

Twenty-third meeting of the Council
Abu Dhabi, 24-25 May 2022

**Progress Report of the Director-General
on the Implementation of the
Work Programme and Budget for 2022-2023**

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IRENA AT A GLANCE



DIRECTOR-GENERAL

Francesco La Camera has been Director-General since 4 April 2019

YEAR OF ESTABLISHMENT



DEPUTY DIRECTOR-GENERAL

Gauri Singh has been Deputy Director-General since 8 January 2020

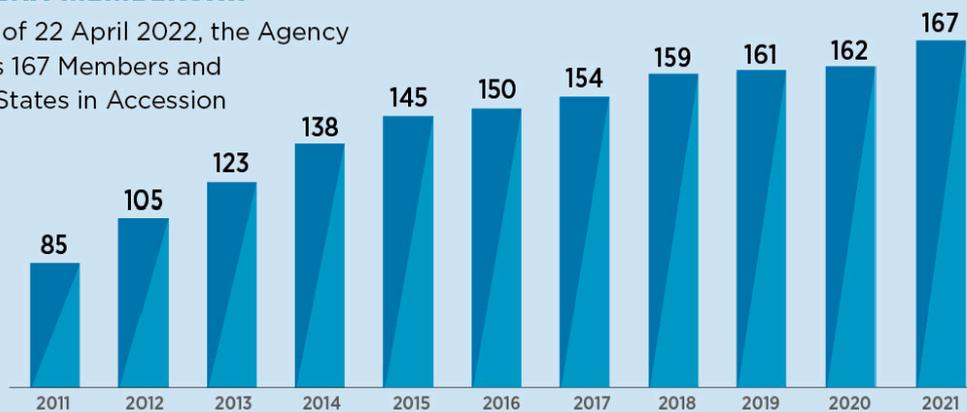


OFFICES

In addition to its Headquarters in Abu Dhabi, IRENA has an office in Bonn, and a UN liaison office in New York.

IRENA MEMBERSHIP

As of 22 April 2022, the Agency has 167 Members and 17 States in Accession



12TH ASSEMBLY BUREAU

President: El Salvador

Vice-Presidents:

Antigua & Barbuda

Bangladesh

Egypt

Greece

COUNCIL

21 Members

23rd Council

Chair: Uruguay

Vice-Chair: Norway

24th Council

Chair: TBC

Vice-Chair: TBC

2 Committees

Administration & Finance

Chair: Maldives

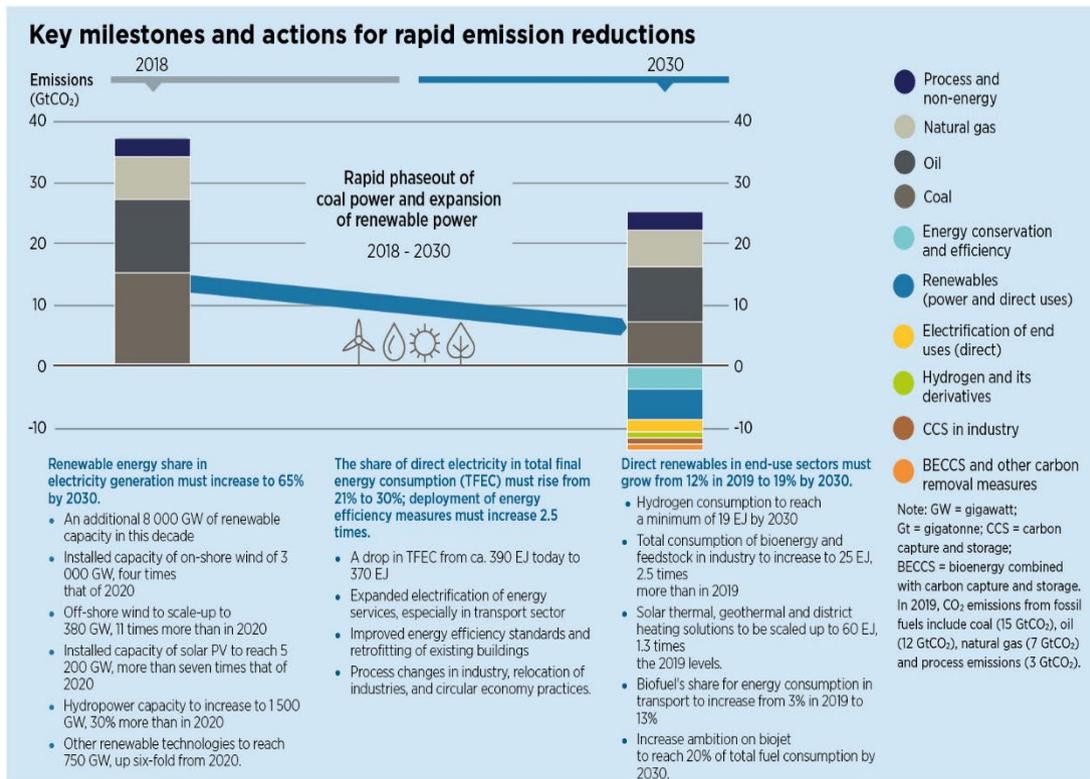
Vice-Chair: Germany

Programme & Strategy

Chair: USA

Vice-Chair: Algeria

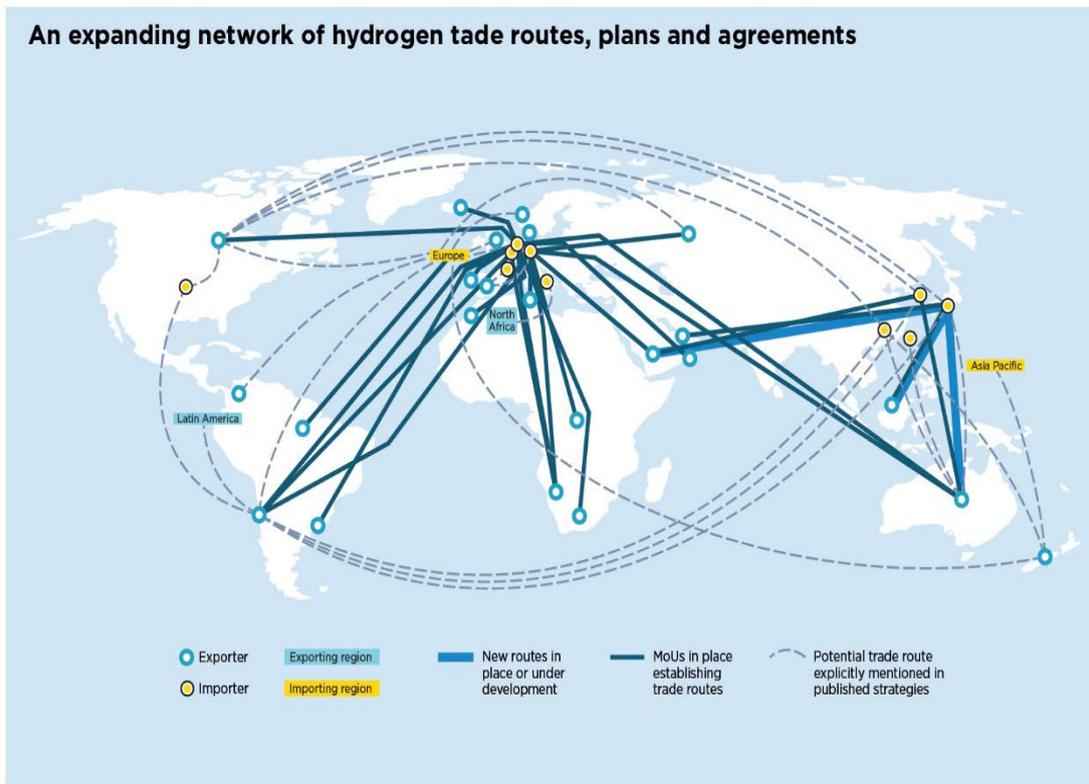
ENERGY TRANSITION AT A GLANCE



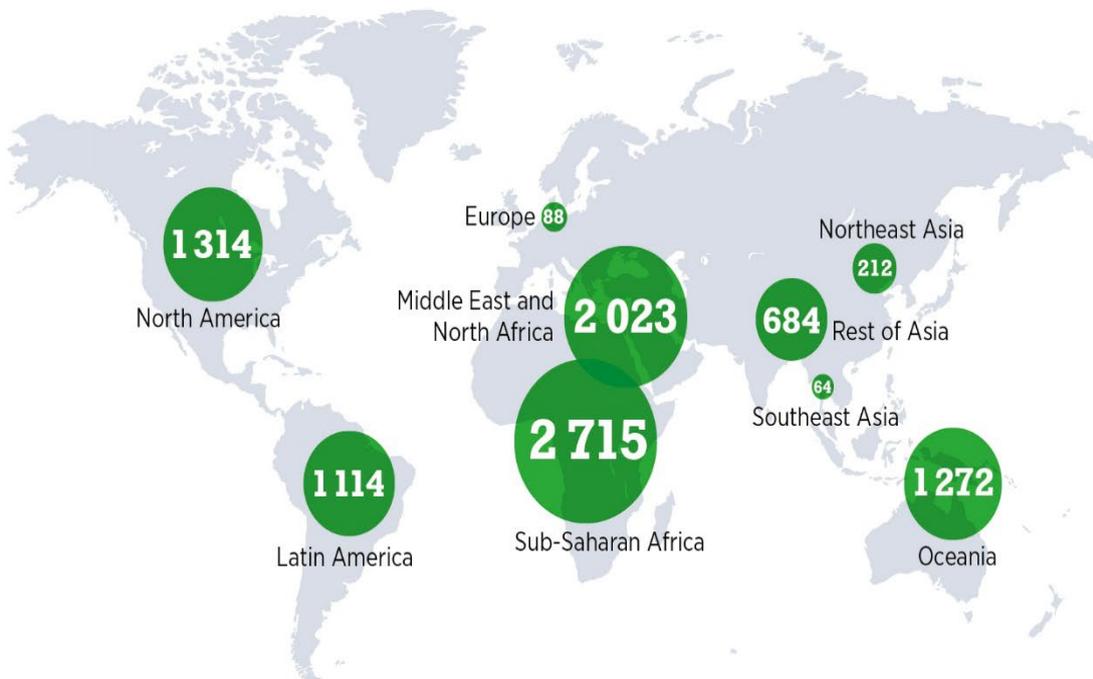
A roadmap to 2050 - tracking progress of key energy system components to achieve the 1.5C target

Indicators	Recent years		2050 ²⁾	Off / On track	Required scaling factor (~X times)	Indicators	Recent years		2050 ²⁾	Off / On track	Required scaling factor (~X times)	
ELECTRIFICATION WITH RENEWABLES												
RENEWABLES	Share of renewables in electricity generation	26%	90%		3x	ENERGY EFFICIENCY	Energy intensity improvement rate	1.2 %/yr	2.9 %/yr		2x	
	Addition of renewable energy technologies	264 GW/yr	836 GW/yr		3x		Investment needs for energy efficiency	0.3 USD trillion/yr	1.5 USD trillion/yr		5x	
	Annual solar PV additions	126 GW/yr	444 GW/yr		4x		ELECTRIFICATION	Share of direct electricity in final energy consumption	21%	50%		3x
	Annual wind energy additions	115 GW/yr	248 GW/yr		2x			Passenger electric cars on the road	7 million/yr	147 million/yr		Significant increase
	Investment needs for RE generation	0.3 USD trillion/yr	1 USD trillion/yr		3x			Investments needs for charging infrastructure of EVs	2 USD billion/yr	331 USD billion/yr		Significant increase
DIRECT RENEWABLES IN END-USES												
RENEWABLES	Share of renewables in final energy consumption	16%	79%		5x	HYDROGEN	Clean hydrogen production	0.8 Mt	614 Mt		Significant increase	
	Solar thermal collector area	25 million m ² /yr	165 million m ² /yr		6x		Investment needs for clean hydrogen infrastructure	0	116 USD billion/yr		Significant increase	
	Modern bioenergy consumption	18 EJ	58 EJ		3x		Clean hydrogen consumption - industry	0	38 EJ		Significant increase	
	Geothermal consumption	0.9 EJ	4 EJ		4x	CCS AND BECCS	CCS to abate emissions in industry	0.04 GtCO ₂ captured/yr	3.4 GtCO ₂ captured/yr		Significant increase	
	District heat generation - buildings	0.4 EJ	7.3 EJ		Significant increase		BECCS and others to abate emissions in industry	0.001 GtCO ₂ captured/yr	5.0 GtCO ₂ captured/yr		Significant increase	

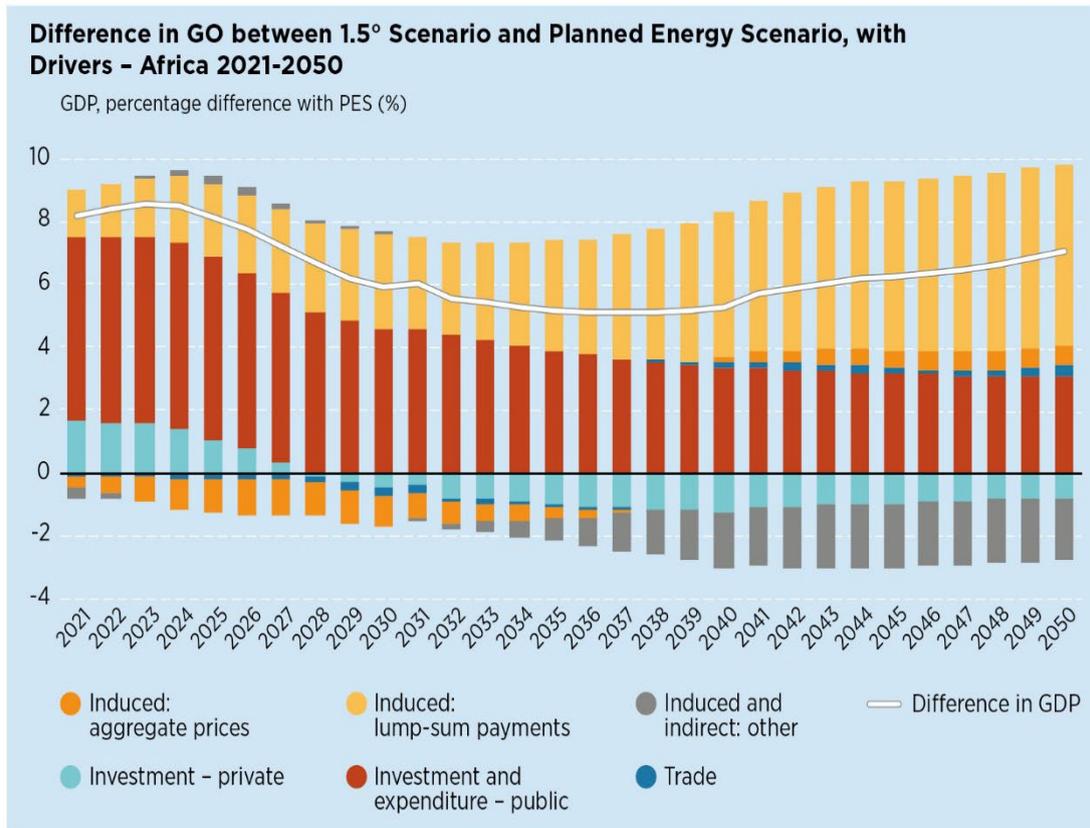
ENERGY TRANSITION AT A GLANCE



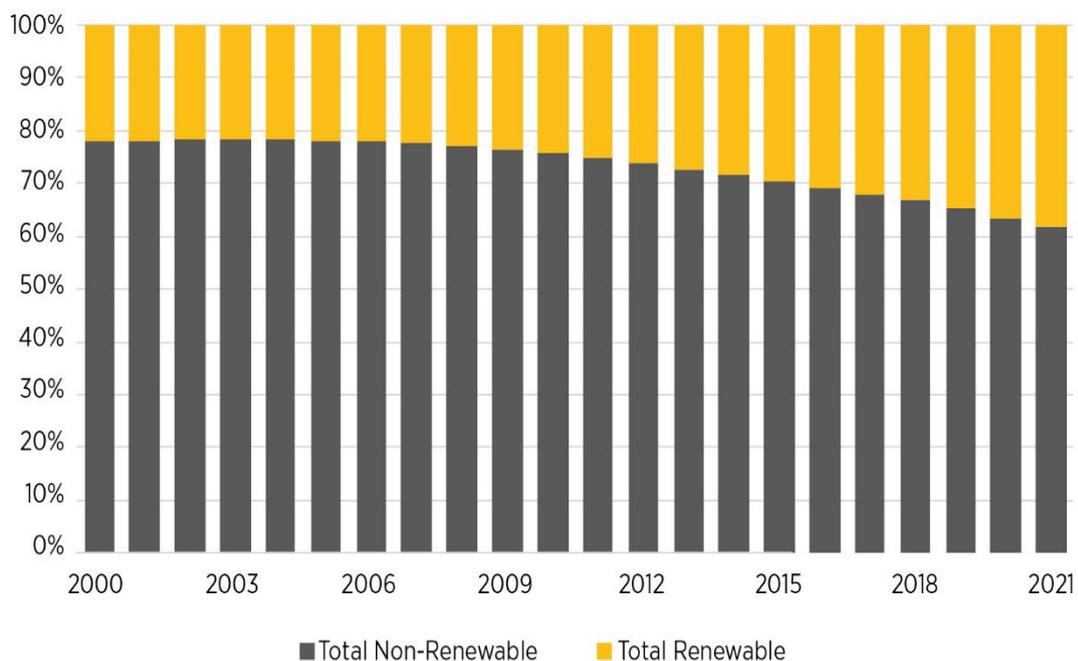
Technical potential for producing green hydrogen under USD 1.5/kg by 2050, in EJ



ENERGY TRANSITION AT A GLANCE



Installed electricity generation capacity (%)



SECRETARIAT AT A GLANCE

IRENA publications were downloaded **1 million** times



16
publications



4
publications
were translated into:



- World Energy Transitions Outlook 2022
- Renewable Capacity Statistics 2022
- Geopolitics of Energy Transformation: The Hydrogen Factor
- Renewable Energy Market Analysis: Africa and its Regions



55
events organised/
co-organised by IRENA



41 + **14**
virtual events hybrid events

IRENA employs a talented and diverse workforce



170 posts filled

72 nationalities

stationed in Abu Dhabi, Bonn and New York, 45% are women and 55% are men.

Senior Team Gender Balance



7 loaned or seconded officers



Media coverage:

10 900 in **40** across **133**
media articles languages countries

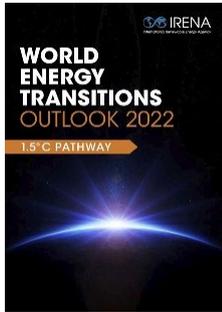
Work Programme

2022-2023 outputs: **6%** completed **68%** in progress



Progress to Date

This year, IRENA begins implementing the new Work Programme and Budget for the 2022-2023 biennium. This report covers the programmatic activities the Agency has undertaken since January 2022. While the COVID-19 crisis still lingers and the world is facing new and emerging challenges, IRENA remains committed to delivering high-quality work to support Members in their just and inclusive energy transition.



The executive summary of the 2022 edition of IRENA’s flagship **World Energy Transitions Outlook (WETO)**¹ report was released at the Berlin Energy Transition Dialogue (BETD) in March 2022. IRENA presented a preview examining the steps needed by 2030 to deliver climate and near-term energy solutions simultaneously and urgently (Figure 1). This year’s report includes a detailed perspective on the nearer-term requirements for the transition as the period to 2030 will be critical. Crucially, WETO 2022 positions justice and fairness at the heart of planning and action to ensure the energy transition will have a truly positive impact. The report also details the key macro-economic implications of the energy transition on GDP, jobs and welfare, demonstrating that even in the short period from 2019 to 2030, this course of action will boost global GDP and create 85 million energy transition-related jobs. In addition, the report includes deep dives into key topics, such as material requirements for the transition, the level and kind of investment needed, key policies and measures that can enable the transition, as well as how to sustainably scale up bioenergy, and promote system flexibility.

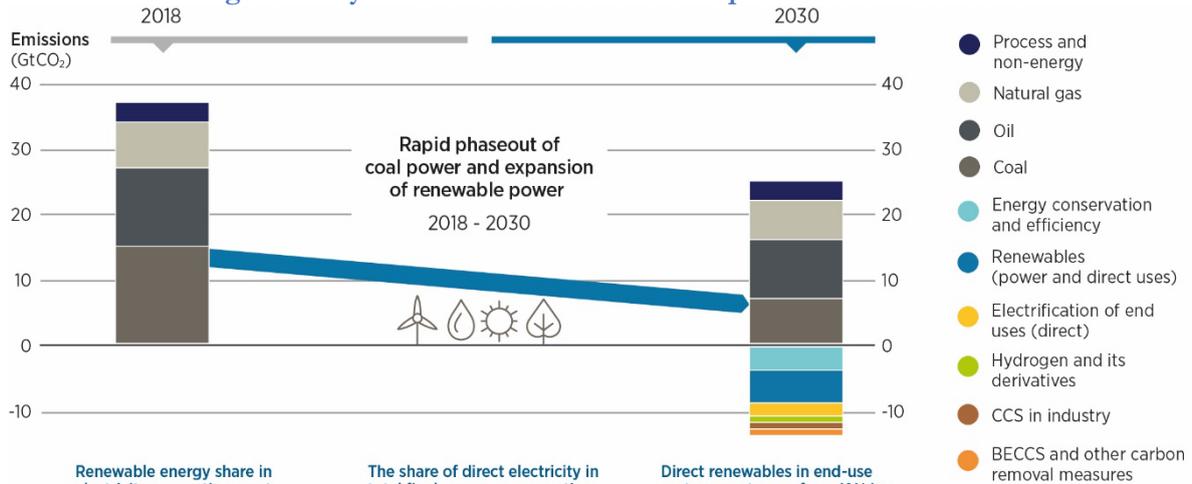
WETO has established itself as a key document outlining the Agency’s larger energy transition vision and charts a path towards limiting temperature rise consistent with the 1.5° C aim of the Paris Agreement.



Acceleration of the energy transition is essential for long-term energy security, price stability and national resilience.

¹ Available [here](#).

Figure 1: Key milestones and actions for rapid emission reductions



Renewable energy share in electricity generation must increase to 65% by 2030.

- An additional 8 000 GW of renewable capacity in this decade
- Installed capacity of on-shore wind of 3 000 GW, four times that of 2020
- Off-shore wind to scale-up to 380 GW, 11 times more than in 2020
- Installed capacity of solar PV to reach 5 200 GW, more than seven times that of 2020
- Hydropower capacity to increase to 1 500 GW, 30% more than in 2020
- Other renewable technologies to reach 750 GW, up six-fold from 2020.

The share of direct electricity in total final energy consumption (TFEC) must rise from 21% to 30%; deployment of energy efficiency measures must increase 2.5 times.

- A drop in TFEC from ca. 390 EJ today to 370 EJ
- Expanded electrification of energy services, especially in transport sector
- Improved energy efficiency standards and retrofitting of existing buildings
- Process changes in industry, relocation of industries, and circular economy practices.

Direct renewables in end-use sectors must grow from 12% in 2019 to 19% by 2030.

- Hydrogen consumption to reach a minimum of 19 EJ by 2030
- Total consumption of bioenergy and feedstock in industry to increase to 25 EJ, 2.5 times more than in 2019
- Solar thermal, geothermal and district heating solutions to be scaled up to 60 EJ, 1.3 times the 2019 levels.
- Biofuel's share for energy consumption in transport to increase from 3% in 2019 to 13%
- Increase ambition on biojet to reach 20% of total fuel consumption by 2030.

Note: GW = gigawatt; Gt = gigatonne; CCS = carbon capture and storage; BECCS = bioenergy combined with carbon capture and storage. In 2019, CO₂ emissions from fossil fuels include coal (15 GtCO₂), oil (12 GtCO₂), natural gas (7 GtCO₂) and process emissions (3 GtCO₂).

Source: IRENA, *World Energy Transitions Outlook*, 2022

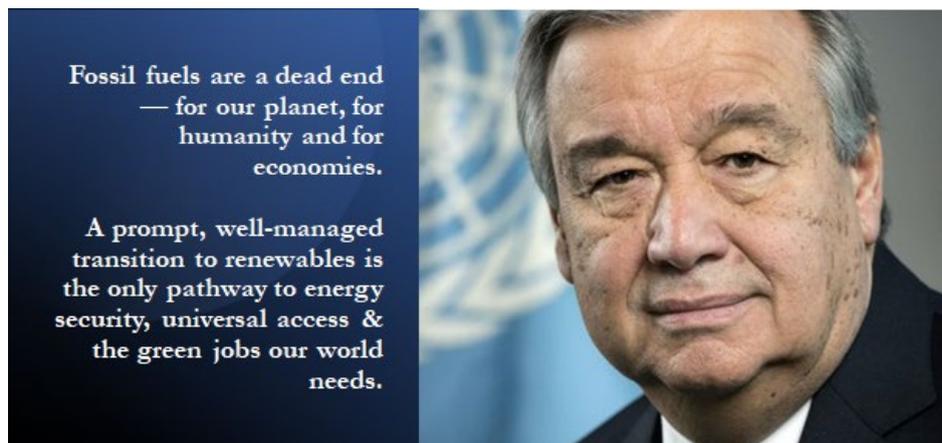


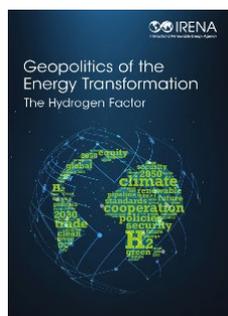
Table 1: A roadmap to 2050 – tracking progress of key energy system components to achieve the 1.5° C target

	Indicators	Recent years	2050 ²²⁾	Off / On track	Required scaling factor (~X times)
RENEWABLES	ELECTRIFICATION WITH RENEWABLES				
	Share of renewables in electricity generation	26% ¹⁾	90%		3x
	Addition of renewable energy technologies	264 GW/yr ²⁾ 	836 GW/yr 		3x
	Annual solar PV additions	126 GW/yr ³⁾ 	444 GW/yr 		4x
	Annual wind energy additions	115 GW/yr ⁴⁾ 	248 GW/yr 		2x
	Investment needs for RE generation	0.3 USD trillion/yr ⁵⁾ 	1 USD trillion/yr 		3x
	DIRECT RENEWABLES IN END-USES				
	Share of renewables in final energy consumption	16% ⁶⁾	79%		5x
	Solar thermal collector area	25 million m ² /yr ⁷⁾ 	165 million m ² /yr 		6x
	Modern bioenergy consumption	18 EJ ^{8), 23)} 	58 EJ 		3x
Geothermal consumption	0.9 EJ ⁹⁾ 	4 EJ 		4x	
District heat generation - buildings	0.4 EJ ¹⁰⁾ 	7.3 EJ 		Significant increase	
ENERGY EFFICIENCY	Energy intensity improvement rate	1.2%/yr ¹¹⁾ 	2.9%/yr 		2x
	Investment needs for energy efficiency	0.3 USD trillion/yr ¹²⁾ 	1.5 USD trillion/yr 		5x

► continued

	Indicators	Recent years	2050 ²²⁾	Off / On track	Required scaling factor (~X times)
ELECTRIFICATION	Share of direct electricity in final energy consumption	21% ¹³⁾	50%		3x
	Passenger electric cars on the road	7 million/yr ¹⁴⁾	147 million/yr		Significant increase
	Investments needs for charging infrastructure of EV's	2 USD billion/yr ¹⁵⁾	131 USD billion/yr		Significant increase
HYDROGEN	Clean hydrogen production	0.8 Mt ^{16), 21)}	614 Mt		Significant increase
	Investment needs for clean hydrogen infrastructure	0 ¹⁷⁾	116 USD billion/yr		Significant increase
	Clean hydrogen consumption - industry	0 ¹⁸⁾	38 EJ		Significant increase
CCS AND BECCS	CCS to abate emissions in industry	0.04 ¹⁹⁾ GtCO ₂ captured/yr	3.4 GtCO ₂ captured/yr		Significant increase
	BECCS and others to abate emissions in industry	0.001 ²⁰⁾ GtCO ₂ captured/yr	5.0 GtCO ₂ captured/yr		Significant increase

Source: IRENA, *World Energy Transitions Outlook, 2022*



It is evident that hydrogen will play a key role in the energy transition and is increasingly becoming a sought-after alternative source of energy. IRENA's **Geopolitics of the Energy Transformation: The Hydrogen Factor**² report is a response to the growing need for a deeper understanding of the broader effects of establishing a hydrogen market, including geopolitical aspects. Undertaken as part of the work of the Collaborative Framework on the Geopolitics of Energy Transformation (CF-GET) and benefitting from a wide range of expert input in the fields of energy and geopolitics, the report builds on IRENA's substantial body of work on hydrogen. It also considers whether and how hydrogen may disrupt future energy systems, reflecting on many of the key themes discussed in IRENA's 2019 **Global Commission's report, A New World – The Geopolitics of the Energy Transformation**.³



GEO

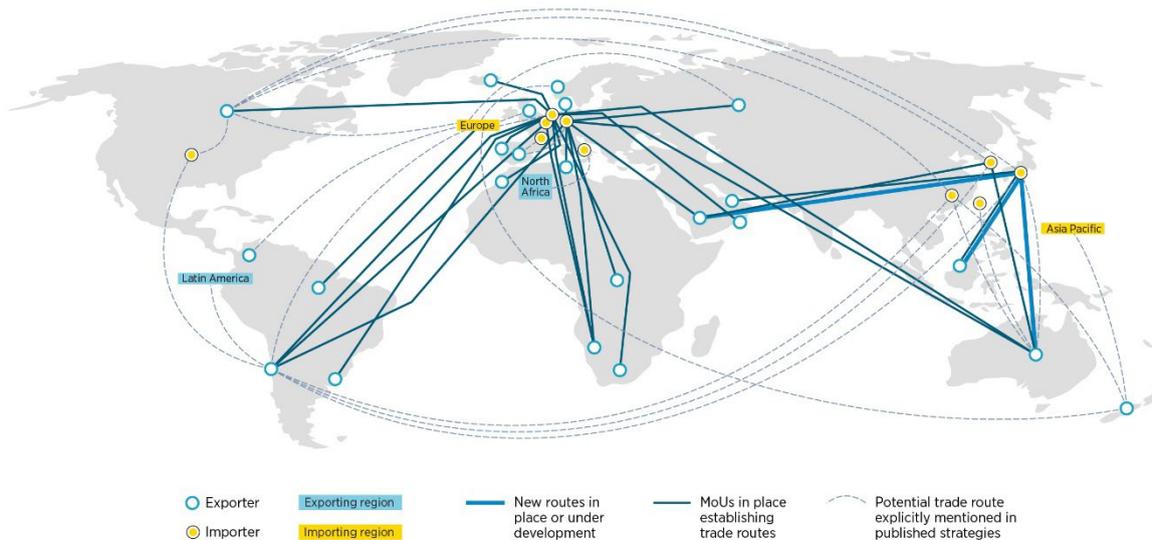
The analysis offers insights into how countries and stakeholders can navigate the uncertainties and shape the development of hydrogen markets, and outlines policy considerations to help mitigate the geopolitical risks and capitalise on opportunities. Some of the key messages emanating from the report are that hydrogen is likely to further disrupt energy value chains in coming years and influence the geography of energy trade, further regionalising energy relationships. Countries with an abundance of low-cost renewable power could become producers of green hydrogen, with commensurate geo-economic and geo-political consequences. Indeed, an increasing number of countries have developed, or are on the point of, net zero strategies, and are recognising that hydrogen can significantly contribute to the decarbonisation of harder-to-abate sectors. It is also anticipated that hydrogen trade and investment flows will spawn new patterns of interdependence and bring shifts in bilateral relations (Figure 2 and Figure 3). The summary of the results of the geopolitics of hydrogen surveys of experts and IRENA Members can be found in the Annex of the report.

The report has generated considerable attention from Members. Upon request, IRENA gave in-depth presentations on the report's findings to high-level government officials of Germany, Italy, Norway, United Kingdom, and United States of America, to name a few. The report has also attracted attention from the wider public. The report's launch was promoted via a campaign, driving more than 25% of report page visits in the first two weeks and representing a 15% increase from the benchmark for report page visits from social media. As such, content related to the report attracted over 50,000 visitors and there were 12,000 report downloads. In addition, the report's press release was IRENA's most read press release of Q1 with 12,000 views.

² Available [here](#).

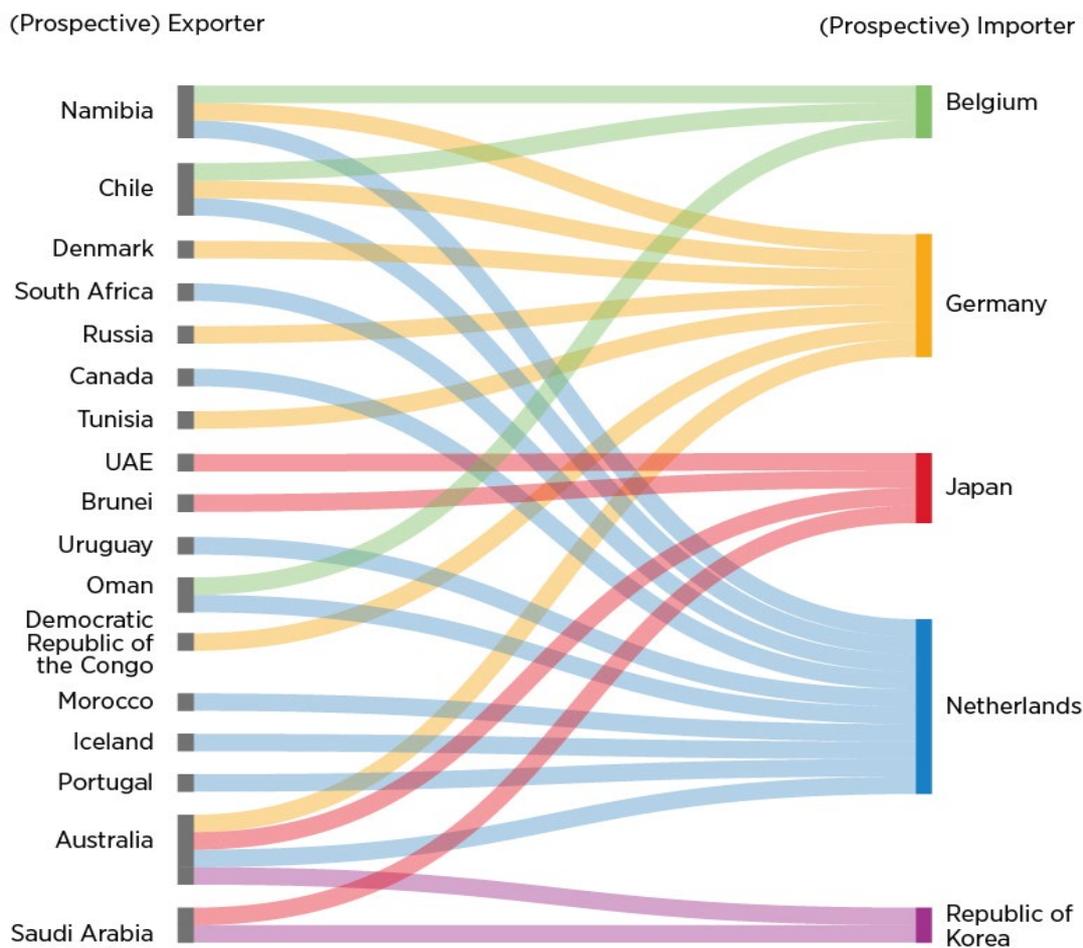
³ Available [here](#).

Figure 2: An expanding network of hydrogen trade routes, plans and agreements



Source: IRENA, *Geopolitics of Energy Transformation: The Hydrogen Factor*, 2022

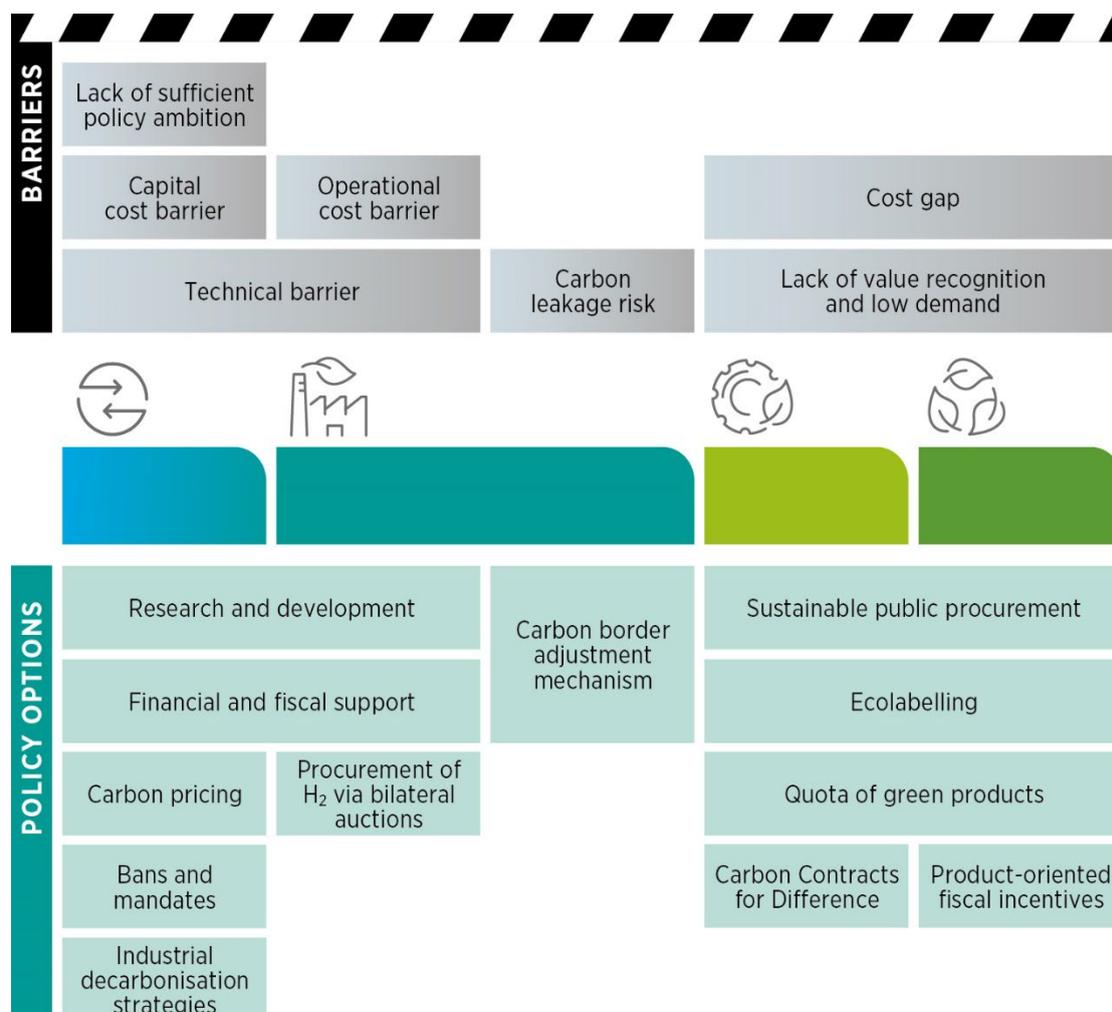
Figure 3: Selected country bilateral trade agreements and MoUs (November 2021)



Source: IRENA, *Geopolitics of Energy Transformation: The Hydrogen Factor*, 2022

On a sectoral level, IRENA's **Green Hydrogen for Industry: A Guide to Policy Making**⁴ report provides a basis for understanding the challenges and policy solutions on how to decarbonise industry - the leading hydrogen consumer – by developing a green hydrogen sector. The report highlights the range of policy options available (Figure 4), including mandates, carbon pricing, carbon leakage measures, supports schemes and market creation measures and complements these policies with country examples. This is the third guide in a series of reports designed to explore policies to support green hydrogen, complementing the previously published **Green hydrogen: A guide to policy making**⁵, and the **Green hydrogen supply: A guide to policy making**⁶ reports.

Figure 4: Barriers and policies to support green hydrogen uptake in the industrial sector



Source: IRENA, *Green Hydrogen for Industry: A Guide to Policy Making*, 2022

At the 8th **Berlin Energy Transition Dialogue (BETD)** 2022, the IRENA Director-General met **'On the Green Sofa'**⁷ with the Executive Director of the International Energy Agency (IEA) on 29 March to discuss the current state of the energy transition and share views and latest analysis on trends in renewables globally. In addition, IRENA's Deputy Director-General participated in a panel discussion on **Hydrogen Diplomacy – Resetting Global Energy Relations?**⁸ on 29 March to answer imperative questions on the important role hydrogen will have to play in reaching net zero carbon emissions by the middle of the century. Dr Rabia Ferroukhi, Director of IRENA's Knowledge, Policy and Finance Centre, participated in the **Skill Development in the Energy Transition**⁹ session on 30 March to discuss how

⁴ Available [here](#).

⁵ Available [here](#).

⁶ Available [here](#).

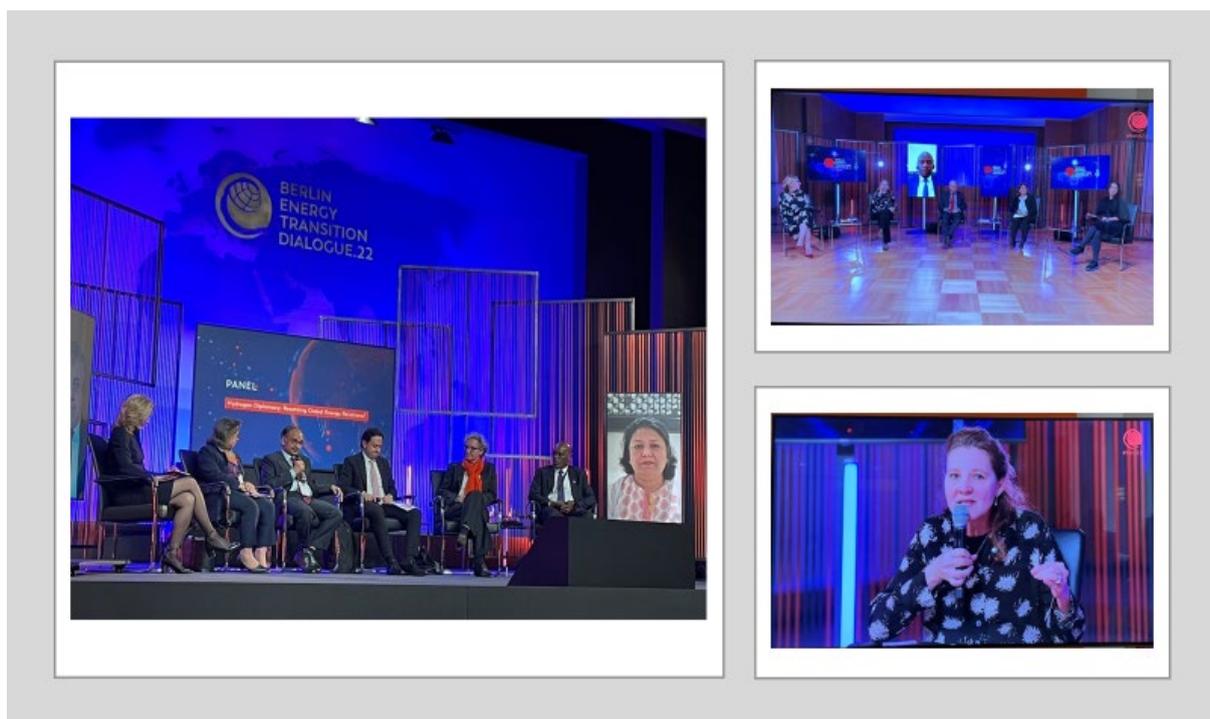
⁷ More information available [here](#).

⁸ More information available [here](#).

⁹ More information available [here](#).

countries can fill the gap of skilled workers and how to train specialists to be able to take the right decisions during the energy transition. In addition, Ms Elizabeth Press, Director of IRENA's Planning and Programme Support Unit, moderated the session on **Exit Coal Enter Future** on 28 March, presenting successful approaches in shutting down coal-fired power plants in a sustainable way.

Figure 5: IRENA at BETD 2022

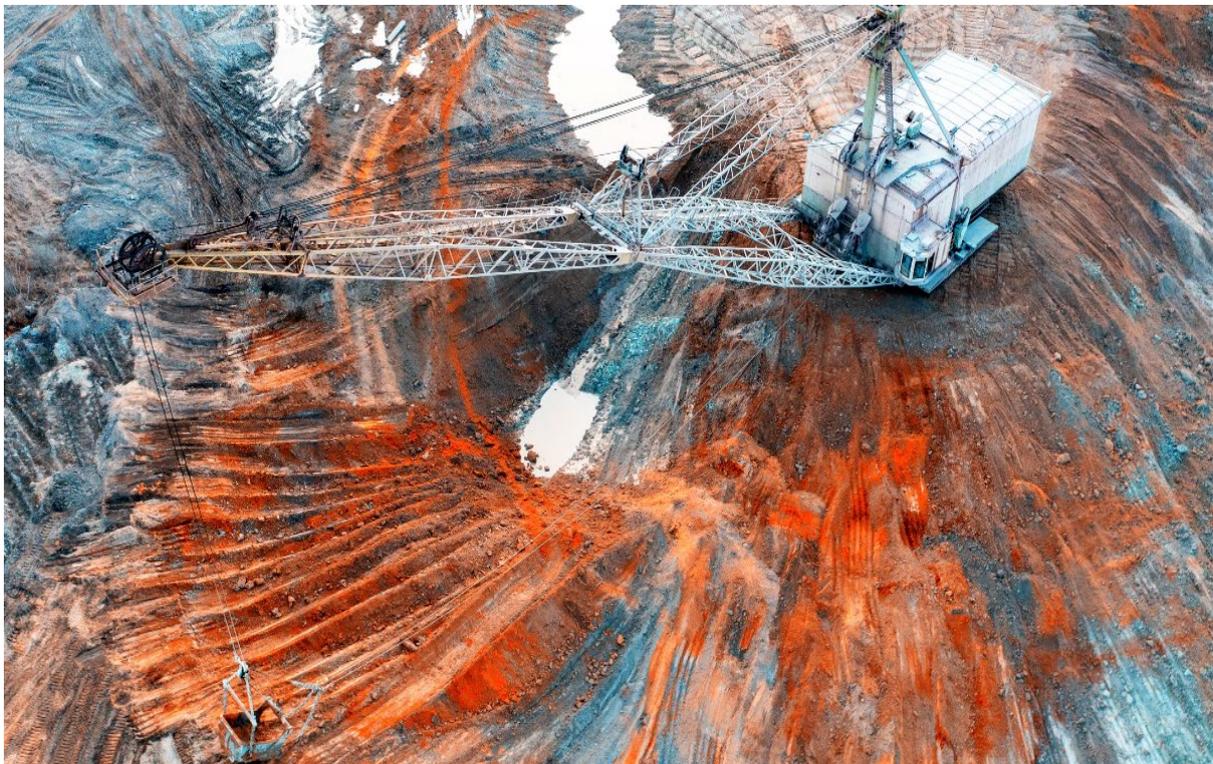


The IRENA Coalition for Action brief on **Green Hydrogen Certification**¹⁰ tackles the important issue of the need to establish and widely accept tracking systems to promote the deployment and uptake of green hydrogen, and the development of national, regional and international green hydrogen markets. Led by the members of the Decarbonising End-Use Sectors Working Group, IRENA produced a brief containing an overview of technical considerations for green hydrogen tracking systems and the challenges that need to be addressed for the creation of such instruments. It includes policy recommendations on how to successfully establish tracking systems for green hydrogen based on internationally accepted standards.

¹⁰ Available [here](#).

IRENA is conducting a series of three workshops to explore the topics related to the use of the natural gas grid to deliver hydrogen (midstream infrastructure). The second of the series on Hydrogen in the Gas Grid took place on 16 March under the topic **Pathways to transition the gas grid to deliver hydrogen**¹¹ and had the goal to explore avenues to optimise gas grid assets by repurposing gas grids and its role in net-zero planning, including methane emissions from the grid and what comprises hydrogen readiness.

In countries with abundant renewable energy resources, such as those in the Gulf Cooperation Council, green hydrogen may emerge as a key enabler of the energy transition. IRENA, the EU and the PtX Hub are collaborating on a series of workshops to enhance the dialogue over the challenges and necessary policy measures to develop green hydrogen and support the development of a global regulatory framework. The first two workshops took place in 2021. The third workshop on **Enabling Measures** took place on 22 January 2022 and was organised together with the World Economic Forum to facilitate collaboration between IRENA Members and the private sector. The fourth meeting was convened on 5 April to facilitate **A Dialogue Between EU and Gulf Cooperation Council on a Regulatory Framework to Develop Green Hydrogen Supply, Demand and Trade**.¹² The workshops fit within the scope of the IRENA Collaborative Framework on Green Hydrogen.



¹¹ More information available [here](#).

¹² More information available [here](#).

In Focus: Renewable Energy Market Analysis: Africa and its Regions

Transforming Africa's energy systems into a renewables-based one would have profound socio-economic and environmental benefits. IRENA's **Renewable Energy Market Analysis: Africa and its Regions**¹³ report, developed in collaboration with the African Development Bank (AfDB), presents the opportunities and lays out a pathway to a renewables-based energy system, while also acknowledging the challenges Africa faces. It demonstrates the urgent need to build modern, resilient and sustainable energy systems to avoid trapping economies and societies in increasingly obsolete energy systems leading to stranded assets and limited economic prospects. A renewables-centred energy system can contribute to substantial gains. It is estimated that the energy transition – when accompanied by an appropriate policy basket – predicts 6.4% higher GDP, 3.5% higher economy-wide jobs and a 25.4% higher welfare index across Africa than that realised under current plans, on average throughout the outlook period (Figure 6).

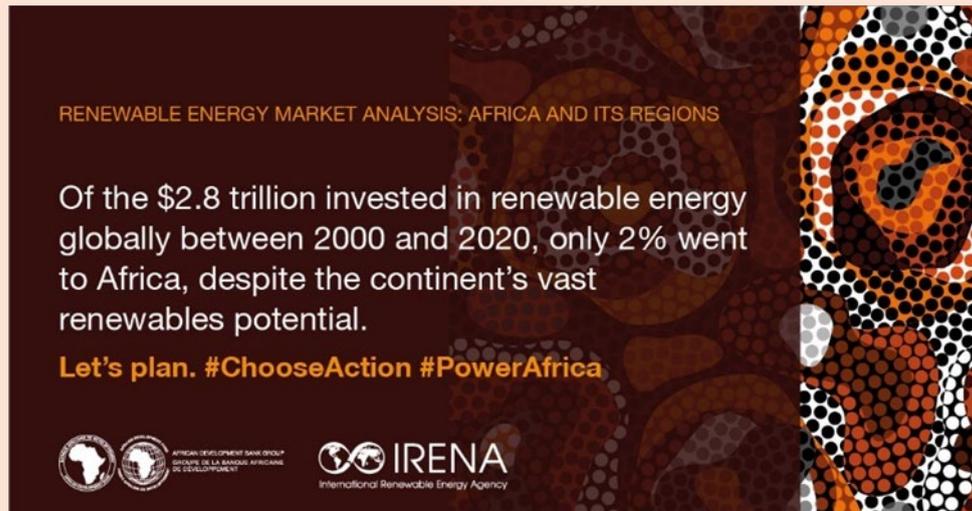
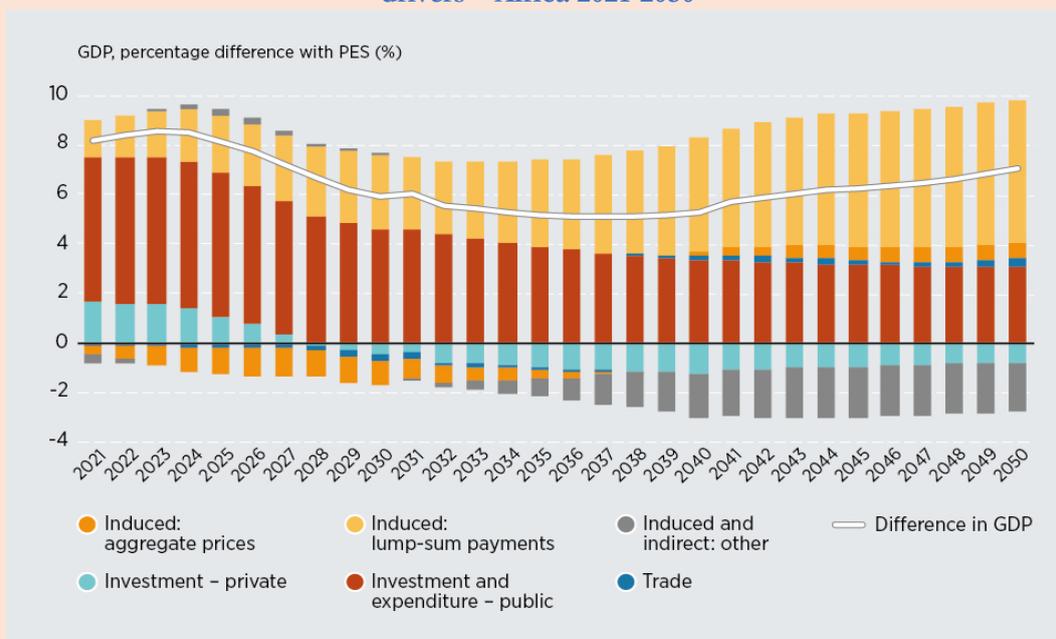


Figure 6: Difference in GDP between 1.5°C Scenario and Planned Energy Scenario, with its drivers – Africa 2021-2050

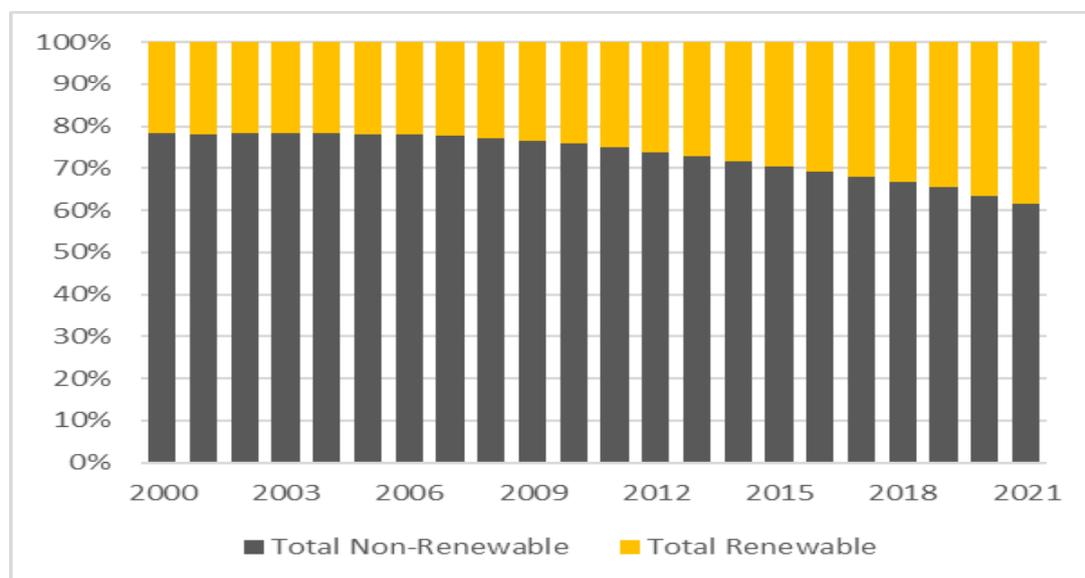


Source: IRENA, *Renewable Energy Market Analysis: Africa and its Regions*, 2022

¹³ Available [here](#).

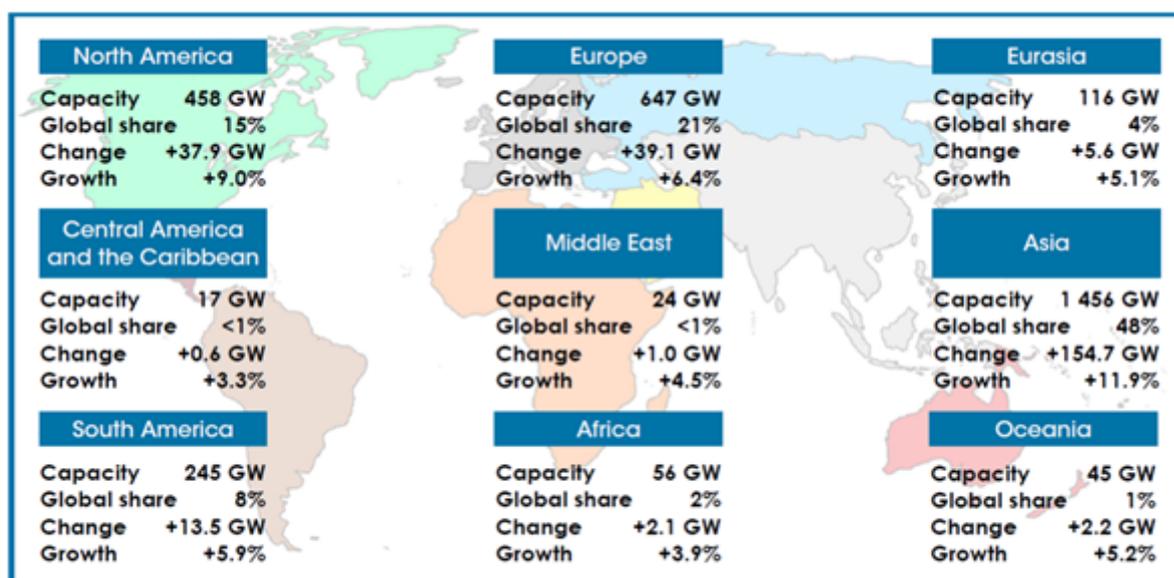
The lingering negative impact of COVID-19 on economies and societies is still apparent. Renewables generation has also been affected. IRENA's **Renewable Capacity Statistics 2022**¹⁴ showed that more than 257 gigawatts (GW) of renewables were added in 2021, slightly less than in 2020, while staying well above the long-term trend. Specifically, the total renewable generation capacity reached 3,064 GW, which is a 9.1% increase compared to 2020 (Figure 7). Asia accounted for 60% of new capacity in 2021, increasing its renewable capacity by 154.7 GW to reach 1.46 TW (48% of the global total). A huge part of this increase occurred in China (+121 GW). Capacity in Europe and North America expanded by 39 GW (+6.4%) and 38 GW (+9.0%) respectively, with a notably large expansion in the USA (+32 GW). Africa continued to expand steadily with an increase of 2.1 GW (+3.9%), slightly less than in 2020. Oceania is no longer the fastest growing region (+5.2%), although its share of global capacity is small and almost all of this expansion occurred in Australia. Asia and North America are the fastest, +11.9% and +9.0% respectively (Table 2). In terms of capacity and production, the expansion of wind and solar jointly accounted for 88% of all net renewable additions in 2021, whereas hydropower remained the highest source of renewable energy for electricity generation globally.

Figure 7: Installed electricity generation capacity (%)



Source: IRENA, *Renewable Capacity Statistics 2022*, 2022

Table 2: Renewable generation capacity by region



For the complete dataset see: IRENA (2022), *Renewable capacity statistics 2022*, available at: www.irena.org/publications.

¹⁴ Available [here](#).

A net-zero future depends also on the vast expansion of renewables, smarter and more flexible electricity grids, and the electrification of huge numbers of vehicles, other products and processes, that combined form a “Smart Electrification” strategy. IRENA’s report on **Smart Electrification with Renewables: Driving the Transformation of Energy Services**¹⁵, produced jointly with the State Grid Corporation of China (SGCC), presents recent trends in relevant technologies and innovations, sets out possible long-term pathways for electrification with renewables, and identifies priority actions (Figure 8). The report finds that a combination of smart digital infrastructure, market design, regulatory frameworks and business models for advanced control can ensure the deployment and more efficient use across end-use sectors – power, transport, industry and buildings.

Figure 8: Categories of Smart Electrification Strategies

Better matching demand with electricity supply

Renewable electricity generation can change within minutes when wind speeds slow or clouds reduce solar radiation, increasing the challenges of matching supply with demand. If energy production drops when demand is still high, alternative sources may be needed fill the gap. Or if demand is low when energy production is high, valuable electricity generation will be wasted. An effective strategy would go beyond merely reducing demand peaks to actually shifting demand to match the VRE production. It would also adjust the supply of energy to better match demand by using storage.

Expanding grid services

Renewable energy generation is far more variable, distributed and independent than centralised power plants. As a result, it requires many more grid services, such as load following, frequency regulation, black-start capabilities and provision of operational reserves in order to maximise the utilisation of the VRE. Many technologies now are available to provide these services, helping to accelerate the adoption of renewable energy generation.

Expanding opportunities for electrification

In addition to the strategies for enabling the integration of more renewable energy, other strategies take advantage of the unique characteristics of renewable electricity to meet new types of demand, such as hydrogen production.

Source: IRENA, *Smart Electrification with Renewables: Driving the Transformation of Energy Services*, 2022

Grid codes define the technical regulations and behaviour for all active participants in the power system, including power generators, adjustable loads, storage, and other assets. The implementation of these codes gives system operators confidence that assets connected to the system will not endanger the security of the electricity supply. IRENA’s **Grid Codes for Renewable Power Systems**¹⁶ report guides national energy authorities on how to develop grid codes to support national energy transition objectives, ensuring coordination among the various actors, increased transparency, grid security, reliability and variable renewable energy (VRE) integration. Establishing a grid code is an important step in opening the power sector to private developers or new plant operators and enabling efficient integration of distributed VRE generators.

Clean energy technology innovation plays a critical role in accelerating the global energy transition. For the first time, IRENA has collected data on a range of quantitative innovation indicators on the costs and performance of renewable technologies, patents and standards. This valuable resource for policy makers and researchers is presented in the **Renewable Technology Innovation Indicators: Mapping progress in costs, patents and standards**¹⁷ report, providing qualitative and quantitative insights into how seven renewable energy technologies have progressed through time, either fully or in part due to research, development and demonstration (RD&D) activities.

¹⁵ Available [here](#).

¹⁶ Available [here](#).

¹⁷ Available [here](#).

On 23 and 24 March 2022, IRENA organised the **Innovation Day Canada**¹⁸ in cooperation with Natural Resources Canada to exchange about challenges and innovative solutions to decarbonise power and end-use sectors. More than 20 expert panellists and 300 participants from all continents explored four main areas: addressing energy access for remote communities via mini grids of the future; innovative hydropower solutions for a clean, reliable, and flexible grid; pathways to decarbonise the road freight sector, and innovations to reduce emissions from the steel and iron sector. The discussions identified several good practices replicable at global scale, covering topics of technology and processes, enabling frameworks, business models, and market readiness for wide-scale deployment and increased use of renewables and enabling technologies.



Despite the fact that Central America has been minimally contributing to global CO₂ emissions, like others, the region will be adversely impacted by climate change. The **Renewable Energy Roadmap for Central America: Towards a Regional Energy Transition**¹⁹ report provides a comprehensive pathway for the development of a sustainable and cleaner regional energy system and elaborates on how end-use sectors (buildings, transport, industry) electrification, the feasible expansion of renewable generation, and energy efficiency solutions will influence the process. The report also discusses the importance of expanding the existing regional power sector integration, while presenting specific sector technological pathways, investment opportunities and tailored actions to accelerate the energy transformation. The project included the realisation of workshops involving all countries in the region both during the development of the analysis as well as during its final stages, to discuss results.

Whilst all renewable energy sources have a role to play in Southeast Asia's energy transition, IRENA's **Scaling Up Biomass for the Energy Transition: Untapped Opportunities in Southeast Asia**²⁰ report focuses on the potential for bioenergy. The report studies five countries – Indonesia, Malaysia, Myanmar, Thailand and Vietnam – demonstrating an abundance of untapped bioenergy in the region and identifying immediate opportunities for adopting bioenergy in its energy markets. The analysis also demonstrates the potential for sustainable biomass to economically meet the region's energy demand in the medium- and long-term. Policy options are presented and critical issues such as the sourcing of sustainable bioenergy feedstock and the need to foster collaboration among stakeholders are highlighted.

Bioenergy plays a key role in contributing to the global decarbonisation efforts. However, the global expansion of bioenergy production may increase pressure on land use, leading to competition for food production, deforestation, and other environmental impacts. A combination of existing geospatial datasets and technical conversion factors can provide the needed preliminary assessment of the bioenergy potential within a selected area, which eventually can help determine a specific bioenergy pathway. In response to this need, IRENA developed the **Bioenergy Simulator**²¹, a web-based geospatial tool that allows users to understand bioenergy potential and related issues in a specific selected area. Developed as part of the **Global Atlas for Renewable Energy**²², the Simulator is now publicly available²³.

¹⁸ More information available [here](#). Simulator available [here](#).

¹⁹ Available [here](#).

²⁰ Available [here](#).

²¹ More information available [here](#).

²² Available [here](#).

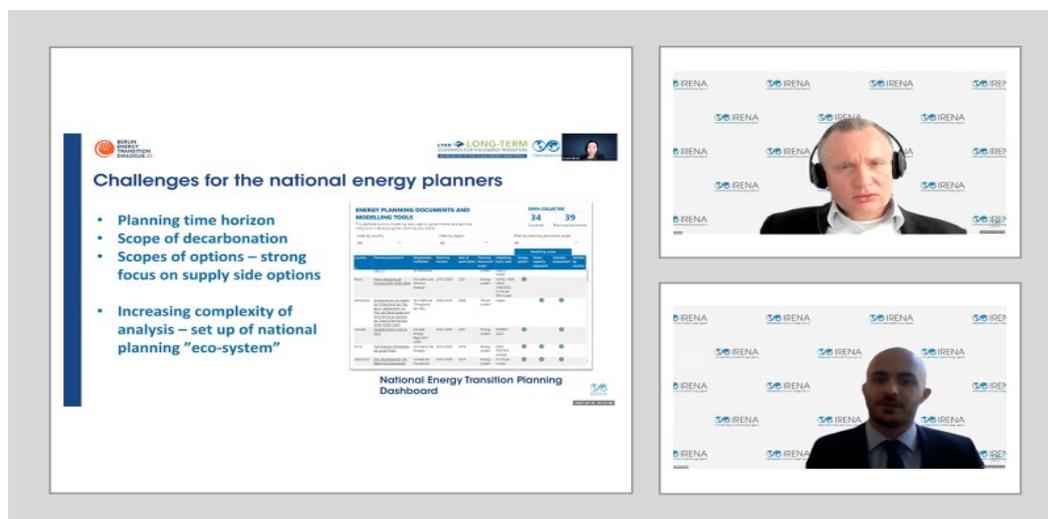
²³ Available [here](#).



Long-term energy planning is crucial for achieving national and global net-zero targets, and IRENA's **Long-term Energy Scenarios (LTES) Network**²⁴ explores how governments develop and use LTES to navigate the clean energy transition. IRENA has been organising activities and collaborations under the LTES Network to facilitate the sharing of expertise on the pathways to this decarbonised future. This is being accomplished under two main tracks, a regional and a thematic perspective.

On the regional front, a webinar series on the use of LTES in national energy planning in Africa was held in November 2021, with a special session at the IRENA Assembly (see below), bringing together regional actors such as power pools and economic communities to complement findings from country presentations in the previous sessions of the series. This effort is accompanied by an update of IRENA's National Energy Transition Planning Dashboard²⁵, which showcases planning publications and modelling tools used throughout the continent.

On the thematic front, a side event was hosted on 28 March 2022 at the BETD on *Insights from Net-zero LTES for National Energy Planning*²⁶. The event brought together experts and technical institutions to provide insights on the key elements of net-zero scenarios and the methodological challenges in featuring them. IRENA is collaborating with UNFCCC to produce a workplan on analysing past and current use of scenarios in long-term low greenhouse gas emission development strategies (LT-LEDS) and identifying the gaps between their current usage and where they need to be to achieve the goal of climate neutrality. A report with the findings from this analysis will be launched before COP27. These activities and collaborations aim to bring together the energy and climate communities to pursue common targets with regards to net-zero targets and how to reach them.



²⁴ More information available [here](#).

²⁵ More information available [here](#).

²⁶ More information available [here](#).

In partnership with the Central Africa Power Pool (CAPP), IRENA has completed a **Regional Modelling Analysis & Planning Support Programme for CAPP countries**. Starting in 2021, about 50 technical planning experts from seven countries participated in the programme and now have a solid foundation for future work on energy planning and renewables. Based on the success of the programme, the CAPP has chosen the **SPLAT-MESSAGE**²⁷ framework to develop their first official regional masterplan. IRENA held discussions with the CAPP Secretariat in March and April 2022 to confirm the activities of a second phase of follow up model training to start in Q2 2022. The results and capacity developed in this programme will also allow the CAPP to enhance their contribution to the ongoing **Continental Power Systems Master Plan (CMP)** development, led by the African Union Development Agency (AUDA) and supported by IRENA.

At the sixth **Annual Strategy meeting of the Coalition for Action**²⁸, held in conjunction with the 12th session of the IRENA Assembly on 25 January 2022, Coalition members strategically discussed how the work of the Coalition can build on the success of 2021. Members also decided on the Coalition work programme for 2022 and main action deliverables.

In Focus: IRENA's Outreach Activities

IRENA is expanding its outreach efforts, to ensure its work is reaching a wider audience and has an amplifying effect on the energy transition process. **IRENA Insights**²⁹, a series of short, focused webinars, have been offering invaluable access to key findings from the Agency's latest programmatic work on pertinent issues. Since January 2020, IRENA has organised almost 40 IRENA Insights webinars. The first one in 2022 was held on 25 January 2022 to share key takeaways from the IRENA's 2021 **Reaching Zero with Renewables: Capturing Carbon**³⁰ technical paper. Another webinar took place on 8 February to share key insights from the IRENA report **Sector Coupling in Facilitating Integration of Variable Renewable Energy in Cities**³¹ report released in 2021. Along those lines, a third webinar was held on 22 February to share key insights from IRENA's report **A Pathway to Decarbonise the Shipping Sector by 2050**³². On 8 March, IRENA organised a webinar on **INSPIRE: IRENA's Platform on Patent Data and International Standards for Renewables** to explore the value of patents and standards data analytics and how information can be translated into valuable insights for policymakers, entrepreneurs, industry, research bodies and other key stakeholders in the energy sector. Key takeaways from IRENA's 2022 **Geopolitics of the Energy Transformation: The Hydrogen Factor** report were shared on 22 March, whereas IRENA presented key insights from the IRENA **Smart Electrification with Renewables: Driving the Transformation of Energy Services** report on 5 April.

IRENA's first session of the **Policy Talks 2022** was organised in January 2022 to discuss the topic of *Reaping the socioeconomic benefits of the energy transition - building a comprehensive policy framework*. The second session, convened on 8 March 2022 with the theme *Enabling Green Hydrogen: Industrial Policy, Certification Systems, and Inclusiveness*³³, provided insights from IRENA on the most relevant issues related to green hydrogen and served to present key findings of the Green hydrogen for industry: A guide to policy making report and the IRENA Coalition for Action brief on Green Hydrogen Certification.

²⁷ More information available [here](#).

²⁸ More information available [here](#).

²⁹ More information available [here](#).

³⁰ Available [here](#).

³¹ Available [here](#).

³² Available [here](#).

³³ More information available [here](#).

Investments for a Sustainable Future

IRENA supports the acceleration of renewable energy deployment through the **Climate Investment Platform (CIP)**³⁴ with a unique service offering available to Members. The Platform acts as a bridge between renewable energy projects and actors seeking to contribute to renewable energy project development through finance, technical assistance, and research, amongst others. Once projects qualify for support under the CIP, IRENA provides technical assistance to develop comprehensive Project Information Documents (PIDs) that verify, summarise, and detail all the relevant information necessary to attract financing. Projects are then introduced to financial partners by presenting relevant PIDs. A project and a financier are considered matched once IRENA's introduction leads to both parties agreeing to explore the option of providing funding to the project.

Now in its third year, the CIP has supported 17 projects in sub-Saharan Africa, one project in Southeast Asia, two projects in South Asia, four projects in SIDS, two projects in South America and two projects in Central Asia. Of the supported projects, three projects from Latin America have been fully prepared by the CIP with the completion of PIDs. Nineteen of these are now at the matchmaking stage. Nine projects have already been matched to potential financiers for further discussions.

In total, 33 PIDs are currently actively supported, whereas 303 projects have been sourced on the CIP, with 160 projects eligible for support (Table 3). Of the 303 projects, 104 are from sub-Saharan Africa, 51 are from Latin America, 26 from MENA, 12 from South East Asia, 28 from South Asia, four from Southeast Europe, 6 from Central Asia, and 12 from SIDS. The remaining projects are based in other geographical locations. These eligible projects will be further explored for IRENA's support, as we continue to provide project facilitation services to Members.

As of March 2022, CIP has approximately 337 registered partners, of which 81 are willing to provide financial support to projects and 75 are willing to provide technical assistance. Partners include multilateral organisations, international development organisations, international financing institutes, private companies, commercial banks and academic institutions, amongst others. The partners characterise the CIP's global reach with partner distribution as follows: 29% of partners are from Europe, 11% are from North America, 24% are from Sub-Saharan Africa, 1% are from Australia, 3% are from East Asia, 13.5% are from MENA, 3% are from Southeast Asia, 8% are from South Asia and 7.5% are from Latin America and the Caribbean.

Table 3: Climate Investment Platform

Parameter	
Number of MW Supported (33 projects)	470
Number of MW Matched (9 projects)	241
Technology Type Most Matched	Solar
Minimum Project Size Matched	3.5
Maximum Project Size Matched	73.6
Region with Most Matches	Sub-Saharan Africa
Cumulative Financial Value of Projects Matched	591.11 Million USD

In the context of COP26, the UAE had announced USD 400 million commitment to the **Energy Transition Accelerator Financing (ETAF) Platform**³⁵, to be managed by IRENA. The Platform serves as the first global climate finance partnership from the Middle East to the world. ETAF aims to mobilise approximately USD 1 billion of capital by 2030 from various funding partners, investors, private sector, and donors. ETAF is holding discussions with several Multilateral Development Banks, who showed interest in joining the Platform as partners. Although the Call for Projects has not been publicly launched, four project proposals have already been submitted on the Platform and five projects have been received from CIP. These projects are under review.

³⁴ More information available [here](#).

³⁵ More information available [here](#).

Table 4: Energy Transition Accelerator Financing (ETAF) Platform



At COP 26, the UAE announced \$400 million commitment to the ETAF



ETAF's Official Website launched (November 2021)



ETAF showcased at 2 regional webinars for Africa & LAC (December 2021)



9 project proposals under review (ongoing)



Discussions with several MDBs/IFIs interested in joining ETAF as partners (ongoing)

As part of a series of capacity-building activities aimed at accessing climate finance and promoting the deployment of renewable technologies in SIDS, IRENA co-organised a 5-day Virtual Training Workshop from 1-4 March and on 18 March on ***Climate Financing for Small Island Developing States (SIDS)***, together with the Ministry of the Environment of Japan through the SIDS Lighthouses (LHI) Initiative, Green Climate Fund (GCF). The objective was to deepen the understanding of the requirements and procedures of various climate financing schemes, while also introducing various renewable technology options. IRENA used this opportunity to present details of two flagship initiatives – the Climate Investment Platform and the Energy Transition Accelerator Financing Platform, which are both used to support renewable projects in accessing finance.

IRENA also organised a 2-day ***Energy Transition Workshop in Iraq: Best Practices & Scoping*** in partnership with the United Nations Development Programme (UNDP) on 24-25 March 2022 as part of the ongoing assistance to strengthen the enabling environment for post-NDC in Iraq. The workshop addressed essential policy reform, aiming to improve the understanding of the economic, financial and infrastructure-related implications of NDC implementation, help set up a long-term energy policy framework, and address key barriers to increasing deployment of renewable technologies. Furthermore, the workshop brought together key stakeholders from the Government of Iraq, UNDP, IRENA and the Embassy of the United Kingdom to discuss the future of the energy sector in Iraq, learn from regional and global best practices, and agree on the scope of work for energy transition planning. IRENA delivered a presentation on Open Solar Contracts as well as provided details on the CIP, both of which will support the scale-up of RE technology in the country.



International Cooperation and Partnerships

The 12th session of the **IRENA Assembly**³⁶ took place virtually from 15 to 16 January 2022 under the theme “Energy Transition: From Commitments to Action,” bringing together Heads of State/Government, Ministers and energy decision-makers among its Membership and States-in-Accession, as well as multilateral organisations, global stakeholders and private actors. At the Assembly, Members gathered to reassess long-standing assumptions, perceived barriers and default decisions, and discuss the energy transition as an investment in our collective future.



The Opening also featured a **High-level Meeting on the Outcomes of COP26 and the High-level Dialogue on Energy**, aligned with the Assembly theme. The session's objective was to take stock of the energy related outcomes of COP26 and the Dialogue and identify concrete actions that can accelerate the energy transitions, considering the 2030 timeline. It also considered how to use IRENA’s General Assembly and the Global High-Level Forum on Energy Transition to best support these efforts, including the links to the upcoming COP27 in Egypt and COP28 in the UAE.



³⁶ More information available [here](#).

The **Geopolitics of Energy Transformation: The Hydrogen Factor** report was also officially launched at the Assembly, with Mr Francesco La Camera, IRENA Director-General, presenting the key findings, followed by a short exchange around the larger topic and the role of hydrogen. The launch event also included a pre-recorded discussion of the Director-General with Mr Daniel Yergin, Vice Chairman of IHS Markit and Chairman of CERAWeek, on the future of hydrogen.



Related Ministerial Roundtables and High-level events focused on pressing issues of the energy transition were held on 13 and 14 January 2022 as well. The meeting on **Long-Term Energy Scenarios for Developing Energy Transition Plans in Africa - Featuring Regional Power Pools** served to share the lessons learnt from the African power pools' LTES planning practices, both in terms of institutional governance as well as LTES methodologies. The **Ministerial Meeting on Just and Inclusive Energy Transitions in Africa - Promoting development and Industrialisation** focused on the relationship between development and energy, diving deep into the interlinkages between SDG7 and other SDGs, including SDG8 on Decent Work and Economic Growth and SDG9 on Industry, Innovation and Infrastructure. It provided a platform to showcase leadership and commitments in support of putting energy transitions at the centre of development and industrialisation goals in Africa. The Ministerial Meeting also witnessed the launch of IRENA's report **Renewable Energy Market Analysis: Africa and its Regions**.

A number of Stakeholder Engagement events were organised virtually at the margins of the 12th IRENA Assembly that brought specific perspectives on the energy transition from parliamentarians, youth and the private sector. **IRENA's Legislators Forum**³⁷ was convened on 13 January under the overarching theme "Parliamentary and regulatory actions to drive national energy transition policies: from commitment to action". At the meeting, participants had the opportunity to engage in inclusive and diverse discussions on actions and share most up-to-date policy measures that can guide Legislators in supporting countries to shift the energy transition to the implementation phase of national and international commitments.



³⁷ More information available [here](#).

The fifth edition of the **IRENA Public-Private Dialogue**³⁸ was also held on 13 January and convened policy makers, industry associations, private sector stakeholders and civil society to explore ongoing and planned efforts to promote circular economy and end-of-life management for renewables. The first session provided an industry perspective on what is needed to advance sustainable life-cycle practices and resource efficiency for renewables as the energy transition accelerates. The second session showcased public and private actors' insights on policy actions urgently needed from governments and the energy industry to accelerate global progress towards unlocking the benefits of a truly sustainable renewable energy sector.



For the third year in a row, **IRENA's Youth Forum**³⁹ was organised in the margins of the Agency's Assembly. The 2022 edition of the IRENA Youth Forum was held on 13 January under the overarching theme "Youth-led solutions to accelerate the energy transition and achieve climate objectives" and highlighted the role of young people in identifying and developing solutions that can promote and accelerate the renewables-based energy transitions to achieve climate targets and other sustainable development goals. Over 400 young energy leaders gathered virtually and called on organisations, governments, private sector, academia and civil society to take urgent action to ensure that the energy transition is led by the youth. The meeting also offered the opportunity for young people to interact and connect with global thought leaders, government representatives, and IRENA experts in identifying the essential areas that require support for youth to contribute to the advancement of a global energy transition.



During the seventh edition of the Renewables Talk for IRENA Permanent Representatives on 4 March 2022, IRENA and the Government of the United Arab Emirates launched the **Beyond Food partnership**⁴⁰, a new joint initiative to provide people in communities in low-resource settings around the world with crucial access to sustainable energy for cooking. With more than 2.6 billion people around the world still relying on traditional fuels for their cooking needs, access to clean and affordable energy for cooking lags well behind the relevant SDG7 target. This partnership, in collaboration with Nama Women Advancement Establishment, will focus on enterprise support and enterprise twinning targeting women entrepreneurs and seeks to advance the deployment of clean cooking solutions, while putting the issue at the forefront of the global climate action and development agenda.

³⁸ More information available [here](#).

³⁹ More information available [here](#).

⁴⁰ More information available [here](#).

As chair of the **IRENA Global Council on Enabling Youth Action for SDG 7**⁴¹, the IRENA Director-General dedicated the focus of the Council to the intersection of Youth and SDG 7. In his opening remarks at the first meeting on 14 February 2022, he underlined that “the world is not on track to realise the SDG 7 target of affordable, reliable and sustainable energy for all.” Referred to by the Director-General as an ‘intergenerational Council’, the Council brings together 18 young leaders, government representatives, expert practitioners and delegates representing different institutions and regions, to develop and adopt an action plan with concrete initiatives that can drive forward youth-led action on energy access and the transition to a renewable energy future.



Collaborative Frameworks

IRENA’s **Collaborative Frameworks**⁴² (Table 5) are strong evidence of the Agency’s commitment to enhancing Member engagement and ownership of the programmatic output, while enabling peer-to-peer collaboration and exchange of national experiences, challenges, and respective solutions.

The **Collaborative Framework on Green Hydrogen** held its latest meeting on 21 October 2021⁴³ to present the **Enabling Measures Roadmap for Green Hydrogen**⁴⁴, produced in partnership with the World Economic Forum under their “Accelerating Green Hydrogen Initiative”. A series of three reports on **Global hydrogen trade to meet the 1.5°C climate goal** has been prepared. The first one integrates all the components: supply, infrastructure and demand to assess various scenarios in 2050 and provides a framework for the actions that policymakers need to take in the coming decade to enable this global trade. The second report looks at the state-of-the-art of hydrogen infrastructure under four different technology pathways. The third report covers the cost and technical potential of green hydrogen supply globally, declined for various regions, time horizons and scenarios. This work was done in collaboration with ENEL Foundation and Bruno Kessler Foundation. The reports will be showcased at the next Framework meeting on 27 May 2022.

⁴¹ More information available [here](#).

⁴² More information available [here](#).

⁴³ More information available [here](#).

⁴⁴ More information available [here](#).

At the twelfth session of the IRENA Assembly, the **Geopolitics of Energy Transformation: The Hydrogen Factor** report of the **Collaborative Framework on the Geopolitics of Energy Transformation (CF-GET)** was launched. The report delved into the geopolitical consequences of hydrogen deployment, the rise of hydrogen economies and presenting policy options. The latest meeting of the Framework will be held on 26 April 2022. The meeting will be split into two segments. During segment I, Members will have the opportunity to hold a high-level discussion on the findings of the recently launched geopolitics report on hydrogen, and exchange views on the evolving geopolitical energy landscape and the role of hydrogen in the process. In segment II, Members will be invited to discuss and agree on the priority topics the Framework should take forward in 2022.

Table 5: List of Collaborative Frameworks and their respective Co-facilitators

Collaborative Framework on Enhancing Dialogue on High 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		
Collaborative Framework on Just and Inclusive Energy Transition		
Collaborative Framework on Critical Materials for the Energy Transition		

In Focus: Collaborative Framework on Critical Materials for the Energy Transition

On 21 March, IRENA Members launched a new **Collaborative Framework on Critical Materials for the Energy Transition**⁴⁵ to exchange knowledge, best practices, and coordinate actions to ensure that the scarcity of minerals and materials does not threaten the accelerated deployment of renewable energy. Currently, climate-neutral energy systems require significant amounts of critical minerals including lithium, nickel, cobalt, copper and rare earth elements for renewable energy installations and storage solutions. As climate goals get more ambitious and renewables become an indispensable pillar of net zero commitments, prices of raw materials have started to surge.

IRENA has rapidly built knowledge on the topic, in partnership with key stakeholders, publishing several reports last year, including the **Technical Paper on Critical Materials for the Energy Transition**⁴⁶, **Deep Dive Lithium**⁴⁷ and **Nickel Editorial**⁴⁸. The WETO 2022 also includes one chapter on possible pathways to address the issues around critical materials.

At the first meeting, Members stressed the key role that IRENA may play in this field due to its near-universal Membership and convening power and identified the priority areas of action to address around the topic. These are:

- Ensuring sustainable and responsible mining. Greenhouse gas emissions resulting from the mining industry must be tackled and taken into serious consideration;
- Data transparency is of high importance to better understand critical materials and potentials supply chain shortages. Countries need to develop a national coverage database;
- The shift in renewables and critical materials should be well-understood by the mining sector in particular; and
- Facilitation of circular economy will be key.

In addition, Peru and the United Kingdom were appointed as co-facilitators and it was decided that the Framework will support countries in understanding challenges and opportunities of critical minerals and materials to sustain the energy transition through three Working Groups focusing on:

1. De-risking Critical Materials: Developing and applying strategies to de-risk supply chains of materials
2. Observatory for Critical Materials and Minerals: Collecting data that help to understand scarcity and potential supply shortages.
3. ESG for critical minerals and Materials Supply: Developing strategies to raise acceptance for new mining projects

IRENA will organise the first meeting of the Working Group on De-risking Critical Materials in the second quarter of 2022.

The **Collaborative Framework on Ocean Energy/Offshore Renewables** has agreed on 13 topics around the areas of technology development, research and innovation, market incentives, and sustainability. The topics include analyses on accelerating technology cost reduction, grid integration, resource mapping, and coupling of offshore renewables with Power-to-X technologies. It is envisioned that two meetings will take place in 2022. The first one will be held on 23 June 2022 on the side-lines as input to the United Nations Ocean Conference, and the second on 1 November 2022, with input feeding into COP27.

On 22 September 2021, IRENA organised the first High-Level Meeting of the **Collaborative Framework on Hydropower**,⁴⁹ focusing on key hydropower-related issues and experiences and identifying potential pathways and concrete actions to chart a bright future for hydropower. The Framework plans to gather again on 1 June 2022 to discuss with its Members and other stakeholders the findings of the upcoming IRENA publication on Hydropower.

⁴⁵ More information available [here](#).

⁴⁶ Available [here](#).

⁴⁷ Available [here](#).

⁴⁸ Available [here](#).

⁴⁹ More information available [here](#).

The **Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems** focuses on energy markets and regulations, energy system planning and operation, cross-border strategies and interconnections and innovation. The pilot phase includes thematic discussions on three of the six workstreams. As a part of the pilot phase of implementation of the framework, a second technical meeting of the Collaborative Framework was organised on 20 October 2021,⁵⁰ focusing on the work stream on Energy System Operation. The next workstream meeting on Energy System Planning will serve to discuss effective approaches and strategies in the planning of energy systems with a high share of renewable energies. The meeting will take place on 2 June to provide a platform for an exchange of experiences and best practices on LTES, planning models, and innovative approaches and on ways to improve key areas of energy system planning, to accelerate a cost-effective power sector transition to renewable energy.

The second meeting of the **Collaborative Framework on Just and Inclusive Energy Transition** on 21 October 2021⁵¹ saw the high-level launch of a special edition of the IRENA **Renewable Energy and Jobs – Annual Review**, developed in cooperation with ILO. The Framework will be meeting again in mid-May 2022.

The **Collaborative Framework on Project Facilitation to support on-the-ground energy transition** is scheduled to have its inaugural meeting on 19 May. The Framework's goal is to explore ways to tailor project facilitation support to address Members' needs and help them create an enabling environment to scale up private investment in renewable energy projects or deploy renewable technologies at scale. In addition, the Collaborative Framework will further highlight the unique challenges Members face in attracting capital to fund renewable projects and focus on how IRENA can amplify its existing support and further tailor its assistance to help Members build a pipeline of bankable projects.

The **Collaborative Framework on Oil and Gas Sectors and the Energy Transition** is currently under development and will be launched later in the year.



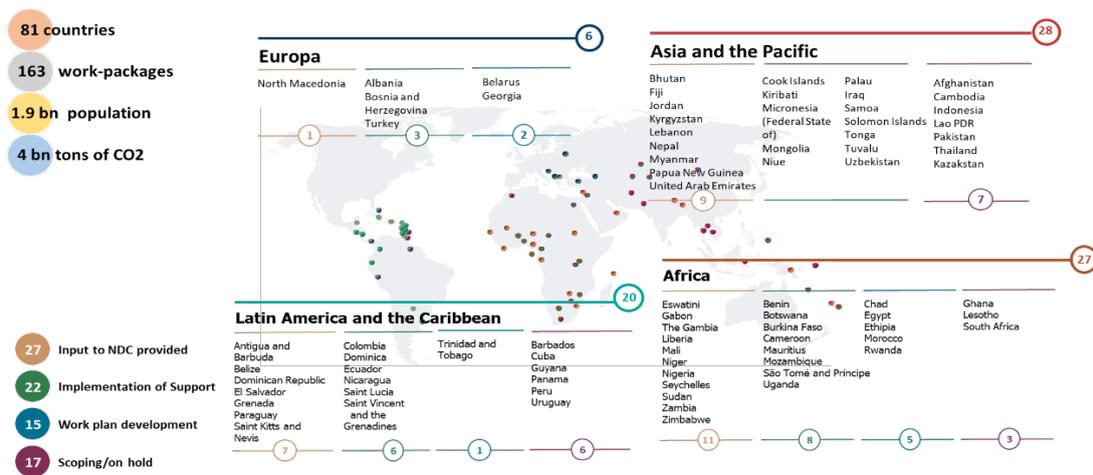
⁵⁰ More information available [here](#).

⁵¹ More information available [here](#).

Targeted Climate Action

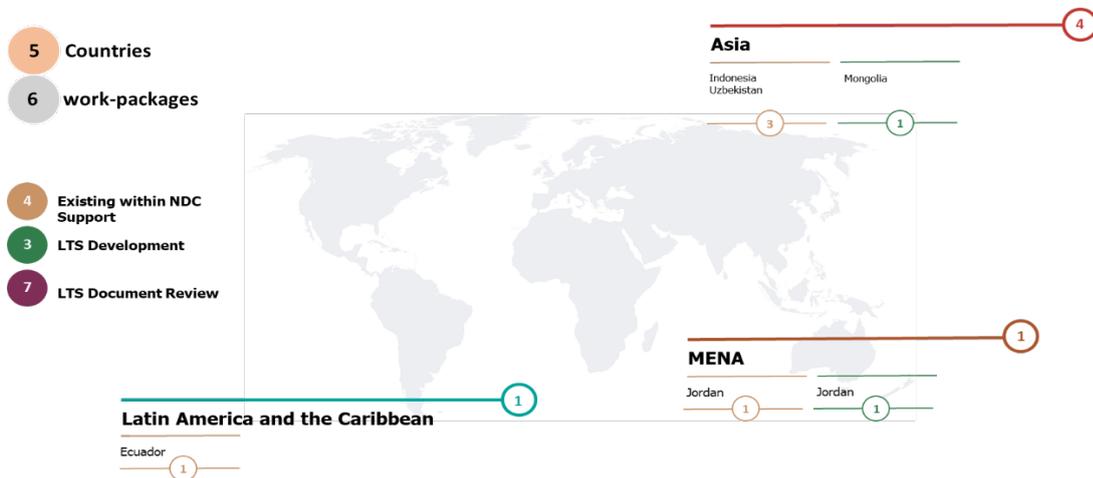
IRENA's Members are increasingly reaching out to the Agency with requests to receive targeted support for climate action to enhance their NDCs and support implementation. In response to this, IRENA is currently engaging and supporting 81 countries in terms of NDC enhancement and implementation across all continents. This is equivalent to 1.9 billion people and covering an equivalent total energy related greenhouse gas emission of 3.8 billion tonnes of carbon dioxide equivalent per year. Currently, IRENA's NDC enhancement and implementation support includes 163 work-packages to support the needs of IRENA Members, who are parties to the Paris Agreement in enhancing and implementing their energy transition plans while reflecting these climate action commitments in NDC submissions (Figure 9). IRENA's contribution to long-term strategies includes six work packages of which four exist within the NDC Support umbrella (Figure 10).

Figure 9: IRENA's engagement



Disclaimer: This map is provided for illustration purposes only. Boundaries and names shown on this map do not imply any official endorsement or acceptance by IRENA.

Figure 10: Mapping of Long-term Strategies support



Despite making a sizeable difference to greenhouse gas emissions and global temperature rise, we still need to set the world on a climate-safe pathway. IRENA's **NDCs and Renewable Energy Targets in 2021: Are we on the right path to a climate-safe future?**⁵² report assesses current climate pledges in light of the challenge ahead, and explores the transformative opportunity offered by renewable energy that can serve as an important vehicle for delivering the needed emission reductions, as well as multiple Sustainable Development Goals. Governments, financial institutions, and private sector entities must broaden ambition commensurate to the scale of the climate threat, followed by real, short-term, accelerated implementation: a key aspect of the Glasgow Climate Pact made at COP26.

⁵² Available [here](#).

IRENA is conveying this message throughout its work to stress the urgency of implementation, laying the foundation for **COP27 and COP28**. In this respect, IRENA will support the energy transition tracks of both COP27 and COP28, having begun discussions with Egypt and the UAE, respectively. For COP27, IRENA will sign a strategic agreement with the Government of Egypt to formalise its support in the COP context, focusing on accelerating energy transitions in Africa and beyond. This will include events and initiatives that will promote the sharing of knowledge and mobilise investment for energy transitions. Regarding COP28, IRENA is in discussions with the Government of the UAE on how to build on the narrative from COP27 and highlight energy transitions in the MENA region. IRENA will leverage climate fora, such as Regional Climate Weeks, to showcase how energy transitions can be a solution to climate change, while bringing socio-economic benefits.

Organised by the core partners⁵³, **Regional Climate Weeks** provide a platform for governments, cities, private sector leaders, financial institutions and civil society to discuss opportunities to build forward from the pandemic by identifying opportunities to enhance climate action. Regional Climate Weeks 2022 kicked off with the first-ever Middle East and North Africa Climate Week (**MENACW2022**) convened on 28-31 March 2022 in Dubai, of which IRENA participated as a regional partner. In this context, IRENA supported the core partners' sessions and organised sessions on energy transitions in the MENA region. In 2022, the Regional Climate Weeks will focus on three themes that build on last year's outcomes: National actions and economy-wide approaches; Integrated approaches for climate-resilient development; and Seizing transformation opportunities. MENACW will accelerate collaboration and integrate climate action into global recovery.

At MENACW, IRENA hosted five sessions⁵⁴ on pertinent issues. On 28 March, IRENA held an event on **Catalysing Concerted Action on the Ground towards Achieving the Global Energy Transition** based on the IRENA-UNDP partnership and its purpose to scale up both project facilitation globally and the flow of renewable energy (RE) investment towards countries of the region. A session on **Enabling Frameworks to Accelerate the Energy Transition** took place on 29 March to outline the need for policy ambition and enabling regulation in the power sector to mobilise large-scale private sector investment in renewable energy and energy efficiency in the region. The **Renewable Energy Driving Climate Action towards Net-zero in 2050 across the MENA Region** event on the same day served to present the latest findings on the energy transition, drawing from IRENA's 2021 WETO and contextualise it to the MENA context. On 31 March, the session on **Technology Options for a Just and Inclusive Energy Transition** explored how energy transition technologies can accelerate the energy transition in the region, enhance socio-economic benefits and showcase partnership opportunities. Lastly, on the same day, IRENA organised an event on **Collaborations and Partnerships to Accelerate a Just and Inclusive Energy Transition** to highlight the importance of increased collaboration and partnerships in supporting the implementation of energy commitments and pledges made at the High-level Dialogue on Energy and COP26 in order to build momentum with concrete progress by COP27.



⁵³ UNDP, UNEP, UNFCCC, and World Bank.

⁵⁴ More information available [here](#).

Medium-term Strategy 2023-2027

The Medium-term Strategy (MTS) is a strategic framework that defines IRENA’s “vision, strategic direction, objectives and activities” over the course of five years. The Agency’s first MTS was adopted in January 2013. The implementation of the current MTS is ongoing and due to be completed at the end of the year. The draft MTS for the next five years will be presented to the Assembly for its consideration at its thirteenth session in January 2023. It is mandated that the MTS is considered at each Council meeting to enable a sustained and inclusive engagement framework. The process is facilitated by a Working Team, co-led by two Members, namely Denmark and Kenya. Meeting participation remains open to all Members to ensure inclusive, transparent and detailed discussions on topics of high relevance for the future of the Agency. It should be noted the MTS Working Team comprises Members only, but external participants could be invited for a specific discussion, if deemed appropriate and valuable. To date, 22 Members⁵⁵ have expressed interest in participating in the Working Team. The Team, supported by the Secretariat, will develop its work plan based on Members’ input.

The Working Team has had three opportunities thus far to exchange insights and provide input on the strategic direction, areas of focus and key elements to be incorporated and form the new MTS. The first meeting of the Team took place on 8 September 2021, providing an opportunity to have the first exchange on the topics of strategic relevance for the Agency and identify the areas Members wish to discuss to help shape the upcoming MTS. At the twenty-second meeting of the IRENA Council, Members had an additional opportunity for further discussions on the elaboration of the next MTS and on how to ensure that the Agency continues to address the evolving and changing needs of Members, while supporting them in their energy transitions. At the second meeting of the Working Team on 23 March 2022, Members reflected on the topics brought up thus far, and provided additional inputs regarding the Agency’s mission, programmatic activities and direction in preparation for the next session of the Council. The Secretariat also shared preliminary ideas on how to sharpen the structure and objectives of the MTS to reflect what has been discussed in the context of the Work Programme.

The next meeting of the MTS Working Team will be convened virtually on **11 May 2022, 15:00-17:00 GST** and provide an opportunity to discuss the overview, in preparation for the Programme and Strategy Committee (PSC) and Council discussions.

⁵⁵ Algeria, Belgium, Canada, China, Denmark, Ecuador, European Union, France, Germany, Italy, Japan, Kenya, Kiribati, Netherlands, Republic of Korea, Norway, Spain, United Arab Emirates, United Kingdom, Uruguay, United States of America, and Zimbabwe.

Communications and Outreach – Amplifying Impact

IRENA continues to strengthen its communication and outreach activities. Since the beginning of 2022, IRENA has been referenced in over 10,900 media articles in 40 languages across 133 countries, representing a 38% increase compared to Q1 2021.

During this period, key IRENA reports were launched. For example, the Agency’s flagship World Energy Transitions Outlook 2022 (WETO) was disseminated through a press release in nine languages on 29 March. In less than a week since launch, the report was downloaded about 7,3000 times, mentioned more than 1,300 times in 46 countries, across 7 languages and has seen interest by a wide-range of top-tier outlets including Time, The Independent, Financial Times, Der Spiegel, Handelsblatt and Forbes. When it comes to media mentions, WETO 2022 currently stands as IRENA’s best-performing report. (Table 6).

Table 6: WETO Social Media Presence

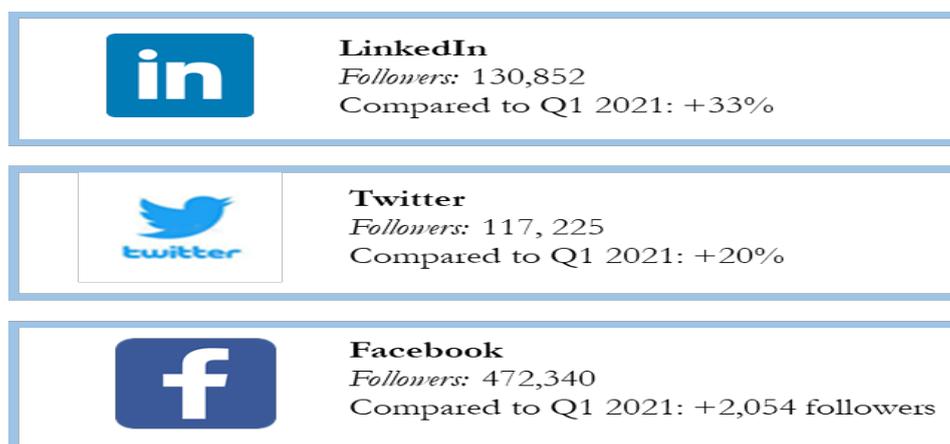


The number of visitors to IRENA websites has also increased by 18%, compared to Q1 2021, almost reaching the mark of half a million users. Overall, www.irena.org has generated 1.6 million pageviews, corresponding to an increase of 25% compared to last year. Continuity of new formats like interactive stories encouraged user interaction, thus increasing the time spent on the site. The peak days in this period were marked by flagship publication launches. For example, over 15,000 engaged with content related to WETO 2022 in less than a week from the report launch.

IRENA continued to implement its strategy to target and deploy social media for global events, reports, and news. As of the reporting period, IRENA’s Twitter account has reached 117,225 followers, up from 97,891 followers compared to the same period in 2021, an increase of nearly 20%. Furthermore, IRENA’s Facebook constituency increased by 2,054 since Q1 2021, reaching 472,340. On LinkedIn 130,852 people follow IRENA, a year-on-year difference of 32,649, an increase of more than 33%. LinkedIn continues to be IRENA’s fastest growing social media platform (Table 7).

Dedicated mailing campaigns, outside of IRENA’s daily Media Brief, provide targeted information on IRENA press releases, publications, and events to a pool of 78,210 stakeholders. Between January 2022 and March 2022, IRENA sent 21 press releases and event invitation mailings, including to Members’ Focal Points. The mass emails on WETO 2022 resulted in the highest open rate by 4 April 2022, reaching 55%.

Table 7: IRENA’s Social Media Statistics



Looking ahead

This section provides a snapshot of some of IRENA's upcoming publications.

Innovation is crucial to be able to manage this electricity system of the future. Smart additional power loads, minimising the impact on peak demand and grid congestion as well as the right additional infrastructure investments are needed. New technologies, digitalisation, innovative regulation, business models and changes in system operation are needed too. IRENA's **Innovation Landscape Report** for end-use electrification, scheduled for release later this year, will provide the toolbox needed for successful innovation.

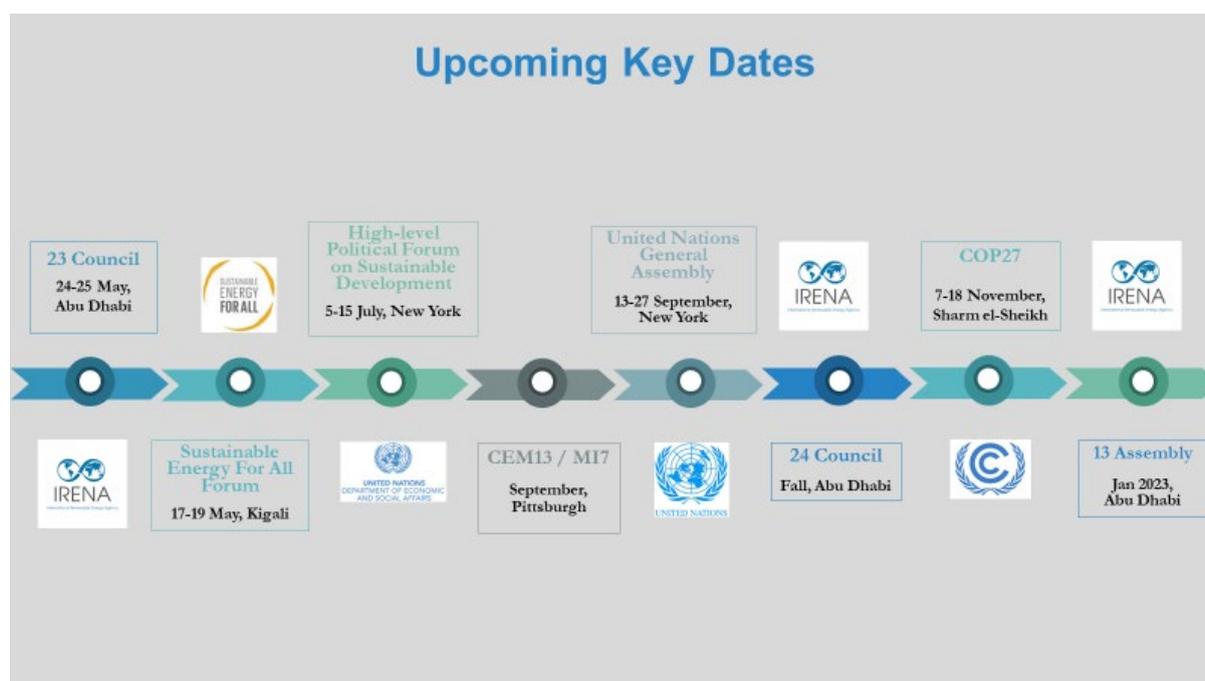
In cooperation with the International Labour Organization, IRENA will publish the 2022 edition of the **Annual Jobs Review** in September 2022.

Ammonia is emerging as a viable zero-carbon fuel in the maritime sector and for stationary power generation, and proposed as a hydrogen carrier; however, it is produced almost exclusively from fossil fuels, causing approximately 1% of total GHG emissions. IRENA's **Innovation Outlook: Renewable Ammonia** report will show how, with the right policies, renewable ammonia could be cost-competitive from 2030 onwards.

IRENA's **Re-structuring the Power Systems** report will examine the main misalignments between current structures, supporting policies to scale up renewables, and the essentially different requirements of a renewable-based power system.

In collaboration with the VTT Technical Research Centre of Finland, **IRENA's FlexTool** to Version 3.0 is in advanced stage of development. The goal is to update the modelling framework and code to improve its user-friendliness and make it more powerful.

Save the Date



Upcoming IRENA events and publications

Table 8: Tentative list of IRENA Events, 2022

Date	Event name
26-April	IRENA Insights – Grid Codes for Variable Renewables
26-April	Collaborative Framework on the Geopolitics of Energy Transformation
10-May	IRENA Insights – Renewable ammonia
10-May	Integration of renewables in District Heating and Cooling Systems - Mongolia
11-May	Medium-term Strategy Working Team meeting
19-May	Collaborative Framework on Project Facilitation
26-May	Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems
27-May	Collaborative Framework on Green Hydrogen

Table 9: Selected upcoming publications, 2022

Date	Provisional Report Title
May-2022	Innovation Outlook: Renewable Ammonia
May-2022	Hydrogen carriers and infrastructure for global trade
May-2022	Green hydrogen supply cost curves
May-2022	Global hydrogen trade in a 1.5 C scenario
May/June	Power Generation Cost 2022
May/June	Re-structuring the Power Systems
Q2	Develop a 100% renewable energy roadmap for Palau including hydrogen analysis: draft roadmap report and models shared with the country
Q2	North Africa Power Pool report
Q2	Sugarcane report - Central America
Q2	Biofeed stock in Caribbean
Q2	Guidelines to mitigate technical risks for wind and PV systems in locations with extreme weather condition
June-2022	SDG7 Tracking Progress report
Sept-2022	Innovation Landscape Report on Electrification

Effective functioning of the organisation

To deliver on the Agency's mandate, IRENA relies on the contributions and support of its Members, cooperation 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 to date.

The Administration and Management Services Division supports efficient implementation of the Work Programme and facilitates effective use of the Agency's resources. IRENA continues to innovate in its processes and practices to remain responsive to the dynamic nature of its programmatic work. In this regard, the continued enhancement of the ERP system will go a long way to facilitate timely and streamlined support to programme implementation.

Finance and Budget

The Agency's full compliance with its Financial Regulations and Procedures, in accordance with the International Public Sector Accounting Standards (IPSAS), underpins finance and budget activities. As such, financial and budgetary services are continuously provided to Members, staff, and other stakeholders, aligned with international accounting standards and budget practices. The services include preparation of the financial statements for IRENA, issuance of annual bills, allotments and administration of core funds and voluntary contributions. Finance and Budget follow up regularly with Members for the collection of outstanding assessed contributions, registering and allotting voluntary contributions, settlement of vendor, issuance of donor reports, supplier invoices, and regular internal support services including payroll, management of IRENA investments and Staff Provident Fund, budget utilisation updates, and general advice to support the sound financial management of the Agency. Additional activities include support for addressing internal and external audit recommendations and continuing efforts associated with ERP enhancement

Information and Communication Technology (ICT)

During the biennium, ICT has particularly contributed to ensure continuity of services and improve health and safety in response to the COVID crisis through its state-of-the-art online services and digital solutions: ICT has supported the emergence of remote work, reinforced its virtual meetings and events tools, improved digital communication and collaboration, provided productivity software adapted to work from home, developed new online/mobile applications and automated workflows, upgraded the moveable end-users equipment, and produced an Executive dashboard providing the senior management with up-to-date views of the Agency administrative processes performance. The "cloud first" approach adopted by ICT in the last few years has strongly contributed to the fast deployment of these changes.

ICT continues also to consolidate its capabilities and to serve as a strategic enabler for the Agency in the implementation of its Work Programme throughout the following IT strategy initiatives, closely aligned with the IRENA MTS and in collaboration with the different divisions:

- digital transformation towards higher institutional effectiveness and efficiency, by maintaining and enhancing the ERP and dashboard/reporting tools as well as paperless office solutions;
- development of value-added business capabilities on energy transition, through the maintenance and enhancement of IRENA Website, web platforms and tools;
- reinforcement of the organisational resilience and compliance, by way of its cybersecurity management framework and business continuity plan;
- operational excellence (IT governance, cost optimisation, proactive maintenance, regular monitoring) and internal capacity building (trainings, technology workshops);
- regular maintenance and modernisation of IT infrastructure and equipment (in Headquarters, Bonn and New York Offices, cloud first and on premise as needed); and
- provision of state-of-the-art IT services and solutions to different IRENA business units and users.

Human Resources

During the previous biennium, the work of Human Resources spanned administrative, operational, and strategic activities. Significant effort was placed on aligning human resource policies and processes more closely with the Agency's strategic and programmatic objectives, including additional personnel sourcing and building organisational capabilities that are needed to achieve the Agency's operational objectives with the right combination of skills, knowledge, competencies, and expertise, while promoting geographical, cultural, and gender diversity. Human resources practices, rules, and procedures have continued to be refined and updated to ensure effective and efficient responsiveness to the emerging and evolving needs and challenges of the Agency while safeguarding its core values and principles. Attracting, developing and retaining highly qualified staff is key to the Agency's success. In this respect, IRENA has stepped up its outreach efforts to attract talent from all over the world, including by 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 and secondment arrangements.

During the period from 1 January 2022, 23 vacancies (core and project, including interns and consultants) were announced and over 3,200 applications received. Out of 93 core posts, 88 are filled or under recruitment (76 filled and 12 are under active recruitment) and five are vacant. The 76 staff in core posts are from 47 nationalities out of which 43% are women and 57% are men. There are also 125 project posts that are currently filled or under recruitment (94 filled and 31 under active recruitment). Combined core and project posts amount to a total of 170 staff, who come from 72 nationalities with 45% women and 55% men (Figures, 11, 12 and Figure 13).

Figure 11: Staff Status as of 31 March 2022

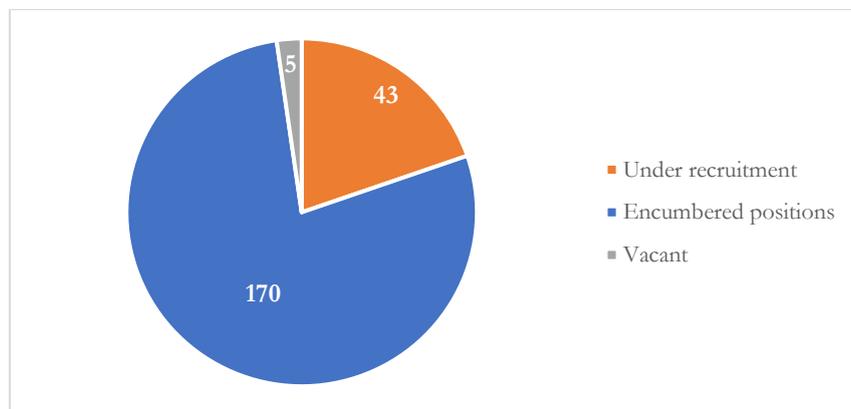


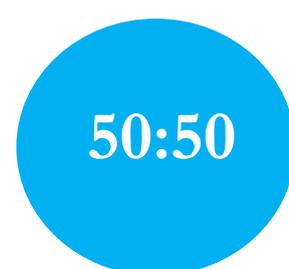
Figure 12: Human Resources Statistics



Nationalities at
IRENA



Staff Gender
Balance



Senior Team
Gender Balance

Figure 13: Geographical Distribution (core and project posts), as of 31 March 2022

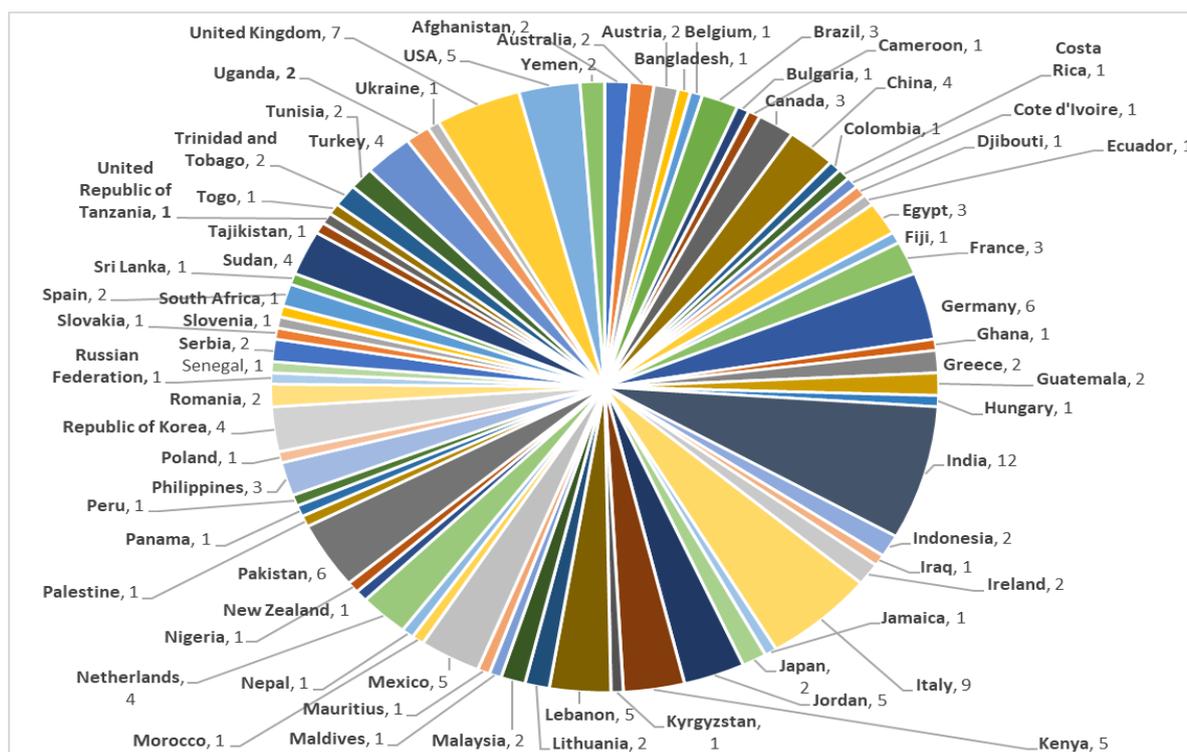


Table 10: Filled/Under Recruitment of Core and Project Posts by Level, as of 31 March 2022

Level	Filled or Under Recruitment	Total
ASG	1	1
D-2	1	1
D-1	7	7
P-5	22	22
P-3/4	75	77
P-2/1	64	64
Sub-total Professional and above	170	172
General Services	43	46
Total	213	218

Table 11: Loaned Personnel as of 31 March 2022

Division	Title	Loaned from
ODG	Liaison and Protocol Officer	United Arab Emirates
ODG	Programme Officer, Planning and Programme Support	United Kingdom
IITC	Programme Officer, State Grid Corporation of China	China
IITC	Programme Officer, KETEP	Republic of Korea

Table 12: Seconded Officers (Voluntary Contributions) as of 31 March 2022

Division	Title	Seconded from
CEP	Programme Officer	Republic of Korea
ODG	Senior Advisor to the Director-General	Italy
IITC	Analyst – Renewable Energy Scenarios and Roadmaps	Denmark

Procurement

The Agency has continued to implement its planning for cost-effective procurement process of goods and services. To ensure transparency, fairness, openness, and competitiveness, the procurement bidding opportunities are posted on IRENA's website and disseminated to the vendors registered with IRENA's vendors database. IRENA is also using the United Nations Global Market (UNGM) portal to upload complex procurement notices. In addition, the Procurement Master Plan is being updated and planned to be fully automated in quarter 1 of 2022, to reflect the requirements of the Divisions until the end of the year. As of 31 March 2022, more than 740 procurement contracts for goods and services have been awarded totalling approximately USD 11.4 million. Furthermore, to maintain continuous support to the ongoing operation, the Agency continued entering into Long Term Agreements (LTA) for various types of goods or services. As of 31 March 2022, Procurement Section entered into or extended more than 22 LTAs.

General Services and Travel

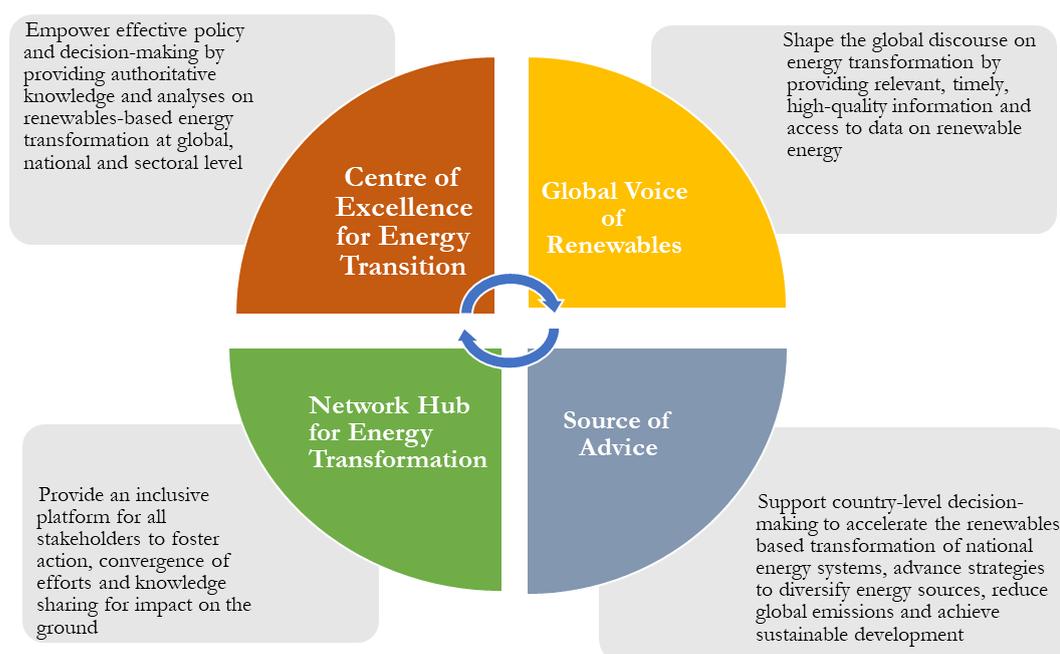
Travel support and services were provided to staff, delegates and participants in conferences and workshops. From January to March 2022, the Agency facilitated participation in seven workshops and 82 travel services. The section continues to provide facility management services for IRENA Headquarters and staff. This is an important function which contributes to a healthy and productive work environment while delivering continuous day-to-day services for staff. As part of these ongoing services, General Services has instituted a Health and Safety programme and further enhancement of measures and procedures are in progress, to be implemented in the future.

Implementation Progress Overview

The Agency's senior management is once again preparing an internal Directive to set the framework for delivery of the Work Programme and Budget for 2022-2023. 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. Piloted in the last biennium, the Directive has become a baseline to monitor progress and support inter-divisional cooperation.

There are a total of 68 Work Programme outputs for the 2022-2023 biennium, spreading 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 (Figure 14). Of these total outputs, 6% are complete and 68% in progress, totalling 74% implementation of the Work Programme.

Figure 14: IRENA's Strategic Objectives



Resource overview

This section presents details of the core budget and voluntary contributions applicable to the Work Programme for 2022-2023.

Biennial budget overview

Table 13: 2022-2023 Biennium Budget Utilisation by funding source (in USD Thousands)

	2022-2023 Biennium Budget	Utilisation as of 31 Mar 2022	
		Commitment and Expenses	Proportion of 2022- 2023 Biennium Budget
Assessed Contributions (Core Budget)	44,778	11,216	25%
Core Non-Assessed UAE			
UAE Support	5,000	462	9%
Governing Body Meetings	3,200	238	7%
IT Infrastructure Support	920	60	7%
<i>Subtotal</i>	9,120	760	8%
Core Non-Assessed Germany			
Innovation and Technology Centre	10,890	2,101	19%
<i>Subtotal</i>	10,890	2,101	19%
Total Core Non-Assessed	20,010	2,861	14%
Grand Total	64,788	14,077	22%

Core Non-Assessed Contributions*as of 31 March 2022, in USD***Budgeted Voluntary Contributions**

	2022	
	Committed	Received
GERMANY		
IRENA Innovation and Technology Centre	5,445,000	5,445,000
United Arab Emirates (UAE)		
UAE Support	2,500,000	-
Governing Body Meetings	1,600,000	-
IT Infrastructure Support	460,000	-
Subtotal UAE Contributions	4,560,000	-
Total Budgeted Voluntary Contributions	10,005,000	5,445,000

Other Voluntary Contributions

Donor/Project	2022	
	Committed	Received
Germany	332,893	-
Japan	639,277	639,277
Republic of Korea	624,473	624,473
United Arab Emirates (UAE)	2,562,000	2,362,000
United Kingdom of Great Britain and Northern Ireland	130,890	-
Total	4,289,533	3,625,750

Multi-Year Voluntary Contribution

Donor/Project	Multi-Year Commitments	Received prior to 2022	Received during 2022
Canada	393,082	-	349,078
Denmark*	7,620,986	5,764,034	-
European Commission	1,883,656	-	70,308
Germany (International Climate Initiative)*	6,796,311	5,693,564	-
Germany (Physikalisch-Technische Bundesanstalt (PTB)/BMZ)	567,537	-	280,899
United Nations Development Programme (UNDP)	6,200,000	1,433,715	486,000
Total	23,461,572	12,891,313	1,186,285

*Contributions pledged and partially received prior to 2022

Figure 15: Received and outstanding assessed contributions for 2021 core budget (in USD millions, as of 8 April 2022)

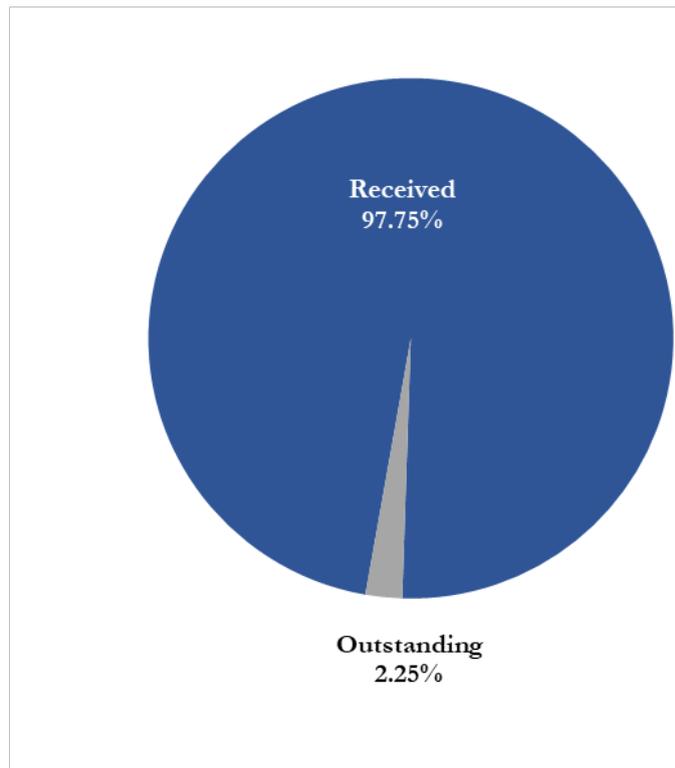
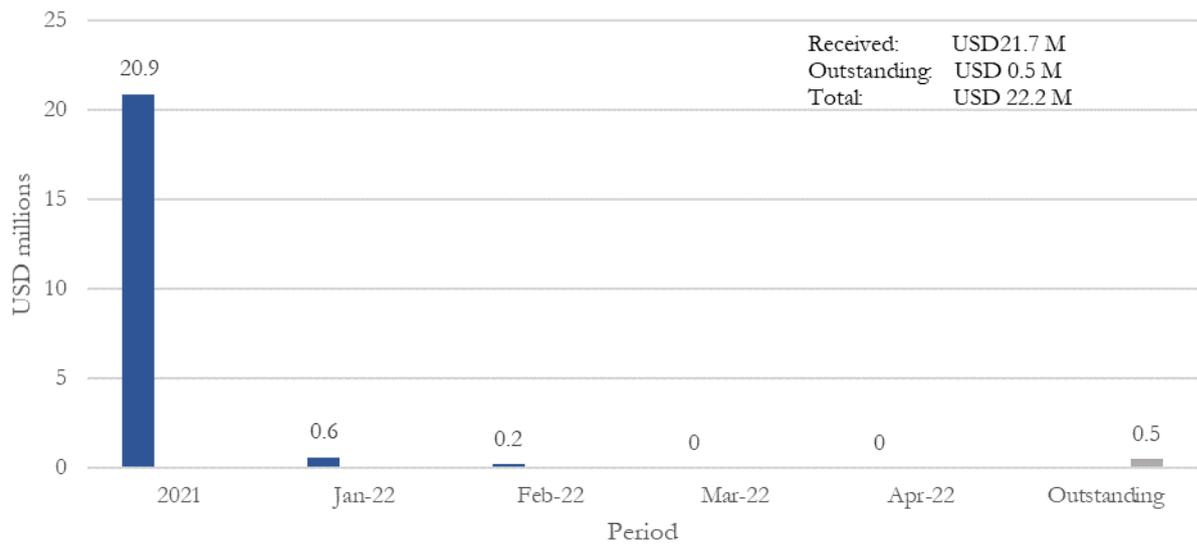


Figure 16: Received and outstanding assessed contributions for 2022 core budget (in USD millions, as of 8 April 2022)

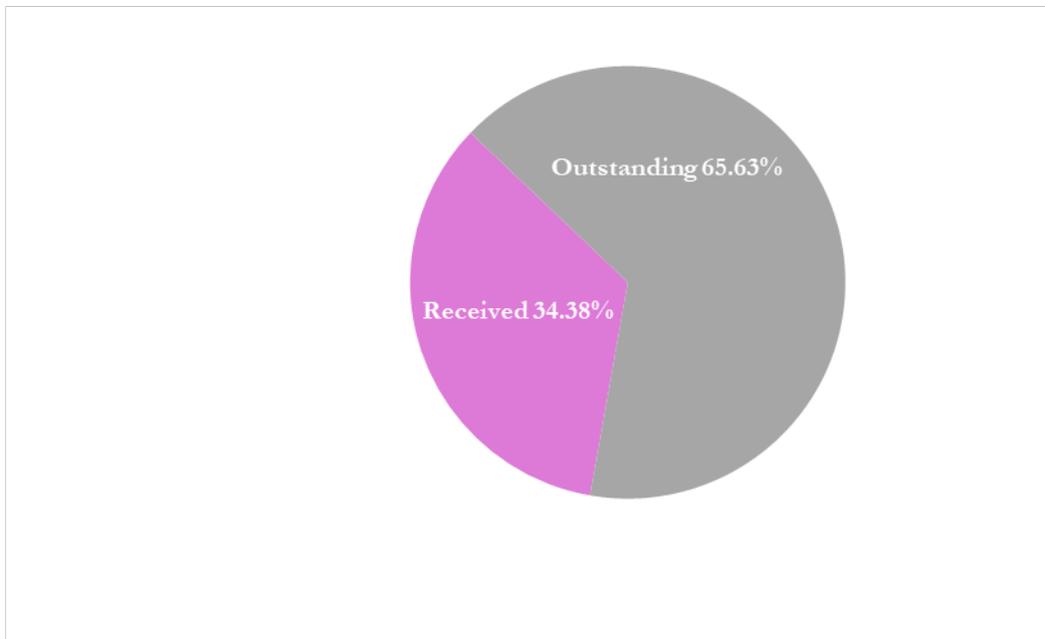
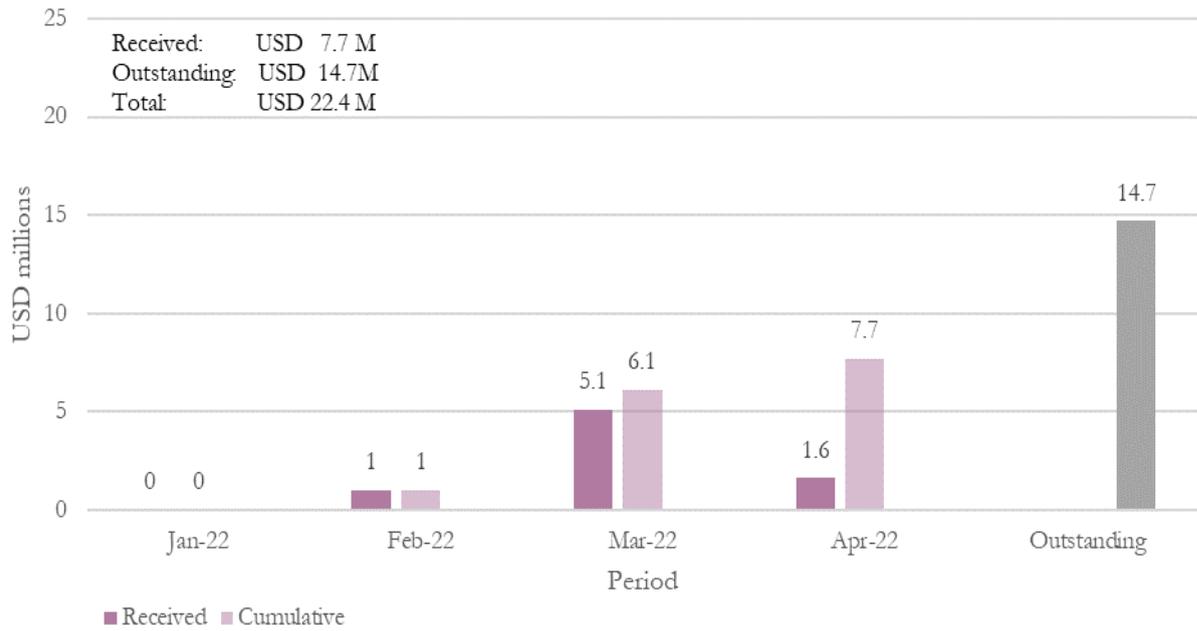


Figure 17: Number of Members with received and outstanding contributions to the 2021 core budget (8 April 2022)

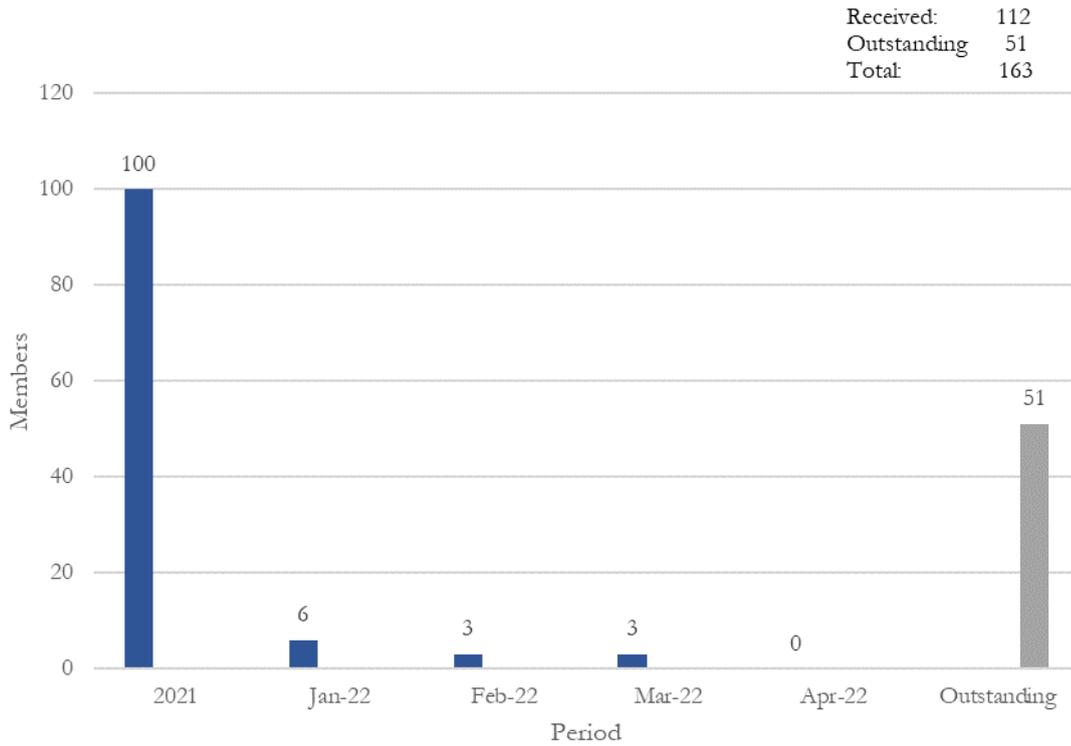
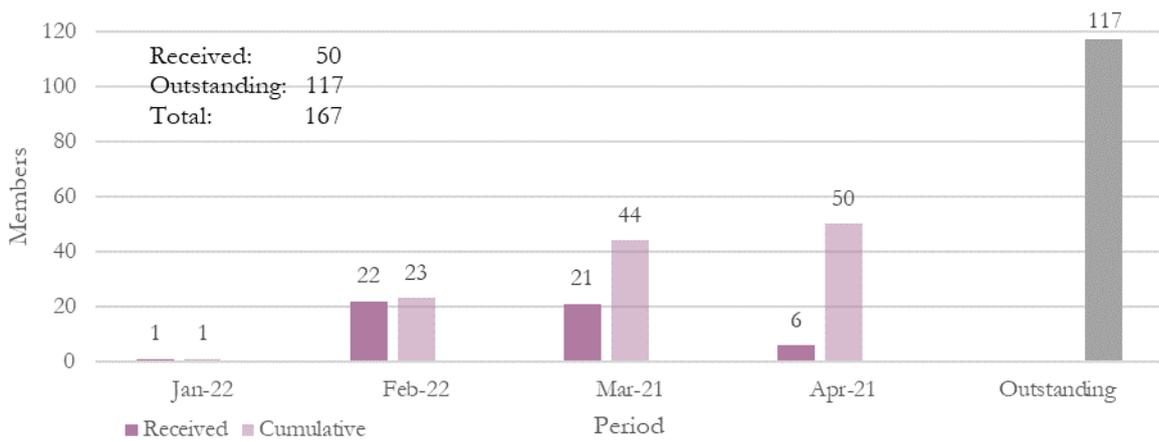


Figure 18: Number of Members with received and outstanding contributions to the 2022 core budget (8 April 2022)



IRENA Donors (2022-2023)



Canada
Ministry of Natural Resources

Global Initiative for Transitioning Remote Communities to Renewable Energy



Denmark
Ministry of Foreign Affairs

Long-term Planning
SIDS Lighthouse Initiative 2.0



European Commission
DG ENER

EU Remap: In-depth analysis of renewable energy technology opportunities to support regional cooperation in national energy and climate plans

DG NEAR

Conditions and obstacles for the development and integration of renewable energy sources in the Eastern Partner countries.



Germany
Federal Ministry of Economics and Technology (BMWi)

World Energy Transitions Outlook

Federal Foreign Office

Geopolitics of Hydrogen Economy

International Climate Initiative

SIDS Lighthouses

Physikalisch-Technische Bundesanstalt (PTB)

Quality Infrastructure for Green Hydrogen



Japan
Ministry of Agriculture, Forestry and Fisheries (MAFF)

Development of Circular Economy with Bioenergy and Co-products

Ministry of Economy, Trade and Industry (METI)

Various Projects



Republic of Korea

Seconded official



United Arab Emirates

UAE flextool and various projects



United Kingdom
Department for Business, Energy & Industrial Strategy

COP26 activities under the Glasgow Breakthrough Agenda



United Nations Development Programme (UNDP)

UNDP Climate Promise

As directed by its Membership, IRENA continues to diversify its resource base by seeking extra-budgetary support. In the 2022-23 biennium, IRENA received to date a total of USD 4,812,035 through voluntary contributions, with an additional USD 6,467,160 to be received before year end.

Work Programme 2022-2023 – Implementation Matrix

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): 14,108. 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
World Energy Transitions Outlook (annual editions) *	Completed	“World Energy Transitions Outlook 2022” (Preview) ⁵⁶ (March 2022) [Click here].
Regional Energy Transitions Outlooks (selected regions in Africa, Europe, Latin America) *	In progress	<ul style="list-style-type: none"> ▪ “Renewable Energy Roadmap for Central America” report (March 2022) [Click here]. ▪ 2nd “Renewables Outlook for ASEAN: Towards a regional energy transition” report⁵⁷ [under preparation]. ▪ “Renewable Energy Roadmap for South America” report [under preparation]. ▪ “Renewable Energy Roadmap for North Africa” report [under preparation]. ▪ “Renewable Energy Roadmap for EU” report⁵⁸ [under preparation].
Innovation Landscape for the Energy Transition	In progress	<ul style="list-style-type: none"> ▪ “Smart Electrification with Renewables: Driving the Transformation of Energy Services” report (February 2022) [Click here]⁵⁹. ▪ “Innovation Outlook: Renewable Ammonia” report [under preparation]. ▪ Bilateral discussions with China State Grid Energy Research Institute on technical collaboration [ongoing]. ▪ Brief on 100% RE power systems [under preparation].
Geopolitics of the Energy Transformation: biennial report on trends*	In progress	
Global Landscape: Renewable Energy Finance report	In progress	<ul style="list-style-type: none"> ▪ “Global Landscape of Renewable Energy Finance 2022” report [under preparation].
Renewable Energy Capacity and Generation (annual update)		<ul style="list-style-type: none"> ▪ “Renewable Capacity Statistics 2022” report (April 2022) [Click here]. ▪ Downloadable query tools update 2022 [Click here]. ▪ Interactive dashboards update 2022 [Click here]. ▪ IRENASTAT online database update 2022 [Click here]. ▪ “Renewable energy statistics 2022” report [under preparation]. ▪ Energy profiles update 2022 [under preparation]

⁵⁶ Supported by the Government of Germany.

⁵⁷ Supported by the Government of Denmark.

⁵⁸ Supported by the European Commission.

⁵⁹ See related webinar [here](#).

		<ul style="list-style-type: none"> ▪ “Off-grid renewable energy statistics 2022” report [under preparation].
Power Generation Costs (annual update)	In progress	<ul style="list-style-type: none"> ▪ “Renewable Power Generation Costs in 2021” report [under preparation]. ▪ “Financing Costs: A survey and review of Project Level WACC” report [under preparation].
Costs and Performance of End-use Technologies – selected insights	In progress	<ul style="list-style-type: none"> ▪ “Heat Pump Costs and Markets” report [under preparation].
Annual Jobs Review (annual update)	In progress	<ul style="list-style-type: none"> ▪ “Renewable Energy Jobs 2022” report [under preparation].
Patents and Standards database INSPIRE (annual update)	In progress	<ul style="list-style-type: none"> ▪ Update of tool by Q3 2022 [under preparation]. ▪ “Grid Codes for Renewable Power Systems” report (April 2022) [Click here]. ▪ “Renewable Technology Innovation Indicators: Mapping progress in costs, patents and standards” report (March 2022)⁶⁰ [Click here].
Global Atlas updates on renewable potentials	In progress	<ul style="list-style-type: none"> ▪ Improving functionalities of the IRENA Global Atlas for Renewable Energy platform [ongoing]. ▪ Bioenergy Simulator⁶¹ [Click here for news article. Click here for simulator] ▪ Annual update of the renewable energy resource datasets from dataproviders (Members, international institutions and private sectors) [ongoing].
SDG7 Tracking Report (2022 and 2023 editions) *	In progress	“Tracking SDG 7: The Energy Progress Report” (2022) report ⁶² [under preparation].
Innovation Week	In progress	<p>Innovation Engagements and Networks during the reporting period include:</p> <ul style="list-style-type: none"> ▪ Innovation Day: Canada March 2022 (March 2022) [Click here]. ▪ Support to Mission Innovation (Missions on Power, Hydrogen, Net-zero industry; Technical Advisory Group; Insights module) [ongoing]. ▪ Support to Glasgow Breakthrough Agenda – State of Energy Transition report [ongoing]. ▪ Support for Global Offshore Wind Alliance (GOWA) – GOWA meeting with countries organised on 16th March 22 [ongoing].
Human resources and workforce planning strategy	In progress	<ul style="list-style-type: none"> ▪ 17 new staff appointments and internal movements and three new Associate Professionals [under preparation]. ▪ Reclassification and comprehensive review of all Terms of Reference [under preparation].
Update of HR Policy Manual	In progress	<ul style="list-style-type: none"> ▪ Directives in draft on Remote Work, Performance Management, and Recruitment [under preparation].

⁶⁰ Supported by the European Commission’s Horizon 2020 research and innovation programme.

⁶¹ Supported by the Government of Norway.

⁶² Supported by the International Bank for Reconstruction and Development.

II. Global Voice of Renewables

Core assessed and core non-assessed resources (in USD thousands): 9,773. 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
Socio-economic Analyses at country level* (reports and country briefs) ⁶³	In progress	<ul style="list-style-type: none"> ▪ “Socioeconomic Footprint of the Energy Transition: Japan” report [under preparation]. ▪ “Socioeconomic Footprint of the Energy Transition: Egypt” report [under preparation]. ▪ “Socioeconomic Footprint of the Energy Transition: South Africa” report [under preparation]. ▪ “Socioeconomic Footprint of the Energy Transition: Indonesia” report [under preparation]. ▪ “Socioeconomic Footprint of the Energy Transition: Southeast Asia” report [under preparation].
Leveraging Local Capabilities (selected technologies)	In progress	<ul style="list-style-type: none"> ▪ “Leveraging Local Capacity for Small Scale Hydropower” report [under preparation]. ▪ “Leveraging Local Capacity for CSP” report [under preparation].
Ecosystems for Sustainable Livelihoods*	In progress	<ul style="list-style-type: none"> ▪ “Fostering Livelihoods with Decentralised Renewable Energy: An Ecosystems Approach” report (January 2022) [Click here].
Decentralised Renewable Energy Solutions* (policies for mini-grids; solutions for clean cooking)	In progress	<ul style="list-style-type: none"> ▪ “Policies and Regulations for Renewable Energy Mini-grids” report [under preparation]. ▪ “Public Financing Instruments for Universal Energy Access” report [under preparation].
Renewable Energy Policies in the Power Sector (decentralised generation; high-risk environments)	In progress	<ul style="list-style-type: none"> ▪ “Renewable Energy Auctions: design in higher risk contexts” report [under preparation].
Power Market Design for the Energy Transition report	In progress	<ul style="list-style-type: none"> ▪ “Restructuring Power Systems for the Transition” report [under preparation].
Renewable Energy Education and Skills*	In progress	<ul style="list-style-type: none"> ▪ “Education for the Energy Transition” report in collaboration with UNESCO [under preparation]. ▪ Initiative on Educating the Educators including “Renewable Energy Toolkit for Teachers” [under preparation].⁶⁴ ▪ E-learning platform with online self-study courses on key renewable energy topics [under preparation].⁶⁵
Renewable Energy Policies for Cities: localising end-use value chains		

⁶³ Supported by Government of Denmark (reports on Egypt; South Africa; Indonesia and Southeast Asia) and Government of Japan (report on Japan).

⁶⁴ Supported by Government of the United Arab Emirates.

⁶⁵ Supported by Government of Norway.

Climate Policy: renewable energy and NDCs *		
Climate Change Adaptation: methodology and country analyses *	In progress	<ul style="list-style-type: none"> ▪ “Renewable Energy in Adaptation: Methods and Metrics” report [under preparation].
Geopolitics of the Energy Transformation: deep dive on a selected topic *		
Gender and Renewable Energy report: tracking global progress	In progress	<ul style="list-style-type: none"> ▪ “Solar PV: A Gender Perspective” report [under preparation].
Energy Transition for End-uses (transport and industry decarbonisation)	In progress	<ul style="list-style-type: none"> ▪ Innovation Day: Canada March 2022, with focus on Road Freight and Decarbonisation of Iron & Steel sectors (March 2022) [Click here]⁶⁶.
End-use Decarbonisation: guides for policy-making (procurement; heating and cooling; transport; green hydrogen) *	In progress	<ul style="list-style-type: none"> ▪ “Green hydrogen for industry: A guide to policy making”⁶⁷ report (March 2022) [Click here]. ▪ “Renewable energy policies for decarbonisation of transport” report [under preparation].
Identification of barriers and opportunities to accelerate the renewable energy transition in SIDS	In progress	<ul style="list-style-type: none"> ▪ Implementation and capacity building, as well as completion of Quicksans for Belize⁶⁸, Barbados and Grenada [ongoing].
Greening the Gas System *		
Energy Transition and Critical Materials *	In progress	<ul style="list-style-type: none"> ▪ “Critical Materials For The Energy Transition: Lithium” brief (January 2022) [Click here]. ▪ “Critical Materials for The Energy Transition: Rare Earth” brief [under preparation]. ▪ Establishment of a new Collaborative Framework on Critical Materials (March 2022) [Click here].
End of Life and Circular Economy * (storage and batteries; solar PV panels)	In progress	<ul style="list-style-type: none"> ▪ “End-of-Life Management of Solar Photovoltaic in the Energy Transition” report [under preparation].
Corporate Sourcing of Renewable Energy *		
Comprehensive Global Communication Strategy with accessible and multilingual content and information *	In progress	<ul style="list-style-type: none"> ▪ Comprehensive Global Communication Strategy for Q1 2022 was successfully implemented, including the second phase of strategic media partnership and social media campaign [ongoing]. ▪ Press release translations, international media outreach and communications amplified reach of key publications such as “WETO 2022”⁶⁹ and the “Geopolitics of the Energy Transformation: The Hydrogen Factor”. ▪ Strategic communications support around key, global high-level events, including the IRENA Assembly, EXPO2020, ADSW and BETD.

⁶⁶ For more information please see output [here](#).

⁶⁷ Supported by the Government of Japan.

⁶⁸ Supported by the Government of Denmark.

⁶⁹ Supported by the Government of Germany.

		<ul style="list-style-type: none"> ▪ Supported and coordinated the release of 16 publications. ▪ Four publications translated, serving nine different languages (Arabic, Chinese, French, Spanish, Russian; in addition to German, Japanese, Italian and Portuguese). ▪ Continued to facilitate and advance the publishing of IRENA Technical papers, with one additional release in January – April 2022. ▪ One million downloads of IRENA publications since 1 January 2022. ▪ IRENA publications featured on knowledge sharing platforms and in electronic libraries/stores, including Apple store, Scribd, Refinitiv, Amazon and others. ▪ Maintain regular strategic publication output, with predictable flagship reports, timely thematic studies, and other specialised releases [ongoing]. ▪ Continued application of the Agency’s digital-first communication approach, with printing limited to key publications and/or peripherals [ongoing]. ▪ Updated ‘Publications guidelines’ to govern all IRENA production and output. Currently in final stages of refinement, featuring amended processes and procedures to maximise quality control and efficiency throughout the entire publication process chain [ongoing]. ▪ Ongoing communication support provided in relation to publication releases, webinars, press releases, digital stories, short videos, website updates etc. [ongoing]. ▪ IRENA Insights webinar series [Click here]. <ul style="list-style-type: none"> ➤ <i>Reaching Zero with Renewables: Capturing carbon</i> ➤ <i>Sector Coupling in Facilitating the Integration of Variable Renewable Energy in Cities</i> ➤ <i>Pathways to Decarbonise the Shipping Sector by 2050</i> ➤ <i>INSPIRE: IRENA’s Platform on Patent Data and International Standards for Renewables</i> ➤ <i>Geopolitics of the Energy Transformation: The Hydrogen Factor</i> ➤ <i>Smart Electrification with Renewables: Driving the Transformation of Energy Services</i> ▪ Policy Talks 2022 webinar series [Click here] <ul style="list-style-type: none"> ➤ <i>Enabling Green Hydrogen: Industrial Policy, Certification Systems, and Inclusiveness</i> (March 2022) [Click here] ➤ <i>Reaping the socioeconomic benefits of the energy transition - building a comprehensive policy framework</i> (January 2022) [Click here] ▪ Dissemination of the “Renewable Energy Market Analysis: Africa and its Regions” report (January 2022) [Click here] ▪ Dissemination of the “Geopolitics of the Energy Transformation” report (January 2022) [Click here]
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Regional Communication Strategies	In progress	<ul style="list-style-type: none">▪ Creation of content targeted at regional markets, including newsroom articles, human impact stories, videos, regional media outreach and DG interviews with local, regional and international press.▪ Strategic communications support around key regional events such as MENACW.
Promotion and use of digital knowledge products and information *	In progress	<ul style="list-style-type: none">▪ Placement of IRENA e-books on selected e-stores [ongoing].▪ 3 interactive stories developed and published.▪ 2 digital reports based on flagship publications developed and pending publication.▪ Technical papers section under the Education component of the website implemented.▪ New irena.org website designed to cater for variety of content formats to be launched in Q2 2022 [under preparation].

III. Network Hub

Core assessed and core non-assessed resources (in USD thousands): 8,336. 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 Investment Forums *	In progress	<ul style="list-style-type: none"> Investment Forum Event in Indonesia (South East Asia region) ⁷⁰ [under preparation].
Regional Action Agendas and Clean Energy Corridors	In progress	<p>Africa</p> <ul style="list-style-type: none"> “Mano River Union Renewable Energy Market Analysis” report [under preparation]. Capacity Building on <i>Long-Term Energy Planning in the Republic of Cameroon</i>⁷¹: Fourth training course (March 2022) [Click here]. <p>Asia</p> <ul style="list-style-type: none"> “Scaling Up Biomass for the Energy Transition: Untapped Opportunities in Southeast” report (February 2022) [Click here] Facilitation of the 2nd “Renewable Energy Outlook for ASEAN: Towards Regional Energy Transition”⁷² [under preparation]. <i>Capacity Building for Renewable Energy Targets</i> in the Kyrgyz republic (March 2022) [Click here] <i>Renewable Readiness Assessment for the Kyrgyz Republic: Validation Workshop</i> (February 2022) [Click here]. <p>Latin America and Caribbean</p> <ul style="list-style-type: none"> Co-organised with WEC and the Vice Minister of Energy and Mines of Paraguay the hybrid webinar for <i>Renewable Energy and Energy Efficiency in Paraguay</i>. (March 2022). Firm Capacity for RE Projects using PPAs in Central America: Stakeholder Consultation Workshop and Questionnaire (February 2022) [Click here]. Co-organised with USAID the webinar <i>Accelerating the Energy Transition in Colombia: Renewable Energy Auctions</i> (February 2022). <p>Middle East and North Africa:</p> <ul style="list-style-type: none"> Co-organised with the European Union, <i>A Dialogue Between EU and Gulf Cooperation Council on a Regulatory Framework to Develop Green Hydrogen Supply, Demand and Trade</i> (April 2022) [Click here]. MENA Climate Week 2022 organised workshop in partnership with UNDP: <i>Catalysing Concerted Action on the Ground towards Achieving the Global Energy Transition and a side event: Renewable Energy Driving Climate Action towards Net-zero in 2050 across the MENA Region</i> (March 2022) [Click here]

⁷⁰ Supported by the Government of Denmark.

⁷¹ Supported by the Government of Denmark.

⁷² Supported by the Government of Denmark and the Government of Japan.

		<ul style="list-style-type: none"> ▪ Co-organised with the United Nations Development Programme a 2-day <i>Energy Transition Workshop in Iraq: Best Practices & Scoping</i> (March 2022) [Click here]. ▪ Organised in partnership with League of Arab States and the African Union, within the framework of the ongoing work on the African Continental Master Plan, regional capacity building workshop: <i>Consultative workshop on IRENA’s North African Power Pool modelling</i> (March 2022) [Click here]. ▪ Virtual regional capacity building workshop: <i>Renewable Energy Targets setting in Arab Countries</i> (February 2022). ▪ Virtual sub-regional (North Africa) capacity building workshop: <i>Improving Resource Assessment Practice in the North Africa: A Solution to Streamline Early Stage Solar and Wind Market Planning</i> (February 2022) ▪ Co-organised with the World Economic Forum a workshop on Enabling Measures (January 2022) [Click here]. <p>Southeast Europe:</p> <ul style="list-style-type: none"> ▪ <i>Renewable Readiness Assessment for Bosnia and Herzegovina: Validation Workshop</i> (April 2022) [Click here].
Energy Compacts Implementation *	In progress	<ul style="list-style-type: none"> ▪ IRENA-FAO Compact on ‘Energising Agri-food Systems with Renewable Energy’ [ongoing]. ▪ Multilateral compact on ‘Renewable energy for peacekeeping’ [ongoing]. ▪ Multilateral compact for ‘Health Facility Electrification’ [ongoing]. ▪ IRENA-GGA-IGA Compact on ‘Scaling up geothermal heating and cooling globally’ [ongoing]. ▪ IRENA-AOSIS Compact on ‘Islands Energy Transition towards a 1.5-degree world’ - operationalised through the SIDS Lighthouses Initiative [ongoing].
Off-Grid Renewable Energy Solutions: Agri-food systems*, health*, clean cooking	In progress	<ul style="list-style-type: none"> ▪ Launched the Beyond Food Partnership, a new joint initiative with the Government of the United Arab Emirates (March) [Click here]. ▪ IRENA-WRI webinar on <i>Scaling-up solar irrigation: Lessons from policies and programmes</i> (February 2022) [Click here]. ▪ Finalisation of IRENA’s input to joint publication of “Global Health Assessment” report with clear picture of status of healthcare electrification and requirements [under preparation]. ▪ Report for technical recommendations, including design, of decentralised RE to electrify health centres (Burkina Faso)⁷³ [under preparation].

⁷³ Supported by Walloon government of Belgium.

6th International Off-grid Renewable Energy Conference (IOREC) *	In progress	<ul style="list-style-type: none"> ▪ 6th edition of IOREC [under preparation].
Decarbonisation of the shipping sector	In progress	<ul style="list-style-type: none"> ▪ Partnership Agreement between IRENA and the International Chamber of Shipping [under preparation]. ▪ Collaboration agreement with UN Global Compact as knowledge partners of the Just Transition Maritime Task Force. [under preparation].
SIDS Lighthouses Initiative*	In progress	<ul style="list-style-type: none"> ▪ Cost data collection and cost-benchmarking tool development [ongoing]. <p>Initiative coordination⁷⁴:</p> <ul style="list-style-type: none"> ▪ Four new partners joined the initiative: Singapore, CARILEC, Island Innovation, Islands and Small States Institute (ISSI), of the University of Malta. Total – 38 SIDS⁷⁵ and 31 development partners.⁷⁶ <p>Events⁷⁷:</p> <ul style="list-style-type: none"> ▪ Technical webinar series on <i>Accelerating the development of Ocean Thermal Energy Conversion (OTEC) in SIDS</i> (February 2022) [Click here]. <p>Grid integration support for SIDS:</p> <ul style="list-style-type: none"> ▪ Stakeholder survey and Feedback from stakeholders [ongoing] ▪ “Synthesis of past IRENA grid assessment studies” report [under preparation].
Global Geothermal Alliance (GGA)*	In progress	<p>Facilitation and coordination of the GGA⁷⁸:</p> <ul style="list-style-type: none"> ▪ Growing GGA constituency. ▪ New GGA Members: Montserrat, United Kingdom, and Uruguay. ▪ New GGA partners: Chinese Renewable Energy Engineering Institute, Ecuadorian Geothermal Association, and Renewable Energy and Energy Efficiency Women’s Network.

⁷⁴ Supported by the Government of Denmark and Germany.

⁷⁵ Antigua & Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Cabo Verde, Comoros, Cook Islands, Cuba, 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.

⁷⁶ Denmark, France, Germany, Italy, Japan, 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, CARILEC, Clean Energy Solutions Center, Clinton Climate Initiative, ENEL, European Union, Greening the Islands, Island Innovation, 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 (UNOHRLS), World Bank.

⁷⁷ Supported by the Government of Denmark and Germany.

⁷⁸ Supported by the Government of Japan.

		<ul style="list-style-type: none"> ▪ Total 49 Countries⁷⁹ and 45 Partners⁸⁰. <p>GGA website developed into a knowledge sharing platform:</p> <ul style="list-style-type: none"> ▪ Updated geothermal profiles: Africa [Click here], Europe [Click here], Asia [Click here], Latin America and Caribbean [Click here], North America [Click here]. ▪ Updated geothermal country profiles [Click here]. ▪ Themes on International Training Centres [Click here] and Geothermal Resource Assessment Methodologies. [Click here]. <p>Revised geothermal heating and cooling targets for the GGA:</p> <ul style="list-style-type: none"> ▪ IRENA and the International Geothermal Association in support of the Global Geothermal Alliance aims to raise ambition on an existing goal of the GGA – to achieve more than two-fold growth in geothermal heating by 2030 through the joint submission of the IRENA -GGA – IGA Energy Compact “Scaling up geothermal heating and cooling globally” [Click here]. ▪ Review of the GGA realignment of objectives. ▪ Development of a strategic and forward-looking implementation plan for the GGA. <p>Publications:</p> <ul style="list-style-type: none"> ▪ “Powering Agri-Food Value Chains with Geothermal Heat – A guidebook for policy makers” report [under preparation]. ▪ “Global Geothermal Market and Technology assessment” report [under preparation]. ▪ “Strategic Heating and Cooling Plan for Mongolia” report [under preparation].
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⁷⁹ 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, Montserrat, New Zealand, Nicaragua, Pakistan, Papua New Guinea, Peru, Philippines, Poland, Portugal, Romania, Saint Vincent & the Grenadines, Solomon Islands, Switzerland, Tonga, Turkey, Uganda, United Kingdom, United Republic of Tanzania, United States of America, Uruguay, Vanuatu, Zambia, Zimbabwe.

⁸⁰ 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), Australian Geothermal Association, Canadian Geothermal Energy Association, Caribbean Electric Utility Services Corporation (CARILEC), Centro Mexicano de Innovación en Energía Geotérmica (CeMIEGeo), Chinese Renewable Energy Industries Association (CREIA), Chinese Renewable Energy Engineering Institute, Eastern African Power Pool, Ecuadorian Geothermal Association, 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 Rising (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, Renewable Energy and Energy Efficiency Women’s Network, 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, Women in Geothermal, World Bank.

Long-term Energy Scenarios initiative and network *	In progress	<p>Membership and partnerships⁸¹:</p> <ul style="list-style-type: none"> ▪ Growing membership, with 25 country members and 11 technical partners currently. ▪ Bilateral discussions with technical partners on long-term collaboration, mainly with the following: <ul style="list-style-type: none"> ➢ UNFCCC and the World Resources Institute on gathering insights from LTES in LT-LEDS ➢ GET.transform/GIZ on long-term scenarios and planning in the Global South ➢ World Energy Council on demand-side scenarios and scenario communications ➢ China’s State Grid Energy Research Institute ▪ Workplan survey conducted with members and partners to formulate May 2022- April 2023 working plan. <p>Events⁸²:</p> <ul style="list-style-type: none"> ▪ Webinar series on <i>Long-Term Energy Scenarios (LTES) For Developing National Energy Transition Plans In Africa</i> (January 2022) [Click here]. ▪ Member and partner quarterly call (March 2022) ▪ Side event at the Berlin Energy Transition Dialogue 2022 on <i>Insights from Net-zero LTES for National Energy Planning</i> (March 2022) [Click here]. ▪ Side event at the International Energy Workshop 2022 on <i>Participatory Processes in Long-term Energy Scenario Development</i> [under preparation]. <p>Publications and analysis⁸³:</p> <ul style="list-style-type: none"> ▪ National Energy Transition Planning dashboard update (March 2022) [Click here]. ▪ “Scenarios for the energy transition – Experience and good practices in Latin America and the Caribbean” report [under preparation]. ▪ “Development and use of LTES in Africa” report [under preparation]. ▪ Report on LT-LEDS (with UNFCCC) [under preparation].
Peer-to-Peer Network “Energy Transition Connect”		
Coalition for Action	In progress	<p>Reports/briefs published, and events held:</p> <ul style="list-style-type: none"> ▪ Public-Private Dialogue at the 12th IRENA pre-Assembly on circular economy and end-of-life management of renewables (January 2022) [Click here]. ▪ Coalition Annual Strategy Meeting (January 2022) [Click here]. ▪ Coalition for Action “Decarbonising End-Use Sectors: Green hydrogen certification” brief (March 2022) [Click here]. ▪ Coalition for Action country papers for

⁸¹ Supported by the Government of Denmark.

⁸² Supported by the Government of Denmark.

⁸³ Supported by the Government of Denmark.

		<p>Coalition Business and Investors Group: the Philippines (March 2022) [Click here].</p> <p>Reports/briefs and events under preparation:</p> <ul style="list-style-type: none"> ▪ Coalition for Action regional/country papers of the Coalition Business and Investors Group: East Africa and Argentina and associated bilateral meetings with government representatives. ▪ Coalition for Action white paper on “Community energy benefits” and a “Community energy checklist for governments”. ▪ Coalition for Action white paper on “Towards 100% renewable energy: Opportunities and challenges of sector coupling”. ▪ Coalition for Action brief on “Comparative review of 100% renewable energy scenarios”. ▪ Coalition for Action white paper on “Towards 100% renewable energy” (specific focus TBD). ▪ Coalition for Action brief on “Just transition and labour unions perspectives”, and associated webinar event convening Coalition members, labour unions and governments. ▪ Coalition for Action brief on “Just transition and employers’ perspectives”. ▪ Coalition for Action white paper on “Best practices in integrating renewables into agriculture” and associated webinar with stakeholders. ▪ Coalition for Action white paper on “Making green hydrogen economically viable: opportunities, challenges and key recommendations” and associated webinar with stakeholders. ▪ Coalition for Action white paper on “Green hydrogen and decarbonisation: Creating socioeconomic benefits”. ▪ IRENA Report on “The Role of Citizens in the Energy Transition”.
Resilient Remote Communities *	In progress	<ul style="list-style-type: none"> ▪ Guidebook for implementation of decentralised RE in isolated remote communities [under preparation]
Youth Forum	In progress	<ul style="list-style-type: none"> ▪ Third IRENA Youth Forum during the 12th Assembly to showcase youth-led solutions to accelerate the energy transition and achieve climate objectives (January 2022) [Click here]. ▪ Launch of the IRENA Global Council on Enabling Youth Action for SDG 7 to drive forward youth-led action on energy access and the transition to a renewable energy future (February 2022) [Click here]. ▪ Development of a Peer Education Toolkit, in cooperation with the SDG 7 Youth Constituency that includes workshop plans, presentations and background materials that youth leaders can use to deliver peer trainings within their schools, communities and constituencies [under preparation].⁸⁴

⁸⁴ Supported by the Government of Italy.

Youth Talk	In progress	<ul style="list-style-type: none"> ▪ Seventh edition of the IRENA Youth Talk (Q2-2022) [under preparation]. ▪ Career guide for young people to determine skill requirements to pursue a professional career in sustainable energy sectors (Q3-2022) [under preparation]. ▪ Youth engagement initiative to be held during the G20 Energy Week (Q3-2022) [under preparation].
Legislators Forum	In progress	<ul style="list-style-type: none"> ▪ Seventh IRENA Legislators Forum during the 12th Assembly to discuss parliamentary and regulatory actions to shift the energy transition from commitments to implementation in the Decade of Action (January 2022) [Click here]. ▪ Legislators Dialogue to be held during G20 Energy Week (Q3-2022) [under preparation]. ▪ Review for Parliamentarians issue n.14 (Q2-2022) [under preparation].
IRENA Student Leaders Programme	Ongoing	<ul style="list-style-type: none"> ▪ 10-week virtual training for university students consisting of lectures and research assignments. Over 200 trainees from around the world selected for the Spring 2022 Cohort. Programme runs twice a year. [ongoing].

IV. Source of Advice

Core assessed and core non-assessed resources (in USD thousands): USD 7,146. 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
Renewable Readiness Assessments *	In progress	<ul style="list-style-type: none"> Energy Financing Chapters for the RRA of Burkina Faso and Bosnia and Herzegovina [under preparation].
Energy Transition Outlooks* (country level)	In progress	<ul style="list-style-type: none"> Indonesia Energy Transition Outlook⁸⁵ [under preparation]. Malaysia Energy Transition Outlook⁸⁶ [under preparation]. Nigeria Renewable Energy Outlook* [under preparation].
Policy Framework for Energy Transition (PFET) modules	In progress	<ul style="list-style-type: none"> PFET Targets [under preparation], with capacity building workshops done in the Arab region and Kyrgyzstan.
Renewable Energy Statistics collection and use * ⁸⁷	In progress	<ul style="list-style-type: none"> Bioenergy survey for monitoring SDGs and NDCs: Ethiopia [phase 1 completed, phase 2 ongoing]. Bioenergy survey for monitoring SDGs and NDCs – Ghana [ongoing]. Bioenergy survey for monitoring SDGs and NDCs – Kazakhstan [ongoing]. Bioenergy survey for monitoring SDGs and NDCs – Lesotho [ongoing]. Energy surveys for NDC implementation roadmaps – El Salvador [ongoing]. Energy surveys for NDC implementation roadmaps – Saint Lucia [ongoing]. Energy surveys for NDC implementation roadmaps – Sudan [ongoing]. Energy surveys for NDC implementation roadmaps – Tonga [ongoing].
Renewable Energy Policies for Cities	In progress	<p>Online tools:</p> <ul style="list-style-type: none"> SolarCity simulator⁸⁸ for four cities, namely Sao Tome in Sao Tome and Principe; Khartoum in Sudan; Bamako in Mali; and San Salvador in El Salvador [under preparation].
Renewable Energy Education and Skills *	In progress	<ul style="list-style-type: none"> Support being provided to the UAE Ministry of Education on integrating renewable energy into the national curriculum [ongoing].
Cross-sectoral assessments for decentralised renewable solutions *		
African Continental Power Systems Master Plan (CMP) *	In progress	<ul style="list-style-type: none"> Support provided to the development and kick-off of six support studies: Green hydrogen, battery energy storage system, hydro reservoir and pump storage plants, geothermal power plants, wind power, solar power.

⁸⁵ Supported by the Government of Denmark.

⁸⁶ Supported by the Government of Denmark.

⁸⁷ Supported by the Government of Norway.

⁸⁸ Supported by the Government of Japan and Denmark.

		<ul style="list-style-type: none"> ▪ The CMP training programme developed together with AUDA-NEPAD team. ▪ Continental Africa SPLAT-MESSAGE model completed and undergoing testing [ongoing]. ▪ Five training sessions planned with AUDA-NEPAD team and five African power pools [under preparation]. ▪ North Africa modelling report [under preparation]. ▪ Model supply region (resource zoning for modelling) report [under preparation]. ▪ Cooperation framework around energy planning hub with GIZ [under preparation]. ▪ Regional Modelling Analysis & Planning Support Programme for CAPP countries [completed]
Climate Action Innovation and Technology: mitigation, adaptation and NDC implementation *	In progress	<ul style="list-style-type: none"> ▪ Toolkits on mitigation, adaptation, NDC implementation and LT-LEDS development [ongoing] ▪ Technical assistance activities [ongoing] ▪ Outreach webinars [ongoing] ▪ IRENA is engaging with 81 countries on NDC enhancement and NDC implementation through direct country request and through its institutional partnerships with the NDC Partnership's Climate Action Enhancement Package (CAEP) and UNDP.⁸⁹ <ul style="list-style-type: none"> ➤ Scoping/on hold (14) ➤ Work plan development (15) ➤ Implementation of Support (25) ➤ Input to NDC already provided (27) ▪ Climate action support provided to Antigua and Barbuda, Belize, Bhutan, Cuba, Dominican Republic, El Salvador, Eswatini, Gambia, Grenada, Jordan, Kyrgyzstan, Lebanon, Liberia, Mali, Myanmar, Nepal, Niger, Nigeria, North Macedonia, Papua New Guinea, Paraguay, Saint Kitts and Nevis, Seychelles, Sudan, United Arab Emirates, Zambia, Zimbabwe, in reviewing mitigation and adaptation targets set by countries towards the enhancement of their NDC. ▪ Climate action support on-going to Albania, Benin, Bosnia and Herzegovina, Botswana, Burkina Faso, Cameroon, Colombia, Colombia, Dominica, Ecuador, Fiji, Gabon, Mauritius, Mongolia, Nicaragua, Palau, Saint Lucia, Saint Vincent and Grenadines, Sao Tome and Principe, Solomon Islands, Tonga, Turkey, Uganda, Uruguay, Uzbekistan, towards the implementation of their NDC. ▪ Climate action support under preparations to Afghanistan, Barbados, Belarus, Cambodia, Chad, Cook Islands, Egypt, Ethiopia, Georgia, Ghana, Guyana, Indonesia, Iraq, Lao PDR, Kazakhstan, Kiribati, Lesotho, Micronesia (Federal State of), Morocco, Mozambique, Niue, Pakistan, Panama, Peru, Rwanda, Samoa, South Africa, Thailand, Trinidad and Tobago, Tuvalu, for towards the implementation of their NDC.

⁸⁹ Supported by NDC CAEP and United Nations Development Programme.

		<ul style="list-style-type: none"> ▪ IRENA’s contribution to LTS support includes 6 work packages of which 4 exist within the LTS development and review in the following countries Ecuador, Kazakhstan, Jordan, Mongolia.
Climate Investment Platform implementation: 14 clusters *	In progress	<p>CIP coordination⁹⁰</p> <ul style="list-style-type: none"> ▪ 337 partners engaged. ▪ 303 projects registered. ▪ 160 projects eligible for support. ▪ 33 projects with the Project Information Documents (PIDs) actively supported. ▪ 19 projects that received technical assistance in the form of completed Project Information Documents (PIDs). ▪ 9 projects matched to financing partners. <p>Other deliverables:</p> <ul style="list-style-type: none"> ▪ Development of online platform (CRM) to semi-automate the work of the CIP [under preparation]
Energy Transition Accelerator Financing Platform * (ETAF)	In progress	<p>ETAF coordination⁹¹</p> <ul style="list-style-type: none"> ▪ USD 400m commitment announced by UAE to the ETAF. ▪ 9 project proposals under review ▪ Discussions with MDBs/IFIs [ongoing].
Risk Mitigation Facility *		
Facilitation and development of a pipeline of projects *	In progress	<ul style="list-style-type: none"> ▪ Engagement with UN Agencies, MDBs and other stakeholders to further develop an actively supported project pipeline
Project site assessments and feasibility assessments ⁹²	In progress	<ul style="list-style-type: none"> ▪ Project site assessment for 20 defined locations in El Salvador and Mali [under preparation]. ▪ RE potential assessment for 3 countries (Colombia, Mali, and El Salvador) [under preparation]. ▪ Capacity building for Arab states on resource potential assessment and zoning analysis (February 2022)
Grid integration Support	Completed	<ul style="list-style-type: none"> ▪ “Grid Integration Assessment for the Republic of Mozambique” report.⁹³

⁹⁰ Supported by the Governments of Denmark (SIDS) and Norway; Supported by IKI; Supported by UNDP.

⁹¹ Supported by the Government of Norway and the Abu Dhabi Fund for Development.

⁹² Supported by the Government of the Walloon Region of Belgium.

⁹³ Supported by the Government of Norway.

ADDITIONAL OUTPUTS		
Strategic Management		
Outputs	Status	Description
Governance Support Office	In progress	<ul style="list-style-type: none"> ▪ In-person engagement with Members to discuss and exchange views on enhancing strategic collaboration through the coordination of over 20 high-level Members' visits to the IRENA HQ (Heads of States, Ministers of Foreign Affairs, Ministers of Energy, Special Envoys for Climate Change, etc.) [ongoing]. ▪ Engagement and outreach with States in accession and non-Members to enhancing the benefits of becoming an IRENA Member as well as expediting ratification and accession process [ongoing]. ▪ In-person engagement with IGOs, Academia and Private Sectors representatives to discuss and exchange views on enhancing strategic collaboration [ongoing]. <p>Governing Body meetings:</p> <ul style="list-style-type: none"> ▪ Organisation and conduct of the 12th session of the IRENA Assembly for peer-to-peer engagement among Members and Stakeholders (January 2022). ▪ Summary Report of the 12th session of the IRENA Assembly [Click here]. ▪ 23rd Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) [under preparation]. <p>High-Level Meetings:</p> <ul style="list-style-type: none"> ▪ Second edition of the Global High-Level Forum on Energy Transition [under preparation]. <p>Permanent Representatives:</p> <ul style="list-style-type: none"> ▪ Engagement and outreach with PRs of IRENA and other heads of missions to enhance their role as direct on-the-ground liaison with IRENA, resulting in over 10 ceremonies for the Presentation of Credential Letters and in an increased number (64) of accredited Permanent Representatives [ongoing]. ▪ Seventh edition of the Renewables Talk for Permanent Representatives to launch the Clean Cooking Platform with a view to fostering cooperation and coordinated action in promoting the deployment of clean cooking solutions. (March 2022) [Click here]. ▪ Eighth edition of the Renewables Talk for IRENA Permanent Representatives (Q2-2022) [under preparation].

New York Liaison Office	In progress	<ul style="list-style-type: none"> ▪ Facilitation of participation of the UN high-level stakeholders at the twelfth session of the IRENA Assembly [completed] ▪ Provision of technical inputs to the UN-Energy Plan of Action [completed] ▪ Preparation of the inputs to the thematic review of the 2022 UN High-level Political Forum on Sustainable Development [Click here] ▪ Outreach to selected UN bodies and New York based Permanent Missions on the launch of the World Energy Transitions Outlook 2022 [completed] ▪ Engagement with the New York based Permanent Missions to the UN with the purpose of strengthening IRENA voice at the UN level [ongoing]. ▪ Engagement with the UN system based in New York for the purpose of exploring opportunities to work closely on the ground [ongoing]. ▪ Support to preparation of the “Tracking SDG 7: The Energy Progress 2022” Report [under preparation] ▪ Coordination of IRENA participation in the 2022 UN High-level Political Forum on Sustainable Development, including side events [under preparation] ▪ IRENA inputs to 2022 ECOSOC Forum on Financing for Development [under preparation] ▪ Concept of engagement with the United Nations Resident Coordinator System [under preparation]
Legal Office	In progress	<p>The Legal Office has been providing legal advice and guidance in relation to all the areas of activity of the Agency. More than 200 requests for assistance have been processed in the first quarter of 2022 covering, among others, institutional and governance matters; preparation of and advising on the preparation of internal issuances, guidelines and directives; administrative and HR matters; commercial contracts; collaborative arrangements, agreements and strategic partnerships; communications; and publications matters, as further described below:</p> <p>Institutional and governance matters: The Legal Office has provided legal support for: (i) the conduct of the 12th session of the Assembly. This included facilitating the work of the Credentials Committee; reviewing the credentials of the Permanent Representatives designated by the Members; supporting individual Members in their submission of the credentials; and reviewing from a legal perspective the relevant documentation submitted to the 12th Assembly; and (ii) the forthcoming 23rd Council.</p> <p>Internal legal framework: The Legal Office has been providing ongoing legal support to various units with respect to the interpretation and review of the internal issuances, guidelines and directives. Recently Legal Office has supported HR/AMS in the review of the revised Directive on IRENA’s Working Hours.</p> <p>Administrative and HR matters: Legal Office has been closely involved in advising on a number of HR matters, including but not limited to the review of secondment arrangements agreed with other entities and international organisations.</p>

		<p>Cooperation arrangements and commercial contracts: More than 50 requests have been processed concerning conclusion of cooperation arrangements, including MoUs, partnership agreements, cooperation agreements, voluntary contributions, etc. More than 10 commercial agreements and contracts have been reviewed in addition to the legal support provided to the Contract Review Committee and in relation to other requests for assistance submitted by the Procurement office. With respect to the above, the Legal Office has also been supporting various teams in the negotiations of complex agreements and contracts.</p> <p>Communications and ITC: The Legal Office has been closely involved in providing legal support on matters relating to the fraudulent use of IRENA's name and logo and drafted a scam alert to be placed on IRENA's website to warn the public at large about various fraud schemes consistent with the practice followed by other international organisations. The Legal Office has also been closely involved in the review of the Terms of Use of IRENA's website in consultation with Communications colleagues.</p> <p>Publications: The Legal Office has been involved in the review of the Publications Guidelines and has been advising on other matters relating to the use of IRENA's intellectual property, use of IRENA's name and logo, disclaimers, etc.</p> <p>Other matters: The Legal Office has been providing an ongoing legal support on the integration of various third-party data into the Global Atlas for Renewable Energy and has been supporting other teams with respect to various other initiatives. Recently the Legal Office has supported PPS in the review of Terms of Reference of the Regulatory Energy Transition Accelerator (RETA) and the Rules of the RETA Steering Committee, where IRENA acts as one of the permanent members amongst other international organisations.</p>
Events Unit		<p>Events and Missions database for internal and external communication maintained.</p> <ul style="list-style-type: none"> ▪ Organised 55 events since January 2022, of which 41 were virtual and 14 were hybrid. ▪ Student Leaders Programme, part of Growth@IRENA programme (online): 214 students registered for the Spring Cohort 2022 and similar numbers are expected for the Autumn Cohort 2022 extended to international participation [ongoing]. ▪ Outreach activities with the UAE, including EXPO 2020, World Government Summit, Abu Dhabi Sustainability Week (ADSW)/ The World Future Energy Summit (WFES), Abu Dhabi Global Markets (ADGM), Abu Dhabi Youth Hub (ADYH), Dubai Cares, Dubai Electricity & Water Authority (DEWA)'s Innovation Centre and the upcoming COP28 [ongoing]. ▪ Continue to maintain the FDCR and planning the support of six eligible LDC and SIDS Members to attend

		the 23 rd Council and Committee meetings [ongoing].
Diversification of resource base	In progress	New contributions concluded in 2022-23: <ul style="list-style-type: none"> ▪ Japan METI (Various projects) ▪ Japan MAFF (Circular economy with bioenergy) ▪ Republic of Korea (seconded official) ▪ UNDP (Climate Promise) ▪ United Kingdom, BEIS (Breakthrough Agenda)
Monitoring and evaluation system	In progress	
Programmatic reports to the Council and Assembly	In progress	23rd meeting of the IRENA Council: <ul style="list-style-type: none"> ▪ “Progress Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023” [Click here] ▪ Draft Framework for the Medium-term Strategy 2023-2027 [Click here]
Strategic outreach		

Enabling IRENA delivery		
Outputs	Status	Description
Upgrades and enhancements to the IRENA website, platforms, and projects.	In progress ¹	<ul style="list-style-type: none"> ▪ CIP⁹⁴ website launched. [Click here]. ▪ ETAF platform launched [Click here]. ▪ Country Engagement Platform [under development]. ▪ Quickscan tool website launched. [Click here]. ▪ Website upgrade - new website to be launched in Q2 2022 [under preparation]. ▪ ERP quarterly upgrades [completed]. ▪ Enhancements in ERP reporting and other modules (HR, Finance) [completed]. ▪ Executive dashboard implemented. ▪ Performance Management System implemented. ▪ Virtual events platforms consolidated. Provided support to collaborative framework meetings.
Efficient budget services	In progress	<ul style="list-style-type: none"> ▪ Support across the Agency and to external clients in administration of core funds and voluntary contributions, internal reporting, as well as reporting to donors and governing bodies [ongoing].
Delivery of efficient financial services	In progress	<ul style="list-style-type: none"> ▪ IRENA and IRENA SPF 2021 Annual Financial Statements submitted for audit. ▪ Provision of full financial services to the Agency [ongoing].
Support to the Provident Fund operations	In progress	<ul style="list-style-type: none"> ▪ Annual meetings of members conducted on 22 March 2022. ▪ PF Management Board holds quarterly meetings to review Provident Fund performance. First one was held on 02 February 2022 [ongoing].
Efficient procurement services	In progress	<ul style="list-style-type: none"> ▪ To maintain open, fair, transparent and competitive bidding process, 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 (www.irena.org/procurement) [ongoing]. ▪ Annual and quarterly procurement plan continues to be maintained and updated throughout the year [ongoing].
Effective general and travel services	In progress	<ul style="list-style-type: none"> ▪ Administration support, enhancement of Facility Management, and other services [ongoing]. ▪ Health and Safety program enhanced to address COVID-19 pandemic measures [completed]. ▪ Travel logistic services management for seven Workshops and 82 travel requests [ongoing]. ▪ Recruitment of two new travel agencies [completed]

⁹⁴ 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.