

## Utilization of Renewable Energy – Challenges and Opportunities of South Caucasus

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The Conference, organized by the Regional Environmental Center of the Caucasus and Konrad Adenauer Foundation brought together government, non-government and international actors South Caucasus (Armenia, Azerbaijan and Georgia). The purpose was to encourage debate between representatives of different countries and most importantly, strengthen dialogue and future cooperation.

During the introduction session representatives of ministries of all three countries briefly described the situation in their countries. They emphasized willingness of the governments to use the sources of renewable energy efficiently and are ready to cooperate with all counterparts and take suggestions from local and international NGOs and Governmental partners. All three countries are now reviewing legislation to ensure compliance with EU and other international instruments.

### Impacts of Renewable Promotion: Germany's Experience

The keynote speaker, Mr. Jürgen Keinhorst from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety spoke of the impacts of renewable energy promotion in Germany. He introduced a highly innovative energy concept that has the ambition to turn the energy sector into the most efficient and environmentally friendly world. Mr. Keinhorst gave an overview of German renewable energy policy, which is an international climate policy. According to this policy, like the rest of the EU, the commitment is to reduce greenhouse gasses and hold 2-degree increase against pre-industrial times, and reduce worldwide greenhouse gas emissions by 50%. In addition, Germany has decided to achieve 40% reduction com-

pared to 1990 and to phase out nuclear energy by 2022. Keinhorst spoke of the economic and industrial aspects associated with such commitments. He also described mechanisms of ensuring readiness of the market for such changes as well as challenged associated with various aspects of using renewable energy. He advised that South Caucasus countries should start acting to achieve energy efficiency first and then move to renewable energy.

### Government Policies

During the plenary session I representatives of ministries and other state agencies of the three countries spoke of the renewable energy policies of their respective countries and reviewed some of the government- and NGO-initiated projects currently implemented. Representatives of Armenia spoke of the efforts the country has been undertaking to ratify international instruments and adopt local legislation concerning energy efficiency and renewable energy. They contended that laws, action plans, strategies and standards are focused on creation new production and services, reduction of technological effects on the environment and ensuring continuous supply of thermal energy as well as further development of own renewable energy potential and introduction of energy efficient technologies.

Representatives of Azerbaijan highlighted some of the plans regarding increased share of renewable energy and change of structure by making optimal use of the solar energy and wind energy. They also gave overview of the renewable energy strategy for 2012-2020 and its components as well as some specific plans and projects, including those of SAARE (State Agency for Alternative & Renewable Energy) and SOCAR (State Oil Company of Azerbaijan Republic)

Representatives of Georgia presented hydropower potential and investment opportunities of Georgia,

emphasizing diversified economy growth, liberal regulations and minimum bureaucracy as main factors. The presenter emphasized the potential of hydropower production in the country and already existing infrastructure that is connected to other countries.

### **NGO Sector**

Plenary session II gave floor to representatives of local NGOs (Non Governmental Organizations) of the three countries. They presented challenges and opportunities as well as ongoing and completed pilot and ongoing projects. Representatives of Georgia spoke of the main barriers, emphasizing lack of information for users and policy-makers, technological adjustment needs and financing. Recognizing that RE-related activities are mostly implemented by NGO sector and supported by donors, Georgian NGO representatives talked about some of the innovative approaches, best practices and lessons learned from such project implementation.

Representatives of Armenian NGO sector described some of the research conducted to maximize the use of renewable energy sources and spoke of the pilot initiatives implemented to demonstrate benefits of using RE for household purposes. It was emphasized that such developments, focused on effective and efficient use of solar and thermal energy have brought both anticipated as well as unplanned benefits and significantly helped to shape up further initiatives.

Speakers representing NGO sector of Azerbaijan emphasized slightly different position of Azerbaijan – a country with independent energy resources, but at the same time recognized the importance of moving to alternative energy sources: global-environmental, political, economic, social and evolutionary-historic. Together with describing potential, they focused on best solutions of developing sources in a way that does not harm ecosystem. Importance of public awareness on benefits and potential of the use of RE was also emphasized.

### **International Organizations**

During the plenary session III representatives of international organizations, mostly managers of UNDP (United Nations Development Programme) projects in all three countries as well as EBRD (European Bank for Reconstruction and Development) and COMO described some of the most effective projects implemented through these agencies. UNDP Armenia representatives intro-

duced renewable energy, energy efficiency and energy conservation as three layers of a pyramid meaning that they should only be considered as a while and in relation with each other. After reviewing recent history after the fall of the Soviet Union, presenters introduced some of the most recent developments – improved legislation, increased use of solar energy, perspectives of combining with regular sources, reduction of greenhouse gasses, and technological upgrade related to such initiatives. They spoke of the diverse projects implemented that have included components like development of technical regulations, certification bodies, testing laboratories as well as working closely with the government to ensure implementation of already existing national renewable energy plans.

UNDP representation from Azerbaijan talked about the work with both government and non-government actors, including the pilot projects and initiatives with shared support from Caspian Technology Company, SAARES, Alten Group, KFW (Kreditanstalt für Wiederaufbau), Norwegian Government and many others.

Georgian representatives of UNDP described how it develops feasibility studies and business plans, works out recommendations for legislative and regulatory changes, increases capacity of local SME in development of RE projects, establishes RE fund and credit line, implements pilot small HPP and geothermal projects. EBRD representative gave an overview of general principles of Bank's activities and how it supports private investment and achieves environmentally sound and sustainable development. Some of the most recent initiatives in Black Sea region have also been described.

Representative of Covenant of Mayors Initiative in Europe also spoke of the importance of involving local governments into the initiatives directed towards energy efficiency and development of renewable energy.

### **Science Sector**

Plenary session IV brought together representatives of scientific and research institutions of the three countries. They introduced some of the technologies developed in their respective institutions. Armenian scientists described their innovative project of rehabilitated kindergarten building with energy sources that demonstrated reduced energy consumption and use of RE for efficiency

purposes. Georgian scientists presented recently developed Ireksoni irrigation system requiring minimal resources and generating maximum power. Azerbaijani scientists reviewed projects implemented by the National Academy of Science, located in different geographic areas, implemented at different times, and covering energy efficiency sector, including alternative energy, biogas generation, and waste processing.

### **Business Sector**

Plenary session V gave floor to the business sector of the three participant countries. Representative of Ltd Hydroenergetica from Armenia spoke about the experience of using turbines and the research they conducted to study different models and their operations. SOCAR of Azerbaijan presented an extensive description of how the company switches to the use of renewable energy and uses wind as well as solar energy to ensure such transformation. Wood Service of Georgia implements construction projects that minimize impact on environment, seismic stability, energy-efficiency and cost-effectiveness, durability, healthy living environment and close partnership with public.

During the question and answer segment of the session all three countries described dialogue platforms created between government, business and civil society organizations on renewable energy. All three countries have demonstrated similar pattern with some degree of variation, where the government is mainly a provider of policies, frameworks, and analysis, while business invests and the society monitors developments. During the same session countries also exchanged their experience with tariff policy.

### **Working Groups**

On Day II, participants were divided into three cross-sectoral groups. They were asked to discuss common problems in the region and potential ways of resolving. Results of these parallel discussions were reported back during the plenary session VII. Even though each group had a specific topic to discuss, there were number of issues that were common across the groups, for example, use of Kyoto protocol, as a tool to develop AE, and importance of providing incentives.

#### **Power Quality Issues: Challenges and Solutions in Renewable Energy Systems in South Caucasus**

The first group, headed by Mr. Fikrad Jafarov (Azerbaijan) discussed issues of quality of electric-

ity and challenges and resolving RE issues in Caucasus, cooperation in identification and resolution of problems in renewable energy. All members of the group agreed that there is a political and public support and interest in development of RE, but challenges are related to lack of qualified personnel in solar and wind energy sectors, insufficient evaluation of the potential, and lack of appropriate legislation.

The group recommended several actions to improve the situation: Creation of legislation based on EU legislation on energy, with clear division of rights and responsibilities of users as well as producers; Initiation of innovative center for alternative energy the goal of which would be focused to evaluate scientific and technical success, complex expertise of planned projects and analysis of potential for use of new alternative sources of energy based on innovative technologies; Increased awareness-raising of all sectors; Stimulating technological development of alternative energy sources and its economic effectiveness; Supporting creation of nuclear-free zone in South Caucasus by substituting nuclear energy with other alternative sources, and use of Kyoto protocol mechanisms for development of alternative energy and further agreements regarding emissions of greenhouse gases.

#### **Economic Analysis, Policies and Incentive**

The second group, headed by Mr. Varham Jalalyan (Armenia) conducted an economic analysis and discussed policies and incentives. The group reviewed political and economic barriers for the development of RE in South Caucasus along with possibilities for optimization of legislation and regulation framework for RE, and came up with proposals and recommendations. The group agreed that in general there are no political obstacles, although some economic obstacles are in place.

According to the group South Caucasus countries could implement the following initiatives on RE: Creation of national platforms for policy dialogue and coordination between state, NGOs, business and other stakeholders, development of web/portal for RE promotion on the region and publishing various materials, discussing opportunities and feasibility of establishment of regional fund for EE and RE, provision of incentives for private investors in EE and RE in SC countries, organizing regional events on knowledge sharing for policy makers as well as implementers, establishment of periodic

publication on pilot projects and implementation, increasing public awareness on EE and RE advantages through different means, organizing regional expos for equipment, technology and materials vendors.

**Renewable Energy Systems Management, Financing Mechanisms and Cooperation at Regional Level**

The third group, headed by Mr. Paata Janelidze (Georgia) discussed opportunities for utilization of renewable energy. The group reviewed renewable energy systems management, financing mechanisms and cooperation at regional level. They concluded that regional cooperation for neighboring states for the backbone of a reliable electricity supply. RE technologies, due their scale has insignificant impact on the regional cooperation and thus didn't consider it in depth. In terms of current RE expansion plans and today's market design, energy markets of 3 countries are different, and so are the sector regulatory mechanisms. The group gave the overview of tariffs of the three countries. It also indicated number of factors influencing investment, including simplification of procedures for investors, incentives for RE, IFI financing, local bank financing. Participants recognized challenges associated with regional program of activities for small HPP, including its technical side, coordination and management entity.