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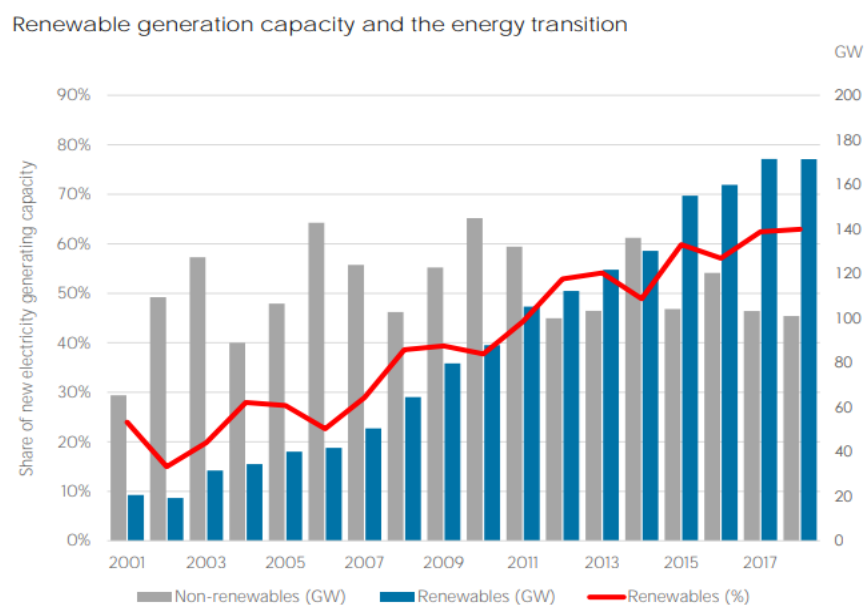
**Progress Report of the Director-General
on the Implementation of the
Work Programme and Budget for 2018-2019**

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I. Introduction

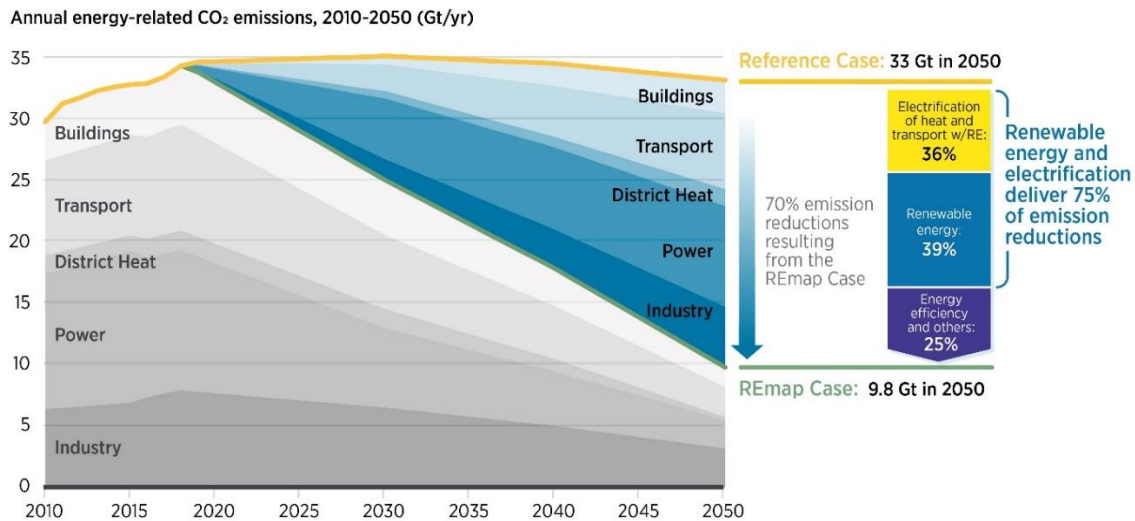
1. This report provides an account of the progress the Agency has made in the implementation of the Work Programme and Budget for 2018-2019, focusing on the developments that took place since the ninth session of the Assembly. Aligned with the vision and direction of the Medium-term Strategy 2018-2022, IRENA's programmatic activities are helping to navigate the rapidly changing energy system. Countries are actively pursuing pathways that effectively channel the ongoing energy transition to deliver a future system that is secure, sustainable, affordable, and inclusive.
2. Continuous progress is being made worldwide. IRENA's latest global renewable generation capacity statistics show that 171 gigawatts (GW) of new renewables were added in 2018, increasing the renewable generation by 7.9%. Capacity expansion continued to be driven by solar and wind, which together accounted for 84% of new capacity installed in 2018. Since 2000, non-renewable generation capacity has expanded on average by 115 GW per year. In contrast, renewable generation capacity has expanded by increasing amounts, from less than 20 GW per year in 2001 to about 160 GW per year or more in the last four years. This is a strong signal to policy makers and investors that renewable energy is now the preferred option for new power generation capacity around the world.



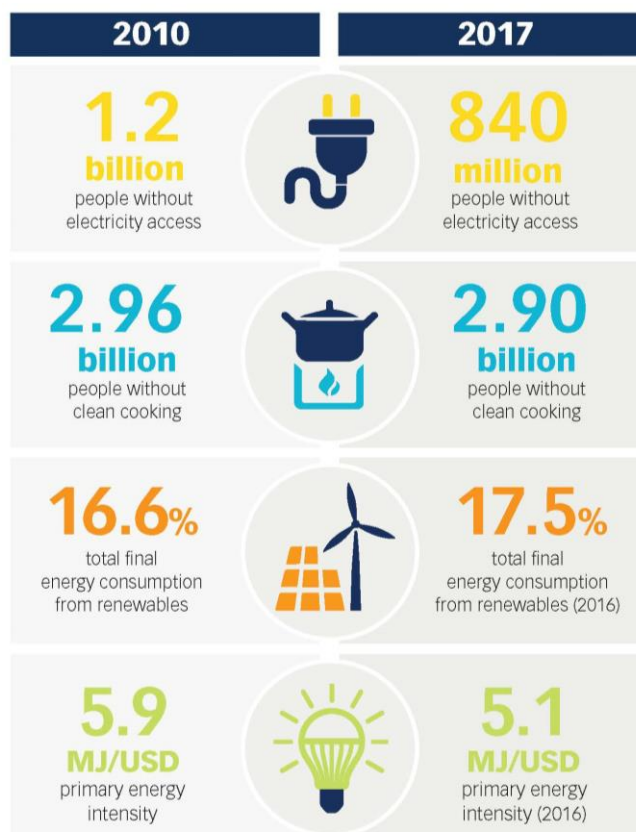
3. Encouraging trends are also noted in off-grid electricity. IRENA estimates that 8.8 GW of renewable capacity existed in 2018, growing by 5% compared to 2017. These trends, while promising, are lagging on the objective of the Sustainable Development Goal on Energy – SDG7 - which calls for universal access to affordable, reliable, sustainable and modern energy by 2030. As one of the UN-appointed co-custodians¹ for the tracking of SDG 7, IRENA has been the lead author of the renewable energy chapter of the *Tracking SDG 7: Energy Progress Report 2019*, released in May 2019. The report shows that the world will fall short of meeting the targets by 2030 at the current rate.

¹ Together with IEA, UN Statistics Division, World Bank, and World Health Organization (WHO).

4. The transition to sustainable, low-carbon energy production will require that more countries and regions not only switch to expanding renewable capacity but also make systemic changes in their energy systems. The IRENA report entitled *Global Energy Transformation: A Roadmap to 2050 (2019 edition)* (GET 2019 edition), released at the Berlin Energy Transition Dialogue in April 2019, highlighted that meeting climate goals would require acceleration in both power and end-use energy transformation. IRENA analysis finds that energy-related carbon-dioxide emission reductions would have to decline 70% by 2050, compared to current levels, to meet climate goals. A large-scale shift to electricity from renewables could deliver 60% of those reductions; 75% if renewables for heating and transport are factored in; and 90% with ramped-up energy efficiency.



5. The report also finds that electricity will become the dominant energy carrier, with global power supply more than doubling and renewable sources, including solar and wind, meeting 86% of power demand. Importantly, such transformation of the energy system would boost gross domestic product (GDP) by 2.5% and total employment by 0.2% globally in 2050. It would also bring broader social and environmental benefits, i.e., renewables would create more new jobs than those lost in fossil-fuel industries and policy inputs can further improve the socio-economic footprint of the transformation.
6. These insights are not only encouraging, but also an essential consideration for a just and fair transition. IRENA has established itself as a point of reference on socio-economic impacts of the energy transition. Most recently, the Agency was invited by the SDG 7 Technical Advisory Group, a consortium of governments, international organisations, regional development banks, and civil society representatives, to lead a new Renewable Energy and Jobs Platform. The Platform was launched in early 2019 with partners including European Commission, Global Green Growth Institute (GGGI), ILO (International Labour Organization), Power for All, United Nations Industrial Development Organization (UNIDO), and the World Bank. The initiative aims to bring together key stakeholders with demonstrated experience in the topic and stimulate a cross-disciplinary dialogue aimed at addressing varying views, needs, and proposed policies. In addition, IRENA has been an active partner in establishing the Health and Energy Platform led by WHO.



Source: IEA, IRENA, World Bank, WHO, and UNSD 2019.

Note: MJ/USD = megajoules per U.S. dollar.

New Tracking SDG7: The Energy Progress Report shows promising progress towards achieving universal electricity access.

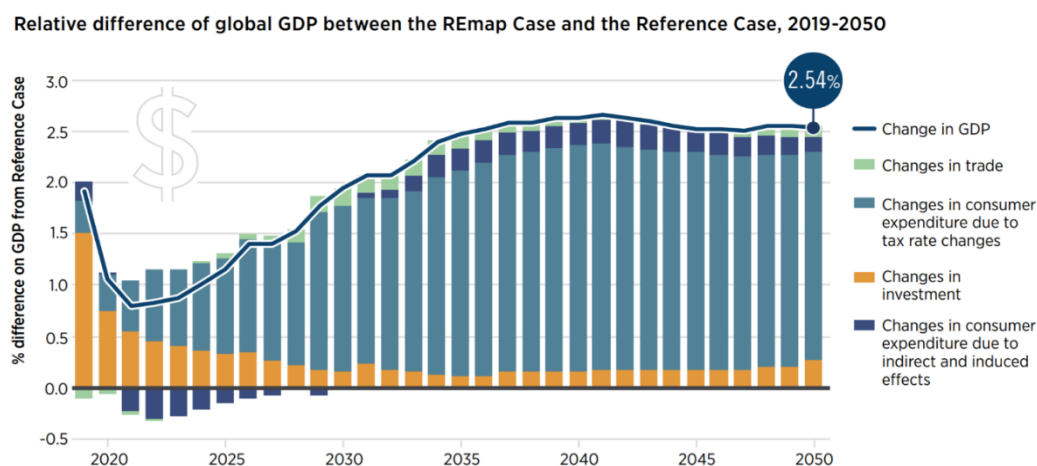
7. IRENA is a witness of, and an active participant in the global energy transformation. The demand for renewables is growing, while meeting three priorities: reliability, affordability, and environmental responsibility. This is also reflected in the growth of IRENA's global family, which now includes 160 Members and 23 countries in the process of joining the Agency. The international co-operation on renewable energy has truly become a global endeavour, with IRENA as a locus of knowledge, information, and partnerships necessary to accelerate progress.
8. The present report details the implementation of programmatic activities, informs Members of the Agency's performance, and shares information on selected analytical findings and regional and country experiences. The report includes the matrix of outputs, which shows in detail the progress in the implementation of programmatic deliverables. To show the scope and scale of additional resources generously provided by several Members, as well as how they support the Agency's Work Programme and strategic mission, the report also includes an overview of projects supported by voluntary contributions. This provides greater clarity on the use of resources and visibility of contributions of non-core resources to the Agency's performance.

II. Centre of Excellence for Energy Transformation

9. The energy transformation, with renewable energy and energy efficiency at its centre, is arguably one of the most critical processes being undertaken globally today; it is transforming the way we live and grow as a society. Sound analyses and advice on the pathways to create a renewables-based global energy system is central to a sustainable growth path for many economies as well as to the ability to achieve the transformational goals set out in the Agenda 2030 and the Paris Agreement on climate change. Through its analytical work and global network, IRENA is addressing these needs and capturing lessons learned and best practices to accelerate the common learning curve.

Transformation Pathways

10. IRENA's extensive knowledge, data and analyses provide a sound basis for its renewable energy roadmap, REmap, which is providing longer-term perspectives for a renewables-based global energy system. The newest report, entitled *Global Energy Transformation: A Roadmap to 2050 (2019 edition)*² (*GET 2019 edition*) shows that renewable energy, electrification, and energy efficiency form the basis for long-term decarbonisation and low-carbon development with positive socio-economic outcomes. *GET 2019 edition* assesses the socio-economic footprint of the energy transition on the global economy, bringing awareness to the global discourse on the intersection of renewables, climate change, and the economy. The report concludes that the energy transition can enable economic growth, create jobs, and improve overall social welfare. The Agency plans to further deepen the analysis and explore the socio-economic footprint of various energy transition-related policies and aspects such as carbon tax policies, measures to improve energy access, and efforts to increase transition ambition. The report was launched in April 2019 at the Berlin Energy Transition Dialogue (BETD) in Berlin, Germany. Analysis was made possible in part through a voluntary contribution from the Government of Germany.



Compared to the Reference Case, the REmap Case boosts global GDP by 2.5% in 2050. The dominant factor is changes in consumer spending due to tax rate changes.³

² <https://www.irena.org/publications/2019/Apr/Global-energy-transformation-A-roadmap-to-2050-2019Edition>

³ This driver captures the impact of the changes in government income due to carbon taxes, fossil fuel phase-out, changes in fossil fuel royalties and other taxes.

11. *GET 2019 edition* is complemented by a background report and web-based digital story. The background report, *Global Energy Transformation: The REmap transition pathways*,⁴ provides additional analysis and includes a perspective for global energy system development to 2050 based on current and planned policies. It details the REmap transition pathway to 2050 and provides a set of potential energy options aligned with the “well-below 2°C” target of the Paris Agreement. The digital story, entitled *How to Transform Energy System and Reduce Carbon Emissions*,⁵ is a web-based interactive outline of analysis based on report key findings. This work was undertaken with the support of a voluntary contribution from the Government of Germany.

Global Energy Transformation: A Roadmap to 2050 (2019 edition)

Within a week of the launch of the *GET 2019 edition*, the report was downloaded 3,170 times, accounting for over 30% of publications downloads in this time-period.

The report’s publication landing page was the most visited page on IRENA’s website, accounting for 8% of overall traffic with almost 7,000 visits in one week. Meanwhile, at the time of writing of this report, the publication’s digital story has attracted almost 2,000 visitors, is in the top five most visited IRENA pages, and it is the most read piece in the IRENA Newsroom, with the press release on the report’s launch in second place.



The Director-General spoke at the launch of the GET 2019 edition. Berlin, Germany, 9 April 2019

12. To offer an advanced suite of tools to support the energy transformation, IRENA developed the FlexTool, designed to complement the REmap tool and national energy plans by providing a more detailed analysis of the power system through operational analysis and flexibility assessment. In May 2019, IRENA began a regional programme under the Central America Clean Energy Corridor (CECCA) to assess the flexibility of power systems in Central American Countries, jointly with a regional REmap analysis, and provide insights on the value of regional integration. A similar programme has started for Southeast Asia and Southeast Europe. Further, country-specific flexibility assessments are ongoing for Moldova, as follow-up to the Renewable Readiness Assessment (RRA) analysis, and Jordan, as part of the RRA process. This work is supported by a voluntary contribution from the Government of Norway.

⁴ <https://www.irena.org/publications/2019/Apr/Global-energy-transformation-The-REmap-transition-pathway>

⁵ <https://www.irena.org/DigitalArticles/2019/Apr/How-To-Transform-Energy-System-And-Reduce-Carbon-Emissions>



“Long-term Energy Scenario (LTES) Campaign: 2019 International Forum” in Berlin, Germany, 10-12 April 2019

13. IRENA continues to disseminate best practices in long-term planning and modelling to represent high shares of variable renewable energy (VRE), as highlighted from the Agency’s project “*Addressing Variable Renewable Energy in Long-term Energy Planning*” (AVRIL). AVRIL material provided the basis for two expert regional planning workshops carried out in Central Asia and MENA regions in 2019, in support of IRENA’s regional action agendas. Translation of the 2017 AVRIL report to Japanese was provided by the Ministry of Environment of the Government of Japan to facilitate further dissemination. AVRIL material is currently being updated.
14. Considering the significant role of cities in the energy transformation, IRENA is undertaking a range of analytical and technical activities to gain insights into urban best practices, technology solutions, and economic aspects. In collaboration with Local Governments for Sustainability (ICLEI) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), IRENA published six case studies in December 2018, which highlighted the use of local policy instruments to: ensure a reliable supply of renewable energy (Cape Town and Rosario); promote more efficient and renewable-sourced lighting (Sydney); develop renewable energy for heating (Malmö); integrate renewables into the transport sector (New Delhi); and fulfil a commitment to reaching a 100% renewables target (Vancouver).

15. IRENA has undertaken a review of methods and tools for urban energy system planning to improve the understanding of how they are used for integration of renewable energy technologies in cities. The review focuses on the identification and evaluation of the prevailing tools, the need for technical assistance, as well as an analysis of gaps and challenges, and provides recommendations on how to close the gaps in the future development of urban energy system planning tools. In addition, to scale up the role of renewables in meeting the urban heating and cooling demands, IRENA is developing technical concept guidelines for renewable heating and cooling systems in cities and for the methodological framework that cities can use to assess their renewable energy potentials, identify technological options, including the sector-coupling approach, facilitate the integration of variable renewable sources into the urban energy systems. This project is supported by voluntary contributions from the Government of Germany.⁶

SolarCityEngine

IRENA is analysing best practices on policy frameworks in renewables deployment in selected cities in China, Costa Rica, and Uganda. In addition, the Agency is preparing an analytical report of municipal policies and experiences worldwide in promoting the use of renewable energy. The report focuses on energy supply and procurement, the building sector, and transportation.

Under this framework, a comprehensive methodology report to support the demonstration of Solar City Rooftop Simulator in two developing country cities was launched in January 2019. This methodology allows a more accurate modelling of solar PV rooftop potential. IRENA's Solar City Rooftop Simulator (SolarCityEngine) provides better capabilities at significantly lower cost. Demonstrations are planned for Kasese, Uganda and Zhangjiakou, China. This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.



⁶ This project is part of part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

- IRENA continues to provide analytical support to Members. As Japan assumes the Presidency of the 2019 Group of Twenty (G20), IRENA was requested by the Ministry of Foreign Affairs of the Government of Japan to contribute to discussions by providing a report to the G20 Climate Sustainability Working Group (CSWG) on climate change and renewable energy, national policies and the role of communities, cities and regions. The report explores the role of distributed energy resources (DER) as a solution for sourcing buildings, lighting communities in cities and rural areas, and powering companies. The report links several benefits to DER and society engagement and underlines that empowering stakeholders constitutes an effective and important action to accelerate the energy transition.

Access Solutions

- A Ministerial Roundtable on “Catalysing Off-Grid Renewable Energy Deployment towards Universal Electricity Access and Sustainable Development Goals” was held at the Ninth Session of the IRENA Assembly. The discussion benefited from IRENA’s input paper, *Off-grid renewable energy solutions to expand electricity access: An opportunity not to be missed*,⁷ which takes stock of the opportunities available, detailing the dynamism and innovations in the off-grid renewable energy sector. Building on IRENA’s growing body of work on the topic, the paper highlights the latest trends and advances, including innovations in delivery and financing models. It also discusses policy and regulatory measures to harness the potential of off-grid renewables to help meet the Sustainable Development Goals (SDGs), such as SDG 7 on clean and affordable energy. IRENA is currently carrying out a study to assess the global financing landscape for off-grid renewable energy and the socio-economic impacts of universal energy access.



The 4th Edition of the International Off-grid Renewable Energy Conference and Exhibition (IOREC), Singapore, 31 October – 1 November 2018

- The 4th Edition of the International Off-grid Renewable Energy Conference and Exhibition (IOREC) highlighted the key role of off-grid renewable energy solutions for, among others, enhancing delivery of essential services such as health. Following the IOREC, IRENA organised the first International Conference on Renewable Energy Solutions for Healthcare Facilities, which stressed that off-grid renewable energy solutions represent fast-deployable, reliable, and cost-effective solutions to address the energy access requirements of healthcare facilities. Several messages from the conference proceedings are reflected in the objectives and priorities of the multi-stakeholder platform for enhanced co-operation among health and energy actors, the Health and Energy Platform of Action, being set up by the WHO and United Nations Development Program (UNDP). IRENA is among the high-level partners of this platform. This work is

⁷ <https://www.irena.org/publications/2019/Jan/Off-grid-renewable-energy-solutions-to-expand-electricity-to-access-An-opportunity-not-to-be-missed>

supported by the Walloon Government of Belgium. IOREC was supported by a voluntary contribution from the Government of Norway.

Key messages from the first International Conference on Renewable Energy Solutions for Healthcare Facilities, November 2, 2018, Singapore

- Health facilities should be a high priority in electrification plans among both national governments and development partners. Off-grid renewables offer rapidly deployable, reliable, cost-effective solutions.
- Addressing the energy access need in healthcare facilities requires increased co-operation between the energy and health sectors, including ministries of energy and health. This should happen at all levels, from strategy and planning to policies, budgeting, procurement and implementation.
- Capital and recurring expenses related to electricity should be budgeted as part of healthcare facility operations from the outset. Budgeting should also reflect costs for operation and maintenance, such as battery replacement.
- Strong collaboration between private, public and non-governmental institutions has proven a key success factor for healthcare electrification in certain African and South-Asian countries. Such partnerships should be encouraged.
- There is a need for innovation in delivery and financing models. Dedicated support and financing schemes, and energy service agreements can help accelerate electrification of rural health centres.
- Aggregation models, with proximal health facilities grouped together on a shared energy service contract, could bring down costs and facilitate maintenance.
- Innovation has to be encouraged and promoted across the value chain, including in the design of robust, low maintenance, efficient, user-friendly medical devices suited for use in remote off-grid areas.
- Energy-efficient medical devices, combined with off-grid renewable energy and telecommunications, can expand the services offered by primary health centres in under-served communities. This also reduces the need for patients to travel to larger, more distant facilities.
- A local ecosystem must be created to ensure the long-term sustainability of renewable energy systems. This includes training staff and maintenance technicians in rural areas.
- Electrifying rural health centres strengthens staff recruitment and retention, further improving the reliability and continuity of rural medical services.



Accelerating Innovation

19. Engagement of stakeholders is of high relevance for all aspects of IRENA's work; this is perhaps best exemplified in the field of innovation. Continuing its work in this regard, IRENA launched the report entitled *Innovation Landscape for a Renewable-Powered Future: Solutions to integrate variable renewables*⁸ in Brussels, Belgium in February 2019 at an official launch event hosted by the European Commission. The report contains a first-of-a-kind mapping and toolbox of innovations to support countries in their strategies to transform their power sectors. The report showcases how synergies between different innovations in business models, market designs, enabling technologies, and system operations are lowering the cost of integrating high shares of VRE, while making energy production, transmission, and consumption more flexible, and empowering a new generation of energy consumers.
20. IRENA also continued to produce analytical products and outlooks for selected sectors and technologies that target areas where viable solutions are yet to emerge. In May 2019, the Agency launched the report, *Innovation Outlook: Smart Charging for Electric Vehicles*,⁹ that provides the latest information on how to unlock synergies between an electrified transport sector and the use of car batteries for the integration of renewable energy in power systems. This project is supported from voluntary contributions from the Government of Germany.¹⁰
21. IRENA continues to translate its analysis into consumable information for its stakeholders through, in part, contributing to and participating in, energy planning partnership fora. This format fosters exchange of experiences and maximises synergies among planning entities. For example, the Agency's participation as the operating agent of the Clean Energy Ministerial (CEM) Campaign on Long-term Energy Scenarios for Clean Energy Transition (LTES) has led to a broadened community where its seven technical partners¹¹ and Campaign Members from 11 countries¹² can discuss and exchange best practices through, among others, a bi-weekly webinar series, reaching over 500 registrants. These discussions also take place during dedicated sessions at over a dozen events – for example, the CEM10 and International LTES Forum at the BETD, reaching 400 expert attendees. Expanding engagement beyond CEM countries, IRENA launched the Energy Transition Scenarios Network (ETS-Net) to support exchange of best practice. A voluntary contribution from the Government of Germany has supported IRENA's contribution to the CEM Campaign in 2018 and the current work, including the ETS-Net, is supported by a voluntary contribution from the Government of Denmark.

⁸ <https://www.irena.org/publications/2019/Feb/Innovation-landscape-for-a-renewable-powered-future>

⁹ <https://www.irena.org/publications/2019/May/Innovation-Outlook-Smart-Charging>

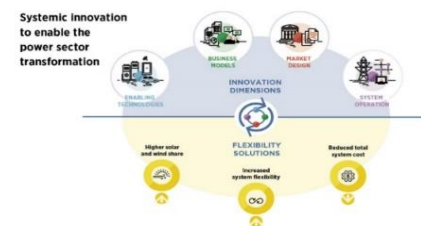
¹⁰ This project is part of part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

¹¹ China Renewable Energy Centre (CNREC), European Commission Joint Research Centre (EC JRC), International Energy Agency Energy Technology Systems Analysis Programme (IEA-ETSAP), International Energy Agency (IEA), National Renewable Energy Laboratory/Joint Institute for Strategic Energy Analysis (NREL/JISEA), State Grid Corporation of China (SGCC), World Energy Council (WEC).

¹² Brazil, Canada, Chile, Denmark, Finland, Germany, Japan, Mexico, Kingdom of Netherlands, United Arab Emirates, United Kingdom.

Innovation Landscape for a Renewable-Powered Future

Decarbonising the global power sector in line with Paris Agreement objectives will require an 85% share of renewable energy in total electricity generation by 2050, according to *GET 2019 edition* estimates. By then, variable renewables would account for 60% of the total power generated globally. Moving to a new phase where the massive, but cost-effective, scale-up of renewable power is crucial, the power sector transformation is strongly accelerated by innovation trends in digitalisation, decentralisation, and electrification of end-use sectors. Thus, understanding and learning from experiences from leading countries in variable renewable energy (VRE) integration is crucial to replicate and enhance innovation that can accelerate this transformation.

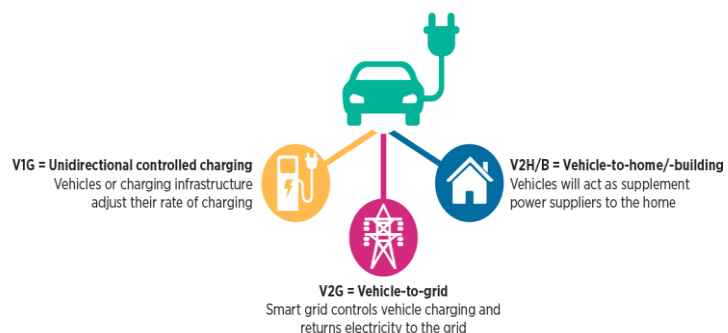


IRENA's report, *Innovation Landscape for a Renewable-Powered Future: Solutions to integrate variable renewables*, contains the most in-depth assessment of the power sector transformation to date. It guides countries on how to build solutions to transform their power system fostered by synergies between different innovations in business models, market design, enabling technologies, and system operation. The deployment of these innovations results in lowering the cost of integrating high shares of VRE, while making energy production, transmission, and consumption more flexible and empowering a new generation of energy consumers.

Electric Vehicle (EV) Smart Charging

IRENA analysis indicates that if most of the passenger vehicles sold from 2040 onwards were electric, then more than one billion EVs could be on the road by 2050. In this context, future EV battery capacity may dwarf stationary battery capacity. In 2050, around 14 TWh of EV batteries would be available to provide grid services, compared to 9 TWh of stationary batteries. EV fleets can create vast electricity storage capacity; however, if everyone charges their cars at the same time, i.e., mornings or evenings, this will exacerbate the stress on the electricity network. The timing of charging is therefore critical. Smart charging means adapting the charging cycle of EVs to both the conditions of the power system and the needs of vehicle users. This facilitates the integration of EVs while meeting mobility needs. Advanced smart charging approaches, such as direct control mechanisms, will be necessary as a long-term solution at higher penetration levels and for delivery of close-to-real-time balancing and ancillary services. The main forms of such charging, including V1G, V2G, V2H, and V2B, are defined in the figure below.

IRENA's new report *Innovation Outlook: Smart Charging for Electric Vehicles* informs countries on how to exploit the complementarity potential between the deployment of VRE sources, solar photovoltaics (PV) and wind power, and EVs. It considers how this potential could be tapped through smart charging up to mid-century.



22. In January 2018, IRENA and the Climate Policy Initiative (CPI) launched their first joint report, *Global Landscape of Renewable Energy Finance 2018*,¹³ setting out global trends in renewable energy investment during 2013-2016 by technology, financial instrument, and region. Over 25,000 downloads and several citations from the Overseas Development Institute (ODI), SEforAll, and World Bank, and others ensured high visibility and wide use. Building on this analysis, IRENA is working on the report *Mobilising Institutional Capital for Renewable Energy*. Institutional investors (i.e. pension plans, insurance companies, sovereign wealth funds, and endowments/foundations) are estimated to hold well over USD 100 trillion of assets yet finance less than 1% of new renewable energy projects. The report will analyse barriers to greater participation of investors and provide actionable recommendations to policy-makers and other stakeholders to tap into this important capital pool.
23. Decentralised renewables hold great importance for universal access to energy. To help scale up investments by identifying opportunities and highlighting innovative financing and business mechanisms, IRENA is conducting a study *Financing Off-grid Renewable Energy Solutions*. To attract capital into the sector and ensure the rapid uptake of these technologies, financing challenges affecting project developers and consumers in emerging and developing countries must be addressed. Building on IRENA's work on policy instruments and innovative business models for energy access solutions, this study will inform policy-makers and relevant investors about the main trends in off-grid renewable energy investment, identify gaps, and provide examples of replicable business/financing models and best practices.

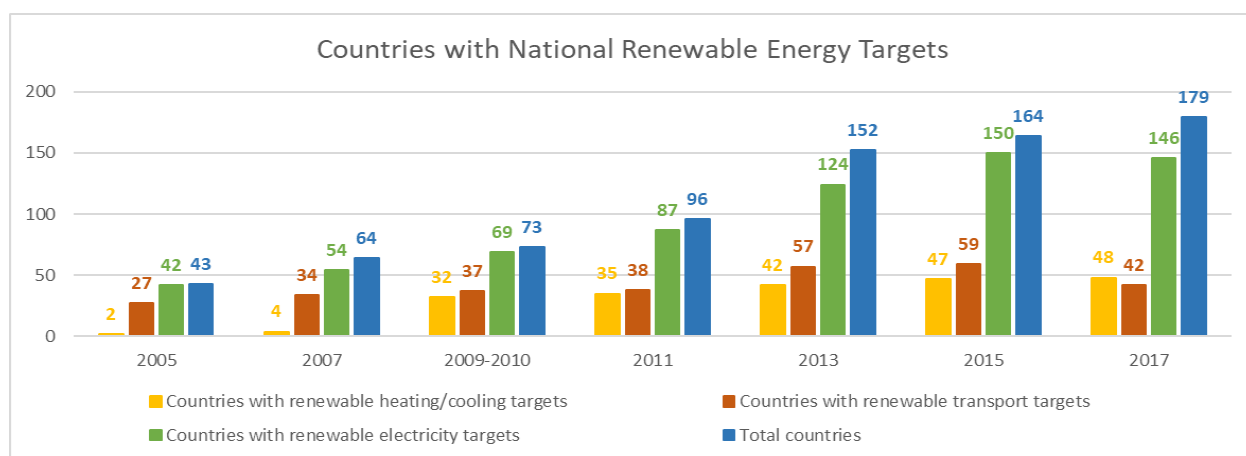
Knowledge Hub

24. Building a growing knowledge base for its Members and consistent with emerging needs, IRENA has been conducting analysis on renewable energy targets, focusing on the power sector. As the energy transition unfolds, renewable energy targets provide a clear indication of the deployment timelines envisioned by governments. Targets often become key drivers of policies, investment, and development in the sector. In 2015, IRENA launched the report *Renewable Energy Target Setting*,¹⁴ when 164 countries had adopted at least one type of renewable energy target. By the end of 2017, this number increased to 179 countries. Power sector targets were found in 146 countries, 57 of which included the stated goal of 100% renewable electricity.
25. IRENA has partnered with REN21 for a new study, National Renewable Energy Targets: A Global Quantified Estimate, which will provide the first global estimate of renewable electricity targets in terms of installed capacity and total investment cost. It will assess the effectiveness of the targets covered in the 2015 report and draw on lessons learned in designing and setting targets. It will also evaluate the alignment between the renewable energy targets in the power sector and NDCs. By highlighting opportunities to raise the ambition of such targets, this work will contribute to the Agency's discussions in preparation for and during the 2019 Climate Action Summit, hosted by UN Secretary-General António Guterres, and COP25 in Chile. Examining additional opportunities for strengthening such targets, IRENA has started work on two studies on the potential contribution of renewables to climate change adaptation and resilience building and the role of market-based mechanisms (e.g. carbon markets, taxes, and credit trading schemes)

¹³ https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Jan/IRENA_Global_landscape_RE_finance_2018.pdf

¹⁴ <https://www.irena.org/publications/2015/Jun/Renewable-Energy-Target-Setting>

in meeting NDC renewable energy targets. These studies are funded through voluntary contributions of the Walloon Government of Belgium and the Government of Japan.



III. Global Voice of Renewables

26. As a voice of renewables at the global, regional, and local levels, IRENA works to influence the global energy discourse. Backed by an extensive body of work, IRENA is engaging with its widening global network to communicate the role of renewables in the transformation of the global energy system and amplify their impact.

Realising Socio-economic Benefits

27. Among the socio-economic benefits of an expanding renewable energy sector are a growing number of jobs and livelihoods. In this context, IRENA continues to provide an annual assessment of the state of employment in renewable energy sectors worldwide, marshaling the latest evidence from a wide array of sources, including governmental statistics, industry association data, academic studies, and expert inputs. Through this series, IRENA analyses the impacts of market trends and policy developments on employment for each renewable energy technology and selected countries around the world. Over the years, the Agency has become a respected source for information on jobs.

28. As input to the Ninth Session of the IRENA Assembly, the Agency published a brief entitled *Measuring the socio-economic footprint of the energy transition: The role of supply chains*¹⁵. Insights were derived into the structural elements and related policy interventions required to maximise socio-economic benefits from the energy transition. This was achieved in part through sensitivity analyses on trade and domestic supply chains. The brief revealed that the strength and depth of domestic supply chains play a key role in determining how countries and regions will fare in the energy transition. This work is supported by a voluntary contribution from the Government of Germany.

¹⁵ https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jan/IRENA_-_Measuring_socio-economic_footprint_2019_summary.pdf?la=en&hash=98F94BCC01598931E91BF49A47969B97ABD374B5

The IRENA Policy Day – Attracting RE Investments

Accelerating the deployment of renewable energy requires policies that contribute to an enabling environment for attracting investments in the sector. As deployment has grown and technology matured, renewable energy policies are increasingly integrated into overall energy sector planning while also addressing wider growth and development objectives. To inform policy-making, IRENA provides state-of-the-art analysis of enabling policy frameworks and finance mechanisms spanning the entire renewable energy development cycle. This analysis forms the basis for the discussions at the **IRENA Policy Day**.

Policy Day provides a forum for renewable energy policy dialogues where countries and stakeholders can share experiences and disseminate best practices in policy-making to ensure the efficient deployment of renewable energy and the maximisation of the benefits realised. The Policy Day generates feedback from policy-makers and experts, provides key inputs to support IRENA's implementation of the Work Programme in the policy realm, and thus ensures relevance and accuracy.

The fourth IRENA Policy Day will take place on 27 June 2019 and will address topics including renewable energy policies and finance in a time of transition, auction trends and design elements, the allocation and management of project-related risks and finance mechanisms to facilitate investments, in addition to policies to maximise the benefits. Country representatives will present their experiences in designing a mix of deployment and finance policies for successful project development. Representatives from both developing and developed countries will share experiences on the factors and enabling conditions that contributed to success in deploying renewables and ensuring socio-economic benefits.

29. Complementing its global analysis on socio-economic impacts of renewable energy, IRENA is finalising a report on Maximising local benefits of large-scale renewable energy deployment: Insights from sub-Saharan Africa. The report examines key lessons learned and best practices that can be drawn from regional case studies. With a focus on community-level benefit delivery, the report explores four overarching study lenses: community participation, job creation, skills development, and gender equality. It examines major drivers of socio-economic outcomes, including national policies, requirements by financial lenders, industry policies and strategies, and host community requests. Based on a literature review and on field visits to wind and solar project sites in the study's region, analysis fills an important knowledge gap and supports policy-making towards a just, fair, and inclusive energy transition.

Informing Markets

30. IRENA's data and statistics are a trusted reference for decision-makers as they take steps towards a clean energy transition. IRENA's *Renewable Capacity Statistics 2019*¹⁶ report, published in March 2019, shows that renewable electricity generation increased by 7.9% (171 GW) to reach 2,351 GW at the end of 2018. As in previous years, solar capacity expanded the most (24%), adding 94 GW, followed by wind energy with an increase of 49 GW (10%). IRENA also produced a new dataset for reporting SDG Indicator 7.a.1 - International financial flows to developing countries in support of clean and renewable energy. The data shows that international co-operation on

¹⁶ <https://www.irena.org/publications/2019/Mar/Renewable-Capacity-Statistics-2019>

renewables has increased substantially, from only USD 1.3 billion in 2000 to USD 18.6 billion in 2016. Traditionally, most funding has been directed towards hydropower development, but support for other renewables has increased in recent years and in fact solar accounted for over half of all funding in 2016.

31. IRENA continues to work with countries to improve their national renewable energy statistics through training and the dissemination of technical information. The latest training workshop was held for West African countries in February 2019 in collaboration with the Energy Commission of Nigeria and Economic Community of West African States (ECOWAS) Centre for Renewable Energy and Energy Efficiency (ECREEE).



Participants of the “West Africa RE Statistics Training Workshop”, Abuja, Nigeria, 26-28 February 2019

32. IRENA’s **cost data** is a source of timely, up-to-date information that is used by a wide range of stakeholders involved in the energy transition. In May 2019, IRENA will also release its latest analysis entitled *Renewable Power Generation Costs in 2018*. As part of the effort to provide transparent data on the cost and performance of renewable energy technologies, the data from the report was also made available online. IRENA has also analysed learning rates for onshore wind and proposed a methodology that increases usefulness of analysis for policy-makers in understanding cost reductions for other technologies. With support from the Government of Germany, work is being finalised on cost reduction analysis to 2030 for solar and wind technologies in G20 countries.

Amplifying Impact

33. IRENA continues to strengthen its communication and outreach activities. Since the beginning of 2019, IRENA has been referenced in 6,300 media articles in 30 languages across 128 countries. During this period, several IRENA flagship reports were published. For example, the *Renewable Capacity Statistics in 2019* was widely disseminated through press releases in all UN languages and was mentioned in 315 articles including in Forbes, India Times, Nikkei and others in 20 languages

across 47 countries. On social media, the report made half a million impressions, the majority of which was through Twitter. *GET 2019 edition*, launched during the 2019 BETD and communicated by a press release in seven languages, was mentioned in over 370 articles by different publication houses, including Bloomberg, Le Monde, Reuters, and Spiegel. A series of specially crafted social media messaging cards about the report made almost 1.9 million impressions across IRENA's social media channels.

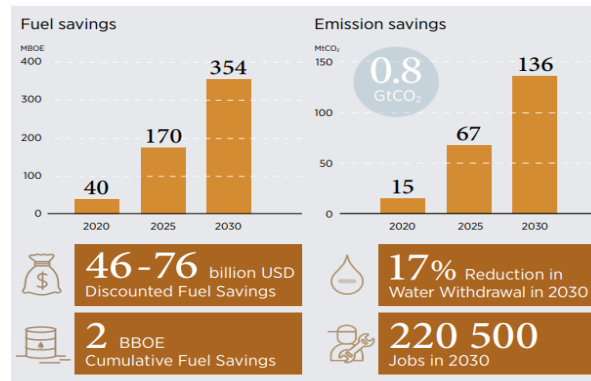
34. The number of visitors to IRENA **websites** grew steadily by 10% with the website registering over 285,000 visits. The current activities aim at encouraging user interaction and thus increasing time spent on the site and return visitor rates to establish irena.org as a reliable knowledge hub for renewables. Between January and May 2019, the time users spent on the IRENA website increased by 5%; Newsroom pieces performed best in retaining user attention. IRENA's Newsroom was browsed by almost 11% of users. The energy source overview pages rank high as well, with solar and wind attracting the most attention. IRENA publications were accessed online by 35% of all irena.org users and have been downloaded more than 350,000 times.
35. IRENA has continued to implement its strategy to target and deploy **social media** for global events, reports, and news. IRENA's Twitter account followers increased to over 63,000 in early 2019. Throughout the first half of 2019, IRENA's Facebook constituency increased to 411,000 followers; the page is now growing by over 2,000 followers a week. A new email format for sharing targeted IRENA publications, launched in early 2018, more than doubled the email "open" rate among subscribers. During the first half of 2019, IRENA's email supporters grew by 4,000 individuals and more than 500 grid operator companies from around the world were added. The *Global Energy Transition* mass email to stakeholders regarding the release of the *GET 2019 edition* resulted in the largest download rates thus far in 2019.

IV. Network Hub

36. Transformation of the global energy system requires increased connectivity on national, regional, and global scales. This ranges from regional and national policy considerations, through cross-border trade and grid interconnections, to city and community engagement. IRENA is building on its collaborative frameworks, such as the Clean Energy Corridors, SIDS Lighthouses Initiative, and Global Geothermal Alliance (GGA) to conduct needed analyses, support peer-to-peer exchange and transfer of knowledge and provide targeted advice.

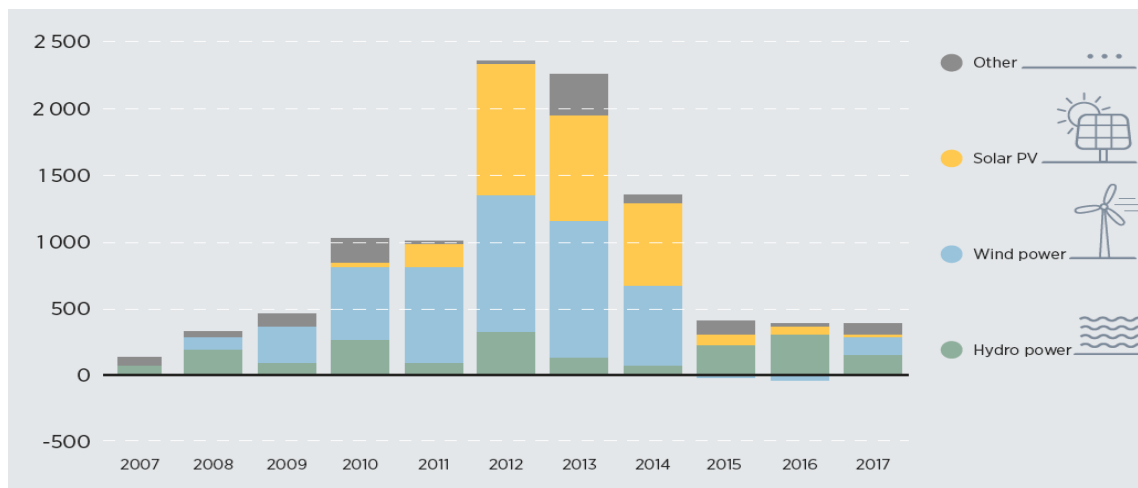
Regional Action Agenda

37. The "Renewable Energy Market Analysis" series captures the wealth of knowledge and experience embedded in a region and identifies emerging trends and themes at the intersection of public policy and market development. The market analysis brings together outcomes from different IRENA areas of work, including policy, data and statistics, finance, costs, benefits, potentials, tools, technology roadmaps, and country support. To date, IRENA has launched four editions focusing on: Gulf Co-operation Council countries (GCC) (2015 and 2019); Latin America (2016); and Southeast Asia (2018). An updated and expanded version of the GCC market analysis was released at the World Future Energy Summit in January 2019. Among other topics, analysis explored how renewables hold vast potential to cut fuel costs, reduce carbon emissions, conserve scarce water, and create jobs.



Benefits of renewable energy deployment in the GCC

38. IRENA is currently completing work on a fifth regional analysis focused on Southeast Europe (SEE). In addition to an examination of the status and potential of renewables in the region, the report highlights the role of biomass and focus on the finance landscape, the socio-economic and environmental impacts of renewables, and existing and needed policies. It identifies the key moment in a region where well-informed policy-making can steer an energy sector heavily reliant on locally sourced lignite, imported oil and gas, and traditional biomass towards greater sustainability and reduced energy poverty and vulnerability. Preliminary findings will be presented during a dedicated event at the EU Sustainable Energy Week in June 2019. Report highlights will further be presented in June 2019 in Sarajevo, Bosnia and Herzegovina to a ministerial-level audience.



Renewable energy additional capacity, SEE countries, 2007-2017

39. Underpinned by IRENA's analytical work, regional **action agendas and plans** continue to guide the Agency's activities worldwide. To date, work has been undertaken to implement regional agendas and plans for Africa, Central Asia, Latin America, South and Southeast Asia, Southeast Europe, and Middle East and North Africa.
40. **Africa.** The Agency is working closely with the African Union Commission (AUC) and African Union Development Agency - New Partnership for Africa's Development (AUDA-NEPAD) to provide substantive input into the preparatory process for the next phase of the Programme for

Infrastructure Development in Africa (PIDA) for the 2020-2030 period. IRENA's work, undertaken by the Clean Energy Corridor initiatives in Africa, is contributing to this effort. The "Second Ordinary session of the African Union Specialised Technical Committee on Transport, Transcontinental and Interregional Infrastructure, Energy and Tourism" (STC-TTIET), held in Cairo in April 2019, recommended the Member States, regional, and continental bodies to integrate the concept of the Clean Energy Corridors into their renewable energy and climate change agendas as well as in the design, implementation, and update of regional and continental initiatives and programmes to support the Continent's transition to more sustainable, reliable, and affordable energy systems.

41. In partnership with ECREEE, the ECOWAS Commission for Energy and Mines, the ECOWAS Regional Electricity Regulatory Authority (ERERA), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), and the West Africa Power Pool (WAPP), IRENA initiated a capacity building programme on grid integration of VRE and power purchase agreements (PPAs). As a follow-up to this programme, a regional training of Power Systems Economics is in preparation and scheduled to be held in 2019.
42. Following the validation by regional Ministers of energy and environment of the *Economic Community of Central African States (ECCAS) Renewable Energy Roadmap* in November 2018, IRENA has been working closely with the ECCAS Secretariat to organise a Ministerial meeting for the adoption of the Roadmap, which will pave the way to follow-up activities by IRENA and other development partners in the region.
43. Upon invitation from the European Commission, IRENA is involved in the process of the Africa-Europe High-level Platform for Sustainable Energy Investments (SEI), launched in November 2018 in Johannesburg. The objective of the SEI platform is to provide recommendations to address long-term challenges and strategic interests of the EU and Africa for the realisation of SDGs and the Paris Agreement. The SEI platform, comprising three multi-stakeholder working groups, focuses on business models for sustainable investments; improvements in the enabling environment; and business-to-business partnerships. IRENA is a member of the working group on business models for sustainable investments. Through regular meetings, the first of which was held in Brussels in April 2019, the working groups will provide recommendations to be adopted by the High-level platform in Johannesburg in November 2019 during the Africa Investment Forum. Interim meetings within the working groups will be held in June (in Conakry, Guinea) and September 2019.
44. **Latin America.** In January 2019, during the pre-Assembly day of the Ninth Session of the IRENA Assembly, the Agency held the "High-level Meeting on Renewable Energy in Latin America", which brought together Ministers and high-level representatives from 18 Latin American countries, as well as partner organisations, to discuss opportunities and challenges to scaling-up renewables in the region, and present IRENA's new regional action plan.



High-level Meeting on Renewable Energy in Latin America at the Ninth Session of IRENA Assembly, Abu Dhabi, United Arab Emirates (UAE), 10 January 2019

45. The High-Level Meeting follows a period of stakeholder consultations, undertaken by IRENA with Latin American Members in 2018, to identify priority areas for support in the region. As an outcome of this process, the Agency developed the regional action plan, which lists future IRENA technical advisory and capacity building activities that address the main barriers to renewable energy deployment. This work leverages a range of IRENA's tools and analytical products and is intended to be undertaken in collaboration with key partners and in conjunction with ongoing initiatives in the region. As such, several regional activities, aligned with the Action Plan, will take place in 2019.
46. IRENA and Grupo CEL held the "RRA El Salvador Expert Consultation Workshop" in December 2018, which gathered stakeholders across the country's public and private sectors, industry, civil society, and academia to introduce the RRA process and to discuss challenges and opportunities for the development of renewables in El Salvador. The outcomes of these discussions provided substantive inputs for the RRA Validation Meeting, to take place in 2019, and the preparation of the final RRA report. This work is supported by a voluntary contribution from the Government of Norway.



“IRA El Salvador Expert Consultation Workshop”, San Salvador, El Salvador, 3-4 December 2018

47. **Central Asia.** As guided by the Astana Communiqué on “Accelerating the Uptake of Renewables in Central Asia”, IRENA advanced the implementation of the regional action plan through various activities. Most recently, the Agency organised a regional workshop on “Long-Term Capacity Expansion Planning with a High Share of Renewables” in March 2019 in Astana, Kazakhstan. Participants discussed the range of tools and methodologies available to specifically address the improved representation of VRE in long-term planning.



“Central Asia Workshop on Long-Term Capacity Expansion Planning with a High Share of Renewables”, Astana, Kazakhstan, 14-15 March 2019

48. Furthermore, the Agency signed a partnership agreement with International Green Technologies and Investments Center (IGTIC) Kazakhstan with the intent to closely work together in the dissemination of information and best practices of renewable energy development and deployment in Kazakhstan and the Central Asia region more broadly.

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49. **Southeast Asia.** The Association of Southeast Asian Nations (ASEAN) and IRENA signed a Memorandum of Understanding (MoU) to support the scaling up of renewable energy in the region at the 36th ASEAN Ministers on Energy Meeting (AMEM) and Singapore International Energy Week (SIEW) in Singapore in October 2018. Key priorities to implement the MoU, as outlined in the Action Plan, have been identified as: energy planning; development of a regional renewable energy roadmap; policy and regulatory frameworks to support renewable energy deployment; capacity building on renewable energy-related topics; and renewable energy technology, innovation, and financing. The kick-off workshop “Renewable Energy Policy Support Mechanism”, which took place in November 2018, resulted in policy exchanges and in-depth discussions as an input for ASEAN Member States to formulate appropriate actions on renewable energy policy, financing, and investment and competitive renewables market mechanisms, including renewable energy auctions. As a follow-up, a workshop “Accelerating Investment in Southeast Asia” was conducted in conjunction with ASEAN Renewable Energy Subsector Network Annual Meeting in Vietnam in May 2019. This work is supported by voluntary contributions from the Government of Denmark and Government of Japan.
50. **South Asia.** IRENA has been deepening its engagement in South Asia in collaboration with regional intergovernmental organisations, such as International Centre for Integrated Mountain Development (ICIMOD) and the South Asian Association for Regional Co-operation (SAARC). Progress has been made in discussions with SAARC, who recently invited IRENA as a special observer of the “9th Meeting of SAARC Working Group on Energy”, in Islamabad, Pakistan in April 2019, to discuss possible collaboration. During ICIMOD’s recent high-level workshop “Sustainable Access to Clean Energy for Hindu Kush Himalaya Region”, in Thimpu, Bhutan in February 2019, IRENA, an invited partner, discussed priority areas for regional collaboration. As a follow-up to this workshop, ICIMOD and IRENA initiated a scoping exercise to design a targeted regional initiative for promoting renewable energy in the mountain communities of Hindu Kush Himalaya region.
51. **Southeast Europe.** Guided by the Abu Dhabi Communiqué on “Accelerating the Uptake of Renewables in South East Europe”, adopted in January 2017, IRENA has continued the implementation of the regional action plan. The regional workshop “Renewable Energy Benefits: Can Southeast Europe realise the full potential of the Energy Transition?”, to be co-hosted by the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, is scheduled to take place on 11-12 June 2019 in Sarajevo. The event provides an opportunity to launch *Renewable Energy Market Analysis: Southeast Europe*, the latest edition of the regional market analysis series. The Agency also supported efforts of Ukraine to design an auction system for renewables by organising an expert webinar in October 2018 and jointly co-organising an international conference in Kyiv in February 2019 with the State Agency on Energy Efficiency and Energy Savings. The workshop brought together stakeholders in the sector, together with international and IRENA experts, to provide recommendations on the design of the auctions.
52. The Agency has also supported various regional processes with its analytical input or participation in discussions. For example, IRENA’s report *Cost-competitive renewable power generation: Potential across South East Europe*¹⁷ influenced the debate on the inclusion of renewable energy into the European Commission-led Central and South Eastern European Energy Connectivity (CESEC) initiative.

¹⁷ <https://www.irena.org/publications/2017/Jan/Cost-competitive-renewable-power-generation-Potential-across-South-East-Europe>

The Agency presented its latest updates in renewable energy global trends and potentials for SEE in April 2019 during the High-level Group Meeting on CESEC and a national parliamentary workshop, both hosted by the Romanian Presidency of the Council of the European Union. A regional REmap analysis for the CESEC region, to support development of countries' National Energy and Climate Plans, is in preparation. Building on the kick-off workshop in October 2018, the first sectorial workshop was held in Vienna on 31 January 2019.

53. **Middle East & North Africa.** Following an extensive consultation process, IRENA assessed existing gaps to the implementation of the Pan Arab Clean Energy Initiative (PACE) as outlined in the Agency's Work Programme and Budget 2018-2019. Results indicated the region would benefit from additional detailed resource assessments, particularly for solar and wind. IRENA thus focused on improving resource assessment practice in the Arab region, with solutions to streamline early stage solar and wind market planning. This work will increase awareness and clarify market opportunities for new solar and wind generation capacity. This work includes identification of potentials, such as regional maps, to further renewable energy development. Dissemination of information is conducted in part through sub-regional technical trainings. The project is supported by a voluntary contribution from the Government of Norway.

PACE Initiative: Addressing Variable Renewable Energy Sources in Long-term Planning

IRENA, under the umbrella of the PACE initiative, organised a four-day workshop in Amman, Jordan in March 2019 to identify the gaps for planning and share best practice experiences. This workshop was organised with the Islamic Development Bank (IsDB), the League of Arab States (LAS) and the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE). The workshop gathered more than 50 expert participants from 10 country planning and technical institutions in the region and identified key gaps in long-term planning practices. Results will feed into a knowledge report to include country practices and improvement priorities.



54. Building on the successful Project Navigator workshop organised in Egypt in October 2018 (*See section IV*), sub-regional, project facilitation, and finance workshops will be held under the PACE Initiative tailored toward project developers. These workshops will take place sub-regionally in the GCC, Mashreq, and North Africa areas, tapping into IRENA's wide partnership base in the MENA region.

Collaborative Platforms

55. **Global Geothermal Alliance.** IRENA continues to support international co-operation and the development of enabling frameworks for geothermal energy through the Global Geothermal Alliance (GGA). Following the launch of the initiative in December 2015, the Alliance has expanded its reach to 46 members and 37 partners¹⁸.
56. In 2018, the Agency began work on the geothermal energy and food nexus. In April 2018, IRENA co-organised the event “Geothermal Direct Utilisation and Food Security” with the Ministry for Foreign Affairs of Iceland and the Iceland Geothermal Cluster. During the meeting, key factors behind successful experiences were identified, lessons shared, and partnerships highlighted. Outcomes and case studies from the workshop were presented and discussed at the fifth Geothermal Congress for Latin America and the Caribbean (GEOLAC) in July 2018, fifth Energy Congress for Central America (COREN) in August 2018 and Seventh African Rift Geothermal Conference (ARGeo-C7) in November 2018. This process formed the basis of the IRENA publication entitled *Accelerating geothermal heat adoption in the agri-food sector: Key lessons and recommendations*¹⁹, launched in January 2019. This work is supported by a voluntary contribution from the Government of France.

¹⁸ **Member Countries:** Argentina, Bolivia, Burundi, Chile, Colombia, Comoros, Costa Rica, Djibouti, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, France, Germany, Guatemala, Honduras, Iceland, India, Indonesia, Italy, Japan, Kenya, Kingdom of the Netherlands, Malaysia, Mexico, Nicaragua, New Zealand, Pakistan, Papua New Guinea, Peru, Philippines, Poland, Portugal, Romania, Saint Vincent & the Grenadines, Switzerland, Solomon Islands, United Republic of Tanzania, United States of America, Tonga, Turkey, Uganda, Vanuatu, Zambia, Zimbabwe.

Partner Institutions: African Development Bank, African Union Commission, AGH University of Science and Technology (Poland), Andean Geothermal Center of Excellence (Chile), Asian Infrastructure Investment Bank (AIIB), Association GeoEnergy Celle e.V. (Germany), Canadian Geothermal Energy Association, Centro Mexicano de Innovación en Energía Geotérmica (CeMIEGeo), Chinese Renewable Energy Industries Association (CREIA), Eastern African Power Pool, Energy Institute Hrvoje Požar (Croatia), European Geothermal Energy Council, Geothermal Canada, GEODEEP - Geothermal Cluster for Heat and Power (France), Geothermal Resources Council (USA), Geothermal Power Plants Investors Association (Turkey), Iceland GeoSurvey, Iceland Geothermal Cluster Initiative, Inter-American Development Bank, International Geothermal Association, International Renewable Energy Agency, Islamic Development Bank, Macedonian Geothermal Association, National Energy Authority (Iceland), New Partnership for Africa’s Development, Nordic Development Fund, Organization of American States, Organisation of Eastern Caribbean States, Regional Center for Renewable Energy and Energy Efficiency, Serbian Geological Society, Southern Africa Power Pool, Pacific Community, United Nations Environment Programme, United Nations Industrial Development Organization (UNIDO), United Nations University - UNU GTP, United States Energy Association (USA), World Bank.

New 2019 partners include: Asian Infrastructure Investment Bank (AIIB); Chinese Renewable Energy Industries Association (CREIA); Geothermal Canada; United Nations Industrial Development Organization (UNIDO); and United Nations Industrial Development Organization and Asian Infrastructure Investment Bank (AIIB) Ethiopia, Germany, Japan, the Mexican Geothermal Cluster (CeMIEGeo), and the Organisation of Eastern Caribbean States (OECS).

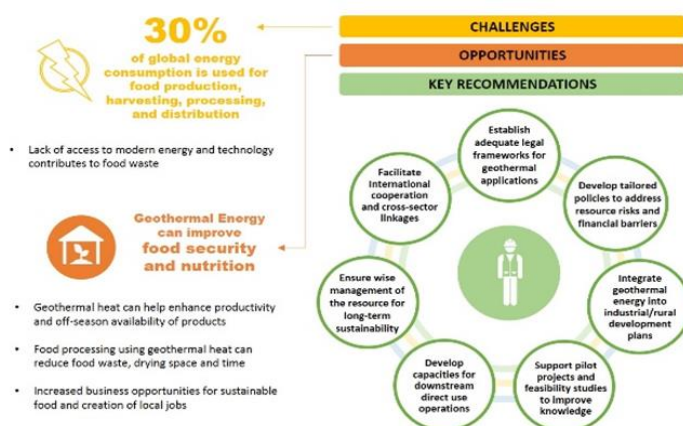
¹⁹ <https://www.irena.org/publications/2019/Jan/Accelerating-geothermal-heat-adoption-in-the-agri-food-sector>

Key lessons and recommendations to accelerate geothermal heat adoption in the agri-food sector

Food production, harvesting, processing and distribution accounts for almost a third of the world's energy consumption. Heavy reliance on fossil fuels in the food value chain therefore significantly adds to harmful emissions. Where the resource potential exists, geothermal heat can reduce food waste, boost economic development, and help reduce greenhouse gas emissions.

Several geothermal applications in food processing and agriculture require low temperatures and can therefore be deployed in areas where geothermal resources would not be suitable for power generation. However, despite its promising potential and increasing interest from policy-makers and key stakeholders, direct use of geothermal heat in food-related applications across the world is still limited.

In this framework, the Agency's publication *Accelerating geothermal heat adoption in the agri-food sector: Key lessons and recommendations* seeks to increase awareness, share experiences and lessons, and provide recommendations for expanding geothermal heat use in the agri-food sector. This publication has been developed within the framework of the Knowledge Sharing Platform of the Global Geothermal Alliance.



57. In its role as GGA coordinator and facilitator, IRENA convened a meeting of GGA at the Ninth Session of the IRENA Assembly entitled “Global Geothermal Alliance: Enhancing Dialogue and Cooperation”. The meeting focused on frameworks to support the deployment of geothermal applications in district heating in cities and gathered Member representatives, partners, and experts from the private sector to share insights, experiences, and proposals for reinforcing collaboration and cross-regional learning. This project is supported from voluntary contributions from the Government of Germany.²⁰

58. **SIDS Lighthouses Initiative.** Since 2014, IRENA has consolidated its work with SIDS under the umbrella of the SIDS Lighthouses Initiative (LHI), comprising 36 SIDS²¹ and 22 development partners²². Three new partners have recently joined the Initiative: the Organisation of Eastern Caribbean States, the Pacific Islands Development Forum, and the Solar Head of State.

²⁰ This project is part of part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

²¹ Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Cabo Verde, Comoros, Cook Islands, Cuba, Dominican Republic, Micronesia (Federated States of), Fiji, Grenada, Guyana, Kiribati, Maldives, Marshall Islands, Mauritius, Montserrat, Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Sao Tome and Principe, Seychelles, Solomon Islands, Tonga, Trinidad and Tobago, Turks and Caicos, Tuvalu, Vanuatu

²² France, Japan, Germany, Italy, New Zealand, Norway, United Arab Emirates, United States of America, Association of the Overseas Countries and Territories of the European Union, Clean Energy Solutions Center, Clinton Climate Initiative, ENEL, European Union, Indian Ocean Commission, IRENA, Organisation of Eastern Caribbean States, Pacific Islands Development Forum, Rocky Mountain Institute - Carbon War Room, Solar Head of State, SEforAll, UNDP, World Bank

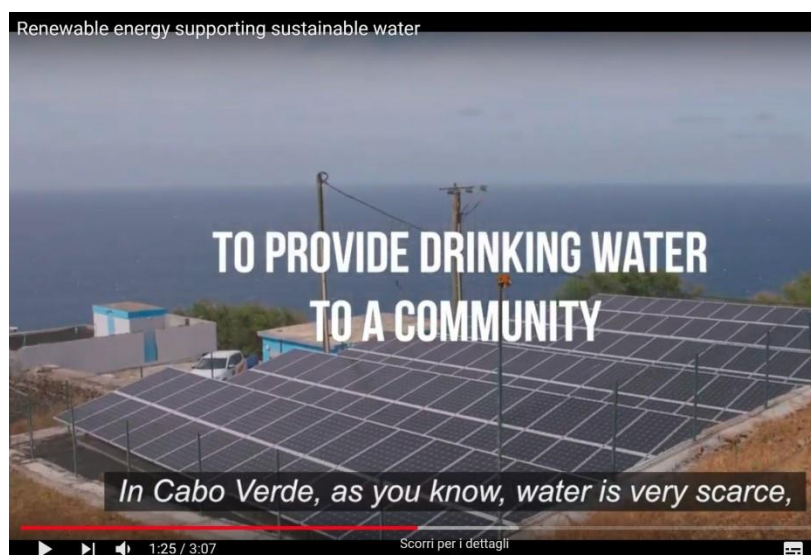
59. Building on the results achieved to date under the SIDS LHI, and taking into consideration the evolution of the energy context in SIDS, a consultation process was undertaken with partners to identify the priority areas and targets of the next phase, SIDS Lighthouses Initiative 2.0 (LHI 2.0). Following the launch of LHI 2.0 at a High-Level Roundtable held in September 2018 at the UN General Assembly, the priority areas were further discussed during the SIDS Ministerial meeting held during the pre-Assembly day of the Ninth Session of the IRENA Assembly. The event brought together SIDS Heads of State and Government, Ministers, and officials and development partners to discuss activities relating to the LHI 2.0 priority areas that support accelerated efforts for an affordable, resilient, and renewables-based energy future for SIDS. During the meeting, participants highlighted that the new priority areas of LHI 2.0 reflect aspirations for a continued energy transformation of SIDS and the many pressing challenges in SIDS, such as, among others, climate change, reviewing and implementing of NDCs, food and water security, attracting investment, creating employment, and accessing to finance.



SIDS Ministerial: SIDS Lighthouses Initiative 2.0, Abu Dhabi, UAE, 10 January 2019

60. As input to the meeting, IRENA prepared a brief entitled *SIDS Lighthouses Initiative: Progress and Way Forward*, which provides an overview of the progress achieved in the first four years of the LHI and highlights key developments in 2018 that paved the way for its second phase. As part of LHI 2.0, the IRENA Quickscan's scope will be expanded to include new priority areas endorsed by SIDS and LHI partners. New statistical data of the power sector will be included to provide an overview of the regulatory framework linked to the deployment of renewable energy projects, identify key mitigation strategies considered within SIDS NDCs, and increase the understanding of end-use sectors, thus leveraging the synergies between renewable energy and energy efficiency.
61. IRENA is also working to increase awareness and reinforce links between renewables and food, water, and health in line with LHI 2.0 priorities. To this end, the Agency produced a series of videos highlighting the role that renewable energy technologies can play in the supply, storage, pumping, and distribution of drinkable water resources in households and communities in islands; lighting and medicine storage in rural health clinics; and agricultural, food processing, and other food production related activities. The videos are available on the SIDS LHI website²³. SIDS LHI work is supported by voluntary contributions from the Governments of France, Germany, Norway, and UAE.

²³ <https://islands.irena.org/>



Videos highlighting role RE technologies can play on SIDS LHI's website

Multi-stakeholder Engagement

62. Including a multi-stakeholder perspective in IRENA's work is vital to enrich programmatic outputs while ensuring inclusive and broad support. The IRENA Coalition for Action continues to promote increased public-private dialogue and further engagement in IRENA's work by various stakeholders, including the private sector, industry associations, civil society, and research organisations. Building on the launch of the report *Corporate Sourcing of Renewables: Market and Industry Trends*²⁴, released during CEM9 in May 2018, IRENA has undertaken numerous dissemination and communications activities on the topic, supported in part through a voluntary contribution by the Government of Germany.
63. The Coalition has grown to 90 members operating through four Working Groups. At the Ninth Session of the IRENA Assembly, during the second Public-Private Dialogue, the "Towards 100% Renewable Energy Working Group" launched the white paper, *Towards 100% Renewables: Status, Trends and Lessons Learned and the Community Energy Group*²⁵, which presented its latest findings on enabling community renewable energy investment. The Business and Investors Group presented country white papers and engaged in bilateral meetings with country delegations to discuss key challenges and opportunities to scaling up renewable energy investment. During its third Annual Strategy Meeting in January 2019, the Coalition agreed to continue the Working Groups from 2018 and further strengthen the engagement of Coalition members in IRENA's activities. This work is supported by voluntary contributions from the Government of Germany.
64. IRENA strengthened its engagement with Legislators in 2019 at the fourth Legislators Forum which was held in conjunction with the Ninth Session of the IRENA Assembly. The forum was attended by members of parliament from 27 countries and the European Union. Legislators exchanged best practices, experiences, and challenges in developing enabling legislative frameworks to accelerate the energy transformation in reaching SDG7 on universal access to affordable, reliable, sustainable, and modern energy for all by 2030. A session focusing on the

²⁴ <https://www.irena.org/publications/2018/May/Corporate-Sourcing-of-Renewable-Energy>

²⁵ https://coalition.irena.org/-/media/Files/IRENA/Coalition-for-Action/IRENA_Coalition_100percentRE_2019.pdf

energy access gap in Africa facilitated the exchange of experiences and best practices with parliamentarians from around the world and among peers from African countries. As part of the Agency's efforts to engage with parliamentarians with a specific interest in renewable energy, the *REview for Parliamentarians*,²⁶ a periodic brief compiling targeted information on renewable energy for members of parliament, is also being issued on a regular basis in multiple languages including in English, French, and Spanish.



IRENA Youth Initiative at the Ninth Session of the IRENA Assembly, January 2019

65. IRENA continues to strengthen its engagement with youth and invited students from nationally-based schools to participate as volunteers during the Ninth Session of the IRENA Assembly, and related meetings, as well as their participation at the IRENA Youth Circle during World Future Energy Summit. Students exchanged their views with renewable energy experts, delegates, and each other on the energy transition and youth engagement in IRENA's activities. Most recently, the Agency has started a discussion with the Ministry of Education of the UAE to explore the possibility of carrying out collaborative activities with youth through education and training initiatives on renewable energy.

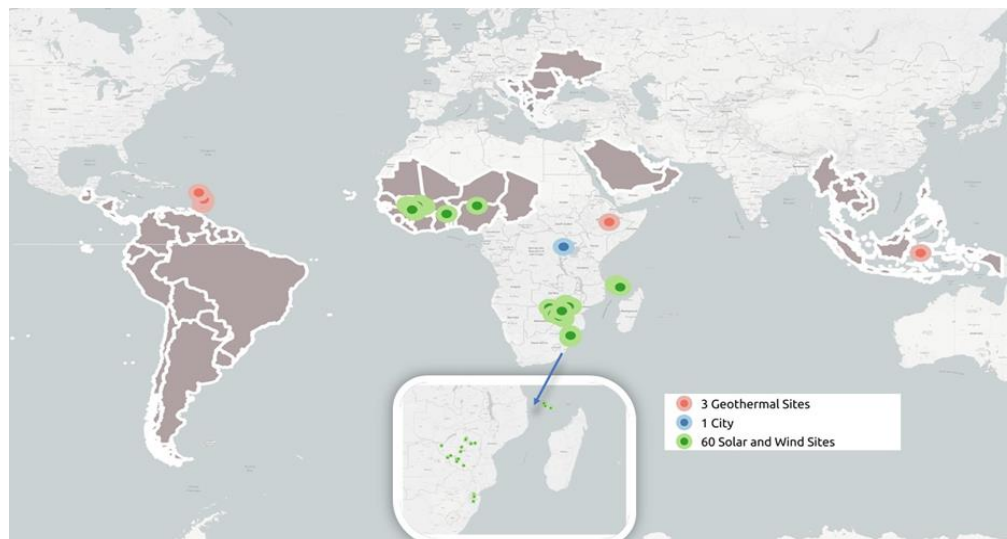
V. Source of Advice and Support

66. Through direct engagement with Members, IRENA has made its knowledge products increasingly policy-relevant and accessible and has refined its tools, platforms, and methodologies to better address common challenges. Building on work to date, IRENA is offering targeted support in project development, access to finance, and resource and readiness assessments. It has further developed its renewable energy solutions lab offering direct support to entrepreneurs and local businesses.

²⁶ <https://www.irena.org/parliamentarynetwork/REview-for-Parliamentarians>

Project Support and Facilitation

67. Creating a renewable energy project pipeline is a priority for the acceleration of the global energy transformation. IRENA contributes to this with its convening power, expert knowledge, and tools and platforms that facilitate projects. The **Project Navigator** makes an important contribution in this context. Through the Navigator, IRENA supports Member governments, project developers, investors, and multilateral banks to accelerate the deployment of renewable energy projects by building technical local capacities to increase the quality of project proposals, reduce project risk profiles, and increase the bankability of renewable energy projects. The Navigator has reached a new milestone with more than 7,000 registered users. It now supports projects based on all major renewable energy sources, with new modules for end-use applications and climate resilience, and offers access to a training-of-trainers (ToT) module to multiply impact on the ground. In terms of capacity building in the field, more than 500 stakeholders have been trained through Project Navigator workshops this year in the Middle East, SIDS, Southeast Asia, and Sub-Saharan Africa, blending on-site and remote training workshops and directly supporting the preparation of bankable project proposals. SIDS module of the Project Navigator is supported from a voluntary contribution from the Government of Germany²⁷.



Global Atlas Site Appraisal Service

68. In collaboration with the World Bank's Energy Sector Management Assistance Program (ESMAP) and the International Geothermal Association (IGA), and with the support of a voluntary contribution from the Government of France, IRENA is working to enrich the geothermal component of IRENA's **Global Atlas** and promote standardisation in the way resource assessment for geothermal energy is reported. This involves developing geothermal maps and classifying a sample inventory of hydrothermal geothermal systems in three pilot countries based on the Specifications for the application of the United Nations Framework Classification (UNFC) for Fossil Energy and Mineral Reserves and Resources 2009 to Geothermal Energy Resources. To this end, the Agency trained high-level and technical stakeholders in Indonesia (April 2018), a cluster of Eastern Caribbean islands (December 2018), and Ethiopia (February 2019) on the

²⁷ This project is part of part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag.

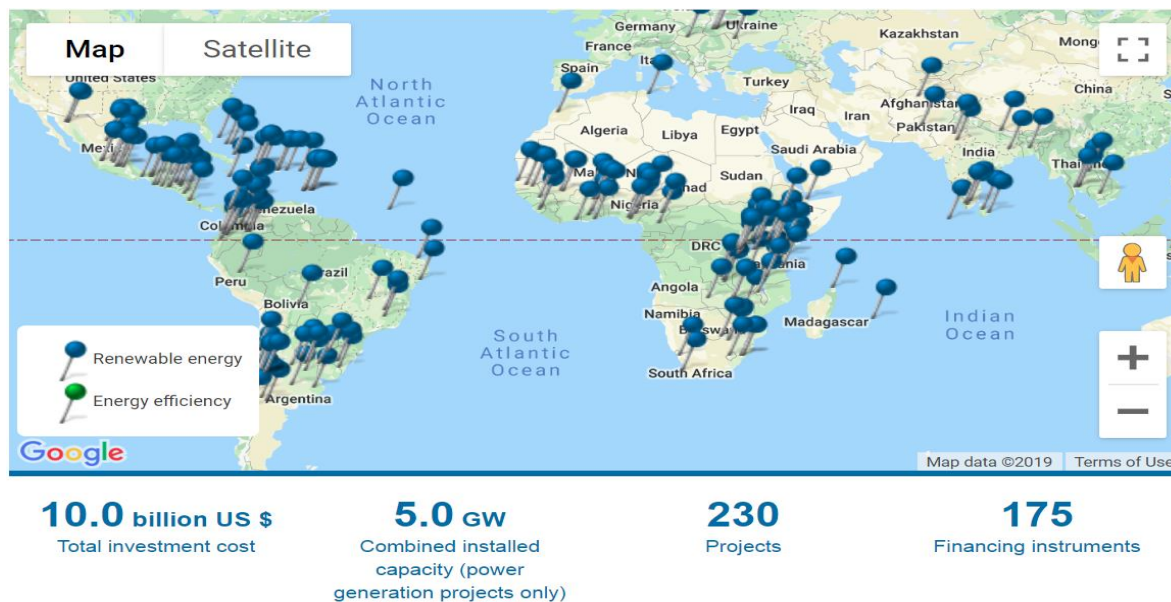
application of the UNFC guidelines. The draft reports of the classification for selected sites are currently under preparation, together with maps of vertical subsurface thermal profiles generated for the pilot countries, to be published on the Global Atlas.



“Regional Geothermal Resource Data Gathering UNFC Classification and Training Workshop”, Castries, St. Lucia, 5-7 December 2018

69. IRENA’s **Sustainable Energy Marketplace** has continued to serve as an investment catalyst within the sustainable energy space by connecting project developers and owners with financiers, investors, and service and technology providers. The Marketplace currently comprises 230 sustainable energy projects (translating into 5.0 GW of installed capacity and USD 10.0 billion worth of investment opportunities, 175 financing instruments, 223 service providers, and 85 technology suppliers). The projects on the platform include 94 solar, 54 bioenergy, 26 hydropower, 19 wind, and 37 others. The platform also comprises 175 financing instruments including 67 equity, 25 subordinated debt, 24 senior debt, 15 grant, and 44 other instruments (e.g., guarantees, leasing, results-based financing, and others).
70. IRENA provides project preparation support and hosts regular regional matchmaking events where project proponents pitch their business proposals and engage with representatives from financial institutions, private equity funds, development financial institutions, financial advisors, and legal experts. This year, IRENA has supported 25 project owners by improving their business proposals and investor pitches. In April 2019, IRENA hosted its first virtual project finance matchmaking event in Latin America where 12 project developers presented a total of 21 projects to over two dozen investors and financiers, including from multilateral and bilateral development finance institutions, private equity firms, and venture capital funds, as well as global and regional asset managers and strategic investors.

71. As an extension of the Marketplace, IRENA will launch a risk assessment and mitigation platform (RAMP), which will include a comprehensive risk mitigation database to make risk mitigation instruments more visible and easier to identify, understand, and access.



IRENA's Sustainable Energy Marketplace

72. The IRENA/Abu Dhabi Fund for Development (ADFD) Project Facility continued to facilitate project selection and financing of renewable energy projects in developing countries. Over 90 independent international experts have been engaged to date to evaluate over 600 proposals based on technical, economic/financial, and sustainable development criteria. Total allocated loans by ADFD today amounts to USD 245 million for 24 renewable energy projects in 23 developing countries. Co-financing of USD 450 million from government sources and other development funds has been mobilised to cover the rest of the project costs. These projects are expected to deliver 150 MW of renewable energy and advance sustainable development.

Three projects selected in the sixth cycle were announced in January 2019. These are:

- *Guyana Hinterland Electrification Programme (5.2 MW Solar PV-Grid Tied Farms)*
- *Liberia - River Gee Mini-Hydropower Project (2.1 MW)*
- *Togo - Dapaong Solar PV Project (30 MW)*

73. As part of the seventh cycle, IRENA has received a total of 95 applications from 48 eligible developing countries. As a result of targeted outreach, more government-driven projects were submitted in this cycle than in the previous cycle. Most submissions are solar PV projects, many of which are solar PV rooftop projects in Africa, followed by bioenergy, hydropower projects, hybrid, and wind. Of submitted projects, a total of 40 have been shortlisted with request to submit a full proposal. Over half of these are from the public sector.

IRENA/ADFD Facility projects advancing with construction that will be commissioned and generating electricity in 2019

Transformation of the water and government sectors using renewable energy in Antigua and Barbuda:

Construction of the solar portion of the 4 MW solar-wind hybrid project commenced in 2019. This project is part of the government's wider scheme to transform the water sector and provide low-emission and climate-resilient energy for critical services, such as education and health facilities. The wind turbines obtained for the project are foldable to withstand the impact of hurricanes.



10 MW grid-connected solar PV project in Cuba:

All four of the solar parks of the 10 MW project were connected to the grid by May 2019. As a result of the reduction in solar PV costs, the capacity has expanded from 10 MW to 15 MW, all covered under the original loan amount of USD 15 million from ADFD. The project is contributing to the national objectives to reduce the use of fossil fuels and greenhouse gas emissions.



Small scale waste to energy project in the Maldives:

The waste management portion of the project is completed, and power installations are happening on R. Vandhoo site. These waste-to-energy facilities are part of the country's broader waste management framework and contribute to the government's "Scaling Up Renewable Energy Program".



Solar Park in Sierra Leone:

The site for the 6 MW solar PV park has been mobilized and construction has commenced. The solar park will be grid connected and will improve the national power reliability while mitigating greenhouse gases.



Renewable Energy Solutions Lab

74. IRENA is supporting the United Nations High Commission on Refugees (UNHCR) to address the issue of clean and affordable energy provisions in the humanitarian context. Through this collaboration, IRENA intends to support UNHCR by analysing technically and financially sound renewable energy options for UNHCR to implement in select field locations. IRENA is conducting energy audits in four refugee camps (two in Iraq and two in Ethiopia). Based on the data provided by UNHCR and collected from the field locations, IRENA will prepare a detailed analysis on various renewable energy options to provide clean, reliable, and cost-effective energy

access to refugees, including technical designs of the renewable energy systems and recommend suitable delivery models with possible entry points for private actors. The IRENA inputs will serve as a blueprint for electricity supply in situations of displacements for UNHCR feeding into the energy strategy and vision of UNHCR's for addressing the energy requirements in humanitarian response. IRENA was also invited to become a steering group member of the Global Plan of Action for Sustainable Energy Solutions in Situations of Displacement (GPA), a non-binding, multi-stakeholder framework launched in 2018 to accelerate progress towards the vision of "safe access to affordable, reliable, sustainable, and modern energy services for all displaced people by 2030." This work is supported by voluntary contributions from the Walloon Government of Belgium.

75. IRENA continues to assist entrepreneurs to scale up renewable energy enterprises through its Southern African Development Community (SADC) Renewable Energy Entrepreneurship Support Facility. In April 2018, the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) and IRENA launched the first call for applications for SADC-based entrepreneurs to submit requests for assistance under the Facility. As of May 2019, IRENA is working with SACREEE to facilitate the implementation of the Facility through the recruitment of a local coordinator as well as the preparation of the calls for proposals and capacity building activities for the upcoming two years. This work is supported by voluntary contributions from the Walloon Government of Belgium.
76. IRENA is also supporting the establishment of a regional certification scheme for off-grid PV installers in the 15 Member States of the ECOWAS region. ECREEE, with technical advice from IRENA, will pilot the scheme in partnership with selected national examination entities based on a Job-Task Analysis developed for off-grid solar PV technicians. The first pilot examination for certification of solar PV installers was held in Senegal in January 2019; the second pilot examination will be held in Ghana in June 2019.

Renewable Energy: A Gender Perspective

IRENA's *Renewable Energy: A Gender Perspective* was presented at the Ninth Session of the IRENA Assembly during a special evening event on "Gender in the Energy Transformation". Subsequently, findings from this report were shared at the First Regional Conference of Women in Power Sector Professional Network in South Asia (WePOWER) event hosted by the World Bank Group Nepal, participated in side events on the topic at the Astana World Economic Forum 2019, as well as in several events at the BETD 2019. The Agency is co-organising a dedicated gender event at the Tenth Clean Energy Ministerial (CEM10) in Vancouver, Canada and at the EU Sustainable Energy Week 2019 in Brussels, Belgium.



Local Solutions and Tailored Advice

77. IRENA's extensive knowledge products, tools, and methodologies provide a sound basis for tailored advice to countries and IRENA's engagement on the ground. Its various frameworks, such as renewable readiness assessments (RRAs), resource assessments, planning, and socio-economic models, provide countries with clear recommendations on how to achieve their ambitions. IRENA's work on policy assessments and socio-economic benefits is integrated into regional policy workshops for Central Asia, Southeast Asia, Southeast Europe, and four regions in Africa as part of the Africa Renewable Energy Initiative (AREI).
78. IRENA provides energy planning capacity building support to several countries. For example, IRENA provided trainings and technical support to a working team of national staff to develop the Eswatini Energy Masterplan 2034. Upon cabinet approval and the launch in October 2018, the Masterplan has now become the official national energy plan, which features "100% renewable power" as the preferred scenario. Based on the Masterplan, Eswatini also developed a short-term (5-year) power sector roadmap and prepared a tender for auctioning renewable energy capacity (solar PV and biomass). This work was enabled by voluntary contributions provided by the Government of Norway.



Eswatini Energy Masterplan 2034 launch in Ezulwini, Eswatini, 25 October 2018

79. IRENA, jointly with the Ministry of Economy and Infrastructure, launched the RRA for the Republic of Moldova on 19 February 2019 in Chisinau, Moldova. The launch event brought together around 70 experts from various institutions for the presentation of the report and discussion on potential follow-up activities building on its recommendations. The RRA report outlines a 10-point roadmap for renewable energy growth and, among others, suggests actions to strengthen national targets, boost the flexibility of existing grid infrastructure, improve the bankability of renewable energy projects, further develop the bioenergy sector, and enhance the capacity of local banks. This RRA was supported by a voluntary contribution from the Government of Norway.
80. The RRA processes for Mali, Azerbaijan and Tunisia have recently been completed and the reports are under finalisation with launches planned for the second half of 2019. IRENA has also advanced the development of the RRA analysis for Bhutan through an expert consultation workshop in December 2018 and a planned validation workshop in Thimphu in July 2019.
81. The Renewable Energy Outlook (combined RRA-REmap analysis) for Lebanon is currently being prepared and will be launched in September 2019 on the sidelines of the International Beirut Energy Forum (IBEF) in Beirut. A loan officer from the Lebanese Centre for Energy Conservation (LCEC) joined the REmap team for three months (February-May 2019) to conduct the REmap analysis and prepare the report. To date, two workshops were organised in Beirut: A Multi-Stakeholder Workshop (5-6 March 2019) and a Validation Workshop (8-9 May 2019). The workshops were attended by key representatives from relevant energy stakeholders, i.e., different national institutions, companies and banks, responsible for driving renewable energy deployment in Lebanon.

82. In May 2019, IRENA started the first RRA study with a module on the IRENA Flex tool: Jordan. The RRA study not only addresses the policy, regulatory and institutional challenges hindering renewable energy deployment in Jordan but provides detailed power system analyses through structural and operational recommendations to address concerns in system flexibility to enable Jordan to meet its ambitious 2025 targets. The Jordan RRA is supported by a voluntary contribution from the Government of Norway. The study has been initiated with a planned launch in early 2020. Additionally, new RRA processes have recently been initiated in Albania and Botswana. IRENA is also engaged with Mozambique to support the work in high-priority areas such as grid integration studies and site assessments. This work is supported by voluntary contributions from the Government of Norway.
83. IRENA is also collaborating with Nigeria for a national REmap analysis. A loaned officer from the Energy Commission of Nigeria (ECN) was seconded to work on developing the REmap database for Nigeria and the draft analysis. The analysis is being further refined and is scheduled to be finalised in 2019.

VI. International Co-operation and Strategic Engagement

84. With many parts of the global energy system in flux, no single actor can anticipate what the future holds. National policies and international commitments are redrawing the existing energy landscape, reflecting changing aspirations, priorities, and plans. Rapid innovation is redefining the complex network of stakeholders throughout the global economy. Regional production profiles are shifting, sometimes at a rapid pace and with a profound impact on geopolitical dynamics.
85. As requested by Members, the Agency continues to provide leadership in global agenda-setting on energy transformation.

International Co-operation and Strategic Management

86. Following the accession of Canada in January 2019, IRENA's global family now includes 160 Members and 23 Signatories and States in Accession. This ever-increasing global reach is enabling the Agency to draw on a broad and extensive range of country-level knowledge and expertise for the implementation of its mandate in promoting the global energy transformation. Participation in, and collaboration with, various global, regional, and national fora is the backbone of this effort. IRENA, led by its Director-General, has contributed to a range of global convenings to help shape the global discourse on energy.
87. Following the Ninth Session of the IRENA Assembly, several events were used to promote the work of the Agency. This included dissemination of the report *A New World: The Geopolitics of the Energy Transformation* launched at the Assembly, in The Netherlands, and the United Kingdom, among others, and launch of the *Innovation Landscape for a Renewable-Powered Future* report in Brussels in February 2019. During the reporting period, the newly-elected Director-General took office on 4 April 2019. Early engagement at IRENA Headquarters in Abu Dhabi included Host Country Ministers and high-level officials. The Director-General also met several Permanent Representatives (PRs), a growing IRENA community in Abu Dhabi that currently comprises 49 accredited PRs, the latest being Costa Rica, Mozambique, Somalia, South Africa, and Ukraine.

88. The Director-General also attended selected events abroad, including the BETD, where he delivered keynote remarks at the opening session and presented key findings of IRENA's *GET 2019 edition*. On this occasion, IRENA also concluded a Memorandum of Understanding with the IEA to strengthen collaboration between the two organisations, aligned with respective mandates. He also met with the German government officials to discuss IRENA's presence in its second Host Country and progress on the new premises in Bonn. Further, the Director-General took part in events in China, Italy, and South Africa. All these occasions presented opportunities for discussion with many Members, as well as representatives of international organisations, private sector, and civil society. These interactions are essential for increasing Member awareness of engagement in the work of the Agency and forging strategic partnerships as the Agency aligns its focus to realising change on the ground.
89. IRENA is also actively engaged in the global effort on climate change. This includes contributing to the preparatory process for the UN Secretary-General's 2019 Climate Action Summit and supporting Global Climate Action where IRENA serves as the energy focal point in the UNFCCC setting. The Agency is also a member of the NDC Partnership, aligning IRENA's own efforts with those of participating countries and institutions. IRENA was also an organising partner for the "Regional Climate Week" in Africa that took place in March 2019 in Accra, Ghana. The event was attended by 3,000 participants, and IRENA led several discussions on energy transition, including in the NDC dialogue and capacity building sessions on technology and policy aspects of the energy transition. IRENA will play a similar role in the upcoming Regional Climate Weeks in the Latin America and Caribbean (location TBD) and Asia Pacific (Thailand).

Governing Body Meetings

90. The Ninth Session of the IRENA Assembly and related meetings, held on 10-13 January 2019 in Abu Dhabi, provided the opportunity for 1,570 registered participants, including over 120 Heads of State or Government and Ministers, along with delegates from 147 countries and the European Union, to shape the global renewable energy agenda, monitor progress, and guide the Agency on important policy, programmatic, and governance matters. The attendees comprised of 135 Members of IRENA, 11 Signatories and States in Accession, two other States and 172 international and regional partners, organisations, and other entities engaged in the renewable energy field.
91. Plenary discussions, ministerial roundtables and programmatic events served as platforms for dialogue, knowledge-sharing, co-operation, and partnerships. Members considered the Agency's strategic direction contained in the Work Programme and Budget for 2018-2019, aligning IRENA's activities with its Medium-term Strategy 2018-2022 and vision. Programmatic discussions on topics pertinent to the global energy system transformation included "Socio-economic Benefits of the Energy Transition" and "The Changing Role of Hydropower in The Energy Sector Transformation". In addition, two Ministerial Roundtables on "Catalysing Off-Grid Renewable Energy Deployment towards Universal Electricity Access and Sustainable Development Goals (SDGs)" and "Transformative Innovation" provided an opportunity for Ministers and high-level officials to engage in discussions and knowledge sharing. Several thematic side events brought together policy-makers, experts, and other stakeholders to address key measures and solutions needed to accelerate the global deployment of renewables.

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92. The Fund for Developing Country Representatives (FDCR), which was established by the Second Session of the IRENA Assembly, facilitates the participation of representatives of developing countries in IRENA meetings. Since its establishment, FDCR has been instrumental in ensuring a high level of inclusiveness, ownership, and transparency in the decision-making processes and activities of the Agency. The Fund supported the participation of representatives of Least Developed Countries (LDCs) and Small Island Developing States (SIDS) in all IRENA's governing body meetings, including: Assembly, Council, and Committees. Since the beginning of 2019, the FDCR supported the participation of 85 delegates from 46 countries in different meetings of the governing bodies.

VII. Efficient, Transparent and Innovative Management

93. The achievement of IRENA's strategic objectives relies on its responsiveness, effectiveness, internal capacity, and institutional efficiency. IRENA continues to apply dynamic, innovative, and results-focused solutions in its management and administration of the Agency's resources, underpinned by transparency and accountability as hallmarks of an open institution.

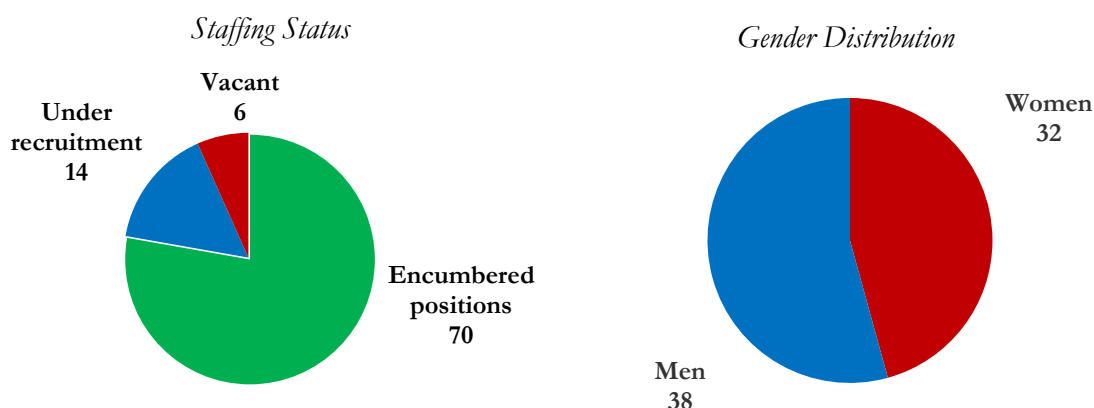
Strategic Management

94. The planning of IRENA's programmatic and governing body meetings has been consolidated and streamlined to facilitate efficient organisational delivery in the implementation of the Work Programme and Budget for 2018-2019. In addition to the organisation of the Ninth Session of the IRENA Assembly and related meetings in January 2019, the Agency has hosted 35 events in 14 countries across 5 regions to date.
95. IRENA has intensified its outreach to identify partners that could contribute to the diversification of its resource base. To this end, IRENA continues to gain a systematic overview of the strategic priorities of different countries to better connect them with the Agency's medium-term strategic objectives. Demonstrating the impact of IRENA's work is vital for its long-term direction and priority setting as well as for diversification of its resource base. IRENA is implementing a monitoring and evaluation system starting with systematic collection of data on the implementation of programmatic activities. Once fully in place, the monitoring and evaluation system will support the Agency's internal decision-making processes and enable continuous improvement.
96. The Legal Office continues to provide legal advice and support in the conduct of IRENA's operations and activities including, in particular: assisting in the preparation and conduct of the Assembly and for the upcoming Council meeting; advising on the privileges and immunities of IRENA and its personnel; advising on the interpretation, application and revision of IRENA's regulations, rules, procedures and policies; assisting in the negotiation, review, and drafting of funding and other agreements with states, intergovernmental, and non-governmental organisations, as well as contracts with private entities; advising on human resources and procurement matters; and reviewing publications and other documents with potential legal implications.

Administration and Management Support

97. The Administration and Management Services supports efficient implementation of the work programme and facilitates the effective use of the Agency's resources. IRENA continues to innovate in its business processes and practices to remain responsive to the dynamic nature of its programmatic work. In this regard, the implementation of the ERP system since January 2018 will go a long way to facilitate timely and streamlined support to programme implementation.
98. **Finance and Budget.** The Agency's full compliance with its Financial Regulations and Procedures in accordance with the International Public-Sector Accounting Standards (IPSAS) underpins finance and budget activities. Financial and budgetary services were provided to Members, staff, and other stakeholders, aligned with international accounting standards and budget practices. The services included preparation of the financial statements for IRENA 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 included support for addressing internal and external audit recommendations and continuing efforts associated with ERP stabilisation and enhancement.
99. **Information and Communication Technology (ICT).** ICT continues to serve as a strategic enabler and tool for the Agency in the implementation of its Work Programme by providing state-of-the-art IT services and solutions to IRENA business units. ICT is regularly maintaining and consolidating its IT capabilities through initiatives for infrastructure modernisation (both in HQ and Bonn Office, cloud and on premise), operational excellence (IT governance, cost optimisation, proactive maintenance, regular monitoring) and internal capacity building (trainings, technology workshops). As per the IT strategy 2018-2022 closely aligned with the IRENA MTS 2018-2022, ICT is strengthening its roles as a driver of digital transformation towards higher institutional effectiveness and efficiency (through the maintenance and enhancement of the ERP and other process / document management tools), an enabler of the development of value-added business capabilities on RE (through the maintenance and enhancement of IRENA Website and platforms on RE), and a pillar of the organisational resilience and compliance (through the implementation of cybersecurity management framework and the business continuity plan).
100. **Human Resources.** Human resources spanned administrative, operational, and strategic activities. Significant effort was placed on aligning human resource policies and processes more closely with the Agency's strategic and programmatic objectives, including additional personnel sourcing and building organisational capabilities that are needed to achieve the Agency's operational objectives with the right combination of skills, knowledge, competencies, and expertise, while promoting geographical, cultural, and gender diversity. Human resource practices, rules, and procedures have continued 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 core values and principles.
101. Attracting, developing and retaining highly qualified staff is key to the Agency's success. In this respect, IRENA has stepped up its outreach efforts to attract talent from all over the world, including tapping into Members' expertise, and through the mechanisms provided by the decision of the Assembly at its second session (A/2/DC/5) such as loan arrangements and Junior

Professional Officer Programme. During the period from 1 January 2019, 27 vacancies (core and project) were announced and over 2,200 applications received. Out of 90 core posts, 84 are filled or under recruitment (70 filled and 14 under active recruitment) and six are vacant. The 70 staff are from 42 nationalities out of which 46% are women and 54% are men.



Approved and filled/ under recruitment posts by level as of 21 May 2019

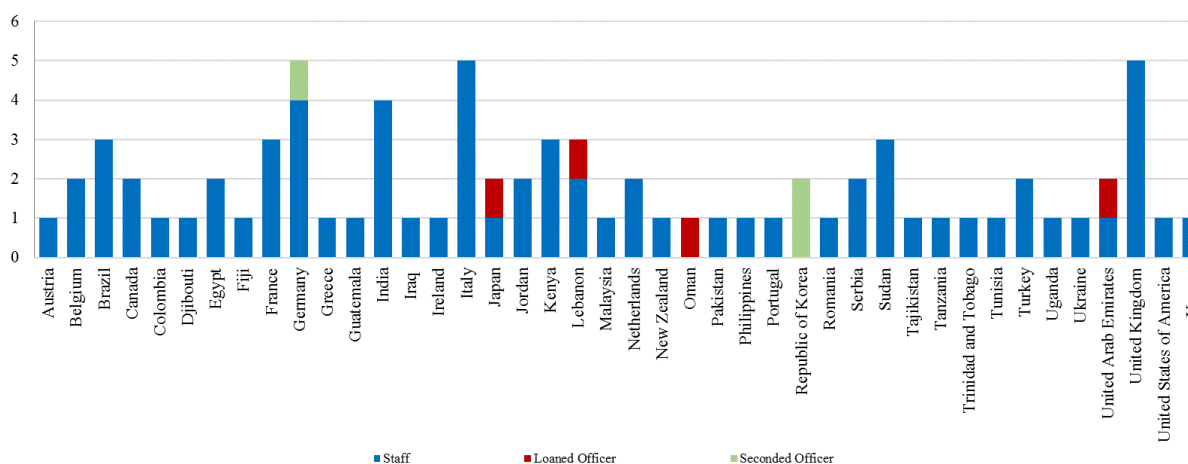
Level	Approved	Filled or Under Recruitment
ASG	1	1
D-2	1	1
D-1	5	5
P-5	17	16
P-3/4	37	36
P-2/1	3	2
Sub-total Professional and above	64	61
General Services	26	23
Total	90	84

Loaned Personnel as of 21 May 2019

Division	Title	Loaned from
SMED	Liaison and Protocol Officer	UAE
SMED	Acting Chief Communications Officer	UAE
IITC	Bioenergy Analyst	Japan
IITC	Programme Officer, Remap Engagement	Lebanon

Seconded Officers (Voluntary Contributions) as of 21 May 2019

Division	Title	Seconded Officers from
IITC	Associate Programme Officer, Energy Planning	Germany
CSP	Programme Officer	Republic of Korea
KPFC	Associate Programme Officer, Climate Finance and NDC	Republic of Korea

Geographical distribution (core posts, loaned personnel and seconded officers)

102. **Procurement.** The Agency has continued to implement its planning for cost-effective procurement of goods and services. To ensure transparency, fairness, openness, and competitiveness, procurement opportunities continue to be posted on IRENA's website and disseminated to the vendors registered with IRENA. The Master Procurement Plan was updated to reflect the requirements until the end of the year. As of 21 May 2019, 200 procurement contracts for goods and services have taken place totalling USD 2 million.
103. **General Services and Travel.** Travel support and services were provided to staff, delegates and participants in conferences and workshops. As of 21 May 2019, the Agency facilitated participation in 20 workshops and 1200 travel services. The section continues to provide facility management services for IRENA Headquarters and staff. This 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 instituted a Health and Safety programme and further enhancement measures, procedures are in progress, to be implemented in the future.

Biennial budget overview*2018-2019 Biennium Budget Utilisation by funding source (in USD Thousands)*

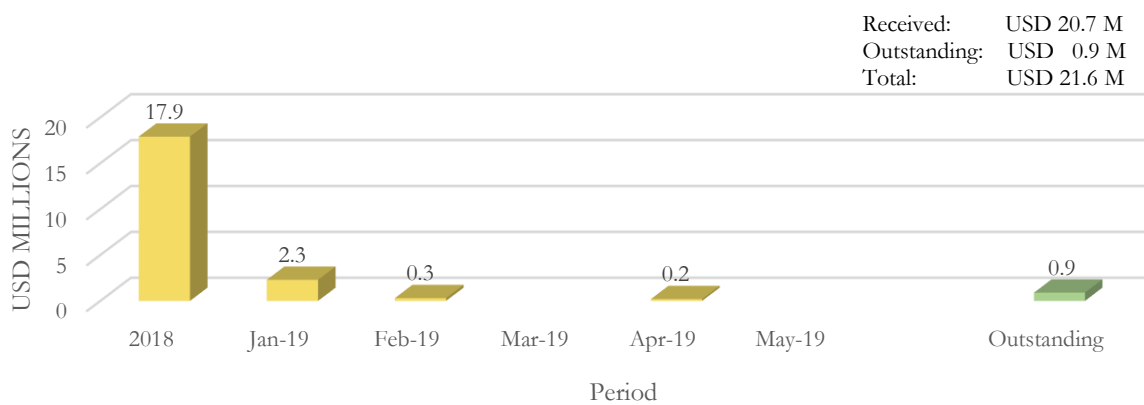
	2018-2019 Biennium Budget	Utilisation as at 21 May 2019	
		Commitment and Expenses	Proportion of 2018-2019 Biennium
Core Non-Assessed Contributions			
as of 21 May 2019, in USD			
Assessed Contributions (Core Budget)	43,130	37,528	87%
Core Non-Assessed UAE			
UAE Support	5,000	3,440	69%
Governing Body Meetings	3,200	2,686	84%
IT Infrastructure Support	920	877	95%
Subtotal	9,120	7,003	77%
Core Non-Assessed Germany			
Innovation and Technology Centre	10,200	9,233	91%
Subtotal	10,200	9,233	91%
Core Non-Assessed Other			
Core Non-Assessed Other	1,704	551	32%
Subtotal	1,704	551	32%
Total Core Non-Assessed	21,024	16,787	80%
Grand Total	64,154	54,315	85%

Fund for Developing Countries Representatives		
Donor	2018-2019	
	Committed	Received
Belgium (Flanders)	20,524	20,524
Belgium (Walloon)	13,137	13,137
Germany	70,283	70,283
United Arab Emirates	300,000	300,000
Subtotal	403,944	403,944

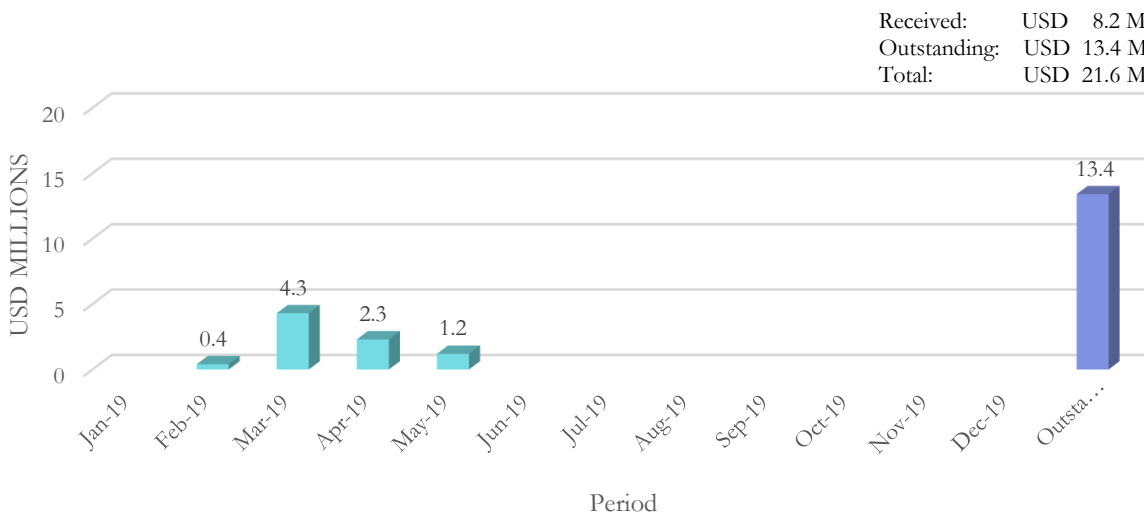
Total Other Voluntary Contributions	16,826,662	12,042,673
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Multi-Year Voluntary Contributions			
Donor/Project	Multi-Year Commitments	Received prior to 2018	Received during 2018-19
European Commission	326,087	97,830	228,257
Germany	6,929,070	2,990,380	3,938,690
Norway	4,637,600	1,816,310	2,821,290
Total	11,892,757	4,904,520	6,988,237

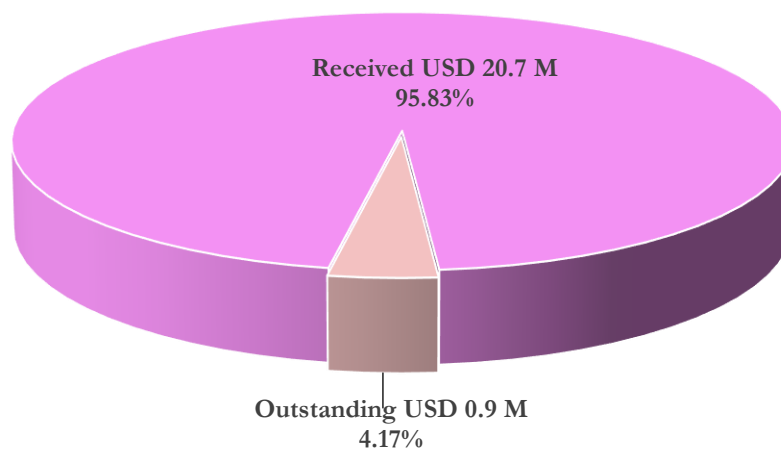
Received and outstanding assessed contributions for 2018 core budget (as of 21 May 2019)



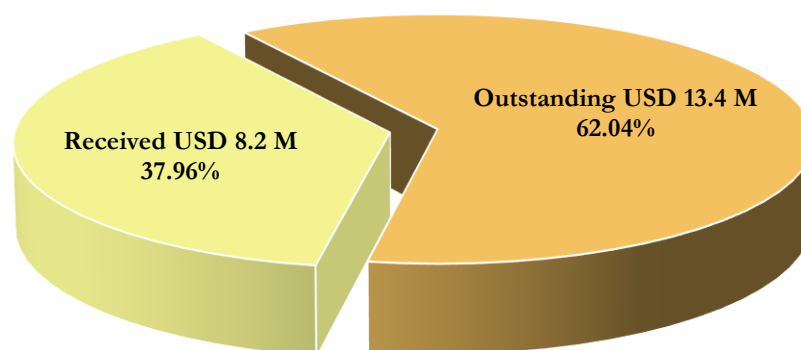
Received and outstanding assessed contributions for 2019 core budget (as of 21 May 2019)



Status of contributions to the 2018 core budget (as of 21 May 2019)

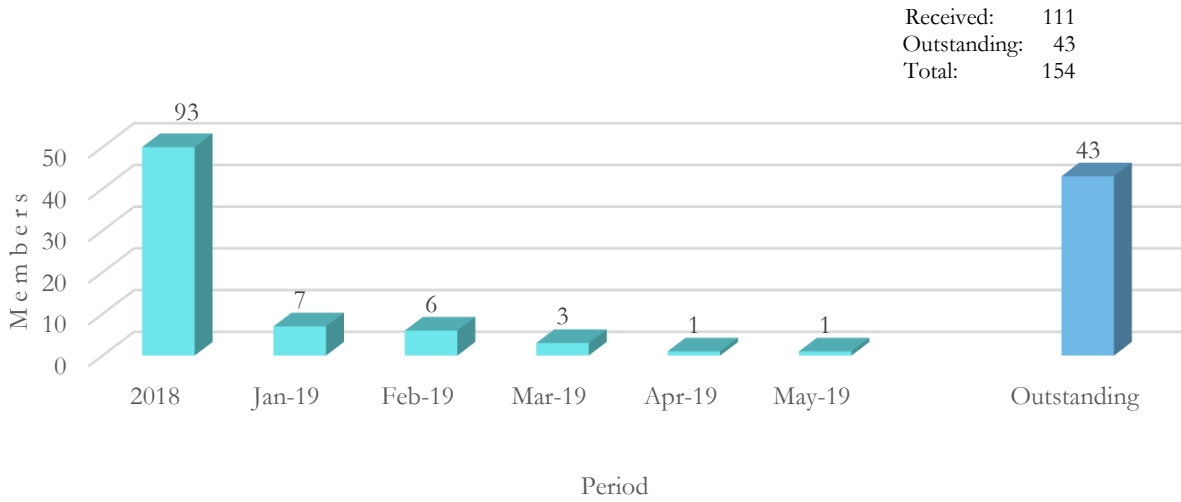


Status of contributions to the 2019 core budget (as of 21 May 2019)

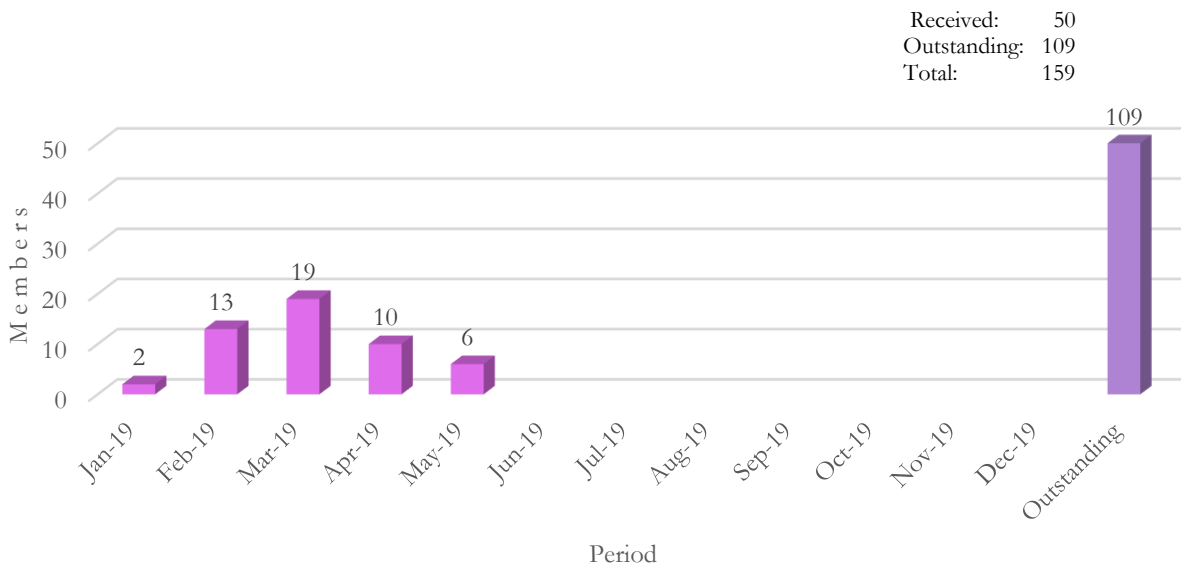


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Number of Members with received and outstanding contributions to the 2018 core budget (as of 21 May 2019)



Number of Members with received and outstanding contributions to the 2019 core budget (as of 21 May 2019)



VIII. Summary of Progress

Centre of Excellence for Energy Transformation

Objective: Empower effective policy and decision-making by providing authoritative knowledge and analysis on renewables-based energy transformation at global, national and sectoral levels.

Transformation pathways		Core resources: USD 4,020,000
<i>Output: Countries provided with the tools and information necessary to support accelerated deployment of renewable energy.</i>		
Deliverable	Status ²⁸	Remarks
REmap Global report	Completed	<ul style="list-style-type: none"> - The <i>Global Energy Transformation: A Roadmap to 2050</i> was launched in April 2019 at the Berlin Energy Transformation Dialogue. - The report has been complemented by a background report: <i>Global Energy Transformation: The REmap transition pathways</i>, as well as a web-based digital story. - A detailed analysis of investments and stranded assets has been explored and analysed in the background document.
Grid integration planning guide for medium size power systems	Completed	- Technical Planning Studies for the Integration of variable renewables, September 2018.
Global report on policy and market design for integration of VRE	In progress	- In-depth analysis of policies, regulations and market instruments to support flexibility options (Q4 2019).
Report on long-term planning with high share of VRE	In planning	
Analytical briefs (demand-side flexibility; 100% renewable power system operation; system integration costs)	In progress	<ul style="list-style-type: none"> - 100% Renewable operations brief prepared with the University of Michigan. - Grid integration study in preparation with the State Grid Corporation of China (SGCC). - System integration cost draft discussed with experts in September 2018.

²⁸ **Definitions:**

In planning: Preliminary discussions about the deliverable have commenced, deliverable concept is available or deliverable is in scoping phase.

In progress: Deliverable scope has been defined, budget and other resources have been identified, implementation has commenced.

Completed: Deliverable has been finalised and/or full completion reached.

Ongoing: Deliverable does not have a finite end, is cyclical or of operational nature (i.e., for governance and management related deliverables).

Development of Energy Transformation Model (integrating REmap, planning, flexibility and grid assessment models)	In progress	<ul style="list-style-type: none"> - Launch of the report on flexibility for the energy transition at the 16th IRENA Council. - Launch of the IRENA FlexTool at the 16th IRENA Council. - Forthcoming “The Future is RE-Electrification” report in collaboration with SGCC.
Technical workshops on best practices for long-term planning and grid assessment	In progress	<ul style="list-style-type: none"> - Selected events include: <ul style="list-style-type: none"> o Energy Modelling Platform for Africa (UNECA) and for Europe (KTH) Addis Ababa, January 2018 o Strategic energy planning (UK-DFID), Lisbon, May 2018 o Renewable Grid Initiative seminar, Brussels, May 2018 o International Energy Workshop in Gothenburg, June 2018 o IAEA energy planning seminar, Zagreb, July 2018.
REmap expert network	Completed	- REmap focal point meeting, 12 November 2018.
Access solutions		Core resources: USD 1,327,000
<i>Output: Countries informed of technology, policy and finance solutions for improved energy access.</i>		
Deliverable	Status¹	Remarks
Report on renewable energy contribution to access	Completed	<ul style="list-style-type: none"> - <i>Off-grid statistics</i>, May 2018. - <i>Off-grid Renewable Energy Solutions, Global and Regional Status and Trends</i>, July 2018.
Policy briefs on enabling frameworks for off-grid renewables	Completed	<ul style="list-style-type: none"> - A report, <i>Policies and regulations for renewable energy mini-grid</i>, launched at IOREC 2018. - A report, <i>Off-grid renewable energy solutions to expand electricity access: An opportunity not to be missed</i>, launched at the 9th IRENA General Assembly, January 2019.
Convening of stakeholders through IOREC	Completed	- 4 th IOREC, Singapore, 31 October–1 November 2018.
Accelerating innovation		Core resources: USD 3,719,000
<i>Output: Countries are aware of the latest innovations in technology, policies and finance.</i>		
Deliverable	Status¹	Remarks
Innovation Landscape report	Completed	- <i>Innovation Landscape Report for the Power Sector</i> launched 19 February 2019.
Technology status and outlooks	In progress	<ul style="list-style-type: none"> - <i>Status report on floating offshore wind</i>, CEM9, May 2018 (completed). - <i>Offshore Energy</i> report for G7 countries, Halifax, Canada, September 2018 (completed).

		<ul style="list-style-type: none"> - <i>Technology brief: Solid biomass for heat and power</i> February 2019 (completed). - <i>Innovation Outlook for Electric Vehicles</i> May 2019 (completed). - <i>Innovation Outlook for Thermal Energy Storage</i> (Q4 2019).
Global report on innovative policy design and practice	Completed	- Joint IRENA-IEA-REN21 report <i>Renewable Energy Policies in a Time of Transition</i> , April 2018.
Analytical briefs on innovative capital market instruments and investment trends	In progress	<ul style="list-style-type: none"> - <i>Global Landscape of Renewable Energy Finance</i> (January 2018). - <i>Mobilising Institutional Capital for Renewable Energy</i> (Q3 2019). - <i>Financing Off-grid Renewable Energy Solutions</i> (Q4 2019).
Design of risk mitigation facilities	In progress	<ul style="list-style-type: none"> - IRENA expert workshop in Nairobi, Kenya, January 2018. - Concept note developed for the risk mitigation guarantee platform.
Innovation week	Completed	- Bonn, Germany, September 2018.
Engagement with innovation-related fora (CEM, MI)	Ongoing	<ul style="list-style-type: none"> - Innovation Week 2018, Bonn Germany - CEM9 Denmark/Sweden, May 2018. - CEM10, Canada, May 2019
Knowledge hub		Core resources: USD 1,959,000
<i>Output: Information about renewable energy, including best practice, is presented in a timely and user-friendly way.</i>		
Deliverable	Status¹	Remarks
REthinking energy	In planning	
Report on renewable energy targets and policies	In progress	
IEA/IRENA policy database	Ongoing	- Developing a methodology to gather feedback from Member States on the tool.
REsource search engine maintenance and development	Ongoing	- REsource has been integrated into IRENA's new corporate website, including: statistics on renewable energy auctions, renewables in NDCs, renewable energy balances, REmap options, finance, costing, technology innovation, patents, and socio-economic benefits.

Global Voice of Renewables

Objective: Shape the global discourse on energy transformation by providing relevant timely, high-quality information and access to data on renewable energy.

Realising socio-economic benefits		Core resources: USD 2,552,000
<i>Output: Contribution of renewable energy to socio-economic and climate goals articulated.</i>		
Deliverable	Status¹	Remarks
Quantitative analysis of socio-economic benefits	In progress	<ul style="list-style-type: none"> - <i>Global Energy Transformation; A roadmap to 2050 (2018 edition)</i>, April 2018. - <i>Renewable energy benefits: Measuring the economics V2.0</i> (January 2019). - <i>Global Energy Transformation; A roadmap to 2050 (2019 edition)</i>, April 2019.
Report on best practice to maximise local benefits from renewable energy projects	In progress	<ul style="list-style-type: none"> - <i>Maximising community benefits of large-scale renewable energy deployment: Insights from sub-Saharan Africa</i> (Q4 2018). - Analysis of project-level impacts of large-scale wind and solar projects (Q2 2019).
Report on leveraging local capacity (selected technologies)	In progress	<ul style="list-style-type: none"> - <i>Renewable Energy Benefits: Leveraging Local Capacity for Offshore Wind</i>, May 2018. - <i>Renewable Energy Benefits: Leveraging Local Capacity for Solar Water Heaters</i> (Q3 2019).
Jobs annual review 2018	Completed	- 2018 edition of the <i>Renewable Energy and Jobs - Annual Review</i> , May 2018.
Jobs annual review 2019	In progress	- 2019 edition of the <i>Renewable Energy and Jobs - Annual Review</i> (Q2 2019).
Analytical framework for the renewable energy components in NDCs	In progress	<ul style="list-style-type: none"> - Member of the NDC Partnership (as of August 2018). - Input to UNFCCC in support of the Talanoa Dialogue, December 2018. - Regional Climate Week – NDC Dialogue facilitation (2019)
Informing markets		Core resources: USD 4,161,000
<i>Output: Unbiased, timely and accurate information about renewable energy trends and developments.</i>		
Deliverable	Status¹	Remarks
Renewable energy statistics 2018	Completed	- <i>Renewable Capacity Statistics</i> , March 2018.
Renewable energy statistics 2019	In progress	- <i>Renewable Capacity Statistics</i> , June 2019.
Four cost-related reports, including annual updates on power generation	In progress	<ul style="list-style-type: none"> - <i>Renewable Power Generation Costs in 2017</i>, January 2018. - <i>Renewable Power Generation Costs in 2018</i>, May 2019. - <i>Energy Subsidies: Evolution in the Global Energy Transformation</i>, May 2019. - <i>Solar and Wind Cost Reduction Potential in G20 Countries to 2030</i> (Q2 2019).
Two topical cost briefs	In progress	<ul style="list-style-type: none"> - <i>Energy Technology Learning Curves for Policy Making</i> (Q4 2019). - <i>Renewables in the Building Sector: Heat Pump Costs and Performance</i> (Q4, 2019)
Two reports on quality assurance (offshore wind and smart grids)	In progress	

Technical guides on data collection	In planning	
Technical guides on quality infrastructure for emerging renewable energy technologies	In progress	- <i>Nurturing Offshore Wind Markets: Good practices for international standardisation</i> , May 2018. - Implementing quality infrastructure for smart mini-grids (Q3 2019).
Expanded Renewable Cost Database	Ongoing	- IRENA Renewable Cost Database expanded to 17,000 projects and the PPA/Auction database to 9,000 projects.
INSPIRE platform enhancement	Completed	- New data dashboards, May 2018.
INSPIRE new module on quality assurance systems for renewables	Completed	- New module available at: http://inspire.irena.org/Pages/qualityassurance/start.aspx .
Training on data collection	Ongoing	- West Africa Renewable Energy Statistics Training Workshop, Abuja, Nigeria, 26-28 February 2019.
Training on the implementation of quality infrastructure	Ongoing	- Training for Asia on developing quality infrastructure for PV, June 2018.
Amplifying impact		Core resources: USD 5,566,000
<i>Output: Knowledge generated by IRENA is disseminated widely and accessible to target audiences.</i>		
Deliverable	Status¹	Remarks
Communication content for broad consumption	Ongoing	
Communication content for target audiences	Ongoing	- Periodic e-bulletin and publication briefs issued. - Selective, targeted translation of press releases, promotional materials (e.g. IRENA/ADFD 7 th cycle flyers and publications and a project impact video).
IRENA website maintenance	Ongoing	- “Our Collections” range on publications page expanded.
Publication development planning and management	Ongoing	- New email format for sharing targeted IRENA publications piloted with the launch of <i>Renewable Energy Prospects for the European Union</i> report.
Collaboration with media	Ongoing	- The Assembly-hosted media programme has cultivated key relationships with reporters from global news outlets.
Member Communicators network	In progress	- Communications survey conducted to refine support to Members in assessing the critical facets of the global energy transformation.
Dissemination of IRENA knowledge products (traditional and digital)	In progress	- ISBN registration expanded, capturing key releases since 2012 and improving visibility and accessibility for all IRENA output.

Network Hub

Objective: Provide an inclusive platform for all stakeholders, to foster action, convergence of efforts and knowledge sharing for impact on the ground.

Regional action agenda		Core resources: USD 7,025,000
<i>Output: Regional action plans and initiatives supported by IRENA.</i>		
Deliverable	Status¹	Remarks
SEE regional market analysis	In progress	<ul style="list-style-type: none"> - Policy Guidelines on Competitive Selection and Support for Renewable Energy, IRENA, European Bank for Reconstruction and Development, and the Energy Community Secretariat, March 2018. - <i>Renewable Energy Regional Market Analysis: South East Europe (Q2 2019).</i>
GCC regional market analysis	Completed	<ul style="list-style-type: none"> - <i>Renewable Energy Regional Market Analysis: the GCC Region, January 2019.</i>
Solar and wind site assessment/mapping (Africa, Central Asia, MENA)	In progress	<ul style="list-style-type: none"> - Suitability analysis of solar and wind development areas completed for the GCC and in progress for Central Asia. Site assessment support provided to 5 countries in Africa.
Financial assessment tool for renewable energy PPAs (Latin America)	Completed	<ul style="list-style-type: none"> - Tool developed for Panama. Report completed (Q4 2018).
Planning workshops (Africa, MENA, SEE, Southeast Asia)	In progress	<ul style="list-style-type: none"> - Assessment of non-hydro renewable energy prospects in the ACEC in progress and preliminary insights presented to PIDA Steering Committee, March 2018. - Southeast Europe workshop on planning and operating systems with higher shares of variable renewable energy, Austria, November 2018. - MENA long-term energy planning workshop, Jordan, April 2019 and corresponding knowledge report (Q2 2019) and following sub-regional long-term energy planning workshops in Maghreb and GCC (both in Q4 2019). - Workshop to increase of investment levels on renewable energy in Lebanon (Q3 2019).
Regulations and policy workshops (Africa, Latin America, Central Asia, MENA, SEE, Southeast Asia)	In progress	<ul style="list-style-type: none"> - CECCA regional meeting in Panama, May 2018. - Regional trainings on the development on renewable energy PPAs in West Africa, Cote D'Ivoire and Ghana, June and July 2018. - Regional workshop on accelerating energy transformation in Latin America, Ecuador, August 2018.

		<ul style="list-style-type: none"> - Regional Workshop on Policy Support Mechanisms in Central Asia, Azerbaijan, October 2018. - RE Policy Workshop for Southeast Asia, Malaysia, November 2018. - Regional workshop on socio-economic benefits of RE in SEE, Bosnia and Herzegovina, June 2019
Renewable energy statistics workshop (Central Asia)	Completed	- Central Asia Renewable Energy Statistics Training Workshop, UAE, September 2018.
Project development workshop (SEE)	Completed	- Southeast Europe Regional Workshop on RE project development and financing, Serbia, June 2018.
Grid integration workshops (Africa, Central Asia, Latin America, Southeast Asia)	Completed	<ul style="list-style-type: none"> - Regional training on the planning and operation of grids with higher shares of variable renewable energy in West Africa, Cote D'Ivoire and Ghana, May 2018. - Study tour in China for West African utilities, September 2018. - Grid integration and planning technical workshop for the Clean Energy Corridor of Central America, El Salvador, December 2018. - Central Asia Workshop on Long-Term Capacity Expansion Planning with a High Share of Renewables, Astana, March 2019.
Regional collaboration platforms and partnerships	In progress	<ul style="list-style-type: none"> - Joint Declaration by IRENA and International Solar Alliance (ISA) for the promotion of solar energy, India, March 2018. - Consultative meeting on the next phase of implementation of the Africa Clean Energy Corridor, Namibia, October 2018. - MoU between ASEAN and IRENA (signed in Singapore on 30 October 2018). - ECCAS Renewable Energy Roadmap Validated in November 2018 in Kigali, Rwanda. Subsequent Ministerial Adoption (Q3 2019).
Collaborative platforms		Core resources: USD 1,299,000
<i>Output: Multi-stakeholder approaches to renewable energy deployment are supported by IRENA.</i>		
Deliverable	Status¹	Remarks
Annual progress report on SIDS Lighthouses initiative	Completed	- <i>SIDS LHI: Progress and Way Forward</i> , January 2019.

SIDS knowledge sharing platform	Ongoing	<ul style="list-style-type: none"> - Ongoing tracking of renewable energy capacity installed and key initiatives in SIDS. - Webinars on renewable energy in SIDS (ongoing). - SIDS Lighthouses website revamped and updated. - Compilation of country profiles for SIDS (ongoing).
GGA knowledge sharing platform	In progress	<ul style="list-style-type: none"> - GGA website upgrade (ongoing). - IRENA publication <i>Accelerating geothermal heat adoption in the agri-food sector</i>, January 2019.
SIDS Lighthouses Facilitation	Ongoing	<ul style="list-style-type: none"> - Consultation with LHI partners on the next phase of the Initiative (completed). - New phase of Initiative and new priority areas of SIDS Lighthouses launched during UNGA, September 2018. - Ministerial Meeting on SIDS Lighthouses, January 2019. - New partners: Organisation of Eastern Caribbean States, the Pacific Islands Development Forum, and the Solar Head of State.
GGA co-ordination	Ongoing	<ul style="list-style-type: none"> - New members/partners: Asian Infrastructure Investment Bank, Chinese Renewable Energy Industries Association, Geothermal Canada, United Nations Industrial Development Organization. - GGA meeting at Ninth Session of IRENA Assembly, January 2019
Creation of GGA Practitioner Group	Ongoing	<ul style="list-style-type: none"> - Regional workshop on Geothermal Financing and Risk Mitigation, Kenya, February 2018. - GGA Geothermal Clusters workshop: <i>Strategies for future collaboration</i>, Iceland, April 2018.
Multi-stakeholder engagement		Core resources: USD 1,695,000
<i>Output: Engagement of a broad range of stakeholders is supported through IRENA communications and events.</i>		
Deliverable	Status¹	Remarks
Coalition of Action web platform	Completed	- New Coalition for Action website, April 2018.
Coalition for Action co-ordination	Ongoing	<ul style="list-style-type: none"> - renewables4development (May 2018) and renewables4climate (November 2018) communication campaigns. - <i>Scaling Up of Renewable Energy Investment in Ghana and Vietnam</i>, January 2019. - <i>Towards 100% Renewable Energy</i>, (white paper), January 2019.

		<ul style="list-style-type: none"> - <i>Community Energy Finance</i>, (white paper), Autumn 2019. - <i>Scaling Up of Renewable Energy Investment in Algeria, Jordan, Morocco, Mozambique, Senegal and Tunisia</i>, January 2020. - <i>Towards 100% Renewable Energy, A Utility Perspective</i> (white paper), January 2020.
Communication and outreach to parliamentarians	Ongoing	<ul style="list-style-type: none"> - Co-operation with the Inter-Parliamentary Union (IPU) and parliamentary stakeholders on the implementation of the SDG7. - Public-private dialogue between legislators, members of the Coalition for Action and government representatives initiated.
Tailored information for parliamentarians	Ongoing	<ul style="list-style-type: none"> - The Review for Parliamentarians (three issues per year).

Source of Advice and Support

Objective: Support country level decision-making to accelerate the renewables-based transformation of national energy systems, advance strategies to diversify energy sources, reduce global emissions and achieve sustainable development.

Project support and facilitation		Core resources: USD 2,460,000
<i>Output: Tools, platforms and partnerships are provided to support renewable energy deployment.</i>		
Deliverable	Status¹	Remarks
Design and development of standardised contract templates	In progress	- The standardised contract templates currently undergoing peer review.
Functional Global Atlas Applications	In progress	- Suitability analysis and site appraisal methodologies operational and in use. - The release of a new platform (Global Atlas 4.0) (Q3 2019). - Adding geothermal component to Atlas.
IRENA Project Navigator Workspace	In progress	- Project Navigator project tracker dashboard. - Workshop on the Project Navigator and Suitability Energy Marketplace in Morocco (Q4 2019).
New IRENA Project Navigator modules	In progress	- Technical guidelines for the development of climate resilient renewable energy projects (ongoing, Q4 2019) - Technical guidelines for the development of project models for renewable energy projects (ongoing, Q4 2019) - Development of a Project Navigator Training-of-Trainers (ToT) module for SIDS Project Stakeholders (ongoing, Q4 2019) - Technical project development support to increase the quality of project proposals (ongoing, Q4 2019)
Sustainable energy Marketplace global coverage	In progress	- The Sustainable Energy Marketplace covers all countries in Sub-Saharan Africa, Latin America, Asia, South-East Europe, and Small Island Developing States. - Workshop to increase of investment levels on renewable energy in Lebanon (Q3 2019). - Workshop on the Project Navigator and Suitability Energy Marketplace in Morocco (Q4 2019). - Workshop on the project facilitation tools in GCC region (Q4 2019).

Project collection and screening	Ongoing	<ul style="list-style-type: none"> - A platform-wide review to enhance project quality (completed). - 32 new projects registered (Cote d'Ivoire, Madagascar, Guinea, Mali, Cameroon, Pakistan, Thailand, Costa Rica, Lao, Serbia, India, Philippines, Ukraine, Brazil, Ghana, Indonesia, Bangladesh, Barbados, Guatemala, El Salvador) increasing the total to 230 projects. - 17 new financial instruments registered; increasing the total to 175 (offered by 69 financial institutions).
Project Navigator modules in French	In progress	<ul style="list-style-type: none"> - Technical Guidelines for Mini-grid Applications, Residential PV Projects, and Biogas (French) (completed). - Technical Guidelines for Geothermal Power Projects, Utility Scale PV Projects, and Mini-grid Applications (Spanish) (completed). - Technical Guidelines for Geothermal Power Projects, Utility Scale PV Projects (French) (Q4 2019). - Technical Guidelines for Biogas, Residential PV, and Woody Biomass (Spanish) (Q4 2019).
Dissemination of standardised contract templates	In planning	<ul style="list-style-type: none"> - Will be initiated following the peer review.
Marketplace regional platforms	Completed	<ul style="list-style-type: none"> - Asia regional platform launched at the Asia Clean Energy Forum, Manila, Philippines, June 2018. - Southeast Europe regional platform launched at the International Forum on Energy for Sustainable Development in Kiev, Ukraine, November 2018. - SIDS platform for the Pacific region presented at the ADFIP Annual Meeting in Fiji, November 2018.
Capacity building workshops on project development	Ongoing	<ul style="list-style-type: none"> - Contribution to the webinar series with the USAID-led network <i>Women in African Power</i>, (Q2 2018). - Workshop on the development of bankable solar PV projects, Singapore (Q2 2018). - Capacity building workshop on the development of bankable solar energy projects in Egypt and the Middle East region (Q4 2018). - Capacity building workshop on the development of bankable solar energy projects in the Indian Ocean SIDS (Q4 2018).

		<ul style="list-style-type: none"> - Capacity building workshop on the development of bankable off-grid projects in Pacific SIDS (Q4 2018). - Regional energy forum on sustainable energy in the Southwest Indian Ocean islands (Q2 2019). - Capacity building workshop on the development of bankable renewable energy projects in the Caribbean SIDS (Q4 2019). - Training webinar on the development of climate resilient renewable energy projects in SIDS (Q4 2019). - Training webinar on the development of heating and cooling projects in Cities (Q4 2019). - Training webinar on project modelling for bankable proposals in SIDS (Q4 2019). - Capacity building Webinar on Training-of-Trainers (ToT) module for SIDS Project Stakeholders (Q4 2019).
Renewable energy solutions lab		Core resources: USD 775,000
<i>Output: Information and capacity building provided on renewable energy solutions for sustainable livelihoods.</i>		
Deliverable	Status¹	Remarks
Three policy briefs on nexus-related topics	Completed	<ul style="list-style-type: none"> - <i>Water Use in India's Power Sector - Impact of renewables and cooling technologies to 2030</i>, January 2018. - SEA case studies on <i>Off-grid Renewable Energy Solutions to Improve Livelihoods</i>, June 2018. - <i>Renewable Energy and Gender</i> report, January 2019.
Southern African Development Community (SADC) Renewable Energy Entrepreneurship Support Facility	In progress	<ul style="list-style-type: none"> - First call for applications, May 2018. - Second call for applications and trainings (Q2-Q4 2019).
Two workshops for entrepreneurs, financing institutions and incubation centres	In planning	
Direct mentoring	In progress	<ul style="list-style-type: none"> - Contribution to the establishment of a regional certification scheme for the improvement of sustainable energy skills in the 15-member states of ECOWAS.

		- First pilot certification examination (in French) for off-grid solar PV technicians in Senegal, January 2019 and second pilot examination (in English) in Ghana, June 2019.
Local solutions and tailored advice		Core resources: USD 2,757,000
<i>Output: Advice and capacity building provided to countries about the options for accelerated deployment of renewable energy.</i>		
Deliverable	Status¹	Remarks
Five country processes for renewables-based transition	In progress	<ul style="list-style-type: none"> - RRA Pakistan (April 2018) and RRA Panama (May 2018). - Renewable Energy Outlook: Egypt, Cairo, October 2018. - Renewable Energy Outlook: Lebanon (Q3 2019). - REmap Nigeria (forthcoming). - REmap South Africa (forthcoming). - RRA in Albania, Azerbaijan, Bhutan, Botswana, Mali, and Tunisia (ongoing).
Power system flexibility assessment for countries upon request	Completed	- FlexTool case study applications in Columbia, Panama, Thailand and Uruguay.
National master plans supported in Africa	In progress	<ul style="list-style-type: none"> - Support to Eswatini for the preparation of a national Energy Masterplan, October 2018. - Support to Sierra Leone for the preparation of a national Energy Masterplan (ongoing).
Grid integration and power system operation support upon request	In progress	- Activities supported by VC.

International Co-operation and Strategic Engagement

Objective: Provide leadership in global agenda-setting on energy transformation and ensure active Member participation in the delivery of the programme of work.

International co-operation and strategic management		Core resources: USD 5,018,000
Outputs	Status ¹	Remarks
Strategic management of the Agency and thought leadership and coherence of the message on renewables in the global discourse on energy.	Ongoing	<ul style="list-style-type: none"> - Global Commission on the <i>Geopolitics of Energy Transformation</i> launched, January 2018, four meetings of the Commission completed. - 160 Members and 23 Signatories and States in Accession. - 47 Permanent Representatives (PRs) accredited to IRENA. - Global engagement on energy transition, sustainable development, and climate action.
Regular Member interaction and co-operation on programmatic and governance issues.	Ongoing	<ul style="list-style-type: none"> - Programme and Strategy Committee, Administrative and Finance Committee, and 16th and 17th Council and related meetings. - Ongoing interaction on programmatic and governance issues with the Permanent Representatives and Headquarters-based representatives of the Membership.
Effective communication and outreach to Members to ensure the flow of information and active engagement.	Ongoing	<ul style="list-style-type: none"> - Member communication survey undertaken. - New Member Bulletin format to showcase RE developments in Member countries. - New publication emails for Members. - Communication initiatives implemented, including a quarterly. - Updates to the IRENA Member Portal to make it more user-friendly.
Governing body meetings		Core resources: USD 3,200,000
Outputs	Status ¹	Remarks
Substantive support and efficient servicing of meetings of the governing bodies is ensured.	Ongoing	<ul style="list-style-type: none"> - Ninth session of the Assembly and related meetings, January 2019. - Seventeenth meeting of the Council and related meetings, June 2019. - Planning and organisation of governing body meetings consolidated and streamlined. - Documents available electronically on the IRENA Meeting Mobile Application.

Efficient, Transparent and Innovative Management

Objective: Ensure quality and accountability in programme planning and implementation and the associated management of financial, human and information technology resources to achieve impact in the programme of work and medium-term strategy.

Strategic Management		Core resources: USD 4,448,000
Outputs	Status¹	Remarks
Accountability and transparency in the management of the Agency and its resources.	Ongoing	- Ongoing review of business processes and improvements in reporting to Members.
Resource diversification strategies and plans developed and operationalised.	Ongoing	- Engagement with potential partners. - Secured additional contributions. - Development of communication materials based on the WP and MTS. - Co-ordination and development of substantive and contractual arrangements for VCs. - Reporting to contributors.
Evaluation system to monitor progress and improve performance over successive programmatic cycles introduced.	In progress	- Monitoring and evaluation mechanisms, including qualitative and quantitative data collection system, under implementation.
Effective review, oversight and legal support with timely implementation of related recommendations.	Ongoing	- Continuous legal support and advice on the application of IRENA regulations, rules and procedures. - Review of contracts for the procurement of goods and services, memoranda of understanding and voluntary contribution agreements. - Ongoing discussion on a supplementary agreement with the Government of the United Arab Emirates concerning IRENA's occupancy of its headquarters in Abu Dhabi.
Administration and Management Support		Core resources: USD 12,172,000
Outputs	Status¹	Remarks
Effective workforce planning and efficient staff recruitment maintained, with due regard for geographical representation and gender balance.	Ongoing	- 27 vacancies (core and non-core) announced and over 2200 applications received. - Out of 90 core posts, 84 are filled or under recruitment (70 filled and 14 under active recruitment).

		- The 70 staff are from 42 nationalities out of which 46% are women and 54% are men.
Effective utilisation of resources through finance and budgetary management, in line with IRENA regulations and procedures.	Ongoing	- Financial Statements for 2018. - Unqualified external audit.
Efficient support to programme implementation, including procurement, travel and general services, compliant with IRENA rules, regulations and procedures.	Ongoing	- Annual Agency-wide procurement plan.
The use of ICT tools and services to improve organisational effectiveness and staff productivity.	Ongoing	- Implementation of the Oracle ERP, followed by system stabilisation and enhancement.

Overview of Programmatic Activities Funded by Voluntary Contributions

Centre of Excellence for Energy Transformation		
Contribution	Project	Selected Outputs
Belgium (Walloon Government)	Nationally determined contributions: NDC Facility and NDC Partnership	<ul style="list-style-type: none"> - <i>National Renewable Energy Targets: A Global Quantified.</i> - <i>The potential contribution of renewables to climate change adaptation.</i>
Belgium (Walloon Government)	Off-grid application solutions and decentralised solutions in remote setting	<ul style="list-style-type: none"> - International Conference on Renewable Energy Solutions for Healthcare Facilities, November 2018. - High level partner of the Health and Energy Platform of Action, being set up by the WHO and UNDP.
Denmark, Germany	Long-term energy planning	<ul style="list-style-type: none"> - Wider adoption of long-term model-based energy scenarios promoted by CEM Campaign.
Denmark	REmap Southeast Asia and two REmap country analysis	<ul style="list-style-type: none"> - Renewable energy roadmap and analysis for the Southeast Asia region, as well as a detailed REmap analysis for two countries in the region.
European Commission	REmap European Union Study	<ul style="list-style-type: none"> - Renewable Energy Prospects for the European Union, Brussels, February 2018.
European Commission (forthcoming)	REmap for Central and Southeast Europe (CESEC)	<ul style="list-style-type: none"> - REmap CESEC.
Germany	<p>Role of investments and innovation in the global energy transition</p> <p>Global Energy Transformation (GET) Report 2019.</p>	<ul style="list-style-type: none"> - <i>Global Energy Transformation: a roadmap to 2050</i>, Berlin, April 2018. - <i>Global Energy Transformation: a roadmap to 2050</i> (2019 edition), Berlin, April 2019.
Germany ²⁹	Energy Solutions for Cities of the Future	<ul style="list-style-type: none"> - Urban best practices, technology solutions, and economic aspects in selected cities in China, Costa Rica, and Uganda.

²⁹ International Climate Initiative (IKI) of the German Government.

Germany	Energy Transition	<ul style="list-style-type: none"> - Framework for storage valuation. - <i>Global Energy Transformation</i> reports (2018 and 2019 editions).
Germany	Renewable Energy Auctions	<ul style="list-style-type: none"> - Renewable energy auctions – update.
Germany, Japan	Roadmaps on RE grid and electricity storage and research work focusing on quality of renewable technologies	<ul style="list-style-type: none"> - Framework for storage valuation.
Japan	Research activities on RE and hydrogen	<ul style="list-style-type: none"> - Hydrogen from renewable power: Technology outlook for the energy transition, released in September 2018.
Japan	Report for the Climate Sustainability Working Group at the 2019 G20 Osaka summit under the Japanese Presidency	<ul style="list-style-type: none"> - <i>Climate change and renewable policy – national policies and the role of communities, cities and regions.</i>
Japan	NDC / climate related work, especially for market mechanisms	<ul style="list-style-type: none"> - <i>Study on Resilience building and the role of market-based mechanisms in meeting NDC renewable energy targets.</i>
Japan	Quality of renewable technologies: Cost and reliability of renewable energy in harsh operating conditions	<ul style="list-style-type: none"> - <i>Impact of extreme weather conditions in PV and onshore wind (Q3 2019).</i>
Japan	Bioenergy	<ul style="list-style-type: none"> - Bioenergy co-operation group formed with participation of the Biofuture Platform, Global Bioenergy Partnership, IEA Bioenergy, SEforALL Bioenergy Hub, World Agroforestry Centre, World Bioenergy Association, and other multilateral bodies.
Norway	Voluntary core contributions in support of WPB and MTS	<ul style="list-style-type: none"> - 4th IOREC Conference, Singapore, (31 October – 1 November 2018).
Norway	REmap Central America	<ul style="list-style-type: none"> - Renewable energy roadmap and analysis for the Central America region.
Sweden	Innovative solutions to enable 100% renewable electricity systems	<ul style="list-style-type: none"> - Detailed scoping work and data gathering. - Series of workshops to share country experiences.

Global Voice of Renewables		
Contribution	Project	Selected Outputs
Denmark	Long-term energy planning	- Socio-economic benefits of RE deployment. - The Clean Energy Investment Coalition.
Germany	Solar PV and onshore wind cost and outlook for competitiveness to 2025 for G20 countries	- Database of fossil fuel-fired power plant investment costs, efficiency and fuel costs. - Solar & Wind Cost Reduction Potential in G20 Countries to 2030 in G20.
Germany	Renewables in buildings and industry: Heat Pump costs and performance, and flexibility potential to 2030	- Flexibility potential from power-to-heat and strategies to enable further VRE deployment in the power sector. - Renewables in the Building Sector: Heat Pump Costs and Performance.
Germany	Measuring renewable energy benefits	- Second edition of the report <i>Renewable energy benefits: Measuring the Economics</i> , January 2019.
Italy, UAE	Primal Sonic Visions	- Visions of Sustainability at the Venice Biennale, May 2018.
Japan	Quality of renewable technologies; Cost and reliability of renewable energy in harsh operating conditions	- Solar PV costs in Japan: Opportunities for Cost Reduction. - Report on wind and PV systems in locations with extreme weather conditions, challenges, mitigation options, standards and QI gaps analysis.
Japan	NDC/climate related work, especially for market mechanisms	- A study on the role of market-based mechanisms (e.g. carbon markets, taxes and credit trading schemes) in meeting NDC renewable energy targets.

Network Hub		
Contribution	Project	Selected Outputs
Denmark	Long-term energy planning	<ul style="list-style-type: none"> - Regional analysis and energy transition system dynamics (ASEAN region). - Enhanced South-South co-operation on long-term energy planning. - Capacity-building on Long-term planning and support for the development of a masterplan for Cameroon.
France, Iceland, Japan, Switzerland	The Global Geothermal Alliance	<ul style="list-style-type: none"> - GGA Regional workshop on Geothermal Financing and Risk Mitigation in Kenya, February 2018. - GGA Workshop on Geothermal Direct Utilisation and Food Security, Iceland, April 2018. - Technical data gathering and classification sessions completed in: <ul style="list-style-type: none"> o Indonesia, March 2018, o Caribbean Islands, December 2018, and o Ethiopia, February 2019. - Geothermal Assessment in East Africa. - Pilot project to inventory and classify geothermal fields in the Caribbean Islands, Ethiopia, Indonesia (in progress, jointly with World Bank and IGA).
France, Germany ³⁰ , Japan, Netherlands, Norway, UAE	Support for IRENA's SIDS Lighthouses Initiative	<ul style="list-style-type: none"> - High-Level Roundtable on SIDS Lighthouses Initiative 2.0, USA, September 2018. - Project Navigator Workshops for Pacific and Caribbean SIDS, 15-19 October 2018.

³⁰ As part of the International Climate Initiative (IKI) of the German Government.

		<ul style="list-style-type: none"> - Pacific regional workshop for the capacity building of national banks and financial institutions, Suva, Fiji, 22-23 November 2018. - Caribbean Workshop on Renewable Energy in Small Islands Developing States: How to strengthen resilience and accelerate renewable energy deployment, Aruba, 26-28 November 2018. - Workshop on capacity building for preparation of bankable concept notes for green climate fund and mobilisation of private sector finance, Male, Maldives, 28-31 January 2019. - Webinars on renewable energy systems for SIDS. - Pacific workshop on Power Purchase Agreements. - Pacific workshop on Renewable Energy Statistics. - Caribbean regional workshop for the capacity building of national banks and financial institutions for bankers. - Videos series on energy, health, food and water nexus.
Germany	Corporate Sourcing of Renewable Energy	<ul style="list-style-type: none"> - Thematic discussions on corporate sourcing of renewables and its enabling environment at the sixteenth meeting of the IRENA Council in November 2018. - Lead-author of corporate sourcing of renewables Chapter in the REN21 Global Status Report 2018. - Dissemination (keynote presentations) and outreach at: <ul style="list-style-type: none"> o EU Sustainable Energy Week in Brussels, o REsource conference in Amsterdam, o Accelerating Corporate Clean Energy Procurement in Emerging Markets event at the margins of the Climate Summit in San Francisco, and o RECs conference in Amsterdam.
Japan, Sweden	Biomass related analysis	<ul style="list-style-type: none"> - Workshop on Sustainable Rural Bioenergy Solutions in Sub-Saharan Africa, January 2018. - Sustainable harvest: Bioenergy potential from agroforestry and nitrogen-fixing wood crops in Africa.

		<ul style="list-style-type: none">- Sugarcane bioenergy in Southern Africa: Economic potential for sustainable scale-up.- Bioenergy from boreal forests: Swedish approach to sustainable wood use.
Norway	Grid planning and operation	<ul style="list-style-type: none">- Regional training in West Africa for Utilities and Regulators on Power Systems Economics.- Suitability analysis of solar and wind development training workshops in MENA.

Source of Advice and Support		
Contribution	Project	Selected Outputs
Belgium (Walloon Government)	Nationally determined contributions: NDC Facility and NDC Partnership	<ul style="list-style-type: none"> - Country-level review of RE in NDCs and support within the NDC Partnership. - Talanoa dialogue. - The briefing note <i>Renewable Energy in National Climate Action</i> published at COP24. - A brief assessing the progress towards the implementation of renewable energy targets in the NDCs. - A study on renewable energy for adaptation and building resilience.
Belgium (Walloon Government)	Off-grid application solutions and decentralised solutions in remote setting	<ul style="list-style-type: none"> - SADC RE Entrepreneurship Support Facility regional meeting, Namibia, October 2018. - IRENA/UNHCR collaboration for assessment of energy usage, RE solutions, and recommended delivery models in four refugee settlements in Ethiopia and Iraq (in progress). - Support to the international “Clean Energy for Health Care” (in partnership with UN Foundation, WHO, Sustainable Energy for All, UNDP, UK Aid, and ESMAP), Nairobi, Kenya, April 2019.
Germany ³¹	Support for IRENA’s SIDS Lighthouses Initiative	<ul style="list-style-type: none"> - Grid integration and power system operation support for Vanuatu, Fiji and Dominican Republic.
Germany ³²	Energy Solutions for Cities of the Future	<ul style="list-style-type: none"> - Review of Urban Energy System Planning Tools as part of the knowledge framework for identifying renewable energy options for cities.

³¹ As part of the International Climate Initiative (IKI) of the German Government.

³² As part of the International Climate Initiative (IKI) of the German Government.

		<ul style="list-style-type: none"> - Developed database of cities with high renewable energy resource as part of the knowledge framework for identifying renewable energy options for cities. - Innovation Outlook on Smart Charging for Electric Vehicles as part of the knowledge framework for identifying renewable energy options for cities. - A methodology report to support the demonstration of Solar City Rooftop Simulators in two cities from developing countries was released in January 2019. - SolarCityEngine, a rooftop solar PV simulator for the city of Kasese in Uganda has been built. Software to be launched. - Strengthening of the sector-coupling approach to facilitate the integration of variable renewable sources into the urban energy systems. - A 3-Dimensional rooftop footprint for the city of Zhangjiakou, China is being developed. Software of the simulator to be launched. - Case studies on cities’ policies promoting renewable energy deployment in three countries (focused on two cities each in China, Costa Rica, and Uganda) are being developed. - Two policy guidelines to provide sectoral policy instruments for cities are being developed. - Study on renewable energy applications for district heating and cooling in the urban setting. - Technical Concept Guidelines for Renewable Heating and Cooling systems for Cities as part of the knowledge framework for identifying renewable energy options for cities. - Review of integration of renewable energy systems in urban forms as part of the knowledge framework for identifying renewable energy options for cities.
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Japan, Norway	Project facilitation/Voluntary core contribution in support of WPB and MTS	<ul style="list-style-type: none"> - The Agency supported assessing sites in Comoros, Eswatini, Mali, Nauru, Nigeria, Sudan and Zimbabwe in screening 60 prospective sites (48 solar and 12 wind) for solar and wind development. Prospective combined capacity of the sites identified reaches 931 MW and 521.2 MW for solar and wind respectively. - Site screening and assessments are currently being conducted in Zambia. - 27 investment-readiness assessments completed for renewable energy projects, and 1 virtual financial matchmaking event organised for the Latin America region (21 projects and 14 financial institutions were hosted). - Suitability mapping for wind and solar PV potentials in MENA.
Japan	Collaboration activity for REmap and RRA, especially for South and Southeast Asian countries	<ul style="list-style-type: none"> - RRA Bhutan.
Norway	Voluntary core contributions in support of WPB and MTS	<ul style="list-style-type: none"> - Energy planning training courses in Sierra Leone, Aug-Sep 2018. - Risk Assessment and Mitigation Platform (RAMP).
Norway	Voluntary core contributions in support of WPB and MTS	<ul style="list-style-type: none"> - RRA Republic of Moldova, February 2019. - RRA El Salvador and Jordan.
Norway	Voluntary core contributions in support of WPB and MTS	<ul style="list-style-type: none"> - Grid integration studies and site assessments in Mozambique.
Norway	Islands: lighthouses for renewable energy deployment	<ul style="list-style-type: none"> - Grid integration studies and power system operation support for the island of Loganville (Vanuatu), Viti Levu (Fiji) and Dominican Republic.
UAE	IRENA/ADFD Project Facility	<ul style="list-style-type: none"> - Sixth project cycle. - Seventh project cycle.

International Co-operation and Strategic Engagement		
Contribution	Project	Remarks
Denmark	Long-term energy planning	- Support for the UNSG Climate Summit.
Germany, Netherlands, Norway, UAE	Global Commission on the Geopolitics of Global Energy Transformation	- Meetings in Berlin in April, Oslo in June, Reykjavik in October, and in Abu Dhabi in November 2018; preparation of outcome report. - Global Commission on the <i>Geopolitics of Energy Transformation</i> launched, January 2018.