country stakeholders to produce Technology Action Plans (TAPs), which are planning documents that incorporate the results of TRM and the Technology Needs Assessment (TNA) reports. TNA reports prioritize technological needs and identify barriers/enablers of TAPs. Eleven ECE member States have submitted their TNA reports since 2001, the most recent being Azerbaijan, Georgia and the Republic of Moldova (all in 2012) and Kazakhstan (2013).

12. The **United Nations Human Settlements Programme (UN-Habitat)**. Regarding energy aspects, UN-Habitat focuses on: urban energy planning, municipal energy policy and legislation, and urban energy finance; energy access for the urban poor, with special emphasis on women and youth; energy and resource efficiency in the built environment; and renewable energy technologies in the urban energy mix. To this end, UN-Habitat has projects on (i) designing and implementing pilot renewable energy projects to enhance pro-poor access to water and sanitation; (ii) promoting biogas in public institutions such as schools, prisons, hospitals, public spaces etc.; (iii) developing of Multi-functional Clean Energy Centres, including a multitude of renewable energy technologies; (iv) producing best-practice casebooks and technology roadmaps for renewable energy use in human settlements; and (v) designing sustainable municipal solid waste management systems with emphasis on producing energy from waste.

13. The **United Nations Industrial Development Organization (UNIDO)**. UNIDO has been very active in leading the UN-Energy cooperation efforts to the development of the SE4ALL Initiative. A recent study by UNIDO suggests that up to 21 per cent of all final energy use and feedstock in manufacturing industry in 2050 can be of renewable origin, i.e. numerous business opportunities exist for a greater share of renewable energy in the energy mix. In addition, an increase in renewable energy in industry has the potential to contribute about 10 per cent of all expected greenhouse gas emissions reductions in 2050, or 25 per cent of the total expected emission reductions of the industry sector, which is equivalent to the total current CO₂ emissions of France, Germany, Italy, and Spain. UNIDO currently has 50 active renewable energy projects in 35 countries and 20 projects in the planning stage. The organization's renewable energy programme promotes productive, or income and growth-generating activities through mainstreaming the use of renewable energy in industrial applications, in particular SMEs, as well as the creation of business development opportunities. On energy related issues, UNIDO has launched several multi-stakeholder initiatives.

14. The **Food and Agriculture Organization of the United Nations (FAO)**. Different programs are carried out by FAO linking food and energy challenges. FAO is active in different areas such as bioenergy and wood energy. Energy-Smart Food for People and Climate (ESF) programme and the work on sustainable bioenergy represents FAO's commitment to the implementation of the SE4ALL initiative. FAO is co-chairing the High Impact Opportunities group on Sustainable Bioenergy and on "Water-Energy-Food Nexus". The Energy Smart Food Systems programme promotes improved energy efficiency and diverse energy sources with gradual increase in the use of renewable energy in agrifood chains.

15. The **International Fund for Agricultural Development (IFAD)**. Also on energy related activities, IFAD has focused exclusively on rural poverty reduction, implementing projects mainly in remote areas, and have targeted some of the poorest and most deprived segments of the rural population. The IFAD's Zero Carbon Imprint (ZCI) working group is evaluating ways in which carbon imprint can be reduced. The group is working to increase awareness among managers and staff of the contribution they can make to the ZCI goal.

16. **World Health Organization (WHO)**. WHO has the Global Household Energy Database that serves as the baseline for SE4ALL tracking of home energy transitions and health impacts. WHO focuses its work on the co-benefits of clean energy. Small PV solar systems can provide better illumination in small workplaces of the informal sector, reducing indoor exposures to kerosene fumes and injury risks and improving productivity. WHO emphasizes the link of access to energy and women's and maternal health. WHO is documenting access to clean and renewable energy in the health-care sector at the national level. It has been raising awareness about benefits of renewable energy in health-care facilities. WHO prepared health air quality guidelines for household fuel combustion to provide guidance on safe and renewable energy technologies to policy makers.

17. The **World Meteorological Organization (WMO)**. WMO and the International Renewable Energy Agency (IRENA) have initiated a multi-stakeholder initiative to define the needs and requirements of the energy sector for climate services. Due to their sensitivity to climatic factors, renewables are a particular focus of this effort. WMO advises on a modern, inter-operable data management system involving archiving and data service facilities to support IRENA's work on renewable energy potentials, climate variability impacts and long-term sustainability and variability of renewable energy resources. WMO also facilitates access to operational climate products of the Climate Services Information System. In addition, WMO and the IRENA collaborate on the development of the Solar and Wind Energy Atlas by identifying and facilitating access to available datasets from WMO programmes. (for more detail, see paragraph on IRENA)

18. The **Sustainable Energy for All (SE4ALL)**. SE4ALL is a global initiative led by the Secretary-General of the United Nations, Ban Ki-moon, in support of three interlinked objectives:

- Providing universal access to modern energy services;
- Doubling the global rate of improvement in energy efficiency; and
- Doubling the share of renewable energy in the global energy mix.

The SE4ALL Global Action Agenda identifies 11 'Action Areas' to achieve the three objectives. These thematic focal areas provide a framework for identifying high impact opportunities (HIOs), a way to organize multi-stakeholder actions across all relevant sectors of the economy, and serve as tangible entry points for stakeholders interested in taking action in specific areas of interest. The Action Areas include 7 sectoral areas: (1) modern cooking appliances and fuels; (2) distributed electricity solutions; (3) grid infrastructure and supply efficiency; (4) large-scale renewable power; (5) industrial and agricultural processes; (6) transportation; and (7) buildings and appliances. There are also 4 'enabling' Action Areas: (1) energy planning and policies; (2) business model and technology innovation; (3) finance and risk management; and (4) capacity building and knowledge sharing. The mandate of the Group of Experts established by ECE is closely related with the objectives of the SE4ALL particularly in terms of the ambition to »increase the use of renewable energy« (3rd objective) in the context of achieving universal energy access (1st objective), with a special attention to those communities with no access to energy in ECE member States.

19. **UN-Energy.** UN-Energy is an interagency mechanism established in 2004 to help ensure coherence in the UN system's multi-disciplinary response to the World Summit on Sustainable Development (WSSD) in Johannesburg and to promote the effective engagement of non-UN stakeholders in implementing WSSD energy-related decisions. Its membership consists of senior officials and experts on energy of the UN regional commissions, organizations, funds and programmes: FAO, IAEA, GEF, UN-INSTRAW, UNCTAD, UN DESA, UNDP, ESCAP, ESCWA, ECA, ECE, ECLAC, UNESCO, UNEP, UNFCCC, UN-Habitat, UNIDO, UN System, the WB Group, WHO and WMO. UN-Energy's work is organized around three thematic clusters, each led by two UN organizations:

- Energy access: led by UNDESA and UNDP, in partnership with the World Bank
- Renewable energy: led by FAO and UNEP, with support of UNESCO
- http://www.un-energy.org/activities/energy_efficiency Energy efficiency: led by UNIDO and the IAEA

UN-Energy members provide funds, technical assistance, expertise and knowledge on all types of renewable energy systems, with different focuses according to the specific programmes supported by the respective organizations. Some of the programmes of UN-Energy members dealing with renewable energy are: (i) enabling environments, (ii) financing, and (iii) knowledge sharing.

III. International financial institutions and dedicated funds

20. The **Asian Development Bank (ADB)**. In the energy field, the ADB's priorities include clean energy, access to energy, sector governance and reform, and regional cooperation. The ADB's 2009 Energy Policy aims to help developing member countries provide reliable, adequate, and affordable energy for economic growth in a socially, economically, and environmentally sustainable way. The policy enables ADB energy operations to be aligned with the organization's overall strategy emphasizing energy security, facilitating a transition to a low-carbon economy, universal access to energy, and for achieving ADB's vision of a region free of poverty. The three pillars of ADB's 2009 Energy Policy are: (i) Promoting energy efficiency and renewable energy, (ii) Maximizing access to energy for all, and (iii) Promoting energy sector reform, capacity building, and governance. ADB has integrated clean energy into its project development process and has put in place financing to help decrease the cost of clean energy projects. It has launched initiatives for the rapid deployment of low-carbon technologies in the region. The Clean Energy Program of ADB seeks to increase efficiency on energy, transport and urban development and help countries adopt renewable energy sources; and to improve access to energy for poor and remote regions -avoiding the use of traditional biomass. Clean, sustainable energy and climate change oriented funds and partnership programs include: (i) Clean Energy Financing Partnership Facility (CEFPF), (ii) Climate Change Fund (CCF), and (iii) Renewable Energy, Energy Efficiency, and Climate Change (REACH) - as an umbrella program covering four bilateral trust funds (Canada, Denmark, the Netherlands, Finland) targeted at clean energy and environment that are administered by ADB. The Energy for All Initiative adopted by ADB aims to maximize energy for all, especially the rural poor, to strengthen its investments and increase its project portfolio in this area. The initiative develops approaches for increasing access to affordable, modern and clean energy among the region's poor.

21. As part of the initiative, ADB launched the Energy for All Partnership, a regional platform for cooperation, information and technical exchange that brings together the private sector, financial institutions, governments, bilateral, multilateral and non-

governmental development partners. The ADB operates eight ECE member States. In the area of RE, the ADB has been active in four of them in the last five years (2011-2014). The approved projects include Azerbaijan, Georgia, Tajikistan, and Uzbekistan.

22. The **Council of Europe Development Bank (CEB)**. The CEB is the social development bank of Europe. Over the last few years, the CEB has been working to develop relations of cooperation with other multilateral organizations. In this context, besides its natural links with the Council of Europe, the CEB has become a highly valued partner to the EU and regularly cooperates with other IFIs as well as with several UN specialised agencies in fields of common interest. The Western Balkans Investment Framework (WBIF) coordination framework is aimed at facilitating access to European financings for the countries in the Western Balkans. More specifically on energy, the CEB created CEB-ELENA (European Energy Assistance) in 2011 which is a grant facility intended for public entities that wish to develop investment projects in the fields of energy efficiency and renewable energies. CEB-ELENA provides up to 90 per cent of the eligible technical assistance costs to prepare and implement projects. The facility was created in partnership with the European Commission, which has set up similar facilities with EBRD, EIB and KfW Bank. It is financially supported by the European programme "Intelligent Energy - Europe II", whose objective is to promote energy efficiency and renewable energies. The main difference between CEB-ELENA and other EC's ELENA facilities is that CEB-ELENA supports only projects that benefit disadvantaged regions or populations. This social focus of CEB-ELENA is in line with the CEB's mandate, which is to foster social cohesion in Europe.

23. The **European Bank for Reconstruction and Development (EBRD)**. The EBRD is the largest investor in the renewable energy industry in the region of its operations. In 2006-2013, the Bank made direct investments worth over EUR 2 billion in the renewables sector, with an additional EUR 760 million channelled to the industry via credit lines to local banks. Renewable energy is the fastest-growing segment of the EBRD's power and energy portfolio. Twenty nine of 35 EBRD countries of operation are ECE member States. In December 2013, the EBRD adopted a new Energy Strategy which guides its investments in the energy and natural resources sector, including renewables. Currently, the EBRD has invested in all kinds of renewables, of which the largest proportion is wind and hydro (22 per cent and 31 per cent of direct investments, respectively), with dozens of smaller projects financed via credit lines. As the Bank expands into the southern and eastern Mediterranean, it will be looking to establish markets and appropriate instruments for solar PV, solar thermal and other solar technologies, as well as geothermal energy.

24. The EBRD is also an enabler of renewable energy investments. The Bank has worked with countries such as Kazakhstan and Ukraine and countries in the Western Balkans to develop renewable energy legislation - thus enabling the development of a sustainable renewable energy industry. At the time of the new strategy's adoption the Bank was considering the first wind farm in fossil-rich Kazakhstan. In Poland, the Bank invested over EUR 420 million in biomass and wind energy, and in Turkey - where the Bank has operated since 2009 - EBRD-financed renewable energy that can already light homes for 4 million people. The EBRD also lends to small and medium-sized renewables projects via its Sustainable Energy Financing Facilities (SEFFs) and supports elements of renewable energy in its projects in other sectors. One such example is the solar water heaters for Kazakh railways, KTZ. The renewables sector has however faced the challenges associated with moving from a niche to the main stage since 2006. These fall into three categories: (i) the financial challenge, (ii) the technical challenge, and (iii) the market challenge. The EBRD is pursuing opportunities to invest through equity, project finance and corporate debt to fund renewable energy development, construction and operation activities. The Bank is also open to opportunities to invest in renewable energy focused funds dedicated to the Bank's countries of operation where these funds are filling a clear gap in the market or have

well defined value-add propositions. Some projects under the heading of Power and Energy programs implemented by EBRD in the last 5 years include Albania, Bulgaria, Georgia, Lithuania, Poland, Tajikistan, and Turkey.

25. The **European Investment Bank (EIB)**. The majority of EIB lending is attributed to promoters in the EU countries (about 90 per cent of the total volume) supporting the continued development and integration of the EU. Outside the EU, EIB's lending is governed by a series of mandates from the EU in support of EU development and cooperation policies in partner countries. Thus, the EIB covers 49 ECE member States (Table 1). Apart from EU member States that all are also ECE member States, the current EIB external mandate includes support to additional ECE countries, in particular:

- EU Enlargement countries (candidate countries: Albania, FYR of Macedonia, Iceland, Montenegro, Serbia and Turkey, and potential candidate countries: Bosnia and Herzegovina);
- The European Free Trade Association – EFTA (Iceland, Lichtenstein, Norway and Switzerland);
- EU Eastern Neighbourhood Policy in the Eastern Partnership countries by financing projects of significant EU interest; and
- The 5 ECE member States of Central Asia since late 2008.

26. The EIB offers a long list of products in its portfolio of services: project loans (in access of EUR 25 million), intermediated loans (via local banks), structured finance (additional support to priority projects), guarantees, project bonds (for unlocking infrastructure funding), equity & fund investments (to catalyse further activity), venture capital (helping fund managers invest in high-tech and growth SMEs), microfinance, risk-sharing in research, development & innovation, sustainable energy (maximising investment – ELENA), Green-tech demonstration (support to NER300¹), infrastructure project advice (for new members, JASPERS), urban development (technical assistance, JESSICA), transport infrastructure (cash-flow guarantees, public-private partnership optimisation (EPEC), flexible SME funding (JEREMIE)²). The EIB lending for RE reached EUR 3.3 billion in 2012. Most RE loans went to wind and solar power generation. By investing in RE the EIB supports the EU's climate policy and will help to achieve the policy target of 20 per cent of overall EU energy consumption being met from RE sources by 2020. In line with EU objectives, in 2012 the EIB devoted more than 30 per cent of energy lending to RE projects. The EIB not only finances mature renewable energy technologies, such as onshore wind farms, hydropower, geothermal and solid biomass, but also strongly encourages the expansion of early-stage or evolving technologies such as solar thermal, offshore wind, photovoltaic, concentrated solar power and second-generation biofuels. The Bank requires the best available technology (BAT) to be used in all the projects the Bank finances.

27. Moreover, the EIB provides tailored financial instruments for research, development and innovation involving RE to strengthen Europe's international competitiveness and position the EU's industry at the forefront of the rapidly growing low-carbon technology sector. In addition to EIB lending activities, the Bank provides financing and expertise to a number of significant initiatives supporting RE, including:

- The 2020 European Fund for Energy, Climate Change and Infrastructure;

¹ NER300 is one of the world's largest funding programmes for innovative low-carbon energy demonstration projects. The programme is conceived as a catalyst for the demonstration of environmentally safe carbon capture and storage (CCS) and innovative renewable energy (RES) technologies on a commercial scale within the European Union.

² ELENA, NER300, JASPERS, JESSICA, EPEC, JEREMIE are EU-supported programmes.

- Managed by the EIB and funded by the European Commission, European Local Energy Assistance (ELENA);
- The Energy Sustainability and Security of Supply Facility (ESF) as a multiannual EUR 3 billion facility for financing projects in EU candidate and neighbourhood countries, African, Caribbean and Pacific countries, South Africa, and Asia and Latin America;
- The EIB supports the EC as an agent in the implementation of the NER300 initiative.

28. The **Global Environment Facility** (GEF). Today, GEF is the largest public funder of projects to improve the global environment. As independently operating financial organization, the GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.

29. Since 1991, through its Small Grants Programme, GEF has also made more than 16,030 small grants directly to civil society and community-based organizations, totalling US\$ 653.2 million. Community-based organizations (CBOs) and non-governmental organizations (NGOs) have the opportunity to apply for GEF grants through the Small Grants Programme.

30. The GEF serves as financial mechanism for the UNFCCC. The GEF supports projects in both Climate Change Mitigation as well as Climate Change Adaptation.

31. The GEF also manages two separate adaptation-focused Funds under the UNFCCC — the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF), which mobilize funding specifically earmarked for activities related to adaptation, and the latter also to technology transfer.

32. The GEF Renewable Energy Portfolio Overview. From October 1991 to June 2012, the renewable energy portion of the GEF's climate change portfolio amounted to about US\$ 1.22 billion, with an average of US\$ 4.9 million per project. This GEF funding has been supplemented with US\$ 9.59 billion in co-financing. In this same period, through direct investments alone, GEF projects have contributed to the installation of approximately 6.2 GW of renewable energy generating capacity. This installed capacity consists of solar energy, wind power, geothermal energy, small hydropower, and biomass for either heat or power generation.

33. GEF-6 (1 July 2014 – 30 June 2018) Strategy for Renewable Energy – GEF support for renewables may be utilized to minimize key barriers to renewable energy deployment, including: support for energy access initiatives at the local level, including demonstrations and piloting of renewable options; support for policy and strategy frameworks to enhance integration of renewable options into energy supply systems, and; enhancement of technical and financial capacities to stimulate renewable energy project development. Candidate options include: medium and small-scale hydropower; on-shore wind power; geothermal power and heat; and bio-energy systems using biomass from wastes and residues; solar photovoltaic systems and CSP. Furthermore, the GEF will help countries identify innovative business models, which can be adopted by the private sector to facilitate up-scaling of low carbon energy options. The negotiations for the GEF-6 replenishment concluded in April 2014. Thirty countries pledged US\$ 4.43 billion for the GEF-6 period.

34. The **World Bank Group** (WBG). The WBG comprises five institutions managed by their member countries (for more details on IBRD, IDA, IFC, MIGA and ICSID, see below). It mainly provides loans at preferential rates to member countries, as well as grants to the poorest countries. Loans or grants for specific projects are often linked to wider policy changes in the sector or the country's economy as a whole.

35. In the ECE region, the WB works with the following affiliates:

- Multilateral development banks like ADB and EBRD;
- Multilateral financial institutions (CEB and EIB);
- Aid coordination groups like development agencies of Austria, Canada, Denmark, France, Germany, Ireland, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom and the United States of America;
- Bilateral development banks (e.g. KfW of Germany).

36. In response to demand from developing countries, the WBG financing for energy projects has been strong in recent years, reaching US\$ 8.2 billion in fiscal year 2011. The energy projects seek to increase energy access, develop renewable energy and energy efficiency, and leverage private sector participation in energy generation, transmission and distribution including through effective public-private partnership arrangements.

37. The WB, in coordination with the Energy Sector Management Service (ESMAP), the IEA and other agencies³ are significantly contributing to the accountability of the UN's SE4ALL initiative through the Global Tracking Framework Report which is generated every two years until 2030 and enable tracking SE4ALL progress towards 2030 targets. The Report also provides data-driven guidance on where to focus efforts to achieve the SE4ALL objectives by identifying high-impact countries that offer the most potential to make rapid progress. In the Report, 20 countries in Asia and Africa were identified that account for about two-thirds of all people without electricity access and three-quarters of those using solid household fuels. The GTF monitors the progress of SE4ALL through aggregating global energy databases to create distinct indicators that quantitatively represent each SE4ALL objective. The Energy Access indicator is the result of household surveys, specifically representing the percentage of population with an electricity connection and who primarily use non-solid fuels for cooking. Finally, the share of renewable energy is represented by ratio of the renewable energy consumption over total final energy consumption (TFEC). The WBG strategic priority in the energy sector is to improve electricity access, which is essential for sustainable growth in an environmentally and socially sustainable manner. Among others, the RE-related new initiatives include:

- The ESMAP-managed Renewable Energy Mapping Program;
- The Global Geothermal Development Plan (GGDP) - also managed by ESMAP.

38. The **International Bank for Reconstruction and Development (IBRD)**. The IBRD provides commercial-grade or concessional financing to sovereign states to fund projects that seek to improve transportation and infrastructure, education, domestic policy, environmental consciousness, energy investments, healthcare, access to food and potable water, and access to improved sanitation. In 2011, the Bank raised US\$ 29 billion in capital from bond issues made in 26 different currencies. It reported lending commitments of US\$ 26.7 billion made to 132 projects in 2011.

39. The **International Development Association (IDA)**. The IDA offers concessional loans and grants to the world's poorest developing countries. It complements the IBRD by lending to developing countries which suffer from the lowest gross national income, from troubled creditworthiness, or from the lowest per capita income. Together, the IDA and the IBRD are collectively generally known as the World Bank (WB), as they follow the same executive leadership and operate with the same staff. The association shares the WB's

³ IIASA, IPEEC, Practical Action, IRENA; REN21, UNDP, UNEP, UN-Energy, UN Foundation, WHO, Global Alliance for Clean Cookstoves, UNIDO.

mission of reducing poverty and aims to provide affordable development financing to countries whose credit risk is so prohibitive that they cannot afford to borrow commercially or from the Bank's other programs. As per status of end July 2014, "closed" large hydro and other renewable energy projects supported by the WB in Europe and Central Asia (limited to ECE member States), included: Armenia, Bosnia and Herzegovina, Montenegro, Poland, Tajikistan and Turkey, while "active" projects were still under implementation in: Albania, Belarus, Turkey and Ukraine. Another project was in "pipeline" in The former Yugoslav Republic of Macedonia. In the same area of large hydro and other renewable energies, projects supported by "others" (IFIs), as reported by the WBG, included "closed" projects in: Armenia, Europe and Central Asia (regional geothermal project) and "active" projects in: Armenia, Czech Republic, Poland, Uzbekistan and Turkey.

40. The **International Finance Corporation (IFC)**. The IFC offers investment, advisory, and asset management services to encourage private sector development in developing countries. The corporation is the private sector arm of the WBG to advance economic development by investing in strictly for-profit and commercial projects that purport to reduce poverty and promote development. The IFC offers an array of debt and equity financing services and helps companies face their risk exposures, without participating in a management capacity. The Corporation also offers advice to companies on making decisions, evaluating their impact on the environment and society, and being responsible. It advises governments on building infrastructure and partnerships to further support private sector development. Regarding renewable energies in fiscal year 2010, renewable energy projects represented nearly 70 per cent of IFC's commitments in the power sector, in terms of number of investments and dollars invested. Since 2005, IFC has financed more than US\$ 2.3 billion in renewable energy projects and between FY'09-11, it has committed to providing a further US\$ 3 billion in financing for renewable energy and energy efficiency projects. IFC's renewable energy investment and advisory support spans the globe, from Africa, Asia, Eastern and Southern Europe, Latin America and Middle East and North Africa. And since different technologies show promise in different parts of the world, IFC's activities support all proven renewable technologies including biomass, geothermal, hydro, solar and wind.

41. The **Multilateral Investment Guarantee Agency (MIGA)**. MIGA offers political risk insurance and credit enhancement guarantees. Such guarantees help investors protect foreign direct investments on green infrastructure and renewable energy against political and non-commercial risks in developing countries. The agency focuses member countries of the IDA and countries affected by armed conflict.

42. The **Climate Investment Funds (CIF)**. Since 2008, the CIF champions innovative country-led investments in clean technology, renewable energy, sustainable management of forests, and climate-resilient development. Fourteen contributor countries have pledged a total of US\$ 8 billion to the CIF, which is expected to leverage an additional US\$ 55 billion from other sources. The CIF allocates financing through four funding windows: (i) Clean Technology Fund (CTF), (ii) Forest Investment Program (FIP), (iii) Pilot Program Climate Resilience (PPCR), and (iv) Scaling Up Renewable Energy Program (SREP). The US\$ 5.5 billion CTF provides middle income countries with highly concessional resources to explore options to scale up the demonstration, deployment, and transfer of low carbon technologies in renewable energy, energy efficiency, and sustainable transport. Each CTF investment plan is tailored by the country to be integrated into national development objectives and to serve as a programmatic organizing framework for the activities of actors across institutions, stakeholder groups, and sectors. More than 100 projects have emerged from these plans. Channelled through the multilateral development banks, CTF concessional financing focuses on large-scale, country-initiated renewable energy projects in concentrating solar power, solar photovoltaic, geothermal, wind, small hydro;

43. The following ECE countries have CIF/CTF programs/activities: Armenia, Kazakhstan, Tajikistan, Turkmenistan, and Ukraine. The private sector is a key player in the CTF as 37 per cent of all financing is intended for private sector projects to be disbursed directly to real sector companies, or through financial intermediaries, to ensure fast scale up of energy efficiency and renewable energy investments in national markets.

IV. Regional integration organizations

44. **European Union (EU).** The 28 EU countries are all ECE member States. In 2012, the EU together with 4 additional countries of EFTA (Iceland, Lichtenstein, Norway and Switzerland) substantially contributed to the ECE region by: 28.0 per cent in population, 47.0 per cent in GDP, 45.5 per cent in total primary energy supply (TPES) and 44.4 per cent in terms of share of RE supplies in TPES.

45. The EU innovative policies aim to help prevent climate change by seriously reducing its greenhouse gas emissions. In December 2008, the European Council agreed that, by 2020, the EU would (i) cut its emissions by at least 20 per cent (compared with 1990 levels), (ii) raise renewable energy's share of the market to 20 per cent, and (iii) cut overall energy consumption by 20 per cent. - the '20-20-20' goal for the Union. The EU countries have agreed on binding legislation intended to achieve this.

46. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC establishes a common framework for the production and promotion of energy from renewable sources in the (28) EU member States.

47. Each EU Member State has a target calculated according to the share of energy from renewable sources in its gross final energy consumption (GFEC) in 2020. This target is in line with the overall '20-20-20' goal for the Union. Moreover, the share of energy from renewable sources in the transport sector must amount to at least 10 per cent of final energy consumption in this sector by 2020. Further detail regarding biofuels determines that the use of food-based biofuels (1st generation) to meet the given target in the transport sector shall be limited to 5 per cent.

48. An EU-wide 'emission trading scheme (ETS) aims to ensure that the required reductions in the greenhouse gas emissions are carried out efficiently.

49. To fund its policies, the EU has an annual budget which, in 2014, amounts to more than EUR 142 billion.

50. The EU produces recommendations for policy makers through publications such as "Energy Solutions for Smart Cities and Communities, from the 58 Pilots of the CONCERTO initiative" providing contributions and recommendations for the development of proposals for future policies at EU, national and local level regarding energy efficiency and use of renewable energy in buildings, urban development and sustainable communities in general. Various funding programs of the EU aim to bolster the share of RE in the energy mix of the EU such as:

- Connecting Europe Facility 2014-2020 (budget: EUR 21,937 million);
- LIFE 2014-2020 (budget: EUR 3,456 million);
- HORIZON 2020, The EU Framework Programme for Research and Innovation (budget: EUR 79.4 billion);
- Structural Funds 2014-2020 (budget: EUR 325 billion);

- The aim of the Programme for the Competitiveness of Enterprises and SME's (COSME) (budget: EUR 2.30 billion).

51. In addition, the EU announced the Energizing Development (EnDev) initiative that will provide access to sustainable energy services to 500 million people by 2030. The Dutch-German-Norwegian-Australian-British-Swiss Partnership has committed EUR 245.8 million to the budget.

52. The renewable energy platform in the EU is demonstrated through numerous initiatives:

- Renewable Energy Progress Report (March 2013);
- RES LEGAL (Legal Sources on Renewable Energy);
- European Energy Programme for Recovery (EEPR);
- Intelligent Energy – Europe;
- Seventh Framework Programme for Research (2007-2013);
- EurObserver'ER;
- ManagEnergy.

53. In developing countries, primarily under DG Development and Cooperation of the European Commission (EuropeAid), the EU plans and implements its global policies and concrete actions, among others, also in the area of energy, environment, climate change, poverty eradication and access to sustainable energy sources, where renewable energies do play today and are likely to play even more important and decisive role in the future.

54. To achieve progress in these areas, the EU engaged long-term partnerships with developing countries based on mutual accountability and political dialogue. They provide the framework for achieving tangible progress and sustainable results.

55. The Sustainable Energy for All. The EC welcoming the United Nations' rallying call in the framework of the UN's Year of Sustainable Energy for All, it has set out an ambitious agenda to help achieve this key objective by 2030.

56. The EU instruments at a global level include the Global Energy Efficiency and Renewable Energy Fund (GEEREF) that was created in 2008 for a period of 15 years. It invests primarily in regional funds that reinvest their assets in projects and companies involved in energy efficiency and renewable energy.

57. The GEEREF is an innovative public-private partnership (PPP) to transfer clean and renewable energy technologies to developing countries. Through its investments in private equity funds, GEEREF finances a broad mix of energy projects and technologies, such as small hydropower, biomass, wind farms etc.

58. The priority areas of the energy cooperation with the Eastern Neighbourhood are defined in the Eastern Regional Strategy Paper (2007-13) of the European Neighbourhood and Partnership Instrument (ENPI), which funds cooperation with Eastern (European) partner countries. Different tools are at the EU's disposal to take up the development challenges together with its Eastern neighbour countries.

59. The Eastern Partnership (EaP) is a policy initiative launched in 2009. It aims to deepen and strengthen relations between the European Union and its 6 Eastern neighbours: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine. The EaP introduced a new cooperation framework based on four multilateral thematic platforms. This includes an Energy Security Platform, which covers issue such as energy interconnections, energy market integration, energy efficiency, renewable energy. The Energy Security Platform

meets twice a year with participation of the EU and the Partners Countries at senior official level.

60. The Commission launched the Covenant of Mayors in 2008, as part of the EU Climate and Energy Package, to support the efforts of local authorities to implement sustainable energy policies. Under the Covenant of Mayors, cities aim to meet and exceed the European Union 20 per cent CO₂ reduction objective by 2020 through the implementation of Sustainable Energy Action Plans (SEAP). Since the launch of the initiative, it has been an overwhelming success in the EU and abroad, with a growing number of cities joining from the Eastern Partnership region. The project also finances a number of grant contracts involving demonstration projects in the region. The project covers 11 ECE member States.

61. INOGATE is another international energy co-operation programme operational since 1996, between the EU, the littoral states of the Black and Caspian seas and their neighbouring countries. The INOGATE partner countries are twelve: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Turkey, Turkmenistan, Ukraine, Uzbekistan, Tajikistan and Russian Federation with observer status only that are all ECE member States. INOGATE concentrates on four key topics: (i) enhancing energy security, (ii) convergence of member state energy markets on the basis of EU internal energy market principles, (iii) supporting sustainable energy development, and (iv) attracting investment for energy projects of common and regional interest.

62. INOGATE's multifaceted process addresses different aspects of renewable energy such as development of supporting policy and legislation frameworks, elaboration of methodologies and guidelines, capacity building, exchange of technological know-how, networking and awareness raising.

63. With the support of the European Commission, the Mediterranean Energy Observatory (OME) became in 1991 an association of some 30 leading energy operators in the Mediterranean countries.

V. Other international and intergovernmental organizations

64. The **Energy Community** (EnC). The EnC is a community established between the European Union (EU) and a number of third countries aiming at extending the EU internal energy market to Southeast Europe and beyond. With their signatures, the Contracting Parties (CPs) commit themselves to implement the relevant EU *acquis communautaire*, to develop an adequate regulatory framework and to liberalise their energy markets in line with the *acquis* under the Treaty. As of end July 2014, seven ECE member States are the CPs to the Treaty while Georgia is a candidate country, and Armenia, Norway and Turkey are observers.

65. Following the EC's proposal, the 10th Ministerial Council of Energy Community (MC-EnC) decided to adopt the RES Directive 2009/28/EC on 18 Oct 2012. Similarly to EU member States, the final Decision lays down the national RES target for each of the then CPs (Albania, Bosnia and Herzegovina, Croatia, Kosovo, FYR of Macedonia, Moldova, Montenegro, Serbia, and the Ukraine). It also establishes mechanisms for cooperation on renewable energy within the EU and between EU member States and third countries. With the Decision and the acceptance of binding targets, the CPs can participate in all cooperation mechanisms. Moreover, the RES statistical transfers for the purposes of target achievement will be possible independently from physical flow of electricity. The national targets for RE in the CPs were calculated by using the EU methodology and reflect an equal level of ambition as the targets fixed for EU member States.

66. Following the adoption of Directive 2009/28/EC by the Ministerial Council Decision 2012/04/MC-EnC, the CPs submitted their NREAPs to the Secretariat in 2013-2014 (initial deadline was set by 30 June 2013).

67. In the NREAPs, the CPs are to lay down the sectoral targets, including the technology mix they expect to use. They also must determine the trajectory they intend to follow in the years to come. The plans are to comprise detailed descriptions on the measures and reforms the Parties intend to undertake to overcome the barriers in developing renewable energy.

68. The Directive 2009/28/EC entails special provisions on transparency, including regular reporting. To this end, each CP is expected to publish a forecast document six months before its national renewable energy action plan is due. As in the case of the NREAP, the CPs are to submit the forecast to the attention of the Energy Community Secretariat (EnCS). The forecasts are to be regularly updated and form an integral part of the reports as stipulated in the Article 22.

69. With the Decision 2012/04/MC-EnC in 2012, the EnC CPs overtook the same obligation regarding the share of renewable energy in the transport sector, i.e. to rise to a minimum 10 per cent in 2020.

70. Through transposition of EU legislation and harmonisation of the *acquis* in EU and EnC thus 28+7=35 ECE Member Countries have got comparable and highly regulated legal framework as well as quantitative targets relating to their future commitments in the promotion of renewable energies.

71. All Contracting Parties of the EnC were requested to bring into force the laws, regulations and administrative provisions necessary to comply with Directive 2009/28/EC by 1 January 2014.

72. The **International Energy Agency** (IEA). The IEA is an autonomous intergovernmental organization which provides considerable contribution to global dialogue on energy through authoritative energy statistics, analysis and recommendations. The IEA acts as a policy adviser to its (29) member States, of which twenty three are ECE member States. In addition, the IEA maintains close co-operative working relationships with major emerging economies such as Brazil, China, India, Indonesia, Mexico, Russia, South Africa and Thailand, as well as countries in the Caspian region, the Middle East and North Africa. The IEA has a broad role in promoting alternate energy sources (including renewable energy), rational energy policies, and multinational energy technology co-operation. By establishing the Renewable Energy Division (RED) as part of its Energy Markets and Security Directorate (EMS), the RED became the IEA's main hub for information and analysis of renewable energy. The work of the RED is based on three pillars: 1) assessment of renewable energy technology status and progress; 2) market and policy developments; and 3) system and market integration, in particular:

Pillar 1: Technology Assessment:

- Outlook for renewable energy technology development, costs and prospects for mainstream use via publication of Technology Roadmaps and other publications;
- Support for international collaboration on energy technology research, development and information dissemination via the IEA multilateral technology initiatives (Implementing Agreements).

Pillar 2: Market & Policy:

- Detailed monitoring, assessment and forecast of renewable energy markets, through the publication of an annual "Medium-Term Renewable Energy Market Report";

- Monitoring and tracking of renewable energy supporting policies that underpin market developments via the IEA/IRENA Global Renewable Energy Policies and Measures Database;
- Analysis of the effectiveness and cost-efficiency of renewable energy policies.

Pillar 3: System and Market Integration:

- Comprehensive assessment of system-related aspects of renewables integration in energy grids and markets;
- Analysis of possible market design reforms aiming at an improved system integration of renewables and flexibility of power systems via the Grid Integration of Variable Renewables (GIVAR) project. The most recent analysis: “The Power of Transformation: Wind, Sun and the Economics of Flexible Power Systems”.

73. IEA provides data in the renewable energy field which is bioenergy, geothermal, hydropower, ocean, solar and wind. The IEA supports international energy technology research, development, deployment, and knowledge transfer through multilateral groups (formally called Implementing Agreements). Many energy technology initiatives are driven by IEA in the renewable energy sectors of: bioenergy, climate technology initiative, energy technology systems analysis programme, geothermal, hydrogen, hydropower, ocean, photovoltaic, deployment, solar heating and cooling, concentrating solar power, and wind.

74. The **International Renewable Energy Agency (IRENA)**. IRENA is an intergovernmental organization that supports countries in their transition to a sustainable energy future. IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity. With a mandate from countries around the world, IRENA encourages governments to adopt enabling policies for renewable energy investments, provides practical tools and policy advice to accelerate renewable energy deployment, and facilitates knowledge sharing and technology transfer to provide clean, sustainable energy for the world’s growing population. In line with these aims, IRENA provides a range of products and services, including:

- Renewable Readiness Assessments, conducted in partnership with governments and regional organizations, to provide policy guidance and facilitate the sharing of case studies and best practices;
- The Global Renewable Energy Atlas, hosted on the IRENA website, which maps solar, wind sources country by country;
- The IRENA Renewable Energy Learning Partnership (IRELP), an online learning network;
- Handbooks for renewable energy policy development;
- Technology briefs and cost studies to strengthen evidence-based policy-making and investment;
- Facilitation of renewable energy planning at regional levels;
- Renewable Energy Country Profiles.

75. With over 100 states and the European Union as members, and active participation by many more signatories and applicants for membership around the world, IRENA helps countries achieve their clean energy potential and promotes renewable resources and technologies as the key to a sustainable future. Forty eight ECE member States are members of IRENA (see Table 1).IRENA’s Knowledge, Policy and Finance Centre

(KPFC) has established a global repository of renewable energy knowledge and serves as a centre of excellence for renewable energy policy and finance issues. Current KPFC programmes and activities include:

- Global Renewable Energy Atlas
- IRENA/ADFD Project Facility

76. In support of the mission of the IRENA, the United Arab Emirates (UAE) in 2009, through the Abu Dhabi Fund for Development (ADFD), committed concessional financing of up to US\$ 350 million for seven cycles to renewable energy projects in developing countries that are recommended or endorsed by IRENA.

77. In addition, IRENA maintains a joint database with the IEA for policies and measures pertaining to renewable energy from around the world. The IEA/IRENA joint Global Renewable Energy Policies and Measures Database holds country-validated renewable energy policy data and country-specific policy profiles from over 100 countries. It builds on existing IEA data, expanding this through the global reach of IRENA's membership, in order to address increasing demand from policy makers, researchers and the general public for easily accessible information on renewable energy policies and measures.

78. The Renewable Energy Country Profiles available on the IRENA website offers specific data on the ECE member States which represents a medium-detailed level of compendium of data relevant for renewable energy, in particular, on socio-economic status, basic categories of energy sector statistics and balances, qualitative assessment of renewable energy potential, information on key strategic planning / legal & regulatory documents, national targets and announced additional capacities for a foreseeable future by type of renewable energy (taken from Bloomberg New Energy Finance). The current version offers data, to the extent possible, for the year of 2012.

79. Finally, IRENA has launched the Renewable Energy Roadmap project (REmap 2030), which provides a plan for doubling the share of renewable energy in the global energy mix by 2030, in line with the UN's SE4ALL objectives. The initial REmap 2030 analysis (released 2014) focuses on 26 countries that make up over 75 per cent of the global energy demand. The analysis is based on the World Bank et al. Global Tracking Framework (GTF) data. The results from the report demonstrate that doubling the share of renewable energy by 2030 may be achieved if a quadrupling of modern renewables (excluding traditional biomass) occurs, with specific growth across four sectors of energy use: buildings, transport, industry, and electricity. Remap 2030 also concludes that improvements in energy efficiency and energy access also have the capacity to bolster the global renewable energy share above 30 per cent by 2030.

VI. Other regional intergovernmental fora, multi-stakeholder networks and key international actors

80. The **Central European Initiative** (CEI). The CEI is a regional intergovernmental forum committed to supporting European integration through cooperation between and among its member States and with the European Union (EU), other interested public institutions or private and non-governmental organizations (NGOs), as well as international and regional organizations. CEI actions in the area of energy efficiency and renewable energy are closely in line with the Europe 2020 strategy. Priorities include:

- Consolidate CEI role in the field of Bioenergy and Bioeconomy.
- Promote Bioenergy and Bioeconomy in CEI member States.

- Consolidate sustainable energy measures across different sectors.

81. Activities are financed through several funds in synergy with the EBRD. In 1992 the Italian Government established the CEI Cooperation Fund at the EBRD. The CEI Cooperation Fund promotes and supervises technical cooperation projects supporting EBRD activities in a number of areas including energy. Technical cooperation is offered in the form of grant-type assistance in support of specific components of a project. Between 1993 and 2013 the CEI Cooperation Fund committed more than EUR 23 million for 122 technical cooperation assignments. Specifically, technical cooperation operations include support for feasibility and pre-feasibility studies, sector and environmental engineering, management training, capacity building, pre-loan audits. In 2013, the CEI co-funded 57 projects with an overall approved funding amounting to EUR 0.507 million and an average funding per project of around EUR 8,000.

82. The co-financed activities of organizations of various kinds and sizes were implemented in the following CEI member countries: Austria, Belarus, Bulgaria, Croatia, the Czech Republic, Hungary, Italy, Macedonia, Moldova, Serbia, Slovenia, Romania and Ukraine.

83. In the field of Science and technology the CEI supported 11 projects taking place in Belarus, Croatia, the Czech Republic, Hungary, Italy, Romania, Serbia and Ukraine. In the field of Climate, environment and sustainable energy 13 projects were co-financed in Austria, Belarus, Croatia, the Czech Republic, Hungary, and Serbia.

84. The Know-how Exchange Programme (KEP) is an instrument dedicated to offering co-financing to projects and programmes focused on the transfer of know-how and best practices from EU to non-EU member States of the CEI. It operates through calls for proposals. Donors include Italy, Austria and Poland.

85. The **Clean Energy Ministerial** (CEM). The CEM is a global forum to share best practices and promote policies and programs that encourage and facilitate the transition to a global clean energy economy. The initiatives are grouped into four categories: (i) to improve energy efficiency, (ii) to expand clean energy supply, (iii) integration initiatives that cut across the traditional clean energy segments, and (iv) to build human capacity. Progress in these areas can help nations reduce carbon emissions, improve energy security, and sustain economic growth.

86. The cornerstone of the CEM's work is 13 action-driven, transformative clean energy initiatives led by like-minded governments. The Clean Energy Solutions Centre, or Solutions Centre, is one of these 13 initiatives. The Solutions Centre assists governments and policy experts design and implement clean energy policies by providing no-cost expert assistance, training, policy reports, data, and tools. The Clean Energy Solution Centre's recent publication "Developing an Online Database of National and Sub-national Clean Energy Policies" addresses major policy, research and technical issues to be considered when creating a clean energy policy database similar to the U.S. Database of State Incentives for Renewables and Efficiency and the Indian Renewable Energy and Energy Efficiency Policy Database.

87. The CEM Solutions Centre is also partnering with IEA to provide the IEA Policies and Measures Database (PAMS) to Solution Centre users. The Solutions Centre is involved with the SE4ALL mission and works closely with several ECE member states, recently responding to a request for assistance from the Regional Centres of Expertise on Education for Sustainable Development Albania.

88. The Multilateral Solar and Wind Working Group works to lower the incremental costs of providing solar and wind energy to all regions of the world. The working group

develops dialogue between stakeholders to accelerate the removal of barriers that countries face when deploying large-scale solar and wind projects.

89. The International Smart Grid Action Network (ISGAN), works to accelerate the development and deployment of smarter electricity grids worldwide, which in turn enable expanded integration of efficient and clean supply technologies.

90. The **Nordic Cooperation (NC)**. The NC is a geo-political inter-parliamentary between the Nordic countries. The NC focuses on elaborating sustainable energy systems by encouraging an effective use of the country's energy resources combined with research into new sources of energy. NC also focuses on ensuring access to energy in remote communities (Nordic region and in the Arctic) that are cut off from the common energy network. These areas often present high consumption level of fossil fuels, therefore a working group, the Nordic Working Group for Remote Communities, focuses on promoting a sustainable energy supply in these remote communities.

91. Nordic Energy Research (NER) is the funding institution for energy research under the Nordic Council of Ministers (NCM). It is the platform for joint Nordic Energy Research and policy development under the auspices of NCM. It promotes cooperation in research and policy that adds value to the national initiatives in the Nordic countries. The NER operates in four-year strategy periods. For the current 2011-2014 period, the main research programme, Sustainable Energy System 2050, aims to develop knowledge and solutions, supporting the transition to a sustainable energy system in 2050.

92. A strategy for the following period (2015-2018) is being developed. All Nordic countries have adopted ambitious climate targets and visions towards 2050. These range from carbon-neutrality in Norway, to domestic emissions reductions of 80 per cent in Finland, to a 100 per cent renewable energy system in Denmark.

93. The NER manages a number of projects and facilitates Ministerial working groups that provide input to energy technology policy-making in the Nordic region, such as the Working Group of Electricity Markets and Renewable Energy.

94. As a follow-up to the organization's main research funding programme for 2011-2014, entitled Sustainable Energy Systems 2050. The largest instrument, Flagship Projects, provides project-based, in-depth and result-orientated cooperation, which is balanced by broader cooperation facilitated mainly through two other instruments: Network-Building Projects and Expert Groups. The Nordic Energy Technology Perspective (NETP) is one the NER's main project.

95. The **Renewable Energy Policy Network for the 21st Century (REN21)**. REN21 is a global renewable energy policy multi-stakeholder network that provides international leadership for the rapid transition to renewable energy. REN21 convenes a wide range of actors including government, international organizations, industry associations, science and academia and civil society. It facilitates knowledge exchange, policy development and supports joint action towards a rapid, global transition to renewable energy. REN21 also collaborates with intergovernmental organizations such as UNEP, the IEA, ADB, the WB and IRENA. The REN21 is registered as a non-profit association under German law.

96. REN21 has produced a number of internationally recognised reports on renewable energy policy and the development of the renewables market place. Since 2005 it has produced an annual Renewables Global Status Report (GSR), The GSR provides a comprehensive overview of renewable energy market, industry, investment and policy development worldwide. For its production, REN21 draws on an international network of more than 500 institutional and individual contributors, researchers and authors, who work together to close data gaps and capture the global status of renewable energy.

97. Renewable energy developments can differ significantly from one region to another. To complement the Renewables Global Status Report and showcase regional trends, REN21 partners with regional institutions to produce Regional Status Reports. To date REN21 has produced regional reports for China, India, as well as for the MENA and ECOWAS regions. In regions with scarce data on renewable energy the regional status reports raise the awareness for the importance of sound data in decision making and support the development of continuous data collection.

98. REN21 works in cooperation with other organizations. A sister report to REN21's GSR is the "Global Trends in Renewable Energy Investment Report" (GTR) produced by the Frankfurt School – UNEP Collaborating Centre for Climate & Sustainable Energy Finance. REN21 is also a partner of the Global Tracking Framework, which is convened by the UN Secretary General's SE4ALL Initiative. REN21 is also responsible for coordinating the biennial International Renewable Energy Conference.

99. The REN21 Renewables Interactive Map is a research tool for tracking the development of renewable energy worldwide. It furthers the perspectives provided in the Renewables Global Status Report by providing constantly updated market and policy information at a country level. The Map offers a streamlined method for gathering and sharing information on economic development and policy frameworks in the field of renewable energies. In conjunction with the GSR, the Renewables Interactive Map offers an updated, interactive, and user friendly picture of the global status of renewables.

100. The REN21 "Renewables Global Futures Report" (GFR) is a pioneering publication that provides access to the range of credible possibilities on the future of renewable energy. The report is based on interviews with over 170 leading experts around the world and the projections of 50 recently published scenarios. The report can serve as a tool for dialogue and discussion on future options, and compliments well the REN21 GSR Report.

101. REN21+ is REN21's collaborative web platform, which allows the REN21 network to interlink. It enables users to profit from an inbuilt peer review tools to streamline review processes of collaboratively produced reports and enhances the exchange of renewable energy relevant content.

102. The **Renewable Energy and Energy Efficiency Partnership** (REEEP) is a non-profit organization that aims to accelerate the marketplace for renewable energy and energy efficiency with a particular emphasis on the emerging markets and developing countries. Its primary focus is the scaling up of clean energy business models. REEEP was originally launched by the government of the United Kingdom along with other partners at the Johannesburg World Summit on Sustainable Development (WSSD) in August 2002.

103. REEEP pursues its market catalyst role in three ways:

- Funding small-to-medium scale project interventions that address the barriers to market development and assist business models in scaling up;
- Providing internet-based information resources such as **www.reegle.info**, an information portal for clean energy that is funded jointly with REN21;
- Connecting and supporting champions of clean energy via several strategic sub-networks of stakeholders.