

## INNOVATION DAY THE AGE OF RENEWABLE ENERGY

26 MAY 2016  
SUN/ENERGY MEETING ROOM  
IRENA HEADQUARTERS, MASDAR CITY  
ABU DHABI, UAE

### 1. ABSTRACT

The Innovation Day was held on 26 May 2016 following the 11<sup>th</sup> Council meeting of IRENA. It presented an opportunity for around 40 country delegates to discuss the outcome of the first IRENA Innovation Week. Moreover a set of new knowledge tools developed by IRENA in the field of innovation were presented including technology briefs, technology innovation outlooks and the concept of a forthcoming innovation landscape report. Countries provided feedback on the way forward to advance with this work. In general participants' feedback was very positive in terms of the quality and relevance of all the activities presented. It was agreed to continue with these activities and IRENA was encouraged to expand them further.

Guidance was also provided regarding future focus themes. Several times the need to do more work on Systemic Innovation was reiterated, including innovative business models, regulations, policies, and finance to scaling-up deployment and integrate latest technologies into energy systems. Another aspect stressed during the event was that most of the challenges and barriers are already well known, and more needs to be done in collecting and disseminating practical solutions, via case studies and learning from good and bad practices. It was also suggested that 'Systemic Innovation for the Renewable Power Sector' should be a suitable theme for the forthcoming IRENA Innovation Landscape Report and the second edition of Innovation Week.

### 2. BACKGROUND

The agreement at COP21 in Paris reflected a global consensus on the need to accelerate the transformation of the energy sector. Renewables have been identified by countries as the foundation for a low-carbon energy system by 2050, on the path towards a zero carbon energy system in the period 2060 to 2080. However, the current business as usual scenario is not in line with a future a low-carbon energy system. Innovation will continue to play a critical role in the energy sector transformation. This will need innovative technologies that enable higher shares of mature renewable energy technologies, as well as new technologies to allow for renewable energy deployment in new markets. Scaling up the deployment of renewable energy technologies is also linked to the integration of these technologies into a dynamic energy system. In the power sector, addressing the variability in supply from solar and wind resources requires technological and non-technological innovations. Systemic innovation includes, for example, new system operations, innovative regulations, policies and business models, and the enabling infrastructure to integrate renewables in energy systems.

The Agency has been working on the innovation theme and has produced a number of tools to support the Members in catalysing and accelerating innovation. These include innovation technology outlooks for ocean energy, minigirds, offshore wind and advanced biofuels; technology briefs providing key data for policy-makers; interactive web-applications, such as the patents and standards platform INSPIRE; and others. Over the next two years, these platforms for exchange of technology information will be expanded.

The IRENA Innovation Week conference, held in Bonn from 11 to 13 May 2016 brought together industry, scientists and policy makers to share information and define common action plans to accelerate the transformation of the power sector. The Agency will produce a comprehensive report on the landscape of technology innovations contributing to scaling up renewables deployment, facilitating decision-making processes on where to focus on the innovation efforts. All of these efforts aim at creating a shared common understanding of what could be achieved and where to steer international efforts in order to deliver the required technology development and innovation.

### 3. KEY POINTS FROM SESSIONS

The Innovation day was divided into four sessions. In the first session the outcome from the IRENA Innovation Week, 10-13 May 2016, was presented. The presentation included information on organisational and logistical aspects, as number of participants, venue, etc., and also key messages from the content discussions. Readers can find detailed information on the IRENA Innovation Week at: <http://irena.org/innovationweek2016>

The second and third sessions showcased two specific products from the Agency in the field of technology innovation; c.q. the Technology Briefs and the Technology Innovation Outlooks. The Technology briefs are documents which provide up to date information on the status of different RE technologies, including performance, costs, barriers and challenges for deployment. In the event three technology briefs for the transport sector were presented: biogas for transport, aviation fuels, and electric vehicles. The Technology Innovation Outlooks are comprehensive reports, analysing in depth the opportunities in R&D and the prospects for technology development of specific RE technologies in the next two to three decades. The session included presentations from the following Technology Innovation Outlooks; Offshore wind, minigrids, and advanced biofuels.

During the fourth session the concept of a forthcoming report from IRENA was discussed. The IRENA Innovation Landscape Report will be prepared in the period 2016-2017, with the objective of providing relevant information to countries on strategies to deploy innovative RE Technologies.

At each session, participants provided feedback and guidance on the way forward for the products presented during the event. What follows is a summary of the key points raised by participants at each one of the sessions.

#### Innovation Week

- Participants supported the continuation of the IRENA Innovation Week (IIW) in the future and its growth.

- It was suggested that the IIW should be organised every year, based on the availability of resources.
- Concerning the location for the IIW, it was recognised that Bonn is a convenient location. As an alternative idea, it was suggested to alternate between Bonn and a location in a developing country.
- It was also proposed that one day can be dedicated to present the outcome of the IIW back to back with Council meetings held immediately after an IIW concludes.
- There was an offer from Cyprus to do host a joint event with the RE and EE Conference in Cyprus organised every two years
- It was recommended to announce the theme of the next IIW earlier to allow member countries to contribute with content material
- Most of the comments implicitly assumed that focused should continue to be on power sector.
- On power sector, it was recommended to focus on sector coupling, systemic innovation, innovation to achieve SDGs (energy access), and innovative finance.
- It was highlighted that the IIW should also focus more on sharing best practices to address the known energy system challenges than analytical aspects.
- Suggestions also included to involve more TSOs and regulators, as well as law-makers, in future IIWs.

### Technology briefs

- Participants supported the continuation of the technology briefs
- Briefs may cover more on case studies
- Update period should not be fixed, but depending on the speed of progress for each specific technology
- Perhaps also prepare briefs comparing RE technologies against technology developments in competing fossil based technologies
- It was suggested to create a database of new technologies
- On content of the briefs, it was suggested to consider including:
  - A section on business models in the briefs
  - A discussion on regional implications
  - Non-renewable energy technology enablers
  - Highlights on what type of policy have been proven effective for RE implementation
  - Case studies could be important

### Technology innovation outlooks

- Participants welcomed this type of products and supported the continued work in this area
- It was mentioned that these products, despite how interesting they are, are not well known. Therefore, more has to be done on dissemination.
- It was suggested that the outlooks should have a space in the next IIW
- Concerning the content of the outlooks, it was suggested to consider including:
  - A discussion on the benefits for countries in supporting non-mature technologies, in order to engage governments
  - More information on industrial developments
- It was recommended to continue to engage the academia

- Outlooks add more value for complex technologies/processed, as minigrids and advanced biofuels

#### **Landscape report**

- Participants welcomed the concept of the IRENA Innovation Landscape report and agreed to pursue such a report
- The theme for the report was endorsed by participants; i.e. “Systemic Innovation for Power Sector”; including case studies on business models, finance, regulation, etc.
- It was recommended to ensure complementarities between this report and REmap
- Some countries offered to engage in the process of preparing this report, including from defining the precise scope of the report

#### **4. CONCLUDING REMARKS**

Participants expressed their interest in IRENA’s work in the field of innovation and commended the quality and relevance of the work done till present. Also suggested to do more in terms of outreach as these useful products are not well known by member countries and others yet. The continuation and expansion of the presented activates was endorsed. Two key areas were mentioned as focus for future work:

- i. Systemic innovation. How to deal with large RE shares, what it means for system stability technologies, what are the policy frameworks and business models needed.
- ii. Case studies. There is nothing more powerful than showing what is the best practice case and explain how this was done in a specific situation. Innovation should be practical, about how to adapt the methodologies and knowledge for a sensible outcome for the future.

IRENA’s member countries are invited to continue to engage in the Agency’s activities in the field of innovation and actively contribute and benefit from this work.

## ANNEX I – AGENDA

- 9:30 – 9:45**      **Opening**  
Adnan Z. Amin – IRENA Director-General
- 9:45 – 10:30**      **Innovation Week Summary**  
**Dolf Gielen – Director, IRENA Innovation and Technology Centre**
- Summary Video
  - Presentation of outcomes
- 10:30 – 11:00**      **Innovation Week Expert Interventions**  
Moderator: Jennifer DeCesaro – IRENA
- Conrod Hunte - Antigua and Barbuda
  - Mark van Stiphout - European Commission
- 11:00 – 11:15**      **Coffee break**
- 11:15– 12:15**      **Innovation Week Plenary Discussion**  
Moderator: Sakari Oksanen – IRENA Deputy Director General  
All participants
- 12:15 – 12:30**      **Summary of the morning session**  
Sakari Oksanen – IRENA Deputy Director General
- 12:30 – 13:30**      **Lunch**

- 13:30 – 14:30**     **The transport sector: Technology Briefs**  
Deger Saygin – IRENA
- Presentation of IRENA technology briefs on electrical vehicles, aviation and biogas for transport
  - Feedback collection from Member country representatives on priority technology in the transport sector
- 14:30 – 14:45**     **Coffee break**
- 14:45 – 16:00**     **Renewable Energy Innovation Outlook**  
Francisco Boshell - IRENA
- Renewable Energy Innovation Outlook: Offshore Wind Technology
  - Renewable Energy Innovation Outlook: Mini-grids
  - Renewable Energy Innovation Outlook: Advanced Liquid Biofuels
  - Q&A
- 16:00 – 16:15**     **Coffee break**
- 16:15 – 17:15**     **Innovation Landscape Report**  
Moderator: Dolf Gielen – Director, IRENA Innovation and Technology Centre
- Presentation of outcomes of the scoping report  
Francisco Boshell – IRENA
  - Feedback collection from Member country representatives on areas of interest in operational, systemic and technology innovation
- 17:15 – 17:30**     **Summary and closing**  
Adnan Z. Amin – IRENA Director-General