

INTERNATIONAL RENEWABLE ENERGY AGENCY

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**Progress 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 made in the implementation of the IRENA Work Programme and Budget for 2016/2017 since the 7th session of the Assembly. The dynamic nature of the renewable energy sector in the changing global landscape, coupled with the internal developments, such as strategic discussions on the future of IRENA and on the next programmatic cycle, attest to the growing global attention being given to the ongoing energy transition. With 150 Members and some 30 countries in the process of accession, IRENA provides an inclusive space for international cooperation that is flexible and responsive to Member needs.

2. This cooperation is indispensable at the time of transition. At the 7th session of the IRENA Assembly, there were over 1000 participants, including 3 Heads of State and Government and 65 Ministers, along with delegates from 157 countries and the European Union. Attesting to the wide interest in the work of the Agency, some 140 other entities also participated in the Assembly and related meetings, including the private sector, international organisations, civil society and academia. The richness and depth of the discussions showed that the business case of renewable energy is strong, and its voice is amplified across regions and constituencies. The Assembly session was a key milestone in the implementation of the Work Programme. It offered a unique opportunity to showcase the Agency's work to date and gather feedback on, and input for, the future work.

“Few people would have imagined the scale and pace of the energy transition which we are witnessing today. By working together, we can hasten the transition to a sustainable energy future.”

IRENA Director-General Adnan Z Amin.

3. Interest in the Agency's knowledge products confirms that the development and dissemination of objective, timely and authoritative information on renewables plays an indispensable role at the time when many countries are transforming their energy systems to meet a range of economic, environmental and social needs. In the first quarter of 2017, IRENA's publications attracted nearly 395,000 downloads, compared to the quarterly average of 285,000 downloads in 2016.

4. Among those is IRENA's latest analysis on decarbonisation as featured in *Perspectives for the Energy Transition*, released at the Berlin Energy Transition Dialogue 2017. Developed in cooperation with the IEA to inform the G20 discussion, the report sheds light on the essential elements of an energy sector transition consistent with limiting the rise of global temperatures to well below 2 °C, as set out

90% of emissions reductions by 2050

will come from **Renewables and Efficiency**

in the Paris Agreement. IRENA's analysis shows that realising this ambition is possible, with renewable energy and energy efficiency measures achieving 90% of the required

carbon reductions by 2050. IRENA's finding also show that the additional investments, amounting cumulatively to USD 29 trillion over the period to 2050, positively impact employment and growth. A renewables-based energy system, would boost global GDP around 0.8%, with around 6 million additional jobs in 2050.

5. Indications are that the pace of deployment of renewable energy technologies is accelerating. IRENA's *Renewable Energy Capacity Statistics 2017* estimates that, by the end of 2016, the world's renewable generation capacity surpassed 2,000 GW, with solar energy showing particularly strong growth. Last year's additions reached a record 161 GW (8.7 %), with the centre of capacity growth continuing to shift towards less developed countries. For instance, Africa installed 4.1 GW of new capacity in 2016, twice as much as 2015.

6. For the first time, this year's edition of Renewable Energy Capacity Statistics contains data for off-grid renewables. It shows that off-grid renewable electricity capacity reached 2,800 megawatts (MW) at the end of 2016. IRENA estimates that as many as 60 million households, or 300 million people, are

served with and benefit from off-grid renewable electricity worldwide. With the widespread deployment of renewable energy technologies, there is an increased need for reliable data, which is not always easily obtained. In February, the Agency held its fourth statistics training, this time for energy statisticians from 17 countries in the MENA region to strengthen local capacity, as well as establish a base line for global best practice.

7. Measuring progress is also needed to achieve the global objectives for sustainable development and climate change. REmap 2030 showed that, to double the share of renewables by 2030, the deployment would have to increase six-fold from the current annual growth of some 0.15 percentage points. At the same time, achieving a renewables-based energy system by 2050 would require this deployment to increase even further to a seven-fold growth. To realise this ambition, engagement and action at scale is necessary. IRENA continues to use its technical excellence and convening power to gather stakeholders around issues of common interest. In the course of this biennium, the Agency has organised 17 workshops and other meetings in six different countries and across five regions. This included regional dialogue, most recently on South East Europe on the margins of the Assembly and on Central Asia in Abu Dhabi in April. Ministers and high-level representatives from China, Denmark, Germany, Indonesia, Mexico, Morocco, and the United Arab Emirates, met to discuss the establishment of an Energy Transition Coalition supported by IRENA, to enable the sharing of expertise, exchange of best practices, and development of innovative approaches to accelerate power sector transformation. It is expected that the Energy Transition Coalition will be launched in the second half of 2017.

8. IRENA continues to support countries in their renewable energy plans and strategies with tailored advice. Most recently, this included the completion of the Renewables Readiness Assessment (RRA) for the Philippines, launched in Manila on 21 April 2017. The RRA seeks to strengthen the renewable energy policy, regulatory and institutional framework, and includes an assessment of the potential for electrification through renewable-based mini- and micro-grid solutions. The RRA process will assist the country in reaching its target of 15.1 GW by 2030, as well as that of the aspirational ASEAN region target set at 23 percent by 2025. Another example of the recent country-level work is the release of *Renewable Energy Prospects for the Russian Federation*. Part of the REmap programme, the report shows that Russia can increase the share of renewables in its energy mix from roughly 3 per cent today to more than 11 per cent by 2030. The Director General also participated in the recent launch of the Saudi Arabia Renewable Energy programme, demonstrating the growing sense of opportunity renewables provide for hydrocarbon producing and exporting countries.



Alexey Tekler, Russia's First Deputy Minister of Energy, Adnan Z. Amin, Director-General of IRENA, and Dolf Gielen, Director of IRENA's Innovation and Technology Centre, at the launch of REmap Russia in Moscow.

9. A detailed account of IRENA's work is provided in the present report, which also includes the matrix of deliverables. This progress has been greatly facilitated by the timely receipt of Members' contributions. To date, 98.6% of assessed contributions for 2016 has been received and 42.79% of assessed contributions for 2017. In addition, USD 7.5 million was received from Germany and USD 4.1 million from the UAE, as part of budgeted core non-assessed contributions. Over USD 6.6 million was received in additional voluntary contributions from United Arab Emirates, Germany, Japan, France, and the European Commission.

Thematic Programme Areas

I. Planning for the global energy transition

10. 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.

REthinking Energy

11. In January 2017, IRENA released the third edition of REthinking Energy focused on policy, finance and investment, and technology - three key areas for the growing adoption of renewable energy as the energy transformation gathers pace. The edition provides a comprehensive overview of topical issues in these areas, including an up-to-date analysis of latest trends in policy and investment frameworks, renewable energy data and statistics, and the potential for renewable energy to provide modern energy services to all. It also examines the central role that renewables play in meeting the UN Sustainable Development Goals. REthinking Energy was developed in consultation with a broad range of stakeholders, enriched by the Agency's global reach and the wealth of knowledge and experiences within IRENA's membership.

Power system design for renewable energy integration

12. Planning work is continuing to assist governments and other stakeholders achieve their renewable energy goals. Based on impact of planning work, countries are starting to request direct support. For example, the government of Sierra Leone has requested IRENA's support to assist their new energy planning unit in deploying IRENA's SPLAT modelling tool and conduct capacity building activities to develop the country's energy master plan in alignment with optimal NDC ambition and accounting for best institutional practice.

13. The Agency has also received feedback that its analysis on *Western African Power Pool - Planning and Prospects for Renewable energy*, published in 2013 and currently being updated, has been used as an important reference by the World Bank in how they are allocating a 1,000 MW solar PV plant investment in the West African region. IRENA is currently in discussions with the World Bank to refine and finalise their assessment in this regard.

Transforming Energy

14. 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 climate and environmental objectives. The programme includes 70 countries making up around 90% of global energy use.

15. IRENA has expanded the REmap time-horizon to 2050 for G20 countries, results of which were the basis for IRENA contribution to the G20 study, *Perspectives for the Energy Transition*, presented at the Berlin Energy Transition Dialogue (see G20 box for more information) in March 2017. The Agency has also launched country reports for Indonesia, India and the Russian Federation, and is preparing country reports for China with a 2050 horizon, Egypt, Kazakhstan and South Africa. The *Renewable Energy Outlook for ASEAN*, launched in October 2016, was developed with the ASEAN Centre for Energy (ACE) and 10 ASEAN Member States to identify a pathway for the region to meet its aspirational renewable energy objective of a 23% renewable energy share in its total primary energy supply mix by 2025. The findings were welcomed by the Energy Ministers during the 34th ASEAN Ministers on Energy Meeting (AMEM) which took place in September 2016 and were referenced in the Joint Ministerial Statement. Since, various follow-up activities are underway including a joint RRA-REmap report for Thailand.

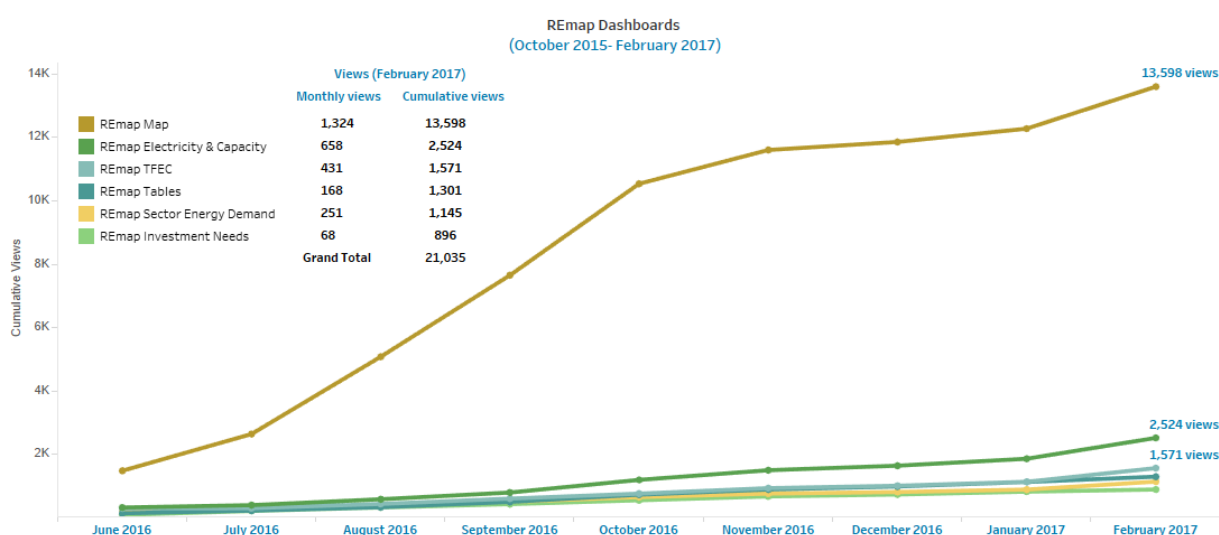
16. A REmap analysis of the EU to advise on pathways to achieve the European Union's objective of 27% by 2030 has also advanced this year with additional financial support provided by the European

Union. Preliminary results show that the European Union can realise a share of renewable energy beyond its 2030 target of 27% by up to 33%, a significant share of which would be cost-effective to realise. As part of the REmap process, IRENA and the European Commission have organised a series of monthly technical review meetings and country consultation workshops to engage with the national experts of each European Union Member State.

17. Broadening sector expertise, IRENA has undertaken analysis and released reports on district heating and cooling, cities, bioenergy and sustainable transport. In addition to contributing to industry know-how of these sectors, analysis has deepened IRENA's analytical capabilities and broadened our knowledge of sectoral networks which will help improve future work in these areas.

18. IRENA continues to make its analysis and data available online for users to query and download for free. Updated REmap data is now available on the IRENA REsource portal, allowing users to view, interact and download data for their own use. Over the period June 2016 to February 2017, REmap had some 21,000 views, representing 16% of total monthly Resource dashboard views in February 2017 alone.

Figure 1: Number of views on REmap dashboards



19. REmap findings on the key role of bioenergy in the global transformation have been updated to 2050 and incorporated in the report *Perspectives for the Energy Transition*. IRENA, with the support of a voluntary contribution from Japan, and the UN Convention to Combat Desertification have commissioned a joint assessment of the impacts of different energy forms on land use to study how bioenergy can contribute to the SDG 15 on sustainable land use. To increase awareness of how bioenergy can support the SDG7 without harming food security, IRENA and the World Agroforestry Centre are documenting cases where developing countries have increased both food and fuel production in rural communities.

20. At a side event *Bioenergy's Role in Doubling Renewable Energy Supply*, which took place during the seventh IRENA Assembly, a proposed scope of work was presented with distinct pillars on sustainable bioenergy potential, bioenergy technology pathways, and bioenergy scale-up strategies. Newly developed tools, including a bioenergy simulator to help farmers choose the best mix of food and fuel crops, and a Project Navigator tool to help developers design and finance projects for use of solid biofuels, were also presented. Participants noted, among other things, the importance of including a wide range of energy crop species in the simulator tool to ensure it is useful to local stakeholders in developing countries.

21. IRENA continues to build on the study *Boosting Biofuels: Sustainable Paths to Greater Energy Security*, which assesses the potential to expand bioenergy supplies in a sustainable fashion. A

roundtable on the topic, *Roundtable on Sustainable Bioenergy Supply: Potential, Scenarios and Strategies*, was organised in Berlin in late 2016 with the support from a voluntary contribution from Germany. A full summary of discussions and conclusions have been posted on IRENA's events archive. A follow-up study is being prepared with the support of a voluntary contribution from Japan to highlight the bioenergy potential in five countries in Southeast Asia: Indonesia, Malaysia, Philippines, Thailand, and Vietnam. A sequel is also currently being prepared to highlight potential in five countries of Sub-Saharan Africa: Ghana, Mozambique, Nigeria, South Africa and Uganda. A brief on *Bioenergy and Sustainable Development* was jointly prepared with the IEA Bioenergy Agreement and the UN Food and Agriculture Organization to inform environmental and development agencies with resources to accelerate its uptake on the role and uses of bioenergy.

Technology status & outlook

Figure 2: H.E. Dr. Thani Ahmed Al Zeyoudi, Minister of Climate Change and Environment for the United Arab Emirates; H.E. German Arce, Minister of Mines and Energy, Colombia; H.E. Rainer Baake, State Secretary for Economic Affairs and Energy, Germany; H.E. Irene Cañas, Vice Minister of Energy, Costa Rica; H.E. Ralph Gonsalves, Prime Minister St Vincent and the Grenadines.



22. As renewable energy emerges as a central solution to multiple development and climate objectives, innovation remains a key driver for change. This was echoed at IRENA's seventh Assembly Ministerial Roundtable *Towards an Economy Fuelled by Renewable Power: Innovation for the Next Stage in the Power Sector Transformation*, which brought together Ministers, high-level country representatives and energy leaders from the private sector. Discussions illustrated how renewable energy has gone from a niche sector to become mainstream and showed a unified understanding that renewables will become the predominant energy source for the future, forming the backbone of global energy systems. Roundtable participants further agreed that innovation will continue to drive the transformation of the energy sector, not only in the power sector but across the entire energy landscape. The outcomes of the Ministerial Roundtable were reported back to the Assembly and will feed into the Agency's work, particularly the second edition of IRENA Innovation Week and the Innovation Landscape Report for the power sector transformation.

23. The Agency's focus on innovation is garnering increased requests for assistance. For example, the United Nations Conference on Trade and Development (UNCTAD) requested IRENA support to develop capacity on technology transfer and intellectual property for developing countries. UNCTAD would like to use the Agency's analysis on the role of patent information for the deployment of renewable energy technologies in their own capacity building programmes. To facilitate this transfer of knowledge, IRENA presented its web-based platform INSPIRE at the UNCTAD workshop *Uso de la Propiedad Intelectual para el comercio y desarrollo* in Ecuador on 15 March 2017.

Global Geothermal Alliance

24. Following the launch of the Global Geothermal Alliance (GGA) initiative during COP21 in December 2015, the second meeting of the Alliance took place in Abu Dhabi on 18 January 2017 on the sidelines of the World Future Energy Summit. The event brought together several GGA member countries and partner institutions to take stock of progress made in the implementation of the GGA initiative and exchange views on the way forward. The meeting enabled improved communication and coordination within the constituency and highlighted synergies between regional components and with other geothermal programmes. IRENA's work on GGA has been strengthened with the support of the Government of France. A High-Level Conference of the Global Geothermal Alliance was agreed to be hosted by the Government of Italy and IRENA to take place on 11-12 September 2017 in Florence, Italy.

Figure 3: Second annual meeting of the Global Geothermal Alliance, January 2017



IRENA Technology Briefs: Decarbonising the transport sector

As part of IRENA's efforts to support countries identify the best technology solutions to decarbonise the transport sector, the Agency has recently published a set of three technology briefs on Biofuels for Aviation, Electric Vehicles, and Biogas for Road Vehicles. These publications complement the previously released brief on Renewable Energy Options for Shipping and provide policy-relevant information on costs, performance and potential for renewable-based technology options to decarbonise the transport sector in the decades to come.

Biofuels for Aviation

Developing and promoting biofuels for aviation will be essential to reduce carbon emissions from commercial aviation. Biojet fuels, called 'conventional biojet' and derived from crops, exists today but current production is limited, comprising less than 0.1% of global total jet fuel consumption. The brief outlines how the production of 'advanced bio-jet', advanced liquid biofuels based on lignocellulosic biomass or algal feedstocks, will open the market to a larger variety of feedstock options and economic opportunities in the supply chain.

Electric Vehicles: Technology Brief

Transport based on EVs have a crucial role to support the integration of variable renewable energy in power systems. The global stock of electric vehicles (EVs) reached 1 million in 2015 and over 2 million in 2016 and is expected to continue to increase in the next decades. This brief outlines the technology and policy developments required for continued EV growth as a driver of the wider transition to a sustainable energy future.

Biogas for Road Vehicles: Technology Brief

Biogas used as a vehicle fuel can reduce greenhouse gas emissions in the transport sector between 60% and 80% compared to traditional fossil fuels. This brief provides an overview of biogas use for road vehicles, including existing technologies, costs, performance and sustainability considerations, as well as best practices established across the globe.



II. Enabling investment and growth

25. Transforming the energy system is multifaceted, and decreasing costs and increased recognition of the benefits of renewable energy are powerful drivers of change. The past few months have focused on further data collection, release of highly relevant policy and benefits work including an updated report on renewable energy benefits, and strengthening of project development tools with new regional insights and user-friendly technical guides added to tools such as the Project Navigator. Together, these activities aim to create enabling policy and market conditions for accelerated investment in, and deployment of, renewable energy.

Renewable energy costs

26. IRENA continues to strengthen its database on cost and performance data, adding 500 new projects in 2017 to the Renewable Costing Database. To complement the project-level detail on installed costs and performance, a database of auction and tender results of more than 5,000 projects has also been compiled. It contains, where available, data on technology, PPA price, contract duration, indexing method, installed costs and capacity factor. Leveraging this wealth of data, IRENA is currently exploring synergies between PPA and cost data (e.g., comparing PPA prices to LCOEs).

27. IRENA's cost data and analysis continue to be highly sought after by industry, researchers and policy makers. In support of the CEM Campaign for the Corporate Sourcing of Renewables, IRENA has

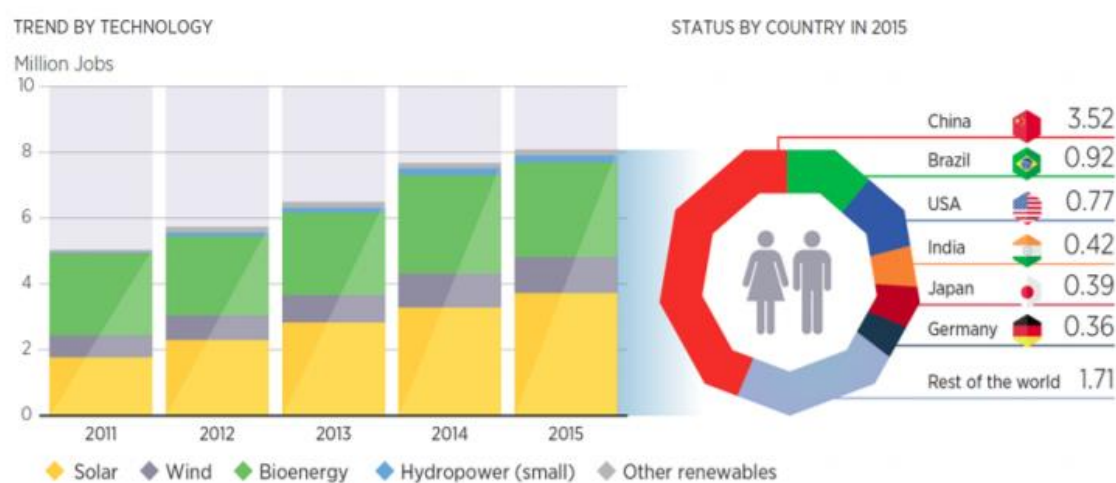
provided competitiveness and market potential data to the *21st Century Power Partnership* report on corporate sourcing of renewable energy, coordinated by NREL. IRENA is also continuing close collaboration with partners providing power generation cost data to REN21's Global Status Report and contributing solar PV cost data to the IEA's World Energy Outlook, investment and medium-term renewables market reports. The Agency is also responding to an increasing number of requests for data and analysis by researchers, governments and industry. Requests of this nature average around 20 per quarter or one every three working days.

28. There are a number of cost publications in development, including a power generation cost update *Renewable Power Generation Costs in 2016*; IRENA's Quarterly *PV Parity Indicators*; an update on onshore wind learning curve analysis with updated data through to 2016; analysis on the evolution of operations & maintenance costs for renewable power generation technologies in developing countries; the cost of finance for power generation technologies; the costs of renewable options for stationary applications, with an initial focus on heat-pumps; and *Battery electricity storage costs and markets to 2030*. The report *Battery electricity storage costs and markets to 2030* is being supported with a VC from the Government of Japan and will examine current and projected costs and performance of battery electricity storage technologies to 2030, as well as the markets and services that can be provided by battery energy storage solutions.

Renewable energy benefits

29. Building on its earlier work, 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 percent, improve welfare by up to 3.7 percent and support over 24 million jobs in the sector. Analysis has had significant reach, with report findings featured in hundreds of news articles and leading media outlets including The Economist, The Guardian, Reuters, Bloomberg, Forbes, the Huffington Post and El Pais. The report has also been cited by academic institutions such as Harvard Kennedy School, IIASA and Potsdam Institute for Climate Impact Research (PIK), 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.

Figure 4: Global employment in renewable energy



Note: excludes large hydropower
Source: IRENA (2016d).

Key message • The total number of jobs in renewables worldwide continues to rise and is becoming a major source of employment particularly in solar PV and bioenergy technologies.

30. This work has been expanded to 2050 as part of IRENA's input to the Germany-led decarbonisation study developed for Germany's G20 presidency in 2017 titled *Perspectives For The Energy Transition – Investment Needs For A Low-Carbon Energy System*. The analysis suggests that additional investment needed for the decarbonisation of the energy sector in line with the global target of keeping mean temperature increase well below 2 degrees can have positive impacts on employment and growth. Global GDP would be boosted around 0.8% in 2050 and about 6 million additional jobs can be created, accounting for job losses in the fossil fuel industry. The report, and macro-economic analysis in particular, was widely quoted with over 700 media mentions to date, including in major global newswires the Associated Press, Bloomberg and Reuters.

31. 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 *Annual Review* series has gained extensive traction worldwide and in the media. For instance, the 2016 edition has been cited in close to 1000 online news articles, including coverage by media outlets such as Bloomberg, the Financial Times, France 24, The Guardian, and the Huffington Post as well as in social media. The 2017 edition of the *Renewable Energy and Jobs – Annual Review* series will be launched in May and will provide up-to-date data and analysis on the topic.

Policy options to accelerate deployment

32. 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 was conducted that 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. IRENA's guide on the design of auctions is being used by policy makers and development banks. Policy makers in Israel, Kazakhstan, Philippines, and South East European countries, for example, have used the guidebook to inform discussions on the design of their auctions and International Development Banks have used it in their procurement programs (e.g., the International Finance Corporation-IFC for the Scaling Solar programme and the World Bank for Vietnam), in their recommendations to their member countries (e.g., the Asian Development Bank), and to train professionals on best practices in the design of auctions (World Bank, European Wind Energy Association).

33. 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. Since end 2015, IRENA has leveraged Member outreach and research to add 17 new countries and close to 250 new policy entries to the database.

34. At present, IRENA is conducting a regional market analysis on Southeast Asia. The analysis encompasses broader economic and energy sector trends as well as renewable energy investment and policy developments in the region. IRENA has initiated discussions with several regional stakeholders, including country focal points, the ASEAN Centre for Energy, the 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 in June 2016 in Bangkok, Thailand. An expert meeting to share preliminary findings of the study is being planned alongside the Asia Clean Energy Forum (ACEF) in Manila in June 2017.

35. Large-scale deployment of variable renewable energy technologies, such as solar photovoltaic 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 the transmission and distribution levels, regulators, utilities, consumers, etc. In this context, IRENA is finalising a 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

36. IRENA continues its work 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. Following Agency discussions over the last year with GCF to increase collaboration and the Asian Development Bank (ADB) to prepare for a renewable energy facility funded by the GCF for the Pacific SIDS, work is now underway to prepare legal documentation required for IRENA to become a delivery partner for GCF readiness activities. In addition to becoming a readiness partner of the GCF, collaboration could include advice on programmatic matters relating to renewable energy; sharing of IRENA results and tools such as Renewable Readiness Assessments (RRAs) and REmap country work; and support in project development and implementation in collaboration with implementing entities.



Project facilitation

37. 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. As of today, five different projects in several countries in Africa have been linked with project preparation facilities and development banks. One project has reached financial closure, and the project developer has placed a new project on the Marketplace. Six projects in Latin America, selected through the Marketplace, are now receiving project development support. In February 2017, IRENA held a webinar for projects selected through an auction by the Argentinian government to connect projects with investors.

Sustainable Energy Marketplace:

150 projects seeking funding of some USD 7 billion and covering countries in Africa, Latin America and the Caribbean.

38. Further partnerships are being implemented to establish the Marketplace as a “pipeline aggregator” bringing together and making visible project portfolios, and matching projects with required support. The Sustainable Energy Marketplace is now moving to a second phase of development to improve the usability of the platform by adjusting current features, and adding new ones. At the same time, the platform will be expanded to cover Asia and will gradually expand to all developing country regions to become a global marketplace.

39. Strengthening of the Project Navigator, an online platform to assist with the development of bankable projects, has continued in 2017 with seven types of renewable energy projects now supported with technical guidelines including on-shore wind, utility-scale solar photovoltaic, solar home systems,



over 3000 project developers from 190 countries



bioenergy, small hydropower, geothermal power and mini-grid systems. A new Islands module has been integrated featuring tools, templates and guidance on key renewable energy technologies specifically relevant for the deployment of projects in small island developing states.

40. The IRENA Project Navigator platform experienced strong growth in the first semester of 2017 driven by the introduction of new technical

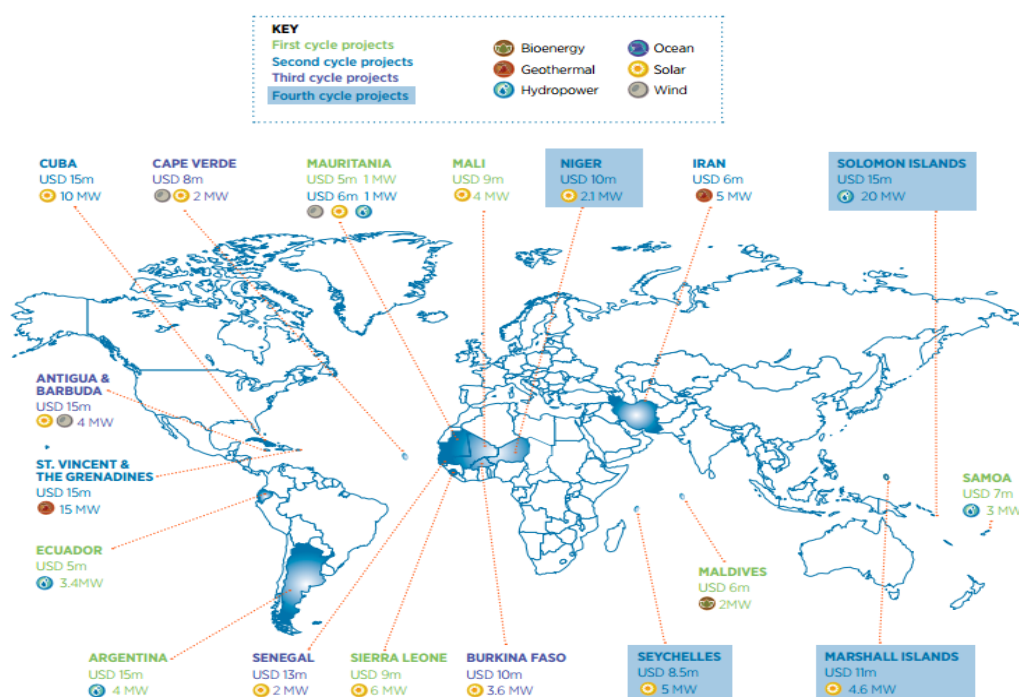
guidelines, on-site and online outreach activities and increased collaboration with stakeholders, including project financiers, project developers and international and regional organisations. To date, more than 1,500 participants have registered and attended Project Navigator webinars on solar, bioenergy, and mini-grids.

41. The visibility of the IRENA project facilitation platforms is being increased with the collaborative work on the IRENA/ADFD Project Facility and the Sustainability Energy Marketplace. As of May 2017, Project Navigator had more than 3,000 registered users from 190 countries. The Agency has also received an increasing number of requests from partners to collaborate. For example, partners have expressed interest to use the Navigator tools in their own processes and systems to support project development. Requests have come from partners including ADFD, AfDB, AUC, UNECA, NEPAD, AREI, AIIB.

42. To build capacity of project developers, the Agency has conducted several workshops. Workshop participants have sent positive feedback, for example, strong interest was expressed in use of the platform during workshops in Sénégal, Dakar in February 2017 attended by some 10 West African countries, and at a March 2017 African Union Commission (AUC) meeting. The Agency has also received requests for direct support in Project Navigator training. For example, Egypt has requested IRENA support the development of a capacity building workshop for 170 rooftop solar photovoltaic developers. In response, IRENA will host a capacity building seminar with online learning and an on-site workshop with a train-the-trainer approach in September 2017. With the voluntary support of the Government of France, IRENA will also organise an ocean energy capacity building workshop. The workshop will support early stage ocean energy projects in the Caribbean region with the development of regional ocean energy development guidelines based on the tools available on the Project Navigator platform. The guidelines will be specifically developed for the Caribbean region but could have relevance for other small island developing states.

43. As part of IRENA's project facilitation work, the IRENA/ADFD Project Facility continues its financing of a wide variety of renewable projects in developing countries with four project selection cycles successfully completed. The results of the fourth selection cycle were announced at the seventh IRENA Assembly, allocating a total of USD 44.5 million.

Figure 5: Projects Selected in the IRENA/ADFD Project Facility



- **Marshall Islands:** As a country with some of the highest energy costs in the world, the Marshall Islands suffers from high rates of poverty and unemployment. To contribute to the efforts to address these challenges, the country proposed a project to install solar PV micro-grids with advanced lithium-ion energy storage systems on four of its most populated islands. *This project is expected to provide affordable renewable energy to over 16,000 people.*
- **Niger:** Despite significant potential in renewable energy resources, less than 1% of the rural population in Niger has access to electricity. This project proposes to install solar PV micro-grids and individual solar home kits in 100 isolated villages. *The initiative is expected to provide electricity to over 21,000 households, 100 schools and over 100 medical centres.*
- **Seychelles:** Currently, the Seychelles is almost entirely dependent on fossil fuels for its energy needs. This project aims to build the first ever solar PV farm in the country which will be integrated into an existing wind farm. The energy produced will be injected into the grid for the largest island of Mahé. *The project will reduce reliance on imported fossil fuels and create local jobs.*
- **Solomon Islands:** Power generation in the Solomon Islands is entirely dependent on imported diesel fuel resulting in very high retail costs of electricity. This project supports the construction of a hydropower plant which will provide electricity into the existing grid system of Honiara, *helping 5,000 people in local communities to gain access to energy* and reducing the overall cost of electricity for the country.

44. Work is currently underway on the fifth cycle, due to be completed by the end of 2017, with 89 projects submitted for consideration. The results are planned to be announced in January 2018 at the eighth session of the IRENA Assembly. Extending support to projects post-selection is becoming an increasing priority for the Facility. Greater coordination with ADFD and project proponents has improved clarity on post-selection requirements, accelerating project progress.

III. Renewable energy access for sustainable livelihoods

45. Universal access to modern energy services is key to alleviating poverty and stimulating economic growth. There is an opportunity to design an efficient new energy 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. Specifically, work in 2017 has focused on analysis and capacity building to support mini-grid sector development and to strengthen the ability for small- and medium-size enterprises to provide decentralised solutions.

Decentralised solutions for access



46. In September 2016, IRENA organised the 3rd International Off-grid Renewable Energy Conference & Exhibition (IOREC) in Nairobi, Kenya, from 30 September to 1 October 2016. The event, which witnessed record participation, 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, the private sector, financing institutions, development agencies and academia.

47. Key findings from IOREC

“All IRENA & IOREC - Conference / Workshop Program Presentations were high quality and very relevant to renewable energy SMEs, practitioners & trainers and will go along to help me to improve performance [...] to overcome the challenges in designs, construction, installations, sizing, compliance / commissioning & project funding decisions for renewable energy technologies projects in Africa (Kenya) and many parts of the World.”

*Odhiambo Odawa,
Chairman, Strategic Working Group Technical Training Committee,
The Kenya Renewable Energy Association (KEREAA)*

discussions were analysed and synthesised into a comprehensive outcome report, *Accelerating Off-grid Renewable Energy: Key Findings and Recommendations* from IOREC 2016. The report was launched at IRENA's seventh Assembly in January 2017 during the Ministerial Roundtable in January 2017 on *Catalysing off-grid renewable energy deployment – Towards universal electricity access and the attainment of SDGs*.

Applied decentralised solutions

48. IRENA and the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) has conducted an analysis of the capacity needs of stakeholders involved in the deployment of clean energy mini-grids in the ECOWAS region. The study, *Capacity Needs Assessment: Clean Energy Mini-Grids in the ECOWAS Region*, contextualises the role the clean energy mini-grid (CEMG) sector has been playing in the region and highlights the benefits that can be achieved through continued sector development. It contains a detailed analysis of the various stakeholders, existing level of competencies, future roles and level of competencies required, and categorises countries in terms of CEMG market development. Considering the regional target of 60,000 mini-grid projects by 2020, the analysis concludes that an estimated 180,000 professionals will need to be trained. The analysis also identifies priority areas for capacity building that can help create enabling environments for CEMG deployment.

60,000 mini-grid projects by 2020

180,000 professionals needed

49. In meeting this objective, local entrepreneurs have a critical role to play. Work has continued in 2017 to strengthen the capacity of small- and medium-size enterprises to provide decentralised solutions. Since January 2017, a third call for renewable energy project proposals has been made for the Entrepreneurship Support Facility in the ECOWAS Region. Calls for proposals helps the Agency to identify and better understand the specific needs of small- and medium-sized entrepreneurs. The Facility Technical Committee¹ selects entrepreneurs for a training programme to support further project development and address the specific needs of selected entrepreneurs. At the writing of this report, the selection workshop was underway in Ouagadougou, Burkina Faso. The technical training workshop is expected to take place in the second half of 2017, organised in cooperation with ECREEE, the Centre for Renewable Energy and Industrial Maintenance (CERMI) and the International Institute for Water and Environmental Engineering (2iE).

50. IRENA has also launched the Entrepreneurship Support Facility in Southern Africa in partnership with the South African Development Community (SADC) Centre for Renewable Energy and Energy Efficiency with a kick-off meeting held in Lesotho in April 2017. The facility aims to become operational in the second half of 2017 with a first call for proposals to be launched in the third quarter of 2017.

¹ The Entrepreneurship Support Facility committee is comprised of IRENA, ECREEE, 2iE, CERMI, ECOBANK, ABREC, Innodex, Maison de l'Entreprise, SNV, SUNREF, Société Générale, BSIC, and the World Bank.

Outcomes from Ministerial Roundtable on access

On January 15, 2017 IRENA hosted the Ministerial Roundtable on “*Catalysing off-grid renewable energy deployment – Towards universal electricity access and the attainment of SDGs*”. H.E. Ms. Tone Skogen, State Secretary of the Ministry of Foreign Affairs of Norway moderated the Roundtable where ministers, private sector, banks and development partners exchanged ideas and experiences on off-grid renewable energy development and deployment.

Key outcomes of the roundtable included:

- Cost reductions and technology advancements have enabled off-grid renewable energy solutions (stand-alone and mini-grids) to become a mainstream option for expanding electricity access. They are modular, rapidly deployable and, in most rural areas they are today a more cost-effective solution compared to grid-based options.
- Several governments demonstrated the will, targets and plans to support off-grid renewable energy deployment. It was noted that decentralised solutions are not only applicable to developing countries, but are relevant in the development of the new energy system globally.
- To accelerate the pace of off-grid renewable energy deployment, there is a need to rethink the solutions applied and approaches followed for electrification. Integrated planning processes are needed that consider the viability of grid-based and off-grid solutions for bringing sustainable, timely and adequate electricity access. An enabling environment to scale-up deployment relies on tailored policies and regulations, customised financing and business models, capacity building and innovative technology solutions.
- Planning processes need to involve all stakeholders active in the sector and integrate off-grid solutions from an early stage.
- Mobilising the private sector will be key. Innovative partnerships are needed between the public and private sector to share risks, provide opportunities for innovation with business, financing and technology solutions, and create foundations for a sustainable off-grid market.
- Governments need to look at access from a ‘delivery of services’ perspective and not based on megawatts alone. A focus on education, health and livelihoods will drive efforts towards electrification and maximising benefits. For instance, the electrification of rural health centres should be considered a priority in rural electrification strategies.
- The development of technical capacity unanimously came across as crucial to ensure that technological solutions are adapted to local conditions. These capacities need to be developed across the value chain, including among regulators, financing institutions and communities.
- Access to affordable long-term financing for end-users and entrepreneurs was deemed important to catalyse growth in the sector, with a focus on unlocking asset-based financing for rural consumers and leveraging microcredit delivery. The importance of innovative financing tools, including provision of guarantees for de-risking private sector investments and local currency loans was highlighted.
- Besides power generation technology, innovation on the appliance side, including appliances for productive uses and public services, could transform the lives of millions with new economic possibilities and social inclusion.
- Collection of data, statistics and information available for rural electrification need to be strengthened. This would not just assist decision-making on where off-grid solutions are needed, but also allow the monitoring of impact.
- Partnerships and international co-operation, as well as peer-to-peer learning, will be essential to maximise efficiency and heighten impact in the pursuit of universal electricity access.

IV. Regional action agenda

51. Regional cooperation is a key element to bring about efficiencies and economies of scale in deployment, 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 continues to support these goals by building capacity through targeted advisory services at both regional and national level.

Africa clean energy corridor

52. Moving forward with the implementation of the **Africa Clean Energy Corridor**, IRENA has continued work in zoning, planning, enabling environment, and capacity building in Africa to facilitate a steady flow of bankable renewables-based generation and transmission projects and attract long-term stable investments within the Corridor.

53. Zoning work is being deepened at national levels with support provided to countries such as Swaziland to consider the identified zones for solar and wind for the development of a more integrated national energy master plan. Planning work has also been initiated to incorporate zoning results into regional planning in Eastern and Southern Africa power pools. In this regard, a regional workshop was held in Namibia in April 2017 with Energy Ministry representatives, utilities and regulators of Southern Africa Power Pool countries to obtain data on sites earmarked for development which fell under zones identified in the regional renewable energy resource assessment and zoning work completed in 2015. Workshop output will provide a basis for financial viability analyses that will inform power procurement processes as well as a regional planning exercise based on generation capacity expansion planning models.

54. In parallel, IRENA is supporting long-term power sector planning in the SADC region. This work has focused on identifying global best practices and their application in specific circumstances of the region. This forms the basis for the Southern African Development Community (SADC) Guidelines. An important interlocutor in this context has been the Regional Electricity Regulators Association of Southern Africa (RERA), a key partner in regional capacity building efforts. The next step is to use the SADC Guidelines to support development of regional plans undertaken by Southern Africa Power Pool (SAPP) and national plans in Namibia and Zimbabwe. This is subject to ongoing dialogue with decision makers from SADC, Southern African Power Pool (SAPP), Namibia and Zimbabwe to refine recommendations.

55. Under the **West Africa Clean Energy Corridor**, IRENA has engaged with the West African Power Pool (WAPP) to identify sites to be analysed as per their current master plan and obtain relevant data for projects site to conduct financial viability assessments. In March 2017, IRENA participated in the first session of the Specialised Technical Committee of the African Union on Transport, Transcontinental and Interregional Infrastructure, Energy and Tourism in Lomé (Togo) where an update on the implementation of the Clean Energy Corridors concept in the African context was provided and challenges and recommendations to be taken forward highlighted. The Agency's key role in the energy sector was underlined in a Ministerial recommendation which encouraged, "the Member States to integrate the concept of the Clean Energy Corridors into their national renewable energy and climate change agendas as well as the process of creation of a sustainable and low-carbon power markets". IRENA is also featured in the plan of action that will guide the African Union's energy work in the coming two years in policy and strategy development for renewable energy and energy efficiency and the development of the Africa Information System and Database.

Central America clean energy corridor

56. Following the endorsement by Energy Ministers of the **Clean Energy Corridor of Central America** (CECCA) initiative strategy in December 2015, IRENA finalised the technical- and regulatory-enabling scoping components of the CECCA strategy in close cooperation with regional and national stakeholders and development partners. Based on input received from a kick-off workshop on the CECCA strategy in October 2016, a set of activities were formulated to be implemented under the CECCA umbrella to accelerate the integration of renewables into the regional grid SIEPAC. Activities

under the technical component include an assessment of system operability to advance the deployment of renewable energy technologies planned in the mid-term, and an assessment on how to tailor power purchase agreements and regulatory frameworks to be compatible with renewables. Activities under the regulatory enabling component include a Panama pilot study to be conducted in cooperation with the National Secretariat of Energy on renewable energy power purchase agreements (PPA). The follow-up work will be implemented in partnership with ECLAC and GIZ with support provided by IDB, OLADE and regional and national bodies.

57. In parallel, research has been undertaken to identify options to address barriers to investments in renewable energy in Panama. Results will aim to provide in-depth recommendations on how to encourage investment for renewables projects in the country and inform decision-makers within the CECCA region and help build regional capacity to identify and overcome PPA-related investment barriers. Results will also feed into a report on best practices currently being developed in partnership with the IDB which will include recommendations and guidelines on how to integrate higher shares of variable renewables in Central America. A meeting has been scheduled for June 2017 to update stakeholders on CECCA activities and to share preliminary findings. The meeting will also allow the Agency to consult with stakeholders on progress made, verify activity scope remains relevant and in-line with national and regional interest.

Enabling regional action

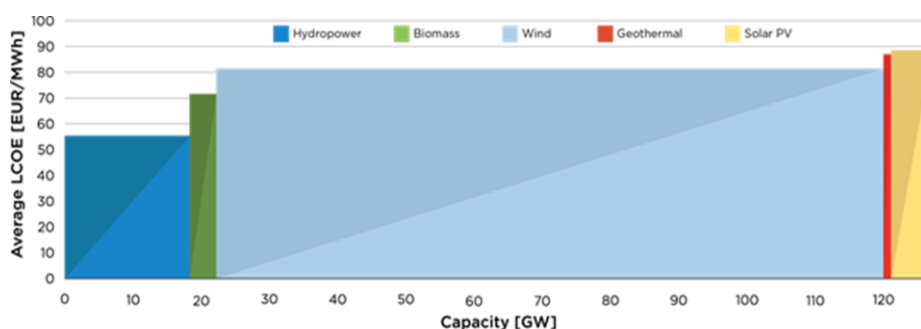
58. As part of IRENA's increasing engagement with **South East Europe**, a *High-Level Meeting on Renewable Energy in South East Europe* took place in Abu Dhabi in January 2017, one day before IRENA's seventh Assembly. The meeting served as a platform to discuss the opportunities and challenges in expanding the share of renewable energy in the region's energy mix. It built on the region-wide consultation process undertaken in 2016 and gathered over 30 representatives from the governments of the region as well as key regional stakeholders. The meeting culminated with the adoption of the *Abu Dhabi Communique on Accelerating the Uptake of Renewables in South East*

Cost-Competitive Renewable Power Generation: Potential across South East Europe

Cost-Competitive Renewable Power Generation: Potential across South East Europe

- **Vast technical renewable energy potential of some 739 GW.** Wind energy is the most abundant resource in the region with the overall technical potential more than 4 times higher than that for solar PV, amounting to over 532 GW.
- **126.9 GW of the overall renewable energy potential could be implemented in a cost-competitive way today.** This is almost equal to 17% of the identified technical renewable energy potential. It is also 15 times higher than the 8.2 GW planned total capacity addition required by the NREAPs from now until 2020.
- The additional cost-competitive potential could be even higher, above 290 GW, if low-cost capital is available. In total, **by 2030, additional cost-competitive potential of solar PV and wind will equal 620 GW.**

Figure 6: Additional cost-competitive renewable energy potential in SEE (medium cost of capital scenario)



Europe by the Heads of delegation in attendance, as well as a presentation of a draft Action Plan to support renewable energy development in South East Europe. They aim to establish the framework for IRENA's engagement in the region. As agreed upon in the meeting, the priority areas of collaboration with IRENA shall include, among others, renewable energy planning, strengthened enabling frameworks, socio-economic benefits of renewables, and renewable energy financing.

59. IRENA's publication *Cost-Competitive Renewable Power Generation: Potential across South East Europe* was also launched at this event. The report was prepared in collaboration with regional experts and contains detailed mapping of resource potential from the Global Atlas for Renewable Energy with real project cost data collected through the IRENA Renewable Costing Alliance. The report highlights the region's vast renewable energy potential amounting to some 740 GW, out of which almost 130 GW can be implemented today in a cost-competitive manner. The results of the report are expected to provide input for countries in the implementation of the National Renewable Energy Action Plans and in setting new renewable energy commitments.

60. In March 2017, as part of regional engagement Action Plan activities, IRENA and the Energy Community Secretariat jointly organised a workshop on Renewable Energy Auctions. It attracted over 60 participants from ministries, energy regulators, renewable energy authorities and regional stakeholders from South East Europe who discussed best practice on the design and implementation of auction-based support schemes to enable the most cost-effective renewable energy development.

61. To strengthen engagement in **Central Asia**, the Agency initiated a regional consultative process in 2016 to discuss the challenges and opportunities to develop the region's renewable energy resources and identify priority action areas to address them. The first round of consultations took place in Baku, Azerbaijan in October 2016 where the main barriers for deployment of renewables were discussed. Following this, IRENA conducted a regional gap analysis to identify and analyse the major obstacles hindering accelerated renewable energy deployment in the region and to map current and planned programmes implemented by development partners. The second round of consultations was held in April 2017 at IRENA Headquarters where experts discussed the findings of the regional gap analysis, provided feedback on needs and priorities in the development of the renewable energy sector and exchanged views on the Agency's role to support the uptake of renewables in the region. The outcome of these consultations is forming the basis for a Regional Action Plan. IRENA is also collaborating with Kazakhstan to profile renewable energy in upcoming EXPO 2017. This included IRENA's participation in the *Third International Participants Meeting*, held in February 2017 in Astana.

62. The Agency has also continued to expand its engagement under the umbrella of the **Pan Arab Regional Initiative, PACE**. A regional Stakeholder Consultation Meeting on the PACE was organised on the sidelines of the *World Future Energy Summit* in January 2017 in collaboration with the Arab League, the World Bank and the Regional Center for Renewable Energy and Energy Efficiency (RCREEE). The objective of the meeting was to identify priority areas to promote a more accelerated integration of renewables into national power systems, forming the basis for regionally coordinated programmes and projects in the Arab region. More than 50 participants representing ministries, regulators and transmission system operators across the region discussed the main findings of the renewables grid integration regional gap analysis developed for the Maghreb sub-region, provided feedback on

Figure 7: Overview of IRENA's engagements in the Arab region

Pan-Arab Clean Energy Initiative	Country Support	Analytical Studies
<p>The 22 member-countries of the Arab League are considered in the PACE regional initiative based on the Pan-Arab Renewable Energy Strategy 2030 (2014)</p>	<ul style="list-style-type: none"> • RRA Oman (2015) • RRA Mauritania (2015) • Qatar National Stakeholder Consultation (2017) • Post-RRA Mauritania technical assistance programme (in progress) • RRA/REmap Egypt (in progress) • RRA Tunisia (in progress) 	<ul style="list-style-type: none"> • Renewable Energy Market Analysis: The GCC Region (2016) • REmap country report: UAE (2015), Egypt (in progress); • Countries covered in the global REmap 2030 analysis (2016): Egypt, Kuwait, Morocco, Saudi Arabia, UAE; • Evaluating Renewable Energy Manufacturing Potential studies: <ul style="list-style-type: none"> - Egypt, Morocco and Tunisia (2015) - Jordan, Lebanon and the UAE (in progress)

specific needs and priorities, and exchanged views on IRENA's potential role in supporting the uptake of renewables, in consultation with other international organisations, development partners and industry actors active in renewables. As an outcome of the meeting, it was agreed to prepare a regional action plan based on consultations held since 2014 and with specific activities to advance the implementation of the PACE initiative over the next two years. This action plan will be presented to the countries of by the Arab League for Ministerial endorsement. At its last meeting in April, the Arab Ministerial Council for Electricity adopted a resolution welcoming the cooperation with the Agency and agreeing in principle to convene an Arab Energy Ministerial meeting together with IRENA during the next General Assembly in January 2018.

Country support and advisory services

63. IRENA continues to support countries in assessing policies, resource potential and technologies for renewable energy deployment. Such support includes facilitating Renewables Readiness Assessment (RRA) and providing targeted advisory services upon request. The RRAs have been completed for the Philippines and Tanzania, latter with the support of a voluntary contribution from Norway. Department of Energy of the Philippines and the Agency have jointly launched the RRA on 21 April 2017 in Manila. RRAs for Egypt, Panama, Mali, Thailand, Tunisia, Panama, Pakistan and Zimbabwe are underway. RRA advisory services in Mali have included a kick-off workshop in April 2017 followed by a validation workshop planned for May 2017.

64. IRENA is undertaking an RRA/REmap analysis for Egypt through a single streamlined process. This analysis will help the country identify actions needed to improve readiness for scaled-up renewable energy deployment as well as the partners and organisations that can support in delivering these actions. As a follow-up to the technical consultation stakeholder meeting of September 2016, a validation meeting has been organised in May 2017 to collect feedback from national stakeholders.

65. Post-RRA advisory services are becoming increasingly important as countries with RRAs seek to implement recommendations. Recommendations from the RRA Antigua and Barbuda has led the Government of Antigua and Barbuda to work, among other things, on the development of waste to energy technology of biomass

residues. The 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 designed a programme with

"We particularly welcome IRENA's contribution, through the Renewables Readiness Assessment process, in identifying a road-map for ensuring that we can achieve the maximum levels of renewable energy possible at both grid scale and distributed levels."

Asot Michael, Antigua and Barbuda's Minister of Tourism, Economic Development, Investment and Energy.

IRENA support to enhance national long-term capacity and to develop an updated national Energy Masterplan. A final technical review meeting and a high-level national dissemination meeting is currently being planned.

66. Other engagement has included a national stakeholder consultation on renewable energy in Doha, Qatar held in April 2017. IRENA and the government of Qatar held an introductory meeting with key national renewable energy stakeholders from the Ministry of Energy and Industry, Qatar Electricity & Water Company (KAHRAMAA), Qatar Petroleum, Qatar Foundation, Qatar Environment and Energy Research Institute, Nebras Power and Sirajto to explore initiatives led by different key institutions and to initiate a dialogue on renewable energy strategies. The meeting also explored cooperation opportunities with IRENA.

V. Islands: Lighthouses for renewable energy deployment

67. 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 cooperation to facilitate the planning

for, and implementation of, renewable energy solutions.

SIDS Lighthouses

68. IRENA continues to support and manage the SIDS Lighthouses Initiative, which now has 36 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.

69. 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. IRENA supported the Pacific Power Association (PPA) and the University of South Pacific (USP) to complete a grid study for Kiribati, presented at the 25th Annual PPA Conference in Tonga, results of which were published in a journal paper by USP⁴. The Agency is also working with the governments of Fiji and Vanuatu to support the strategic planning for the deployment of renewables through grid integration studies. The grid study for Fiji focuses on grid-connected solar photovoltaics to provide the technical background to support the Department of Energy in designing a policy for grid-connected solar photovoltaic. Similarly, the study for Vanuatu focuses on the second island of the country (Espiritu Santo) to identify technically feasible alternatives toward 100%. The studies will also advise on implementation pathways, facilitating the achievement of targets set in national policies and in their National Determined Contributions (NDCs). Other analytical work undertaken includes a set of tourism-focused case studies for the Caribbean and the Pacific as well as case studies of successful renewable energy projects across all regions in the

Figure 9: Utility Engineers from Tuvalu, Tonga, Federated States of Micronesia, Kiribati and the Cook islands at Hydrotasmania's Flinders, Island Hybrid Energy Hub, December 2016



Figure 8: Ministers, government officials from SIDS, developing partners and industry stakeholders gathered on the sides of the seventh session of the IRENA Assembly



third edition of the Initiative's *Path to Prosperity* report.

70. To transfer knowledge, tackle information gaps and build capacity, the Agency continues to provide training with a range of SIDS Lighthouse partners. In December 2016, IRENA supported training of engineers from utilities of the Pacific Islands in the *IPS Connect 2016* which took place on Flinders Island, Australia. The event included a two-day training on strategic planning for the integration of renewables in isolated systems and site visits to Hydrotasmania's Flinders Island Hybrid Energy Hub. The participants witnessed the possibilities that strategic planning, supported by state of the art

² Antigua & Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Cabo 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, Papua New Guinea, St. Lucia, St. Vincent and the Grenadines, Samoa, Sao Tome and Principe, Seychelles, Solomon Islands, Tonga, Trinidad and Tobago, Turks and Caicos, Tuvalu, and 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, and SE4ALL.

⁴ <http://www.sciencedirect.com/science/article/pii/S0960148117301763>

technologies, offer to achieve very high shares of renewables in their systems. The knowledge acquired during this exchange will facilitate the operationalisation of ongoing and future renewable energy projects. Building on the February 2016 training workshop on enabling environments for nine Pacific SIDS and the Maldives, the Government of Japan and IRENA held the second workshop of the series in February 2017. The workshop provided participants with practical tools to support their energy transition efforts with focus placed on target setting and developing and assessing deployment scenarios to meet targets.

71. IRENA is also supporting the transformation of the power system in the largest SIDS, where more complex processes for the gradual integration of renewable energy resources are required. Building on the REMap analysis for the Dominican Republic from 2016, IRENA is working on a detailed power system transformation technical study, together with the national Energy Commission (CNE) and the transmission system operator OC-SENI. The majority of the analysis will be carried out by local technical experts, with IRENA providing the necessary tools and guidance. In addition to supporting

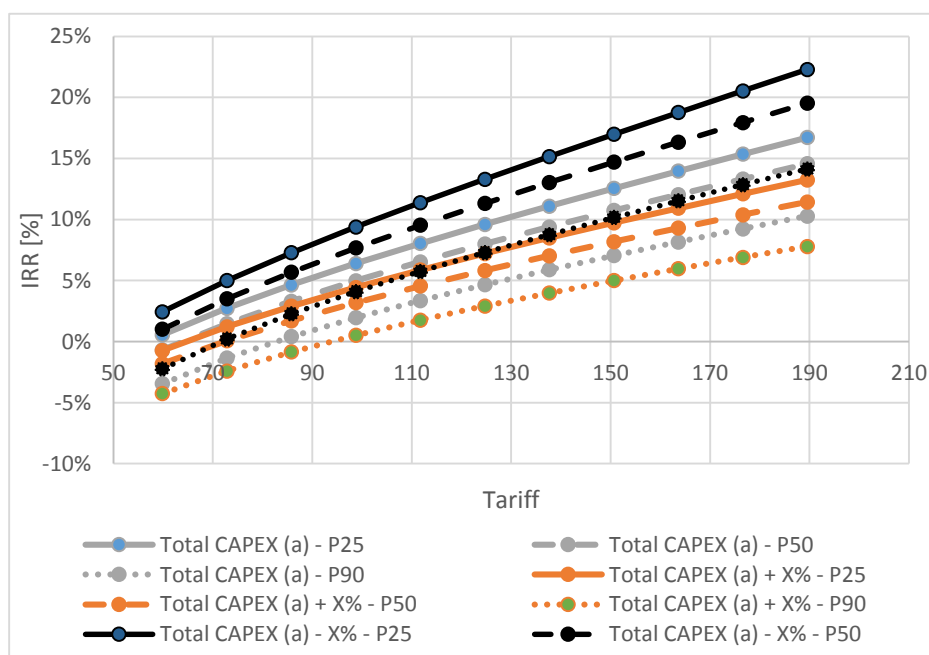
Lighthouses: Atlantic, Indian Ocean, Mediterranean and South China Sea (AIMS)

Within the **AIMS region**, with support from the Lighthouses Initiative, IRENA’s Global Atlas team has developed wind site assessment models. This assessment process was 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. The process involved a preliminary screening of potential environmental issues.

Models will be used to assess other potential sites in the Comoros and is being utilised to support work in IRENA’s Africa Clean Energy Corridor. Results from the assessment models will contribute to preparations for the coming rounds of auctions in the region. Reports on the development of these models were completed in March 2017.

The graph shown below shows sample results for the Maio Island site, Cabo Verde. Cost of capital is assumed to be 8% where economically feasible tariffs for the site (i.e. for the least optimistic scenarios) could range from USD 0.15 to USD 0.19 per kilowatt-hour.

Figure 10: Sensitivity graph of potential tariffs to be expected at the given site in Maio Island, Cabo Verde



the identification of technical measures to achieve national renewable energy targets in the power sector, the analysis will contribute to the strengthening of local capacities through direct engagement of local experts.

72. On the sides of the seventh IRENA Assembly, discussions took place with the Governments of Palau and New Zealand regarding IRENA support to Palau in the development of a national energy roadmap. The Government of New Zealand and the European Union planned a scoping mission to Palau in March 2017 to identify potential renewable energy projects for grant funding. During the scoping mission a first draft of the roadmap including preliminary findings was discussed and shared and useful feedback collected which will further inform the update of the roadmap and the underlying analysis.

VI. Gateway to knowledge on renewable energy

73. Building on work from 2016, the Agency has continued its focus in 2017 on dissemination of objective, timely, and authoritative information to reach diverse audiences worldwide. New data and analysis have been released and outreach activities in areas of quality infrastructure analysis have helped spread recent analytical findings and increase.

RE Statistics

74. The third edition of *Renewable capacity statistics* was published in March 2017, presenting global data on renewable energy capacity from 2000 to 2016 and including additional details for off-grid renewables. The latest statistics show that global renewable energy capacity increased by a record 161 GW (8.7 %) in 2016 reaching an overall capacity of 2,006 GW globally, with the centre of capacity growth continuing to shift towards less developed countries.



75. To improve the availability of data and facilitate trade, IRENA made a proposal to the World Customs Organisation (WCO) to clarify the Harmonized System codes used to record trade in solar energy products (solar water heaters, panels, lights and generators) and will continue to work with the WCO to ensure that revised codes are adopted in the next edition of the Harmonized System (HS2022). In collaboration with OECD, IRENA is also starting to compile the data required to monitor Sustainable Development Goal, Indicator 7.a.1: International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems.

76. To help build local capacities in data collection, IRENA published two statistical guides in 2016 and held three renewable energy statistics training workshops in South Africa - with in-kind support from the Government of Denmark – Hungary and Thailand – with support from the Government of Germany and the FAO - training 115 statisticians and national energy experts from 45 countries. In February 2017, IRENA held a fourth statistics training workshop at IRENA HQ, providing training to 26 energy statisticians from 17 countries in the MENA region. As in previous years, these training workshops have had a measurable impact in terms of an increase in the number of countries being able to produce internationally comparable renewable energy statistics.

The Global Atlas

77. The increased momentum of renewables deployment has led to a repositioning of the IRENA Global Atlas to provide services that support accelerated project feasibility analysis. IRENA has also 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. Preferential zones are identified in partnership with IRENA Members through the Corridors and Islands programmes. For these zones, IRENA illustrates potential LCOE depending on financial scenarios. IRENA carried out such analysis in two sites in Cabo Verde and four sites in Comoros in 2016 and 2017. Currently, the Agency is strengthening internal capacity to perform these analyses for solar photovoltaic and solar

hybrid systems to facilitate cost-effective analyses for electrification programmes.

78. IRENA's support to assessing potentials is also being improved with the recent release of a global bioenergy simulator for 14 crops, 30 residues types, 9 livestock waste types, 52 species for forest plantations, 25 production processes and 3 end uses. The simulator provides energy production estimates for any area and highlights major sustainability challenges. It was released for crowdsourcing validation to assess biases and uncertainties on final results. To date, the validation process has not uncovered errors; however, IRENA will maintain the capability for users to continue to send feedback.

79. A global wind LCOE calculator has been developed that can simulate wind farm production and LCOE for a large number of wind turbine types, at any point on the globe. The calculator builds on the global wind atlas released by the Technical University of Denmark (DTU) in 2015, with the support of Denmark. The underlying datasets include the DTU Global Wind Atlas at full resolution (250 meters worldwide); a database of wind turbines for the most common wind classes; and IRENA's costing database. The tool is designed to provide ranges of LCOE estimates to account for uncertainties.

Quality and infrastructure, standards and patents

80. IRENA has continued its work on quality and infrastructure this year. Participant input was received on the dialogue event *Green Quality Dialogue* which took place in November 2016 on the potential of

"The presentations and speakers were excellent! It would be great to have a whole day workshop with these kinds of presentations."

Green Quality Dialogue participant

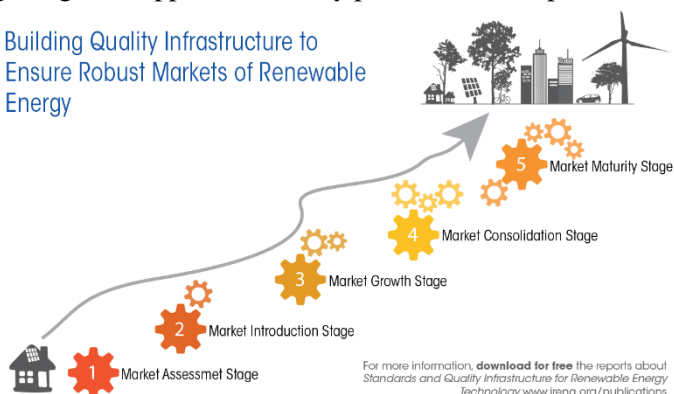
quality infrastructure services for sustainable economic development and was hosted in cooperation with the German Metrology Institute and Physikalisch-Technische Bundesanstalt (PTB). Since the event, IRENA has received requests to support the development of quality assurance systems for

Latin America and the Caribbean. Further, event conclusions have informed the development of the BMZ German Development Cooperation for the Latin American Region.

81. Multiyear work has resulted in formalised, systemic collaboration with the European Patent Office (EPO). In April 2017, the Agency signed an MOU with the European Patent Office (EPO) to increase cooperation including use of EPO's Worldwide Patent Statistical Database (PATSTAT) at no cost. EPO data is used in the IRENA INSPIRE platform, providing information on patent application processes and patent development. Cooperation has not only resulted in cost-efficiencies but will allow IRENA to further leverage the work of EPO paired with in-house expertise to help users better understand patents today and improve patent development for emerging renewable energy technologies.

82. IRENA is also expanding its reach through targeted support to industry partners. A European Union project, *EU-GCC Clean Energy Technology Network*, has requested IRENA's support in the creation of a network of photovoltaic test laboratories in the Gulf Cooperation Council region. IRENA will advise on initiative development during a workshop to take place in the UAE in May 2017. The workshop will seek to harmonise technical requirements and test methods for solar photovoltaic systems to advance regional renewable energy deployment goals.

Building Quality Infrastructure to Ensure Robust Markets of Renewable Energy



National institutes are also expanding their support to IRENA's activities in the field of quality and standards. The German Metrology Institute, for example, has increased cooperation with IRENA by sending a seconded staff to work with the Agency in this area.

Multi-stakeholder engagement

83. In January 2017, the annual strategy meeting of the IRENA Coalition for Action was held in

conjunction with the seventh IRENA Assembly. During the meeting, Coalition members expressed a strong interest to engage with and contribute to the substantive work of IRENA. The Coalition adopted a work plan divided into three streams, including the continuation of the Communication network, the creation of a Business and Investors group, and the formation of a task force for engagement with IRENA. Coalition activities include support for the development of an index for corporate sourcing of renewable energy, a *REmade Index*, which is currently under development. The REMade Index is made possible thanks to a voluntary contribution from the Government of Germany. This work will also contribute to the Clean Energy Ministerial corporate sourcing campaign.

VII. Enhancing international cooperation and communication and outreach

84. The 2016-2017 biennium offers the opportunity to deepen and broaden IRENA's external engagement, communication and outreach efforts to achieve greater impact and reach wider audiences. IRENA's communication and outreach strategy in 2016 focused on positioning renewable energy as the solution to a host of economic, social and environmental issues, in addition to building on the momentum of the climate "solutions agenda". In 2017, IRENA continued to strengthen its role as the global voice of renewables in a number of key international settings through various targeted media campaigns, publication launches and attendance at key events.

Facilitating international co-operation

85. The seventh session of the Assembly of the International Renewable Energy Agency (IRENA) was held on 14 and 15 January 2017, in Abu Dhabi, United Arab Emirates. There were over 1050 registered participants, including 63 Heads of State or Government and Ministers, along with delegates from 130 Members, 17 Signatories and States in Accession, four other states, and 137 other entities. The Assembly was a platform for interaction between policy-makers at the highest level on issues of common interest in light of the adoption of the Sustainable Development Goals (SDGs), the entry into force of the Paris Agreement, and countries' efforts towards decarbonisation and transformation of their energy systems.

86. During the Assembly, delegations participated in Ministerial and high-level programmatic discussions which brought together ministers, high-level government officials, and senior-level representatives from the private sector and civil society. The discussions included two Ministerial Roundtables enabling the exchange of experiences on *Innovation for the Next Stage of the Power Sector Transformation*, *Catalysing Off-Grid Renewable Energy Deployment – Towards Universal Access and the Attainment of SDGs*, and three Plenary sessions on the role of corporate sourcing, technological innovation, and Nationally Determined Contributions (NDCs) within the context of the Paris Agreement to accelerate renewable energy deployment. The Assembly also featured high-level remarks by the President of the United Nations' General Assembly on the need to accelerate a global energy transition to cleaner, renewable sources and on the transformation of the energy system and the attainment of the Sustainable Development Goals.

87. In addition to Ministerial and plenary discussions, six thematic meetings were held around the seventh Assembly session. The meetings, which included the active participation of Ministers and other high-level representatives, provided a platform for focused discussions on IRENA's work. Topics included the SIDS Lighthouses Initiative, renewable energy project facilitation, bioenergy, the upcoming IRENA *Innovation Landscape Report* for the power sector, and engagement with non-governmental actors through the Coalition for Action. Furthermore, at the High-level Meeting on Renewable Energy in South East Europe participating Heads of delegations endorsed the *Abu Dhabi Communique on accelerating the uptake of renewables in South East Europe* (for more information see section on Enabling Regional action).

88. The second Legislators Forum was held in conjunction with the seventh session of the Assembly. The meeting was attended by members of parliament from 15 countries and the European Union who exchanged best practices, experiences and challenges in developing enabling legislative frameworks and mobilising finance to accelerate the deployment of renewable energy. Discussions included the role

of parliamentarians in implementing energy-related components of the SDGs, the promotion of energy access through off-grid renewable energy solutions, as well as the implementation of the NDCs within the framework of the Paris Agreement. A third edition of the Forum is currently being planned to take place in conjunction with the eighth session of the Assembly. As part of the Agency's efforts to engage with parliamentarians who share a specific interest in renewable energy, IRENA has been invited to provide substantive inputs into renewable energy-related meetings within a more region-specific parliamentary context.

89. The Assembly was followed by the World Future Energy Summit (WFES) which featured a number of meetings hosted by IRENA, bringing together decision-makers and experts from government, the private sector, civil society, and research and academia to discuss policies, business models and technologies as well as the role of international energy cooperation as a driver to scale-up renewable energy deployment to achieve SDGs and to decarbonise the economy.

90. To enable the widest possible participation of Members in IRENA governing body meetings, the Fund for Developing Country Representatives (FDCR) supported the participation of 64 delegates from 36 Least Developed Countries and Small Island Developing States in the IRENA seventh Assembly. Efforts continue to be undertaken to encourage Members to provide contributions to the Fund to ensure a high level of inclusiveness and participation in upcoming Council meetings and the eighth session of the Assembly in 2018. The organisational aspects related to the use of FDCR to ensure the participation of country representatives in governing body meetings at Headquarters, as well as the logistical aspects more generally associated with the participation of relevant experts in other IRENA programmatic meetings worldwide have been streamlined to ensure the most efficient and cost-effective use of available resources.

91. The Agency has continued to step 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 by engaging with and contributing to, the Agency's activities and initiatives. Membership Communication tools include the "IRENA Bulletin", the "In Focus" brief, and the "Publications Update". Furthermore, the "IRENA events" and the "Global Renewable Energy Events" calendars provide relevant updates that may be of interest to the membership. The "REview for Parliamentarians", a periodic brief compiling targeted information on renewable energy for members of parliament is also being issued on a regular basis, with work underway to make it available in different languages such as in Arabic, English, French, and Spanish.

92. Members continue to be encouraged to accredit Permanent Representatives and to facilitate engagement through regular meetings and discussions. Since the beginning of 2017, the number of Members that have appointed a Permanent Representative to IRENA has grown from 43 to 45. Norway and the Dominican Republic have most recently accredited their ambassadors as Permanent Representatives to IRENA, with a number of other Members in the process.

93. IRENA has continued to strengthen its role as a global voice of renewables in a number of key international settings. Within the United Nations' context, the Director-General participated, in March, in the High-Level event organised by UNFCCC and the President of the UN General Assembly to identify action pathways to make progress across the SDGs and climate agendas. Furthermore, IRENA continues to support global measurement efforts to support the implementation of the SDGs agenda and has been recognised by the UN community as a key source of statistical data and analysis for renewables and clean energy investment-related targets.

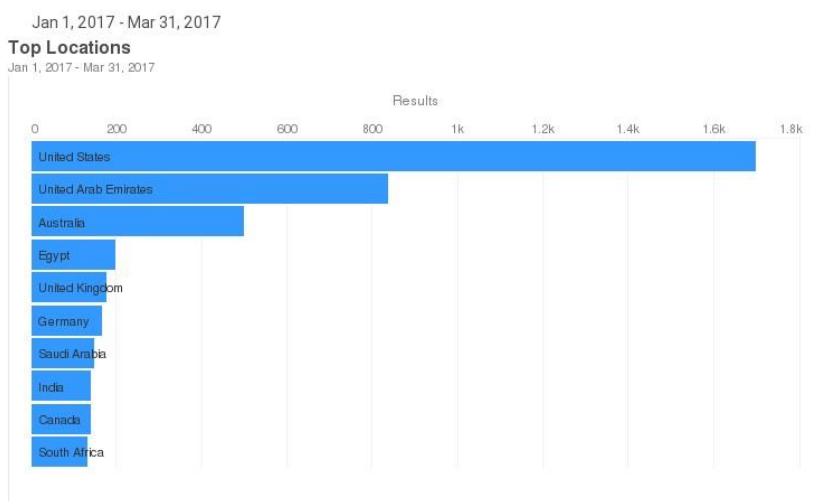
94. The total number of IRENA Members stands today at 150 (149 States and the European Union). Since January 2017, the number of states in accession has increased from 27 to 30, the latest additions being Andorra, Burundi, and Dominica.

Dissemination of knowledge, data and analysis

95. During the reporting period, the Agency continued to implement its communication strategy, which is focused on positioning renewable energy as the solution to a host of economic, social and

environmental issues including meeting growing energy demand, creating sustainable economic growth and social prosperity, climate change, air pollution, energy access etc. The strategy employs the use of planned major campaigns, smaller campaigns, and sustained social media and media relations activities, to align with relevant international events for maximum exposure and amplification.

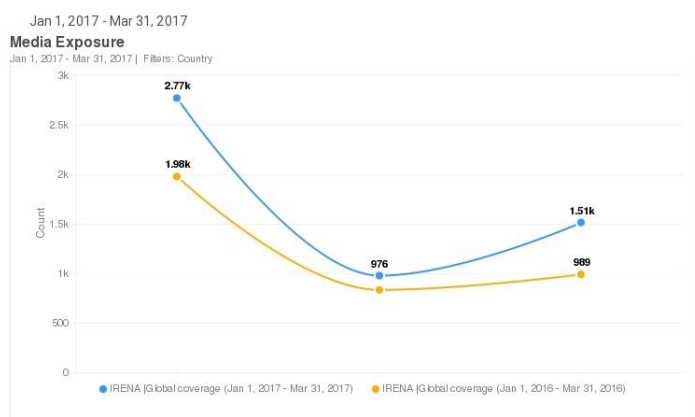
Figure 11: Media mentions by top locations



96. In 2017, the strategy was first deployed for the seventh session of the Assembly, using multi-lingual press releases, press events, an #IRENA7A social media campaign, infographics, promotional materials and hosted media programmes. To grow the visibility of the Agency internationally; the year also began with a multi-pronged strategic media partnership with CNN. The partnership included a global television campaign, featuring a 30-second spot which aired over 200 times globally. Research conducted by CNN showed that it scored higher than average in terms of interest and impact and that respondents “felt that it gave them a better understanding and awareness of IRENA and made them want to learn more.” The digital component of the campaign garnered 850,000 impressions over two weeks and according to research had a considerably higher response rate than network average. The partnership also included engagement with CNN on-air personalities to host IRENA events including a Ministerial Roundtable on power sector transformation at the seventh Assembly and the Agency’s annual evening stakeholder event held following the conclusion of the Assembly. The event was attended by 300 international and local stakeholders and featured the launch of the third edition of *REthinking Energy*. The final element of the campaign included editorial coverage of IRENA’s activities aired on prime-time news programming.

97. During the reporting period, on average one focused communication campaign has been launched per month, allowing sufficient time to support targeted outreach efforts and conduct smaller-scale communication efforts concurrently. Full strategies were designed and implemented for the seventh Assembly and related meetings, COP22 in Marrakesh, and, among others, the launch of the publications *REthinking Energy 2017*. The joint IEA-IRENA publication, *Perspectives for the Energy Transition*, launched at the Berlin Energy Transition Dialogue in March 2017 garnered significant media attention with over 700 media mentions to date, including in major global newswires the Associated Press, Bloomberg and Reuters.

Figure 12: Media exposure, January – March 2016 and 2017



98. During the first three months of 2017, the Agency’s media relations efforts have resulted in over 5,200 mentions in media across 110 countries and in 29 languages. This represents a 38% increase in media coverage over the same period in 2016 (see Media Exposure graphic below). Coverage peaks in this time frame came during the 7th Assembly as well as around the

release of *Perspectives for the Energy Transition* and IRENA's annual *Renewable Energy Statistics*. In addition, the Agency has distributed press releases in different languages, particularly, Arabic and English, and conducted numerous press events. Growing attention to IRENA and coverage of its outputs reflects increased recognition of IRENA as a reliable and credible source of renewable energy information, data and statistics.

99. In 2017, websites continued to be one of the Agency's principal vehicles for communications and outreach. IRENA websites garnered over 555,000 page views in the first three months — almost 35% more than the same period in 2016 — from nearly 127,000 users, in over 228,000 different sessions. The IRENA website has attracted readers from all over the world as the Agency continues to grow as a recognised source of reliable renewable energy information for stakeholders. IRENA publications and knowledge products were downloaded over one million times over the course of 2016 and growth trends continue in 2017. The Agency is currently undertaking a website redevelopment project to better reflect its content and create a cohesive web experience for Members and other stakeholder groups.

100. IRENA has also continued to increase its activity and grow its communities across its digital and social media platforms, promoting both Agency activity as well as global developments in renewable energy. Since the beginning of 2017, the number of the Agency's followings on Twitter has grown by 19% to over 25,000 and has made over 3.87 million impressions. IRENA's followings on Facebook, LinkedIn and Instagram have increased 6.5 %, 10.5% and 41% respectively in the same period. In addition, hundreds of images were added to IRENA's Flickr photo album, allowing public access to IRENA's high-quality photos for use by stakeholders and the general public. Contributing to this, IRENA developed infographics featuring key statistics and messages in support of and to track the global energy transition. Also, an increasingly diverse range of videos has been produced in-house, and have been disseminated on platforms such as the Agency's YouTube channel. The expansion of coverage of major events, projects and topics aim to strengthen IRENA's role as the global voice for renewable energy and support the Agency's engagement with the renewable energy community as well as international processes and organisations.

101. The IRENA Newsroom continues to be a dynamic platform for Agency communications, featuring approximately six articles per month, including coverage of key Agency activities, general renewable energy issues and feature series. With over 15,000 visitors and 25,000 views in the first quarter of 2017, the Newsroom continues to grow in readership thanks to its expanded scope, consistent publication schedule, focused promotion and increased recognition as a source of reliable renewable energy knowledge and information.

102. IRENA continues to strengthen existing and establish new strategic communications partnerships and networks. New partnerships with multiplier organisations including the European Climate Foundation and Climate Nexus have significantly contributed to the impact of IRENA's global media relations activities, improving press coverage for select reports in key markets including Europe, China, Australia, and the Americas. In addition, work continues to amplify IRENA outputs by engaging the Coalition for Action through a Coalition communicators group.

103. 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. The Agency has released 12 new reports and briefs since the beginning of 2017. Each release has benefited from reader-friendly web content and targeted communications activities. Each 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. IRENA publications have been downloaded 394,000 times in the first three months of 2017, with publications focusing on costs, energy transition, socio-economic benefits, technology and policy garnering significant attention. In addition, *REthinking Energy 2017* was downloaded over 17,000 times in the first quarter alone.

104. 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 to ensure a transparent, cohesive process that ensures timely information-sharing and continues to strengthen IRENA's brand as a publisher. Dissemination channels are being progressively

expanded, following evaluations during 2016 of the suitability of various content-provider and digital library platforms for IRENA publications.

105. In addition to the global communications efforts underway, several steps have been taken to enhance the Agency's outreach in the Host Country. This has included hosting high-level visits and regular briefings for local and international stakeholders at Headquarters. As part of the efforts to increase engagement with youth at Headquarters a "Summer Trainee Programme" targeting undergraduate students was launched to provide them with an opportunity to learn more about IRENA.

Strengthen institutional structures and accountability

106. The Agency continues to engage in the negotiation of a supplementary agreement with the Government of the United Arab Emirates to govern IRENA's occupancy of its permanent headquarters in Masdar City, as well as different Memoranda of Understanding and voluntary contribution agreements with various partners and donors. It also continues to facilitate the implementation of the Agreement on the Seat of the IRENA Innovation and Technology Centre. In addition, IRENA continues its outreach to increase the number of Members granting privileges and immunities to the Agency. To date, Egypt, Germany, Poland, Spain and the United States have implemented Assembly decision A/3/DC/5 on an Agreement on Privileges and Immunities for IRENA.

VIII. Administration and Management Services

107. The Administration and Management Services continued its efforts to provide support to the Agency to implement the biennium work programme, while seeking and providing solutions and enhancements to current processes. In this regard, the implementation of the Oracle ERP system is underway and, when fully implemented, will further enhance the business processes of the Agency, while increasing efficiency.

Finance and budget

108. Finance and budget services continue to support the Agency's full compliance with its Financial Regulations and Procedures. 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 addressing internal and external audit recommendations and extensive efforts associated with the ERP implementation.

Information and Communication Technology

109. As a knowledge-based organisation operating in an increasingly digital environment, ICT has become a strategic enabler and tool for the Agency in the implementation of its Work Programme. To lower the operational risks and reduce costs related to ICT support, many out-sourced services have been in-sourced, strengthening internal capacity. Further, to enhance the availability and resilience of ICT services, IRENA has adopted hybrid Cloud-based and on-site infrastructure and services, which provide increased operational flexibility with no major capital investments needed for ICT infrastructure. Ongoing monitoring and reviews of ICT services ensure the right technology and deployment models for IRENA while keeping in mind current and future requirements of the Agency.

Human Resources

110. The human resource functions of the Agency span administrative, operational and strategic activities. In 2017, efforts are focused on aligning human resource policies and processes more closely to the Agency's strategic objectives, including long-term and proactive workforce planning and sourcing, building organisational capabilities that are needed to achieve the goals and outcomes with

the right combination of skills, knowledge, competencies and expertise, and promoting geographical, cultural and gender diversity. Human resource practices, rules and procedures will continue to be refined and updated to ensure effective and efficient responsiveness to the emerging and evolving needs and challenges of the Agency while safeguarding its values and principles.

111. Attracting, developing and retaining highly qualified staff is key to the Agency’s success. In this respect, IRENA will step up its outreach and forecasting efforts to attract talent from all over the world. Between 1 January 2017 and 31 March 2017, 14 vacancies (core and non-core) attracted over 4800 applications. Out of 90 core posts, 82 are filled or under recruitment (69 filled and 13 under active recruitment) and 8 are vacant [Table 1 and Figure 13]. The 69 staff with fixed-term appointments are from 41 nationalities [Figure 15] out of which 48 percent are women and 52 percent are men [Figure 14].

Table 1: Approved and filled/under recruitment posts by level as of 31 March 2017

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	23
Total	90	82

Figure 13: Staffing status as of 31 March 2017

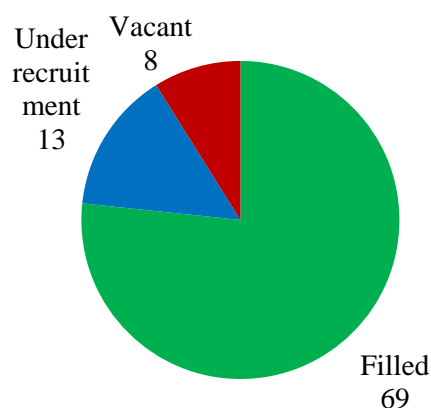


Figure 14: IRENA staff gender distribution as of 31 March 2017 (based on filled posts)

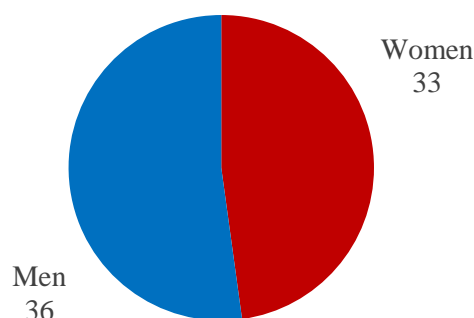


Figure 15: IRENA staff nationalities as of 31 March 2017 (based on filled posts)

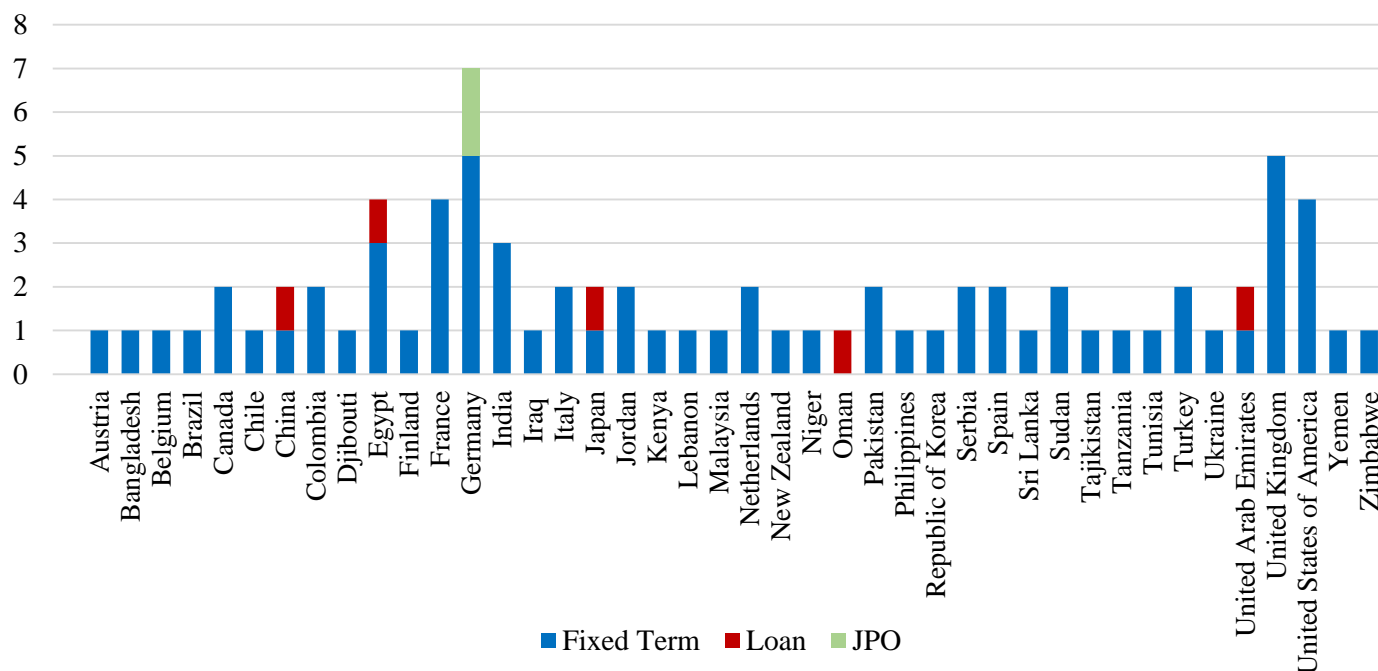


Table 2: Loaned Personnel

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
IITC	Programme Officer – REmap/RRA Egypt	Egypt

Table 3: Junior Professional Officers (JPO)

Division	Title	JPO from
KPFC	Associate Programme Officer - Policy	Germany
IITC	Associate Programme Officer - Energy Planning	Germany

Procurement

112. 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 as well as disseminated to the vendors registered with IRENA. Through continuous market research and a recent call for Expression of Interest (EOI), IRENA's vendors' database has been further developed and includes more than 350 new vendors specialised in renewable energy consulting services from around 25 countries worldwide. More than 500 contracts were awarded in 2016, valued at more than seven million US dollars.

General services and travel

113. 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, workshop and event arrangements. In 2016, the Agency facilitated participation in 26 workshops and coordinated 1800 requests. The General services function of the agency continues to provide facility management services for IRENA headquarters and staff. Facility Management is an important function which contributes to a healthy and productive work environment while delivering continuous day to day services for staff. As part of these ongoing services, General Services has implemented a Health and Safety programme.

Biennial budget overview

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

	2016-2017 Biennium Budget	Utilisation as at 31 March 2017	
		Commitment and Expenses	Proportion of 2016- 2017 Biennium Budget
Assessed Contributions (Core Budget)	42,934	31,324	73%
Core Non-Assessed UAE			
UAE Support	5,000	2,959	59%
Governing Body Meetings	3,200	2,881	90%
Subtotal UAE	8,200	5,840	71%
Core Non-Assessed Germany			
Innovation and Technology	10,000	6,947	69%
Subtotal Germany	10,000	6,947	
Total Core Non-Assessed	18,200	12,787	70%
Grand Total	61,134	44,111	72%

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

Division/Thematic Area	Combined Core Assessed and Core Non- Assessed		Budget Utilisation as at 31 March 2017	
	Amount (USD)	Proportion of Total	Amount (USD)	Proportion of Biennium Budget
A. Strategic Management and Executive Direction	14,037	23%	8,531	61%
Governing Body Meetings	3,200	5%	2,841	89%
Subtotal	17,237	28%	11,372	66%
B. Thematic Programme Area				
Planning for the renewable energy transition	5,771	9%	5,370	93%
Enabling investment and growth	8,871	15%	5,826	66%
Renewable energy access for sustainable livelihoods	2,060	3%	2,241	109%
Regional action agenda	8,004	13%	5,046	63%
Islands: lighthouses for renewable energy deployment	911	1%	679	75%
Gateway to knowledge on renewable energy	7,105	12%	4,733	67%
Subtotal	32,723	54%	23,895	73%
C. Administration and Management Services	11,174	18%	8,844	79%
Total Estimated Requirements	61,134	100%	44,111	72%

Table 6: Core non-assessed and other Voluntary Contributions, as of 31 March 2017 in USD

Core Non-Assessed Contributions

	2016-2017 Biennium	
	Budgeted	Received
GERMANY		
IRENA Innovation and Technology Centre	10,000,000	7,450,000
United Arab Emirates (UAE)		
UAE Support	5,000,000	2,500,000
Governing Body Meetings	3,200,000	1,600,000
Subtotal UAE Contributions	8,200,000	4,100,000

Total Budgeted Voluntary Contributions	18,200,000	11,550,000
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Other Voluntary Contributions

Donor/Project	2016-2017 Biennium	
	Committed	Received
United Arab Emirates (UAE)	4,149,847	2,449,847
Germany	4,995,033	2,513,478
Japan	1,086,608	1,086,608
France	530,970	530,970
European Commission	326,087	97,830
Kingdom of the Netherlands	108,696	-
Subtotal	11,197,240	6,678,733

Fund for Developing Countries Representatives

Donor	2016-2017 Biennium	
	Committed	Received
United Arab Emirates (UAE)	200,000	200,000
Germany	100,000	100,000
Subtotal	300,000	300,000

Total Additional Voluntary Contributions	11,497,240	6,978,733
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Figure 16: Received and outstanding assessed contributions for 2016 core budget (as of 31 March 2017)

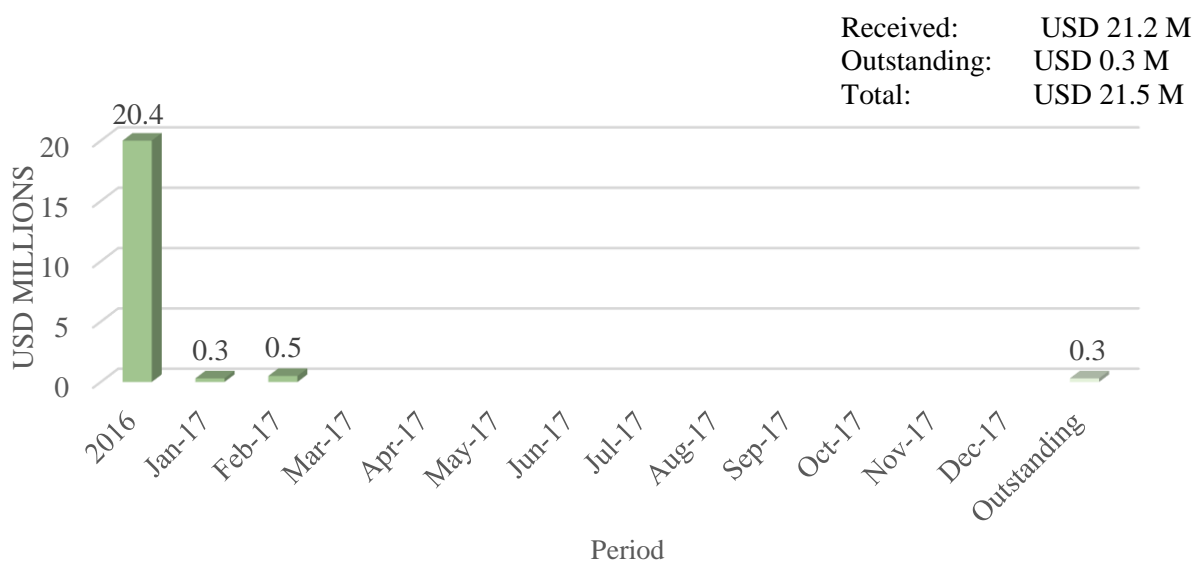


Figure 17: Received and outstanding assessed contributions for 2017 core budget (as of 31 March 2017)

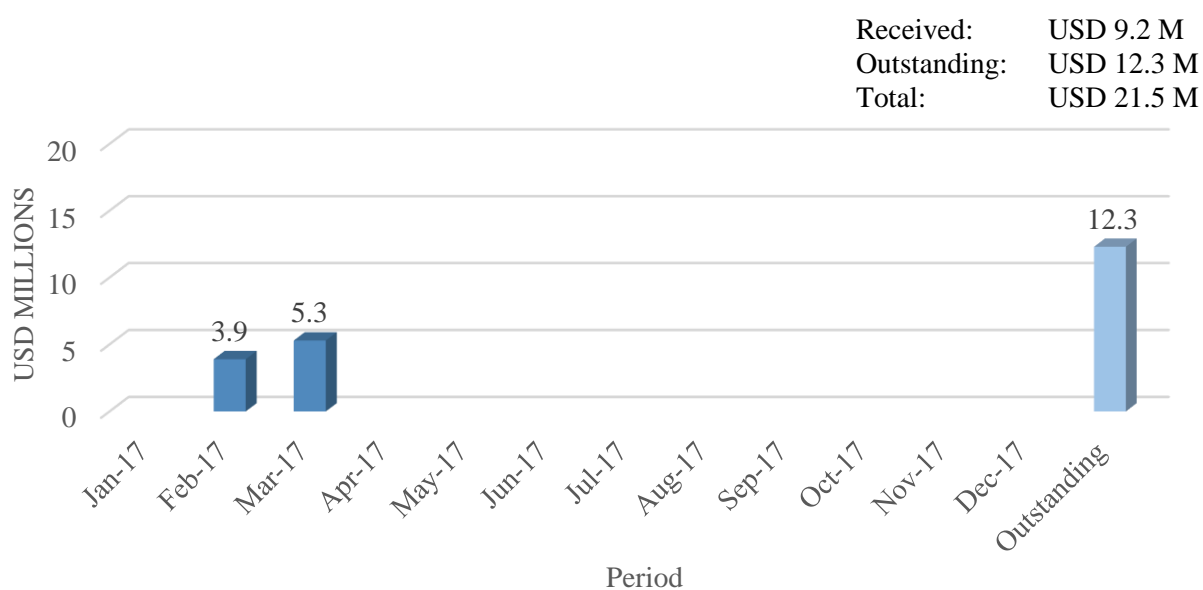


Figure 18: Status of assessed contributions to the 2016 core budget (as of 31 March 2017)

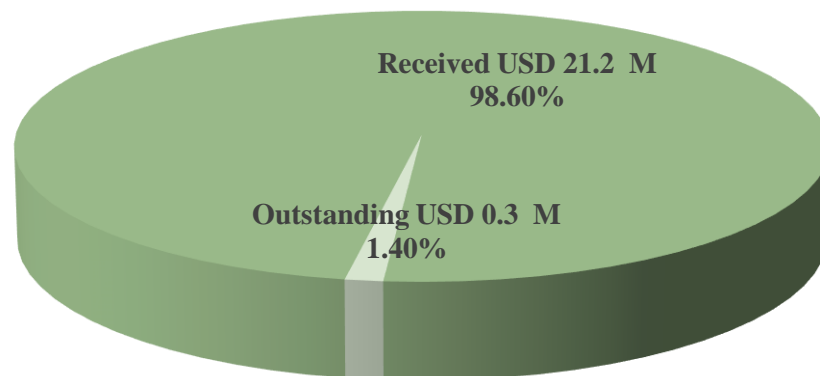


Figure 19: Status of assessed contributions to the 2017 core budget (as of 31 March 2017)

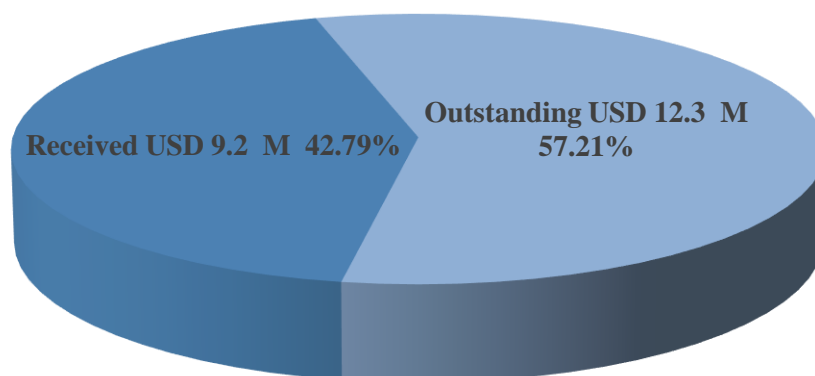


Figure 20: Number of Members with received and outstanding contributions to the 2016 core budget (as of 31 March 2017)

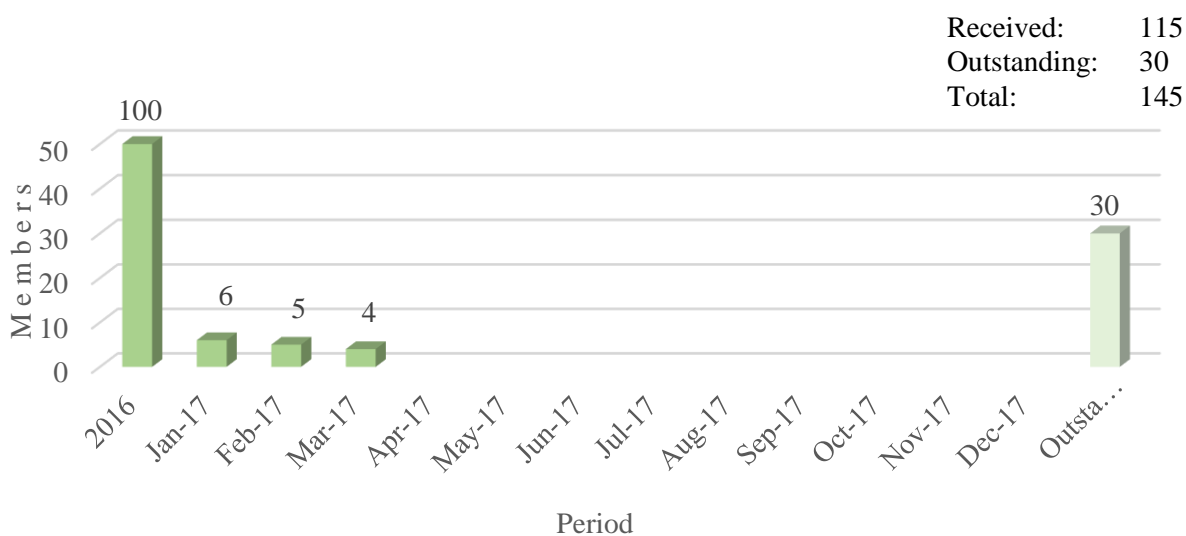
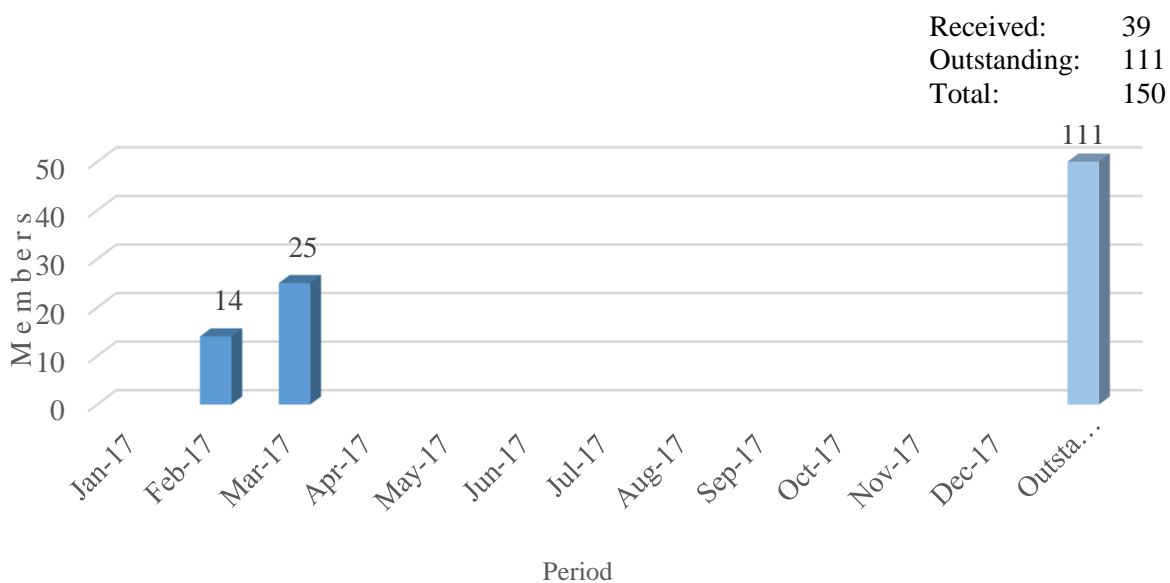


Figure 21: Number of Members with received and outstanding contributions to the 2017 core budget (as of 31 March 2017)



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. 	<p>Completed.</p> <ul style="list-style-type: none"> The third edition of REthinking Energy was completed and released at the IRENA seventh Assembly, with global citations and downloads. 			Q3 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	<ul style="list-style-type: none"> • Methodology for grid integration planning.* 	<p>Completed.</p> <ul style="list-style-type: none"> • AVRIL report on tools for planning under development. <p>In progress.</p> <ul style="list-style-type: none"> • Expansion of IRENA's grid integration methodology to plan the development of flexible power systems compatible with renewable energy integration targets for islands. 	<ul style="list-style-type: none"> • Deployment of methodology for grid integration planning. 	<p>In progress. Ongoing</p> <ul style="list-style-type: none"> • Deployment of ACEC zoning work into SPLAT model. • Application of GIS based zoning approach to power sector planning • Advise member countries on application of IRENA's methodology to plan the development of flexible power systems compatible with renewable energy integration targets is ongoing. • Outreach activities: Participation on expert meetings and publication of produced content. <p><i>VC from the Government of Norway. Additional resources required.</i></p>	<p>Q2 2016 Q4 2017</p>

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)	<ul style="list-style-type: none"> • Workshop on methodology for integration planning.* 	<p>Completed.</p> <ul style="list-style-type: none"> • The IRENA Innovation Week, May 2016 included a workshop for integration planning. • Outreach on addressing variable renewable energy integration planning in emerging economies is completed. • Technical workshops for grid operators in Central America in Panama in October 2016. 	<ul style="list-style-type: none"> • One additional workshop on integration planning. 	<p>Completed</p> <ul style="list-style-type: none"> • 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. <p><i>VC from Germany, New Zealand and Norway.</i></p>	<p>Q2 2016 Q2 2017</p>
	<ul style="list-style-type: none"> • Advice on use of established industry simulation tools for planning.* 	<p>Completed.</p> <ul style="list-style-type: none"> • Comparative study on modelling tools finalised, and released. • Advice on use of tools ongoing. 	<ul style="list-style-type: none"> • Simulation tools applied. 	<p>Completed.</p> <ul style="list-style-type: none"> • Applied for EU REmap <p><i>Voluntary contribution from the EU.</i></p>	<p>Q4 2016</p>

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)	<ul style="list-style-type: none"> Latin America country studies on integration of VRE into long-term planning.* 	<p>In progress.</p> <ul style="list-style-type: none"> Latin American country studies on system planning towards a higher share of renewable energy in energy mix. Dominican Republic Power sector analysis for REmap. Phase I of the pilot study for grid integration planning in Panama is currently underway. This is part of the CECCA initiative. 	<ul style="list-style-type: none"> Training programme on the use of long-term planning tool in Africa. 	<p>Completed.</p> <ul style="list-style-type: none"> 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> IAEA trainings in progress. <i>Voluntary contribution from the Government of Norway.</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)	<ul style="list-style-type: none"> Indicator system for flexibility assessment of power systems.* 	<p>In progress.</p> <ul style="list-style-type: none"> The IRENA Innovation week provided input into the development of the indicator system. Creating online interactive guide to map relevant (flexibility) measures for the integration of renewable power - “development of methodology for assessing the flexibility of REmap country power systems” 	<ul style="list-style-type: none"> 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. 	<p>Resources not identified.</p>	<p>Q2 2016 Q4 2017</p>
			<ul style="list-style-type: none"> Guidelines on EVs, interconnectors and electricity storage as flexibility measures. 	<p>In progress.</p> <ul style="list-style-type: none"> Developing the global storage valuation framework. <i>VC from Government of Japan.</i> <i>Additional resources required.</i> 	<p>Q4 2016⁵</p>

⁵ Timeframe adjusted

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)			<ul style="list-style-type: none"> Country application of innovative grid and market design guidelines and methodologies, upon request. 	<p>In progress.</p> <ul style="list-style-type: none"> Grid methodology for energy storage valuation for South Africa. <i>VC from the Government of Japan.</i> <p><i>Additional resources required.</i></p>	Q1 2016 - Q4 2017
			<ul style="list-style-type: none"> Advisory services on the development of power sector transition plans. 	<p>Completed.</p> <ul style="list-style-type: none"> Advisory services provided to Swaziland which are strengthening national capabilities in strategic long-term energy planning. <i>Voluntary contribution from the Government of Norway.</i> 	Q1 2016 - 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		
Transforming Energy	<ul style="list-style-type: none"> REmap global technology roadmap analysis - third edition (40 countries).* 	<p>In progress.</p> <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. 	<p>In progress.</p> <p>Finalised:</p> <ul style="list-style-type: none"> REmap India REmap Dominican Republic REmap Indonesia REmap Russia REmap ASEAN REmap G20 toolkit (2016) G20 reports (2017) REmap Energy Efficiency Decarbonisation report Stranded assets working paper Innovation action agenda paper Methodology and resource assessment paper REmap District Heating and Cooling Transport sector working paper 30 new countries have been included in the global framework Two national expert workshops Contributions to SE4All GTF <p>Developing:</p> <ul style="list-style-type: none"> REmap South Africa REmap EU REmap Kazakhstan REmap/RRA Egypt REmap/RRA Thailand EE/RE synergies paper Transport Action Team G20 decarbonisation factsheets <p><i>VC from the EU and Governments of Germany and Japan</i></p>	<p>Q1 2017</p> <p>Q4 2017</p>

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Transforming Energy (continued)			<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
			<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

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

Component	Activities			Timeframe**	
	Core	Status	Other sources		
Transforming Energy (continued)			<ul style="list-style-type: none"> • Bioenergy cost-supply report. 	<p>Completed.</p> <ul style="list-style-type: none"> • Analysis <i>Boosting Biofuels</i> published in May 2016, presented in multilateral fora. • Follow-on analysis of resource potential in Southeast Asia circulated at IRENA's 7th Assembly. • Workshop comparing sustainable supply estimates, Berlin, September 2016 • Joint brief on sustainable resource potential with FAO and IEA Bioenergy discussed at IRENA's 7th Assembly side event and finalised. <p><i>VC from the Government of Japan and the Government of Germany.</i></p>	Q4 2016
			<ul style="list-style-type: none"> • Data on processing residue availability to support project development. 	<p>In progress.</p> <ul style="list-style-type: none"> • Biomass residue data collection and analysis for several countries in Sub-Sahara Africa underway. <p><i>VC from the Government of Japan</i></p>	Q2 2016 - Q2 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	
Transforming Energy (continued)			<ul style="list-style-type: none"> • A bioenergy assessment tool for Global Atlas to include costs and other parameters. 	<p>Completed.</p> <ul style="list-style-type: none"> • Bioenergy simulator presented at IRENA's 7th Assembly, available on website. To be refined per improved yield data. • Webinar on simulator took place April 20th. <i>VC from PRIMAFF and the Government of Japan and in kind resources from the Government of Belgium.</i> 	Q4 2016
			<ul style="list-style-type: none"> • Advisory services on bioenergy technology options, upon request. 	<p>In progress.</p> <ul style="list-style-type: none"> • Workshop on bioenergy project development under preparation. • Development of G20 toolkit for bioenergy. • Joint paper on energy and land use with UNCCD. • Survey of food and fuel success stories in developing countries with ICRAF - World Agroforestry Centre. <i>VC from the Governments of Germany and Japan.</i> 	Q1 2016 - 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	
Technology status & outlook	<ul style="list-style-type: none"> • Report: “<i>The Innovation Landscape for RE Technologies</i>”* 	<p>In progress.</p> <ul style="list-style-type: none"> • Background scoping of 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. 	<p>In progress.</p> <ul style="list-style-type: none"> • A first workshop held during Innovation Day on May 26th following the IRENA 11th Council. • Consultation with member countries at seventh Assembly meeting. <p><i>Leveraged IRENA governing meetings participation.</i></p>	Q2 2016 Q4 2017
	<ul style="list-style-type: none"> • Status briefs for five technologies.* 	<p>In progress.</p> <ul style="list-style-type: none"> • Geothermal • Logistics for biomass <p>Completed.</p> <ul style="list-style-type: none"> • Wind power • Electric vehicles • Biofuels for aviation • Biogas for transport sector 	<ul style="list-style-type: none"> • Additional technology briefs. 	<p>Resources not identified</p>	Q1 2016 Q4 2017
	<ul style="list-style-type: none"> • Outlook report for heating and cooling energy storage.* 	<p>In progress.</p> <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 	<p>Completed.</p> <ul style="list-style-type: none"> • Offshore wind Report launched at the World Wind Energy Conference on November 1st 2016. <p>In progress.</p> <ul style="list-style-type: none"> • Electric vehicle analysis pending. 	Q4 2016 Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Technology status & outlook (continued)	• IRENA Energy Week to support Innovation Landscape report.*	Completed. • IRENA Innovation Week took place on May 11-13 2016.	• IRENA Energy Week (2018).	Resources not identified	Q2 2017
			• Global report on status and trends of hydropower.	Resources not identified	Q2 2017
			• Country advisory services in designing and implementing renewable energy technology innovation strategies.	Completed. • Country advisory services provided to Member states during the IRENA Innovation Day event on innovation strategies for an energy system transformation. • Support to UNFCC 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

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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 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 finalised 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. 	In Progress <ul style="list-style-type: none"> Enrichment of geothermal datasets in Global Atlas. <i>VC from the Government of France.</i> 	Ongoing

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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. <ul style="list-style-type: none"> 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 Q2 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"> The report, <i>Renewable Energy in Cities</i>, was launched at Habitat III 2016. 	Q4 2016
			<ul style="list-style-type: none"> Workshops and outreach, including Habitat III Disseminate results to build knowledge and share best practice. 	Completed. <ul style="list-style-type: none"> <i>Habitat III outreach supported by the Governments of Ecuador, Germany and the UAE.</i> 	Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
REpowering Cities (continued)			<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. <i>VC from the Government of Germany to be received Q2 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"> • Geographical focus expanded beyond the LAC. <i>VC from the Government of Germany to be received Q2 2017.</i>	Q2 2017
			<ul style="list-style-type: none"> • Map stakeholders and urban settings for identification of commonalities. 	In progress. <i>VC from the Government of Germany to be received Q2 2017.</i>	Q4 2017
			<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

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**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"> 500 new projects added. Database now has LCOE data for 15000 projects. Utility scale PPA/Tender database ongoing. Expected to grow cost database by 1000 projects in 2017. Overview of O&M costs data collection started. 	<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

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Renewable energy costs (continued)	<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. * 	<p>In progress.</p> <ul style="list-style-type: none"> Data for 2016 power generation costs update has been finalised. Data under peer-review. Drafting ongoing. Finalisation of onshore wind learning curve analysis, with updated 2016 data. Draft of a working paper started. Analysis on the cost of finance for power generation technologies. 	<ul style="list-style-type: none"> Renewable energy competitiveness indicators by country and application. 	<p>In progress.</p> <ul style="list-style-type: none"> Data collected, including commercial electricity tariffs and volumes, and market analysis. <i>VC from the Government of Germany.</i> Battery storage data & analysis started, report being drafted. <i>VC from the Government of Japan.</i> 	<p>Q4 2016 Q4 2017</p>
			<ul style="list-style-type: none"> Global Atlas on economic solar PV applications. 	<p>Resources not identified.</p>	<p>Q4 2017</p>
	<ul style="list-style-type: none"> Quarterly PV Parity Indicator tool applied.* 	<p>In progress.</p> <ul style="list-style-type: none"> PV parity tool has been developed. First quarterly report covering California and Germany completed. Release upcoming. Development of indicators for Australia & an additional US state in progress. 	<ul style="list-style-type: none"> Regional analysis on cost reduction opportunities for solar and wind technologies. 	<p>Completed.</p> <ul style="list-style-type: none"> Cost reduction potential for solar and wind to 2025 released in June 2016. <i>VC Government of Germany.</i> 	<p>Ongoing</p>

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Renewable energy costs (continued)			<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 ⁶
Renewable energy benefits	<ul style="list-style-type: none"> Global report on Renewable Energy and Jobs - Annual Review 2016 and 2017. 	<p>Completed:</p> <ul style="list-style-type: none"> Annual Review 2016 launched at the 11th Council. <p>In Progress</p> <ul style="list-style-type: none"> Annual Review 2017 to be launched in May 2017. 			Q2 annually
	<ul style="list-style-type: none"> Report on maximising value creation from one renewable energy technology. 	<p>In progress.</p> <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

⁶ Timeframe adjusted.

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Renewable energy benefits (continued)			<ul style="list-style-type: none"> Global report on maximising value creation for renewables-based heating and cooling applications (web-based). 	Resources not identified.	Q4 2016
	<ul style="list-style-type: none"> Global report on the structural and distributional economic dimension of renewable energy deployment. 	Completed. <ul style="list-style-type: none"> Analysis contained in G20 study: <i>Perspectives for the Energy Transition</i>. Resourced by the VC from the Government of Germany. 			Q4 2017
			<ul style="list-style-type: none"> Regional report on socio-economic impacts of renewable energy deployment (web-based). 	Resources not identified.	Q4 2016
			<ul style="list-style-type: none"> Analysis of the socio-economic impacts from renewable energy deployment by 2030 in selected countries. 	Completed. <ul style="list-style-type: none"> Analysis expanded to 2050. Analysis contained in G20 study: <i>Perspectives for the Energy Transition</i>. VC from the Government of Germany. 	Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Renewable energy benefits (continued)			<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Global report on state-of-the-art analysis of innovative policy design and practice. 	In progress. <ul style="list-style-type: none"> • Concept identified and work started on analysing innovative design elements of instruments to support deployment. 	<ul style="list-style-type: none"> • Policy guide on analysis of growth in decentralised generation on decision-making in the power sector. 	Resources not identified.	Q4 2017
			<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. 	Possible resources 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 2016. • From Q4 2015 to Q1 2017, 248 policies and policy updates 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

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Policy options to accelerate deployment (continued)	<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"> Initial regional stakeholder consultation completed. Expanded outline developed and drafting 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
	<ul style="list-style-type: none"> Analysis of the linkages between policies, incentives, public investments and achievement of renewable energy targets. 	In progress. Adjusted <ul style="list-style-type: none"> Focus on financing the implementation of the renewable energy component of NDCs. Data compilation and literature review completed. 	<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

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Financing renewables (continued)	<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 to register IRENA as a Delivery Partner for GCF readiness activities. 	<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 the Marketplace is underway to cover all developing countries, including Asia, SIDS and South East Europe. <i>VC from the governments of France, Germany and through partnerships with MDBs/IFIs etc.</i> 	Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Project facilitation (continued)	<ul style="list-style-type: none"> • At least six events focused on capacity building.* 	In progress. <ul style="list-style-type: none"> • Held training sessions in West Africa (ECOWAS) and WAPP. • Webinar on Bioenergy and Mini-grids bankable project development held. • Planning for “Train-the-trainer” workshop in West Africa. 	<ul style="list-style-type: none"> • Capacity building workshops and webinars to support project preparation and capturing results. 	Ongoing. <ul style="list-style-type: none"> • Leveraging IRENA’s presence at various events. 	Ongoing
			<ul style="list-style-type: none"> • Selection of projects for the 4th and 5th cycle of the IRENA/ADFD Project Facility. 	In progress. <ul style="list-style-type: none"> • 4th cycle projects selected in January 2017. • 5th cycle to be completed by January 2018. <i>VC provided by ADFD.</i>	Q4 annually
	<ul style="list-style-type: none"> • Two technical concepts for Project Navigator.* 	Completed. <ul style="list-style-type: none"> • Woody Biomass technical concept. In progress. <ul style="list-style-type: none"> • In the process of choosing 2nd technology. 	<ul style="list-style-type: none"> • Two additional technical concepts for Project Navigator. 	In progress. Ongoing. <ul style="list-style-type: none"> • Marine technologies (Floating offshore, OTEC, Wave energy). <i>VC from the Government of France</i>	Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Project facilitation (continued)	<ul style="list-style-type: none"> • Project development assistance through Project Navigator.* 	<p>Completed.</p> <ul style="list-style-type: none"> • Trained over 200 workshop participants, reached 1000+ people through outreach activities. • Training sessions in Africa: East Africa (Djibouti & Ethiopia). • Webinar on Utility- scale PV Projects. • Online training on bankable project development for AfDB. <p>In progress.</p> <ul style="list-style-type: none"> • Planning for “Train-the- trainer” workshop in North Africa (Egypt). • Development of technical tools & project templates for Mini-Grids and Solar Home Systems to support the SIDS Lighthouse Initiative. • Development of technical tools & templates on geothermal projects to support the GGA activity. • Development of technical tools & templates to support IRENA/ADFD project facility. • Dissemination (webinars) on SIDS-related issues for Solar Home Systems, Mini-Grids and Small Hydro, Marine Technologies. • Webinars on Geothermal & Biogas bankable project development. 	<ul style="list-style-type: none"> • Additional Project development assistance through Project Navigator. 	<p>In progress.</p> <ul style="list-style-type: none"> • Workshop on Marine Technologies in preparation. <i>VC from the Government of France</i> 	Q4 2017

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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 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

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	
Decentralised solutions for access (continued)	<ul style="list-style-type: none"> In-depth technical guide for mini-grids 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
Applied decentralised solutions			<ul style="list-style-type: none"> Technical reports to assess resource data on decentralised potentials within the Africa Clean Energy Corridor RE Zoning work. 	Resources not identified.	Q4 2017
			<ul style="list-style-type: none"> 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
	<ul style="list-style-type: none"> Advisory services to identify capacity needs and develop a regional action plan on RE mini-grids in the ECOWAS region. 	In progress. <ul style="list-style-type: none"> Capacity Needs Assessment for the deployment of renewables-based mini-grids ongoing, in collaboration with ECREEE. 	<ul style="list-style-type: none"> 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

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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	
Applied decentralised solutions	<ul style="list-style-type: none"> Advisory services to strengthen RE enterprises to develop bankable projects under the ECOWAS Renewable Energy Entrepreneurship Support Facility. 	<p>Completed.</p> <ul style="list-style-type: none"> The second call for proposals for the Facility finalised. Technical Committee meeting held in June 2016, Steering Committee meeting held in August 2016 and two technical training workshops held in September and November 2016. The third call for proposals for the Facility finalised. Technical Committee meeting held in April 2017, Steering Committee meeting to be held in the second half of 2017. 	<ul style="list-style-type: none"> Additional advisory services to explore the replication of the ECOWAS Renewable Energy Entrepreneurship Support Facility in other regions. 	<p>Completed.</p> <ul style="list-style-type: none"> Entrepreneurship Support Facility launched in Southern Africa <i>VC from the Government of Norway</i> 	Q4 2017
				<ul style="list-style-type: none"> Training for small and medium scale entrepreneurs and financial institutions on renewables-based electrification solutions in sub-regions of Africa and in Asia. 	<p>Resources not identified.</p>

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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	<ul style="list-style-type: none"> Workshop to validate identified wind, solar PV and CSP zones. 	<p>Completed.</p> <ul style="list-style-type: none"> Consultations held in 2016 with regional partners on ground validation of identified zones. Workshop organised in April 2017. 	<ul style="list-style-type: none"> Additional workshops and partnerships to validate identified wind, solar PV and CSP zones and enable incorporation into national and regional energy planning processes. 	<p>In progress.</p> <ul style="list-style-type: none"> 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. <p><i>VC from the Government of Norway.</i></p>	Ongoing
			<ul style="list-style-type: none"> Advisory services to enable ACEC countries independently develop the identified zones. 	<p>Resources not identified.</p>	Ongoing
			<ul style="list-style-type: none"> Regional technical guide of good practice for calculating cost reflective tariffs and establishing sufficient investment incentives into renewables. 	<p>Resources not identified.</p>	Q1 2017

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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 finalisation. 	<ul style="list-style-type: none"> Additional advisory services on policy and legislative support through Renewables Readiness Assessments. 	Completed. <ul style="list-style-type: none"> The RRA process completed in Tanzania. <i>VC from the Government of Norway.</i> 	Ongoing
	<ul style="list-style-type: none"> Workshop for stakeholder consultation to update the zoning study. 	Completed. <ul style="list-style-type: none"> Consultations held in 2016 with national and regional partners on methodology for updating. Workshop organised in April 2017 	<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 2016. 	<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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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. 	<p>In progress. Adjusted.</p> <ul style="list-style-type: none"> This deliverable was adjusted to align with the new framework for all energy related initiatives in Africa. Existing platforms such as the African energy Leaders Group will be used. Member States of the African Union to integrate the concept of the Clean Energy Corridors into national renewable energy and climate change agendas as well as the process of creation of a sustainable and low-carbon power markets” as part of the Ministerial Declaration of the 1st STC Meeting held in March 2017 	<ul style="list-style-type: none"> Regional guide of good practice for power system development and technical report for application in a pilot country. 	<p>In progress.</p> <ul style="list-style-type: none"> Conducted interviews with global practitioners and pilot country stakeholders. Dissemination of result scheduled through a workshop back-to-back with the 37th SADC Energy Ministerial <i>VC from the Government of Norway.</i> 	Ongoing Q1 2017 ⁷

⁷ Timeframe adjusted.

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Africa Clean Energy Corridor (continued)	<ul style="list-style-type: none"> Partnerships and advisory services for ACEC action agenda development and implementation in West Africa. 	<p>In progress.</p> <ul style="list-style-type: none"> An action agenda adopted at the West Africa Energy Ministers' Meeting in December 2016. Development of joint work programme with the West Africa Power Pool. 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. 	<p>In progress.</p> <ul style="list-style-type: none"> Analysis and detailed maps of technical potentials produced for solar, wind on- and off-grid. Site assessment in West Africa <i>Supported by UAE</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. 	<p>In progress.</p> <ul style="list-style-type: none"> Capacity building and establishment of Planning Unit in Sierra Leone <i>VC from the Government of Norway.</i> 	Q3 2016

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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. 	Completed. <ul style="list-style-type: none"> Detailed activities of the CECCA strategy implemented 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. 	In progress. <ul style="list-style-type: none"> Training conducted for South America operators in Spain in 2016. Regional training activities will continue to be implemented in 2017. 	<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. 	In progress. <ul style="list-style-type: none"> A stakeholder meeting to gather information held in October 2016. Planned second stakeholder meeting to take place in June 2017 to discuss proposal for methodology for technical report. <i>Leveraging core resources.</i>	Q3 2017 Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Central America Clean Energy Corridor (continued)	<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 finalised and under implementation (pilot project in Panama). • A technical stakeholder workshop organised in October 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
	<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 finalised and under implementation (pilot project in Panama). • A regulatory stakeholder workshop organised in October 2016 as part of the scoping of the work for pilot implementation of the regulatory tool needed to support deployment of VRE integration study in Panama and the region. 	<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

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Central America Clean Energy Corridor (continued)			<ul style="list-style-type: none"> • Workshop for scoping of activities in line with the CECCA strategy. 	<p>Completed.</p> <ul style="list-style-type: none"> • A stakeholder workshop held in Panama on 26-27 October 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 organised in Panama on 28 Oct 2016 as part of the scoping of the work for pilot implementation of the VRE integration study in Panama. <p><i>Resources provided by GIZ and Economic Commission for Latin American countries (ECLAC).</i></p>	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. 	<p>In progress.</p> <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. 	<p>Resources not identified.</p>	<p>Q2 2016 Ongoing</p>
	<ul style="list-style-type: none"> • Platform to establish and operationalise dialogue, cooperation and coordination among the key ASEAN regional and national stakeholders. 	<p>In progress.</p> <ul style="list-style-type: none"> • Cooperation with ASEAN institutions (ASEAN Secretariat, ACE, and HAPUA) as well as key regional partners established. • Preparations of a joint initiative to facilitate the integration of renewable energy into the regional power mix under development in collaboration with the ASEAN Renewable Energy Sub-Sector Network. 	<ul style="list-style-type: none"> • Training in the areas related to the implementation of the action agenda for ASEAN Clean Energy Corridor. 	<p>In progress.</p> <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> 	<p>Ongoing</p>

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Enabling regional action	<ul style="list-style-type: none"> Advisory services to develop the PACE action agenda by governments. 	In progress. <ul style="list-style-type: none"> Gap Analysis for Maghreb region under finalisation. 	<ul style="list-style-type: none"> Additional advisory services to implement the PACE action agenda. 	Resources not identified.	Q4 2016 Q4 2017
	<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 held in January 2017 in co-operation with the Arab League, RCREEE and the World Bank on the sidelines of WFES. Action Plan designed in co-operation with partners and reviewed by Experts Committee of the Arab League in April 2017. 	<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> 	Q2 2017 ⁸ Q4 2017

⁸ Timeframe adjusted.

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Enabling regional action (continued)	<ul style="list-style-type: none"> Action plan for IRENA's engagement in the South-eastern Europe. 	<p>Completed.</p> <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. <i>High-Level Meeting on Renewable Energy in South East Europe</i> in January 2017 adopted the Abu Dhabi Communiqué on Accelerating the Uptake of Renewables in South East Europe, which specifies areas of IRENA's involvement in the region. Draft Action Plan under development. A joint IRENA-Energy Community Workshop on Renewable Energy Auctions completed. 	<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. 	<p>Completed.</p> <ul style="list-style-type: none"> Report "<i>Cost-competitive renewable power generation: Potential across South East Europe</i>" launched in January 2017 A joint IRENA-Energy Community workshop held in Austria in March 2016 on preliminary findings of the report. <i>VC from the Government of Germany.</i> 	<p>Q4 2016 Q4 2017</p>

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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. 	<p>In progress.</p> <ul style="list-style-type: none"> First round of consultations took place in Baku in 2016. Regional gap analysis study has been conducted. Formulation of a Regional Action Plan in consultation with the countries of the region and the regional partners is ongoing. The draft Plan will be technically validated by the region and presented to the Central Asia Ministers in Astana on 11 June 2017 at the Energy Ministerial Conference “Meeting the Challenge of Sustainable Energy”. 			Q4 2016
	<ul style="list-style-type: none"> Platform for dialogue, cooperation and coordination among the key Central Asia regional and national stakeholders. 	<p>Completed.</p> <ul style="list-style-type: none"> Regional Workshop on Renewable Energy in Central Asia 26-27 April 2017. IRENA participated in the Third International Participants Meeting in February 2017 in Astana with a view to formulating specific activities that the Agency could contribute to the EXPO. 	<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

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Country support and advisory services	<ul style="list-style-type: none"> • 6 RRA Country Reports. 	<p>In progress.</p> <ul style="list-style-type: none"> • RRA Egypt, Thailand, Tunisia, Mali, Panama. 	<ul style="list-style-type: none"> • Additional RRA Country Reports. 	<p>Completed.</p> <ul style="list-style-type: none"> • RRA Mongolia • RRA Antigua and Barbuda • RRA Tanzania • RRA Philippines <p>In progress.</p> <ul style="list-style-type: none"> • RRA Pakistan and RRA Zimbabwe. <p>Additional RRAs are reported under SIDS Lighthouses, in Thematic Area V. <i>VC from the Governments of Japan and Norway.</i></p>	Ongoing
			<ul style="list-style-type: none"> • Incorporate the integrated resource approach in IRENA's Renewables Readiness Assessment methodology and country reports. 	<p>Resources not identified</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"> • Advisory service for the implementation of RRA recommendations including technical advice on statistics, energy planning, resource assessment, finance, etc. 	<p>In progress.</p> <ul style="list-style-type: none"> • Post RRA support to Mozambique in RE investment. Workshop held in November 2016. • Post RRA support to Mauritania is under planning. • Post RRA support to Panama in progress in the area of RE integration VCs <i>VCs from the Governments of Norway and the UAE.</i> 	Ongoing
			<ul style="list-style-type: none"> • Advisory services for Indonesia REmap/RRA pilot. 	<p>In progress. Adjusted.</p> <ul style="list-style-type: none"> • Process initiated to develop a combined REmap/RRA for Thailand and Egypt. • 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)	<ul style="list-style-type: none"> Advisory services and training for post-RRA implementation upon country requests. 	In progress. <ul style="list-style-type: none"> A workshop, with training component, on project development and resource assessment was held in July 2016 in Djibouti. 	<ul style="list-style-type: none"> Additional post RRA services. 	Resources not identified.	Ongoing
			<ul style="list-style-type: none"> 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
			<ul style="list-style-type: none"> Methodology of renewables manufacturing potential applied in additional countries. 	In progress. <ul style="list-style-type: none"> 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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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. 	<p>In progress.</p> <ul style="list-style-type: none"> • Work initiated in South Africa to explore the scaling of the REIPPP approach. • Workshop held in Cape Town in November 2016. <p><i>VC from the Government of Germany.</i></p>	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. 	<p>Resources not identified.</p>	Q4 2017
			<ul style="list-style-type: none"> • Additional advisory services upon request. 	<p>Resources not identified.</p>	Q1 2017
			<ul style="list-style-type: none"> • Technical report and support for MENAREC 6. 	<p>Completed.</p> <ul style="list-style-type: none"> • MENAREC6 successfully implemented. <p><i>Support provided by the German Government and support by regional partners (LAS, UNESCWA, RCREEE).</i></p> <p><i>VC from the Government of Germany.</i></p>	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). * 	<p>In progress.</p> <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. 	<p>In progress.</p> <ul style="list-style-type: none"> • Support and management of the SIDS Lighthouses Initiative. <i>VC from the Governments of Germany, New Zealand and Norway.</i> 	<p>Q4 2017 Ongoing</p>

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Component	Activities			Timeframe**	
	Core	Status	Other sources		
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>In progress. Finalised:</p> <ul style="list-style-type: none"> • RRA for Antigua and Barbuda • Kiribati and Barbados Roadmaps • SIDS Lighthouses technical workshop in Cuba • Grid integration study for Antigua and Barbuda and Cook Islands • Follow-up grid integration study for Samoa • Supported grid integration study for Kiribati • Power sector assessment of the Dominican Republic <p>Under development:</p> <ul style="list-style-type: none"> • Roadmap for Palau and Federated States of Micronesia • Grid integration study for Vanuatu and Fiji • Methodology report “<i>A Methodological Guide for Technical Studies</i>” • Guide on “<i>Stability of Electricity systems in small island developing states with variable renewable energy</i>” • Dominican Republic has joined the SIDS Lighthouses Initiative. Phase 1 of Grid Integration planning study for the Dominican Republic, doubling current shares of RE is starting. • Scoping work on power system analysis for Dominican Republic. • Scoping of follow up collaboration with Cuba • Quickscan updates planned. <p><i>VCs from Governments of Germany, Japan, New Zealand, and Norway.</i></p> <p><i>Additional resources required.</i></p>	Q4 2017

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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 	<p>Completed.</p> <ul style="list-style-type: none"> • Two training workshops 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 (February 2016 and 2017). • Technical workshop in St. Maartin on grid integration and planning together with CARILEC (July). • Technical Session in Pacific Power Association Conference on grid integration planning and storage, in Tonga (August). • Technical training, workshop and site visit for Pacific Island utilities in Flinders Island 100% RE hybrid system in Australia • Training workshop on RE investment for Pacific SIDS conducted in coordination with the government of Japan, government of the U.S., and the Pacific Community (December). <p><i>VCs from Government of Germany, The Netherlands, and New Zealand.</i></p> <p><i>In-kind support provided by the Government of Japan and the United States.</i></p>	Q4 2017

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
SIDS Lighthouses (continued)			<ul style="list-style-type: none"> • Tools for monitoring, evaluating, communicating progress of the initiative, and sharing knowledge developed 	In progress. <ul style="list-style-type: none"> • Tools to better communicate, share knowledge, and track initiative progress are in development. <i>VC from the Government of Germany</i>	Q4 2016 ⁹
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. 	Completed. <ul style="list-style-type: none"> • GREIN consolidated under the Lighthouses umbrella. <i>VC from the Government of Germany</i>	Ongoing

⁹ Timeframe adjusted.

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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 held in St. Lucia and Fiji on use of ESCOs in tourism sector held in July 2016. 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 under review. Case studies on the use of RE in the tourism sector in the Caribbean are under review. Work on website is under way. <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

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	
Enabling projects in islands			<ul style="list-style-type: none"> • Development and execution of at least 3 bankable RE projects in partner countries. 	<p>Completed.</p> <ul style="list-style-type: none"> • Site suitability assessments in the Comoros and Cabo Verde with Global Atlas. <p>In progress</p> <ul style="list-style-type: none"> • Additional site suitability assessments planned with Global Atlas. • Projects identified and screened through the Sustainable Energy Marketplace. <p><i>VC from the Government of Germany.</i></p>	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. 	<p>In progress.</p> <ul style="list-style-type: none"> • Projects are supported through preparation grants in Caribbean in cooperation with IADB. • Concept for project accelerator developed. <p><i>VC from the Government of Germany.</i></p>	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. 	<p>Completed.</p> <ul style="list-style-type: none"> Capacity data published March 2016. Complete dataset published June 2016. <p>In progress.</p> <ul style="list-style-type: none"> Data update for 2017. 	<ul style="list-style-type: none"> Working paper: lessons learnt from case studies in renewable energy data collection 	<p>Resources not identified.</p>	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. 	<p>In progress.</p> <ul style="list-style-type: none"> MENA training held. Southeast Europe and Eurasia under preparation. 	<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. 	<p>Completed.</p> <ul style="list-style-type: none"> Training course held in South Africa in September 2016. <i>In kind contribution from Denmark.</i> Training course for East and Southeast Asia, end November 2016 in Bangkok. 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, e.g. 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 completed. 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. Completed. Dominican Republic and Fiji in progress. <i>VC from UAE and leveraging core resources.</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	
Quality infrastructure, standards and patents	<ul style="list-style-type: none"> INSPIRE platform refinement, outreach and dissemination. * 	In progress. <ul style="list-style-type: none"> INSPIRE Patents database updated with 2015 data. 			Ongoing
	<ul style="list-style-type: none"> Technical QI analysis report for 1) utility-scale PV and 2) smart-grids or mini-grids. * 	In progress. <ul style="list-style-type: none"> Utility-scale PV. Mini-grids standards. 	<ul style="list-style-type: none"> QI analysis reports for additional technologies upon request 	Resources not identified.	Q4 2016 Q4 2017
			<ul style="list-style-type: none"> Advisory services and two workshops on the development and implementation of Q1 frameworks for renewable energy technologies for two countries/regions. 	In progress. <ul style="list-style-type: none"> Advisory service to Latin American countries on quality infrastructure for RE, and contribution to Mexico solar water heaters quality control strategy. Workshop on quality assurance and climate change with 30 experts in November 2016. 	Q4 2017
			<ul style="list-style-type: none"> 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

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Quality infrastructure, standards and patents (continued)	<ul style="list-style-type: none"> Workshops with selected training institutions for the implementation of a regional certification scheme for solar PV installers. 	In progress. <ul style="list-style-type: none"> The second phase of the certification scheme for solar PV installers under development. 	<ul style="list-style-type: none"> Advisory services and workshop on the international accreditation of selected training institutions and their programmes. 	Resources not identified.	Q2 2017 Q4 2017
	<ul style="list-style-type: none"> Advisory services and workshop for the international accreditation of the certification scheme. 	Not started.	<ul style="list-style-type: none"> Advisory services and workshop for the establishment of the regional certification scheme. 	Resources not identified.	Q4 2017 Q4 2016
			<ul style="list-style-type: none"> Advisory services and workshop for the creation of the administrative structure of the programme. 	Resources not identified.	Q4 2016
Enhancing environmental and resource sustainability	<ul style="list-style-type: none"> Policy guide on best practices to enable a sustainable scale-up of renewable energy applications that positively impact water and food security. 	Completed. <ul style="list-style-type: none"> Publication on <i>Solar Pumping for Irrigation: Improving livelihoods and sustainability.</i> 	<ul style="list-style-type: none"> Reports on environmental impacts of solar, wind and geothermal technologies. 	Completed. <ul style="list-style-type: none"> Publication on <i>End of life management of PV panels</i>. In collaboration with IEA PVPS. <i>VC from the Government of Germany.</i> 	Q4 2017 Q4 2016

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Enhancing environmental and resource sustainability (continued)			<ul style="list-style-type: none"> Working paper quantifying the environmental impacts and benefits relative to other energy technologies. 	Resources not identified.	Q4 2016 ¹⁰
			<ul style="list-style-type: none"> Public guidelines for renewable energy environmental impact assessment for public financial institutions. Workshop with financial institutions. 	Resources not identified.	Q2 2017
			<ul style="list-style-type: none"> Eight briefs (case studies) to showcase the benefits of renewable energy in the water, energy and food nexus. 	In Progress <ul style="list-style-type: none"> One country analysis initiated. <i>Resourced through the partnership with WRI.</i>	Ongoing
Knowledge Hub	<ul style="list-style-type: none"> Maintenance and expansion of the REsource platform. 	In progress. <ul style="list-style-type: none"> Integration of all IRENA data into a single knowledge hub. Ongoing updating of data streams. 	<ul style="list-style-type: none"> Creating "specialised" mini-REsource platforms for other IRENA projects. 	Adjusted. <ul style="list-style-type: none"> To incorporate in the new IRENA website. 	Ongoing
			<ul style="list-style-type: none"> Making REsource multi-lingual, <i>i.e.</i> making the platform available and searchable in several languages. 	Resources not identified.	Ongoing - Q4 2016

¹⁰ Timeframe adjusted.

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Knowledge Hub (continued)			<ul style="list-style-type: none"> • Further expansion of REsource by validating and integrating reliable external content of third parties. 	<p>In progress.</p> <ul style="list-style-type: none"> • Limited external content integrated in the data section with in-house human resources. <i>VC from the Government of Norway. To integrate larger external content additional funding is required.</i> 	Ongoing
			<ul style="list-style-type: none"> • Advisory services to countries and public entities seeking to develop similar knowledge platforms. 	<p>Resources not identified.</p>	Ongoing
Multi-stakeholder engagement	<ul style="list-style-type: none"> • Expand and operationalise the IRENA Coalition for Action. 	<p>In progress.</p> <ul style="list-style-type: none"> • Strong engagement of Coalition partners around three work streams being pursued in 2017. 	<ul style="list-style-type: none"> • Support work to develop a consumer label in cooperation with industry and civil society organisations. 	<p>In progress. Adjusted.</p> <ul style="list-style-type: none"> • A REmade Index report focused on corporate sourcing of renewables under development. <i>VC from the Government of Germany.</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 ¹¹
			• 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. • Phasing out of IRELP.	Ongoing
			• ‘Model IRENA’ simulations, including extensive preparatory trainings.	Resources not identified.	Ongoing
			• Regular university and school visits in the Host Country.	In progress. • Hosted more than 12 universities and school visits to the IRENA headquarters.	Q4 2017
			• Design, maintain, coordinate and launch the IRENA renewable energy e-learning initiative.	Adjusted. • Focus on RE skills gap assessment.	Q2 2016

¹¹ Timeframe adjusted.

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Multi-stakeholder engagement (continued)	<ul style="list-style-type: none"> • Hosting of legislators' meeting on the side-lines of the Sixth Assembly and the preparation of the second legislators meeting*. 	<p>Completed. Ongoing.</p> <ul style="list-style-type: none"> • The first forum successfully completed on 15 January 2016. • The second legislators' forum successfully completed on the sidelines of the 7th Assembly. • Preparations for the third legislators' forum in progress, to take place on the sidelines of the eighth Assembly. 	<ul style="list-style-type: none"> • Outreach to legislators and other parliamentary stakeholders and dissemination of tailored RE information. 	<p>Resources not identified.</p>	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.*	Completed. • 6th session of the Assembly successfully held. • 7th session of the Assembly successfully held. • Preparations for the eighth Assembly in progress		In progress. • 64 delegates from 36 countries supported by FDCR. <i>Multi-donor fund.</i>	Ongoing
	• Increased number of IRENA Members.	In progress. • Five new Members to date (2016-2017). • Three new States in accession in 2017.			Ongoing
	• Four Council meetings and related events.*	In progress. • 11th and 12th meetings of the Council successfully held. • Preparations for the 13 th and 14 th meetings.			Ongoing
	• Meetings of subsidiary bodies, as necessary.*	In progress. • Meetings of subsidiary bodies at the 11th and 12th Council meetings successfully held. • Preparations for the meetings of the subsidiary bodies at the 13 th and 14 th Council meetings.			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Facilitating international cooperation (continued)	<ul style="list-style-type: none"> • IRENA booth at WFES. * 	In progress. <ul style="list-style-type: none"> • 14 programmatic meetings held during WFES 2016. • Successful participation at WFES 2017. • 12 programmatic meetings held during WFES 2017. • 12 presentations held at IRENA stand for schools and universities at WFES 2017 in collaboration with Environment Agency Abu Dhabi (EAD). • Preparations for WFES 2018 in progress. 			Ongoing
	<ul style="list-style-type: none"> • Increased programme-related communication to Member States.* 	In progress. <ul style="list-style-type: none"> • 6 Bulletins, 6 In Focus briefs, 5 'Publication Updates' and additional information messages on IRENA activities circulated in 2016. • 3 Bulletins, 1 In Focus brief, 4 'Publication Updates' and additional information messages on IRENA activities circulated in 2017. 			Ongoing
	<ul style="list-style-type: none"> • Further development of content and functionalities of online portal for Members.* 	In progress. <ul style="list-style-type: none"> • REmember updated as required. 			Ongoing

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
Facilitating international cooperation (continued)	<ul style="list-style-type: none"> Facilitate engagement of Permanent Representatives in the Agency and heightened outreach to other Permanent Missions at Headquarters.* 	In progress. <ul style="list-style-type: none"> 15 new Permanent Representatives in 2016, 2 in 2017. 5 Permanent Representative meetings held in 2016. 3 new accreditations in 2017. 			Ongoing
	<ul style="list-style-type: none"> Development of a Member communication network. 	In progress. <ul style="list-style-type: none"> Contact made with IRENA focal points to connect with national communication counterparts. 222 focal points representing 87 IRENA Members and States in Accession subscribed to the 'IRENA Media Briefs' 			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. 	<p>In progress.</p> <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 for Habitat III and COP22 completed. • Conducted focused campaigns for a range of products and events. • Developed and implemented strategies and campaigns for the IRENA 7th Assembly, REthinking Energy, the IRENA/ADFD Project Facility announcements • Supporting development and implementation of communications strategy for IRENA Coalition for Action. 	<ul style="list-style-type: none"> • Educational videos and infographics to simplify complex renewable energy concepts. 	<p>Resources not identified.</p>	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.* 	<p>In progress.</p> <ul style="list-style-type: none"> • Conducted social media campaigns on IRENA 6th (#IRENA6A), IRENA's 7th Assembly (#IRENA7A), REmap 2.0 (#REmap), IRENA's 5th Anniversary (#REthenandnow), Summer of Solar (#summerofsolar), COP22 (#REenergise), and to support key publications including <i>Perspectives for the energy transition: Investment needs for a low-carbon energy system and 2017 Renewable Energy Capacity Statistics</i>. • Twitter followers increase by 101% (2016). • Facebook increase by 46% and LinkedIn followers increase by 38% (2016). • Started new Instagram account. • Social media promotion of renewable energy developments in member countries 			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"> • 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 optimisation of web pages underway. • Website content updated weekly. 			Ongoing
	<ul style="list-style-type: none"> • Digital media production and distribution.* 	In progress. <ul style="list-style-type: none"> • Designed and disseminated 184 infographics in 2016 and over 40 infographics and photocards for social media in 2017 based on IRENA events, products and data. • Created 56 promotional videos in 2016 and 8 in 2017. • Distributed 39 press releases in seven languages in 2016. • Developed 79 Newsroom articles in 2016 and 14 in 2017. • Regular op-eds by Director-General on his Huffington Post page. 			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"> • Press conferences, webinars. 	<p>In progress.</p> <ul style="list-style-type: none"> • Conducted 13 press events in 2016 and 4 in 2017. • Garnered coverage via 10,900 articles in +130 countries. • Conducted hosted media programme for 7th Assembly • Distributed 10 press releases in multiple languages, garnering over 5,000 media mentions 			Ongoing
	<ul style="list-style-type: none"> • Strengthened media and stakeholder lists. 	<p>In progress.</p> <ul style="list-style-type: none"> • Consistently update global media lists based on coverage/media queries. • Procured new tool to gain access to 2.5 million journalists worldwide. 	<ul style="list-style-type: none"> • Increase language-specific capacity and production of language-specific communications materials. 	<p>Resources not identified.</p>	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. 	<p>In progress.</p> <ul style="list-style-type: none"> Release of 39 reports and briefs in 2016 and 11 reports and papers in 2017 to date (31 March) with reader-friendly web content and targeted communication. Released 42 reports and papers in 2016 ISBN designations to increase global visibility and impact. Global, regional, national, thematic or interest-specific press and social media support for IRENA publications. Key chapter contribution to a high-profile joint study, <i>Perspectives for the energy transition: Investment needs for a low-carbon energy system</i> 			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.* 	<p>In progress.</p> <ul style="list-style-type: none"> • Released REmap global report summary in seven 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. • Production of accessible brochure on IRENA and renewable energy aimed at general public, with Kazakh and Russian translations for Astana EXPO 2017 • Summary of REthinking Energy 2017 in seven languages • Dialogue with Members and specialist institutes to further strengthen translation process. 			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"> • Planning and implementation of programmatic events in support of the Work Programme.* 	Ongoing. <ul style="list-style-type: none"> • Support provided for IRENA programmatic events. 			Ongoing
			<ul style="list-style-type: none"> • Conduct RE training programmes for journalists, media organisations and spokespersons. 	Resources not identified	Ongoing
			<ul style="list-style-type: none"> • Develop strategic media partnerships and engagements to expand coverage of IRENA activities. 	Resources not identified.	Ongoing
			<ul style="list-style-type: none"> • Conduct media relations events in target markets. 	Resources not identified	Ongoing
Strengthen institutional structures and accountability	<ul style="list-style-type: none"> • Facilitating the full implementation of the Headquarters Agreement and the Agreement on the IITC Seat. 	In progress. <ul style="list-style-type: none"> • 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. 	<p>In progress.</p> <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. 	<p>In progress.</p> <ul style="list-style-type: none"> • Continuous provision of the necessary legal support. 			Ongoing

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

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. 	Completed <ul style="list-style-type: none"> • Audit completed on 20 April 2017 with unqualified opinion rendered on Financial Statements for Agency and Staff Provident Fund for 2016 by Deloitte and Touche audit firm. 			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. 	<p>In progress.</p> <ul style="list-style-type: none"> • Annual 2016 and 2017 core budgetary allotments prepared and issued. • Voluntary Contribution allotments prepared and issued on time; Funds availability certified and reported upon. • System design, data preparation and data migration to new Oracle ERP system. 			Ongoing
	<ul style="list-style-type: none"> • Streamlined, efficient and accurate budgetary process. 	<p>In progress.</p> <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 support 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. • Oracle Cloud ERP Solution is under implementation with go-live planned for 3rd quarter 2017 			Ongoing
	<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

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Component	Activities				Timeframe**
	Core	Status	Other sources	Status	
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. • In 2016, 42 vacancies for fixed-term and temporary appointments and Junior Professional Associate positions were advertised for which over 13,000 applications were received. • Between 1 January 2017 and 31 March 2017, 14 vacancies for fixed-term and temporary appointments and Junior Professional Associate (JPA) positions were advertised for which over 4800 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

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	
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. 	Completed. <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 and 2017. 			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 were developed, and procurement forms/templates are under review. 			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	
General services & Travel	<ul style="list-style-type: none"> • Comprehensive travel processes and support including for governing body meetings, programmatic events and staff travel.* 	In progress. <ul style="list-style-type: none"> • Preparation and support of the Council meetings, and programme related travel. 			Quarterly
	<ul style="list-style-type: none"> • Key Asset Management System. 	In progress. Ongoing. <ul style="list-style-type: none"> • Facility Management support for IRENA Headquarters and staff. • Fixed Asset System procured and data uploaded, ongoing fixed assets management, control, tracking and reporting. 			Ongoing
	<ul style="list-style-type: none"> • Health and safety plans in all IRENA offices.* 	In progress. <ul style="list-style-type: none"> • Health and Safety Plan implemented. More enhancements in the health and safety practices are planned for IRENA HQ and staff. • Regular drills and equipment checks are undertaken 			Q4 2016 ¹²
	<ul style="list-style-type: none"> • Streamlined, efficient and accurate business process.* 	In progress. <ul style="list-style-type: none"> • Continuous review. 			Ongoing

¹² Timeframe adjusted

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