

INTERNATIONAL RENEWABLE ENERGY AGENCY

Fifth meeting of the Council

Abu Dhabi, 24 – 25 June 2013

**Programmatic Discussion IV:
Emerging Opportunities in Renewable Energy Applications**

1. The Council's fourth programmatic discussion deals with joint initiatives IRENA is examining with partners to promote renewable energy in diverse circumstances and highlight its utility for developmental, humanitarian and environmental purposes: to promote protection and well-being by providing electricity supply and more sustainable energy consumption in and around refugee camps; to assist in efforts to improve food security in developing countries; and to ensure sustainability in the critical global water, energy and food nexus.

I. Renewable Energy and Refugees

2. On a number of occasions, IRENA's Director-General and the United Nations High Commissioner for Refugees, António Guterres, discussed the broad mandate of the UN refugee agency, UNHCR, to protect all refugees worldwide in the context of potential cooperation with IRENA. The discussions focused on the correlation between increased energy options and enhanced safety for vulnerable populations, as well as linkages between humanitarian activities and development, as discussed during earlier IRENA governing body meetings.

3. Discussions were held on potential collaboration between IRENA and UNHCR to evaluate the pressing energy needs of refugees, to provide the necessary expertise to the refugee agency and its implementing partners, and thereby enhance the daily lives and security of those living in and around refugee camps.

4. After a detailed review of potential locations for a pilot assessment, and consultations between the two organisations, a collection of camps in Ethiopia was selected as the most promising pilot site. Since 2009, more than 185,000 Somali refugees have fled from insecurity, famine and violence into Ethiopia, to five refugee camps in the Dollo Ado area. Residents of these camps face daily dangers and hardships because

of the acute lack of energy, whether for cooking, for lighting (including domestic lamps for studying and public lighting for safety), or for refrigeration (particularly for vaccines and other medications at health clinics). Energy limitations affect camp conditions and relief operations in numerous ways, with consequences for safety and protection, food security, health, environment, education and other humanitarian concerns.

5. Given the specific nature of the camps and the large number of refugees, the energy challenge is intensifying as competition escalates between refugees and local residents over scarce natural resources, increasing pressures on the environment and on the general well-being of over 350,000 people.

6. The IRENA Statute recognises the “huge potential of renewable energy in providing decentralised access to energy, particularly in developing countries.” The refugees and local residents in Dollo Ado are especially affected by energy scarcity and could suffer severe consequences in the near future due to the continuing deterioration of energy access and energy security. Despite the complexities associated with existing refugee situations, it is commonly accepted that the quality of life of both refugees and local communities, as well as their basic safety, could be dramatically improved by increasing the availability of sustainable energy options.

Activities in Progress

7. A team from IRENA and the United Arab Emirates-based renewable energy company, Masdar, joined UNHCR for a mission to Dollo Ado on 3-6 June 2013. This was the first step in preparing a study to examine the possibility for a renewable energy (RE) and energy efficiency (EE) framework for refugee camps that could be implemented by relevant partners, starting in the Dollo Ado area to enhance the protection and well-being of refugees and surrounding host communities. The mission identified key issues and priorities in the immediate, middle and long term to address the energy needs of camp residents, and at the same time benefit the host community. This includes activities in association with UNHCR, relevant national authorities, and other relevant actors and implementing organisations to support the livelihood of refugees and local communities through an examination of different aspects related to electricity for public spaces, household lighting, fuel for cooking, and other related areas.

8. Following the study, a proposal underlining the need for specific RE or EE technologies will be produced and shared with appropriate funding institutions and donors, as well as implementing partners and IRENA Members. The initiative is consistent with Members’ emphasis on reaching out and promoting the benefits of RE to people in different settings and in different parts of the world.

For Council discussion

9. Input from the Council and all IRENA Members on the engagement and planned work for refugees and local residents would be highly appreciated. IRENA Members are invited to contribute their perspectives to the discussion of this initiative, including statements of support, specific ideas for study, planning or implementation, and related communication aspects.

II. Renewable Energy and Food Security

10. A memorandum from the Office of the President of Iceland, submitted to IRENA in 2012, described a successful Icelandic geothermal fish-drying model with potential applications for enhancing food-security in developing countries. This memorandum, prepared in cooperation with the Icelandic fishing community, explained how fish drying using geothermal energy has evolved into a mainstream industry. It also highlighted Iceland's interest in productive collaboration with IRENA and other development partners, specifically the UN Food and Agriculture Organization (FAO) and the United Nations Development Programme's Istanbul International Center for Private Sector in Development (UNDP-IICPSD).

11. In developing countries, more than 40 percent of food is lost at the post-harvest stages of processing and storage according to "Global Food Losses and Food Waste", a 2011 study by FAO and the Swedish Institute for Food and Biotechnology. Effective preservation methods can reduce food losses, increase off-season availability and allow for increased food variety.

12. Drying is already an important food preservation technique in developing countries, however traditional methods can be prone to spoilage, contamination and low product quality. Effective solar and geothermal energy-based food drying technologies are now available to reduce the amount of these losses and increase food quality, resulting in greater productivity and income for farmers. These technologies also utilise domestic renewable energy resources, reducing fuel costs.

Proposed initiative

13. Collaboration stemming from the Icelandic memorandum may facilitate the implementation of renewable food-drying technologies in developing countries. IRENA, in collaboration with UNDP-IICPSD and FAO and supported by Iceland, is developing a project to deploy three pilot-scale solar and geothermal-fuelled food drying plants, in advance of commercial or macro-scale application.

14. The project would support technology transfer and capacity building to promote such technologies in areas with a combination of dried-food industries and high renewable energy resource potential. The initiative would provide operator and community training, monitoring, evaluation and scale-up analysis, in addition to the benefits associated with plant design and construction.

For Council discussion

16. The Council and all IRENA Members can provide valuable perspectives on the issue and input on the proposed initiative.

III. Water-Energy-Land Nexus

17. Global discussions on the challenges posed by the water, energy and food nexus have gained momentum in recent years, amid growing recognition of the strains imposed by external factors, such as population growth, consumption patterns, rapid urbanisation and climate change. The interconnectedness of all these elements means that strains on one type of resource have far-reaching effects on the viability of the others, resulting in competition rather than complementarity in water, energy and food demand.

18. The delicate balance has created a compelling case for policy makers to adopt a nexus approach to policy formulation, which helps to identify mutually beneficial responses across the three vital systems of energy, water and food. This approach also provides an informed framework for understanding the effect one system has on the others, while resolving the trade-offs required to meet increasing demand without compromising sustainability.

19. Renewable energy can play a crucial role in addressing some of the challenges posed by water, energy and food linkages. The opportunity that renewable energy presents for nexus management is significant and expanding. However, there is a need to better understand this role and provide policy makers with tools to assess it quantitatively, within the broader framework of national resource needs.

Proposed initiative

20. IRENA is developing a study on the role that renewable energy can play in the nexus to ensure long-term resource sustainability. Through this project, IRENA is building on existing knowledge and collaborating with relevant institutions, such as the Qatar Environment and Energy Research Institute (QEERI), to develop a methodology to empirically estimate the contribution of renewable energy to water, energy and food sustainability. The methodology will allow policy makers to analyse the close connections, as well as the trade-offs, among the three elements of the nexus.

21. The project will bridge the existing knowledge gap on the role and benefits of renewable energy and support policy-making aimed at integrated management of the three systems to achieve green growth. Planned outcomes include:

- A report highlighting the role and benefits of renewable energy in the water, energy and food nexus.
- Methodology to quantitatively estimate the impact of renewable energy deployment on the different elements of the nexus, thus allowing policy makers to determine the optimal level of renewable energy that can be sustainably integrated into the each country's energy mix.

For Council discussion

22. The Council may wish to discuss how to continue building upon current nexus-related work and where IRENA can add the greatest value.