

INTERNATIONAL RENEWABLE ENERGY AGENCY

Twelfth meeting of the Council

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**Annual Report of the Director-General
on the Implementation of the Work Programme and Budget for 2016-2017**

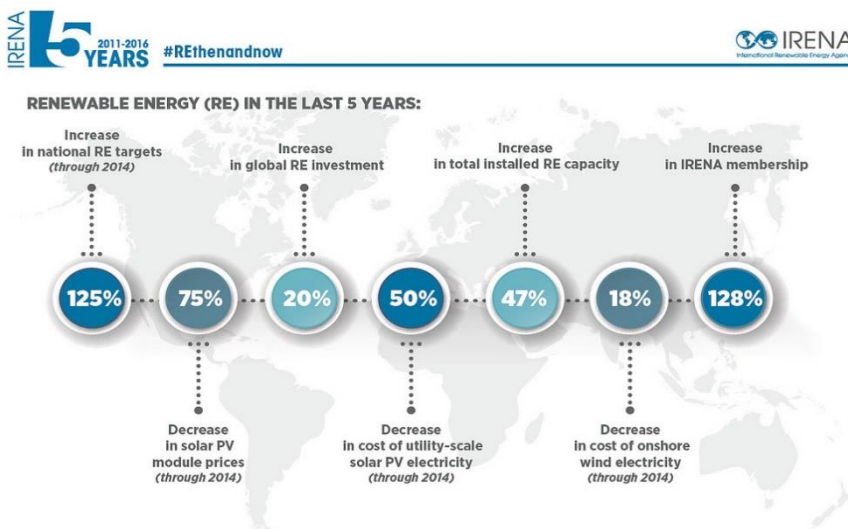
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INTRODUCTION

1. This report provides an account of the progress the Agency has made in the implementation of the *Work Programme and Budget for 2016-2017*. It includes an update on the past nine months and reflects on the plans for the coming months as the first year of the biennium comes to close.

2. 2016 marked the fifth year of IRENA's existence. A five-year period is considered very short – almost insignificant - in the energy sector. It takes years to plan, and decades to build conventional power plants, with associated infrastructure and costs seemingly locked in for a long-haul and difficult to change. Renewable energy is changing this narrative. The speed with which renewable resources can be harvested is reflected in the capacity that has come on-line in the recent years; IRENA's latest statistics show that, in 2015 alone, 152 gigawatts (GW) of new renewables was added. The widespread nature of the deployment shows that policy makers and energy planners are increasingly mainstreaming renewable energy sources into their energy mix. Bolstered by its strong business case and rapid technology innovation, a record USD 286 billion was invested in renewable energy in 2015 - a strong signal that renewable energy is now the preferred option for new power generation capacity around the world.



3. This change has been gaining great importance in the past couple of years. The acute realisation that the world cannot continue to grow in the current form was emphasised in the key international agreements reached in 2015. The Agenda 2030 and the Paris Agreement affirmed that the path of growth needs to be corrected. Rapid ratifications of the Paris Agreement by 62 countries accounting for over 56% of the global emissions, cemented its early entry into force, reemphasising the global commitment to change.

4. The objectives of these agreements are intertwined with the transformation of the energy sector. To transition to a sustainable energy system, the world will need a range of solutions. It is commonly recognized that renewable energy is one of the main solutions that exists today. The 2016 edition of the global REmap report Roadmap for a Renewable Energy Future shows that renewable energy, combined with energy efficiency, can set the world on a pathway towards meeting its climate goal in line with the Paris Agreement. REmap shows that at the core of the energy transition is continuous technology innovation that needs to be fostered through policy frameworks and sustained by markets. During the first IRENA Innovation Week held in Bonn in May 2016, policy-makers, engineers, private sector, utilities, regulators, and thought-leaders considered each of these issues, with a common agreement that international cooperation is key to progress and acceleration of a common learning curve.

5. The REmap pathway foresees the need to triple annual investments in less than a generation, from a level of USD 285 billion in 2015 to USD 900 billion in 2030. Much of the growth will happen in countries that have difficulties in accessing finance due to a high risk – real or perceived. To help identify the avenues to overcome this major barrier, IRENA analysed the options for their mitigation in its report, *Unlocking Renewable Energy Investment: The Role of Risk Mitigation and Structured Finance*. The Agency also analysed policies and markets

in different settings and regions, to share experiences and highlight replicable practices. In addition to its analytical work, IRENA continues to deploy and adapt its programmatic activities that act as market facilitators and catalysts. These include the Renewable Readiness Assessments, Clean Energy Corridors, and SIDS Lighthouses to name a few, all aimed at creating enabling environments to increase interest in new markets and attract projects. Development and realisation of these projects is supported by IRENA through its Global Atlas, the Project Navigator, the Sustainable Energy Marketplace, and the ADFD/IRENA Facility. Combined, these programmatic products provide to Members a concrete and practical support in realising their renewables energy ambition.

IRENA Project support



6. Cognizant of its limitations in meeting the demand of its services and expertise, the strategic and systematic formulation of partnerships is integral to all segments of the Agency's work. An example of this approach has been the series of sub-regional expert meetings on climate change and renewable energy held in Africa in the course of 2016. The meetings were organised in collaboration with the African Development Bank (AfDB), the East African Development Bank, the ECOWAS Regional Centre on Renewable Energy and Energy Efficiency (ECREEE), the United Nations Framework Convention on Climate Change (UNFCCC), Regional Collaboration Centres (RCCs) in Lomé and Kampala, the United Nations Economic Commission for Africa (UNECA), and the West African Development Bank, supported by the government of Sweden. Meetings were held in Dakar, Senegal; Addis Ababa, Ethiopia; and Libreville, Gabon targeting national climate and energy experts to chart the next steps in the refinement of renewable energy sections of countries' nationally determined contributions. Leveraging regional presence of partner organizations, IRENA's expert input is amplified and sustained to ensure lasting impact.

7. Contribution to the dialogue on energy and sustainable development in diverse geographical and thematic settings remains central to IRENA's work. In recent months, this included engagement in the EU Sustainable Energy Week, the Clean Energy Ministerial, and the UN General Assembly, as well as engagement in the G7 and

G20 processes. With such engagements, IRENA ensures that the most current and objective information on renewable energy is available to stakeholders for informed debate and decision making. For instance, at the G20 Energy Ministerial held in Beijing, China in June, Energy Ministers adopted a G20 action plan on renewable energy and agreed to continue implementing the *G20 Toolkit of Voluntary Options on Renewable Energy Deployment* led by IRENA. During the meeting, the Agency launched the REmap G20 report, which outlines the potential and options for accelerating renewable energy deployment in G20 countries. With such engagements, IRENA not only contributes to advancing the deployment of renewables, but also gains additional perspectives on broader energy and related issues for the benefit of its entire membership. This is becoming increasingly important as the renewables share increases and technology, policy and finance issues become more nuanced.

8. Engagement with the private sector is of fundamental importance to the success of IRENA's mission. Therefore, the Agency is systematically engaging with the industry in all relevant areas of the Agency's work to support the initiatives that have the potential to accelerate the deployment of renewables. Dialogue with the private sector highlights some of the areas where the Agency can help overcome common barriers and accelerate the deployment of renewables. For instance, during the Clean Energy Ministerial, the Director-General guided the discussion in a roundtable and a plenary session on how to facilitate sourcing of renewables for a growing number of companies who are making the commitment to sustainability. These discussions have shown that companies increasingly look for renewables energy solutions to their energy demand and their willingness to share their experience and engage with policy makers to find common solutions for the common objective of sustainability. It also yielded new ideas on how IRENA's Coalition for Action can be rejuvenated and leveraged to bring visibility on the efforts of companies to drive the deployment of renewables.

9. A detailed account of IRENA's work is provided in the present report, which also includes the matrix of deliverables stipulating progress to date. This progress has been greatly facilitated by the timely receipt of Members' contributions. To date, 88.9% has been received of assessed contributions for 2016. In addition, USD 4.9 million was received from Germany and USD 2.85 million from the UAE, as part of budgeted core non-assessed contributions. Over USD 3.2 million was received in additional voluntary contributions from Belgium, France, Germany, Japan, Norway, Sweden and Switzerland.

10. An important development has been IRENA's inclusion in the list of ODA-eligible international organizations. With this change, donor countries may report their contributions to IRENA's core budget with a coefficient of 66%. Voluntary contributions to IRENA may also be ODA-eligible provided the contribution meets the ODA criterion of having the promotion of economic development and welfare of developing countries as the main objective. This change in the IRENA status will contribute to its strategy of diversification of the resource base.

Thematic Programme Areas

I. Planning for the global energy transition

11. The world's energy system is undergoing change at multiple levels. This change is taking hold across all energy-dependent sectors: electricity, heat and transport; and is reshaping ancillary areas such as producers, networks, and markets. In support of the global energy transition, IRENA is analysing system integration and technology outlooks, and advising policy-makers at all levels through roadmaps, energy planning and targeted cities work.

Power system design for renewable energy integration

12. To increase knowledge of energy planning options for the integration of a large share of renewables into the grid, IRENA has analysed on two separate, but related, issues: variable renewables in long-term energy planning, and grid integration planning.

13. *Addressing Variable Renewables in Long-Term Energy Planning* (AVRIL), to be released November 2016, provides an overview for policy makers of methodologies for long term energy planning with a high share of renewable energy, in particular in the context of developing and emerging economies. In further support of long-term energy planning, IRENA has undertaken a range of capacity building programmes, such as a regional training programme for West African countries, held in close cooperation with ECREE, UNFCCC and IAEA in Dakar, Senegal.

14. IRENA and the International Energy Agency (IEA) have jointly prepared a report entitled *System Integration of Renewables: Implications for Electricity Security*. Submitted to the G7, the report contains three recommendations on how to facilitate variable renewable energy integration. In May 2016, a ministerial joint statement was released which states 'We will work on additional vulnerability assessments of our electricity systems. We ask IEA and IRENA to build on their work and to provide further advice in this regard'¹. Complementing this work, IRENA is developing guidelines on interconnectors and energy storage as flexibility measures, called 'Electricity storage for renewable power' and a methodology to assess the flexibility of REmap country power systems and the investment needs. In cooperation with Ireland's University College Cork, IRENA has operationalised an EU power system model with findings to be discussed with EC and EU countries on 20 October in Brussels.

Transforming Energy

15. The IRENA REmap programme focuses on identifying the realistic potential of renewable energy to the year 2030 and beyond, in all parts of the global energy system, and quantifies renewables in terms of their costs and investments, as well as the contribution to the climate and environmental objectives. The programme has grown to include 50 countries making up around 90% of global energy use. The programme is unique in that participating countries nominate national experts to work with IRENA to determine their renewable energy potential, making the resulting findings a joint assessment. Since the programme start in 2012, some 30 reports have been released and stakeholder engagement ensured through more than 100 country meetings and workshops.

¹ G7 Kitakyushu Energy Ministerial Meeting, Kitakyushi Initiative on Energy Security for Global Growth, Joint Statement. (Paragraph 28)

G20 VOLUNTARY ACTION PLAN ON RENEWABLE ENERGY

Over past years, IRENA has been an active participant of the G20 work on energy. As a result, in 2015 at its meeting in Turkey, the G20 Energy Sustainability Working Group (ESWG) asked IRENA to take the lead in a collaborative effort to develop a toolkit of voluntary options on renewable energy. The toolkit builds on the G20 Principles on Energy Collaboration and provides voluntary options for the G20 to take an integrated and sustainable approach towards enhanced deployment of renewable energy, aligned with national circumstances and priorities.

The G20 adopted the *Toolkit of Voluntary Options for Renewable Energy Deployment* with IRENA as a central coordinator for implementation, in collaboration with international organizations engaged in the process. Building on this work, a *G20 Voluntary Action Plan on Renewable Energy* was put forth with focus on climate change mitigation plans, energy access and security, and endorsed by G20 leaders under the Chinese Presidency in 2016.

“We endorse the G20 Voluntary Collaboration Action Plan on Energy Access, the G20 Voluntary Action Plan on Renewable Energy and the G20 Energy Efficiency Leading Programme issued by the G20 energy ministers and ask them to meet regularly to follow up on the implementation of these plans”.

The Leaders of the G20, Hangzhou, China on 4-5 September 2016.

IRENA is working with Germany as the incoming Presidency and other international organisations to continue to advance deployment of renewable energy within the G20 setting.



16. The second edition of the global REmap report *Roadmap for a Renewable Energy Future* was released in March during the Berlin Energy Transition Dialogue. The report shows how to significantly increase renewable energy globally in all energy sectors, and how renewable energy, combined with energy efficiency, can set the world on a pathway towards meeting its climate goal in line with the Paris Agreement. It also provides information on the level of investment required to meet climate goals, as well as where deployment must concentrate regionally and sectorally. Importantly, REmap shows that renewable energy is the least-cost energy option of the future. To guide the next step change for decision makers, the report lays out ten key focus areas for action.

17. Among key REmap outputs are country reports, with 10 released to date for the world's largest energy consuming economies. Regional roadmaps complement country work; two roadmaps in this regard have been finalized for Africa and Southeast Asia. The recently released *REmap outlook for ASEAN* was developed with the ASEAN Centre for Energy (ACE) and the ten ASEAN Member States to identify a pathway for the region to meet its renewable energy objective of 23% renewable energy share in its energy mix by 2025. The findings were welcomed by the Energy Ministers during the 34th ASEAN Ministers on Energy Meeting (AMEM) that took place in Myanmar in September 2016. REmap analysis for the EU is also underway to advise on possible pathways towards the Union's objective of 27% by 2030. Sector specific reports for the transport sector, district heating and cooling, and industry, and numerous studies on energy efficiency, bioenergy, external costs of energy, and impact of renewable on GHG emissions have also been released.

REMAP DOMINICAN REPUBLIC

At the request of the Government of the Dominican Republic, represented by the National Energy Commission of the Dominican Republic (Comisión Nacional de Energía) (CNE), IRENA developed a REmap country study *Renewable Energy Prospects: Dominican Republic*. The study highlights national potential to increase the share of modern renewable energy and provides a roadmap to achieve this goal for government, policy makers, power sector and private sector.

Analysis shows that although key opportunities and challenges lie in the power sector, renewable energy uptake has great potential for industry, transport, residential and commercial sectors. Recommended action includes setting clear and consistent renewable energy targets, designing appropriate incentives and market mechanisms, and coordinating the planning of generation and transmission expansion to develop a power system with the flexibility needed to host targeted renewable energy shares.

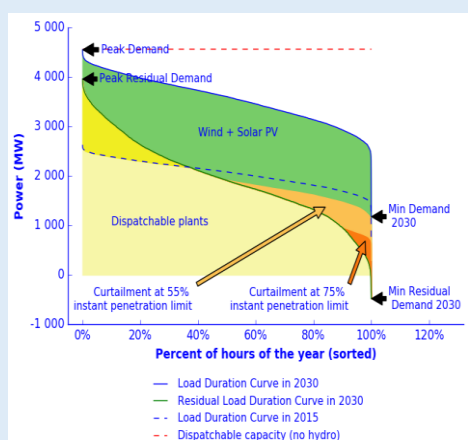


Figure 1: Simulated wind and solar PV generation, projected demand, residual demand (left) and load duration curve (right)



Figure 1: Location of renewable power generation capacity in 2030 under REmap

Special attention was paid to the power sector, considering abundant national renewable energy resources, isolated power system and associated power generation deployment challenges. The analysis applied an interdisciplinary approach, which included a technical assessment of the integration of variable renewable energy in the power sector. Technical challenges revealed included generation adequacy and utilisation of conventional generation fleet, management of high instantaneous variable renewable energy penetration levels, and flexibility requirements and adequacy of the transmission network.

REmap findings were presented during the 15th Anniversary of the National Energy Commission of the Dominican Republic (CNE) in July 2016 which included a panel discussion on the future of sustainable development for renewables.

18. Bioenergy activities have been expanded in 2016 in response to Members' request to place greater importance on biomass, and following REmap findings on the importance of bioenergy as a cost effective solution to double the share of renewable energy in the global energy mix by 2030. IRENA, together with the International Energy Agency (IEA) Bioenergy Agreement, UN Environment Programme (UNEP), Food and Agriculture Organization (FAO) and others, is compiling sustainable "success stories" in countries where bioenergy production has been increased without harming food production or resulting in increased land use. IRENA has also contributed

published a working paper on Bioethanol in Africa, highlighting the benefits of technology transfer between Brazil and Africa.

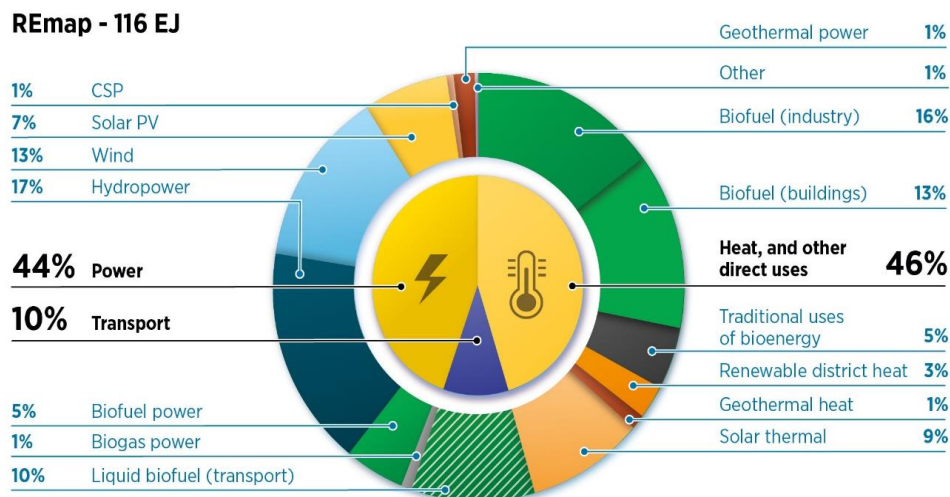
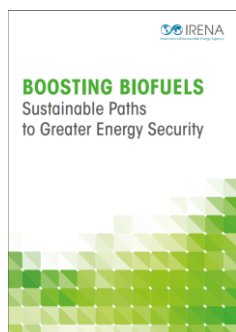


Figure 2: IRENA's REmap analysis shows that half of the most cost-effective options for doubling the share of renewable energy in the global energy mix by 2030 are different forms of bioenergy (in green).

19. Further expanding bioenergy activities, IRENA has released *Boosting Biofuels: Sustainable Paths to Greater Energy Security*, with extensive supporting analysis. The report describes the potential to expand bioenergy supplies without reducing food supplies or harming the environment. Examples of sustainable potential include



using residues from food and lumber production, in excess of those needed to enrich the soil or feed livestock, and planting energy crops on land which is not in productive use or could be freed from agricultural use by raising average food yields or reducing food waste, which amounts to a third of all food produced. The results have been presented at a wide range of international events, including the European Biofuel Conference and Exhibition in Amsterdam, Bioenergy 2016 in Washington and seminars organized in Rome by the IEA Bioenergy Agreement, Budapest by the Global Bioenergy Partnership (GBEP) and Nairobi by the World Agroforestry Center (ICRAF). IRENA also organized a Roundtable on Sustainable Bioenergy Supply: Potential, Scenarios and Strategies in Berlin, to compare estimates of global bioenergy potential. A follow-up study is being prepared to highlight bioenergy potential in five countries of Southeast Asia.

Technology status & outlook

20. As renewable energy emerges as a central solution to multiple development and climate objectives, innovation remains a key driver for change. In May 2016, IRENA convened the first IRENA Innovation Week. With global participation from policy-makers, engineers, private sector, utilities, regulators, and thought-leaders, the four day event covered a wide range of topics. This included the latest development and trends in grids, energy system modelling and planning and business applications and priority areas for support in decentralised, emerging and mature electricity systems. The event enabled the sharing of expectations on innovative solutions for transformation for utilities, and for systemic, technological and operational innovation. The outcome of the week includes a set of recommendations for each of the areas discussed. Participants recommended that IRENA should host such Innovation Weeks either annually or biannually.



IRENA INNOVATION WEEK, 2016

Six key outcomes emerged from Innovation week 2016:

1. The technology to push a global renewable energy transformation in the next two decades is already here. But more innovation is needed in policy formulation and business models.
2. Markets need to adapt as renewable energy takes a greater share, with new regulatory approaches and policies to ensure its long-term success.
3. The relationship between information technology and renewable energy is essential, but the full scope of complementarities is yet to be fully understood.
4. Electricity storage is integral to the renewable transformation, with diverse views on forms it will take.
5. Innovation can be found at all scales, from micro-grids to continental super-grids, from rich to poor.
6. Flexibility is key; context-relevant solutions essential.

A follow-up workshop was held in May in Abu Dhabi, UAE, where the outcomes of the Innovation Week were shared and discussed. Both events provided an opportunity for IRENA to engage and seek input on the ongoing work in this area, including on how to shape the upcoming Innovation Landscape analysis.

Thanks to input from participants during these two events, IRENA was able to refine the framework of the upcoming Innovation Landscape report. The report, being developed to guide policy makers on priority innovation areas to decarbonise the power system, will focus on system innovation for power sector transformation. Preliminary analysis indicates that the power sector transformation requires innovation in system integration.





21. IRENA also continues to provide analysis on selected technologies. The Renewable Energy Innovation Outlook: *Advanced Liquid Biofuels* examines the practical and economic potential for advanced biofuels, biofuel technology pathways and innovation opportunities, trends in advanced biofuel technology deployment, and measures to support advanced biofuel commercialisation. A side event on findings was held during the 24th European bioenergy conference in Amsterdam. IRENA also produced two articles on advanced liquid biofuels based on report findings, which were published by the European Bioenergy Conference and Exhibition magazine and by the American Chemical Society.

22. To gather and disseminate information on the status and outlook of renewable energy technologies, IRENA has released *Wind Power*, the final brief in the IRENA/IEA-ETSAP joint series. Technology outlook analysis has been completed for advanced liquid biofuels, mini-grids, and offshore wind, and technology briefs on geothermal, electric vehicles, biogas for transportation and thermal energy storage are under preparation.

23. To support dissemination and practical application of the analytical work, IRENA continues to engage with the UNFCC Technology Executive Committee on technology transfer mechanisms for renewable energy, as well as other stakeholders such as the Flemish Institute for Technologies Research (VITO). IRENA also collaborates with private sector entities in this respect, for instance Repsol which seeks to integrate more renewables into their 2050 market strategy.

Global Geothermal Alliance

24. The Global Geothermal Alliance (GGA), a platform to increase the geothermal share in the world's energy mix, is proving in its short existence the important role it can play in harnessing the vast potential that exists globally. The Alliance at present comprises 41 countries and 29 development and industry partners. With the strong engagement of Alliance members, facilitated by IRENA, implementation of the plan of action to guide work in the coming period is underway. As set out in the Action Plan, priority activities of the GGA are

determined in a transparent and consultative manner. The first Call for Activity Proposals resulted in 19 applications from governments and industry, and include requests for technical assistance, advisory and capacity building support, and facilitation of access to finance and risk mitigation instruments.

25. Simultaneously, IRENA is working to foster targeted geothermal resource development. Supported by GGA member Japan, IRENA is preparing a capacity-development plan for the Pacific in collaboration with countries and key regional stakeholders, such as the Secretariat of the Pacific Community. The Agency has also secured additional funding from the government of Switzerland to develop a capacity building programme, and discussions are underway to formulate tailored implementation plans.



REpowering cities

26. Cities are home to more than half the world's population and represent two thirds of global energy consumption today. They are uniquely positioned to directly benefit from renewable energy solutions. IRENA's report *Renewable Energy in Cities* shows how cities in their role as local decision makers and planning authorities can promote renewable energy technologies in various urban contexts (high versus low density, developing versus established, hot versus cold climate), and across different categories of urban energy demand in buildings (heating, cooling, and electricity) and transport.

27. The report provides an overview of recent trends and importantly, an outlook for renewable energy in cities and highlights action areas, including the roles of cities in designing and implementing renewable energy policies and integrated strategies, as well as the potential in the commercial, residential and transport sectors. Analysis

builds on an extensive set of city case studies as well as a bottom-up assessment of energy use in more than 3,600 cities to get an understanding on renewable energy options in real-life settings. Special focus is placed on the potential for urban renewable energy use in buildings and transport, and the transition towards an integrated and sustainable energy system, with increasing links between sectors. *Renewable Energy for Cities* will be launched during the UN Habitat III Conference and will inform the *High-Level Forum on Renewable Energy in Urban Settings*, organised in collaboration with the governments of Ecuador, Germany and the United Arab Emirates.

II. Enabling investment and growth

28. Transforming the energy system is multifaceted, and decreasing costs and increased recognition of the benefits of renewable energy are powerful drivers of change. IRENA continues to provide timely, objective and reliable information on renewable energy costs and benefits. To promote further growth, IRENA is advising on enabling frameworks, assessing the effectiveness of financial structures and working to support project facilitation. Together, these activities aim to create enabling policy and market conditions for accelerated investment in, and deployment of, renewable energy.

Renewable energy costs

29. A shift to a sustainable energy future requires increased awareness of trends in renewable power generation costs and insight into the competitiveness of renewable power generation. Such analysis and insights allow tailored policy recommendations of sector and market needs and identify priority areas for policy implementation. In support of new analysis, IRENA continued to strengthen its database on cost and performance data, adding 5000 new projects in 2016, supported by the Renewable Costing Alliance which today has 36 members. A database of auction and tender results has also been compiled to track trends in renewable deployment and costs. This database contains information, where available, on technology, PPA price, contract duration, indexing method, installed costs and capacity factor and allows a tracking of installed costs and LCOE's in support of analysis implied costs of capital.

30. To offer insights on the future prospects of renewable energy, IRENA has conducted analysis of policy-relevant issues. This included the most recent report on *The Power to Change: Solar and Wind Cost Reduction Potential to 2025*, which shows that cost reductions to 2025 will depend increasingly on balance of system costs (e.g. inverters, racking and mounting systems, civil works, etc.), technology innovations, operations and maintenance costs and quality project management. The focus in many countries must therefore shift to adopting policies that can reduce costs in these areas. The *Solar PV in Africa: Costs and Markets* report estimates that, with the right enabling policies, Africa could be home to more than 70 gigawatts of solar PV capacity by 2030.

31. Forthcoming costing analyses include onshore wind learning curve, and reports for energy storage and prospects for battery storage cost reductions. An update to the power generation cost report is currently under peer review containing up-to-date data for 2015 and the first half of 2016 for some technologies.

Renewable energy benefits

32. Building on earlier analysis, the Agency continues to support renewable energy deployment through the analysis of socio-economic benefits. *Renewable Energy Benefits: Measuring the Economics* provides the first quantification of the macroeconomic impact of renewable energy deployment. Analysis shows that doubling the share of renewables in the energy mix by 2030 would increase global GDP by up to 1.1 per cent, improve welfare by up to 3.7 per cent and support over 24 million jobs in the sector. The report was presented at a plenary session during IRENA's 6th Assembly, together with the latest IRENA work on renewable energy costs, where the value

added of IRENA's macroeconomic analysis was highlighted both by Members and experts. Analysis has had significant reach, as reflected in strong media support. The report has to date been covered by over 130 news articles and leading media outlets including The Economist, The Guardian, Reuters, Bloomberg, Forbes, the Huffington Post and El Pais, and has triggered related work worldwide. For example, a prominent US-based think tank is considering the report's approach as a basis to assess the macroeconomic impact of renewable energy in India.

33. IRENA continues to provide insights on the latest status and trends of employment in the renewable energy sector through its *Renewable Energy and Jobs – Annual Review* series. The recently launched 2016 edition places the global figure at 8.1 million. This represents a 5% increase from last year, which is in stark contrast with depressed labour market trends in the broader energy sector. This year, the review had two thematic focusses: jobs in off-grid applications and the gender dimension of employment in renewables. The opportunities for job creation in off-grid solar, small hydropower and biogas were explored based on national and project-level employment data. The gender dimension of renewable energy employment was illustrated in findings from an IRENA-conducted survey, which showed that the sector offers greater opportunities for women compared to the broader energy sector. The *Annual Review* series has gained extensive traction in the renewable energy community and in print and electronic media. Since its launch in May, the 2016 edition has been cited in around 680 online news articles (end of Aug 2016), including coverage by media outlets such as Bloomberg, Financial Times, France 24, Guardian, and Huffington Post. The findings of the *Annual Review* were also well received on social media with tweets from institutions and industry experts.



34. While the *Jobs Annual Review* provides an overview of the status and trends in renewable energy employment, IRENA's study *Renewable Energy Benefits: Leveraging Local Industries* explores how benefits such as income generation and job creation can be maximised through leveraging existing industries to develop a local sector for renewables. It analyses the activities required to create a domestic sector that can enable new opportunities in solar and wind as well as the pre-requisites to undertake activities locally, in terms of manufacturing capacities, skills, availability of raw material, access to finance and the enabling conditions.

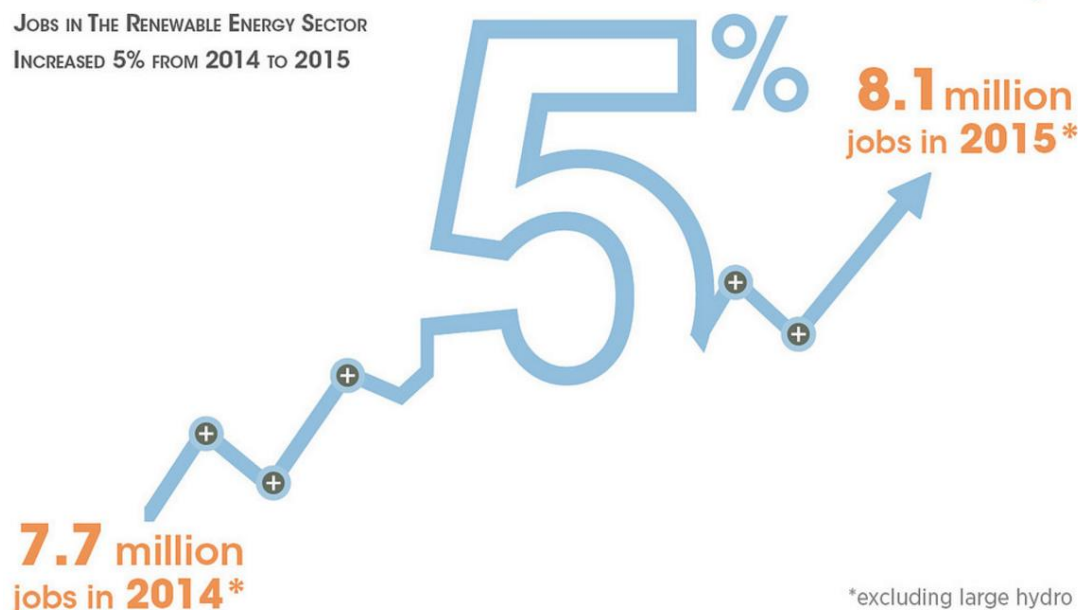
Policy options to accelerate deployment

35. As the costs of renewable energy technologies continue to fall, there is a growing need for policies to adapt to rapidly-changing dynamics. In this context, an in-depth review of the most recent auction results is underway, which provides an analysis of the factors contributing to the record-breaking prices seen in auctions globally. This forms part of IRENA's study on the design of deployment policies to facilitate the integration of large-scale renewable generation in support of the ongoing transformation of the power sector. To provide access to the most up-to-date information on policy developments, IRENA continues to collaborate with the International Energy Agency (IEA) to expand and enrich the IEA/IRENA Policies and Measures Database. In 2016, IRENA has used the policy information gained through Member outreach and research to add 15 new countries and more than 220 new policy entries to the database.

36. Published in January 2016, *Renewable Energy Market Analysis: The GCC Region* provides in-depth insights on best practices in policy making, project development and financing that are driving the transition towards more sustainable energy systems in the region. Record low prices for solar PV in Dubai have renewed the enthusiasm

for an accelerated uptake of renewable energy in the Gulf Co-operation Council (GCC). Report findings have been presented at several platforms, such as the World Future Energy Summit (WFES 2016), the Clean Energy Business Council, the Middle East Solar Industry Association, MENAREC 2016 and Chatham House. The findings have also enriched the public discourse on renewable energy in the GCC region, earning over 100 mentions in local and international media.

37. Latin American renewable energy policy developments bring valuable insights for energy markets around the world. Themes of specific relevance to the region, such as the complementarity between hydropower and other renewable energy technologies, are paving the way for a greater share of renewables in the energy mix. IRENA's report *Renewable Energy Market Analysis: Latin America* captures the wealth of knowledge and experience embedded in the region and identifies emerging renewable energy trends and themes at the intersection of public policy and market development. The report has benefited from input provided by Members and regional experts. The report was discussed at a special event during the 11th meeting of the IRENA Council where the Secretary of Energy of the Ministry of Industry, Energy and Mining of Uruguay presented on successful examples of enabling policy and regulatory framework and the role of public-private sector partnerships to promote renewable energy investment.



38. At present, IRENA is conducting a regional market analysis on South-East Asia. The analysis encompasses broader economic and energy sector trends as well as renewable energy investment and policy developments in the region. IRENA has begun discussions with several regional stakeholders, including country focal points, ASEAN Centre for Energy, Asian Development Bank, GIZ and UNESCAP to gather inputs on knowledge gaps to be addressed in the analysis. In this context, a dedicated event on “Enabling Policy and Financing Frameworks for Accelerating Renewable Power Deployment” was organised on June 15th in Bangkok, Thailand.

39. Large-scale deployment of variable renewable energy technologies, such as PV and wind, are a critical focus area for policy design and adaptation. They require adequate policy and regulatory measures for all stakeholders, including policy makers, grid operators at transmission and distribution level, regulators, utilities, consumers, etc. In this context, IRENA is finalizing the study on adapting market design and renewable energy policies to the changing ownership structure in the electricity sector. The report analyses the main challenges, and identifies

lessons learned and best practices to provide recommendations on how governments can adapt their policies and take into consideration the evolution of the ownership structure in the electricity sector.

Financing renewables

40. With the goal of increasing knowledge of, and access to, reliable and transparent investment information, IRENA has made available online, and continues to update, key information on renewable energy investment trends. Data on public investment flows highlights the international financial flows to renewable energy projects from selected financial institutions since 2009. In addition, the Frankfurt School - UNEP Collaborating Centre and Bloomberg New Energy Finance provided the latest datasets for *Global Trends in Renewable Energy Investment 2016*, also available on the IRENA website.

41. A key renewable energy finance report, *Unlocking Renewable Energy Investment: The Role of Risk Mitigation and Structured Finance*, has been published and was presented at the 11th IRENA Council Meeting. Report recommendations were developed in consultation with experts and stakeholders through a series of meetings during the last two years and focus on policies, tools and instruments to reduce risks and barriers to investment.

42. Since the publishing of the report, IRENA and partners have shifted focus to implement the five action areas identified in the report: project initiation, development and facilitation; supporting local financial institutions; risk mitigation instruments; mobilizing capital market tools; and dedicated financing facilities. In this context, a discussion of recommendations was held during an event at the Global Green Growth Week hosted by the Global Green Growth Institute in Jeju, Republic of Korea in September 2016. A key activity identified for follow-up was the standardization of

contracts for solar PV projects to help streamline solar PV project procedures. To address this, IRENA and the Terrawatt Initiative launched the 'TWI-IRENA Standardization Initiative' on the margins of Intersolar in Munich, Germany, in June 2016. The Initiative focuses on eight work streams or types of contracts, namely Power Purchase Agreement; Development Service Agreements; Supply Agreements; Fit & Commissioning Agreements; O&M Agreements; and Finance Facility agreement / Guideline; Implementation Agreement; Project Development Guideline. The initiative has attracted participation of a dozen law firms in support of solar PV projects and financial institutions. An extensive review process is envisaged once draft templates are available.

43. IRENA is working with climate finance institutions such as the Green Climate Fund (GCF), the Climate Investment Funds (CIFs) and the Global Environment Facility (GEF) to advance and facilitate funding for renewable energy programmes and projects. Among other things, IRENA is using its programmatic activities such as Renewable Readiness Assessments (RRAs) and REmap country work to become a readiness partner of the GCF. IRENA is also working with eligible members to raise awareness, including by providing support to the GCF and the GEF secretariats as they develop the programmatic basis to finance renewable energy projects. In a similar way, IRENA will also support CIFs' Scaling Up Renewable Energy Programme (SREP) countries' investment plans.

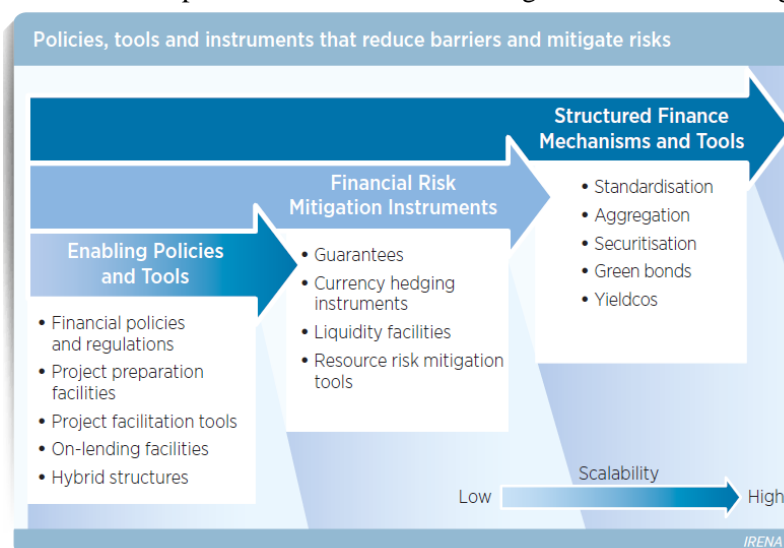


Figure 3: Policies, tools and instruments that reduce barriers and mitigate risks

44. Work is also ongoing with some of the financial institutions accredited with the GCF to deploy GCF resources for renewable energy activities. With the Asian Development Bank (ADB) preparations are under way for a renewable energy facility for the Pacific and with the German development bank KfW a proposal for a Liquidity Reserve Facility to cover off-taker risk in sub-Saharan Africa has been submitted for GCF approval.

Project facilitation

45. The Sustainable Energy Marketplace, an online service launched in December 2015, has expanded rapidly, attracting project sponsors and developers, financial institutions and service and technology providers. The Marketplace currently encompasses more than 150 projects seeking funding of approximately USD 7 billion covering countries in Africa, Latin America and the Caribbean. IRENA established strategic partnerships with the Inter-American Development Bank (IDB), Power Africa and the Private Finance Advisory Network (PFAN) to further support the development and funding of projects. For example, IDB and IRENA issued a call for proposals, which resulted in the allocation of project development grants totalling USD 300,000 for project developers in Latin America and the Caribbean. The Marketplace will be extended to other geographic regions and to projects on energy efficiency should additional resources be available. Further partnerships are being implemented with organisations such as SE4All, UNESCWA and Carbon War Room with a view to establish the Marketplace as a “pipeline aggregator” bringing together and making visible respective project portfolios, and to match projects with the right kind of support.

46. In an effort to support the development of an increased range of renewable energy projects, three new renewable energy technologies (Solar PV, Bioenergy, Hydropower) are now covered by the IRENA Project Navigator. The Project Navigator is an online platform service which provides comprehensive and easily accessible practical information, tools and guidance to assist in the development of bankable renewable energy projects. For example, the new solar PV module provides eight interactive tools to evaluate the viability of utility-scale solar PV power plant projects. The bioenergy module offers a detailed performance and financial model designed to facilitate decision making in the woody biomass sector. Three additional technical modules will be completed by the end of 2016 covering emerging renewable energy technologies (i.e. geothermal power, solar home systems & mini-grids). An island module will also be released providing a set of guidelines and tools for renewable energy technologies relevant for SIDS.

47. At the request, and in close cooperation with of the government of Djibouti a 5-day training programme to identify common challenges faced by local developers and to disseminate guidelines to improve the bankability of projects was organized in July 2016. The training was attended by 40 representatives from the Ministry of Energy and Mineral Resources, national public agencies and private sector entities. The training programme saw the development of an initiative to establish a national renewable energy project incubator, based on the IRENA Project Navigator, to mobilize and engage additional local capacities. Participants of the training also stressed the importance of translating Project Navigator content into other languages to ensure a more comprehensive dissemination across the African continent. Additional train-the-trainer workshops to build local capacity and multiply impact are being discussed with various Member countries, including with Namibia, Zimbabwe, Ethiopia, Ghana, Micronesia, and preparations have been initiated with the government of Egypt to hold a workshop on technical concept guidelines for Solar Home Systems either end 2016 or early 2017. Renewed efforts are being placed on further strengthening on-site national and regional capacity building programs as well as regular webinars to reach out to and engage project developers and other stakeholders.



Figure 4: Electrification Development Fund (FDE) project coordinator representative next to the solar PV plant in rural area in Burkina Faso.

48. The IRENA/ADFD Facility continues its support for renewable project, with successful implementation of three project cycles, with the fourth underway. The facility has enabled funding of USD 333 million to 15 projects in 14 developing countries, USD\$189 million of which were co-financed and USD \$ 144 million of which were ADFD concessional loan. 79 projects were submitted for consideration in the fourth cycle.

**15 projects granted
funding**

**68 megawatts of renewable
energy capacity**

**760,000 people will benefit
from improved access to energy
and livelihoods**

49. A cooperation and support agreement was signed between ADFD and IRENA in April 2016 that included funding for the Facility. The additional funding was directed to related agency operations, including the running and improvement of the selection process, engagement of co-funding bodies, showcasing of projects and to support IRENA's work with the Facility. Efforts are also being made to establish linkages of the Facility with IRENA activities such as the Project Navigator, the Global Atlas and the Sustainable Energy Marketplace.

50. Extending support to project post-selection is becoming an increasing priority for the IRENA/ADFD Facility. In this context, IRENA is developing post-selection activities in cooperation with ADFD and in August 2016, ADFD and IRENA successfully carried out a first joint onsite appraisal missions for two projects located in Senegal and Burkina Faso, which had been selected in the third cycle. Onsite appraisal missions provided a valuable opportunity for IRENA to see first-hand the impact of projects supported by the Facility and to build up "on-the-ground" contacts to allow effective showcasing of projects and their impact.

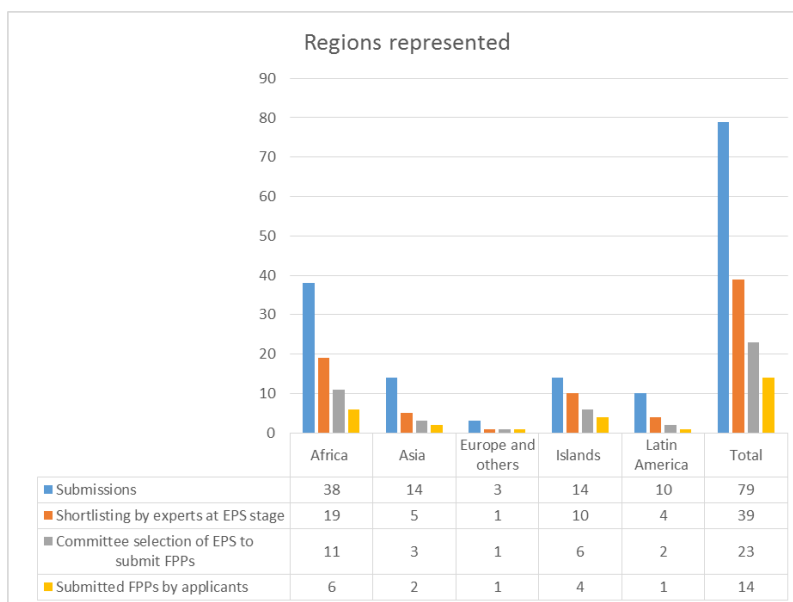


Figure 5: Regions represented
EPS – Executive Project Summary / FPP – Full Project Proposal

III. Renewable energy access for sustainable livelihoods

51. Universal access to modern energy services is key to alleviating poverty and stimulating economic growth. There is an opportunity to design an efficient new system based on the modular and decentralised nature of renewable energy, which can have a multiplier impact in terms of reduced health effects, improved livelihoods, poverty alleviation, job creation, gender equality and enhanced access to water and food.

Decentralised solutions for access

52. IRENA continues to analyse policies and regulatory frameworks to promote mini-grid development in cooperation with the private sector. Stakeholder feedback on this work has highlighted several needs, including dedicated policy and regulatory frameworks for the mini-grid sector, clarity on the role of mini-grids in electrification strategies, regulations that allow the adaptation of mini-grid business models to local conditions, and measures to de-risk the transitory phases. Partial risk guarantee schemes and tailored debt funds were highlighted as possible instruments for mini-grid project financing. The importance of moving towards regional harmonisation of equipment and technology standards was noted, along with the need to focus on building local capacities.

53. IRENA organised the 3rd International Off-grid Renewable Energy Conference & Exhibition (IOREC) in Nairobi, Kenya, from 30 Sep to 1 Oct 2016. The event was organised in partnership with the Kenyan Ministry of Energy and Petroleum and the Alliance for Rural Electrification (ARE), and attracted stakeholders from government, rural electrification agencies, private sector, financing institutions, development agencies and academia.

54. Over a period of two days, stimulating discussions were held on how the deployment of off-grid renewable energy solutions, including stand-alone and mini-grid systems, can be accelerated. The discussions covered a wide range of issues such as policy and regulations, business and financing models, technology innovation, and socio-economic impacts. On the sidelines of the IOREC 2016, several key events took place, including a business-to-business Off-grid Matchmaking organised by Africa-EU RECP and ARE, the joint IRENA-IEC and IRENA-GIZ side-events, IRENA events on Standards and Quality Assurance, the Project Navigator and Sustainable Market Place, as well as site-visits for conference attendees. Key findings from IOREC discussions will be analysed and synthesised into an outcome paper, as well as integrated into IRENA's future work.

55. IRENA launched three major reports at IOREC 2016: *Policy and Regulations for Private Sector Renewable Energy Mini-Grids Development*; *Renewable Energy Benefits: Decentralized Solutions in the Agri-food Chain*; and *Mini-grids: Innovative Technologies Outlook*. Renewable energy-based mini-grids will play an important role in achieving universal electricity access by 2030. A key message from IORECs to date has been that dedicated policy and regulatory frameworks are needed to catalyze private sector involvement in the mini-grid sector and accelerate deployment. In this context, IRENA has analysed general and technology-specific policy and regulatory measures needed to support mini-grid deployment. Report findings addresses issues of licencing provisions, tariff regulation, offsetting main-grid arrival risk and access to finance. Developed in close consultation with key stakeholders from the sector, the report provides insights on effective policy and regulatory measures to deploy various types of mini-grids and establishes an information bridge between private sector practitioners, policy makers, regulators and financing institutions.

56. In rural areas, agriculture and related agri-food activities are at the heart of the economy and a large portion of households generate their income from employment in harvesting, agro-processing, transporting and marketing produce. However, rural communities usually struggle with the lack of access and affordability of resources, and are therefore often limited to producing low quality goods with little diversity. Granting those areas access to affordable, secure and sustainable energy can support the development of communities through job creation,

IOREC FAST FACTS

- Across East Africa, more than 350,000 households are powering homes and devices with solar panels and using mobile money to pay for it.
- In Bangladesh, over 4 million solar home systems have now been deployed reaching over 18 million people or 11% of the total population.
- In 2015, USD 276 million was invested in the off-grid solar sector alone across the world, a 15-fold increase over 2012.
- About 60 million people may be using off-grid renewable electricity of some kind in Africa. That is about 10% of those living off-grid.
- Technological innovations and new business models will reduce the costs of producing electricity from renewable mini-grids by more than 60% in the next two decades.
- In Africa, small solar PV systems for single households can now provide basic electricity services for as little as USD 56 per year.



Figure 6: Nearly 600 off-grid renewable energy practitioners and leaders from the public and private sector gathered in Nairobi, Kenya for the third International Off-Grid Renewable Energy Conference (IOREC).

poverty reduction, improved health, enhanced access to water and food, better livelihoods, and gender equality. In this context, IRENA has analysed the socio-economic impacts of adopting decentralised renewables along the stages of the agri-food chain to support the realisation of the full potential of renewable energy in improving livelihoods in rural areas. The report *Renewable Energy Benefits: Decentralised Solutions in Agri-food Chain* is IRENA's first interactive digital publication.

57. Across the world, renewable energy companies work by engaging with national and local governments, civil society groups and local residents in response to specific local social and environmental conditions, which differ widely between countries. While the analysis of environmental impacts of renewable energy technologies and projects is gaining momentum, their social impacts on communities or specific human groups, in particular in developing countries, remain largely unregulated and little understood. In its global report on policies to maximise socio-economic benefits of off-grid applications IRENA is analysing current practices and policies that aim to maximise social impacts of renewable energy deployment. The report puts a specific focus on gender impacts and local community engagement, as the inclusion of gender dimensions in renewable energy strategies can multiply renewable energy co-benefits, both for social and productive uses in access settings, where women are primary actors.

Applied decentralised solutions

58. Strengthening capacity to help small and medium-sized enterprises provide decentralised solutions, and in promotion of the use of innovative decentralised solutions, the ECOWAS Renewable Energy Entrepreneurship Support Facility's Technical Committee has finalised the second call for proposals and selected successful

entrepreneurs. In cooperation with ECREEE, The Centre for Renewable Energy and Industrial Maintenance (CERMI) and the International Institute for Water and Environmental Engineering (2iE), the first training workshop for the selected entrepreneurs has been scheduled for September 2016.

IV. Regional action agenda

59. Regional co-operation is a key element to bring about efficiencies and economies of scale in deployment, in order to facilitate a diverse mix of renewable energy sources, overcome technology barriers, increase security of supply and meet growing demand. Common regional action agendas also empower countries in their pursuit of development and climate objectives. IRENA supports these goals at the regional level by linking national plans and potential through Clean Energy Corridor initiatives, and at the country level through targeted advisory support and services.

Africa clean energy corridor

60. IRENA continues its work to increase the integration of renewables in Eastern and Southern Africa power pool countries. Zoning work is being deepened at national levels, and used in IRENA planning models to allow a more accurate assessment of renewable energy deployment potential within each country. Working with key stakeholders, IRENA is translating results of this work into projects to be considered in the revision of the Programme for Infrastructure Development in Africa (PIDA), which currently includes only large hydro-based renewable energy projects. Based on zoning outcomes, IRENA is assessing specific site suitability to guide renewable investments in selected ACEC countries. Accordingly, the process for an assessment of the financial viability of selected zones in three ACEC pilot countries has been initiated for finalization before end-2016.

61. The West Africa Clean Energy Corridor (WACEC) focuses on supporting an accelerated development of utility-scale, renewables-based electricity and promoting cross border trade in the region in line with regional renewable energy targets through regional and national action plans, as well as the national SE4ALL Action Agendas. An action plan for the implementation of the WACEC initiative has been developed and validated at the technical level through a stakeholder consultation process with the governments and key regional partners in April 2016 in Dakar. The process of political endorsement of the WACEC action agenda is in progress and is on the agenda of the next regional energy ministers' council. Scoping work for the solar component of the WACEC was initiated in August 2016 in coordination with ECREEE, WAPP, ERERA, and the European Union Energy Initiative's Technical Assistance Facility.

62. IRENA has continued to provide advisory services to a number of African countries, focusing on regulatory decision makers considering their key role in advancing the regional deployment of renewables, with pilot schemes in Namibia, Tanzania, and Zimbabwe. The first stakeholder consultation workshop in Namibia in April 2016 identified key issues to enhance the role of renewables in long-term power system planning. In-depth interviews are currently being conducted with global practice leaders and local stakeholders to feed into a best practice guidebook on long-term electricity sector planning.

63. IRENA and the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), in collaboration with the International Atomic Energy Agency (IAEA) and the United Nations Framework Convention on Climate Change (UNFCCC), have initiated a six-month capacity development programme starting in October 2015, to build and enhance long-term energy planning capacity in ten members of the Economic Community of West African States (ECOWAS): Benin, Burkina Faso, Cabo Verde, The Gambia, Guinea, Liberia, Niger, Senegal, Sierra Leone, and Togo. The programme uses IRENA's system planning tool for West Africa, SPLAT-W, which helps users assess economic, technical and environmental perspectives in the future energy mix.

64. To promote the Africa portal of the Sustainable Energy Marketplace, a webinar targeting financing institutions and project developers from the West and Central African regions was organised in July 2016 jointly with the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) and the Secretariat of the Economic Community of Central African States (ECCAS). Participants were informed of the features of the marketplace, and feedback was gathered to continue to respond to the needs of users.

Central America clean energy corridor

65. Following the endorsement by Energy Ministers of the Clean Energy Corridor of Central America (CECCA) initiative strategy in December 2015, IRENA is translating the strategy into actionable activities. In close consultation with regional and national stakeholders and development partners, scoping of “technical enabling” and “regulatory enabling” components are being finalised. A regional workshop has been organized 26-28 October 2016 in Panama to kick-start the work under both components for implementation at regional and national level and Panama has been identified as a pilot country. The consultative workshop - co-organized with EOR and Economic Commission for Latin America and the Caribbean (ECLAC) with support from Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), United States Agency for International Development (USAID), Inter-American Development Bank (IDB) and other regional institutions – will further define the scope and implementation of the policy/regulatory and technical components of the initiative.

Emerging regional corridors

66. As part of IRENA’s deepening political and technical engagement with regional institutions and countries in Southeast Asia in support of the greater integration of non-hydro renewables in the evolving ASEAN Power Grid (APG), regional market integration and achievement of ASEAN renewable energy targets for 2025, IRENA has initiated a consultative process to adapt the corridor concept to the regional context (Greening APG), which will lead to development of an action agenda for the effective implementation of the initiative. IRENA collected preliminary feedback, mainly from the ASEAN power utilities, during a first consultative workshop organized in collaboration with ASEAN Center for Energy as part of the HAPUA (ASEAN power utilities and authorities) in Kuala Lumpur, Malaysia at the end of 2015. A second consultation workshop took place in June 2016 in Thailand, which helped gain a better understanding of the specific needs and priorities of the region. The combined results from the consultation workshops helped to define the scope of IRENA’s regional approach in Southeast Asia and informed the development of an implementation plan for the Greening APG initiative, formed in consultation with the senior officials from the region. The draft implementation plan will be submitted for further discussion and approval at a technical level prior to its submission to the next ASEAN high-level meeting on energy for endorsement.

67. Amid rising demand for cleaner energy sources in Northern Asia, the Agency is collaborating with regional countries and development partners in the formulation of the Asian Super Grid (ASG) initiative, facilitated by the Asian Development Bank’s (ADB) recent technical assistance program and in support of the establishment of this initiative. Among others, this work would assist Mongolia in implementing one of the important RRA recommendations to leverage its vast solar and wind resources in Gobi Desert.

Enabling regional action

68. As part of the implementation of the Pan-Arab Renewable Energy Strategy 2030, IRENA is finalising the preparatory phase of the Pan-Arab Clean Energy (PACE) initiative to promote the integration of a greater share of renewable electricity in regional power systems. A comprehensive gap analysis report on the Maghreb region is being finalized. Based on its findings, the Agency will conduct regional stakeholder consultations in the first half of 2017 to identify key pillars for the implementation of the initiative in the Maghreb region.

69. A project to assess the technical potential for cost-effective renewable energy generation in South East Europe (SEE) by 2020 and beyond has been launched and a joint IRENA-Energy Community workshop on cost-effective renewable energy potential in SEE was held in Vienna, Austria, on 3-4 March 2016 to collect feedback on the preliminary findings of the study. The workshop gathered more than 70 representatives from governmental, public and private organizations as well as development partners. The project will be finalized in the last quarter of 2016 and the findings will provide input for the countries in the implementation of the National Renewable Energy Action Plans.

70. As part of the preparation of the Action Plan for IRENA's engagement with South East Europe, IRENA and the Ministry of Energy of Romania organized a regional consultation meeting in Bucharest on 6-7 October 2016. The meeting gathered representatives of governments, TSOs, energy regulatory authorities and key regional stakeholders to discuss the opportunities and challenges to accelerate uptake of renewables, and to identify needs and priorities and IRENA's role in this regard. Feedback will contribute to the formulation of the key elements of IRENA's strategic approach for engagement in South East Europe.

71. As part of its engagement in Central Asia, IRENA participated in the Second International Participants Meeting ahead of the Expo 2017 in Astana, Kazakhstan. Discussions and activities continue to solidify IRENA's presence at the Expo and further promote the renewable energy agenda in the region.

Country support and advisory services

72. IRENA continues to support countries in assessing policies, resource potential and technologies for renewable energy deployment. Such support includes facilitating Renewables Readiness Assessment (RRA) consultations and providing targeted advisory services for the implementation of RRA recommendations. Since January, the RRA Mongolia was launched jointly by IRENA and the Ministry of Energy in March on the margins of the Northeast Asian Energy Connectivity Workshop and in the presence of national and regional media. RRA reports are being finalised for Antigua and Barbuda, Pakistan, Philippines, and Tunisia.

73. To further refine the methodology and adapt to the fast-changing renewable energy sector, the Agency is undertaking a pilot implementation of the RRA and REmap in Thailand through a single integrated process. The final product will consolidate RRA's recommendations aimed at short- to medium-term measures for enabling conditions with REmap's technology-focused analysis with a longer-term vision for renewables deployment. The technical consultation workshop will take place in mid-November.

74. In cooperation with the German government and regional partners, IRENA supported the organization of the sixth edition of the Middle East Renewable Energy Conference (MENAREC 6) hosted by Kuwait in 4-6 April 2016 on "Renewable Innovations towards Sustainable Energy". With broad participation from regional, international and national renewable energy stakeholders, the Conference highlighted the Middle East and North Africa (MENA) region's high renewable energy potential which could help secure energy supply, meet strong energy demand growth, and contribute to decarbonisation of the energy sector. On the margins of the Conference, a MENA-focused expert workshop on power purchase agreements for renewable energy was held. Participants also discussed how regulatory and policy measures influence project risks. Workshop findings are now available, highlighting the key considerations for policy makers in the design of bankable power purchase agreements.

75. In line with strategic priorities, IRENA has continued to engage with a broad range of partners to provide comprehensive and long-lasting support and advice to countries and regions. Following a joint study by IRENA and European Investment Bank (EIB) to assess renewables manufacturing potential in Egypt, Morocco and Tunisia, IRENA has expanded assessments to cover Jordan, Lebanon and the UAE with the United Nations Economic and Social Commission for Western Asia (UNESCWA), with the report soon to be finalized.

CAPACITY BUILDING PROGRAMME

The Renewable Readiness Assessment (RRA) conducted by Swaziland in 2014 identified long-term energy planning and energy statistics as key areas for follow-up action. As a result, the government of Swaziland, supported by IRENA, designed a 10-month programme to enhance national long-term capacity and to develop a new national energy masterplan.

The programme includes national seminars, stakeholder consultations, expert meetings, and online and face-to-face training courses. The Working Team comprised of energy planners from the Ministry of Natural Resources and Energy, Swaziland Electricity Company, and Swaziland Energy Regulatory Authorities, and the Central Statistical Office, attend the trainings and drive the development process of the national energy master plan by collecting data, executing computer models, and developing analysis. The Steering Committee, composed of senior government officials from the Ministry as well as representatives from a broad range of energy sector stakeholders, guide the efforts of the Working Team to ensure policy relevance, and endorse country ownership of the master plan. IRENA provides energy planning tools and training, and supports the Working Team to better collect, interpret and use renewable energy data in the planning processes. To ensure long-term sustainability, the project has also engaged other international organizations active in the energy planning field, such as the IAEA.

V. Islands: Lighthouses for renewable energy deployment

76. Islands are showing increasing ambition in the transformation of their energy systems, with some aiming for a complete transition to renewables in the immediate future. To support this transformation, IRENA is providing knowledge, tools, services and a platform for co-operation to facilitate the planning for, and implementation of, renewable energy solutions.

SIDS Lighthouses

77. IRENA continues to support and manage the SIDS Lighthouses Initiative, which now has 35 Small Island Developing States (SIDS)² as members, as well as 19 development partners and other entities³. Through the Lighthouses Initiative, IRENA is carrying out resource assessments, grid integration studies, energy transition plans and capacity building activities within the Atlantic, Indian Ocean, Mediterranean and South China Sea (AIMS), Caribbean and Pacific regions. With support from the Association for Overseas Countries and Territories of the EU (OCTA), IRENA is also engaging with additional islands to provide valuable insights, support and transfer of knowledge and experience.

² Antigua & Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Cape Verde, Cuba, Comoros, Cook Islands, Dominican Republic, Federated States of Micronesia, Fiji, Grenada, Guyana, Kiribati, Republic of Maldives, Republic of the Marshall Islands, Mauritius, Montserrat, Nauru, New Caledonia, Niue, Palau, St. Lucia, St. Vincent and the Grenadines, Samoa, Sao Tome and Principe, Seychelles, Solomon Islands, Tonga, Trinidad and Tobago, Turks and Caicos, Tuvalu, Vanuatu

³ European Union, France, Germany, Italy, Japan, New Zealand, Norway, United Arab Emirates, United States of America, Indian Ocean Commission, IRENA, Association of the Overseas Countries and Territories of the European Union, UNDP, World Bank, ENEL, Clean Energy Solutions Center, Clinton Climate Initiative, Rocky Mountain Institute - Carbon War Room, SE4ALL

IN FOCUS: SIDS LIGHTHOUSES QUICKSCAN

The Small Island Developing States (SIDS) Lighthouses initiative was launched at the 2014 United Nations Climate Summit in New York to create a cooperative framework that would bring together SIDS and development partners in the unified goal of accelerating the transition to renewable energy in all SIDS.

An integral part of the SIDS Lighthouses initiative, IRENA and SIDS developed the Quickscan, a simple but robust methodology to assess the readiness of SIDS to deploy renewables within the power sector. The Quickscan is a questionnaire on the comprehensive process required for a successful transition to renewable energy. The questionnaire focuses on seven critical elements of the transitions process Institutional Framework, Knowledge Base, Planning, Financing, Deployment, Capacity Building, and Cooperation. Each of the seven Quickscan elements is elaborated through questions designed to uncover the specific challenges to renewables deployment of the SIDS. The Quickscan is completed by SIDS governments with assistance from IRENA or other SIDS partners, in this way it increases local awareness of the need for a comprehensive approach to renewables deployment and highlights areas where support would be most effective. Results of the Quickscan are shared with SIDS and Lighthouses members to increase awareness of the challenges faced by SIDS and to support the coordination of development efforts to target areas critical to a successful transition to renewables.

IRENA has worked with the governments of the Bahamas and Mauritius to pilot the Quickscan methodology and develop a finalized Quickscan questionnaire. A total of 39 Quickscans have been completed to date, helping to uncover areas where specific support is needed. For example, by undertaking the Quickscan process, Palau and the Federated States of Micronesia (FSM) discovered the need for comprehensive roadmaps to support the deployment of renewables. Since, Palau and FSM are working with IRENA to develop these roadmaps. Quickscan analysis has been supported by voluntary contributions from Germany, New Zealand and Norway and in cooperation with SIDS governments. The European Union's Association of the Overseas Countries and Territories (OCTA), a SIDS Lighthouses member since 2015, also provided funding for an additional 19 Quickscans the results of which will be added to the IRENA website.

Quickscans have also helped reveal valuable insights on the deployment of renewables in SIDS, including:

- Political leadership for a transition to renewable energy is present in almost all SIDS
- Access to energy data remains a major challenge in planning for the energy transition of SIDS
- The majority of SIDS have developed grid studies
- Access to finance is a general issue in SIDS. Local equity and government funding are insufficient to achieve the renewable energy deployment envisioned
- Capacity to operate a power grid with large shares of solar and wind is not in place in most SIDS
- The multitude of development partners and projects in each SIDS puts pressure on governments to set up a coordinating unit inside the government

78. Targeted advisory services, such as through roadmaps and grid studies, have been key for islands to integrate larger share of renewables into energy mix. A study on renewable energy desalination opportunities for Kiribati and Cabo Verde was completed, in addition to the Kiribati Integrated Energy Roadmap (KIER) and a roadmap for Barbados. The Barbados roadmap made use of the recent in-house capacity boost with the modelling software Plexos, which can provide dispatch analysis and capacity expansion analysis. This expanded in-house capacity, acquired with the support of the Government of Germany, strengthens the IRENA toolbox and enables further detailed analysis upon request from members.

79. An important part of island work relates to the integration of variable renewables into the existing grid for which IRENA is providing timely and practical support and capacity-building services. For example, following IRENA's recommendations, Samoa is implementing the necessary infrastructure upgrades to allow for reliable grid operation with planned PV projects. A grid study for the Cook Islands has supported the implementation of Cook Islands Renewable Energy Charts for the island of Aitutaki. A grid integration study in Antigua has given policy makers and the public utility insights on the amount of variable renewable energy that can be implemented on the island without major infrastructure upgrades.

80. An important part of transferring knowledge to tackle information gaps and build capacity, IRENA has continued to provide training in collaboration with a range of Lighthouses partners. In this context, the government of Japan and IRENA coordinated a training workshop for nine Pacific SIDS and the Maldives to further explore the enabling environments in support of the wide scale deployment of renewable energy. Additional focus was placed on project finance, particularly the fundamentals of private sector finance rather than donor financed projects, financial modelling, and project negotiation tactics. In recognition of the importance of the integration of variable renewables, IRENA held three technical workshops in Saint Maarten in July, and in Tonga and Cuba in August. The first workshop, organised in cooperation with CARILEC, facilitated peer-to-peer exchange between i) network planners and operators, which had successfully implemented approaches to operate and plan electricity systems with high shares of variable renewables worldwide and with ii) technical experts of utilities in small island states in the Caribbean. The second workshop, organised in cooperation with the International Climate Initiative (IKI), was held on the margins of the 25th Annual Pacific Power Association (PPA) conference and trade exhibition. The workshop focused on facilitating the exchange of technical knowledge and learning activities for utility engineers and power system operators in Pacific Islands by presenting specific outcomes of the IKI project and facilitating a technical workshop. The third workshop gathered participants from the national utility and facilitated knowledge exchanged between Cuban technical experts, international planners, and operators on key issues and challenges to be addressed to reliably operate Cuba's electricity grid, including the management of high shares of renewable energy. Upcoming training workshops include a workshop for nine Pacific SIDS and the Maldives to further explore the enabling environments necessary to support the wide scale deployment of renewable energy. The workshop will be organised in coordination with the government of Japan.

Enabling projects in islands

81. Building upon previous work on islands, IRENA has refined its methodology for the assessment of grid stability for isolated power systems and is completing three technical guidelines on i) variable renewable energy grid integration issues, ii) operational and investment planning, and iii) island specific issues in close cooperation with the University of Darmstadt, Energinet and Tractebel. Methodology results informed the development of a workshop held in Cuba August 24-26 which focused on operating and planning electricity systems with higher shares of variable renewable energy in the island nation. The workshop, organised in close co-operation with the government of Cuba and with the support of Germany, facilitated the exchange of knowledge between Cuban technical experts and international planners and operators, and identified key issues and challenges of Cuba's electricity grid.

IN FOCUS: LIGHTHOUSES ACROSS REGIONS

Atlantic, Indian Ocean, Mediterranean and South China Sea (AIMS)

Within the AIMS region, with support from the Lighthouses Initiative, IRENA's Global Atlas team is developing new wind site assessment models. This assessment process is currently being tested on two sites in Cabo Verde and three in the Comoros Islands. The screening of prospective wind sites began in August 2016 and features wind power production and financial models developed to assess how suitable a site is for wind energy deployment by highlighting its energy potential and simulated financial performance.

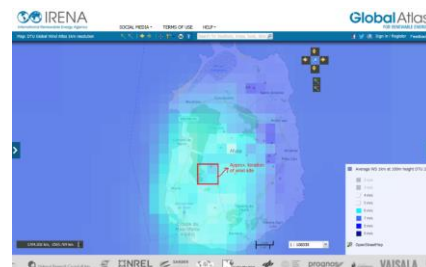


Figure 7: Prospective wind site in Maio Island, Cape Verde

The process also involves a preliminary screening of potential environmental issues. After validation, these models will be used to assess other potential sites in Comoros and will be utilized to support work in IRENA's Africa Clean Energy Corridor. Results from the assessment models will contribute to preparations for the latest round of auctions in the region. Development of these models is scheduled for completion in October 2016.

The image and charts shown here represent initial results for one of the sites in Maio Island, Cabo Verde.

In addition to these resource assessments, capacity building webinars on the financing of energy storage systems were held in March 2016,

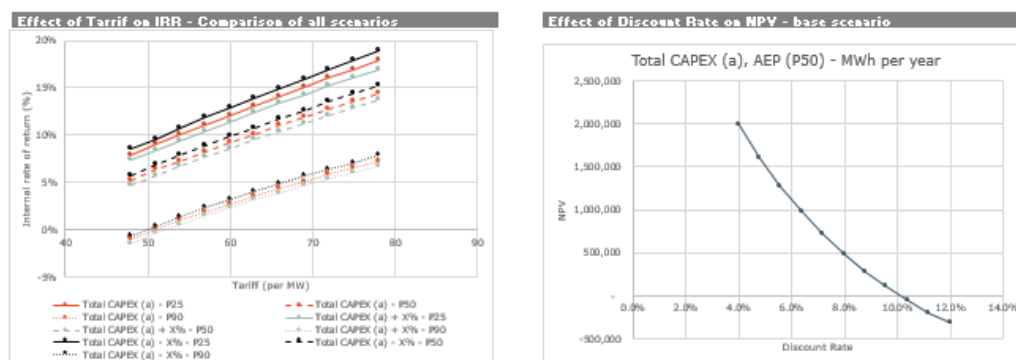


Figure 8: Sample results: sensitivity graphs relating potential tariffs to expected internal rate of return, accounting for uncertainties on the parameters used for the simulation (for example. P90).

covering key concepts, barriers and possible solutions to barriers met when financing energy storage in renewable energy systems in remote areas and islands in the AIMS, Caribbean and Pacific regions. Through these activities, IRENA is working towards supporting increased renewable energy deployment in the AIMS regions.

Caribbean

In the Caribbean, grid integration studies, renewables readiness assessments (RRAs), energy transition plans and capacity building activities are being facilitated under the umbrella of the Lighthouses Initiative.



Figure 9: CARILEC capacity building workshop on achieving high shares of renewables on islands

As an example, IRENA recently completed a grid study and is close to completing an RRA for Antigua and Barbuda. This RRA will be launched at the Caribbean Community (CARICOM) Energy Week in November in Antigua. Additionally, IRENA is finalizing an energy roadmap with Barbados.

In St Maarten in July 2016, CARILEC (under the umbrella of the CARILEC Renewable Energy Community (CAREC)) held a capacity building workshop on achieving high shares of renewables on islands via grid operation and expansion. The two-day technical workshop built on ongoing technical support provided by the Lighthouses Initiative. The objective of the workshop was to facilitate peer-to-peer exchange between network planners and operators who have already successfully implemented approaches for the operation and planning of power systems with high shares of variable renewables worldwide.

Training on Energy Service Companies (ESCOs) in coordination with CARICOM, the Caribbean Community Climate Change Center (5Cs) and SIDS DOCK, was also held in St Lucia in July. The three-day training session focused primarily on building capacity within the public and private sectors, and on increasing utilization of ESCOs to increase RE deployment in the island context. Through these planning and capacity building activities, the initiative aims to facilitate the completion of more successful Caribbean renewable energy projects in the future.

Pacific

Across the Pacific, resource assessments, energy transition plans and capacity building activities have also been completed. In Samoa, for example, a grid integration study found that a combination of hydro, solar and wind power can supply up to 93% of the island's electricity demand if a few measures are incorporated into the existing power system and if water supply remains steady. The study found that a significant increase in renewable energy capacity is possible and can reduce the island nation's dependence on costly fossil fuels, while helping achieve the government target of 100% renewables by 2017. If an additional 8 megawatts of biogas projects are implemented, then 100% renewable energy electricity could be achieved. The study also found that ridding the island of its dependence on imported diesel will require extensions to the current infrastructure. The report therefore recommends a series of measures, including battery energy storage and voltage control systems to close the gap. New Zealand is aiming to continue similar support in Samoa, building on IRENA's grid stability work.



The Agency recently completed grid studies for the Cook Islands. Further grid studies are currently in progress in Fiji, Kiribati and Vanuatu with assistance from the Pacific Power Association and the Pacific Community. Energy transition plans for the Federated States of Micronesia, Kiribati and Palau are also underway.

Finally, a regional capacity building workshop on ESCOs, similar to that in the Caribbean, was held in Fiji in July. These training sessions focused on ways ESCOs can be utilised to boost renewable energy deployment successfully in tandem with energy efficiency and conservation measures. Grid integration studies, energy transition plans and capacity building activities are contributing to IRENA's efforts within the Pacific region.

BARBADOS ENERGY ROADMAP

The government of Barbados and IRENA have developed an energy roadmap to assist Barbados transition its energy sector from current dependence on fossil fuels to a greater reliance on indigenous renewable energy resources, while reducing the cost of energy supply for the people of Barbados.

Roadmap analysis used PLEXOS software to develop a cost optimal capacity expansion plan for the electricity sector covering the period 2015 to 2030. The model considered the deployment of PV, wind, biomass, battery storage, demand response and replacement of existing thermal generation with units that can better integrate renewable energy. PLEXOS software was also used to analyse unit commitment and economic dispatch of the cost optimal 2030 electricity system to ensure technical feasibility and determine operational impacts on overall system cost. Analysis results showed that renewables, particularly PV, are already the cost optimal generation option in Barbados and that a cost optimal capacity expansion leads Barbados to a 2030 electricity system with an annual renewable energy share of 76% with lower costs and higher reliability than the current system.

The roadmap considered specific aspects of the energy sector development including:

- Energy efficiency: Roadmap analysis determined that the energy efficiency measures over the next 10 years would easily pay for themselves and contribute an overall cost reduction of the electricity system. These measures would reduce the need for investment in renewable generation while still maintaining a high share of renewables in annual generation.
- Electric vehicle (EV): the scenario examined the impact on the electricity system of deployment up to ca. 27,000 EVs in the passenger car market. The analysis showed daytime charging aligned with solar generation increased system stability, allowed for additional PV capacity and supported a 75 per cent renewable energy share for EV charging.
- Low oil price: the scenario determined that lower oil prices would encourage less deployment of renewables in the near to medium terms. In the long run this would lead to an electricity generation system with less renewable capacity, higher generation costs and more exposure to oil price volatility.

VI. Gateway to knowledge on renewable energy

82. Dissemination of objective, timely, and authoritative information to reach a global, targeted audiences has centered in 2016 on expanding and publishing renewable energy statistical information, resource potential and standards and quality infrastructure analysis, supported by the further development of the IRENA online knowledge portal.

RE Statistics

83. A second edition of *Renewable capacity statistics* was published in 2016, featuring global data on renewable energy capacity and generation since 2000, public investments in renewable energy for 2009-2014, and renewable energy balances for 100 countries and areas for the years 2013 and 2014. Overall, data covers the period 2000 to 2015 and contains 13,546 data points from more than 200 countries and territories, covering all sources of renewable energy. Most recent statistics show that global renewable energy capacity increased by some 150 GW (+8.6%) in 2015 and that generation from renewables in 2014 was 5,295 TWh – an increase of 255 TWh or 5%

on 2013. The online statistics database can now be queried and data downloaded through REsource webpages. IRENA has also released an offline data query tool for electricity capacity and generation statistics in September 2016.

84. To build further local capacities in data collection, IRENA published *A guide to statistical capacity needs assessment* and *A field guide to measurement of small-scale biogas capacity and production* and has organised a training workshop on renewable statistics in South Africa in September. IRENA continues to receive enquiries from national statistical offices about methods for measuring renewable energy and is responding by producing a series of technical notes on measurement techniques and methodologies.

The Global Atlas

85. The increased momentum of renewables deployment has led to a repositioning of the IRENA Global Atlas to provide services that support increased project bankability. Stakeholders of the Global Atlas met during the 2016 WFES to discuss the next priorities for the initiative, and reformulated the vision to focus on providing concrete data and analysis to support a larger flow of projects. In support of increased project development, IRENA has completed detailed suitability analyses of the technical potentials for grid-connected and off-grid wind and solar technologies in Latin America, the GCC, Southeast Europe and West Africa. A suitability analysis looks at resource potential, distance to grid infrastructure, population density, topography, land cover and protected areas and ranks technical suitability to develop a project, ranked between 0 and 100% for every kilometre. The suitability score is then mapped to indicate the location of highest interest for project developments. Further to this analysis, IRENA has computed the equivalent technical potential for Latin America in USD and GW, the technical potential for the GCC, as well as a statistical analysis of the technical potential for Southeast Europe. The Global Atlas services are currently being extended thanks to the addition of a bioenergy simulator to help farmers identify the highest yielding food and energy crop options, a wind costing simulator and a site characterisation service.

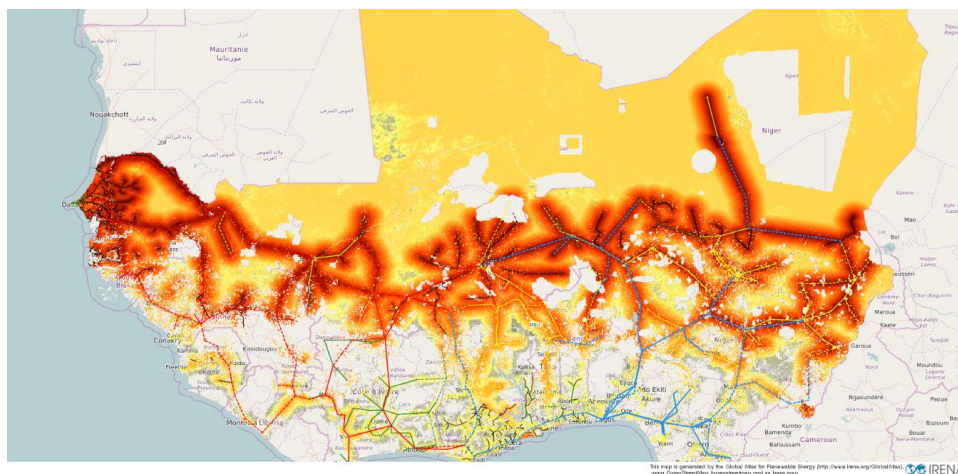
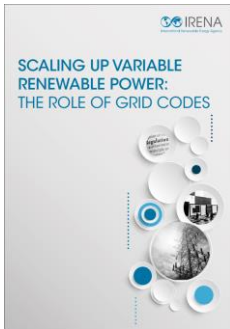


Figure 10: Suitability analysis for West Africa. Suitability scores for grid-connected solar power, not further than 75 km from the nearest grid

Quality infrastructure, standards and patents

86. IRENA has continued work on standards and quality infrastructure with analysis initiated for technical quality infrastructure for utility scale solar PV to support policy makers and regulators responsible for solar energy programmes. This work is being expanded based on the feedback received, noting that countries, private sector and other stakeholders use IRENA's work to guide local policy making. For example, analysis on *Quality Infrastructure for Solar Water Heaters and Small Wind Turbines* (2015) is guiding work on standards and quality control for technologies in Mexico, Tanzania, and South Africa. IRENA is also strengthening private sector engagement in this area. In May 2016, IRENA participated in a side event at the Annual Meeting of the Asian Development Bank, organised by the German Metrology Institute, to discuss the use of quality control and

standards to mitigate technical risk. This event provided a unique opportunity to showcase the role of quality control and standards in risk mitigation, promoting increased financial flow to renewable energy projects.



87. In May 2016, IRENA launched a report on standards for grid connection of variable renewable energy: *Scaling up Variable Renewable Power: The Role of Grid Codes*. The report guides countries in implementing technical requirements to enable a high share of renewable energy in power systems while ensuring the security of the system. Analysis draws on case studies, including from Barbados, Germany and Ireland. IRENA is also strengthening the interactive INSPIRE platform on renewable energy standards and patents, which has been updated with data from 2015. The platform enables countries to access up-to-date information on technology trends and technical specifications.

88. Partnerships continue to be strengthened. For example, IRENA provided advisory services to the International Electrotechnical Commission (IEC) on addressing key issues for renewable energy in international standards, to the GIZ in developing a quality control strategy for Mexico for solar water heaters, and to the government of Tunisia for solar power. Further advisory services have been extended to Latin American countries on quality infrastructure for renewable energy in cooperation with the German Metrology Institute (PIB), Latin American Energy Organization (OLADE), Organization of American States (OAS), The Pan American Standards Commission (COPANT) and the Institute for Advanced Architecture of Catalonia (IAAC).

Enhancing environmental and resource sustainability

89. In March 2016, IRENA and China Water Risk jointly published a brief on *Water Use in China's Power Sector: Impact of Renewables and Cooling Technologies to 2030* that examines the impact of China's power sector on water and climate in 2030. China has announced its plan to reduce carbon emissions by sourcing 20% of primary energy consumption from non-fossil fuels by 2030. The analysis shows that a 26% share of modern renewables, which by 2030 is both technically and economically feasible, would not only reduce emissions-intensity of power generation by 37%, but also reduce water-intensity by 42% due largely to the water saving potential of solar PV and wind. The magnitude of these effects reaffirms the importance of integrated water and energy decision-making in the power sector. The brief adds to an expanding knowledge base on the water-related benefits of renewable energy, further strengthening the business case for renewables in water-scarce countries and regions.

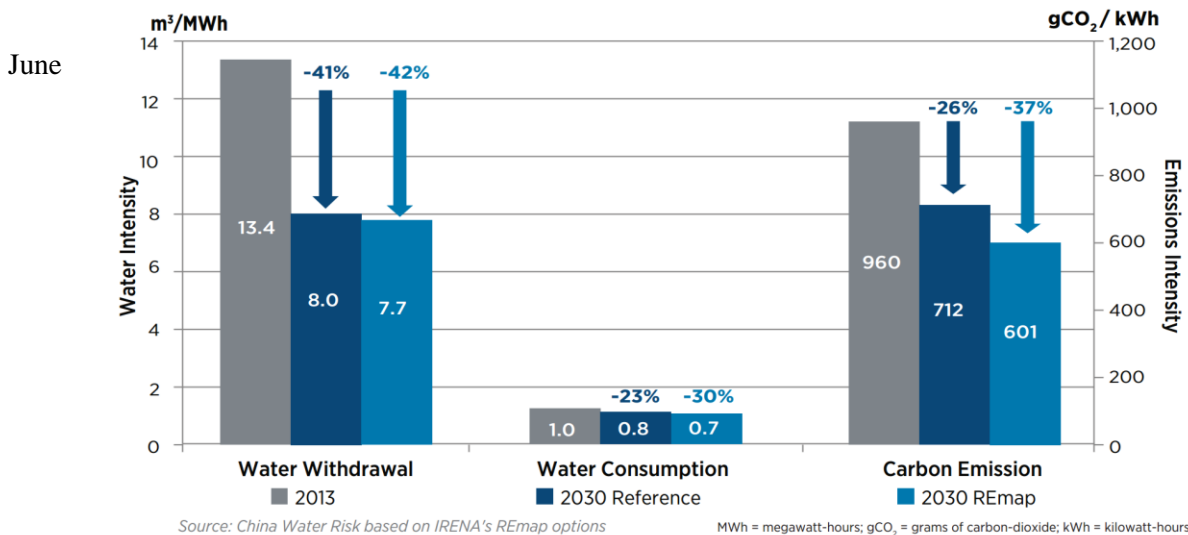


Figure 11: Water and carbon intensity of power generation (2013-2030)

90. In 2016,

IRENA launched a *Policy Brief on Solar pumping for irrigation: Improving livelihoods and sustainability* at the Off-Grid Forum at Intersolar. The brief analyses' diverse case studies where solar irrigation solutions have been deployed and brought substantial benefits for farmers and governments. Analysis also brings to the forefront the cross-sector aspects that should be considered in programme design and implementation to maximise socio-economic benefits for deployment. The brief was developed in close consultation with stakeholders across the sectors and is part of a broader work stream focusing on renewable energy opportunities in the agriculture and water sector.

91. In June 2016, IRENA and IEA-PVPS published an analysis on the end-of-life management of photovoltaic panels. Report findings underline that recycling PV panels at their end of-life can unlock a large stock of raw materials and other valuable components. The recovered material injected back into the economy can serve for the production of new PV panels or be sold into global commodity markets, thus increasing the security of future raw material supply. Preliminary estimates suggest that the raw materials technically recoverable from PV panels could cumulatively yield a value of up to USD 450 million (in 2016 terms) by 2030. This is equivalent to the amount of raw materials currently needed to produce approximately 60 million new panels, or 18 GW of power-generation capacity. By 2050, the recoverable value could cumulatively exceed USD 15 billion, equivalent to 2 billion panels, or 630 GW. The report was launched at a workshop at PV-SEC in Munich, Germany, on 21 June 2016.

PARTNERSHIPS IN STANDARDS AND QUALITY ASSURANCE

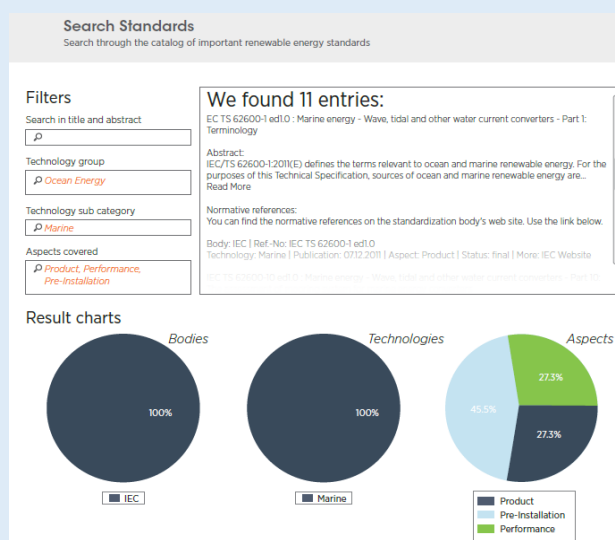


Figure 12: IRENA's INSPIRE web platform for standards and patents developed in cooperation with the International Electrotechnical Commission (IEC) and the European Patents Office (EPO) – visit: www.irena.org/inspire

IRENA continues to strengthen its network and partnership in the field of technical standards and quality assurance for renewable energy technologies. In addition to enabling a more efficient use of resources, partnerships in standards and quality assurance have leveraged the unique strengths of various entities to support the further development and improvement of renewable energy policies and regulations.

For example, with the support of the International Electrotechnical Commission (IEC), IRENA is assessing the impact of standards, testing and certification for off-grid renewable energy systems. To increase accessibility of results, they are also being incorporated in e-learning modules developed by IEC.

The German Metrology Institute (PTB) is providing an in-kind contribution to IRENA to assess the impact of standards and quality assurance for offshore wind facilities. Results will support policy-makers in mitigating technical risk for offshore wind projects and, as a result, provide investors with a more secure investment environment.

IRENA is also conducting analytical work on strategies to develop a robust global quality infrastructure for utility scale PV systems, with substantive contributions from partners such as SolarPower Europe, IEA PVPS Task 13 and Solar United among others.

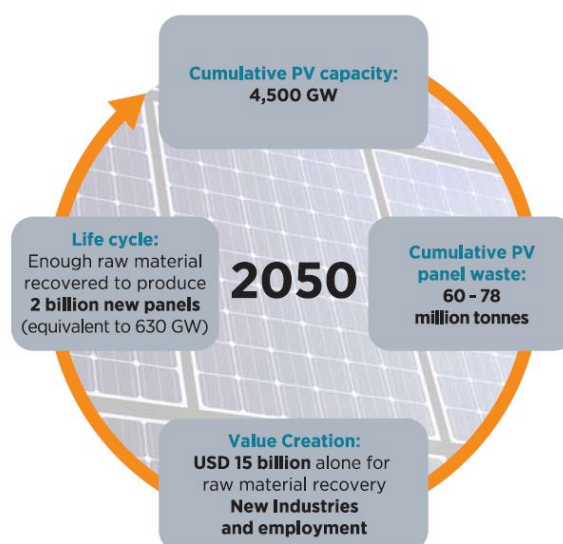
Knowledge hub

92. IRENA's online knowledge hub REsource integrates the most recent and accurate content available. The data section was expanded to become the Agency's interactive data centre, comprising the latest statistics on renewable energy power capacity, finance, costing, employment, and education. Most recent additions include a full update of all data sources for 2015 and all REmap country roadmap data.

93. To continuously improve the REsource platform, and provide transparent, easily accessible data and information on renewable energy, IRENA has developed the Renewable Energy Tagger, a tool that creates connections between related words and their definitions, building a universal basis for renewable energy terminology across the international community. The Tagger facilitates dialogue among stakeholders, allows for increased efficiency when learning or searching information online and improves flow and understanding of renewable energy information worldwide. The Renewable Energy Tagger was launched end of September 2016 in collaboration with REEEP and with the support of voluntary resources from the government of Germany.

Multi-stakeholder engagement

94. Facilitated by IRENA, the Coalition for Action has continued its work under the guidance of a new steering group and work streams. Its members currently include 17 members from civil society, 13 industry associations, nine companies, four international entities, and one public-private partnership. New Coalition activities include support for the development of an index for corporate sourcing of renewable energy, a REmade Index. This work will also contribute to the CEM corporate sourcing campaign. The Coalition has also benefited from a new communication strategy, which will improve joint communication and outreach activities among its members. To promote further engagement of private sector actors, a webinar series targeting current private sector topics is being put in place. A newly created solar energy task force will further investigate and support IRENA's work on renewable energy cost reductions.



VII. Enhancing international co-operation and communication and outreach

95. The 2016-2017 biennium offers the opportunity to deepen and broaden IRENA's engagement, communication and outreach efforts to achieve greater impact and reach wider audiences. Building on the momentum of the climate "solutions agenda", IRENA's communication and outreach strategy in 2016 is focusing on positioning renewable energy as the solution to a host of economic, social and environmental issues.

Facilitating international co-operation

96. In 2016, the 6th Assembly session and 11th Council meeting were convened in January and June respectively. Preparations are currently underway for the 12th meeting of the Council and the 7th session of the Assembly to be held in January 2017.

97. Held only six weeks after the adoption of the Paris Agreement, the sixth session of the Assembly was the first inter-governmental meeting after COP21. It presented an important platform for countries to discuss how to meet the ambitions resulting from the Agreement and the adoption of the Sustainable Development Goals, in particular Goal 7 on Energy. The Assembly was attended by over 1000 delegates from more than 150 countries, representing the IRENA membership, and representatives from 140 international entities working in the renewable energy sector. The session offered a unique platform for countries to discuss the role of renewable energy following the commitments made at COP21, as well as the way forward to advance the climate solutions and agenda resulting from the adoption of the United Nations Sustainable Development Goals (SDGs).

98. On the day preceding the sixth session of the Assembly, IRENA held its first meeting of legislators, the “Legislators Forum 2016”, which was attended by 21 legislators from around the world. Legislators exchanged best practices and experience on the deployment of renewable energy and solutions that enable countries to meet their domestic energy needs. The debate focused on appropriate support mechanisms to deploy renewable energy. Legislators also discussed how the Agency could support their work and concluded the meeting with defining key enablers that support an accelerated deployment of renewable energy worldwide. Many legislators also attended the sixth Assembly and received a comprehensive overview of the Agency’s activities and initiatives. Engagement with parliamentarians has since been strengthened as the Agency has continued to present its work at meetings of legislators and to issue the *REview for Parliamentarians*, a periodic brief compiling targeted information on renewable energy for members of parliament. The brief was produced in English, French and Spanish. Building on the results of the first Legislators Forum held in January 2016, preparations for a second edition are underway.

99. The 11th meeting of the Council saw the attendance of about 300 participants from nearly 100 countries, and the 12th meeting of the Council is expected to convene a similar number of Member representatives. The focus of the Council meetings in 2016 is to discuss and guide the implementation of the Agency’s work programme, hold strategic discussions towards the adoption of a new Medium-term Strategy in 2018 and to examine a number of programmatic, institutional and administrative matters.

100. The Fund for Developing Country Representatives (FDCR) was established by the Assembly at its second session in 2012 to enable, subject to available funds, participation of delegates from Least Developed Countries (LDCs) and Small Island Developing States (SIDS) in IRENA governing body meetings. Since the beginning of the year, the FDCR supported the participation of 59 delegates in the sixth session of the Assembly, 11th Council and committee meetings. In order to ensure a high level of inclusiveness and participation of all IRENA Members in the Agency’s governing body meetings, it is essential that the FDCR, which is exclusively based on voluntary contributions, continues to be replenished, as the fund frequently faces shortfalls due to broad participation of eligible delegates at the governing body meetings of the Agency.

101. IRENA continues to encourage Members to accredit Permanent Representatives and facilitate engagement through regular meetings and discussions. The first ‘IRENA Introductory Meeting’ for newly-appointed diplomats and other Member representatives in the United Arab Emirates (UAE) was held to introduce IRENA, its mission and mandate, as well as to present possible avenues of engagement with the Agency. Other meetings were held where the Director-General provided an update of the Agency’s activities and initiatives to the diplomatic community in the UAE and to engage Permanent Representatives in particular. In 2016, the number of Permanent Representatives accredited to the Agency rose from 37 to 40. In addition, four Members accredited a new Permanent Representative following the end of tenure of a preceding Permanent Representative. Several Members are in the process of finalising accreditation procedures for their Permanent Representatives to IRENA.

102. Since the sixth session of the Assembly, the following countries have joined the Agency as new Members: Bhutan, Botswana, Saint Lucia and Thailand, bringing the total number of Members to 149 (148 States and the European Union). 27 States are in the process of accession to the Agency.

Dissemination of knowledge, data and analysis

103. The Agency has stepped up systematic communication with membership on ongoing and planned programmatic initiatives, activities, events and publications. The aim is to facilitate consistent, timely and tailored communication between the Secretariat and the membership to ensure Members are well informed about, and can benefit from, the Agency's work and can engage with, and contribute to, the Agency's activities and initiatives.

104. In this context, the 'IRENA Bulletin', an e-newsletter including a comprehensive yet brief update on upcoming and past IRENA events, activities and publications, is now issued on a regularised basis. Both the 'In Focus' briefs, which provide a concise introduction to one IRENA activity or programme at a time, as well as the 'Publications Update', a comprehensive overview of all publications released by IRENA during a given month, are now regularly produced and circulated. The Agency also regularised its communication around major events organised by IRENA, such as the Innovation Week or the International Off-grid Renewable Energy Conference (IOREC), as well as around IRENA events held in the context of other major conferences, such as the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) or the United Nations Conference on Housing and Sustainable Urban Development (Habitat III).

105. IRENA's 2016 communication strategy is focused on positioning renewable energy as the solution to a host of economic, social and environmental issues including climate change, energy access, growing energy demand, sustainable economic growth and social prosperity, air pollution, job growth, etc.

106. In January, the Agency launched a communication strategy to support the sixth Assembly and its related activities and publications. These included six multi-lingual press releases, four press events, an #IRENA6A social media campaign, infographics, promotional materials, and a hosted media programme with members of the international press. In the context of the sixth Assembly, the Agency also co-hosted the fourth IRENA-Financial Times Question Time Debate at the IRENA headquarters. The event, attended by over 300 international stakeholders focused on how to take climate action to the next level by scaling up renewables and included a special address by UN Secretary General Ban Ki-moon.

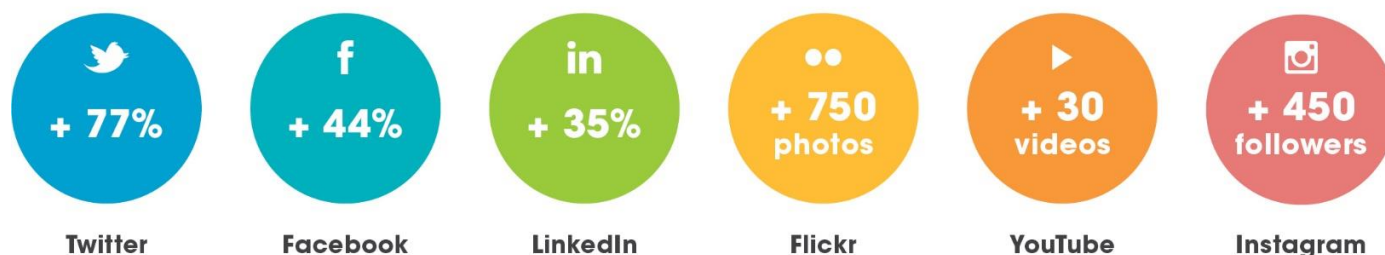
107. In April, the Agency began the celebration of its 5th anniversary by highlighting renewable energy successes over the past five years. This included a multi-lingual press release, the launch of an international photo competition, a call for submissions for Member renewable energy success stories, and the launch of a 5th anniversary data dashboard and associated #REthenandnow social media campaign. Smaller campaigns have also been conducted for the launches of different IRENA reports and brief, and such campaigns have become an integral part of the programmatic output.

108. Since January 2016, the Secretariat has launched on average one focused communication campaign per month, allowing sufficient time to support targeted outreach efforts and conduct smaller-scale communication efforts concurrently. Full strategies were designed and implemented for:

- IRENA's 6th Assembly
- REmap 2030
- IRENA's 5th Anniversary
- IRENA Innovation Week
- the Renewable Energy and Jobs Annual Review 2016
- The Power to Change: Solar and Wind Cost Reduction Potential to 2025
- the 7th Clean Energy Ministerial and
- InterSolar Europe.

109. During the summer months, the Secretariat also conducted a "Summer of Solar" campaign, using the findings of four IRENA publications to highlight the pivotal role of solar in the ongoing energy transition. Communication

IRENA SOCIAL MEDIA IN 2016 (AS OF SEPTEMBER)



campaigns are underway for IRENA's 2016 International Off-Grid Renewable Energy Conference (IOREC) in Nairobi, IRENA's RE-energising Cities event in Quito and IRENA's participation in COP22 in Morocco.

110. Smaller campaigns have also been conducted for the following:

- Renewable power generation capacity data
- the Mongolia RRA
- a brief on water use in China's power sector
- the African Climate-Resilient Infrastructure Summit
- the Global Atlas
- the Grid Codes report
- a brief on the externalities of fossil fuel use
- IRENA's 11th Council meeting
- Samoa's Renewable Energy Roadmap
- the Solar Energy Standardization Initiative
- Unlocking Renewable Energy and Investment report
- IRENA's participation in the G20
- the Sustainable Energy Marketplace
- the landing of the Solar Impulse in Abu Dhabi
- the Dominican Republic Renewable Energy Roadmap, and a
- Sustainable transport working paper.

111. To highlight a few impact metrics from the above mentioned communications campaigns, IRENA's *Renewable Energy and Jobs Annual Review 2016* garnered more than 700 articles in media outlets around the world and was mentioned/recommended by Al Gore on Twitter – who has roughly 3 million followers; IRENA 2016 *REmap* report was downloaded more than 25,000 times in the three months following its launch; and the #IRENAinnovation hashtag for IRENA Innovation Week reached 1.3 million Twitter accounts and generated 9 million impressions in just one week.

112. As a part of the Agency's various communication campaigns thus far in 2016, the Secretariat has distributed 28 press releases and 50 newsroom posts in seven different languages (Arabic, Chinese, English, French, German, Mongolian, Spanish and Portuguese), conducted 12 press events, created 21 videos and designed 75 infographics. These efforts have resulted in more than 8,400 news pieces on IRENA in media outlets in 98 countries including Reuters, Bloomberg, Time Magazine, CNN, Le Monde, AFP, AP, Guardian, Xinhua, China Daily, O Globo, El País, and the Huffington Post. This is an 80% coverage increase from the same period in 2015. Countries with the most IRENA coverage so far in 2016 include the United States, China, the United Arab Emirates, Australia and the United Kingdom.

113. IRENA has also continued to increase its activity and grow its communities across its social media platforms. Since the beginning of 2016, the Agency's followers have increased by 77% on Twitter, 44% on Facebook and 35% on LinkedIn. In addition, more than 750 photos were added to Flickr and 30 institutional videos were added

to YouTube. A new Instagram account has also been created and has grown in followership to more than 450, adding to its existing social media portfolio.

114. In an effort to expand and amplify its reach, IRENA continues to strengthen existing and establish new strategic communications partnerships and networks. Two new partnerships with multiplier organizations have significantly contributed to the impact of IRENA's global media relations activities, improving press coverage for select reports in Europe, China, Australia, and the Americas. In addition, work continues on the development of communications networks through the Coalition for Action and IRENA membership.

115. Multilingual versions of key reports and summaries also, increasingly, ensure that IRENA's key messages and findings are available in official UN languages and other relevant languages. Wider dissemination has been achieved by ensuring the availability of key release, messages and findings in multilingual formats. The latest

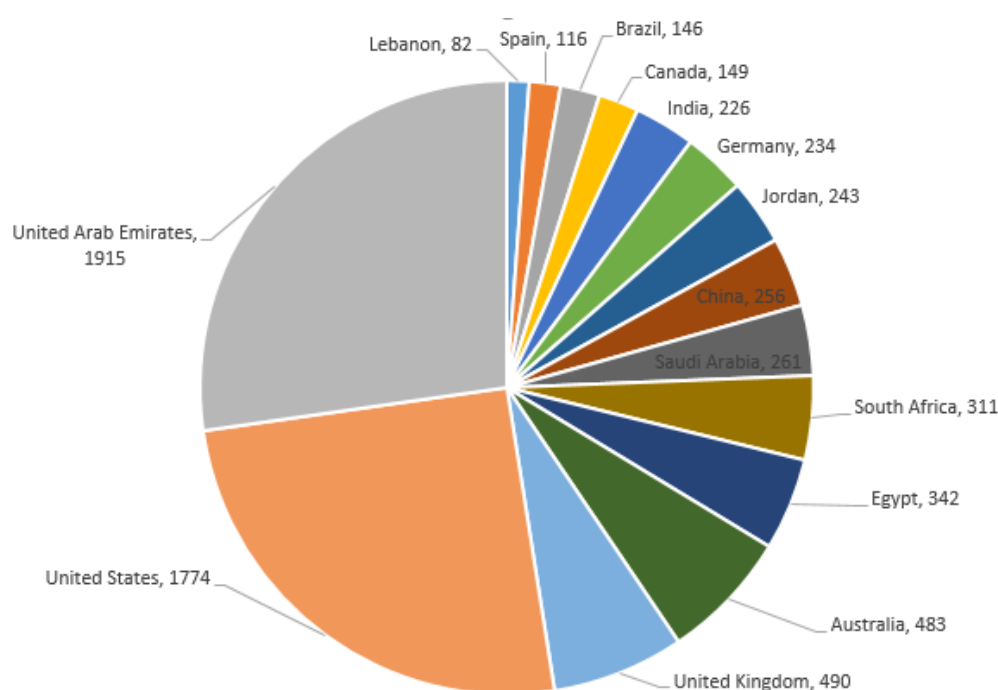


Figure 13: IRENA GLOBAL COVERAGE 2016 – TOP 15 COUNTRIES (AS OF SEPTEMBER)

Note: Total: 8,415 articles in 98 countries

REmap global report summary was released in eight languages. Targeted regional or country-specific translations in 2016 have included a joint brief with China Water Risk in Chinese as well as Latin America market analysis and REmap Dominican Republic summaries in Spanish. Member countries are recognised as an essential source of advice and guidance to further strengthen translation process.

116. Along with its international communications efforts, the Agency has taken several steps to enhance its outreach in its host country, including hosting the 5th Anniversary reception at Headquarters and receiving several non-governmental delegation visits. These have included American University (USA), Biberach University (Germany), Khalifa University (UAE) and Texas A&M (USA), Masdar Institute (UAE), University of Tokyo (Japan) and the Thai Oil Public Company.

117. To ensure engagement with youth in the UAE, IRENA piloted a ‘Summer Trainee Programme’ targeting undergraduate students, providing them with an opportunity to work at the headquarters and to learn more about IRENA. The programme was successful and well received, setting the stage for potential replication in the future.

118. To maximise IRENA’s presence and strengthen the Agency’s outreach in the host country, substantive participation in several conferences and seminars in the UAE is underway, including Intersolar Middle East, the World Green Economy Summit and the World Future Energy Summit.

119. Publications highlighting the challenges and opportunities of the energy transition are an essential element in IRENA’s work to promote the widespread adoption and sustainable use of renewables worldwide. Accordingly, the Agency has released 24 new reports and briefs during the year to date (between 1 January and 15 September 2016), each of which has benefited from reader-friendly web content and targeted communications activities. Each new release receives global, regional, national, thematic or interest-specific press and social media support, depending on the intended target audience and relevance of the material.

120. To further increase the visibility and impact of published works, ISBN designations have been adopted for all reports and papers. This has required reviewing and updating established publishing practices, in order to ensure a transparent, cohesive process that ensures timely information-sharing and continues to strengthen IRENA’s brand as a publisher. Investigations are underway, meanwhile, into the comparative advantages of different content-provider and digital-library platforms as additional dissemination channels for IRENA publications.

121. Since the beginning of the year, the management of IRENA’s programmatic meetings has been consolidated and streamlined to facilitate efficient organizational delivery in implementation of the Work Programme as well as the process of meeting planning and organizing. There have been around 79 IRENA meetings and workshops held by IRENA worldwide, with support provided to organizers and participants. The meeting planning and implementation process focuses on the most efficient and cost-effective use of available resources. A regularly updated global renewable energy events calendar is being maintained, comprising meetings hosted by IRENA as well as events hosted by other organizations.

Strengthen institutional structures and accountability

122. Internal audits continue to be carried out to ensure internal controls are in place and effective across all divisions. During 2016, this included the audits of the cash and treasury functions and the IRENA Innovation and Technology Centre (Bonn Office). Internal audits are carried out in an independent and objective manner to help management improve governance, risk management and internal control systems and will continue to be reported to the membership.

VIII. Administration and Management Services

123. The Administration and Management Services Division continued its efforts to provide support to different division in their implementation of the work programme, while seeking and providing solutions and enhancements to current processes.

Finance and budget

124. Finance and budget services continue to support the Agency’s full compliance with its Financial Regulations and Procedures as evidenced in the recent clean audit received from the external auditor. Financial services and budgetary services are provided to staff, Members, and other internal and external stakeholders in accordance

with international accounting standards and budget practices. The services include preparation of the financial statements for the Agency and the Staff Provident Fund, issuance of annual bills and regular follow up with Members for the collection of outstanding assessed contributions, registering and allotting voluntary contributions, settlement of vendor and supplier invoices, and regular internal support services including payroll, budget utilisation updates and general advice to support the sound financial management of the Agency. Additional activities include support for the selection of the new external auditor, as presented in document C/12/6, addressing internal and external audit recommendations, preparation of the 2017 Indicative Scale of Contributions as presented in document C/12/7 and other financial services.

Information and Communication Technology

125. In addition to core ICT services like data processing, communication and collaboration tools, the ICT Section supported the introduction of ICT solutions for the Work Programme implementation including support for the capturing and dissemination of data, information and knowledge which is made available to stakeholders through external and internal portals.

126. As a knowledge-based organisation operating in an increasingly digital environment, ICT has become a strategic enabler for the organization. To lower the operational risks related to ICT support, it has been in-sourced by strengthening internal capacity. Further, to enhance the availability and resilience of ICT services, IRENA has adopted Cloud-based infrastructure and services, which provide increased operational flexibility with no major capital investments needed for ICT infrastructure. The increasing reliance on Cloud-based solutions may also be reflected in the upcoming deployment of the enterprise resource planning (ERP) system. Comprehensive reviews are being carried out to identify the right technology and deployment models for IRENA while keeping in mind current and future requirements of the organisation.

Human Resources

127. The human resource functions of the Agency span administrative, operational and strategic activities. In the course of 2016, special efforts have been made to strengthen the performance management system and to gain a greater understanding of the Agency's human resource trends to develop a longer-term work course planning strategy.

128. Attracting, retaining and developing staff remains a priority. In this respect, the Agency continues its outreach activities to attract more qualified candidates. Between 1 January 2016 and 29 September 2016, 34 vacancies for fixed-term and temporary appointments and Junior Professional Associate positions were advertised for which over 9,000 applications were received. Out of 90 core posts, 84 are filled or under recruitment (71 filled and 13 under active recruitment) and 6 are vacant. The 71 staff under fixed-term appointment are from 40 nationalities out of which 49 per cent are women and 51 per cent are men.

Table 1: Approved and filled/under recruitment posts by level as of 29 September 2016

Level	Approved	Filled or Under Recruitment
ASG	1	1
D-2	1	1
D-1	5	5
P-5	17	14
P-3/4	37	35
P-2/1	3	3
Sub-total Professional and above	64	59
General Services	26	25
Total	90	84

Figure 14: Staffing status as of 29 September 2016

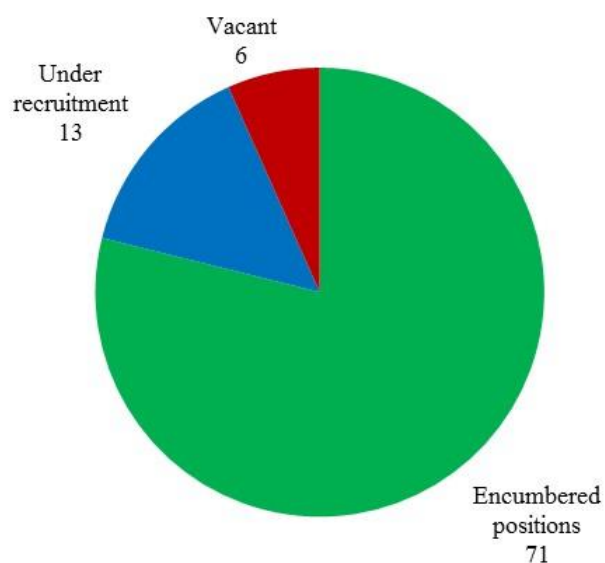


Figure 15: IRENA staff gender distribution as of 29 September 2016 (based on filled posts)

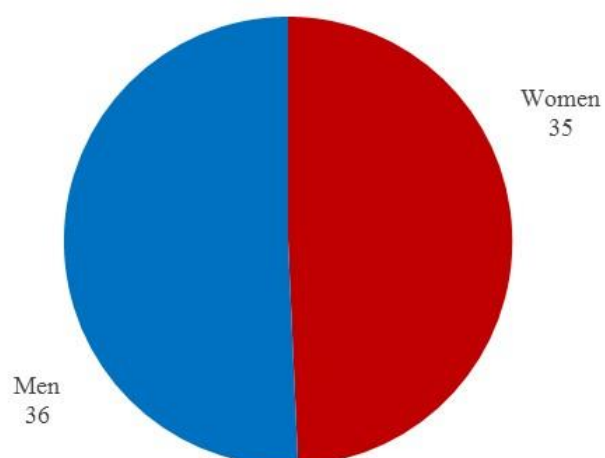


Figure 16: IRENA staff nationalities as of 29 September 2016 (based on filled posts)

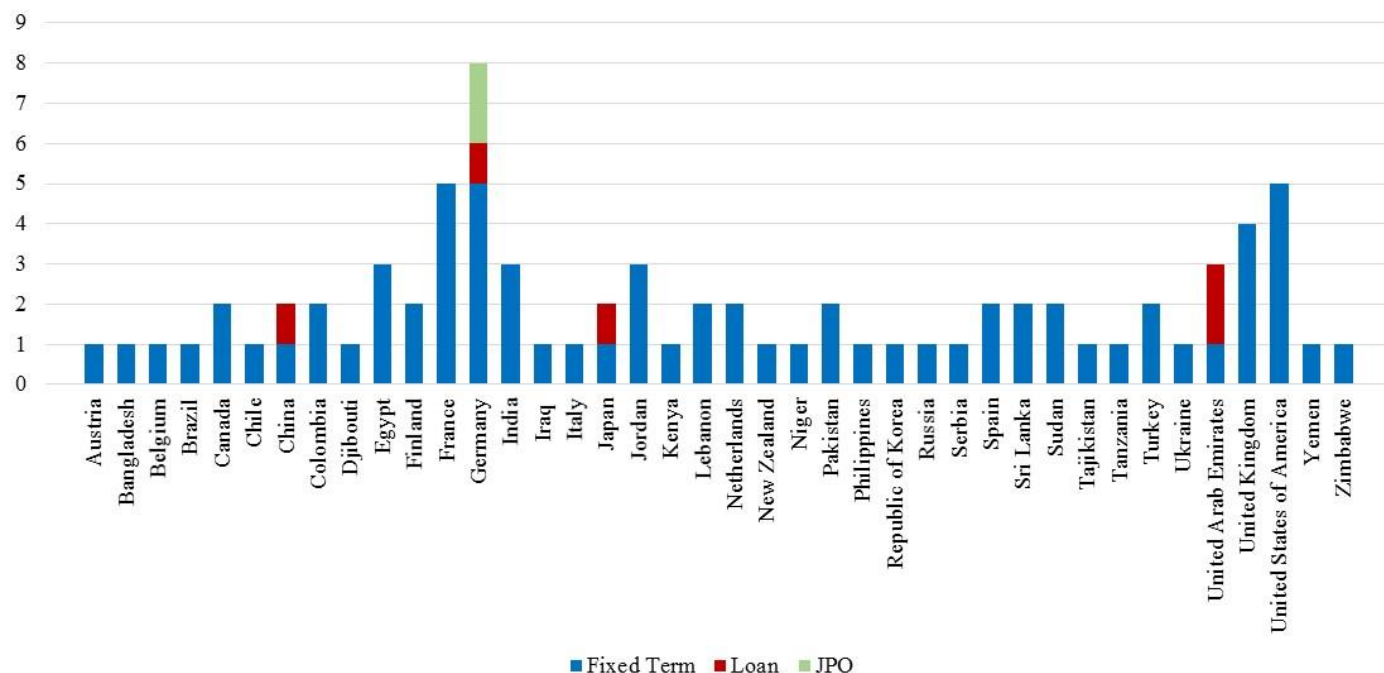


Table 2: Loaned Personnel

Division	Title	Loaned from	
SMED	Liaison and Protocol Officer	UAE	
SMED	Advisor - Outreach and Communications	UAE	
IITC	Bioenergy Analyst	Japan	
IITC	Programme Officer - REmap	China	Expected to join in October 2016
IITC	Programme Officer – Quality Assurance and Standards for Renewable Energy	Germany	Expected to join in October 2016

Table 3: Junior Professional Officers (JPO)

Division	Title	JPO from	
KPFC	Associate Programme Officer - Policy	Germany	
IITC	Associate Programme Officer - Energy Planning	Germany	Expected to join in December 2016

Procurement

129. The Agency continues to implement its procurement planning to ensure cost-effective solicitation of goods and services. To ensure transparency, fairness, openness and competitiveness, procurement opportunities are being posted on IRENA's website. Through continuous market research and online registration, IRENA's vendors' database has been further developed and now includes more than 800 vendors. More than 300 contracts were awarded and 15 Long-term Agreements (LTA) for various services were entered into or renewed, as of the date of this report.

General services and travel

130. Through the Agency's Abu Dhabi and Bonn Offices, the General Services and Travel Section continue to facilitate travel services provided to staff members, delegates, participants to conferences and workshops, including travel and accommodation reservations and management, workshops and events arrangements covering all IRENA events during the first three quarters of 2016.

131. The General Services and Travel Section continue to provide facility management services to all IRENA offices. Enhancements and improvements are being carried out to ensure a most productive and healthy work environment.

Biennial budget overview

Table 4: 2016-2017 Biennium Budget Utilization by funding source (in USD Thousands)

	2016-2017 Biennium Budget	Utilisation as at 29th September 2016	
		Commitment and Expenses	Proportion of 2016-2017 Biennium Budget
Assessed Contributions (Core Budget)	42,934	17,014	40%
Core Non-assessed UAE Contribution:			
UAE Support	5,000	1,238	25%
Governing Body Meetings	3,200	1,213	38%
Subtotal UAE Contributions	8,200	2,452	30%
Core Non-Assessed Germany Contribution:			
Innovation and Technology	10,000	3,140	31%
Subtotal Germany Contributions:	10,000	3,140	31%
Total Core Non-Assessed	18,200	5,592	31%
Grand Total	61,134	22,605	37%

Table 5: 2016-2017 Biennium Budget Utilization by Thematic Areas (in USD Thousands)

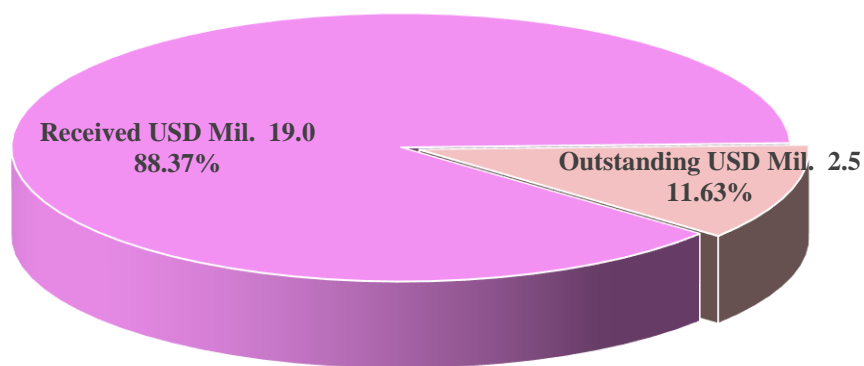
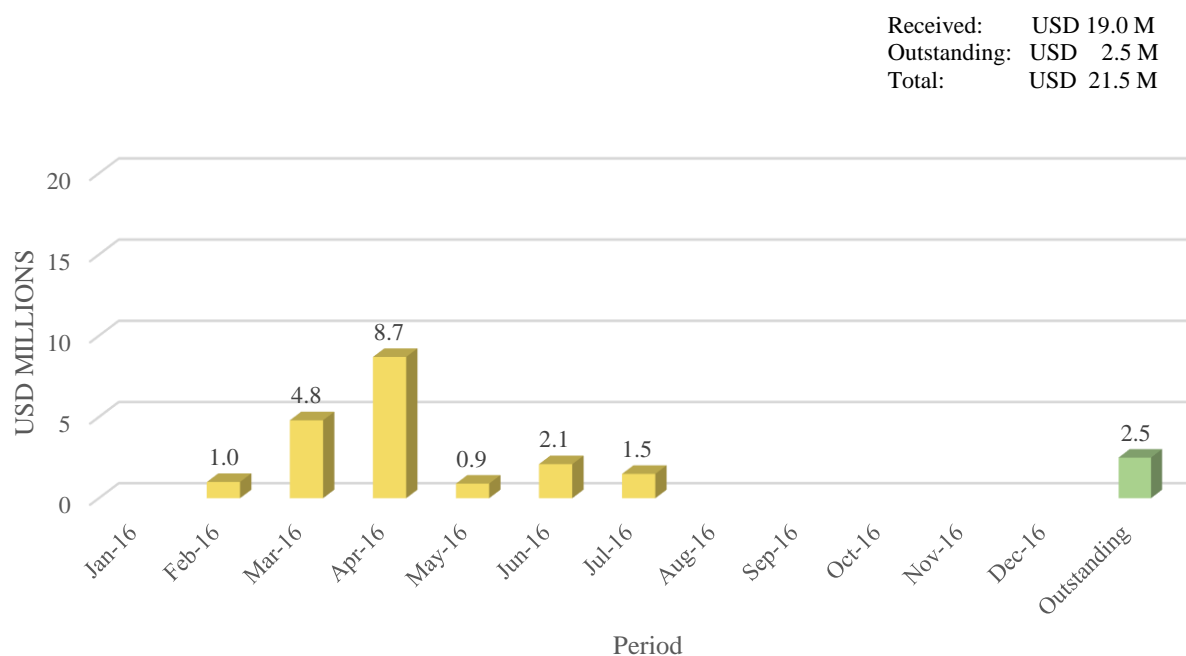
Division/Thematic Area	Combined Core and Voluntary Contributions		Budget Utilization as at 29th Sept 2016	
	Amount (USD)	Proportion of Total	Amount (USD)	Proportion of Biennium Budget
A. Strategic Management and Executive Directi	14,037	23%	4,191	30%
Governing Body Meetings	3,200	5%	1,216	38%
Subtotal	17,237	28%	5,407	31%
B. Thematic Programme Area				
Planning for the renewable energy transition	5,771	9%	2,538	44%
Enabling investment and growth	8,871	15%	3,125	35%
Renewable energy access for sustainable livelihoods	2,060	3%	1,572	76%
Regional action agenda	8,004	13%	2,234	28%
Islands: lighthouses for renewable energy deployment	911	1%	569	62%
Gateway to knowledge on renewable energy	7,105	12%	2,181	31%
Subtotal	32,723	54%	12,218	37%
C. Administration and Management Services	11,174	18%	4,979	45%
Total Estimated Requirements	61,134	100%	22,605	37%

Figure 17: Core non-assessed and other Voluntary Contributions, as of 29 September 2016 in USD

<i>Core non-assessed</i>		
	2016	
	Budgeted	Received
GERMANY		
IRENA Innovation and Technology Centre	4,900,000.00	4,900,000.00
UAE		
UAE Support	2,500,000.00	1,250,000.00
Governing Body Meetings	1,600,000.00	1,600,000.00
Subtotal UAE Contributions	4,100,000.00	2,850,000.00
Total Budgeted Voluntary Contributions	9,000,000.00	7,750,000.00

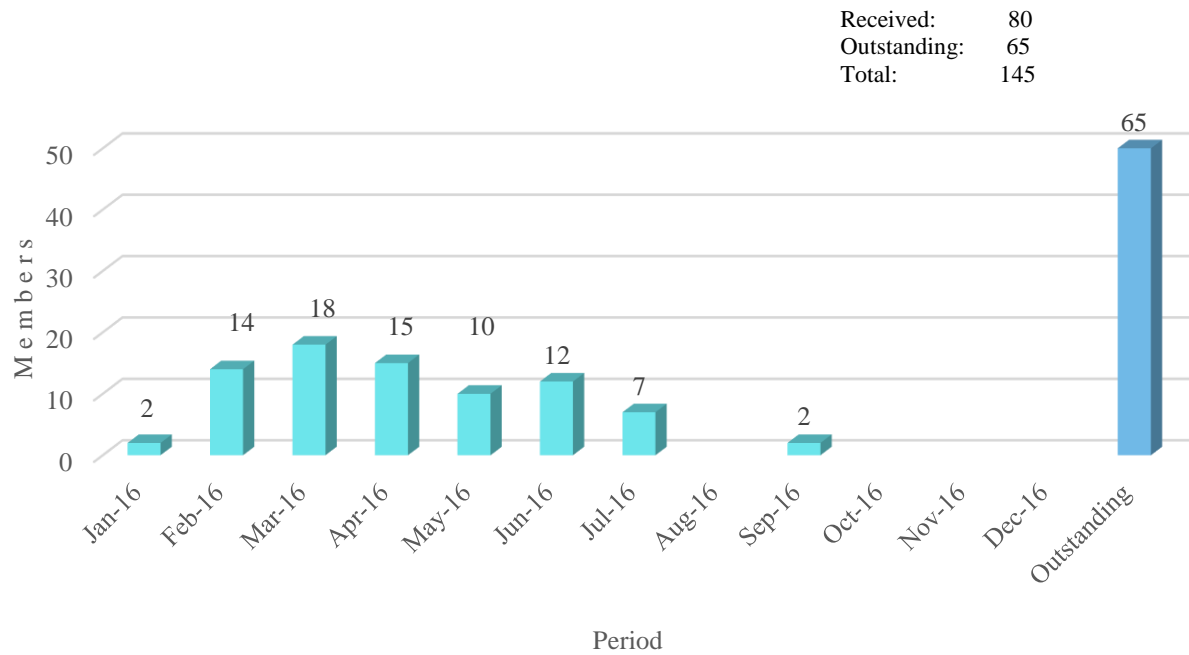
<i>Other Voluntary Contributions</i>		
	2016	
Donor/Project	Committed	Received
UAE-ADFD	1,500,000.00	1,500,000.00
Japan	585,000.00	585,000.00
Germany	3,111,785.51	1,115,104.77
Subtotal	5,196,785.51	3,200,104.77

<i>Fund for Developing Countries Representatives</i>		
	2016	
Donor	Committed	Received
UAE	200,000.00	200,000.00
Subtotal	200,000.00	200,000.00
Total Additional Voluntary Contributions	5,396,785.51	3,400,104.77

Figure 18: Received and outstanding assessed contributions for 2016 core budget (as of 29 September 2016)

Received USD Mil. Outstanding USD Mil.

Figure 19: Number of received and outstanding assessed contributions to the 2016 core budget (as of 29 September 2016)



Thematic Programme Areas - Matrix

Programme activities

Thematic area: Planning for the Global Energy Transition					
Objective: Countries successfully transform their energy systems to meet national targets and strategies to decrease global emissions and improve energy security					
Resources (core assessed, non-assessed and other sources): 12,356 (in USD thousands)					
Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
REthinking Energy	<ul style="list-style-type: none"> Global Report: Completion of the Third Edition of Rethinking Energy 	In progress. <ul style="list-style-type: none"> An outline of the theme and content of the next REthinking has been prepared and agreed. Collection of basic information for the analysis has commenced. 			Q3 2017
Power system design for RE integration	<ul style="list-style-type: none"> Methodology for grid integration planning* 	Completed. <ul style="list-style-type: none"> AVRIL report on tools for planning under development. In progress. <ul style="list-style-type: none"> Pilot study for grid integration planning in Panama is currently underway. This will contribute to the methodology refinement. 	<ul style="list-style-type: none"> Deployment of methodology for grid integration planning 	In progress. <ul style="list-style-type: none"> Deployment of ACEC zoning work into SPLAT model <i>VC from the government of Norway.</i> <i>Additional resources required</i>	Q2 2016 Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Power system design for RE integration (continued)	• Workshop on methodology for integration planning*	Completed. • The IRENA Innovation Week, May 2016 included a workshop for integration planning. • Workshops for Technical Experts on Planning and Operating Systems with high shares of renewable energy held in August 2016 in Tonga, Cuba and St. Maarten.	• One additional workshop on integration planning	Resources not identified.	Q2 2016 Q2 2017
	• Advice on use of established industry simulation tools for planning*	Completed. Ongoing. • Comparative study on modelling tools finalised, released and applied to Europe. Advice on use of tools ongoing.	• Simulation tools applied	Resources not identified.	Q4 2016
	• Latin America country studies on integration of VRE into long-term planning*	Not started.	• Training programme in the use of long-term planning tool in Africa	Completed. • First and second session of training completed for Swaziland. <i>In kind contribution from Swaziland</i> • ECREEE training for 10 countries held third training session in January 2016. <i>In kind contribution from ECREEE</i>	Q1 2016 - Q4 2016

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Power system design for RE integration (continued)	• Indicator system for flexibility assessment of power systems*	In progress. • The IRENA Innovation week provided input into the development of the indicator system.	• Deploy indicator system including two dialogue events for grid planners, transmission and distribution system operators, grid regulators; evaluation of flexibility and adequacy options; two workshops to collect input and feedback on grid integration methodologies	Resources not identified.	Q2 2016 Q4 2017
			• Guidelines on EVs, interconnectors and electricity storage as flexibility measures	In progress. Delayed to 2017. • Terms of reference prepared. <i>VC from government of Japan.</i> <i>Additional resources required</i>	Q4 2016
			• Country application of innovative grid and market design guidelines and methodologies, upon request	In progress. • Grid methodology for energy storage valuation for South Africa. <i>VC from the government of Japan.</i> <i>Additional resources required.</i>	Q1 2016 - Q4 2017
			• Advisory services on the development of power sector transition plans	Resources not identified.	Q1 2016 - Q4 2017

NOTE: Activities marked with an asterisk () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Transforming Energy	<ul style="list-style-type: none"> • REmap global technology roadmap analysis - third edition (40 countries)* 	In progress. <ul style="list-style-type: none"> • Update of country reports to feed into the third edition. 	<ul style="list-style-type: none"> • REmap - third edition covering an additional 10 countries, five individual country reports; energy efficiency & renewables action team and transport action team; Socio-economic briefs; two national expert workshops; regional and sectoral roadmaps and REmap information platform. 	Completed. <ul style="list-style-type: none"> • REmap India • REmap Dominican Republic • REmap Indonesia • REmap ASEAN • REmap G20 In progress: <ul style="list-style-type: none"> • REmap Russia • REmap South Africa • REmap EU • REmap Energy Efficiency • REmap District Heating and Cooling <i>VC from the EU and governments of Germany and Japan</i>	Q1 2017 Q4 2017
			<ul style="list-style-type: none"> • Analysis of the impacts of REmap 2030 options on water use in the power sector for different countries 	Resources not identified.	Ongoing

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Transforming Energy (continued)			<ul style="list-style-type: none"> Country analysis (5 countries) on policy frameworks, energy sector transformation and market design 	Resources not identified.	Ongoing
			<ul style="list-style-type: none"> System for characterisation and selection of bioenergy technology pathways to be deployed for a bioenergy Navigator module. 	In progress. <ul style="list-style-type: none"> Work has started for solid biomass combustion for power generation. <i>VC from the government of Japan.</i>	Q1 2016 - Q4 2017
			<ul style="list-style-type: none"> Bioenergy cost-supply report 	Completed. <ul style="list-style-type: none"> Analysis finalised and realised in May 2016. <i>VC from the government of Japan.</i>	Q4 2016
			<ul style="list-style-type: none"> Data on processing residue availability to support project development 	In progress. <ul style="list-style-type: none"> Biomass residue data collection and analysis completed for 4 other African countries are underway. <i>VC from the government of Japan</i>	Q2 2016 - Q2 2017
			<ul style="list-style-type: none"> A bioenergy assessment tool for Global Atlas to include costs and other parameters 	In progress. Bioenergy tool on resource assessment (technology only) is close to completion. <i>VC from PRIMAFF and the government of Japan and in kind resources from the government of Belgium.</i>	Q4 2016

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Transforming Energy (continued)			<ul style="list-style-type: none"> • Advisory services on bioenergy technology options, upon request 	Potential resources identified. <ul style="list-style-type: none"> • Workshop on bioenergy project development under preparation. • Development of G20 toolkit for bioenergy. <i>VC from the governments of Germany and Japan.</i> 	Q1 2016 - Q4 2017
Technology status & outlook	<ul style="list-style-type: none"> • Report: 'The Innovation Landscape for RE Technologies'* 	In progress. <ul style="list-style-type: none"> • Background scoping study completed. • A report on “<i>Letting in the Light</i>” on how solar PV will revolutionise the electricity system was completed and will contribute to the Innovation Landscape report. 	<ul style="list-style-type: none"> • Two preparatory workshops for the Innovation report 	In progress. <ul style="list-style-type: none"> • A first workshop with Member countries held during Innovation Day on May 26th following the IRENA 11th Council. <i>Additional resources required</i>	Q2 2016 Q4 2017
	<ul style="list-style-type: none"> • Status briefs for five technologies* 	In progress. <ul style="list-style-type: none"> • Geothermal in progress, EVs and biogas for transportation and logistics of biomass under preparation. Completed. <ul style="list-style-type: none"> • Wind completed 	<ul style="list-style-type: none"> • Additional technology briefs 	Resources not identified	Q1 2016 Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Technology status & outlook (continued)	<ul style="list-style-type: none"> • Outlook report for heating and cooling energy storage* 	In progress. <ul style="list-style-type: none"> • Data collection process has started. 	<ul style="list-style-type: none"> • Outlook report for 1) offshore wind and 2) electric vehicles 	In progress. <ul style="list-style-type: none"> • Offshore wind analysis completed. Report to be launched at the World Wind Energy Conference on November 1st. • Electric vehicle analysis pending. <i>Additional resources required.</i>	Q4 2016 Q4 2017
	<ul style="list-style-type: none"> • IRENA Energy Week to support Innovation Landscape report* 	Completed. <ul style="list-style-type: none"> • IRENA Innovation Week took place on May 11-13 2016. 	<ul style="list-style-type: none"> • IRENA Energy Week (2017) 	Resources not identified	Q2 2017
			<ul style="list-style-type: none"> • Global report on status and trends of hydropower 	Resources not identified	Q2 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Technology status & outlook (continued)			<ul style="list-style-type: none"> • Country advisory services in designing and implementing renewable energy technology innovation strategies 	Ongoing. <ul style="list-style-type: none"> • Country advisory services provided to Member states during the IRENA Innovation Day event on innovation strategies for an energy system transformation • Support to UNFCCC Technology Executive Committee on technology transfer mechanisms for renewable energy • Support to VITO on research strategy on renewable energy technologies • Advice to Repsol on projections for renewable energy to integrate more renewables into their 2050 market strategy 	Q1 2016 Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Global Geothermal Alliance	<ul style="list-style-type: none"> Establish a GGA platform for communication 	In progress. <ul style="list-style-type: none"> GGA action plan finalized through an intensive consultative process with GGA member countries and partner institutions. The first Call for Activity Proposals launched inviting GGA members and partners to submit proposals for activities seeking implementation support from GGA. 	<ul style="list-style-type: none"> Advisory services on enabling frameworks and capacity building workshop to raise awareness and strengthen capacity of public stakeholders in the Pacific 	In progress. <ul style="list-style-type: none"> The concept note of geothermal energy technical assistance and capacity building initiative for the Pacific under finalisation. <i>VC from the government of Japan.</i> 	Ongoing Q3 2017
			<ul style="list-style-type: none"> Methodology for geothermal capacity needs assessment applied in one region 	In progress. <ul style="list-style-type: none"> The IRENA geothermal capacity needs methodology will be applied to a region yet to be identified. <i>VC from the government of Switzerland.</i> 	Q4 2016
			<ul style="list-style-type: none"> Additional advisory services and training to GGA member countries to help create necessary enabling frameworks to promote investments 	Resources not identified	Ongoing

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Global Geothermal Alliance (continued)			<ul style="list-style-type: none"> Partnerships with expert institutions to deliver targeted capacity building activities related to geothermal energy 	Resources not identified	Q2 2017
			<ul style="list-style-type: none"> Stakeholder outreach to feature geothermal energy prominently at major events of relevance 	Resources not identified. While additional resources are required, IRENA is leveraging its presence at different events for this purpose.	Ongoing
REpowering Cities			<ul style="list-style-type: none"> Methodology for and application of building stock assessments for identifying renewable energy potential in cities 	In progress. Adjusted to Q4 2017 <i>VC from the government of Germany to be received Q1 2017</i>	Q4 2016
			<ul style="list-style-type: none"> Report on renewable integration options and enabling electricity and heat/cold distribution infrastructure in cities 	Completed. <ul style="list-style-type: none"> Report to be launched at Habitat III 2016. 	Q4 2016

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
REpowering Cities (continued)			<ul style="list-style-type: none"> • Workshops and outreach, including Habitat III: Disseminate results to build knowledge and share best practice. 	In progress. <ul style="list-style-type: none"> • <i>Habitat III outreach supported by the governments of Ecuador, Germany and the UAE.</i> 	Q4 2017
			<ul style="list-style-type: none"> • Methodology and capacity building to support the monitoring of renewable energy impact on the carbon footprint of cities 	In progress. <ul style="list-style-type: none"> • <i>VC from the government of Germany to be received Q1 2017</i> 	Q4 2017
			<ul style="list-style-type: none"> • Methodology on biomass resource assessment customised to the Latin America context and training for its effective implementation. 	In progress. <ul style="list-style-type: none"> • <i>Geographical focus expanded beyond the LAC. VC from the government of Germany to be received Q1 2017</i> 	Q2 2017
			<ul style="list-style-type: none"> • Map stakeholders and urban settings for identification of commonalities 	In progress. <ul style="list-style-type: none"> • <i>VC from the government of Germany to be received Q1 2017</i> 	Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
REpowering Cities (continued)			<ul style="list-style-type: none"> • Briefs on innovative policy, regulatory and financing approaches to incentivise renewable energy deployment and energy efficiency measures in cities 	Possible resources identified. In progress. <ul style="list-style-type: none"> • Scope and possible partner identified as part of VC application. 	Q4 2017
			<ul style="list-style-type: none"> • Outreach to UNFCCC Workstream 2 	In progress. <ul style="list-style-type: none"> • Attendance at and reporting on UNFCCC workshops. 	Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Thematic area: Enabling investment and growth					
Objective: Improving policy frameworks and creating enabling market conditions for accelerated deployment of renewable energy					
Resources (core assessed, non-assessed and other sources): 12,762 (in USD thousands)					
Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Renewable energy costs	<ul style="list-style-type: none"> Expanded and refined IRENA Renewable Costing Alliance* 	Completed. Ongoing. <ul style="list-style-type: none"> 5000 new projects added to the cost database. Database now has LCOE data for 14,500 projects. 	<ul style="list-style-type: none"> One report on grid parity in the power sector 	Resources not identified	Q1 2016 Q4 2017
	<ul style="list-style-type: none"> Costing report on Biofuels for Transport* 	Not started.	<ul style="list-style-type: none"> One renewable energy investment volume report 	Resources not identified	Q4 2016
	<ul style="list-style-type: none"> Papers on cost or competitiveness topics including power generation updates in 2016 and 2017, renewable energy finance costs, wind learning curve decomposition, energy storage and self-consumption* 	In progress. <ul style="list-style-type: none"> Finalisation of wind learning curve analysis. Collection of publically available analysis and data underway for the energy storage report. Data for 2015 power generation costs update has been finalised. Report to be sent for peer review in October 2016. 	<ul style="list-style-type: none"> Renewable energy competitiveness indicators by country and application 	In progress. <ul style="list-style-type: none"> Data collection including on PPAs in progress. <i>VC from the government of Germany.</i> 	Q4 2016 Q4 2017
			<ul style="list-style-type: none"> Global Atlas on economic solar PV applications 	Resources not identified	Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Renewable energy costs (continued)	<ul style="list-style-type: none"> Quarterly PV Parity Indicator tool applied* 	In progress. <ul style="list-style-type: none"> PV parity tool has been developed. 1st quarterly report covering California and Germany is being finalised 	<ul style="list-style-type: none"> Regional analysis on cost reduction opportunities for solar and wind technologies 	Completed. Cost reduction potential for cost reduction potentials to 2025. <i>VC government of Germany.</i>	Ongoing
			<ul style="list-style-type: none"> Cost data collection methodology developed and applied for renewable energy in China and other countries 	Resources not identified	Q4 2016
Renewable energy benefits	<ul style="list-style-type: none"> Global report on Renewable Energy and Jobs - Annual Review 2016 and 2017 	In progress. <ul style="list-style-type: none"> Annual Review 2016 launched at the 11th Council. Annual Review 2017 to be launched in May 2017. 			Q2 annually
	<ul style="list-style-type: none"> Report on maximizing value creation from one renewable energy technology 	In progress. <ul style="list-style-type: none"> Scope defined and report under preparation. 	<ul style="list-style-type: none"> Global report on maximising value creation from geothermal deployment (web-based) 	Resources not identified	Q4 2017
			<ul style="list-style-type: none"> Guide for policy makers to disseminate lessons learnt on maximising value creation from other renewable energy technologies and applications 	Resources not identified	Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Renewable energy benefits (continued)			• Global report on maximising value creation for renewables-based heating and cooling applications (web-based)	Resources not identified	Q4 2016
	• Global report on the structural and distributional economic dimension of renewable energy deployment	In progress. • Scope defined and report under preparation.			Q4 2017
			• Regional report on socio-economic impacts of renewable energy deployment (web-based)	Resources not identified	Q4 2016
			• Analysis of the socio-economic impacts from renewable energy deployment by 2030 in selected countries.	In progress. • Analysis expanded to 2050. <i>VC from the government of Germany</i>	Ongoing
			• Report: the potential role of RE for energy security and resilience, including the impact of renewables on electricity security	Resources not identified	Q4 2017
Policy options to accelerate deployment	• Global report on state-of-the-art analysis of innovative policy design and practice	In progress. • Concept identified and work started on analysing innovative design elements of instruments to support deployment.	• Policy guide on analysis of growth in decentralised generation on decision-making in the power sector	Resources not identified	Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Policy options to accelerate deployment (continued)			<ul style="list-style-type: none"> Country analysis (4 countries) of policy and institutional frameworks, selected socio-economic impacts, the nexus of water-food and energy 	Resources not identified	Q4 2017
	<ul style="list-style-type: none"> Update of the policy and measures database 	In progress. <ul style="list-style-type: none"> First biannual call to update the database sent in April. In 2016, 15 new countries and 220 new entries have been added. 	<ul style="list-style-type: none"> Regional report on policy status and trends based on policy and measures database 	Possible resources identified	Q4 2017
	<ul style="list-style-type: none"> Regional report on market analysis of policies and trends for renewable energy in Southeast Asia 	In progress. <ul style="list-style-type: none"> Scope defined and regional stakeholder consultation ongoing. 	<ul style="list-style-type: none"> Report on good practices in policy design 	Resources not identified	Q4 2017
			<ul style="list-style-type: none"> Two thematic briefs providing in-depth analysis of emerging regional policy themes 	Resources not identified	Q4 2017
Financing renewables	<ul style="list-style-type: none"> IRENA's country-level public-sector investment statistics as an authoritative dataset and basis for analytical work. 	In progress. <ul style="list-style-type: none"> Annual data collection concluded and published as part of statistics publication. Dashboard on public renewable energy investments updated and available through REsource. 	<ul style="list-style-type: none"> Analysis of financial structures for RE projects 	In progress. <ul style="list-style-type: none"> Public finance database has been expanded to capture financial instruments used. <i>VC from the government of Norway.</i>	Ongoing Q2 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Financing renewables (continued)	<ul style="list-style-type: none"> • Analysis of the linkages between policies, incentives, public investments and achievement of renewable energy targets. 	In progress. <ul style="list-style-type: none"> • Ongoing data evaluation and literature review 	<ul style="list-style-type: none"> • Two high level expert meetings to feed into the process of the report writing/study 	Resources not identified	Ongoing Q2 2017
	<ul style="list-style-type: none"> • Global report on the state-of-play of financial instruments and structures to mobilise institutional investors in the RE sector 	In progress. <ul style="list-style-type: none"> • Concept under development 	<ul style="list-style-type: none"> • Conference and working papers on financial risk mitigation instruments 	Resources not identified	Q4 2017
	<ul style="list-style-type: none"> • Collaboration with the GCF 	In progress. <ul style="list-style-type: none"> • Focus on GCF readiness support and links with GCF secretariat. 	<ul style="list-style-type: none"> • Expert meetings on public finance for RE 	Resources not identified	Ongoing
Project facilitation	<ul style="list-style-type: none"> • Regional Marketplace portals for RE projects in Africa, LAC region and SIDS also open to energy efficiency projects 	Completed. <ul style="list-style-type: none"> • Regional marketplace portals for RE in Africa, LAC and SIDS added to marketplace. • Energy Efficiency project types added and eligible to register on all portals. 	<ul style="list-style-type: none"> • Renewable energy project facilitation activities expanded to include all of the developing world and expanded active facilitation. 	In progress. <ul style="list-style-type: none"> • Expansion of SEM is underway. <i>VC from the governments of France and Germany and through partnerships with MDBs/IFIs etc.</i> 	Ongoing

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Project facilitation (continued)	• At least six events focused on capacity building*	Not started.	• Capacity building workshops and webinars to support project preparation and capturing results	Ongoing. Leveraging IRENA's presence at various events. Additional resources still required.	Ongoing
			• Selection of projects for the 4th and 5th cycle of the IRENA/ADFD Project Facility	In progress. <i>VC by ADFD.</i>	Q4 annually
	• Two technical concepts for Project Navigator*	In progress. • In the process of defining concept.	• Two additional technical concepts for Project Navigator	Resources not identified.	Q4 2017
	• Project development assistance through Project Navigator*	Completed. • Workshop in Djibouti held to train 40 participants from the Ministry on how to develop key renewable energy projects. In progress. • “Train-the-trainer” workshop in Egypt is in the initial planning phase. • Webinars are being conducted to provide guidance for island projects • Coordinating with local organisations to identify pilot projects.	• Additional Project development assistance through Project Navigator	Resources not identified.	Q4 2017

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Thematic area: Renewable energy access for sustainable livelihoods					
Objective: Improved livelihoods through access to renewable energy					
Resources (core assessed, non-assessed and other sources): 4,323 (in USD thousands)					
Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Decentralised solutions for access	<ul style="list-style-type: none"> • Third International Off-grid Renewable Energy Conference and Exhibition and associated follow-up activities to promote an enabling environment 	Completed. <ul style="list-style-type: none"> • IOREC took place from 30 September to 1st October 2016. The event was organised in partnership with the Kenyan Ministry of Energy and Petroleum, and the Alliance for Rural Electrification (ARE). 	<ul style="list-style-type: none"> • Regional thematic workshops on specific deployment barriers and issues identified during IORECs 	Resources not identified	Q4 2017
	<ul style="list-style-type: none"> • Development of the framework for the Off-Grid Renewable Energy Policies database 	In progress. <ul style="list-style-type: none"> • Scoping exercise of existing databases being conducted to define framework. 	<ul style="list-style-type: none"> • Inclusion of off-grid policies from at least 20 countries in the Off-Grid Renewable Energy Policies database 	Resource not identified	Q4 2017
	<ul style="list-style-type: none"> • Global report on policies to maximise socio-economic benefits of off-grid applications 	In progress. <ul style="list-style-type: none"> • Scoping in progress, discussion of potential case studies with potential partners ongoing. 	<ul style="list-style-type: none"> • Working papers on innovative business models to accelerate financing of off-grid solutions. 	Resources not identified	Q2 2017
	<ul style="list-style-type: none"> • Develop and apply methodologies on decentralised renewable energy system planning* 	Not started.			Q4 2017
	<ul style="list-style-type: none"> • In-depth technical guide for minigrids and their characteristics* 	Completed. <ul style="list-style-type: none"> • Launched at IOREC. 	<ul style="list-style-type: none"> • Briefs on policies and regulatory measures to support renewable energy-based mini-grid deployment 	Completed. <ul style="list-style-type: none"> • Launched at IOREC. 	Q4 2016

NOTE: Activities marked with an asterisk () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Applied decentralised solutions			• Technical reports to assess resource data on decentralised potentials within the Africa Clean Energy Corridor RE Zoning work	Resources not identified	Q4 2017
			• Additional advisory services on policy frameworks, business models and technology solutions, with regional and country-specific approaches on decentralised electrification solutions.	Resources not identified	Ongoing
	• Advisory services to identify capacity needs and develop a regional action plan on RE mini-grids in the ECOWAS region.	In progress. • Capacity Needs Assessment for the deployment of renewables-based mini-grids ongoing, in collaboration with ECREEE.	• Additional advisory services in the ECOWAS region to identify capacity needs and develop a regional action plan on RE mini-grids.	Resources not identified	Q4 2016
	• Advisory services to strengthen RE enterprises to develop bankable projects under the ECOWAS Renewable Energy Entrepreneurship Support Facility	In progress. • The second call for proposals for the Facility finalised. The technical workshop was held in June 2016. Steering committee meeting held in August 2016 and the technical training workshop in September 2016	• Additional advisory services to explore the replication of the ECOWAS Renewable Energy Entrepreneurship Support Facility in other regions	Resources not identified	Q4 2017
			• Training for small and medium scale entrepreneurs and financial institutions on renewables-based electrification solutions in sub-regions of Africa and in Asia.	Resources not identified	Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Thematic area: Regional action agenda					
Objective: Regional integration with increased shares of renewables to meet energy needs					
Resources (core assessed, non-assessed and other sources): 16,250 (in USD thousands)					
Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Africa Clean Energy Corridor	• Workshop to validate identified wind, solar PV and CSP zones	Not started.	• Additional workshops and partnerships to validate identified wind, solar PV and CSP zones and enable incorporation into national and regional energy planning processes.	In progress. • Projects of regional importance are being developed for submission to the power pools and PIDA. Incorporation of the zoning work into the national energy master plan in Swaziland. <i>VC from the government of Norway.</i>	Ongoing
			• Advisory services to enable ACEC countries independently develop the identified zones	Resources not identified	Ongoing
			• Regional technical guide of good practice for calculating cost reflective tariffs and establishing sufficient investment incentives into renewables	Resources not identified.	Q1 2017

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Africa Clean Energy Corridor (continued)	<ul style="list-style-type: none"> • Advisory services on policy and legislative support through Renewables Readiness Assessments 	In progress. <ul style="list-style-type: none"> • The RRA process completed in Zimbabwe; the report is under finalization. 	<ul style="list-style-type: none"> • Additional advisory services on policy and legislative support through Renewables Readiness Assessments 	In progress. <ul style="list-style-type: none"> • The RRA process completed in Tanzania. The report is under review. <i>VC from the government of Norway.</i> <i>Additional resources required.</i>	Ongoing
	<ul style="list-style-type: none"> • Workshop for stakeholder consultation to update the zoning study 	Not started.	<ul style="list-style-type: none"> • Additional workshops for stakeholder consultation to update the zoning study 	Resources not identified	Q4 2016 Q4 2017
	<ul style="list-style-type: none"> • Training for regulators on power systems operating with higher shares of VRE 	Completed. <ul style="list-style-type: none"> • The first stakeholder consultation workshop took place in Namibia, 18-19 April. 	<ul style="list-style-type: none"> • Additional training for regulators on power systems operating with higher shares of VRE. 	Resources not identified	Q4 2017

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Africa Clean Energy Corridor (continued)	<ul style="list-style-type: none"> The ACEC Consultative Forum to facilitate partnerships and dialogue 	In progress. Adjusted. <ul style="list-style-type: none"> This deliverable was adjusted to align with the new framework for all energy related initiatives in Africa. An existing platform such as the African energy Leaders Group will be used. 	<ul style="list-style-type: none"> Regional guide of good practice for power system development and technical report for application in a pilot country 	In progress. <ul style="list-style-type: none"> Interviews with global practitioners and pilot country stakeholders currently ongoing. <i>VC from the government of Norway.</i> <i>Additional resources required</i>	Ongoing Q1 2017
	<ul style="list-style-type: none"> Partnerships and advisory services for ACEC action agenda development and implementation in West Africa 	In progress. <ul style="list-style-type: none"> An action agenda to be adopted at the next West Africa Energy Ministers' Council. Development of joint work programme with the West Africa Power Pool The RRA process has started in Mali Scoping work for the solar component of the WACEC initiated in partnership with ECREEE and EU TAF 	<ul style="list-style-type: none"> Additional advisory services to implement the action agenda for ACEC West Africa 	In progress. <ul style="list-style-type: none"> Analysis and detailed maps of technical potentials produced for solar, wind on- and off-grid <i>Additional resources required.</i>	Q2 2016 Ongoing
			<ul style="list-style-type: none"> Training in the areas related to the implementation of the action agenda for ACEC West Africa 	Resources not identified	Q3 2016

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Central America Clean Energy Corridor	<ul style="list-style-type: none"> • Advisory services to finalise the action agenda by the governments 	Completed. <ul style="list-style-type: none"> • CECCA strategy endorsed by regional Energy Ministers. 			Q2 2016
	<ul style="list-style-type: none"> • Platform to establish partnerships and operationalise dialogue 	In progress. <ul style="list-style-type: none"> • Detailed activities of the CECCA strategy implementation developed in coordination with relevant regional, national and development partners, incl. IADB, USAID, GIZ. 	<ul style="list-style-type: none"> • Advisory services to support SICA/SIEPAC 	Resources not identified	Q2 2016 Q4 2017
	<ul style="list-style-type: none"> • Training for national and regional system operators on RE grid integration. 	Not started.	<ul style="list-style-type: none"> • Technical report on the identification of maximum penetration levels of variable renewable energy under secure conditions in the regional system 	Resources not identified	Q3 2017 Q4 2017
	<ul style="list-style-type: none"> • Technical report for an assessment of the monitoring and control system, control room tools and operating practices currently in place 	In progress. <ul style="list-style-type: none"> • Technical enabling component of the initiative under finalization. • A technical stakeholder workshop organized in Panama on 28 Oct 2016 as part of the scoping of the work for pilot implementation of the VRE integration study in Panama. 	<ul style="list-style-type: none"> • Training for national and regional regulators on regulatory governance frameworks for RE grid integration 	Resources not identified	Q4 2016 Q3 2017

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Central America Clean Energy Corridor (continued)	<ul style="list-style-type: none"> Advisory services for the implementation of regulatory governance frameworks for RE grid integration. 	In progress. <ul style="list-style-type: none"> Regulatory enabling component of the initiative under finalization. 	<ul style="list-style-type: none"> Additional advisory services for the implementation of regulatory governance frameworks for RE grid integration. 	Resources not identified	Q4 2016 Q4 2017
			<ul style="list-style-type: none"> Workshop for scoping of activities in line with the CECCA strategy 	In progress. <ul style="list-style-type: none"> A stakeholder workshop held in Panama on 26-27 Oct 2016 as part of policy and regulatory scoping for the regional implementation as well as piloting of the national implementation in Panama. A technical stakeholder workshop organized in Panama on 28 Oct 2016 as part of the scoping of the work for pilot implementation of the VRE integration study in Panama. <i>Resources provided by GIZ and Economic Commission for Latin American countries (ECLAC).</i>	Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Emerging Clean Energy Corridors	<ul style="list-style-type: none"> Advisory services to develop and implement the action agenda for ASEAN Clean Energy Corridor by the governments 	In progress. <ul style="list-style-type: none"> The first consultation workshop held in collaboration with ASEAN Center for Energy The second consultation workshop took place in Thailand in mid-June. The action agenda focusing on greening ASEAN Power Grid under development. 	<ul style="list-style-type: none"> Additional advisory services to implement the action agenda for ASEAN Clean Energy Corridor by the governments 	Resources not identified	Q2 2016 Ongoing
	<ul style="list-style-type: none"> Platform to establish and operationalise dialogue, cooperation and coordination among the key ASEAN regional and national stakeholders 	In progress. <ul style="list-style-type: none"> Cooperation with ASEAN institutions (ASEAN Secretariat, ACE, and HAPUA) as well as key regional partners established. Regionally-endorsed action plan under development 	<ul style="list-style-type: none"> Training in the areas related to the implementation of the action agenda for ASEAN Clean Energy Corridor 	In progress. <ul style="list-style-type: none"> A workshop on technology, policy and finance was held in Thailand in mid-June. An ASEAN wide capacity building workshop under preparation covering the key elements in the draft action plan for Greening APG <i>VC from the government of Japan</i> 	Ongoing
Enabling regional action	<ul style="list-style-type: none"> Advisory services to develop the PACE action agenda by the governments 	In progress. <ul style="list-style-type: none"> Gap Analysis for Maghreb region under finalization. 	<ul style="list-style-type: none"> Additional advisory services to implement the PACE action agenda 	Resources not identified	Q4 2016 Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Enabling regional action (continued)	<ul style="list-style-type: none"> Platform for dialogue, cooperation and coordination among the key PACE regional and national stakeholders 	In progress. <ul style="list-style-type: none"> Regional stakeholder consultations under preparation. 	<ul style="list-style-type: none"> Additional training to help key stakeholders in PACE countries advance the action agenda 	Completed. <ul style="list-style-type: none"> A workshop on Power Purchase Agreement for RE organised in conjunction with MENAREC6 outlining key aspects for developing bankable PPAs <i>VC from the government of Germany.</i> <i>Additional resources required.</i>	Q2 2017 ⁴ Q4 2017
	<ul style="list-style-type: none"> Action plan for IRENA's engagement in the South-eastern Europe 	In progress. <ul style="list-style-type: none"> Regional meeting with Embassy representatives held in the IRENA HQ. South East Europe regional consultative meeting took place in Romania in October 2016. Regional gap analysis study conducted to identify needs and priorities of the region in the development of RE. 	<ul style="list-style-type: none"> Workshops for stakeholder engagement and technical reports on potential for RE integration in national plans in South-eastern Europe 	In progress. <ul style="list-style-type: none"> Reports under finalisation to assess cost-effective potential for RE generation in SEE. A joint IRENA-Energy Community workshop held in Austria in March 2016 on preliminary findings. <i>VC from the government of Germany</i> 	Q4 2016 Q4 2017

⁴ Timeframe adjusted.

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Enabling regional action (continued)	<ul style="list-style-type: none"> Develop an action agenda for a regional approach for RE development in Central Asia 	In progress. <ul style="list-style-type: none"> First round of consultations has taken place in Baku on 20th of October, where feedback was received from experts in the region on the needs and challenges in the development of renewables in Central Asia. 			Q4 2016
	<ul style="list-style-type: none"> Platform for dialogue, cooperation and coordination among the key Central Asia regional and national stakeholders 	In progress. <ul style="list-style-type: none"> Regional meeting with Embassy representatives held in the IRENA HQ. Mission to Kazakhstan in February to discuss support to the EXPO-2017. 	<ul style="list-style-type: none"> Advisory services in the areas related to the implementation of the action agenda for Central Asia 	Resources not identified	Q4 2016 Q4 2017
Country support and advisory services	<ul style="list-style-type: none"> 6 RRA Country Reports. 	In progress. <ul style="list-style-type: none"> RRA Egypt, Tunisia, Mali and Panama 	<ul style="list-style-type: none"> Additional RRA Country Reports 	Completed. <ul style="list-style-type: none"> RRA Mongolia In progress. <ul style="list-style-type: none"> Philippines, Pakistan, Tanzania and Zimbabwe. <p>Additional RRAs are reported under SIDS Lighthouses, in Thematic Area V.</p> <p><i>VC from the governments of Japan and Norway</i></p>	Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Country support and advisory services (continued)			<ul style="list-style-type: none"> • Incorporate the integrated resource approach in IRENA's Renewables Readiness Assessment methodology and country reports 	Resources not identified	Ongoing
			<ul style="list-style-type: none"> • Advisory service for the implementation of RRA recommendations including technical advice on statistics, energy planning, resource assessment, finance, etc. 	In progress. <ul style="list-style-type: none"> • Post RRA support to Mozambique and Mauritania planned. <i>VCs from the government of Norway and the UAE.</i> 	Ongoing
			<ul style="list-style-type: none"> • Advisory services for Indonesia REmap/RRA pilot 	Adjusted. <ul style="list-style-type: none"> • Process initiated to develop a combined REmap/RRA for Thailand • RRA consultative workshop envisaged in November 2016. <i>VC from the governments of Germany and Japan.</i> 	Q1 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Country support and advisory services (continued)	• Advisory services and training for post-RRA implementation upon country requests.	In progress. • A workshop on project development and resource assessment was held in July in Djibouti.	• Additional post RRA services	Resources not identified.	Ongoing
			• Advisory services for the development of an implementation plan based on the recommendations from the RE manufacturing report for three North African countries.	Resources not identified	Q4 2017
			• Methodology of renewables manufacturing potential applied in additional countries	In progress. • An additional study for Lebanon, Jordan and UAE under development in collaboration with UNESCWA. <i>VC from the government of Germany.</i>	Q1 2017 Q4 2017

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Country support and advisory services (continued)			<ul style="list-style-type: none"> • Advisory services in support of the design and implementation of power system governance structures 	Resources identified. <ul style="list-style-type: none"> • Work to begin in Mexico in support of power sector reform and in South Africa to explore the scaling of the REIPPP approach. <i>VC from the government of Germany.</i> 	Q2 2017
			<ul style="list-style-type: none"> • Technical assistance and training to the key stakeholders in the formulation of ASEAN renewables target implementation plans 	Resources not identified.	Q4 2017
			<ul style="list-style-type: none"> • Additional advisory services upon request 	Resources not identified.	Q1 2017
			<ul style="list-style-type: none"> • Technical report and support for MENAREC 6 	Completed. <ul style="list-style-type: none"> • MENAREC6 successfully implemented. <i>Support provided by the German government and support by regional partners (LAS, UNESCWA, RCREEE). VC from the government of Germany.</i> 	Q2 2016

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Thematic area: Islands: lighthouses for renewable energy deployment					
Objective: Island energy systems transformed through renewable energy					
Resources (core assessed, non-assessed and other sources): 3,743 (in USD thousands)					
Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
SIDS Lighthouses	<ul style="list-style-type: none"> • Grid studies support (2 island studies)* 	In progress. <ul style="list-style-type: none"> • VC leveraged core resources. See status under other sources. 	<ul style="list-style-type: none"> • Support to and management of the SIDS Lighthouses Initiative 	In progress. <ul style="list-style-type: none"> • Support and management of the SIDS Lighthouses Initiative. • Grid studies are under development. Support to Kiribati and Samoa is being provided in parallel to study development. <i>VC from the governments of Germany, New Zealand and Norway.</i> 	Q4 2017 Ongoing

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
SIDS Lighthouses (continued)			<ul style="list-style-type: none"> • Advisory services including Quickscans, Renewable Readiness Assessments, Roadmaps, Resource Assessments, Grid Integration Studies and Transition Plans 	<p>Completed.</p> <ul style="list-style-type: none"> • RRA for Antigua and Barbuda • Kiribati and Barbados Roadmaps • SIDS Lighthouses technical workshop in Cuba <p>In progress.</p> <ul style="list-style-type: none"> • Roadmap for Palau and Federated States of Micronesia • Grid integration study for Cook Islands, Samoa, Kiribati, Vanuatu and Fiji • Methodology report with Tractebel • Dominican Republic has joined the SIDS Lighthouses Initiative. Scoping work on power system analysis for Dominican Republic. <p><i>VCs from governments of Germany, Japan, New Zealand, and Norway. Additional resources required.</i></p>	Q4 2017

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
SIDS Lighthouses (continued)			<ul style="list-style-type: none"> • Training workshops to address legal, regulatory, institutional, human resource and other constraints supported 	In progress. A training workshop coordinated with government of Japan for nine Pacific SIDS and the Maldives to further explore enabling environments necessary to support the widescale deployment of renewable energy. Technical workshop in Sint Maartin on grid integration and planning. <ul style="list-style-type: none"> • Technical Session In Pacific Power Association Conference on grid integration planning and storage, in Tonga. <i>VCs from government of Germany, Japan, The Netherlands, and New Zealand.</i>	Q4 2017
			<ul style="list-style-type: none"> • Tools for monitoring, evaluating, communicating progress of the initiative, and sharing knowledge developed 	In progress. <i>VC from government of Germany</i>	Q4 2016
Global Renewable Energy Islands Networks (GREIN)			<ul style="list-style-type: none"> • GREIN platform continuously updated for the sharing of best practices and case studies related to the GREIN cluster areas. 	Adjusted. <ul style="list-style-type: none"> • GREIN consolidated under the Lighthouses umbrella. <i>VC from the government of Germany</i>	Ongoing

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Global Renewable Energy Islands Networks (GREIN) (continued)			<ul style="list-style-type: none"> • Dissemination of information through cluster-specific webinars, newsletters, etc. 	<p>Completed.</p> <ul style="list-style-type: none"> • Finalised a study on renewable energy desalination opportunities for the country of Kiribati. Workshops for St. Lucia and Fiji completed on use of ESCOs in tourism sector held in July 2016. <p>In progress.</p> <ul style="list-style-type: none"> • A study on the use of ESCOs in the tourism sector in the Caribbean is under review. • A study on RE desalination opportunities for the country of Cape Verde is being finalised. <p><i>VC from the government of Germany and Norway.</i></p>	Ongoing
			<ul style="list-style-type: none"> • Regional workshops and other meetings to facilitate dialogue across and among regions and islands 	<p>Adjusted.</p> <p>See reporting under Lighthouses.</p>	Ongoing

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Enabling projects in islands			<ul style="list-style-type: none"> • Development and execution of at least 3 bankable RE projects in partner countries 	In progress. <ul style="list-style-type: none"> • Site suitability assessment ongoing with Global Atlas. Projects identified and screened through the Sustainable Energy Marketplace <i>VC from the government of Germany</i>	Q4 2017
			<ul style="list-style-type: none"> • Partnerships developed with expert institutions to provide targeted support in planning, identifying, structuring, and executing viable renewable energy projects in SIDS 	In progress. <ul style="list-style-type: none"> • Call for proposals for project preparation grants in Caribbean in cooperation with IADB. <i>VC from the government of Germany</i>	Ongoing

NOTE: Activities marked with an asterix () are resourced by core assessed and core non assessed funds

**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Thematic area: Gateway to knowledge on renewable energy					
Objective: Renewable energy knowledge accessible to all					
Resources (core assessed, non-assessed and other sources): 11,658 (in USD thousands)					
Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
RE Statistics	<ul style="list-style-type: none"> RE Statistics Database: Provisional estimates of RE capacity on REsource six months after year-end, with final figures for capacity and energy balances within 18 months. 	Completed. <ul style="list-style-type: none"> Capacity data published March. Complete dataset published June 2016 Not started. <ul style="list-style-type: none"> Data update for 2017 	<ul style="list-style-type: none"> Working paper: lessons learned from case studies in renewable energy data collection 	Resources not identified	Q4 2017
	<ul style="list-style-type: none"> Statistics training: two training courses held in countries and regions where renewable energy data is relatively weak, leading to improved response rate to IRENA annual statistics questionnaire. 	Not started. <ul style="list-style-type: none"> The use of VC resources prioritised. 	<ul style="list-style-type: none"> Two additional training courses and further capacity building support to improve quality and completeness of renewable energy statistics, including for decentralised off-grid solutions. 	Completed. <ul style="list-style-type: none"> Training course held in South Africa in September 2016. <i>In kind contribution from Denmark</i> In progress. <ul style="list-style-type: none"> Planning training course for East and South East Asia region, for end November in Bangkok. Planned training workshop in Eastern Europe, in Budapest in December 2016. <i>VC from the government of Germany and funding from FAO.</i> 	Q4 2017

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**NOTE: Timeframe for deliverables under 'other sources' is subject to availability of funds

Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
The Global Atlas	<ul style="list-style-type: none"> • Maintenance of solar and wind Atlas, including demonstration for measurement data collected by governments, donors and public finance entities. 	In progress. <ul style="list-style-type: none"> • Measurement data adjusted. • Development of an approach for site characterisation (wind). 	<ul style="list-style-type: none"> • Technical infrastructure assessments, <i>e.g.</i> cities, highly-populated areas in developing countries, etc. 	Resources not identified	Ongoing Q4 2016
			<ul style="list-style-type: none"> • Refinement and completion of new data set of marine & hydro, including zoning tools and working papers. 	Resources not identified	Ongoing
	<ul style="list-style-type: none"> • Completion of bioenergy and geothermal, including zoning methodology and tools. 	In progress. <ul style="list-style-type: none"> • Bioenergy tool is near completion. – • Development of a wind costing service 	<ul style="list-style-type: none"> • Global Atlas training sessions (webinars and workshops) and constantly updated training module on how to use maps and data in the policy formulation process. 	Resources not identified	Ongoing
			<ul style="list-style-type: none"> • Preliminary high potential renewable energy zones identified based on zoning methodology 	In progress. <ul style="list-style-type: none"> • Zoning (suitability analyses) for South America, GCC, West Africa, South East Europe 	Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Quality infrastructure, standards and patents	• INSPIRE platform refinement, outreach and dissemination*	In progress. • INSPIRE Patents database updated with 2015 data.			Ongoing
	• Technical QI analysis report for 1) utility scale PV and 2) smart-grids or mini-grids *	In progress. • Utility scale PV	• QI analysis reports for additional technologies upon request	Resources not identified	Q4 2016 Q4 2017
			• Advisory services and two workshops on the development and implementation of Q1 frameworks for renewable energy technologies for two countries/regions	In progress • Advisory service to Latin American countries on quality infrastructure for RE, and contribution to Mexico solar water heaters quality control strategy.	Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Quality infrastructure, standards and patents (continued)			• Advisory services and workshop on Accreditation and Certification of training institutions and their programmes based on established and new regional certification schemes	Resources not identified.	Q2 2016 - Q3 2017
	• Workshops with selected training institutions for the implementation of a regional certification scheme for solar PV installers	In progress. • The second phase of the certification scheme for solar PV installers under development	• Advisory services and workshop on the international accreditation of selected training institutions and their programmes	Resources not identified.	Q2 2017 Q4 2017
	• Advisory services and workshop for the international accreditation of the certification scheme	Not started.	• Advisory services and workshop for the establishment of the regional certification scheme	Resources not identified.	Q4 2017 Q4 2016
			• Advisory services and workshop for the creation of the administrative structure of the programme	Resources not identified.	Q4 2016

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Enhancing environmental and resource sustainability	• Policy guide on best practices to enable a sustainable scale-up of renewable energy applications that positively impact water and food security	Not started	• Reports on environmental impacts of solar, wind and geothermal technologies	Completed. • Publication on <i>End of life management of PV panels</i> . In collaboration with IEA PVPS. VC from the government of Germany.	Q4 2017 Q4 2016
			• Working paper quantifying the environmental impacts and benefits relative to other energy technologies	Resources not identified	Q4 2016
			• Public guidelines for renewable energy environmental impact assessment for public financial institutions. Workshop with financial institutions	Resources not identified	Q2 2017
			• Eight briefs (case studies) to showcase the benefits of renewable energy in the water, energy and food nexus	Resources not identified	Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Knowledge Hub	• Maintenance and expansion of the REsource platform.	In progress. • Integration of all IRENA data into a single knowledge hub	• Creating "specialised" mini-REsource platforms for other IRENA projects.	Resources not identified	Ongoing
			• Making REsource multi-lingual, <i>i.e.</i> making the platform available and searchable in several languages.	Resources not identified	Ongoing Q4 2016
			• Further expansion of REsource by validating and integrating reliable external content of third parties.	In progress • Limited external content integrated in the data section with in-house human resources. <i>To integrate larger external content additional funding is required.</i>	Ongoing
			• Advisory services to countries and public entities seeking to develop similar knowledge platforms.	Resources not identified	Ongoing
Multi-stakeholder engagement	• Expand and operationalise the IRENA Coalition for Action.	In progress. • Overall support to the Coalition, engagement with additional partners and identification of opportunities for collaboration.	• Support work to develop a consumer label in cooperation with industry and civil society organisations	Adjusted. • Initial step will be the development of RE Corporate Index. <i>Seed resources identified.</i>	Ongoing Q2 2016

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Multi-stakeholder engagement (continued)			• Organise an annual high-level meeting of the Coalition	Resources not identified	Q2 2016 Q1 2017
			• Maintain and moderate the public debate on the IRENA Community	Adjusted. • Phasing out of the IRENA Community.	Ongoing
			• Maintain and expand the four databases of the IRENA Learning Platform	Adjusted. • Streamlining IRELP to a single course database	Ongoing
			• Two 'Model IRENA' simulations, including extensive preparatory trainings	Resources not identified.	Ongoing
			• Regular university and school visits in the Host Country	Resources not identified.	Q4 2017
			• Design, maintain, coordinate and launch the IRENA renewable energy e-learning initiative	Adjusted. • Focus on RE skills gap.	Q2 2016
	• Hosting of legislators' meeting on the side-lines of the Sixth Assembly*	Completed. • The first forum successfully completed on 15 January 2016.	• Outreach to legislators and other parliamentary stakeholders and dissemination of tailored RE information	Resources not identified.	Ongoing

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Thematic area: Enhancing international cooperation and communications and outreach					
Objective: Actively engage Members, leverage strategic partnerships and communicate with stakeholders and the public					
Resources (core assessed, non-assessed and other sources): 17,237 (in USD thousands)					
Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Facilitating international cooperation	• Ongoing support to Members	In progress			Ongoing
	• Two Assembly meetings and related events*	In progress. Ongoing. • 6th session of the Assembly successfully held. • Preparations for the 7th Assembly in progress			Ongoing
	• Increased number of IRENA Members	In progress. Ongoing. • Four new Members in 2016 to date			Ongoing
	• Four Council meetings and related events*	In progress. • 11th meeting of the Council successfully held and preparations for the 12th Council in progress			Ongoing
	• Meetings of subsidiary bodies, as necessary*	In progress. • Meetings of subsidiary bodies at the 11th Council successfully held and preparations for the 12th Council in progress			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Facilitating international cooperation (continued)	• IRENA booth at WFES *	In progress. • 14 programmatic meetings held during WFES 2016. • Preparations for WFES 2017 in progress			Ongoing
	• Increased programme-related communication to Member States*	In progress. • 6 Bulletins, 6 In Focus briefs, 5 'Publication Updates' and additional information messages on IRENA activities circulated			Ongoing
	• Further development of content and functionalities of online portal for Members*	In progress. • REMember updated as required.			Ongoing
	• Facilitate engagement of Permanent Representatives in the Agency and heightened outreach to other Permanent Missions at Headquarters*	In progress. • 7 new Permanent Representatives in 2016 • 3 Permanent Representative meetings held.			Ongoing
	• Development of a Member communication network	In progress. • Contact made with IRENA focal points to connect with national communication counterparts			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Dissemination of knowledge, data and analysis.	<ul style="list-style-type: none"> • Communications strategies 	In progress. <ul style="list-style-type: none"> • Developed 2016 communications strategy, including a series of thematic campaigns • Conducted major campaigns for IRENA 6th Assembly, REmap 2.0, IRENA's 5th Anniversary, IRENA Innovation Week, Renewable Energy and Jobs Annual Review, The Power to Change, Clean Energy Ministerial, Intersolar Europe and the Summer of Solar, and IOREC • Campaigns underway for Habitat III and COP22. • Conducted focused campaigns for capacity data, Mongolia RRA, and brief on water use in China's power sector 	<ul style="list-style-type: none"> • Educational videos and infographics to simplify complex renewable energy concepts 	Resources not identified.	Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Dissemination of knowledge, data and analysis (continued)	<ul style="list-style-type: none"> • Social media campaigns and digital platforms to support IRENA's initiatives and expand knowledge on renewable energy* 	In progress. <ul style="list-style-type: none"> • Conducted social media campaigns on IRENA 6th Assembly (#IRENA6A), REmap 2.0 (#REmap) and IRENA's 5th Anniversary (#REthenandnow), Summer of Solar (#summerofsolar) • Twitter followers increase by 77% (year to date) • Facebook increase by 44% and LinkedIn followers increase by 35%. • Started new Instagram account. 			Ongoing
	<ul style="list-style-type: none"> • Editorial maintenance of IRENA web properties and digital media 	In progress. <ul style="list-style-type: none"> • Revamping of irena.org website underway • Search Engine optimization of web pages underway • Website content updated weekly 			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Dissemination of knowledge, data and analysis (continued)	• Digital media production and distribution*	In progress. • Designed and disseminated 75 infographics based on IRENA products/data • Created 21 promotional videos • Distributed 28 press releases in seven languages • Developed over 50 Newsroom articles • Regular op-eds by DG on his Huffington Post page			Ongoing
	• Press conferences, webinars	In progress. • Conducted 12 press events • Garnered coverage via 8,400 articles in 98 countries			Ongoing
	• Strengthened media and stakeholder lists	In progress. • Consistently update global media lists based on coverage/media queries • Procured new tool to gain access to 2.5 million journalists worldwide	• Increase language-specific capacity and production of language-specific communications materials	Resources not identified.	Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Dissemination of knowledge, data and analysis (continued)	<ul style="list-style-type: none"> Agency-wide publications coordination, planning, production and communications support 	In progress. <ul style="list-style-type: none"> Release of 24 reports and briefs in 2016 to date (15 September) with reader-friendly web content and targeted communication ISBN designations to increase global visibility and impact Global, regional, national, thematic or interest-specific press and social media support for IRENA publications 			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Dissemination of knowledge, data and analysis (continued)	<ul style="list-style-type: none"> • Editing, translation, proofreading and graphic design to support programmatic publishing outputs* 	In progress. <ul style="list-style-type: none"> • Released REmap global report summary in eight languages • Key findings or Agency messages in all UN and other languages • Targeted regional or country-specific translations, such as joint brief with China Water Risk in Chinese and Latin America market analysis and REmap Dominican Republic summaries in Spanish • Collaboration with Kazakhstan to translate key recent publications for Astana EXPO 2017 • Dialogue with Members and specialist institutes to further strengthen translation process 			Ongoing
	<ul style="list-style-type: none"> • Planning and implementation of programmatic events in support of the Work Programme* 	Ongoing. Support provided for IRENA programmatic events.			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Dissemination of knowledge, data and analysis (continued)			• Conduct RE training programmes for journalists, media organisations and spokespersons	Resources not identified	Ongoing
			• Develop strategic media partnerships and engagements to expand coverage of IRENA activities	Resources not identified.	Ongoing
			• Conduct media relations events in target markets	Resources not identified	Ongoing
Strengthen institutional structures and accountability	• Facilitating the full implementation of the Headquarters Agreement and the Agreement on the IITC Seat	In progress. • Discussions with the Government of the UAE on a supplementary agreement to govern IRENA's occupancy of its permanent headquarters in Masdar City • Regular meetings with Host Countries to address issues of mutual interest			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Strengthen institutional structures and accountability (continued)	<ul style="list-style-type: none"> • Outreach to increase the number of Members granting privileges and immunities to IRENA 	In progress. <ul style="list-style-type: none"> • IRENA continues to engage with States to encourage them to take actions for the implementation of Assembly decision A/3/DC/5 on an Agreement on Privileges and Immunities for IRENA. • Egypt, Germany, Poland, Spain and the United States have implemented this decision. 			Ongoing
	<ul style="list-style-type: none"> • Further enhancing the protection of IRENA and its interests 	In progress. <ul style="list-style-type: none"> • Continuous provision of the necessary legal support. 			Ongoing

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Thematic area: Administration and Management Services					
Objective: Support the Agency's programmatic work through comprehensive and efficient business processes that foster accountability and transparency.					
Resources (core assessed, non-assessed and other sources): 11,174 (in USD thousands)					
Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Finance	<ul style="list-style-type: none"> • Comprehensive finance support to the Agency 	In progress. <ul style="list-style-type: none"> • Timely processing of Payroll and Payment; Funds invested and monitored; Accounts prepared and updated. Monthly and year-end financial closure. 	<ul style="list-style-type: none"> • Voluntary Contribution Reporting 	In progress. <ul style="list-style-type: none"> • Reporting system for Voluntary contributions institutionalised <i>Resourced by Programme Support Costs.</i> 	Ongoing
	<ul style="list-style-type: none"> • Audited IPSAS compliant Financial Statements 	In progress. <ul style="list-style-type: none"> • Financial Statements for Agency and Staff Provident Fund for 2015 prepared and audited; preparation for 2016 audit ongoing. 			Q2 2016 - Q2 2017
	<ul style="list-style-type: none"> • Streamlined, efficient and accurate business process 	In progress. <ul style="list-style-type: none"> • Advice and Support provided to internal and external stakeholders; Annual billing of assessed contributions completed; collections follow-up ongoing 			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Budget	<ul style="list-style-type: none"> • Comprehensive budgetary support to the Agency 	In progress. <ul style="list-style-type: none"> • Annual 2016 core budgetary allotments prepared and issued; Preparing for issuance of 2017 allotments; Voluntary Contributions allotments prepared and issued; funds availability certified and reported upon. 			Ongoing
	<ul style="list-style-type: none"> • Streamlined, efficient and accurate budgetary process 	In progress. <ul style="list-style-type: none"> • Advice and support provided to different Agency stakeholders; Enhancement and monitoring of updates to budgetary systems and applications; Monitoring and update of funds reservations and requests. 			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Information and Communication Technology	<ul style="list-style-type: none"> • Comprehensive IT services to the Agency in all of its physical locations* 	In progress. <ul style="list-style-type: none"> • Global connectivity and 24 x 7 communication services • Email services and collaboration support • Technology support for knowledge management • Helpdesk support • Operational support for ICT portals and websites 			Ongoing
	<ul style="list-style-type: none"> • ERP for IRENA in supports of integrated resources management and controls 	In progress. <ul style="list-style-type: none"> • Comprehensive review of the technology and deployment modalities as well as the review and adaptation of business processes. 			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Information and Communication Technology (continued)	<ul style="list-style-type: none"> Streamlined, efficient and accurate business process* 	In progress. <ul style="list-style-type: none"> In-sourcing of ICT support is completed Business process optimisation ongoing 			Ongoing
Human Resources	<ul style="list-style-type: none"> Comprehensive HR support services 	In progress. <ul style="list-style-type: none"> Ongoing administration of staff benefits and entitlements. Performance evaluation system refined and new Performance Appraisal Forms and Guidelines completed 34 vacancies for fixed-term and temporary appointments and Junior Professional Associate positions were advertised for which over 9,000 applications were received. 			Ongoing
	<ul style="list-style-type: none"> Development of the workforce planning strategy 	In progress. <ul style="list-style-type: none"> A thorough review of vacancy rates and turnover trends completed 			Q2 2016
	<ul style="list-style-type: none"> Facilitate work-life balance 	In progress. <ul style="list-style-type: none"> Review of proposals for work-life balance 			Ongoing
	<ul style="list-style-type: none"> Systematic induction programme designed and implemented in all IRENA offices, including ethics training 	In progress. <ul style="list-style-type: none"> Regular induction sessions held. Participant feedback fed into development of induction material. 			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Human Resources (continued)	<ul style="list-style-type: none"> • Periodic staff training and development programs, including on performance management 	In progress. <ul style="list-style-type: none"> • Needs assessment underway. 			Ongoing
	<ul style="list-style-type: none"> • Streamlined, efficient and accurate human resource process 	In progress. <ul style="list-style-type: none"> • Ongoing review, evaluation and revision of the HR rules, policies and processes, manuals and templates, as required. 			Ongoing
Procurement	<ul style="list-style-type: none"> • Comprehensive procurement support 	In progress. <ul style="list-style-type: none"> • Call for expression of Interest EOI for Renewable Energy Consultancy services and market research to expand the vendor's database for competitive bidding 			Ongoing
	<ul style="list-style-type: none"> • Master Procurement plan for increased efficiency 	In progress. <ul style="list-style-type: none"> • Completed for 2016 			Q1 2016 - Q1 2017
	<ul style="list-style-type: none"> • Streamlined, efficient and accurate procurement process 	In progress. <ul style="list-style-type: none"> • Procurement SLAs was developed, and procurement forms/templates are under review. 			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
General services & Travel	• Comprehensive travel processes and support including for governing body meetings, programmatic events and staff travel*	In progress. • Preparation and support of the Council meetings, and programme related travel			Quarterly
	• Key asset management system	Completed. • System procured and data uploaded			Ongoing
	• Health and safety plans in all IRENA offices*	In progress. • Safety Plan implementation in progress			Q4 2016 ⁵
	• Streamlined, efficient and accurate business process*	In progress. • Continuous review			Ongoing

⁵ Timeframe adjusted

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