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Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2020-2021

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Foreword

by Francesco La Camera, Director-General of IRENA

An unexpected year is coming to an end. During the first months, we were full of optimism for the future and ready to build on the rising momentum. Unprecedented declines in renewable energy costs, steady growth in their share, smart technologies and electrification solutions and rapid innovation have been positive developments indicating that sustainable energy systems are more and more within reach of millions of people. Moreover, the number of players who recognise the opportunity and urgency of participating in and advancing the energy transitions has been in the rise. There was a common message emerging – guided by comprehensive policies to foster the transformative decarbonisation of societies, energy transitions can drive the most important socio-economic shifts of our time.

With only ten years left until the 2030 deadline for the achievement of the Sustainable Development Goals (SDGs) and a target date for governments to submit Nationally Determined Contributions (NDCs) in line with the Paris Agreement, 2020 was meant to inaugurate a 'Decade of Action' – a last push towards creating a safe and sustainable world for current and future generations.

Yet, this year challenged our established notions and brought forth the test of our resilience and adaptability. The outbreak of the COVID-19 pandemic exposed the vulnerabilities of existing socio-economic and energy systems and created a multifaceted crisis of unprecedented levels. The loss of life, economic downturn and ongoing uncertainty has profoundly affected all corners of the world.

The long-term impacts of the global pandemic are yet to be seen, but in the meantime a massive recovery effort is underway. The success of the recovery efforts, however, will largely depend on the steps governments will take in the coming three years. Participants in the energy transition are called to adapt their working practices not only to maintain momentum but to propel efforts towards a just energy transition. The recovery phase can indeed either trigger a decisive shift toward a sustainable future or lock in the past.

Like the rest of the world, IRENA's methods of work have been, and will continue to be, affected by the pandemic. Amidtst the unanticipated challenges of 2020, I am proud to say that IRENA has successfully and efficiently adapted to ensure that the Agency continued to deliver the Work Programme and maintain momentum in the renewables-based energy transitions. We made extra efforts to remain in close contact with Members and create new opportunities for engagement. At all times, we remained focused on the changing circumstances and strived to provide timely support to the Membership thorugh pertinemnt studies, virtual events and continuous dialogue.

This Report[1] provides an account of the progress IRENA has made in the implementation of the Work Programme and Budget for 2020-2021.[2] The analysis that follows the multidimensional work the Agency has undertaken this year is proof that the Agency's commitment to the realisation of its Work Programme, engagement with its Members and partners, and promotion of the energy transitions, especially during these critical times, remains undeterred.

[1] To streamline the Report, the Secretariat has developed a revised structure highlighting key developments, sampling IRENA's work so far in 2020, and drawing out the interlinkages across IRENA's broad Work Programme.

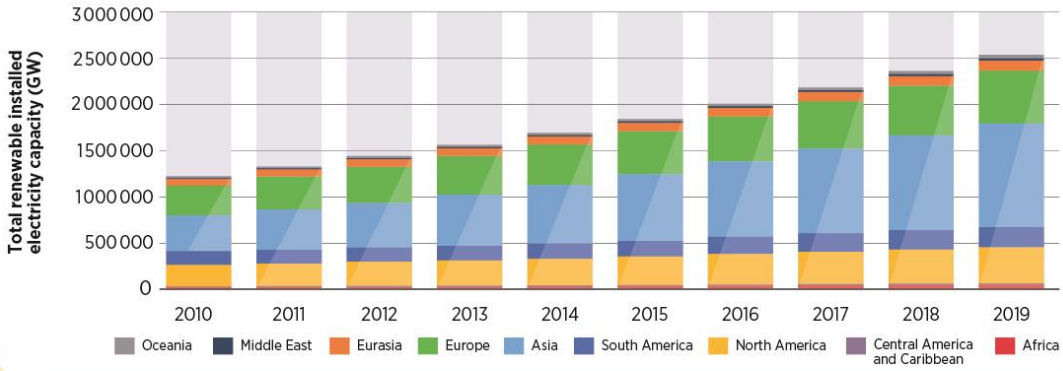
[2] International Renewable Energy Agency (IRENA), *Work Programme and Budget for 2020-2021*, (Abu Dhabi, 2020).

This Report reflects the breadth of the Agency's work and reaffirms that IRENA is optimally placed to foster a global understanding of the ongoing transformation of energy systems.

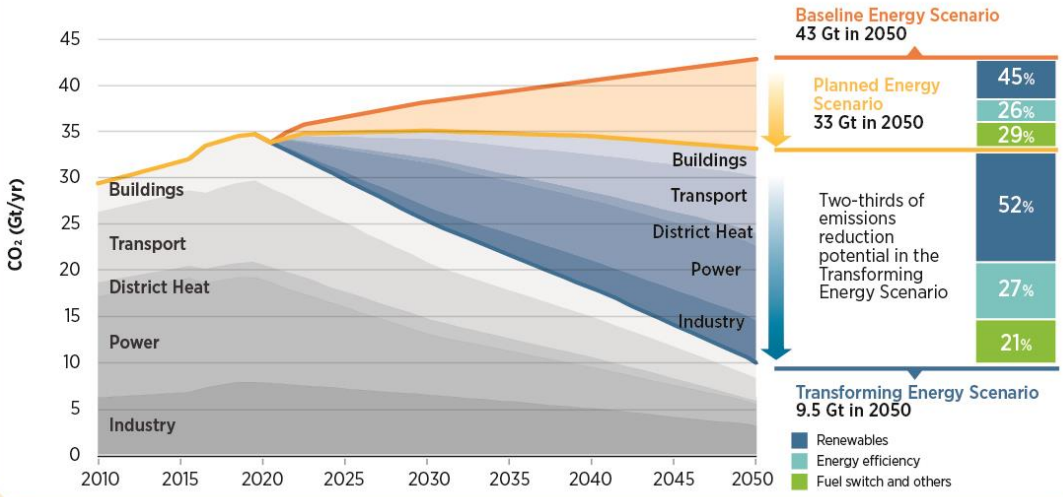
Our global mandate and wide reach, buttressed by the active engagement of 162 Members, enables us to provide cutting-edge knowledge and advice on technologies, investments, policies and markets. IRENA has become what its founders hoped for: the foremost global framework for international collaboration on energy issues to promote the strategic shift toward sustainability.

The future is impossible to predict. But this year has taught has that, despite the challenges, the IRENA team can rise to the occasion and continue helping countries realise their energy transitions ambition, while shaping the global discource for a carbon free, sustainable, equitable and just energy future.

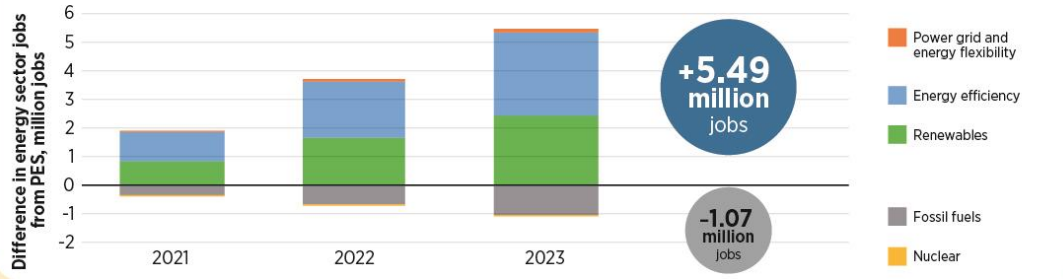
Energy transition at a glance



The bulk of emission reductions: Renewables and efficiency



Changes in energy sector jobs resulting from energy transition-related investments, 2021-2023



100 million energy sector jobs

42 million in renewables
21 million in energy efficiency
14.5 million in power grids & energy

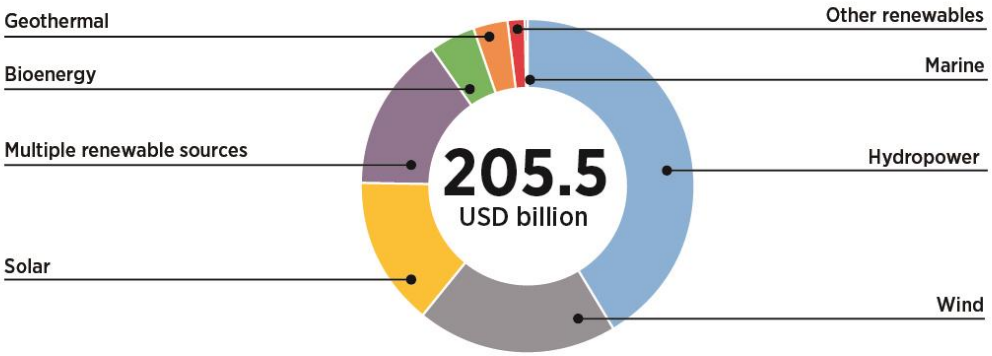
PowerGen Costs, 2010-2019

Solar PV ↓ **82%**
CSP ↓ **47%**

Onshore wind ↓ **39%**
Offshore wind ↓ **29%**

Global renewable energy employment by technology, 2012-2019

Cumulative public investment transactions, 2007-2017



Energy access is increasing
– a step towards fulfilling Sustainable Development Goal (SDG) 7.

411 million
more people gained electricity access by 2018
(compared to 2010)

7 AFFORDABLE AND CLEAN ENERGY

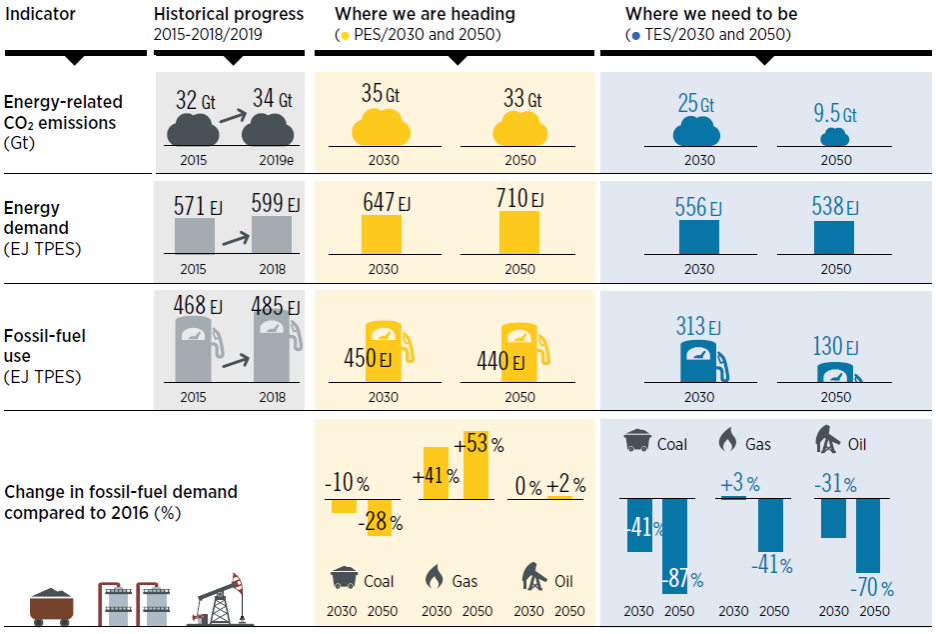
Progress to Date

The widespread adoption of renewables and related technologies is already transforming the energy sector. While each country must work with a different resource mix, all of them need a 21st-century energy system. The drivers for energy transitions are many, covering a gamut of economic, social and environmental priorities. There is a decade left to meet the objectives of the 2030 Agenda for Sustainable Development. Moreover, the gap between aspiration and the reality in tackling climate change remains, despite mounting evidence of the damaging impact of climate change.

IRENA's ***Global Renewables Outlook: Energy Transformation 2050***[3] (GRO) report presents a pathway for achieving deep decarbonisation, aligned with the Paris Agreement. The report highlights climate-safe investment options and the policy framework needed to manage the transition. It presents several scenarios and their possible socio-economic impacts. Figure 1 shows that under the ambitious, but feasible, Transforming Energy Scenario (TES) emissions could be reduced at a compound rate of 3.8% per year to some 10 Gt by 2050. GDP would grow 2.4% more by 2050 than under current plans and result in a 13.5% higher welfare indicator. Also, 100 million jobs in the energy sector will be created globally, about 40 million more than today. This includes up to 42 million jobs in the renewable energy sector (Figure 2). The transition would also result in 7 million more jobs economy-wide than under current plans.

Figure 1: The changing nature of energy and fossil-fuel use

Energy-related CO_2 emissions, energy demand and fossil-fuel outlook



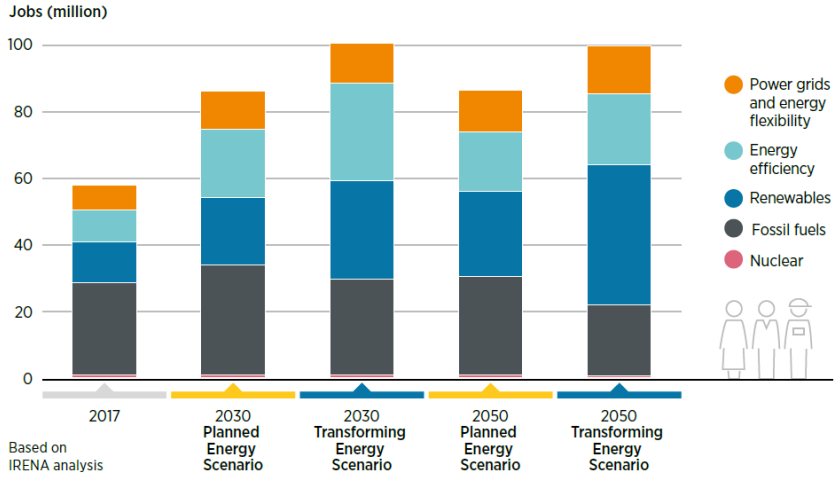
Note: TPES = total primary energy supply. e = estimate; Gt = gigatonnes; EJ = exajoules.

Based on IRENA scenarios (PES and TES), along with IEA (2019a, 2019b) for 2015-2018 historical progress of energy demand and fossil-fuel use.

Source: IRENA, *Global Renewables Outlook: Energy Transformation 2050*, (2020)

[3] Available here. Suppported by the Government of Germany.

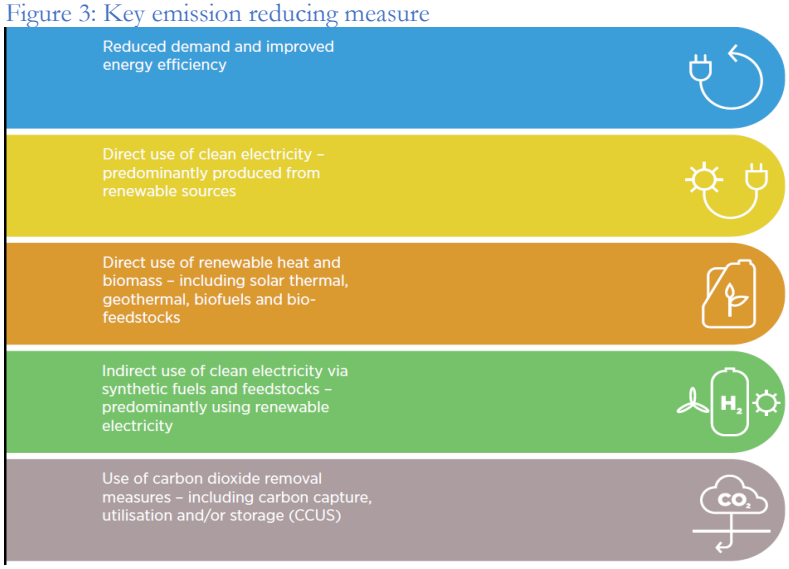
Figure 2: Global energy sector jobs under PES and TES (2017, 2030 and 2050)



Source: IRENA, *Global Renewables Outlook: Energy Transformation 2050*, (2020)

IRENA is exploring areas to deepen knowledge on the process of decarbonisation, especially in the energy sectors that remain a challenge. IRENA's ***Reaching Zero with Renewables: Eliminating CO_2 emissions in Industry and Transport***[4] report examines pathways to achieve zero emissions in the energy-intensive industry and transport sectors[5] by 2060 and the potential impact of renewables in the process. Renewables, combined with demand reduction and energy efficiency, could account for over 80% of the CO_2 emission reductions required across them. The report highlights the momentum created by the rising public and political recognition for the need to reduce emissions and the decreasing cost of renewables that makes the business case for them. A set of sector-targeted policy recommendations for government and industry are also put forward (Figure 3).

Figure 3: Key emission reducing measure

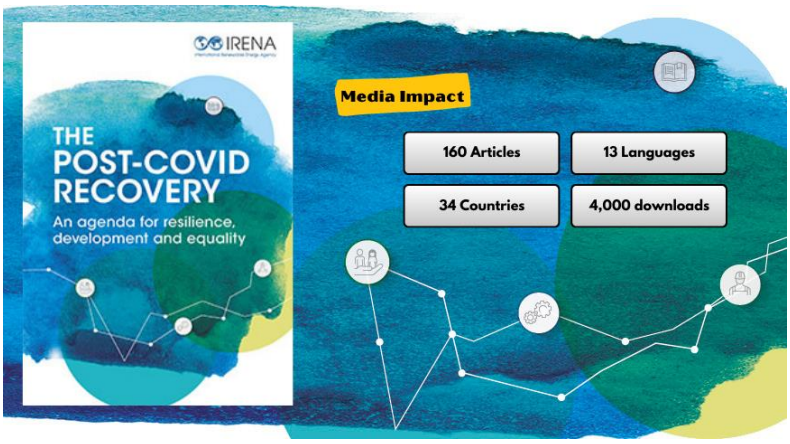


Source: IRENA, *Reaching Zero with Renewables: Eliminating CO2 emissions in Industry and Transport,* (2020)

[4] Available here.

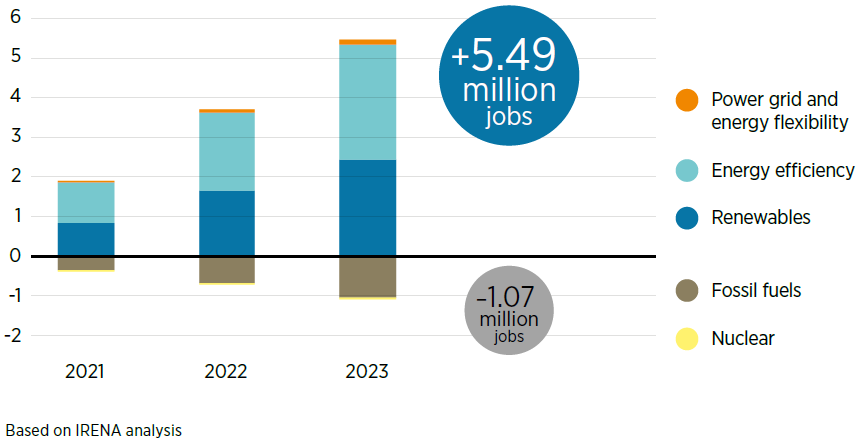
[5] These include iron and steel, chemicals and petro-chemicals, cement and lime, aluminium, road freight, aviation and shipping.

As the pandemic reduced or interrupted many social and economic activities, many of the assumptions were tested and new facts emerged that will be decisive for the way forward. The ***Post-COVID Recovery: An Agenda for Resilience, Development and Equality***[6] report analyses the impact of COVID-19 on the global economy, energy sector, and renewable energy, with a focus on employment, and presents a short-term perspective to 2023 and a medium-term one to 2030. Energy demand fell significantly due to lockdowns, reaching 25% in countries in complete lockdown, with fossil fuels taking most of the brunt. Renewable energy investment dropped slightly in the first quarter of 2020, down 2.6% from the same period in 2019. However, early data show that investments attuned to environmental, social, and governance concerns are performing better and proving more resilient than conventional funds.



Over the 2021-2023 recovery phase, a structural shift towards policies and investments fostering energy transition can help build resilient societies. The transition would boost GDP by 1% more on average over three years than current plans. Energy transition-related technologies would add 5.49 million more jobs by 2023 than current plans (Figure 4). Development of domestic industrial capacities and supply chains, and promotion of green financing as well as research and development are key elements for a successful energy transition. A comprehensive set of labour and educational policies to build the needed workforce must also be adopted.

Figure 4: Changes in energy sector jobs resulting from transition-related investment, 2021-2023



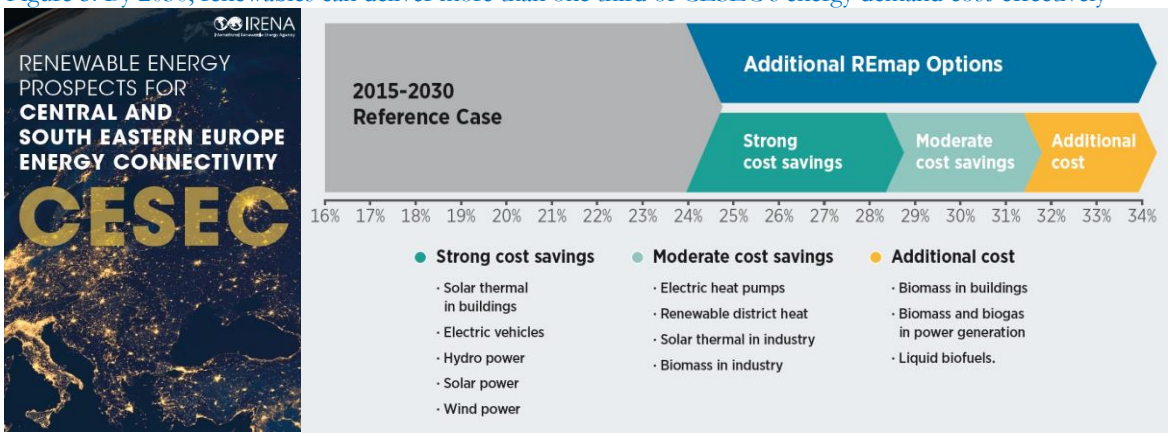
Based on IRENA analysis

[6] Available here.

Soon after the launch of the Post-COVID Recovery report, the IRENA Director-General had the opportunity to discuss the report's policy recommendations and strategies in many occasions. The report was launched at a **Digital Dialogue**[7] on "Energy transformation: Driving a Green Recovery" hosted by the Financial Times on 24 June. The Director-General also participated and presented the report at several events, including the 2020 **UN High-Level Political Forum (HLPF)** session[8] on "Building back better after COVID-19 and acting where we will have the greatest impact on the SDGs: Sustaining efforts to ensure access to sustainable energy" and the side event[9] on "Harnessing energy transformation for a sustainable recovery" in the margins of the 2020 HLPF, both held on 8 July.

Advancing energy transitions as part of the green recovery will require understanding of national and regional regional energy market dynamics of renewable energy deployment. The ***Renewable Energy Prospects for Central and Eastern Europe Energy Connectivity (CESEC)***[10] report, launched on 2 October 2020, shows the potential for renewable energy deployment in the region by 2030 beyond current policies and plans. Accelerating the take-up of renewables could save CESEC citizens an estimated EUR 3 billion per year in energy costs in 2030, while the economic value of avoided health, environment and climate damage could push total benefits to society to up to EUR 35 billion per year in 2030 (Figure 5).

Figure 5: By 2030, renewables can deliver more than one third of CESEC's energy demand cost-effectively



IRENA's energy transition path for the region estimates that additional investments of EUR 78 billion are needed between now and 2030. Additional greenhouse gas (GHG) emission reductions would reach 165 megatonnes (Mt) of carbon dioxide (CO_2)/year, comparable to one and a half times today's total emissions of Romania.

[7] Available here.
[8] More information available here.
[9] More information here.
[10] Supported by the European Commission, Directorate-General for Energy. Available here.

In Focus: Tracking Impact of COVID-19 on Energy Transitions

IRENA began tracking energency and recovery measures since April 2020 for a variety of energy supply and demand sectors. This tracker also logs significant political statements of intent and policy proposals of relevance for the energy sector. Information and data is collected from more than 85 countries and the European Union, and is updated regularly. The tracker is aimed for internal use to keep the Agency abreast of developments across its Membership.

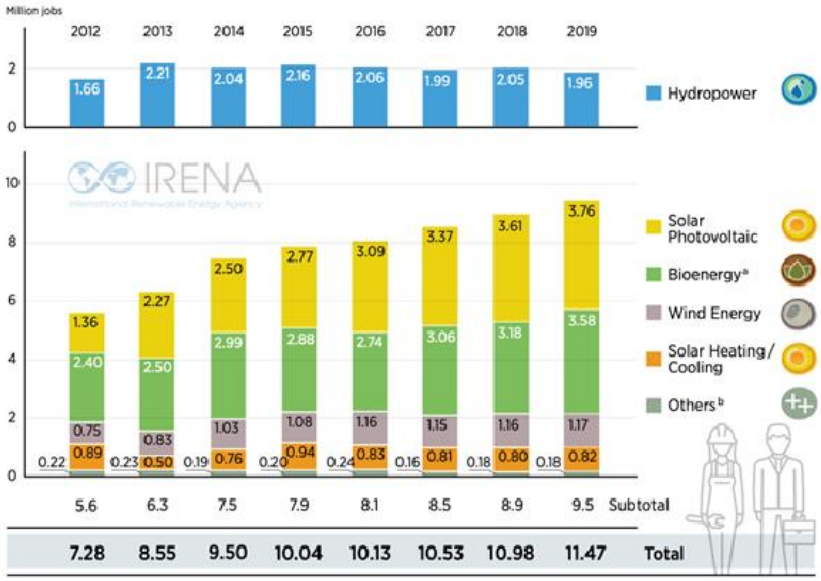
According to the data collected, Governments worldwide have pledged to inject trillions of dollars[11] into the global economy to counteract the health, social, and financial shocks caused by COVID-19. Some trends that have become apparent include:

- There has been a steady increase in positive rhetoric towards a "green recovery," with several countries attaching "green strings" to their bailout packages as well as making supportive public statements. However, a substantial flow of investments in fossil fuels remains;
- During the early stages of the pandemic, many energy specific measures focused on protecting the energy supply to citizens and businesses;
- Often when domestic renewables projects were at risk governments acted to provide clarity for their stakeholders by either extending deadlines or postponing auctions;
- Recovery measures promoting energy transition (e.g. renewables, energy efficiency, enabling infrastructure) include investing in new renewable electricity generation projects, funding for energy efficiency programmes, incentives for electric vehicles etc.;
- For some countries, these measures are situated within broader policies focused on addressing climate change. These include new targets to increase the share of renewables and carbon neutrality, grow green hydrogen production, phase out coal etc.;
- Innovation funding has been another area of interest, with governments investing in future solutions that have the potential to deliver jobs and provide economic opportunities.

These promising findings are firmly embedded in IRENA's decade-long-work on socio-economic impacts of energy transitions, most notably jobs. The 2020 edition of the ***Renewable Energy and Jobs – Annual Review***[12] finds that employment has expanded from about 7.3 million jobs in 2012 to 11.5 million in 2019 (Figure 6), with women holding almost a third of the jobs (though only about a fifth in the wind power industry). In 2019, a third of the total renewable energy workforce was employed in the solar PV industry, with 91% of the positions concentrated in ten countries[13]. Bioenergy industry employs directly around 3.6 million people, followed by the hydropower sector with close to 2 million, while employment in wind power supports 1.2 million jobs.

[11] To date over USD 11 trillion (IMF, https://www.imf.org/en/About/FAQ/imf-response-to-covid-19#Q3).
[12] Available here.
[13] China, Japan, U.S.A., India, Bangladesh, Viet Nam, Malaysia, Brazil, Germany, and the Philippines.

Figure 6: Global renewable energy employment by technology, 2012-2019



Source: IRENA jobs database.

Note: Except for hydropower, where a revised methodology led to revisions of job estimates, numbers shown in this figure reflect those reported in past editions of the Annual Review.

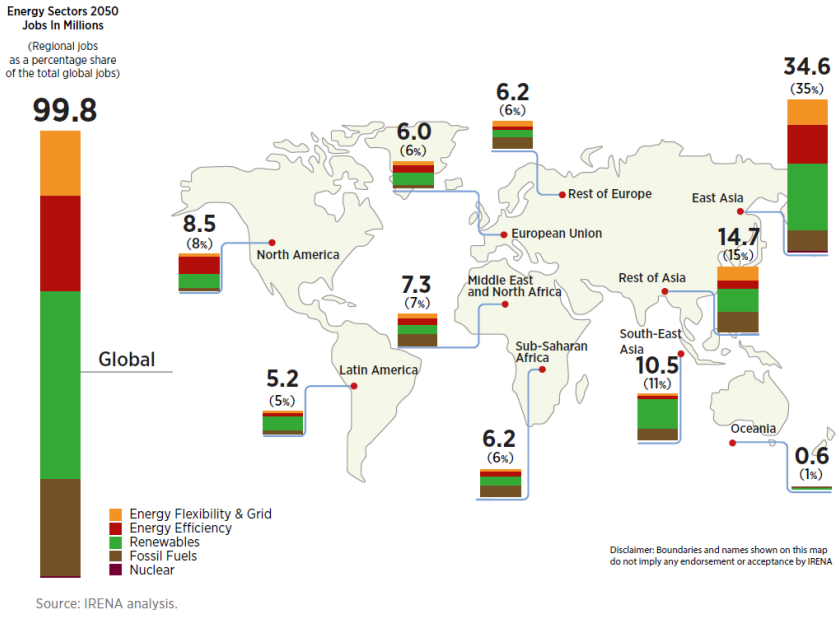
a. Includes liquid biofuels, solid biomass and biogas.

b. "Other technologies" includes geothermal energy, concentrated solar power, heat pumps (ground based), municipal and industrial waste, and ocean energy.

The ***Measuring the Socio-economics of Transition: Focus on Jobs***[14] report shows that the impact of the energy transition in countries and regions will vary depending on the volume of investments, socio-economic structures, current and planned policies, and dynamics created by it. It is estimated that about 100 million energy jobs will be created under the TES. Figure 7 shows the regional distribution of these jobs. Renewables will dominate the energy sector jobs in Asia, the Americas and Europe. The adoption of forward-looking and coherent deployment, together with enabling policies, will help achieve economic and employment growth, while increasing energy security and energy access. It will also help nations mitigate and adapt to climate change, while avoiding or limiting misalignments from energy transition.

[14] Available here.

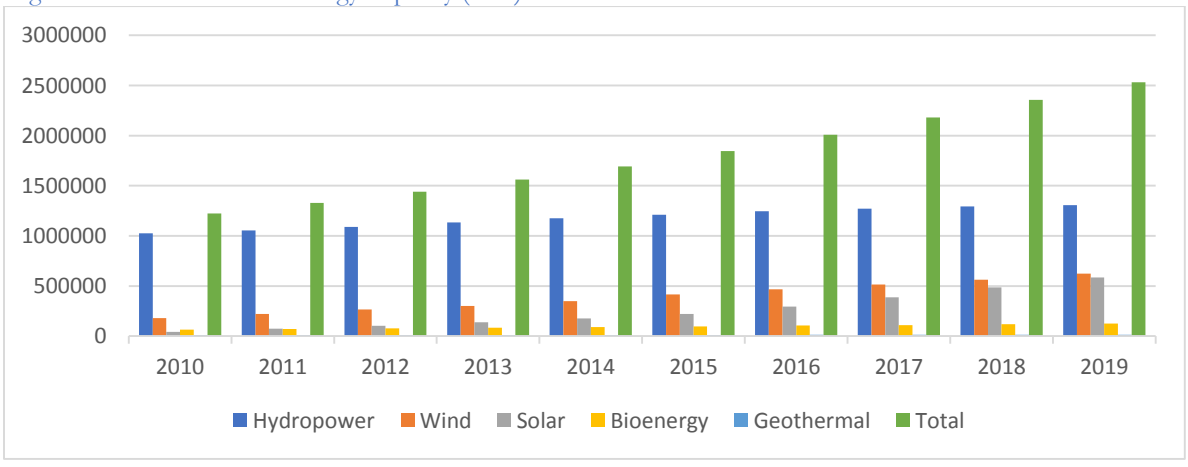
Figure 7: Energy sector jobs by region with Energy Transformation in 2050



Source: IRENA analysis.

The increase in job numbers is also linked to the growing renewable capacity globally. IRENA's ***Renewable Energy Statistics***[15] provides an insight in the trends of renewable energy capacity and production globally in the period 2010-2019. For this first time, a new section on Public Renewable Energy Finance Flows presents an overview of investment transactions for renewable energies from selected public financial institutions. Total capacity has more than doubled between 2010 and 2019 reaching 2.533 GW compared to 1.224 GW in 2010 (Figure 8). Asia experienced the biggest jump from 387 GW in 2010 to 1.119 GW in 2019, largely due to China's rapid deployment of renewables. Total energy production has also increased since 2010, from 4.202.026 GWh to 6.586.124 GWh in 2018 (Figure 9). Hydropower remained the highest source of energy for electricity generation globally, both in terms of capacity and production, followed by wind and solar (Figure 8 and 9).

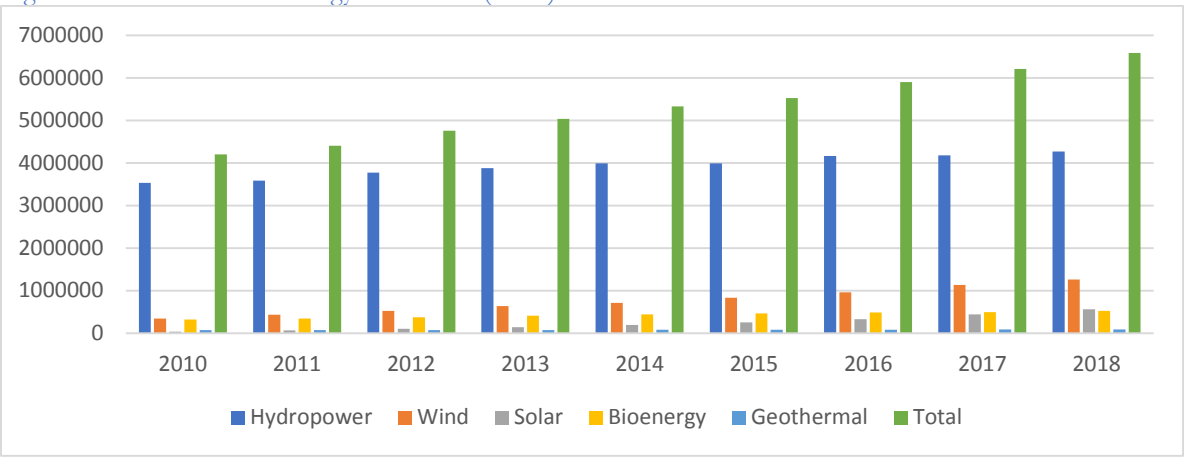
Figure 8: Total Renewable Energy Capacity (MW) 2010-2019



Source: IRENA, *Renewable Energy Statistics*, (2020)

[15] Available here.

Figure 9: Total Renewable Energy Production (GWh) 2010-2018



Source: IRENA, *Renewable Energy Statistics*, (2020)

IRENA's ***Renewable Energy Power Generation Costs in 2019***[16] report shows that, in the last decade, new renewable power costs have not just fallen, but are at an absolute low level. IRENA's Renewable Cost Database and Auctions and power purchase agreement (PPAs) databases[17] show the compelling evolution of renewable power generation technologies into least-cost solutions for new capacity in many parts of the world. This is mainly due to improving technologies, economies of scale, increasingly competitive supply chains and growing developer experience. Solar and wind power costs have declined most steeply. The report's analysis of auction and PPA data shows costs are set to continue to decline. The data suggests the price of electricity generated from onshore wind could fall to USD 0.043/kWh by 2021, (down 18% from 2019) and utility-scale solar PV to just USD 0.039/kWh in that year. Offshore wind and CSP could fall respectively to USD 0.082/kWh in 2023 and USD 0.075/kWh in 2021.

In Focus: Competitiveness of Solar PV and Onshore Wind

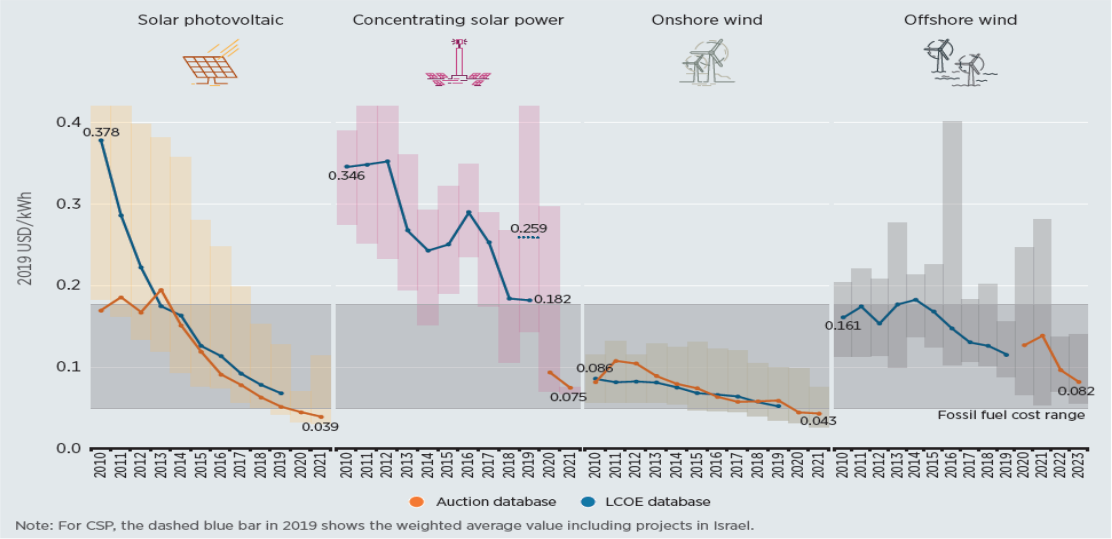
IRENA's *Renewable Energy Auctions Status and Trends Beyond Price* report shows that price results for solar and wind auctions have decreased overall in the past decade. In 2018, solar energy was contracted at a global average price of USD 56/MWh, compared with the average price of USD 250/MWh in 2010. Wind prices also fell during that period, albeit at a slower pace. The average price in 2018 was USD 48/MWh, down from USD 75/MWh in 2010.

This market-driven shift has further strengthened the business case of renewables compared to conventional sources of energy. IRENA estimates that replacing 500 GW of existing coal plants (with the highest operating costs) with new utility-scale solar PV and onshore wind at costs likely for 2021 could reduce annual system costs by USD 12 to 23 billion. This saving would potentially also reduce bills for consumers, depending on coal prices. This would reduce CO_2 emissions by around 1.8 gigatonnes annually, while yielding a stimulus worth USD 940 billion, or around 1 per cent of global GDP.

[16] Available here.
[17] Compiled from 18,000 real-word projects for the project cost database and 10,000 Auction and PPA projects and progammes.

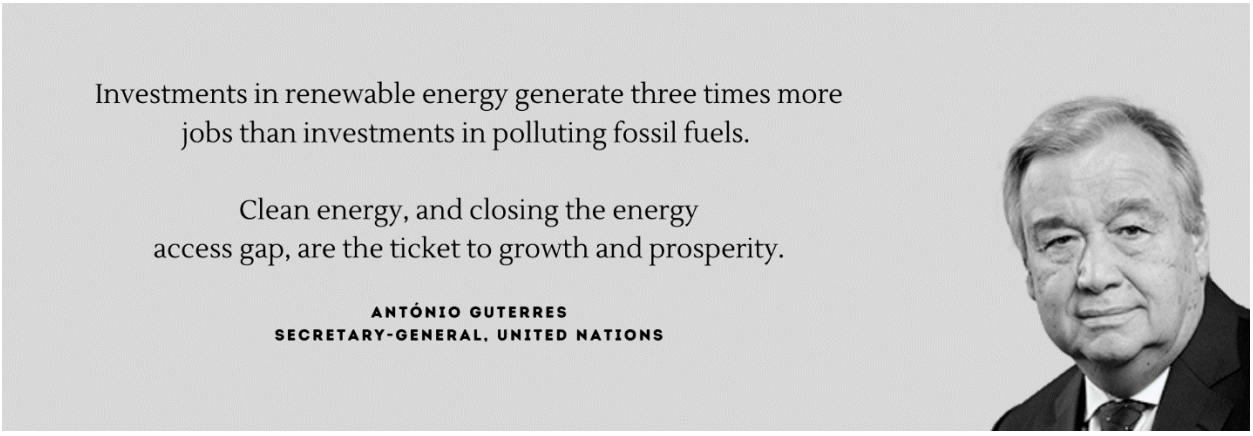
In short, ***Renewable Energy Power Generation Costs in 2019*** demonstrated that accelerated renewable power deployment has the potential to align short-term economic needs, especially in the post-COVID-19 period, with medium- and long-term climate and development needs.

Figure 10: Global weighted average Levelised Cost of Electricity and Auction/PPA prices for CSP, onshore and offshore wind, and utility-scale solar PV, 2010 to 2023



Note: The thick lines are the global weighted average LCOE, or auction values, by year. The grey bands that vary by year are cost/price range for the 5th and 95th percentiles of projects.. For the LCOE data, the real WACC is 7.5% for OECD countries and China, and 10% for the rest of the world. The band that crosses the entire chart represents the fossil fuel-fired power generation cost range.

Source: IRENA, *Renewable Energy Power Generation Costs in 2019*, (2020)

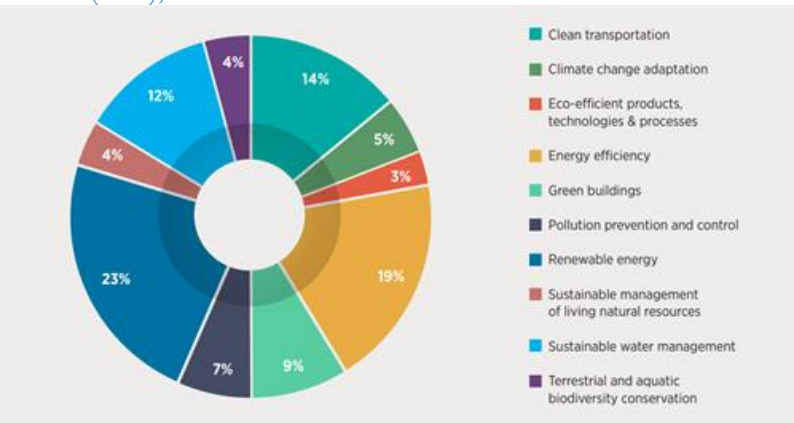


Heating and cooling accounts for almost half of global energy consumption, and due to its reliance on fossil fuels, it contributes heavily to greenhouse gas emissions and air pollution. IRENA, IEA and REN21 prepared a joint report[18] on ***Renewable Energy Policies in a Time of Transition: Heating and Cooling***[19] that examined the necessary infrastructure and policies for renewables deployment in heating and cooling to address this problem.

In March 2020, IRENA called for interested parties to register their interest in the ***Climate Investment Platform***[20]. IRENA and partners, SEforAll and UNDP, in collaboration with the Green Climate Fund, launched the platform to scale up investment in renewable energy projects in developing countries within 14 regional clusters. In 2020, IRENA worked toward the operationalisation of the CIP, which included active engagement of financing partners, covering bilateral and multilateral financial institutions, international development organisations and private sector stakeholders. IRENA also catalysed partnerships within the CIP with 50 new partners and actively supported 35 projects to date. So far **over 175 projects** and **over 300 partners** have registered their interest. In addition, 20 bankable project concept notes are currently in the final stages of preparation, which will serve as a key base document within the matchmaking process under the CIP.

In addition to effective policies and regulations, greater participation of institutional investors will require capital innovative market solutions. The ***Renewable energy finance: Green bonds***[21] brief finds that the green bonds market has grown remarkably, with annual issuances rising from USD 44 billion in 2015 to USD 271 billion in 2019. Figure 11 shows that renewables dominate green bond issuances, attracting 23% of cumulative issuance volumes during 2010-2019, followed by energy efficiency projects and clean transport.

Figure 11. Breakdown of green bond issuances by use of proceeds, by cumulative volume (USD), 2010-2019



Source: IRENA, *Renewable energy finance: Green Bonds,* (2020)

[18] Supported by the Government of Japan.
[19] Available here.
[20] Supported by the governments of Denmark; Germany, as part of the German Government International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) support this initiative based on a decision adopted by the German Bundestag; and UNDP.
[21] Available here.

The provision of risk mitigation instruments by governments and public financial institutions can be particularly effective in mobilising private sources of capital while safeguarding limited public resources. In the brief ***Renewable energy finance: Sovereign guarantees***[22], IRENA examined sovereign guarantees (i.e., a government's commitment to cover payments in case of default), as well as other solutions to mitigate risks in less-developed countries. Risk mitigation instruments seem to be even more important in the context of the current crisis, as investors have become more risk averse.

Activating underutilised capital pools is a necessary step to achieve the scale of investment required for the energy transition. In the report ***Mobilising Institutional Capital for Renewable Energy***[23], IRENA explores the great potential of institutional investors in boosting the energy transition. This group of investors, which comprises pension funds, insurance companies, sovereign wealth funds, foundations and endowments, represents one of the largest capital pools in the world – about USD 87 trillion of assets under management – whose potential in the renewable energy sector remains untapped. In 2018, institutional investors accounted for only 2% of private direct investment in new renewable energy projects.

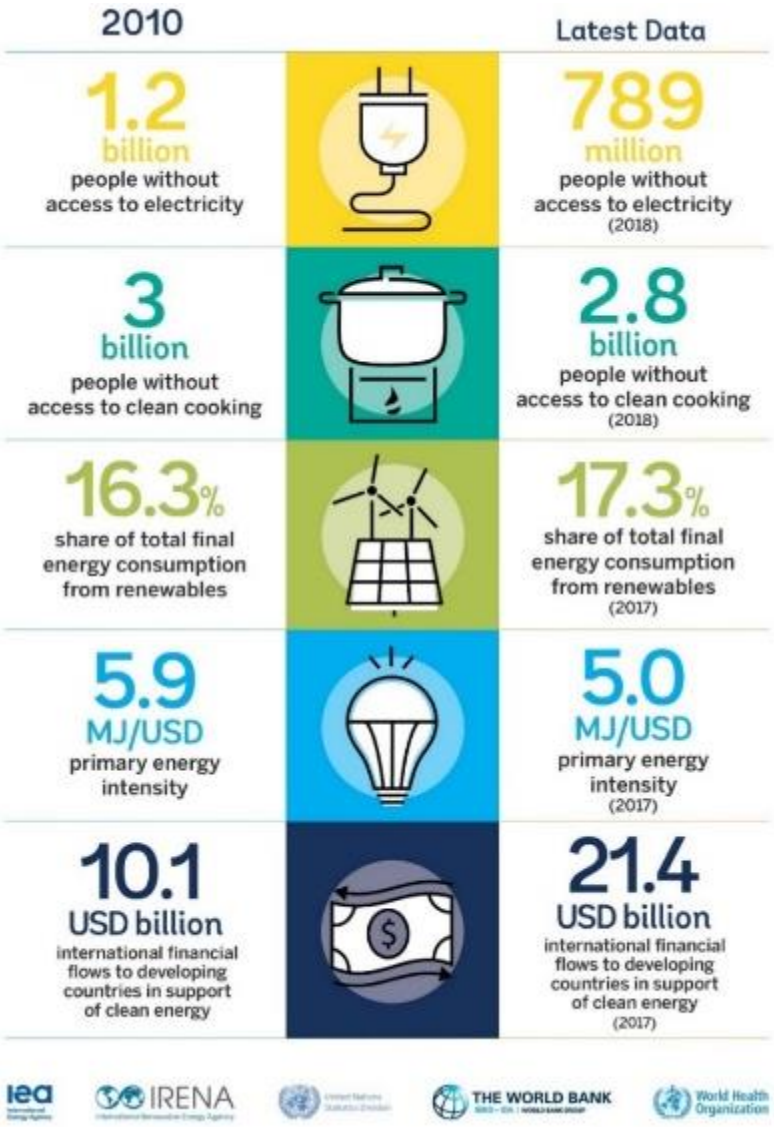
The 2020 edition of the ***Global Landscape of Renewable Energy Finance***[24] report shows that investment in renewable energy continued its steady increase from 2013 levels, peaking at USD 351 billion in 2017, before decreasing to USD 322 billion in 2018. This slowdown in investment level can be partially explained by falling technology costs, which allowed for more capacity to be installed for each dollar invested. This year's edition of the report also provides an in-depth analysis of the off-grid renewable energy finance landscape.

Investments at scale will be necessary to meet the objectives of the global agreements on sustainable development and climate change. In 2020, IRENA chaired the development of the ***Tracking SDG 7: Energy Progress Report (2020)***[25], published annually by the custodian agencies[26] of SDG 7 indicators. Despite the progress (Figure 12) in energy transitions in many countries, the key targets of SDG 7 by 2030 are still out of reach under current and planned policies. Launched at a high-level virtual event on 4 June hosted by the Group of Friends of Sustainable Energy of the United Nations, the report was also presented to a wider audience in the margins of the UN High-Level Political Forum on 7 July 2020. For the first time, this year's edition also covered SDG indicator 7.A.1 on international financial flows to developing countries in support of clean energy research and development and renewable energy production. Data jointly produced by IRENA and the OECD show that international public flows reached USD 21.4 billion in 2017, double the level in 2010. Yet only 12% reached the least-developed countries, which often also face the greatest challenges in achieving SDG targets.

IRENA and the Abu Dhabi Fund for Development (ADFD) have been collaborating for the past seven years to advance renewables in developing countries, with approximately USD 350 million committed to a total of 32 projects in 26 countries. The ***IRENA/ADFD Project Facility: Lessons from the Selection Process***[27] report analyses the lessons gained from the past seven cycles. To date, some 26 projects have reached various phases of implementation, representing 250 MW of planned capacity and expected to benefit 3.5 million people.

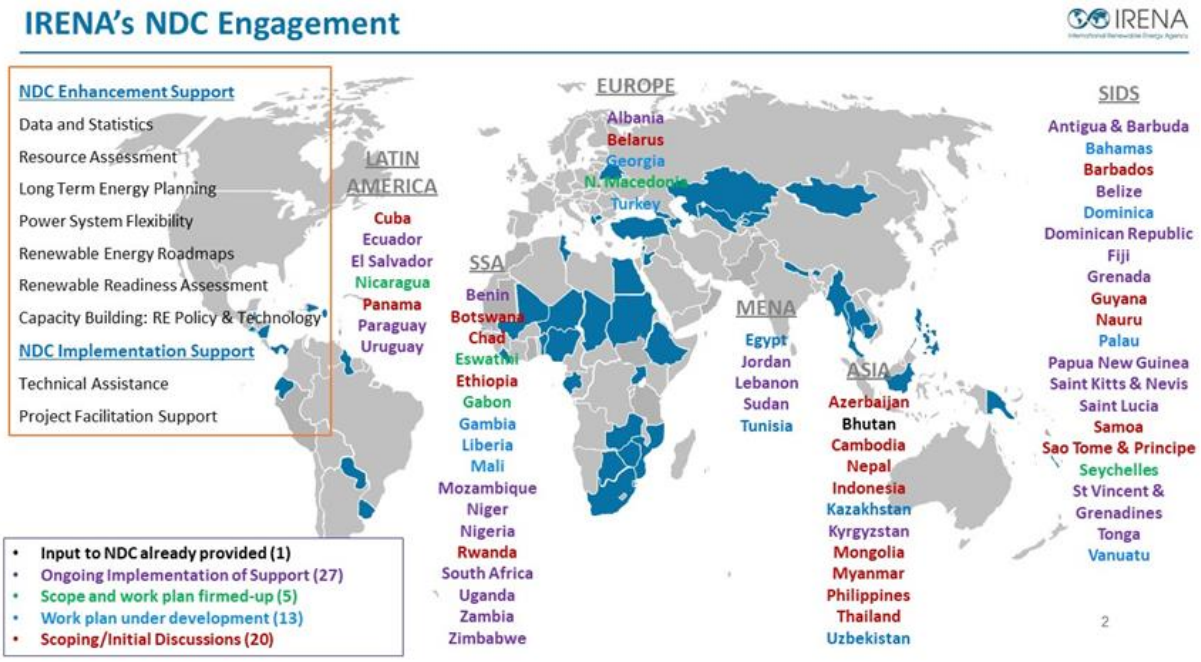
[22] Available here.
[23] Available here.
[24] Available here.
[25] Available here. Supported by the International Bank for Reconstruction and Development (IBRD).
[26] International Energy Agency (IEA), IRENA, United Nations Statistics Division (UNSD), World Bank, and World Health Organization (WHO).
[27] Available here.

Figure 12: Key findings of the *Tracking SDG 7: Energy Progress Report 2020*



In Focus: Aligning short-term actions with long-term strategies

In the face of the pandemic, the 2020 updates of NDCs of the Paris Agreement present an opportunity to place renewables-based energy transitions at the heart of climate-compatible long-term low-emission development strategies. IRENA is at different stages of engagement with **66 countries** in realising the untapped potential of renewable energy through NDC enhancement and implementation. IRENA is collaborating with organisations to that end by supporting countries through NDC Partnership's Climate Action Enhancement Package (CAEP) and UNDP's Climate Promise.



Renewable energy targets in the first NDC submissions are often less ambitious than targets countries have established in their national energy plans and strategies, as well as current global deployment trends. There is, therefore, considerable scope for countries to enhance their NDCs to meet Paris Agreement goals and send a strong signal to investors.

IRENA's NDC enhancement and implementation support[28] is substantially contributing to national efforts by:

- Strengthening coordination at the national level, namely between environment and energy sectors;
- Identifying and developing robust, ambitious, and quantifiable renewable energy targets;
- Recommending enabling policy and regulatory frameworks to encourage and facilitate renewable energy deployment, and attract public and private investments and maximise socio-economic benefits;
- Identifying investment opportunities by developing project pipelines in alignment with development policies, national strategies, and long-term decarbonisation objectives;
- Enhancing transparency by providing technical input to improve data collection systems and analysis, designing robust Measurement, Reporting and Verification (MRV) systems, and building national capacities, long-term planning, REmaps and RRAs.

In line with the efforts to achieve not only SDG7 but also support the achievement of other SDGs, IRENA continues to highlight different linkages and possibilities for concerted action. As a contribution to the SIDS Lighthouse Initiative (LHI) and input to the United Nations Ocean Conference 2020, IRENA prepared the ***Fostering a Blue Economy: Offshore Renewable Energy***[29] report. The report discusses the potential of

[28] This project is part of the German Government International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) support this initiative based on a decision adopted by the German Bundestag.

[29] Available here.

offshore renewables to contribute towards the achievement of the SDGs (particularly SDG 7 – Energy and SDG 14 – Life Below Water), in islands and coastal territories. It also provides guidance to policy-makers on the emerging innovations pushing offshore renewables towards commercialisation and actionable recommendations to foster innovation, knowledge transfer and deployment of renewables. Related work included the ***Innovation Outlook: Ocean Energy Technologies***[30], which examines the status and prospects of ocean energy technologies: the operating principles, current installed capacity and project pipeline, along with markets and theoretical energy potential for each ocean energy type. The report also identifies challenges and offers recommendations to accelerate the deployment and commercialisation of each technology.

Transforming the global energy system in line with global climate and sustainability goals calls for rapid uptake of renewables for all kinds of energy use. Thermal energy storage (TES) can help to integrate high shares of renewable energy in power generation, industry and buildings. The ***Innovation Outlook: Thermal Energy Storage***[31] report highlights key attributes of TES technologies and highlights priorities for ongoing research and development in this field.

IRENA's ***3rd Innovation Week***[32], which took place on 5-8 October 2020, explored how systemic innovative solutions can support the use of renewables in the energy-end-use sectors of transport and industry. Participants included leading policymakers, innovators, developers, young start-uppers and investors from across IRENA's diverse global Membership, who focused on the challenges and the emerging innovations in technology, business models, and system operation that can support the decarbonisation of end-use sectors.

IRENA prepared an interactive, interconnected ***Innovation Toolbox***[33], offering 30 innovations that can be mixed and matched as needed to tackle challenges in incorporating high shares of renewables in energy systems. While the combinations could be virtually endless, the Toolbox outlines 11 solutions as examples of how to achieve system-wide synergies.

In Focus: Green Hydrogen

One-third of global energy-related emissions comes from sectors for which there is no economically feasible alternative to fossil fuels. Hydrogen has emerged as an important part of the clean energy mix needed to ensure a sustainable future. Falling costs for green hydrogen, produced with renewable energy, has given clean hydrogen unprecedented political and business momentum. Green hydrogen can replace fossil fuel-based hydrogen, fossil fuel-based feedstocks and, eventually, be converted into carbon-neutral fuels. Once scaled-up and made widely competitive, green hydrogen can become fundamental in decarbonising a wider range of end-use sectors, complementing direct electrification. For so-called "hard to decarbonise" sectors[34] such as energy-intensive industries as well as freight transport, green hydrogen could be a game changer for a cost-effective decarbonisation. Importantly, focused efforts

[30] Available here.
[31] Available here.
[32] More information available here.
[33] Available here.
[34] E.g. industry, transport and the building sectors.

can also leverage the green hydrogen opportunity to accelerate and broaden the global recovery from COVID-19.

The ***Green Hydrogen Cost Reduction: Scaling up Electrolysers to Meet the 1.5⁰ C Climate Goal***[35] report examines four strategies that will allow reducing the investment cost of the electrolyser – green hydrogen is still 2 to 3 times more expensive than low-carbon hydrogen from fossil fuels – by 40% in the near term and up to 80% in the long term.

The ***Green Hydrogen: A Guide to Policy Making***[36] report outlines the main barriers inhibiting green hydrogen uptake and the policies needed to address these. It also offers insights on how to kickstart the green hydrogen sector as a key enabler of the energy transition at the national or regional level.

In November, IRENA took place in the event entitled *EU Hydrogen Online Forum in the UAE: The Energy Carrier of the Future*. Participants had the opportunity to exchange ideas and consider concrete options to promote the hydrogen agenda in Europe and the Gulf region, and identify innovative and replicable practices and models to facilitate the development and implementation of renewable hydrogen projects.

Changing ways of working in the face of COVID-19

IRENA has been exploring new ways of advancing programmatic activities and engaging with its Members during this challenging time. The pandemic's impacts have been global and infiltrated all aspects of our societies and economies, including renewable energy. IRENA, including those that are part of the IRENA Coalition for Action, have been vocal in showing how transforming the energy system can support a sustainable, resilient and equitable recovery.

IRENA continues to forge strategic partnerships that can help advance the Agency's programmatic priorities and accelerate impact on the ground. IRENA already has a wide range of partners, with over 45 Memoranda of Understanding in place and eleven signed this year. Emergencies such as the COVID-19 pandemic highlights the importance of a holistic perspective and collaborative approaches.

[35] Available here.
[36] Available here.

IRENA continues to contribute its expertise to support discussions on the energy transformation between global leaders. The Director-General joined the Petersberg Climate Dialogue in April, in addition to several dialogues with politicians on the impacts of COVID-19 and the economic recovery. He contributed to several other discussions on clean energy[37].

At the tenth session of the IRENA Assembly, the United Arab Emirates (UAE) in partnership with IRENA proposed to invite Permanent Representatives to IRENA and the broader diplomatic community to take part in ***Renewables Talk for Permanent Representatives***[38] starting in 2020. On 13 May and 13 December, IRENA and the UAE co-hosted the first and second webinar of the Renewables Talk for Permanent Representatives.

The IRENA Director-General participated in the **11th Clean Energy Ministerial (CEM) and 5th Mission Innovation** meetings (22 and 23 September respectively), stressing the need for a renewables-led energy transition to secure near-term recovery and long-term success, as well as in two side events**.**

IRENA's cooperation with **G20 countries** continued this year too. In the context of the 2020 Saudi Arabian Presidency, held under the theme "Realizing Opportunities of the 21st Century for All"[39] IRENA provided two reports focused on renewables as an input to the G20 Guide for the Circular Carbon Economy (CCE)[40].

The IRENA Director-General also attended the **G20 Energy Ministerial Meetings** on 27-28 September.

In 2016, IRENA and several top-tier law firms launched a collaborative initiative entitled **Open Solar Contracts**[41] to unlock greater investments in solar power. This is achieved by streamlining project development and finance processes by offering simple and universally-applicable legal agreements, reducing legal transaction costs, expediting project development and financing timelines, establishing balanced risk allocation for projects etc. In 2020, IRENA delivered capacity building workshops in English and French and began translating the documentation to French to ensure wider dissemination of the agreements.

[37] Including those organised by the Danish Ministry of Climate, Energy and Utilities and the IEA; the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the World Resources Institute (WRI); the Ministry of Energy of the Russian Federation and the Institute for Energy and Finance; Switzerland and Bahrain; the Atlantic Council; the Coalition for Action; the Global Solar Council; and, Goldman Sachs etc.
[38] More information available here.
[39] The three key agenda items to be addressed under this theme are: Empowering People, by creating the conditions in which all people, especially women and youth, can live, work and thrive; Safeguarding the Planet, by fostering collective efforts to protect our global commons; and Shaping New Frontiers, by adopting long-term and bold strategies to share benefits of innovation and technological advancement.
[40] Supported by King Abdullah Petroleum Studies and Research Centre (KAPSARC).
[41] These include: Power Purchase Agreement; Implementation Agreement; Supply Agreement; Installation Agreement; Operation and Maintenance Agreement; and Financing Facility Term Sheet. More information available here.

On 28 April 2020, leading renewables and energy transitions players, who are members of the **IRENA Coalition for Action**[42]**,** issued a joint statement laying out concrete actions that governments can take to ensure the economic recovery from COVID-19 aligns with global climate and sustainability objectives. On 7 December, a *Renewed Coalition Call to Action* was launched, urging governments to accelerate a green recovery to meet global climate objectives. Since its formation in 2014, the IRENA Coalition for Action has grown to consist of over 100 members, with 16 new members having joined this year alone.

Due to the pandemic, IRENA's sixth Policy Day was postponed for 2021. In lieu of that, IRENA hosted four **Policy Talks**[43] – a series of online events providing a forum for renewable energy policy discussions, where experiences and best practices in policy design and implementation can be shared to support the efficient deployment of renewable energy. The following events took place: *Policy Talk 1 - Renewable Energy Finance: Status, Trends and Recommendations*[44]*,* with more than 400 attendees, including 93 IRENA Members and 31 government organisations[45]; *Policy Talk 2 - Policies for Green Hydrogen*[46]*,* with almost 600 attendees, including 187 IRENA Members and 47 government organisations; *Policy Talk 3 - Renewable Energy Policies in a Time of Transition: Heating and Cooling*[47]*,* with more than 200 attendees, including 57 IRENA Members and 17 government organisations; and *Policy Talk 4 - Stimulating Investment in Community Energy*[48]*,* in partnership with the IRENA Coalition for Action had more than 200 attendees, including 73 IRENA Members and 10 government organisations

At the fourth Policy Talk, the IRENA Coalition for Action launched the ***Stimulating Investment in Community Energy: Broadening the Ownership of Renewables***[49] white paper the provides recommendations to governments and financial institutions on how to design policy and financial frameworks that value citizen participation and encourage communities to participate in the energy transition.

In Focus: IRENA and Youth

Following the first **IRENA Youth Forum** held on 10 January 2020 at the margins of the Agency's tenth Assembly, IRENA launched **IRENA Youth Talk**[50] — a series of webinars aimed at strengthening the Agency's engagement with the youth, amplifying their voice and actions in supporting renewables, achieving climate stability, and advancing the sustainable development agenda.

The first IRENA Youth Talk, held on 8 June 2020 and organised in collaboration with the SDG 7 Youth Constituency of the UN Major Group for Children and Youth, was structured under the theme 'Impact of

[42] The Coalition for Action brings together leading renewable energy players from around the world with the common goal of advancing the uptake of renewable energy. IRENA acts as the Secretariat of the Coalition. To learn more about the Coalition for Action, see coalition.irena.org.
[43] More information available here.
[44] In partnership with CPI. More information available here.
[45] In partnership with CPI.
[46] More information available here.
[47] In partnership with IEA and REN21. More information available here.
[48] In partnership with the IRENA Coalition for Action.
[49] Available here.
[50] More information available here.

COVID-19 on the renewable energy sector: a youth perspective'. Youth representatives discussed the impact and consequences of the current COVID-19 pandemic on the renewable energy sector with IRENA's Director-General and presented successful examples of their contribution to the deployment of renewable energy in their communities.

A video contest, launched during the first IRENA Youth Talk[51], focused on the theme 'Renewable Energy in the Time of COVID-19: Youth Actions for Recovery' and encouraged young people to voice their opinion on social media. Jasper Mallonga (winner) delivered a powerful video message urging the world to get behind renewable energy to build a resilient, sustainable and inclusive future. IRENA will invite Jasper to participate in the IRENA Youth Forum in January 2021.

Collaborative Frameworks

In accordance with discussions at the tenth session of the IRENA Assembly and following the request of Members to advance knowledge creation and facilitate collaboration on several topics of high interest, the Secretariat has been creating the space for peer-to-peer collaboration and focused Member dialogue.

To-date, each Framework has met virtually twice. At the second meetings, Members agreed on their scope, general guiding principles and modalities. Meetings of the Collaborative Frameworks will be open-ended to all IRENA Members and States in Accession. Multi-stakeholders involved in the relevant thematic areas of work will also be invited to participate. Two co-facilitators have been appointed for each Framework for a period of one year, with the possibility of extension.

The first session of the ***Collaborative Framework on Hydropower***[52] took place on 10 June and brought countries together to identify priority areas, concrete actions and foster international collaboration to understand the role of hydropower in the energy transition and ensure its widespread deployment. The platform will also advance areas relevant to hydropower including financing, flexibility, resilience, and sustainability. The second meeting, held on 24 September, helped clarify the modalities of public-private collaboration under this Framework and highlighted some key priority areas such as the role of hydropower in the energy transition; the link between hydropower and climate resilience; hydropower business models, economics and financing; small hydropower; operation and maintenance refurbishment and modernisation; and social and environmental sustainability.

The first ***Collaborative Framework on Green Hydrogen***[53] took place on 18 June serving as an effective vehicle for dialogue, co-operation and coordinated action to ensure the continued deployment of hydrogen from renewable sources and developing an effective and viable global hydrogen supply chains. At the second meeting, held on 30 September, Members discussed ways to deepen green hydrogen deployment to achieve net-zero emissions worldwide by 2060, and painted a clearer picture of how public-private collaboration, as well as collaboration with other stakeholders, could enhance the value of the Framework.

At the first meeting of the ***Collaborative Framework on Enhancing the Dialogue on High Shares of Renewables in Energy System***[54] on 1 July, Members discussed strategies to integrate renewables into energy

[51] More information available here.
[52] More information available here.
[53] More information available here.
[54] More information available here.

systems and create and coordinate a common platform to promote dialogue and practical cooperation between countries with high shares of renewable energy, or aspiring to achieve high-shares of renewables in their energy mix. At the second meeting on 1 October, participants identified key focal areas for the pilot phase. These include holistic energy planning, cross-border interconnections, and optimised energy system operation.

The first ***Collaborative Framework on Ocean Energy and Offshore Renewables***[55] meeting, held on 25 June, helped identify areas where IRENA could support its Membership in advancing joint demonstration projects and the commercialisation of new offshore technologies. Building on the discussions of the first meeting, a follow-up virtual meeting took place on 14 October to identify collaboration areas and agree on concrete actions to accelerate progress and ensure rapid uptake of these promising technologies. At the meeting, Members agreed on 13 focus topics around the areas of technology development, research and innovation, market incentives, and sustainability.

In Focus: Collaborative Framework on Geopolitics of Energy Transformation[56]

On the margins of the tenth session of the Assembly, a high-level meeting was convened to follow up on the 2019 report of the IRENA-convened Global Commission on the Geopolitics of the Energy Transformation and its report *"A New World: The Geopolitics of the Energy Transformation"*. As a result, the Assembly requested IRENA to take forward the work on the geopolitics of energy transformation to gain a deeper understanding of the areas highlighted by the Commission. In March 2020, at the invitation of the Director-General, Members were invited to submit their views on the priorities and modalities for taking the work forward.

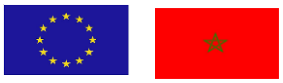
IRENA organised the first ***Collaborative Framework on Geopolitics of Energy Transformation*** meeting on 16 June[57] to exchange views on the geopolitical implications of the energy transformation and the future of Agency's work in this area. Participants agreed to set the substantive agenda for the coming years, led by IRENA and with engagement of diverse stakeholders.

At the second meeting of the Collaborative Framework[58], held on 15 October, Members unanimously agreed on the scope of the Framework, and the modalities on participation, the designation of Co-Facilitators, workstreams, reporting and convening of high-level meetings. In the first year of work, participants agreed to commence work, focusing on the geopolitics of hydrogen and the climate-security nexus. Three experts, who were previsouly involved in the preparation of the 2019 Global Commission report on the Geopolitics of the Energy Transformation, then presented the latest trends and developments in the area.

Meanwhile, IRENA is actively engaging with the leading entities such as the Munich Security Conference of Germany and Wilton Park of the UK to position renewables-based energy transitions in broader settings.

[55] More information available here.
[56] Supported by the Government of Norway.
[57] More information available here.
[58] Supported by the Government of Norway.

Table 1: List of Co-facilitators for the first year of work of each Collaborative Framework

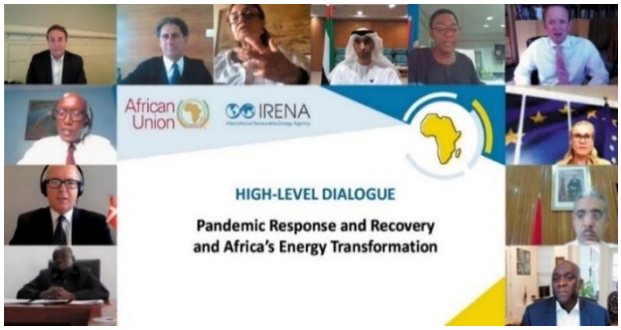
Collaborative Frameworks	Co-facilitators
Collaborative Framework **on Enhancing Dialogue on the Integration of Higher Shares of Renewables in Energy Systems**	
Collaborative Framework **on the Geopolitics of Energy Transformation**	
Collaborative Framework **on Green Hydrogen**	
Collaborative Framework **on Hydropower**	
Collaborative Framework **on Ocean Energy/Offshore Renewables**	

Since January 2020, IRENA has been organising fortnightly a series of short, focused webinars called ***IRENA Insights***[59] to present key findings from the Agency's latest programmatic work, opportunities, trends, best practices, and innovative solutions. By the end of December, twenty webinars had taken place. More than 6,500 people from the public and private sector as well as other stakeholders e.g. Intergovernmental Organisations, Non-Governmental Organisations, universities, think tanks etc. from all regions participated in these webinars.

IRENA continues to coordinate the Long-Term Energy Scenarios (LTES) campaign[60] initiated in May 2018 and co-led by the Governments of Denmark and Germany under the Clean Energy Ministerial (CEM). Since, IRENA has expanded this effort to create a global network of practitioners on this important issue. The 2020 ***Scenarios for the Energy Transition: Global experience and best practices***[61] report assesses a collection of recommendations and country experiences gathered through the activities of both the LTES campaign and the LTES Network[62]. It shows the diversity of experiences in and approaches to long-term scenario development and use. This work is growing in relevance, reflecting the interest in international collaboration on energy transitions.

[59] More information available here.
[60] Suppported by the Government of Denmark.
[61] Available here.
[62] IRENA's extension of the LTES campaign to cover non-CEM countries.

IRENA also organised several high-level dialogues on energy transitions, including in the context of post-COVID-19 recovery. IRENA and the African Union Commission convened a ***High-Level Dialogue on Pandemic Response and Recovery and Africa's Energy Transformation*** on 20 May[63]. The discussion focused on Africa's needs in responding to the COVID-19 crisis and the role of the energy transformation, especially given its cross sectoral relevance in health, water and ICT areas.



IRENA and the Africa Renewable Energy Initiative (AREI) also organised on 10 September a webinar on ***Promoting Renewable Energy Technologies for Sustainable Development in Africa post COVID-19***[64] to gather insights on how technology innovation and digitalisation in the energy sector can ensure a speedy and robust recovery from the pandemic in Africa.

Furthermore, IRENA supported the 4th edition of the ***ECOWAS Sustainable Energy Forum (ESEF)***[65], held virtually between 24 - 26 November 2020. Organised by ECREEE in partnership with the Alliance for Rural Electrification (ARE), the event had over 1,000 participants, offering an excellent opportunity for sharing IRENA's knowledge and insights.

The current pandemic is further highlighting the urgent need for improved energy access in healthcare. IRENA is a permanent steering committee member of the World Health Organization-led **Global Health and Energy Platform for Action (HEPA)**, a multi-stakeholder platform for raising awareness, thought leadership and advocacy on issues pertaining to electrification of health facilities and promotion of clean cooking practices. IRENA has been engaging with all HEPA partners under the working groups on healthcare electrification and clean cooking. The Working Programme for both workstreams is being prepared.

IRENA is also collaborating with the Ministries of Energy and Health in Burkina Faso to carry out a sectoral needs assessment for electrification of unelectrified healthcare facilities[66]. IRENA will provide decentralised renewable energy solutions for electrifying the rural health facilities lacking access, together with recommendations for implementation. The inputs will also serve as a blue-print for rural health facilities to be constructed and help the government of Burkina in estimating and mobilising the required resources for implementation. Energy needs for COVID-19 management, as well as possible telemedicine opportunities arising from energy availability, will be part of the analysis too.

IRENA and the Government of Belize, in its capacity as Chair of the Alliance of Small Island States (AOSIS), co-hosted a virtual ***High-level Dialogue on Accelerating Energy Transition in SIDS to Stimulate Post Pandemic Recovery***[67] on 1 June. SIDS and development partners highlighted the importance of multilateralism, partnerships that tailor make solutions for financing, as well as technology and knowledge transfer that will accelerate energy transformation and stimulate the quick recovery of SIDS economies.

[63] More information available here.
[64] The webinar is available here.
[65] More information available here.
[66] Supported by the Government of the Walloon Region of Belgium.
[67] More information available here.

IRENA and the **Small Island Developing States Sustainable Energy and Climate Resilience Organisation (SIDS DOCK)** signed a Memorandum of Understanding to reinforce joint actions that accelerate deployment of renewable energy and energy efficiency solutions to build energy security and support climate resilience in SIDS. IRENA is also working with the **Pacific Community (SPC**) to support the Pacific SIDS energy transformation and the post-pandemic recovery by strengthening policy frameworks, attracting investments and supporting project development.

In Focus: Follow up to the 2019 UN Climate Summit

Denmark and Ethiopia, with support from Sustainable Energy for All (SEforAll), co-led the energy track at the United Nations Secretary General's Climate Action Summit in 2019. At the Summit, nine main initiatives[68] related to energy transition emerged. IRENA is the operational lead for the Ambitious SIDS Package initiative[69] and is participating in all other energy initiatives. In September 2020, Denmark organised a series of 10 webinars under the theme of "How to achieve the energy transition – from the Climate Action Summit to green recovery and beyond" to showcase the results of these initiatives thus far, and discuss how they can support countries' efforts to recover better and greener, and contribute to enhancing their NDCs.

IRENA's Director-General actively participated in the webinar series by delivering a statement at the High-level Opening and presenting in several other sessions[70]. IRENA also organised the webinar on "Accelerating Renewable Energy in SIDS - Energy Transformation in Small Island Developing States: Towards sustainable and climate resilient post-pandemic recovery." IRENA and Denmark co-hosted a virtual high-level event on "Energy Transformation in SIDS: Towards sustainable and climate resilient post-pandemic recovery" on 15 September. SIDS and development partners reiterated that the shift to renewables is the best remedy to address the ongoing climate and COVID crises. They also stressed that SIDS need immediate support to respond to the pandemic-inflicted economic and financial crises, with a particular focus on the energy-health-water-food nexus, tourism sector and debt relief strategies.

Also in September, IRENA and Denmark forged a strategic partnership to drive ambition, leadership and knowledge on green energy transitions based on renewable energy.

Based on the global and ASEAN-specific findings of the *GRO* and *Power Generation Cost 2019* reports, IRENA, together with the ASEAN Centre for Energy (ACE), in collaboration with the Regional Ambassador of UK UNFCCC CoP 26 Presidency organised on 13 August a webinar on ***Accelerating the Southeast Asian Energy Transformation***[71]. At the ***4th Dialogue between ASEAN Ministers On Energy (AMEM) and IRENA***, Ministers welcomed the perspectives offered by IRENA's *Global Renewables Outlook* report and appreciated the insightful analyses provided by the IRENA Director-General on the challenges posed by the COVID-19 pandemic to the global energy transformation and the critical role of renewable energy for a green recovery.

[68] These are: Getting to Zero Coalition – decarbonizing shipping; Three Percent Club for Energy Efficiency; Cool Coalition; Climate Investment Platform; LDC Sustainable Energy Access Coalition; SIDS Renewable Energy Initiative. "Accelerating Renewable Energy Transition in SIDS"; Latin America Renewable Energy Target "Towards cleaner electricity in Latin America and the Caribbean"; Energy Storage Initiative; Powering Past Coal Alliance (PPCA) and Beyond Carbon 2.0.

[69] SIDS related activities supported by the Government of Denmark and is part of the German Government International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) support this initiative based on a decision adopted by the German Bundestag.

[70] These are: *"Leveraging renewables and energy storage through an integrated approach maximizing socio-economic benefits"* and *"Why South-to-South cooperation must be part of the solution in bridging the energy access gap in LDCs and ODCs"*. He also provided a recorded statement to *"Facilitating Energy Transition for Green Recovery: Emerging Models of Climate Finance for Clean Energy"*.

[71] More information available here.

Building on an existing Memorandum of Understanding **IRENA and Latin-American Organization of Energy (OLADE)**, originally signed in 2012, the two organisations have further pledged to boost ties to put the renewables-driven energy transformation at the heart of Latin America and the Caribbean's economic post-pandemic recovery. The IRENA Director-General also participated in the ***Energy Week,*** organized by OLADE and the Inter-American Development Bank (IDB) and held on 16-25 November, to present the role of renewables in energy transition and post-COVID recovery.

IRENA also organized a High-level Briefing to the Permanent Representatives to the United Nations of the LDCs group on ***Accelerating Sustainable Recovery with Renewable Energy***[72] on 14 October 2020 to showcase, and get feedback on IRENA's support to LDCs, through policy advice and capacity building for a better post-COVID recovery. The Agency also presented its work on the enhancement of renewable energy ambition in NDCs, on the development of bankable projects and access to finance, as well as the technical aspects of renewable energy deployment.

26th United Nations Climate Change Conference of the Parties (COP26)

As the fifth anniversary of the Paris Agreement, 2020 was supposed to be the year of climate momentum, commemorated at COP26. Although the COVID-19 pandemic has caused this important milestone to be postponed to 2021, IRENA continues to support ongoing climate efforts by working closely with the UK as the COP26 Presidency and Italy as the COP26 co-host. As such, the Agency is a member of the COP26 Energy Transition Council[73], which is co-chaired by the UK and SEforAll and convenes the global political, financial and technical leadership in the power sector to work together through COP26 to accelerate the transition from coal to clean power as part of a green economic recovery.

[72] More information available here.
[73] More information available here.

The Agency is also collaborating with the COP26 Presidency at the regional level. IRENA, together with the UK COP26 Presidency and the Association of Southeast Asian Nations (ASEAN) Secretariat, hosted a virtual ***COP26 Climate Dialogue on NDCs and Long-Term Strategies in the ASEAN region***. The Dialogue convened ASEAN Member States to share their experiences in meeting and enhancing climate pledges through NDC enhancement and implementation, and focused on inputs from experts and practitioners in developing long-term climate strategies and exchanged lessons learned with other ASEAN Member States[74].

IRENA and OLADE, in collaboration with the Regional Ambassador of UK UNFCCC COP26 Presidency, organised a webinar on ***Accelerating Latin America's Energy Transformation: Renewable Energy and Economic Recovery***[75]. Similarly, at the ***Central American Energy Congress (COREN)***[76], as a strategic partner, IRENA organised the Renewable Energy Day on 14 October. With the participation of the Regional Ambassador of UK UNFCCC COP26 Presidency, IRENA also held the session on ***Advancing the Energy Transition in Latin America and the Caribbean through NDCs***, with 261 participants from 13 different countries. The session focused on inputs from experts and practitioners in developing long-term climate strategies and exchanged lessons learned with other regional Member States.

IRENA continues to serve as the focal point for energy[77] within the *Marrakech Partnership for Global Climate Action*[78]. The Partnership supports implementation of the Paris Agreement by enabling collaboration between governments and the cities, regions, businesses and investors that must act on climate change. In this role, IRENA led two important activities this year that are meant to showcase and increase global climate action.

First, IRENA led the update and expansion of the *Climate Action Pathway for Energy*. The Pathways, initiated by the COP25 High-level Champion, outline the longer-term vision for a 1.5°C climate-resilient world and set out actions needed to achieve that future. They include specific sectoral actions that must be undertaken by actors, including policy-makers, financiers/investors, technology/innovation, businesses/services and civil society, by 2021, 2025, 2030 and 2040 to reach 1.5°C by 2050. It is envisaged that they will remain living documents to inform discussions across sectors of the global economy. The *2020 Pathways*[79] were officially launched on 12 December.

[74] Supported by the Government of Denmark.
[75] More information available here.
[76] More information available here.
[77] Other members of the energy group include: The Climate Group, International Chamber of Commerce, International Energy Agency, REN21, SEforAll, UNEP, and WBCSD.
[78] Other thematic groups include: Human Settlements; Industry; Land Use; Oceans and Coastal Zones; Transport; Water; Finance; and Resilience.
[79] Available here.

In Focus: Race to Zero Dialogues

To amplify climate action and build momentum ahead of COP26, the High-Level Champions for Global Climate Action convened the ***Race to Zero Dialogues*** from 9 to 19 November 2020. IRENA hosted the "Race to Zero Dialogue on Energy"[80] on 16 November. IRENA organised two sessions on Green Recovery and Green Hydrogen, respectively. Additional sessions were organised by The Institutional Investors Group on Climate Change (IIGCC)/Climate Action 100+ (CA100+) on Implementing a Net Zero Energy Sector Strategy and by RE100 on the Market-Driven Renewable Electricity Transition.

The "Race to Zero Dialogue on Energy" convened leaders from the energy transition, including policy-makers, transformational business leaders, energy sector leaders, investors and civil society. The first session, "Recovering Better: How Sustainable Energy Can Light the Way", showcased the role of energy transitions in countries' recovery efforts, and offered insights on how to align short-term recovery responses with long-term objectives to realise respective energy transitions with socio-economic benefits. The second session organized by IRENA was on *Green hydrogen for a renewable powered future*. It brought together prominent actors in the growing hydrogen economy to discuss how to accelerate efforts to achieve scale and cost reduction; thus, ensuring a significant contribution of green hydrogen in the energy system in the coming decades.

The sessions highlighted that, even during the pandemic, efforts towards a low-carbon energy system are advancing, showcasing that the energy transition can represent a far-sighted investment, as part of stimulus and recovery plans, helping to create much-needed jobs and put the energy sector on track for a 1.5°C future by 2050. Furthermore, energy transitions will progress as renewables outcompete alternatives, policy frameworks are strengthened, more companies demand renewable energy, investors and energy companies commit to driving the transition, and low-cost green hydrogen unlocks hard-to-decarbonise sectors.

As the focal point of the energy group within the UNFCCC's Marrakech Partnership Global Climate Action, IRENA will continue to leverage its convening power and expertise in the build-up to COP26.

[80] More information available here.

Looking Forward

IRENA has ambitious plans for the coming months to deliver on its mandate to advance energy transitions in a particularly challenging year. Whilst some activities have been postponed or rearranged due to COVID-19, IRENA is adapting, where possible, to deliver its outputs. This chapter provides a summary of planned IRENA activities in the last quarter of 2020.

IRENA is planning several high-level national events to launch its ***Renewable Readiness Assessment (RRA*)** reports. In January 2021, the RRA for Albania will be launched, followed by the RRAs for Tunisia and Botswana to be launched at some point in the first or second quarter of 2021. Similarly, the ***Renewable Energy Outlook*** processes for Indonesia and Malaysia are ongoing, along with RRA processes for Belarus and Paraguay, while RRA processes for Burkina Faso and Kyrgyzstan have been initiated.

IRENA was planning to hold a series of **regional Investment Forums** in 2020 to connect registered projects and financial partners, as well as to support policy-makers in developing strong enabling environments for investments in renewable energy. Due to the pandemic, the forums have been postponed. The details of future events will be shared in due course.

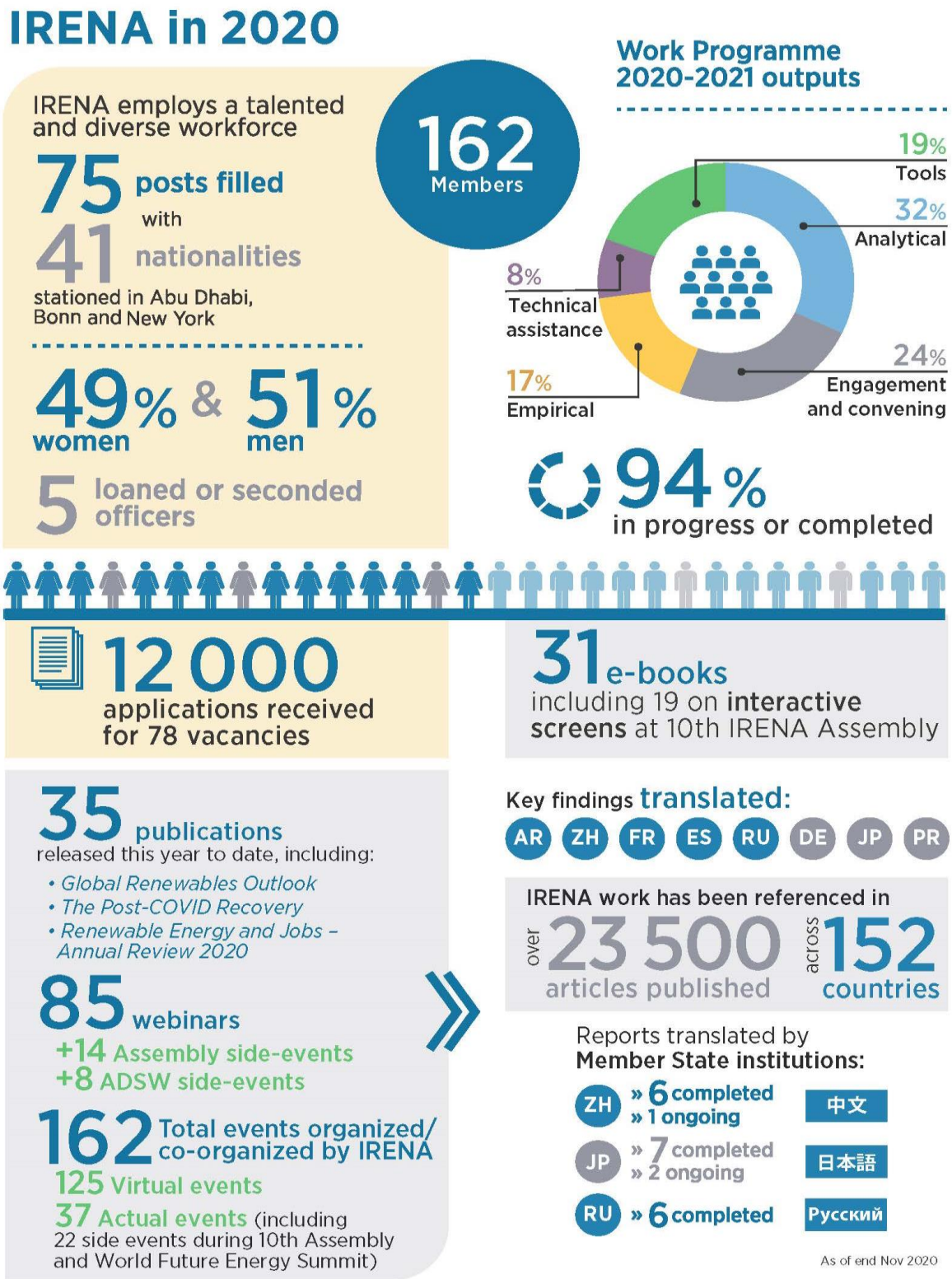
IRENA together with the UNFCCC and the Regional Ambassador of UK UNFCCC COP26 for the Middle East will host in January 2021 the webinar on ***Maximizing the socioeconomic benefits of the Energy Transition in the Middle East and North Africa region through NDCs.*** It will serve as a forum for regional discussion on the socioeconomic benefits of raising the ambition of the national climate pledges through enhanced NDCs, and explore the key role this plays in MENA countries' energy transitions and economic recoveries from COVID-19.

On the nexus of energy with other sectors, IRENA is carrying out a viability assessment of ***Decentralised Renewable Energy Solutions in Food Value Chains*** in the Hindukush – Himalayan region of South Asia that is scheduled to be completed during the first or second quarter of 2021.

IRENA is also partnering with WHO, the World Bank and Sustainable Energy for All for the development of the ***Global Assessment of Electricity in Healthcare*** report, being developed under the auspices of HEPA. The report is expected to be completed by the end of 2021.

IRENA will also be expanding its cooperation with external entities, including those from the private sector, through formal Memoranda of Understanding and cooperation arrangements. This includes international agencies such as the Food and Agriculture Organization (FAO) and the Department of Operational Services of the United Nations. With the new private sector guidelines IRENA has signed a MoU with the Global Wind Energy Council, while pursuing cooperation with private sector entities such as Enel Green Power, and Eni. IRENA has also signed the Declaration of Intent with the African Development Bank (AfDB).

Effective functioning of the Organisation



To deliver on the Agency's mandate, IRENA relies on the contributions and support of its Members, co-operation with a wide range of experts and institutions, and the commitment of its talented staff. This chapter summarises IRENA's key institutional and strategic activities in 2020.

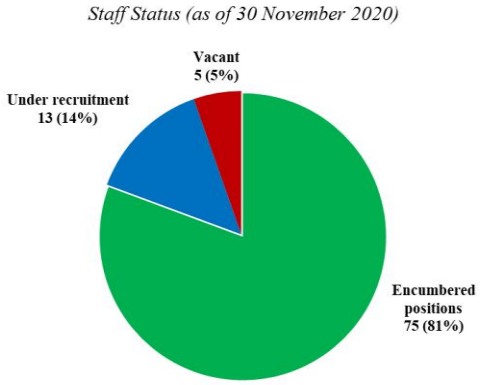
Enabling delivery and increasing institutional impact

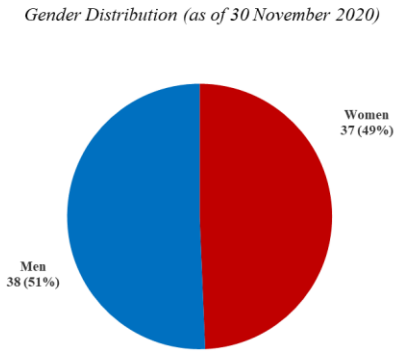
IRENA has been looking to new ways of implementing its Work Programme, whilst ensuring the safety and well-being of its staff and partners. Over the previous months, IRENA staff from all three duty stations have continued to deliver the programmatic actvities, whilst working from home as required. Integral to this success has been the work of IRENA's information and communications technology (ICT) teams, who have ensured the technical capability to continue working to the highest standard. Virtual meetings and collaborative ICT platforms have become the norm and provide new opportunities going forward to increase IRENA's inclusiveness.

At the beginning of the year, the Agency achieved a significant milestone as the IRENA Innovation and Technology Centre (IITC) moved to a new office location in Bonn. The official opening was planned for March but postponed due to the pandemic.

Significant effort was placed on aligning human resource policies and processes more closely with the Agency's strategic and programmatic objectives. Efforts also focused on additional personnel sourcing and building organisational capabilities 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 Agency's emerging and evolving needs and challenges, while safeguarding its core values and principles.

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 2020, 78 vacancies (core and project and including interns) were announced and over 12,000 applications received.





Out of 93 core posts, 88 are filled or under recruitment (75 filled and 13 under active recruitment) and 5 are vacant. The 75 staff are from 41 nationalities out of which 49% are women and 51% are men.

Approved and filled/ under recruitment posts by level as of 30 November 2020

Level	Approved	Filled or Under Recruitment
ASG	1	1
D-2	1	1
D-1	6	5
P-5	17	17
P-3/4	37	35
P-2/1	3	3
Sub-total Professional and above	65	62
General Services	28	26
Total	93	88

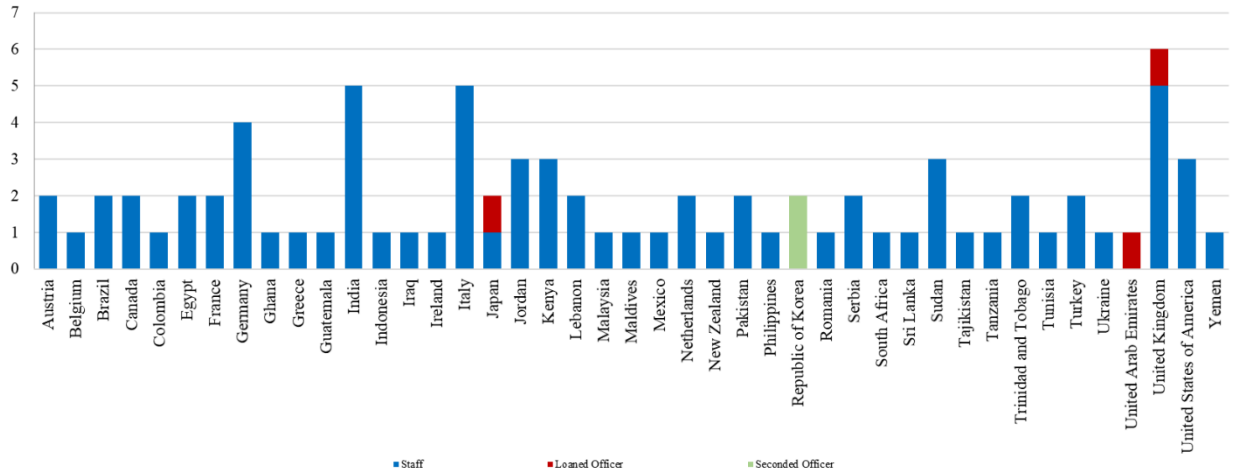
Loaned Personnel as of 30 November 2020

Division	Title	Loaned from
ODG	*Liaison and Protocol Officer*	*UAE*
ODG	*Loaned Officer, Planning and Programme Support*	*United Kingdom*
IITC	*Bioenergy Analyst*	*Japan*

Seconded Officers as of 30 November 2020

Division	Title	Seconded from
CEP	*Programme Officer*	*Republic of Korea*
PFS	*Associate Programme Officer, Climate Finance and NDC*	*Republic of Korea*

Geographical distribution (core posts, loaned personnel and seconded officers) as of 30 November 2020



IRENA continues to strengthen its communication and outreach activities to increase the Agency's impact. Since the beginning of 2020, IRENA has released 35 publications and has been referenced in over 23,843 media articles in 42 languages across 152 countries. The number of visitors to IRENA website reached almost 1.2 million users, showing a significant growth of 30% compared to 2019. The website saw almost 2 million visits and a 42% increase in pageviews signifying higher engagement compared to 2019. IRENA has explored new content formats such as interactive infographics and digital stories to encourage user interaction, increase return visitor rates and establish the Agency's website as a reliable knowledge hub for energy transition. IRENA has explored new formats like digital stories to encourage user interaction and increase return visitor rates to establish the Agency's website as a reliable knowledge hub for renewables. IRENA has also continued to implement its strategy to target and deploy social media for global events, reports, and news.

Over 23,843 media article references

4.3 million webpage views

92,600 Twitter followers &

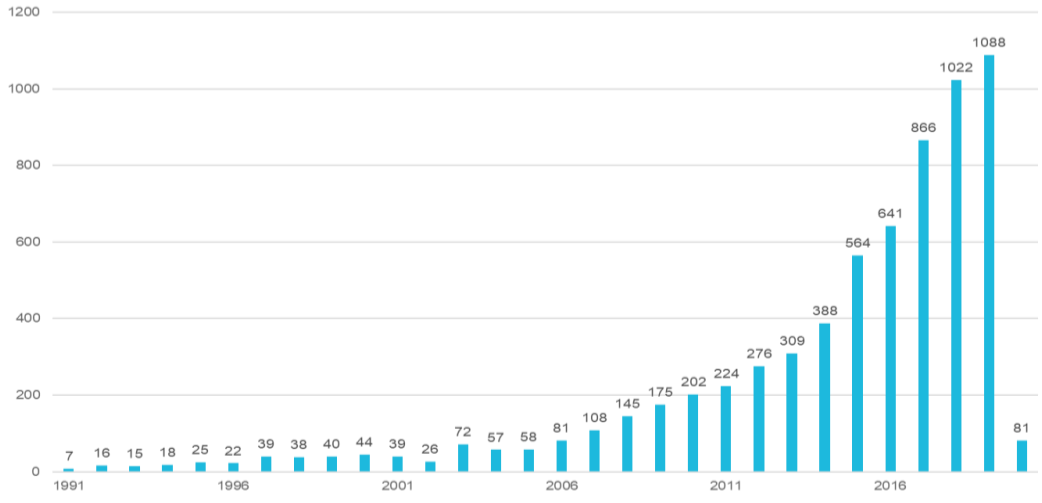
84,552 LinkedIn followers

Academic impact

As part of the Agency's drive to strengthen and embed monitoring and evaluation of programme impact, IRENA commissioned a **review of its impact in the academic sphere within the context of energy transition**.

The reach of IRENA's publications is global, with over 130 citations by major research institutions around the world. The Agency's most-cited publications were on themes of the energy transition, optimisation of power systems and worldwide renewable energy policies. These themes are aligned with the top three themes identified when analysing all academic publications in the last 30 years using keywords related to the energy transition, highlighting the relevance of IRENA's publications and the focus of the Medium-Term Strategy (MTS) on the transformation of the global energy system to the broader academic field. The findings from this analysis will feed into IRENA's mid-term external evaluation, which is mandated by the MTS.

Figure 13: Number of academic energy transition publications per year. A significant increase is seen since 2015 when the Paris Agreement and Agenda 2030 were adopted.



Source: ITOP.PARTNER Study contracted by IRENA, 2020

Monitoring and Evaluation

IRENA undertook its first external evaluation in 2015 at the mid-term of the previous strategic cycle. IRENA's current Medium-term Strategy 2018-2022 (MTS) includes specific provisions around strengthening the monitoring and evaluation of IRENA's programmatic impact through targeted activities and enhanced quality, type, and coverage of evaluations. These provisions include self-evaluation at the end of each programmatic cycle and mid-term external evaluation, which will also inform the development of the next MTS.

Accordingly, IRENA conducted its first self-evaluation in 2019 rooted in evidence-based information on the Agency's performance in completion of its Work Programme and Budget for 2018-2019. Developing an empirical base for monitoring and evaluation was immensely useful and led to the change of several processes. In July 2020, IRENA initiated the process for its second external evaluation. The evaluation was conducted by the British consulting firm, International Organisation Development Ltd., and covered accountability in terms of relevance, effectiveness, and impact of work. The Mid-term report is contained in document A/11/13.

Overview of progress

For the first time, in early 2020 the Agency's senior management prepared an internal Directive that sets out the framework for delivery of the Work Programme and Budget for 2020-2021. Specifically, the Directive sets out the responsibilities of all Directors in the implementation of the programmatic outputs, expectations to uphold IRENA's core values of efficiency, competency, and integrity, and to promote a harmonious environment based on mutual respect that empowers staff, fosters creativity and promotes a culture of learning. The Directive will be updated annually to reflect progress on the implementation of the Work Programme and set out new and refined responsibilities.

There is a total of 54 Work Programme outputs for the 2020-2021 biennium, which are spread across the four strategic objectives or pillars identified in the current MTS: a centre of excellence for knowledge and innovation; a global voice of renewable energy; a network hub for all stakeholders; and a source of advice and support for countries. Of these total outputs, 13% are complete and 81% in progress.

Figure 14: IRENA's strategic objectives of the Work Programme and Budget for 2020-2021

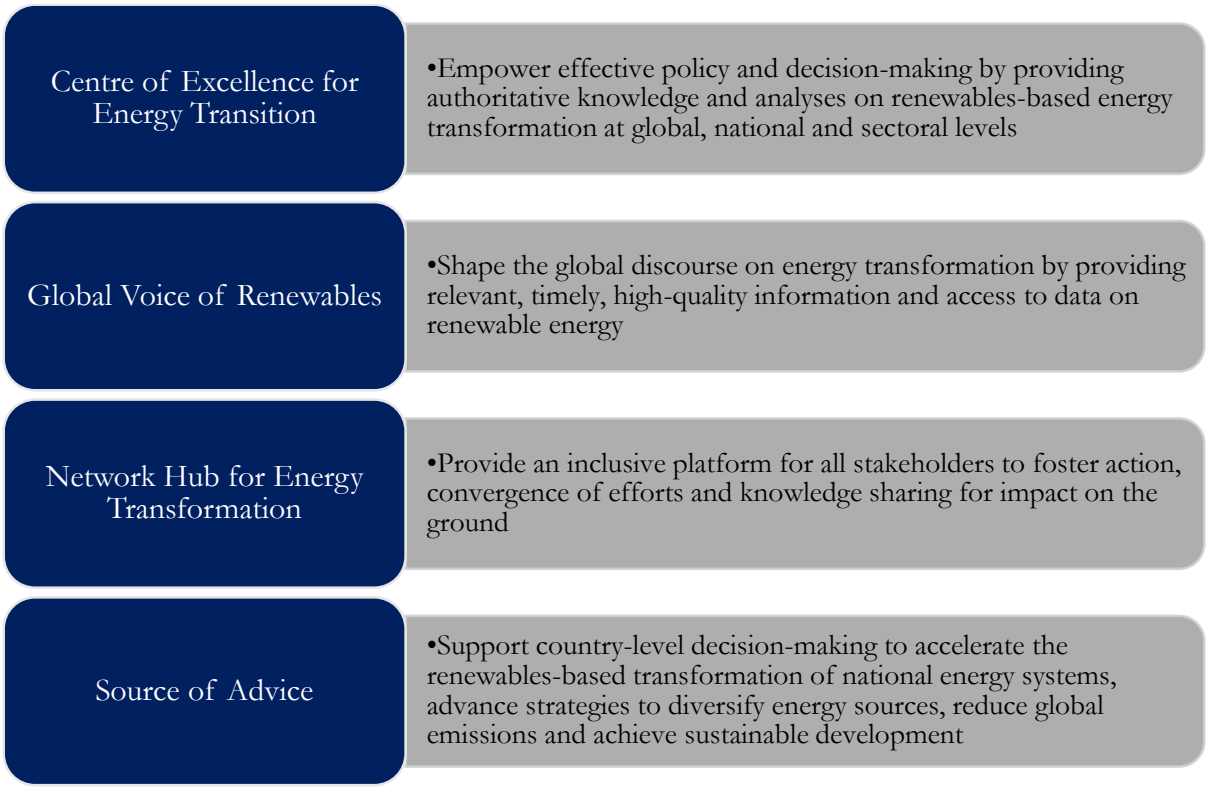
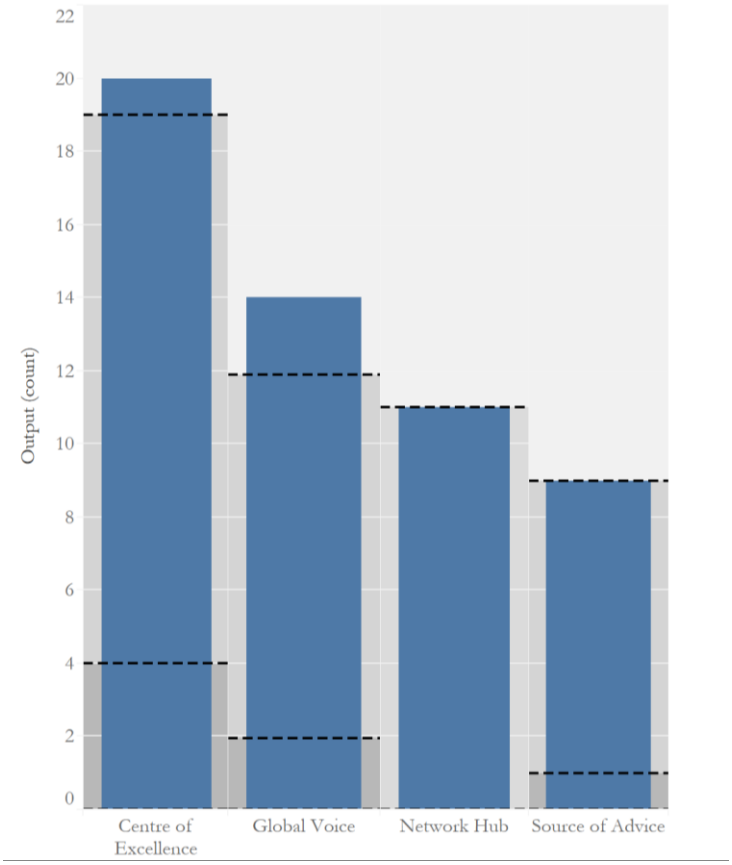
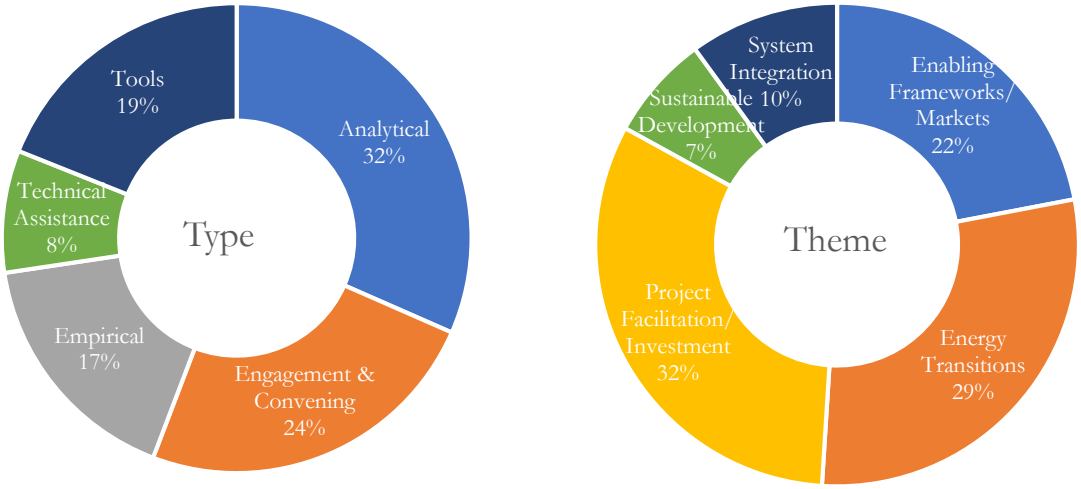


Figure 15: IRENA Work Programme 2020-2021 outputs (blue) and outputs completed (dark grey) or in progress (light grey)



The wide range of activities demonstrates the breadth of IRENA's work. Of the Agency's outward-facing activities, (which does not include activities relating to the management of the Agency itself), the majority can be classified as analytical (*e.g.* Global Renewables Outlook, analytical briefs), followed by engagement and convening activities (*e.g.* country and regional engagement). This is a shift compared to earlier in the year where 40% of activities fell under convening and engagement. Tools (*e.g.* Renewable Readiness Assessments, FlexTool) and empirical work (*e.g.* statistics, Global Atlas) follow, with technical assistance (*e.g.* long-term planning, project facilitation) representing the lowest percentage. By topic, the majority of outputs are affiliated with project facilitation/investment followed by energy transition, a shift from earlier in the year when enabling frameworks paired with the energy transition were forefront. This analysis shows that as the year has advanced, activities are balancing out across MTS pillars and substantive prioritiy areas. Shifts between engagement and convening activities to analytical is also reflective of the adjustments necessitated by the pandemic.

Figure 16: IRENA outward-facing activities by activity type and theme



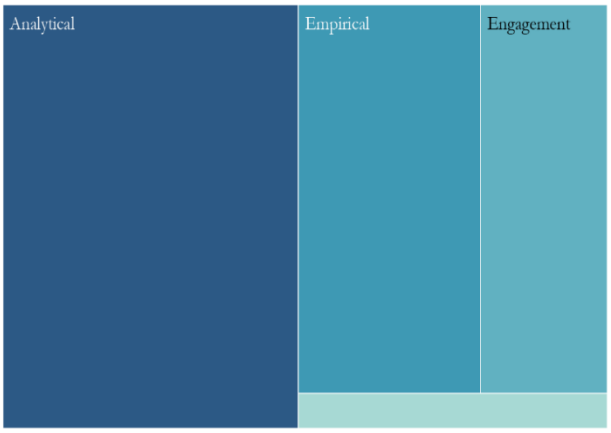
For the purpose of this analysis, IRENA's outward-facing activities have been grouped according to the following themes:

- Enabling frameworks: improving frameworks such as policy, regulation and markets to enable renewables deployment;
- Energy transitions: global and regional energy transitions and global energy discourse;
- Project facilitation/investment: support to facilitate the implementation of renewable projects;
- Sustainable development: activities aligned with SDG 7 or cross-sectoral, sustainable agenda; and
- System integration: technical-level transition-related activities.

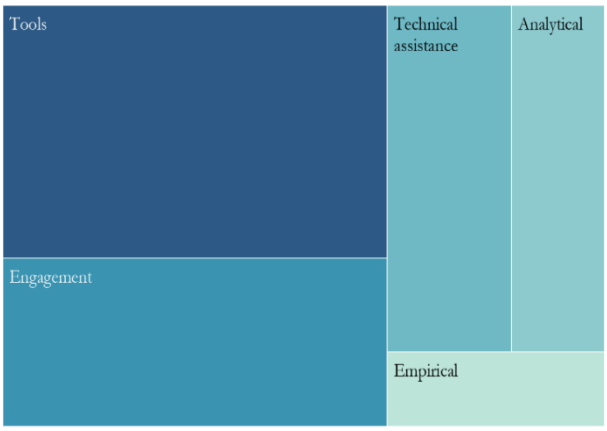
IRENA's outward-facing work can broadly be characterised into knowledge creation (45% of IRENA outputs) and action on the ground (31% of IRENA outputs) with the rest related to institutional matters. Over 85% of *action on the ground* outputs are supported wholly or in part by voluntary contributions, compared to 30% of the *knowledge creation* work.

Figure 17: Knowledge creation and action on the ground by activity type

What is included in 'Knowledge creation" work?



What is created in "Action on the ground" work?



Resource Overview

This chapter presents details of the core budget and voluntary contributions applicable to this Work Programme.

Biennial budget overview

Table 2: 2020-2021 Biennium Budget Utilisation by funding source (in USD Thousands)

	2020-2021 Biennium Budget	Utilisation as of 30 November 2020	
		Commitment and Expenses	Proportion of 2020-2021 Biennium Budget
Assessed Contributions (Core Budget)	**44,461**	**29,322**	**66%**
Core Non-Assessed UAE			
UAE Support	5,000	1,490	30%
Governing Body Meetings	3,200	316	10%
IT Infrastructure Support	920	237	26%
Subtotal	**9,120**	**2,044**	**22%**
Core Non-Assessed Germany			
Innovation and Technology Centre	10,890	7,274	67%
Subtotal	**10,890**	**7,274**	**67%**
Core Non-Assessed Other Contributions			
Core Non-Assessed Other	1,704	155	9%
Subtotal	**1,704**	**155**	**9%**
Total Core Non-Assessed	**21,714**	**9,472**	**44%**
Grand Total	**66,175**	**38,793**	**59%**

Core Non-Assessed Contributions

as of 30 November 2020, in USD

Budgeted Voluntary Contributions

	2020	
	Committed	**Received**
Germany		
IRENA Innovation and Technology Centre	5,445,000	5,445,000
United Arab Emirates (UAE)		
UAE Support	2,500,000	1,250,000
Governing Body Meetings	1,600,000	1,600,000
IT Infrastructure Support	460,000	460,000
Subtotal UAE Contributions	**4,560,000**	**3,310,000**

Total Budgeted Voluntary Contributions	**10,005,000**	**8,755,000**

Other Voluntary Contributions

	2020	
Donor	**Committed**	**Received**
European Commission, Horizon 2030	550,791	409,389
European Commission, Directorate-General for Energy	390,625	-
Germany[81][82]	1,449,666	1,098,819
Italy[83]	560,035	-
Japan	606,164	606,164
King Abdullah Petroleum Studies and Research Center (KAPSARC)	200,000	200,000
Korea Energy Economics Institute	82,892	82,892
NDC Partnership Climate Action Enhancement Package (CAEP)	1,364,684	450,000
United Nations Development Programme (UNDP)	2,200,000	576,170
World Bank (IBRD)	13,438	13,438
Subtotal	**7,418,295**	**3,436,872**

[81] Partial funds for expenditure in 2021

[82] In December 2020, IRENA signed two new agreements with the Government of Germany, specifically the Ministry for Economic Cooperation and Development (EUR 178,000) and the Germany Federal Foreign Office (EUR 300,000). USD 117,370 has been received from the Federal Foreign Office.

[83] USD 30,000 from the Government of Italy has been received after 30 November, which was the cutoff date for resources overview in the present report.

Fund for Developing Countries Representatives[84]

	2020	
Donor	**Committed**	**Received**
Flanders Region of Belgium	16,784	-
United Arab Emirates (UAE)	100,000	100,000
Subtotal	**116,784**	**100,000**

Total Other Voluntary Contributions	**7,535,079**	**3,536,872**

Multi-Year Voluntary Contributions

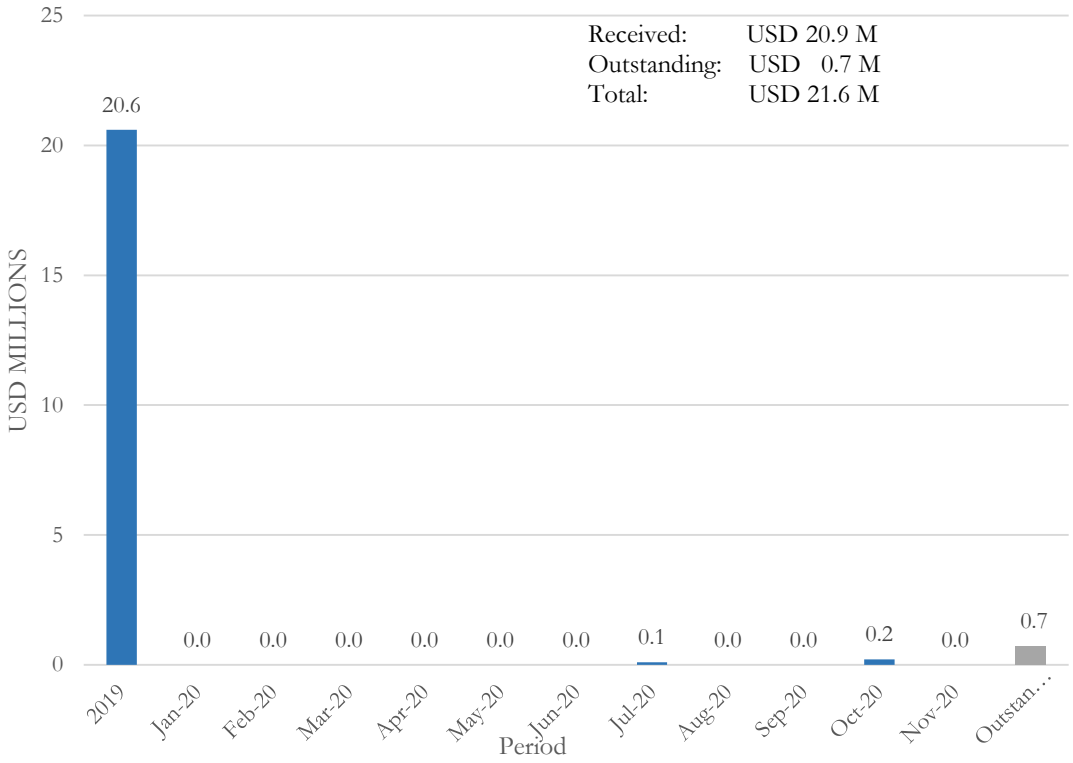
Donor/Project	**Multi-Year Commitments**	**Received prior to 2020**	**Received during 2020**
Government of the Walloon Region, Belgium	2,207,506	-	1,173,709
Denmark*	13,457,822	6,355,549	-
Germany (International Climate Initiative)*	6,796,311	3,459,818	738,551
Norway	4,332,756	-	2,215,291
Total Multi-Year Voluntary Contributions	**26,794,395**	**9,815,367**	**4,127,551**

*Contributions pledged and partially received prior to 2020

Figure 18: Received and outstanding assessed contributions for 2019 core budget (in USD millions,

[84] The Fund for Developing Country Representatives (FDCR) was established at the second session of the IRENA Assembly. The Fund supports 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.

as of 30 November 2020)



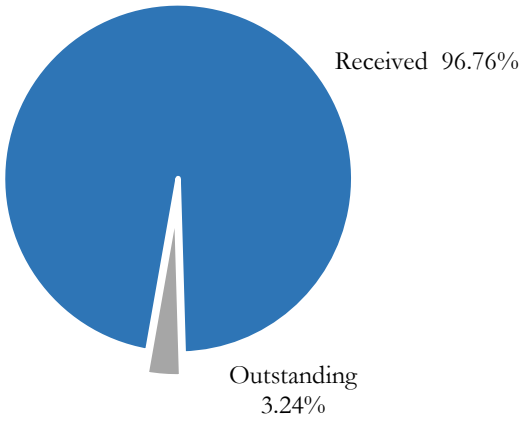
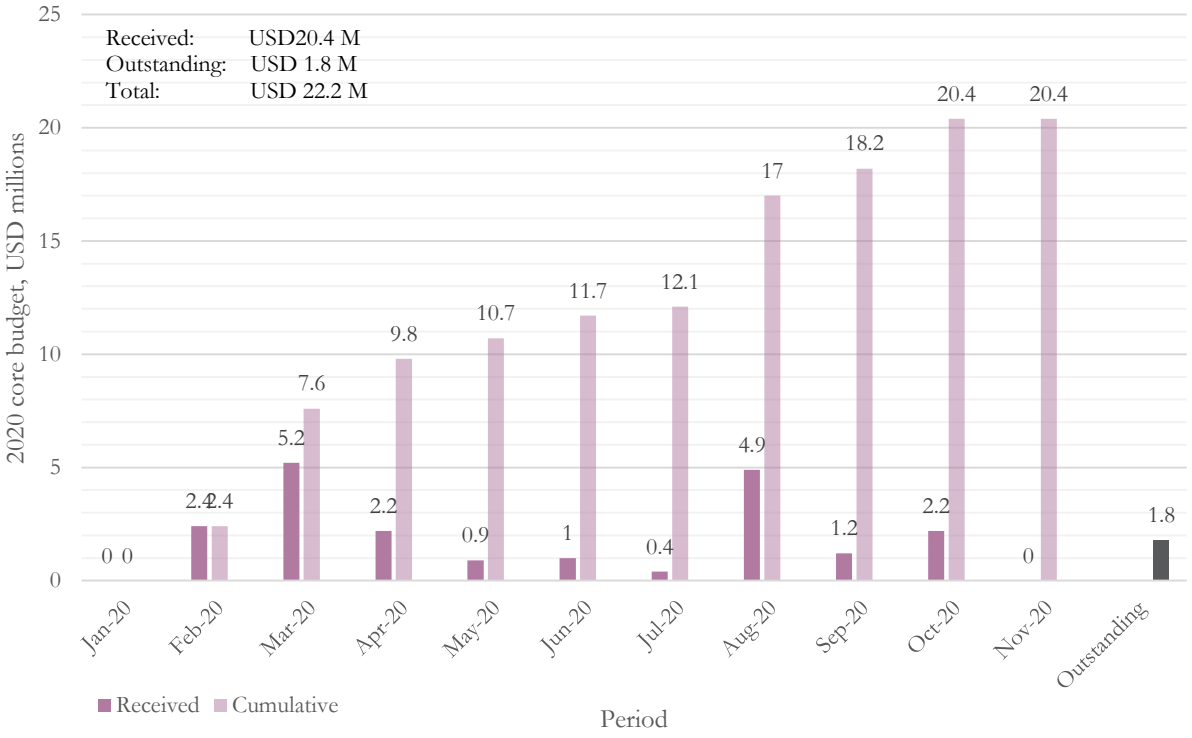


Figure 19: Received and outstanding assessed contributions for 2020 core budget (in USD millions, as of 30 November 2020)



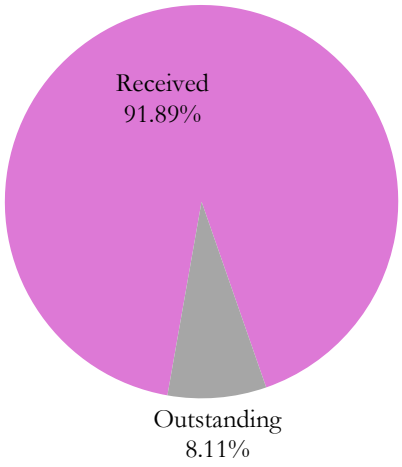


Figure 20: Number of Members with received and outstanding contributions to the 2019 core budget (as of 30 November 2020)

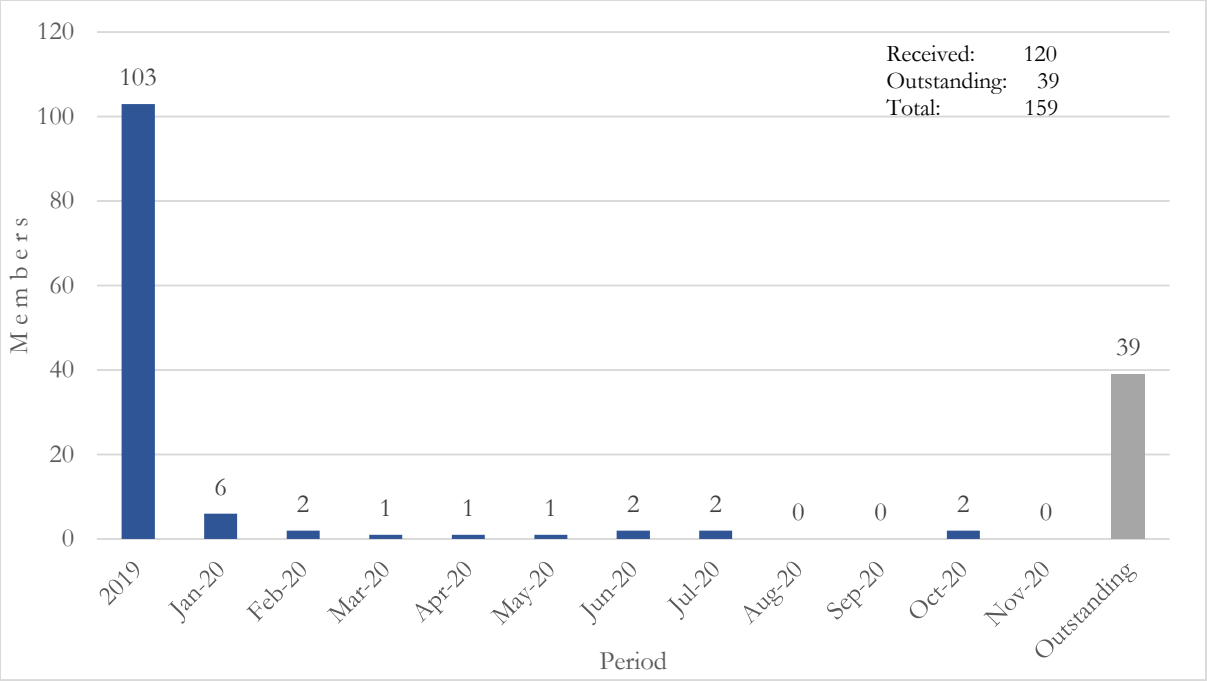
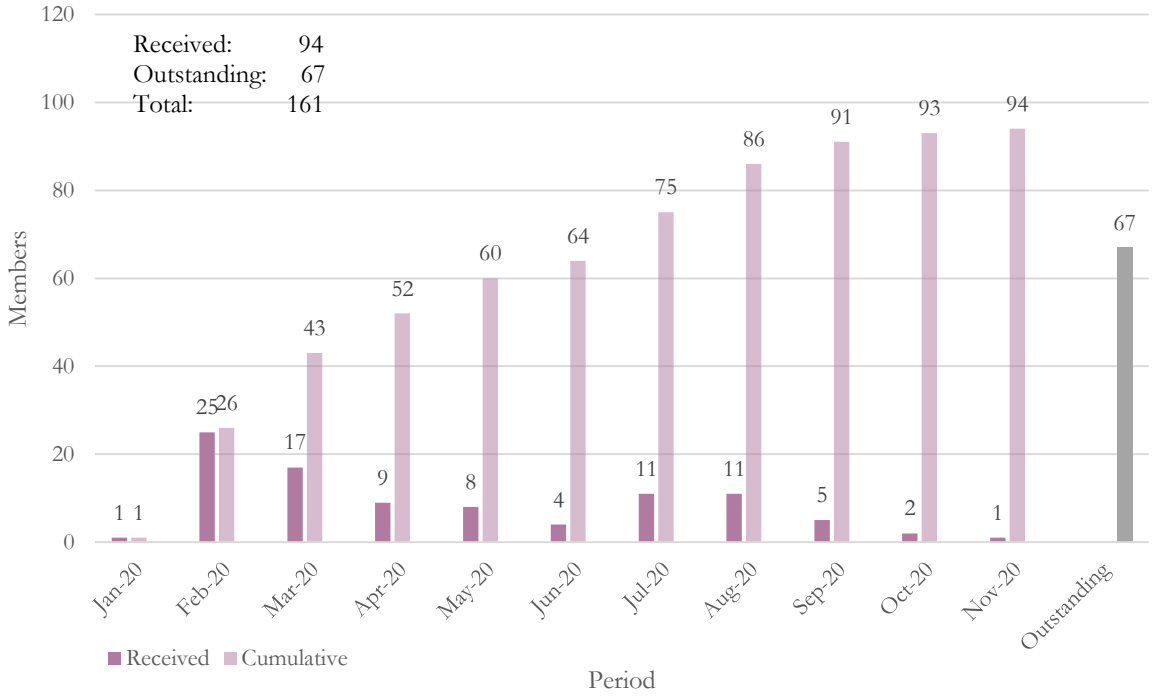


Figure 21: Number of Members with received and outstanding contributions to the 2020 core budget (as of 30 November 2020)



Voluntary contributions

Table 3: Voluntary contributions in active implementation during 2020-2021 biennium (including carry-over programmatic activities from the previous biennium)

Donor (year)	Contribution Topic
Government of the Walloon Region of Belgium (annual)	Various projects
Denmark, Ministry of Foreign Affairs (2019-2021)	Long-term Planning
Denmark, Ministry of Foreign Affairs (2019-2023)	SIDS Lighthouses Initiative 2.0
European Commission Directorate-General for Energy (2019)	Central and South-Eastern Europe (CESEC) REmap
European Commission Horizon 2030 (2020-2021)	Tracking Energy Innovation Impacts Framework
Germany, Federal Ministry of Economics and Technology (BMWi) (annual)	Global Renewables Outlook and various projects
Germany, Federal Foreign Office	Geopolitics of Hydrogen
Germany, International Climate Initiative (2015-2023)	SIDS Lighthouses
Germany, International Climate Initiative (2017-2020)	Energy Solutions for Cities of the Future
International Bank for Reconstruction and Development (IBRD) (2020)	IRENA Contribution to 2020 SDG 7 Tracking Report
Italy, Ministry of Foreign Affairs and International Cooperation (2020)	Sahel/Sub-Saharan Africa
Italy, Ministry of Foreign Affairs and International Cooperation (2020-2021)	Offshore renewables and ocean energy
Islamic Development Bank (IsDB) (2019)	Pan-Arab Clean Energy Initiative
Japan, Ministry of Agriculture, Forestry and Fisheries (MAFF) (2019-2020)	Biomass Strategy for Sustainable Bioenergy Production
Japan, Ministry of Agriculture, Forestry and Fisheries (MAFF) (2020-2022)	Development of Circular Economy with Bioenergy and Co-products
Japan, Ministry of Economy, Trade and Industry (METI) (annual)	Various projects
King Abdullah Petroleum Studies and Research Centre (KAPSARC) (2020)	G20 reports
Korea Energy Economics Institute (KEEI) (2020)	Northeast Asia Power System Interconnections: Lessons from the Regional Initiatives for the Promotion of Renewable Power Deployment and Trade
NDC Partnership (2020-2021)	NDC Partnership Climate Action Enhancement Package (CAEP)
Norway, Ministry of Foreign Affairs (2020-2021)	Core non-assessed contribution to the Work Programme (includes dedicated funds for geopolitics)
Swedish Energy Agency (2018)	Innovative solutions
United Arab Emirates (2014-2020)	IRENA/Abu Dhabi Fund for Development (ADFD) Project Facility
United Kingdom of Great Britain and Northern Ireland Department for Business, Energy & Industrial Strategy (BEIS) (2019)	Impact Innovation
UN Development Programme (UNDP) (2020-2021)	UNDP Climate Promise

Work Programme 2020-2021 Biennium

This section presents a full matrix detailing the progress of Work Programme activities by pillar

I. Centre of Excellence for Energy Transition Core assessed and core non-assessed resources (in USD thousands): 13,394. Outputs supported by additional voluntary contributions are footnoted.		
Objective: Empower effective policy and decision-making by providing authoritative knowledge and analyses on renewables-based energy transformation at global, national and sectoral levels.		
Outputs	**Status**	**Description**
Annual statistics: renewable capacity, renewable energy, off-grid	In progress (2020 editions completed)	"Renewable Capacity Statistics" (March 2020). (Click here) "Renewable Energy Statistics" (July 2020). (Click here)
Jobs Annual Review (annual)	In progress (2020 edition completed)	"Renewable energy and jobs – Annual Review 2020" (Sept. 2020). (Click here)
Annual update on power generation costs	In progress (2020 edition completed)	"Renewable Energy Power Generation Costs in 2019" (June 2020). (Click here)
Annual update on patents and standards	In progress (2020 edition completed)	Annual update of the International Standards and Patents in Renewable Energy completed. (Click here to access the INSPIRE platform)
Global Atlas data updates on renewable potentials	In progress	Updating the renewable resource maps from data providers (member states, international institutions and private sectors). (Click here to access the platform)
IRENA/IEA Policies and Measures Database	Completed	Updated 80 countries from Africa, Asia, Europe, Latin America and SIDS.
The Energy Progress Report: Tracking SDG7[85] (annual, jointly with IEA, WB, WHO and UN)	In progress (2020 edition completed)	"Tracking SDG 7: Energy Progress Report 2020" (May 2020). (Click here) SDG 7 Policy Briefs: • "Advancing Implementation of SDG 7 in Support of the 2030 Agenda" (June 2020). (Click here) • "Advancing SDG 7 in Least Developed Countries". (June 2020). (Click here)
Global Energy Transformation (annual editions)[86]	In progress (2020 edition completed)	"Global Renewables Outlook: Energy Transformation 2050" (April 2020). (Click here) "Post-COVID Recovery – an agenda for resilience, development and equality" (June 2020). (Click here) COVID Tracker developed: Track of energy related monetary, fiscal, and other measures since April 2020 for internal knowledge. Selected articles:

[85] Supported by the International Bank for Reconstruction and Development.
[86] Supported by the Government of Germany (BMWi).

		• Renewable Energy Can Support Resilient and Equitable Recovery • IRENA Puts Energy Transformation at Heart of Sustainable Recovery Agenda • COVID-19 Intensifies the Urgency to Expand Sustainable Energy Solutions Worldwide
Measuring the Socio-Economic Footprint report		
Innovation Landscape: Renewable Electricity in End-use report	In progress	
Global Landscape: Renewable Energy Finance report	Completed	"Global Landscape: Renewable Energy Finance 2020" (Oct. 2020) (Click here)
Third Innovation Week	Completed	*IRENA Innovation Week* (Oct 2020). (Click here for event listing and here for webpage) Innovation Week Summary Report (Click here for event summary)
ASEAN 2050 energy transition outlook[87]	In progress	Data collection and information ongoing; Engaging with ASEAN Centre for Energy to align with the Asian Energy Outlook (AEO). *FlexTool training* for ASEAN conducted (June 2020). (Click here)
Central America 2050 energy transition outlook[88]	In progress	New joiner: Guatemala Costa Rica workshop postponed due to COVID-19. FlexTool analysis completed for historical data and reference scenario. *FlexTool training* for Latin America conducted (May 2020). (Click here)
Impact of Innovation on Energy Transition[89]	In progress	*Experts consultative workshop* held (Oct. 2020). (Click here) *Innovations for a decentralised, renewable-powered system: Peer-to-peer electricity trading* webinar (Aug 2020) (Click here)
Human resources and workforce planning strategy	In progress	44 new staff appointments and internal movements and seven new Associate Personnel. Reclassification of all Terms of Reference underway. The Capacity Development Programme for SIDS and LDCs initiated January 2020 was placed on hold March 2020 due to the COVID-19 pandemic.

[87] Supported by the Government of Denmark.
[88] Supported by the Government of Norway.
[89] Supported by the European Commission, under Horizon 2030 programme.

Performance management	Completed	Online Performance Management System (e-PAR) launched with 97% compliance.
Refinement of Staff Rules and updated HR Manual	In progress	Admin Instructions/Directives in draft on Remote Work, Performance Management, Training, Roster Management.
System for engagement of academia, researchers and the private sector	In progress	Development of guidelines for private sector engagement released in July 2020. (Click here). (Click here for associated news article: IRENA Develops Guidelines for Co-operation with the Private Sector). Academic review conducted. Results are helping IRENA to improve our presence with academia. Organisation of IRENA Insights. (Click here)
Training and staff development strategy	In progress	Performance Management training held in Abu Dhabi. Performance Management and CBI training in Bonn postponed due to COVID-19. All staff have access to virtual learning through LinkedIn training platform. A training directive and calendar for staff-wide training activities will be finalised post-pandemic. Training requisition forms have been updated to enable staff to engage in external learning and development activities.

II. Global Voice of Renewables

Core assessed and core non-assessed resources (in USD thousands): 11,011. Outputs supported by additional voluntary contributions are footnoted.

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

Outputs	Status	Description
Power Market Design for the Energy Transition report	In progress	
Market Analysis: Africa	In progress	Finance and policy landscape in drafting, energy data and resource assessments ongoing, and socio-economics modelling underway.
Ecosystems for Sustainable Livelihoods report	In progress	In review phase.
Policies at the Time of Transition: Transport (with IEA and REN21) report		
Leveraging Local Capabilities (selected technologies) report	In progress	
6th and 7th Global Policy Day	Completed	6th Global Policy Day turned into online sessions under IRENA Policy Talks, due to COVID-19:

		• Policy Talk 1: *Renewable Energy Finance: Status, Trends and Recommendations* (Nov. 2020) (Click here) • Policy Talk 2: *Policies for Green Hydrogen* (Nov. 2020) (Click here) • Policy Talk 3: *Renewable Energy Policies in a Time of Transition* (Nov. 2020) (Click here) • Policy Talk 4: *Stimulating Investment in Community Energy* (Dec. 2020) (Click here)
Toolbox for long-term planning: methodologies and best practice	In progress	Development of visualisation dashboard of long-term modelling results for Africa.[90] "Power sector planning in Arab countries: Incorporating variable renewables"[91] (Jan 2020). (Click here)
Grid codes for variable renewable energy (VRE) report	In progress	Data collection has started.
Value of storage in national energy systems report and toolkit	Completed	"Electricity Storage Valuation Framework" released (March 2020). (Click here) The Framework has been presented under the partnership with the World Bank in the context of the Energy Storage Partnership (May and June 2020). Methodology developed for valuing the role of storage in national power systems. The methodology will assist countries in exploring the role & value of storage for their system.
Global assessment of geothermal energy		
Gender and Renewable Energy report	In progress	Wind energy: A gender perspective (Click here) Solar PV: A gender perspective (upcoming 2021)
NDCs and Renewable Energy Targets[92]	In progress	Database of Renewable Energy Targets completed. (Click here). Analysis in progress.
Geopolitics of the Energy Transformation[93]	In progress	*Collaborative Framework on Geopolitics of Energy Transformation* meeting (June 2020) (Click here). *Collaborative Framework on Geopolitics of Energy Transformation* meeting (Oct 2020) (Click here).
Analytical briefs, guidelines and working papers on topical issues (bio-energy, hydrogen, hydropower, offshore wind, power-to-X, standards, VRE integration, auctions, fiscal policies, target design, distributed generation,	In progress	Briefs published: • "Renewable energy finance: Sovereign guarantees" (Jan. 2020). (Click here) • "Renewable energy finance: Institutional capital" (Jan. 2020). (Click here) • "Renewable energy finance: Green bonds" (Jan. 2020). (Click here)

[90] Supported by the Government of the Walloon Region of Belgium.
[91] Supported by the Islamic Development Bank (IsDB).
[92] Supported by the Government of the Walloon Region of Belgium.
[93] Supported by the Government of Norway and the Government of Germany.

cities, renewable options for buildings, market-based mechanisms, access and electrification planning)		• Energy subsidies: Evolution in the global energy transformation to 2050 (Apr. 2020) (Click here) • Business Models Innovation Landscape (Jul. 2020) (Click here) • System Operation Innovation Landscape (Jul. 2020) (Click here) • Green Hydrogen: A Guide to policy making (Nov 2020) (Click here): Reports published: • "Reaching Zero with Renewables (Sept. 2020). (Click here) • "Innovative solutions for 100% renewable power in Sweden"[94] (Jan. 2020). (Click here) • "Power system organisational structures for the renewable energy era" (Jan. 2020). (Click here) • "Mobilising institutional capital for renewable energy" (Oct 2020). (Click here) • "Renewable Energy Policies in a Time of Transition: Heating and Cooling" (Nov. 2020). (Click here) • Innovation Toolbox (Dec. 2020). (Click here) • "Innovation Outlook: Thermal Energy Storage Re-electrification" (In collaboration with State Grid China) (Nov. 2020). (Click here) • "Innovation Outlook: Ocean Energy Technologies" (Dec. 2020). (Click here) • "Fostering a blue economy: offshore renewable energy" (Dec. 2020). (Click here) • "Rise of Renewable Energy in Cities" [95](Oct. 2020). (Click here) • "Quality Infrastructure for the renewable mini-grid of the future" (Dec. 2020). (Click here) Reports soon to be published: • "100% Renewable Energy" • "Innovation Outlook: Renewable Methanol"

[94] Supported by the Government of Sweden.
[95] Supported by the Government of Germany as part of the German Government International Climate Initiative.

		• "Green hydrogen cost reduction: Scaling up electrolysers to meet the 1.5°C climate goal" • Auctions case studies. Countries to date include Colombia, Japan and Malaysia[96] • "Concentrating Solar Power: Clean power on demand 24/7" joint report with World Bank and Climate Investment Funds Events: • *Collaborative Framework on Hydropower* (June 2020). (Click here) • *Collaborative Framework on Hydropower* (Sept. 2020). (Click here) • *Collaborative Framework on Green Hydrogen* (June 2020). (Click here) • *Collaborative Framework on Green Hydrogen* (Sept. 2020). (Click here) • *Collaborative Framework on Ocean Energy/Offshore Renewables* (June 2020). (Click here) • *Collaborative Framework on Ocean Energy/Offshore Renewables* (Oct. 2020). (Click here). • *Collaborative Framework on Enhancing the Dialogue on High Shares of Renewables in Energy Systems* (July 2020). (Click here) • *Collaborative Framework on Enhancing the Dialogue on High Shares of Renewables in Energy Systems* (Oct. 2020). (Click here) • Side event on *Energy Transition for the Cities of the Future* at the 10th World Urban Forum (Feb 2020) (Click here for press release) • *The future for heavy-duty vehicles in the Pentalateral Region: Integrating electromobility in the energy transition* (Oct. 2020). (Click here)

[96] Supported by the Governments of Germany and Japan.

III. Network Hub Core assessed and core non-assessed resources (in USD thousands): 11,037. Outputs supported by additional voluntary contributions are footnoted.		
Objective: Provide an inclusive platform for all stakeholders to foster action, convergence of efforts and knowledge sharing for impact on the ground.		
Outputs	**Status**	**Description**
IRENA Forums in regions and sub-regions	In progress	Preparations in place, Forums delayed due to COVID-19.
SIDS Lighthouses Initiative[97]	In progress	Initiation coordination: • Five new partners joined the initiative: Pacific Community, Pacific Power Association, Sur Futuro Foundation and the UN Office of the High Representative for the LDCS, LLDCS, and SIDS (UN-OHRLLS) and Greening the Islands. Total – 36 SIDS[98] and 30 development partners[99]. • Country profiles updated and uploaded on the SIDS Lighthouse Initiative (LHI) website and shared with SIDS. The knowledge platform also includes energy transformation related documents for SIDS. • Social media page created on LinkedIn to widen the outreach to all SIDS stakeholders. • Development of the SIDS LHI Annual Report/Brochure and SIDS digital interactive stories ongoing. • Progress of SIDS LHI and the Enhanced SIDS Climate Package presented at the Alliance of Small Island States (AOSIS) Placencia Forum. (Apr. 2020) (Click here)

[97] Supported by Governments of Denmark, Germany as part of the German Government International Climate Initiative, NDP Partnership and UNDP.

[98] Antigua & Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Cape Verde, Cuba, Comoros, Cook Islands, Dominican Republic, Fiji, Grenada, Guyana, Kiribati, Maldives, Marshall Islands, Mauritius, Micronesia (Federated States of), 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.

[99] Denmark, 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, Caribbean Electric Utility Services Corporation, Clean Energy Solutions Center, Clinton Climate Initiative, ENEL, European Union, Greening the Islands, Indian Ocean Commission, International Renewable Energy Agency, Organisation of Eastern Caribbean States, Pacific Islands Development Forum, Pacific Community (SPC), Pacific Power Association, Rocky Mountain Institute - Carbon War Room, Solar Head of State, Sustainable Energy for All, Sur Futuro Foundation, United Nations Development Programme, United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UNOHRLLS) , World Bank

		• Co-hosted *SIDS High-Level Dialogue - Accelerating Energy Transition in Small Island Developing States to Stimulate Post-Pandemic Recovery* with the AOSIS (June 2020). (Click here) • Co-hosted *Energy Transformation in Small Island Developing States: Towards sustainable and climate resilient post-pandemic recovery* with Denmark on the progress of the Ambitious SIDS Climate Package during the UN Climate Summit Week (Sept. 2020). (Click here) • Signed MOU with SIDS DOCK to collaborate on SIDS energy transformation to strengthen climate resilience and pandemic recovery efforts. • Technical webinar series on *Transforming SIDS Power Systems through Variable Renewable Energy* completed for the Pacific (Sept. 2020) (Click here) and Caribbean region (Dec. 2020). (Click here) Country-level work: • Joint mission with UNDP on Energy and Blue Economy to Sao Tome Principe (Mar. 2020). • Renewable energy project concept notes for Sao Tome and Principe is being considered on the Climate Investment Platform. Partial funding has been secured from GEF. • Climate Promise energy-related activities in SIDS (Click here). • With support of UNDP country offices, Climate Promise engagements established in Barbados, Dominica, Saint Kitts and Nevis, Saint Vincent and the Grenadines, and Sao Tome and Principe. • Project facilitation support is provided in Barbados and Sao Tome and Principe, in developing bankable project concept notes to attract investment. • Supporting CAEP country-level activities in the AIS - Seychelles, Caribbean – Belize, Dominican Republic, Grenada and Pacific SIDS – Papua New Guinea and Tonga. • Direct technical assistance on NDC enhancement and implementation provided to Fiji reviewing the energy data management methodology, Saint Lucia and Seychelles for solar rooftop simulation analysis

		• Development of 100% renewable energy and transport roadmap for Antigua and Barbuda ongoing. • Development of renewable energy roadmap to include green hydrogen and ocean technologies for Palau ongoing. • Development of coconut biofuel strategy for Vanuatu ongoing. • Completed review of the Mauritius Bioenergy Strategy.
Global Geothermal Alliance	In progress	New GGA partners: Serbian Geothermal Association. Total 46 Members[100] and 40 Partners[101]. GGA website is being developed into a knowledge sharing platform: Update of Africa (Click here), Europe (Click here), Asia (upcoming) and Latin America and Caribbean (Click here) regional profiles. Themes on International Training Centres and Geothermal Resource Assessment Methodologies. (Click here) Three webinars organised on I*ntegration of low-temperature renewable energy source in district heating and cooling networks*[102]. (Click here) "Guidebook for enabling the integration of low-temperature renewable energy sources into district heating and cooling networks" (upcoming)[103].

[100] 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, New Zealand, Nicaragua, Pakistan, Papua New Guinea, Peru, Philippines, Poland, Portugal, Romania, Saint Vincent & the Grenadines, Solomon Islands, Switzerland, Tonga, Turkey, Uganda, United Republic of Tanzania, United States of America, Vanuatu, Zambia, Zimbabwe.

[101] 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, Caribbean Electric Utility Services Corporation (CARILEC), 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 Power Plants Investors Association (Turkey), Geothermal Resources Council (USA), Geothermal Training Programme in Iceland (GRO GTP), 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, Pacific Community, Regional Center for Renewable Energy and Energy Efficiency, Serbian Geological Society, Serbian Geothermal Association, Southern Africa Power Pool, United Nations Environment Programme (UN Environment), United Nations Industrial Development Organization (UNIDO), United States Energy Association (USA), University of Geneva, World Bank.

[102] Supported by the Government of Germany as part of the German Government International Climate Initiative.

[103] Supported by the Government of Germany as part of the German Government International Climate Initiative.

		Report "Assessment of geothermal development for electricity and direct use in East Africa Rift region" under development (upcoming)[104]
5th International Off-grid Renewable Energy Conference	In progress	5th IOREC scheduled for October 2020 postponed to 2021 due to COVID-19. 4th edition of the annual *ECOWAS Sustainable Energy Forum* (ESEF) in partnership with ARE, ECREEE, and GIZ (Nov. 2020) (Click here)
Implementation of regional action agendas and clean energy corridors[105] in Central Asia, Latin America, Middle-east and North Africa, South Asia, South East Asia Southeast Europe and Sub-Saharan Africa	In progress	Implementation initiated for the "Regional Capacity-Building Programme on Long-Term Planning for Central Africa" in partnership with the Central Africa Power Pool.[106] Regional training in planning on the *Economics of Power Systems Planning and Operation* in West Africa. Under the PACE initiative: • Interim reports produced including outcomes of the first stage of the zoning project.[107] • IRENA *FlexTool Training* for MENA hosted in partnership with RCREEE and League of Arab States (LAS). (Click here) Development of a regional parliamentary strategy in the ECOWAS region, including a regional parliamentary meeting. Co-organisation of a *High-Level Dialogue with the Africa Union on the COVID-19 pandemic response and Africa's energy transformation* (May 2020). (Click here). Webinar *Accelerating the Southeast Asian Energy Transformation* (Aug. 2020). (Click here). Webinar *Accelerating Latin America's Energy Transformation RE and Economic Recovery* (Aug. 2020). (Click here) Organised *2nd SOME-IRENA meeting* with representatives from ACE, ASEAN Secretariat and Energy Ministries from 10 ASEAN Member States on the sidelines of the 38th ASEAN Senior Officials Meeting on Energy (SOME). Organised workshop with ACE on sidelines of 27th Annual Meeting of the Renewable Energy Sub-Sector Network (RE-SSN) to discuss the *IRENA-ASEAN MOU activity priorities for 2020-2021.* (Click here).

[104] Supported by the Government of Japan.
[105] Supported by the Islamic Development Bank (IsDB) and the Government of Norway.
[106] Supported by the Government of the Walloon Region of Belgium.
[107] Supported by the Government of Norway.

		CECCA workshop 2020: *Integration of variable renewable energy sources* (Oct 2020). (Click here).
Partnerships to promote deployment of decentralized renewable energy solutions[108]	In progress	WHO-led Global Health and Energy Platform for Action (HEPA) operational. In partnership with the WHO, World Bank and SEforAll, IRENA is producing the Global Assessment of Electricity in Healthcare report under the auspices of HEPA.
Assessment of renewable energy in agri-food chains[109]	In progress	Partnering with ICIMOD to conduct Viability Assessment of Decentralised Renewable Energy for Food Value Chains in the Hindukush and Himalaya Regions. Inception meeting held.
Country-specific assessments for electrification of rural health centres[110]	In progress	Partnered with the Government of Burkina Faso (Ministries of Energy and Health) and SELCO Foundation to conduct a sectoral assessment for electrification of rural health facilities. Approach and work plan adapted due to COVID-19. Inception meeting held.
Collaborative engagement with international organisations, multilateral institutions and initiatives	In progress	17 MoUs have been signed as of the first week of December 2020 with: • Abu Dhabi Global Market • CARICOM Development Fund • Cassa Depositi e Prestiti S.P.A • Department of Energy of Abu Dhabi • East African Centre of Excellence for Renewable Energy and Energy Efficiency • European Bank for Reconstruction and Development • European Patent Office • Fondazione Eni Enrico Mattei • Global Wind Energy Council • International Energy Forum • The Rockefeller Foundation • Small Island Developing States Sustainable Energy and Climate Resilience Organisation • United Nations Economic and Social Commission for Asia and the Pacific • United Nations Human Settlements Programme • United Arab Emirates Ministry of Energy and Industry • World Economic Forum • Ocean Energy Europe Other cooperative arrangements include:

[108] Supported by the Government of the Walloon Region of Belgium.
[109] Supported by the Government of the Walloon Region of Belgium.
[110] Supported by the Government of the Walloon Region of Belgium.

		• Input to G20 (Reduce and Recycle reports finalized; presentation during G20 working groups) in cooperation with King Abdullah Petroleum Studies and Research Center (KAPSARC), Saudi Arabia under the G20 Presidency[111] • Co-organisation of a High-Level Dialogue with the Africa Union on the pandemic response and Africa's energy transformation. (May 2020). (Click here) • Collaboration with Africa Centre for Sustainable Development at the Africa Energy Indaba 2020, Cape Town, South Africa (Mar. 2020).[112] (Click here) • Government of Denmark and IRENA signed a Strategic Partnership in September 2020. • Letter of Agreement signed with UNDP for the implementation of the Global Project "Strategic Accelerator Partnership for Climate Change and Sustainable Development". • Agreement concluded with the Pacific Community for the implementation of activities envisaged in the MoU entered into by the parties in April 2019. • Agreement signed with EBRD for the preparation of a report on tracking the SDG7. • Declaration of Intent concluded with the African Development Bank regarding an Institutional Partnership for accelerating the deployment of renewable energy in Africa. • Data Sharing Agreement signed with ECOWAS Centre for Renewable Energy and Energy Efficiency, for the provision of access to their data resources through IRENA's Global Atlas for Renewable Energy. • Data Sharing Agreement signed with Delft University of Technology (TU-Delft) for the provision of access to their data resources through IRENA's Global Atlas for Renewable Energy. Support for climate efforts[113]: • Focal point for Energy within the UNFCCC Marrakesh Partnership for Global Climate

[111] Supported by the Government of Saudi Arabia, KAPSARC.
[112] Supported by UNDP.
[113] Supported by the Government of Denmark and Government of the Walloon Region of Belgium.

		Action. Led the development of Climate Action Pathway 2020 for energy.
		• Hosted Race to Zero Dialogues on Energy (16 November). (Click here)
		• IRENA/UNFCCC op-ed on COVID recovery.
		• Institutional Partnership with World Climate Foundation.
		• Member of NDC Partnership.
		• Participation in the UK-led COP26 preparation activities, including as a member of the COP26 Energy Transitions Council.
		• Participation in climate initiatives:
		  • Accelerating energy transition in SIDS initiative, for which the SIDS LHI serves as an implementing framework,
		  • The Climate Investment Platform (CIP)[114],
		  • The Coalition for Sustainable Energy Access,
		  • The Cool Coalition,
		  • The Decarbonizing Shipping – Getting to Zero Coalition,
		  • The Three Percent Club for Energy Efficiency, and
		  • The initiative towards Cleaner Electricity in Latin America and the Caribbean

Coalition for Action	In progress	Reports/Briefs published and events held: • *Public-Private Dialogue* at the 10th IRENA pre-Assembly, including launch of Coalition for Action white paper "Towards 100% Renewables: Utilities in Transition" (Jan. 2020). (Click here) • IRENA Coalition for Action Members Webinar: *COVID-19 and Beyond* (Apr. 2020). (Click here) • *IRENA Coalition for Action Members mid-year strategy* meeting (Oct. 2020). (Click here) • IRENA Coalition for Action Members Call to Action in Response to COVID-19: Renewable Energy is Key Part of the Solution (Apr. 2020). (Click here). • IRENA Coalition for Action Members Renewed Call to Action in Response to COVID-19: Governments must act now to

[114] Supported by the governments of Denmark; Germany, as part of the German Government International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) support this initiative based on a decision adopted by the German Bundestag; and UNDP.

		correct course for a green recovery and accelerate progress towards Paris Agreement (Dec. 2020). (Click here) • IRENA Coalition for Action country papers of the Coalition Business and Investors Group (Algeria, Colombia, Jordan, Mexico, Tunisia and Viet Nam). (Click here). • Coalition for Action white paper "Stimulating Investment in Community Energy" (Click here) Reports/briefs and events under preparation: • Coalition for Action country papers of the Coalition Business and Investors Group (India upcoming Jan. 2021) • Coalition for Action white paper on "Towards 100% Renewables in Companies: Focus Heating/Cooling" • Coalition for Action white paper on "Hydrogen Best Practices: Lessons Learned" • *Public-Private Dialogue* at the 11th IRENA pre-Assembly
Long-Term Energy scenarios campaign and network[115]	In progress	LTES Campaign extended for the third year. *International Dialogue on Global Best Practices for Strategic Long-Term Energy Planning* (Jan 2020). (Click here for event information, and here for proceedings). *Second International Forum on Long-term Energy Scenarios (LTES) for the Clean Energy Transition* (March 2020) (Click here for event information, and here for live videos of event) Campaign outputs contributed to the Policy Briefs in Support of the High-Level Political Forum 2020. (Click here for policy briefs and here for side event link). Joint IRENA – JRC Expert Workshop on *Benchmarking long-term scenario comparison studies for the clean energy transition* (Sept. 2020) (Click here) Campaign synthesis report "Long-term scenarios for the clean energy transition - Best practices and global experiences" (Sept. 2020) (Click here) High-level open event at the 11th Clean Energy Ministerial programme on *Raising global climate ambition in uncertain times with long-term energy scenario'* (Sept. 2020). (Click here).

[115] Supported by the Government of Denmark.

IV. Source of Advice Core assessed and core non-assessed resources (in USD thousands): USD 5,569. Outputs supported by additional voluntary contributions are footnoted.		
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.		
Outputs	**Status**	**Description**
CIP implementation[116]: Project Navigator and Sustainable Energy Marketplace	In progress	Climate Investment Platform launched at 10th IRENA Assembly (Jan. 2020). (Click here for webpage). Partners: • 50 new CIP partners including development partners and investors. Of these, 7 financial institutions agreements signed with from the private sector, which include: Acre Impact Capital, AIIM, Brawn Capital, GAIA, Hausch, IFU, Intesa Sanpaolo. • New registrations include: 5 bilateral financial organisations; 11 multilaterals; 14 international development organisations. • Over 260 potential partners. Projects and project support: • Over 180 projects on the CIP sourced to date through the platform. • 35 projects currently actively supported. • 15 new projects in preparation. • 20 project concept notes are in the final stages of preparation and will be introduced to CIP partners. • Over 14 projects under the Climate Promise programme progressing to be submitted to the CIP for funding consideration upon completion. • Transfer of IRENA's Sustainable Marketplace projects to the CIP is underway. Capacity building: • Capacity building is being provided to Ecuador, Eswatini, Sao Tome and Principe and the region of Southern Africa on preparation of project concept notes to submit for climate finance and training of project developers. • Open Solar Contracts was launched at the WFES (Jan. 2020). (Click here) • Assistance provided to Antigua and Barbuda, Belize, Cuba, Dominican Republic, Ecuador, El Salvador, Grenada, St. Kitts and

[116] Supported by the Governments of Denmark, Germany as part of the German Government International Climate Initiative, and UNDP.

		Nevis, St. Lucia and Uruguay in reviewing mitigation and adaptation targets set by countries towards the enhancement of their National Determined Contributions (NDC). • Risk Assessment and Mitigation Platform (RAMP) is operational (click here) and released at World Futures Energy Summit (Jan. 2020). Webinars: • UNDP Community of Practice on Energy Meeting on Raising Renewable Energy Ambitions in NDCs. (Sept. 2020) (Click here) • Energy Transformation in Small Island Developing States: Towards sustainable and climate resilient post-pandemic recovery. (Sept. 2020) (Click here) • Introduction to CIP organised for Trade Commissioners of the Government of Canada (Jul. 2020). (Click here) • Open Solar Contracts – preparation, finalisation and capacity building delivered in English and French. (Click here); translation of key documents to French is in progress. • At the request of the Coalition for Action, a podcast on CIP was delivered to Mainstream.
Project site assessments and feasibility assessments[117]	In progress	37 solar PV and wind site assessments conducted for Burkina Faso (18), Ecuador (7) and Mozambique (12). 32 solar and wind generation profiles to support grid integration and stability studies for Mozambique. Support generation and transmission expansion studies undertaken for Morocco with generation profiles. A suitability assessment conducted for Mauritania and Burkina Faso. Interim reports on zoning assessment for Arab countries. Report soon to be published: • United Nations Framework Classification for Geothermal Energy: Pilot applications in the Caribbean, Ethiopia and Indonesia.
IRENA/ADFD Project Facility implementation[118]	Completed	Facility facilitated soft loans of USD 104.54 million from ADFD for 8 projects in 7th cycle (Jan. 2020). (Click here)

[117] Supported by the Government of the Walloon Region of Belgium.
[118] Supported by the Government of the United Arab Emirates.

		"IRENA/ADFD Project Facility: Lessons from the selection process" (Oct. 2020) (Click here) "Advancing Renewables in Developing Countries" on progress of projects supported through the IRENA/ADFD Facility. (Jan. 2020) (Click here)
Renewable readiness assessments (RRA) and REmap	In progress	Completed: • "Central and South Eastern Europe/South East Europe REmap" summary report (Oct. 2020). (Click here)[119]. • Lebanon (Outlook – RRA REmap) (June 2020). (Click here) • El Salvador (RRA) – presented and awaiting country feedback. • Belize (RRA) – presented and awaiting country feedback. In progress: • Albania (RRA) • Belarus (RRA) • Botswana (RRA) • Jordan (RRA) • Indonesia (REmap) • Malaysia (REmap) • Nigeria (REmap) • Paraguay (RRA) • Tunisia (RRA) New requests received from the following countries: • Bosnia and Herzegovina (RRA) • Burkina Faso (RRA) • Iraq (RRA) • Kyrgyzstan (RRA) • Sudan (RRA)
Long-term planning for energy transition[120]	In progress	Report on the prospects of the power system in Eastern and Southern Africa (analysed with SPLAT) in finalisation. Analysis on the prospects of the power system in North Africa completed. National energy masterplan development support programme established with the Cameroon government. Support being provided to African Union Development Agency (AUDA-NEPAD) with the development of a Continental Power System Masterplan (CMP)

[119] Supported by the European Commission.
[120] Supported by the Governments of Denmark and the Walloon Region of Belgium.

		Completion of the SPLAT Model Results Dashboard. Engagement and knowledge dissemination: • Hosted fifth Roundtable Discussion on *Strategic Energy Planning* (Abu Dhabi, Jan. 2020) (Click here). • "Energy planning brochure" (2020) (Click here) • "Scenario for the Energy Transition: Global experience and best practices" (Sept. 2020) (Click here).
FlexTool and grid integration support[121]	In progress	Latin America: Power systems operators from 13 countries gathered for online training on *IRENA FlexTool* (May 2020) (Click here). *Regional Virtual Workshop on Grid Integration of Variable Renewable Energy (VRE) in Latin America* under the aegis of CECCA and in collaboration with GIZ and EOR (Ente Operador Regional) (Oct. 2020) (Click here).
Socio-economic footprint at the country level (five countries)	In progress	Reports on Japan and Republic of Korea in review stage.
Energy transition in NDCs: development and implementation[122]	In progress	IRENA is engaging with 59 countries on NDC enhancement and NDC implementation through direct country request and through its institutional partnerships with NDC Partnership's Climate Action Enhancement Package (CAEP) and UNDP's Climate Promise (Click here for related article): • NDC input provided to Bhutan: alignment of NDC update with RRA findings and recommendations. • Scope and work plan finalised (28)[123] • Work plan under development (11)[124] • Initial Discussions (19)[125]
Entrepreneurship Facility[126]	In progress	*First technical committee meeting of SADC Entrepreneurship Facility* held to select entrepreneurs for the first cohort of training and mentorship.

[121] Supported by the Governments of Norway and NDP Partnership.
[122] Supported by Government of the Walloon Region of Belgium, NDP Partnership and UNDP.
[123] Antigua & Barbuda, Dominican Republic, Grenada, Saint Kitts & Nevis, Saint Lucia, Tonga, Vanuatu, Ecuador, El Salvador, Paraguay, Uruguay, Benin, Eswatini, Gabon, Mozambique, Niger, Nigeria, South Africa, Uganda, Zambia, Zimbabwe, Albania, Egypt, Lebanon, Jordan, Kazakhstan, Kyrgyzstan, Uzbekistan.
[124] Belize, Seychelles, St Vincent & Grenadines, Botswana, Gambia, Mali, Belarus, Georgia, North Macedonia, Turkey, Sudan.
[125] Bahamas, Barbados, Dominica, Fiji, Guyana, Sao Tome and Principe, Nicaragua, Panama, Rwanda, Belarus, Georgia, North Macedonia, Turkey, Azerbaijan, Indonesia, Kazakhstan, Philippines, Thailand.
[126] Supported by Government of the Walloon Region of Belgium.

		Introductory meeting held to introduce the 32 selected entrepreneurs to the Facility in preparation for training, mentorship and networking.

ADDITIONAL OUTPUTS		
Enabling IRENA delivery		
Outputs	**Status**	**Description**
Upgrades and enhancements to the IRENA website, platforms, and projects.	In progress	CIP[127] website launched. (Click here) Sustainable Energy Jobs platform launched. (Click here) Website upgrade: design phase in progress ERP quarterly upgrade. Enhanced ERP reporting / dashboard. MS Teams implemented. Virtual events platforms consolidated.
Efficient budget services	In progress	Internal monthly reporting and administration of core and voluntary contributions: • 13 donor reports; • 11 monthly internal core budget reports; • 11 monthly VC reports Ongoing support to the Agency in administration of core funds and voluntary contributions. Enhancements to ERP reports in progress.
Delivery of efficient financial services	In progress	Audited IRENA and IRENA SPF 2019 Annual Financial Statements completed. Ongoing provision of full financial services to the Agency.
Support to the Provident Fund operations	In progress	Annual meeting of members conducted 22 Jan 2020. Management Board met on 9th March, 12th May and 30th September 2020 to review performance.
Efficient procurement services	In progress	Procurement opportunities continue to be posted on IRENA's website www.irena.org and on United Nations Global Market www.ungm.org as well as and disseminated to the vendors registered with IRENA database (https://www.irena.org/procurement).

[127] Supported by the governments of Denmark; Germany, as part of the German Government International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) support this initiative based on a decision adopted by the German Bundestag; and UNDP.

Effective general and travel services	In progress	Administration support, enhancement of Facility Management services. Health and Safety program enhanced to address COVID-19 pandemic measures. Travel logistic services management for 14 Workshops and 223 Travel requests.
Strategic Management		
Outputs		
Comprehensive communication and outreach strategy	In progress	35 publications released (English-language originals only). Publications 2020 strategy developed, and communications and outreach strategies aligned. Communication supports provided to publication releases, webinars, press releases, website updated etc. IRENA referenced in over 23,843 media articles in 42 languages across 152 countries. IRENA Director-General gave 18 interviews and placed 7 op-eds. 4.3 million webpage views. 92,600 Twitter followers. 84,552 LinkedIn followers. Financial Times Partnership Launch Covid19 Report with 1335 registrations, generated 141 live event downloads.
Governance Support Office	In progress	Published Report of the 10th Session of the IRENA Assembly (Click here). Organization of the 19th and 20th Council meetings (click here) and 11th Assembly. Organization of the sixth IRENA Legislators Forum and second IRENA Youth Forum to be held at the margins of the 11th Assembly. Engagement continued with candidate countries to expedite ratification process by 11th Assembly. Preparations underway for an Observers' strategy. Organization of virtual meetings, including the first *Renewables Talk for Permanent Representatives* (May 2020) (click here), a *High-Level Dialogue on Pandemic Response and Recovery and Africa's Energy Transformation* (May 2020) (click here), a *SIDS High-Level Dialogue: Accelerating Energy Transition in Small Island Developing States to Stimulate Post-Pandemic Recovery* (June 2020) (click here), the *IRENA Youth Talk* (June 2020) (click here) the *IRENA Legislators Dialogue* (July 2020) (click here), the second *IRENA Youth Talk* as part of the IRENA Innovation Week (Oct. 2020) (click here),

		and the second edition of the *Renewables Talk for Permanent Representatives* (Dec. 2020) (click here).
New York Liaison Office	In progress	Implementation of MOU with UN-OHRLLS: UN- OHRLLS joined SIDS Lighthouse Initiative and agreement developed on joint activities to support energy transition in LDCs and LLDCs. Update provided to New York Community on CIP progress during 13 May 2020 briefing. Update provided to Energy Transition Coalition on implementation of SIDS Energy Transition Deliverable as part of SIDS Climate Action Summit Package (April 2020) Inputs provided to 2020 preparations for HLPF and ECOSOC on the theme *Accelerated action and transformative pathways: realizing the decade of action and delivery for sustainable development*. (Click here)
Legal Office	In progress	Guidelines on designation of IRENA Emissaries have been finalised. The Emissaries will facilitate and promote the Agency work at national, regional and international level. The Guiding Principles for Engaging in Cooperation Activities with the Private Sector have been finalised. (Click here for news article) Legal review of commercial contracts, MoUs and cooperation agreements concluded in the programmatic areas, providing legal advice on IRENA's privileges and immunities and the interpretation and application of IRENA's Statute, regulations, rules and policies, reviewing and facilitating preparation of administrative regulations, policies, strategies and contracts etc. donor, event and vendor contracts, publications etc.
Events Unit	In progress	Events and Missions database for internal and external communication maintained. Organised 162 events, of which 125 were virtual events. FDCR supported the attendance of 81 delegates from 46 delegations during its 10th session of the Assembly
Diversification of resource base	In progress	Donor kit in development. New contributions concluded in 2020: • European Commission (Innovation) • Flemish Region of Belgium (FDCR) • Germany, International Climate Initiative (SIDS Lighthouses) • Germany, Federal Ministry of Economics and Technology (BMWi) (Various projects including GRO)

		• Germany, Federal Foreign Office (Geopolitics of Hydrogen) • International Bank for Reconstruction and Development (SDG7 Tracking Report) • Italy, Ministry of Foreign Affairs and International Cooperation (Desert to Power in Sahel and Climate Investment Platform) • Italy, Ministry of Foreign Affairs and International Cooperation (Offshore renewables and ocean energy) • Japan, METI (Various projects) • Japan, MAFF (Various projects) • Korea Energy Economics Institute (Report "Northeast Asia Power System Interconnections: Lessons from the Regional Initiatives for the Promotion of Renewable Power Deployment and Trade") • NDP Partnership (CAEP) • Saudi Arabia, KAPSARC (G20) • UNDP (Climate Promise) • Walloon region of Belgium (Various projects)
Monitoring and evaluation system	In progress	External evaluation process concluded. Report transmitted to the Membership as part of the 20th Council documents. Work Programme implementation database developed to monitor progress in the implementation of the DG's Directive and Work Programme.
Programmatic reports to the Council and Assembly	In progress	Progress report on implementation of the Work Programme, in a revitalised format, sent to Membership (Jun. 2020 and Oct. 2020). Annual report sent to Membership (Dec 2020)
Strategic outreach	In progress	IRENA's Director-General held bilateral discussions with 70 entities (including regional bodies, non-governmental organisations and the private sector) and 48 governments. Active outreach by IRENA Deputy Director-General and Directors to Members, IOs, multilateral and regional entities and other stakeholders.