

**INTERNATIONAL RENEWABLE ENERGY AGENCY**

Third meeting of the Assembly  
Abu Dhabi, 13 – 14 January 2013

**Note of the Director-General on IRENA's role in  
the Sustainable Energy for All Initiative (SE4ALL)**

**I. Background**

1. The United Nations General Assembly declared the year 2012 as the Year of Sustainable Energy for All. In order to catalyse action, the United Nations Secretary-General has launched the Sustainable Energy for All Initiative – SE4ALL, a global energy partnership and campaign aimed at achieving three inter-related goals by 2030:
  - Ensuring 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.
2. At the end of 2012, the UN General Assembly decided to keep the emphasis on the importance of sustainable energy by declaring 2014-2024 the Decade of Sustainable Energy for All. Thus, with sustainable energy remaining high on the global agenda, the time has come to translate the aspirational 2030 objectives into reality.
3. During the course of 2012, IRENA has been actively engaged in advancing the renewables agenda within the SE4ALL Initiative. IRENA Director-General was a member of the SE4ALL High-Level Group that set the agenda for action. The SE4ALL High-Level Group has produced two guiding documents: A Framework for Action (January 2012) and A Global Action Agenda (April 2012). IRENA worked with the SE4ALL partners to identify 11 areas for action. These action areas included seven “sectoral action areas” and four “enabling areas”. IRENA also helped identify and analyse over 50 High Impact Opportunities within

these 10 action areas. This list of High Impact Opportunities includes, among others, the need to promote renewables on islands, the development of global resource map, and support for national energy planning through global renewable energy policy databases and country assessments. Currently a Global Tracking Report is being developed for the three SE4ALL objectives. IRENA is working with the World Bank, International Energy Agency and other parties to establish the SE4ALL baseline for renewable energy, as well as appropriate indicators to measure progress. The Global Tracking Report is expected to be published in the second quarter of 2013.

### **II. Toward an implementing mechanism: IRENA as the SE4ALL Renewable Energy Hub**

4. IRENA Members and other stakeholders expressed strong support for the Agency to be the Hub for Renewable Energy within the SE4ALL initiative. This function will be a natural extension of IRENA's mandate stipulated in its Statute. In the coming months, IRENA will work with the SE4ALL partners to further define the processes and modalities for its operation.
5. It is envisaged that much of the RE Hub work would be aimed at information sharing, forging partnerships, and providing a platform for cooperation around specific action areas. Many of the Work Programme activities are already directly or indirectly related to SE4ALL. Seven IRENA initiatives have been registered with SE4ALL:
  - IRENA's energy planning, in particular REMAP2030;
  - Renewable Readiness Assessments;
  - Initiative on Renewables and Islands;
  - Technology Roadmap on Renewables in Cities;
  - Global Renewables Resource Map;
  - Renewable Energy Learning Partnership; and
  - Abu Dhabi Fund for Development.
6. In addition, much of the work envisaged for 2013 is directly relevant to the Initiative including, factors for renewable energy target setting, statistics and indicators, environmental impact of off-grid RE applications, practical guidance for project development, roadmaps, biomass waste-to energy potentials and deployment strategies in Africa, GREIN and the geothermal network – to name a few. As the RE Hub, IRENA would also be able to benefit from the work done by other SE4ALL partners and contribute to complementarity of effort.

7. IRENA is well positioned to enhance the information flow between the SE4ALL Initiative and the countries, and to build broad country support for the SE4ALL activities. This can be done through the existing structures, such as regular updates at IRENA assemblies, councils, conferences and workshops. Conversely, IRENA will feed the information on its work into the SE4ALL structures to ensure that a broader audience is informed and involved in IRENA's work. Furthermore, IRENA will coordinate with SE4ALL stakeholders who are undertaking renewable energy related activities not included in the IRENA's Work Programme. Many entities have made specific commitments that could be complementing IRENA's work and would benefit from being connected to the broader renewables context. IRENA's specific actions in this context could include partnerships and monitoring and reporting.
- **Examples of Actions and Partnerships:** Forming an RE SE4ALL taskforce as part of IRENA's informal discussion with the private sector to engage those who already have made specific commitment within SE4ALL; engaging with financial institutions and civil society on behalf of SE4ALL; complementing the initial country assessments done by SE4ALL by promoting the use of RRA methodology and the RRA expert bank.
  - **Examples for monitoring and reporting:** Upon completion of the global tracking report engage in the assessment of the progress towards RE objective, with the initial focus on the country-level progress; dedicate part of the institutional publication to SE4ALL activities.

### **III. Operationalising the objective for renewables: REMAP 2030**

8. In 2012, IRENA was requested by its Members to explore pathways towards the achievement of the aspirational doubling the share of renewables in the global energy mix, and to consider the interconnectivity between the RE target, energy efficiency strategies and efforts to provide universal access to modern energy services. In response, the Agency has designed a transparent, inclusive and open process to develop a global Renewable Energy Roadmap - REMAP 2030. It is envisaged that REMAP 2030 will be a valuable tool to support Members' renewable energy planning and international cooperation activities. It will also serve as a global compass to coordinate and synthesise RE activities within the context of the SE4ALL initiative.
- a. Country and stakeholder engagement will be crucial to create this innovative global Roadmap.**
9. REMAP 2030 is designed as an iterative three-step process, built around and reliant upon full Member engagement. The three steps are: a *feasibility study* to explore the level of challenge associated with the SE4ALL renewable energy objective; a *gap analysis* to assess the gap between national renewable energy plans and 2030 projections and the SE4ALL target; and a number of *sectoral-regional analyses* to identify, evaluate, and prioritise region-specific and interregional sectoral actions. In 2012, IRENA conducted preliminary studies to determine

initial results for each of these three steps. In 2013, IRENA will rely on close cooperation with Members to identify realistic pathways to double the RE share by 2030. National experts to be nominated by countries at the beginning of 2013 will be of vital importance the Roadmap process.

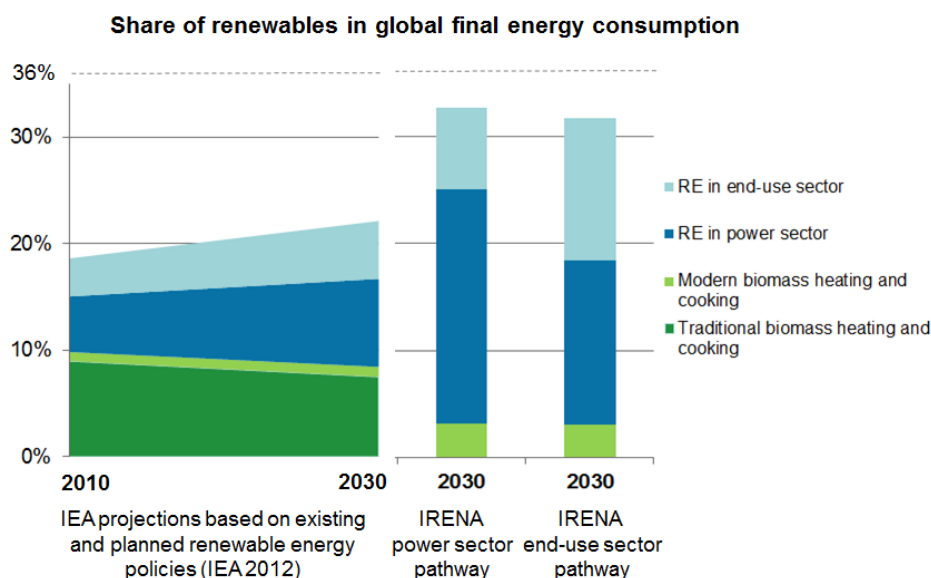
**b. A global assessment of countries' RE plans is needed to evaluate the gap.**

10. The REMAP2030 process calls for an assessment of the disparity between the renewable energy SE4ALL target and existing national renewables plans and projections. Some data on these plans are available from the existing literature, but they lack consistency and uniformity. To initiate this data collection process, IRENA invited the largest economies in each region to provide data on their national plans and projections. This pilot project provided valuable insights into the regional differences between renewables targets and national concerns affecting them, and laid the foundation for a global gap analysis.

11. In 2013, all countries are invited to provide their overall energy supply and demand projections until 2030, emphasising renewable energy policies and targets in place or under consideration. The data will include an energy balance sheet and a list of key technology options, including their expected contributions by 2030. This information will help to validate and improve the estimates from the existing literature and will provide a useful resource for countries developing, reviewing or updating their own RE plans.

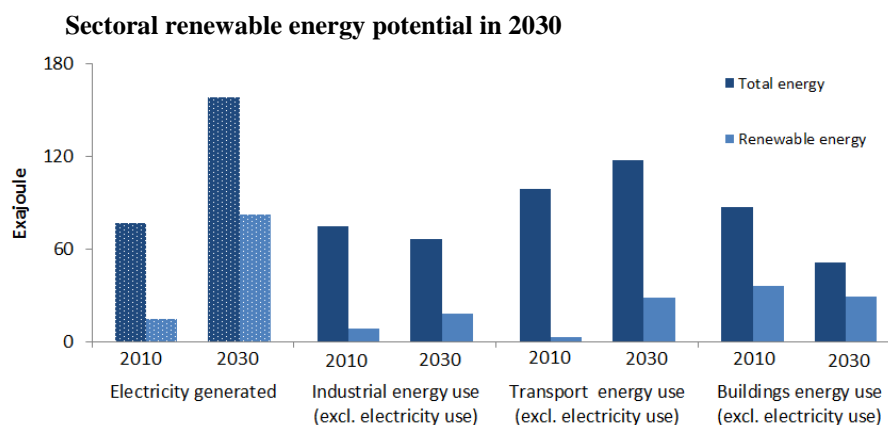
**c. A doubling of the renewables share is achievable and will require action in all regions.**

12. The initial results, shared with IRENA Members and other key stakeholders in two REMAP2030 workshops in September and November 2012, suggest that, whilst considering both the universal access and energy efficiency objectives, there is still a nine percentage point gap between existing renewable energy plans and the SE4ALL target. Substantial increases in both renewable energy power generation and renewable end-use applications are required to fill this gap, and need to be implemented across the world. All sectors and regions will need to increase and join efforts to achieve the SE4ALL objective, which will also depend on the progress made in energy efficiency and universal access. Universal access to modern energy services will reduce the use of traditional biomass, which accounts for nearly half of total renewable energy use today. This implies that the modern renewables share must increase by a factor three to four. Higher energy efficiency means reduced growth of energy demand. Lower energy demand implies that the same absolute growth in renewables would result in a higher share of renewables in the global energy mix.



**d. The preliminary sectoral analysis shows that the SE4ALL RE target could be met and even surpassed.**

13. Initial results of the sectoral analysis show that, at a global level, more than half of the renewable energy potential to fill the gap is in the power sector, and the remainder is in the end-use sectors - buildings, transport and industry. Our global analysis suggests that full implementation of the technology options identified between now and 2030, depending on global energy demand, would be able to achieve and even surpass the SE4ALL target for renewables.



*In the electricity sector, there is a large potential to increase the share of renewable energy as electricity generation is likely to increase significantly between 2010 and 2030. In the industry and buildings sector, energy demand will continue to grow, but increased electrification and efficiency gains will result in a stabilisation or even decline of direct energy use for heat production. The share of renewables in the transport sector could be increased substantially through the use of biofuels. In total, the renewable energy technology potential amounts to around 180 EJ which, depending on global energy demand, could provide up to 40% of global energy consumption.*

**e. Technology options are available but require prioritisation at a regional and sectoral level.**

14. The analysis of sectoral technology options need to take place at a regional level in order to identify priority action items in the sectors relevant to the different regions. The potential of both renewable power generation and renewables applications in the end-use sectors differ largely across regions, and even across countries. Regional prioritisation requires consideration of a large number of specific regional conditions, including economic and social issues, and collaboration with national RE experts is crucial in order to reflect country priorities properly.
15. At a global level, IRENA's preliminary sectoral analysis has identified the following initial action areas:
  - ***Biomass accounts for almost 80% of all renewable energy consumption today, and will continue to play a crucial role.*** Currently, biomass accounts for almost 80% of all renewable energy consumption. Increasing the efficiency and sustainability of traditional uses of biomass will free up biomass resources to be used sustainably in other ways. Simultaneously, this will reduce the overall share of renewables in the energy mix. Since the role of biomass will continue to grow as biomass-based renewable applications in end-use sectors (e.g. transport, buildings and industry) are expanded, all regions should examine biomass' potential role and costs, including its economic, social, and environmental impacts, more carefully.
  - ***New grid solutions will be required to double RE shares in power generation.*** The share of renewables in the electricity sector will have to double to achieve the SE4ALL objective. Furthermore, an increased share of renewables in the electricity sector will also create opportunities to bring renewables into end-use sectors as industrial processes and transport are electrified, and a growing number of households worldwide are using electrical appliances in their households. Transforming the electricity sector will require upgrades and modernised extensions of old grid systems and, at the same time, will provide opportunities for new innovative solutions to be implemented (e.g. energy storage systems, smart grids, monitoring of energy flows and harmonised regulation).
  - ***Nearly a third of the global renewables potential lies in heat applications in end-use sectors.*** Acceleration of renewable heat applications in the buildings and industry sector is essential. Heat demand in these two end-use sectors accounts for almost one-third of global energy use. Significant potential exists in cement, iron and steel making, and in the petro-chemical industry as well as low-temperature applications in the food processing and textile industries where ongoing efforts to implement renewables solutions are lagging behind for economic and other reasons. There is also a large potential for renewables for heating and cooling in buildings where a host of RE technologies (e.g. solar water heating, biogas and heat pumps) can provide

affordable and reliable heat. It will be crucial to tap all the renewable heat options to achieve the SE4ALL target.

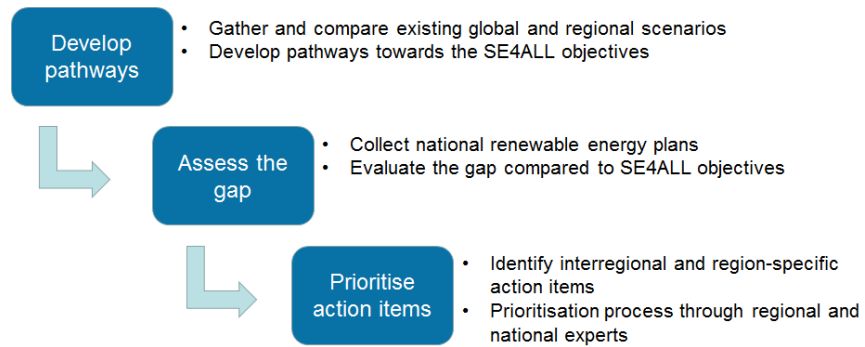
- ***A long-term vision and the right investments now will be imperative to achieve the SE4ALL objectives.*** The long lead time between capital stock build-up and its impact on the energy system means that energy decisions made today will largely determine the energy mix in 2030. Timely action can avoid a lock in of non-renewable options and create a longer-term competitive advantage, although the early phase-out of existing capital stock requires brave forward-looking decisions and visionary investment policies. Some promising examples of solutions with a longer lead time include: high-speed trains, interconnectors for electricity, district heating and cooling systems, urban planning measures and industrial commodity production facilities located near suitable renewable resources.

16. As future developments are by definition uncertain, the size of the challenge depends on a number of factors such as economic growth, energy efficiency improvements, energy prices, technological progress and the rate at which projects can be brought on-stream. Some of these factors are within reach of energy policy makers, while others are not. The prospects and costs of individual RE technologies can change rapidly. A continuous monitoring of progress and assertion of corrective measures can support the achievement of the renewable energy objectives.

#### **IV. The pivotal role of countries: next steps**

17. REMAP 2030 can succeed only if it is fully owned, developed and refined by Members with the support of IRENA. Therefore, it is crucial that countries become engaged in creating this global Roadmap, learning from each other's experiences, using opportunities in their national systems to connect with technology developments across the globe, engaging in regional initiatives and improving national renewable energy plans through dialogue involving national RE experts. Together, this Roadmap and its associated process provide a forum for such a global dialogue.

## REMAP process



18. In 2013, IRENA will continue to facilitate the Roadmap process by developing and expanding the tools to evaluate the level of challenge, to assess the gap between the SE4ALL target and national renewable energy plans, and to prioritise the sectoral action items to achieve the third SE4ALL objective: doubling the share of renewable energy in the global energy mix by 2030.