

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

TABLE OF CONTENTS

PROGRESS TOWARDS A NET-ZERO WORLD	12
Harnessing technology and innovation	35
Investments for a sustainable future	39
International cooperation and partnerships	45
Collaborative Frameworks	52
Targeted Climate Action	54
Communications and Outreach – Amplifying Impact	58
LOOKING AHEAD.....	62
Upcoming key events	62
Selected upcoming IRENA events and publications	63
EFFECTIVE FUNCTIONING OF THE ORGANISATION	64
Budget	64
Finance	64
Information and Communication Technology (ICT)	64
Human Resources	65
Procurement	68
General Services and Travel.....	68
IMPLEMENTATION PROGRESS OVERVIEW	69
Resource overview	70
Biennial budget overview	70
IRENA Donors (2022-2023) (<i>as of 15 November 2023</i>)	77
WORK PROGRAMME 2022-2023 – IMPLEMENTATION MATRIX	80

FIGURES

Figure 1: Total primary energy supply by energy carrier group, 2020-2050 under the 1.5°C Scenario	16
Figure 2: Global GDP, average percentage difference between	17
Figure 3: Global economy-wide employment, average percentage difference between PES.....	18
Figure 4: A comprehensive policy framework for the energy transition.....	18
Figure 5: Renewable share of annual power capacity expansion, 2002-2022	28
Figure 6: Cumulative renewable electricity generation, 2017-2021.....	29
Figure 7: Additions in renewable energy generation capacity, 2020-2021	29
Figure 8: Annual global investment in renewable energy, energy efficiency and other	30
Figure 9: Global electricity sector fuel savings 2022 in USD	31
Figure 10: Global renewable energy employment by technology, 2012-2022	32
Figure 11: Key findings of the Tracking SDG 7: Energy Progress Report 2023	33
Figure 12: Toolbox for smart electrification strategies	35
Figure 13: 2023 Innovation Week policy recommendations	36
Figure 14: CIP project support cycle	39
Figure 15: Energy Transition Accelerator Financing (ETAF) Platform	41
Figure 16: ETAF Eligibility Criteria.....	43
Figure 17: ETAF Application Process.....	43
Figure 18: IRENA's engagement	55
Figure 19: Total installed renewable energy capacity (MW) of SIDS that are LHI partners, 2021	56
Figure 20: Social media metrics of the Critical Materials report on Twitter	59
Figure 21: IRENA's Social Media Statistics (as of 10 December 2023)	60
Figure 22: Social media metrics of DG's video message on Twitter ahead of COP28	61
Figure 23: Staff Status as of 31 August 2023.....	65
Figure 24: Employee Profile Statistics	66
Figure 25: Geographical Distribution (core and project posts), as of 15 November 2023.....	66
Figure 26: Received and outstanding assessed contributions for 2022 core budget (in USD millions, as of 28 November 2023)	74
Figure 27: Received and outstanding assessed contributions for 2023 core budget (in USD millions, as of 28 November 2023)	75
Figure 28: Number of Members with received and outstanding contributions to the 2022 core budget (28 November 2023)	76
Figure 29: Number of Members with received and outstanding contributions to the 2023 core budget (28 November 2023)	76

TABLES

Table 1: Tracking progress of key energy system components to achieve the 1.5°C scenario	14
Table 2: Differences between critical materials and fossil fuels	27
Table 3: Renewable generation capacity by region	28
Table 4: Number of projects supported by region	40
Table 5: Climate Investment Platform.....	40
Table 6: Status of ETAF partners and their pledges.....	41
Table 7: ETAF Platform	42
Table 8: List of Collaborative Frameworks and their respective Co-facilitators.....	52
Table 9: Tentative list of IRENA Events, 2024	63
Table 10: Selected upcoming publications, 2024.....	63

Table 11: Filled/Under Recruitment of Core and Project Posts by Level as of 15 November 2023	67
Table 12: Loaned Personnel as of 15 November 2023	67
Table 13: Seconded Officers (Voluntary Contributions) as of 15 November 2023	67
Table 14: IRENA's Strategic Objectives.....	69
Table 15: 2022-2023 Biennium Budget utilisation by funding source (in USD Thousands)	70
Table 16: 2022-2023 Biennium Budget Utilisation by division (in USD Thousands)	70
Table 17: Core Non-Assessed Contributions (in USD Thousands)	71

IRENA AT A GLANCE



DIRECTOR-GENERAL

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



DEPUTY DIRECTOR-GENERAL

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

YEAR OF ESTABLISHMENT



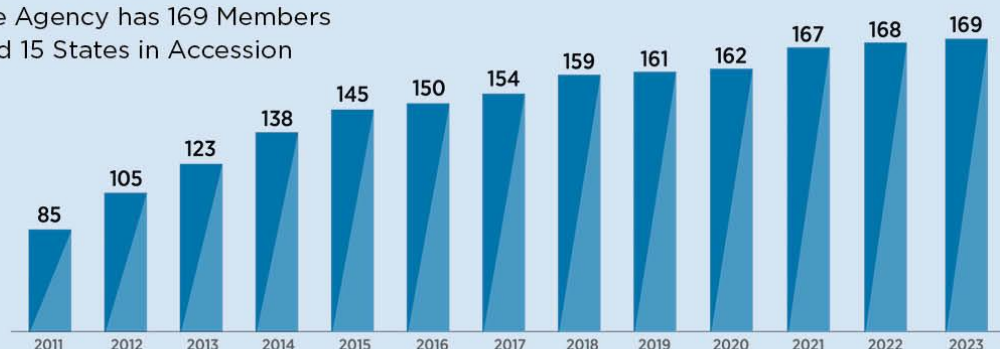
OFFICES



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 15 September, the Agency has 169 Members and 15 States in Accession



13TH ASSEMBLY BUREAU



President: India

Vice-Presidents:



Belgium



Indonesia



St Vincent & the Grenadines



Zimbabwe

COUNCIL

21 Members

27th Council

Chair: Zimbabwe

Vice-Chair: Bangladesh

28th Council

Chair: TBC

Vice-Chair: TBC

2 Committees

Administration & Finance

Chair: Tonga

Vice-Chair: UAE

Programme & Strategy

Chair: El Salvador

Vice-Chair: USA

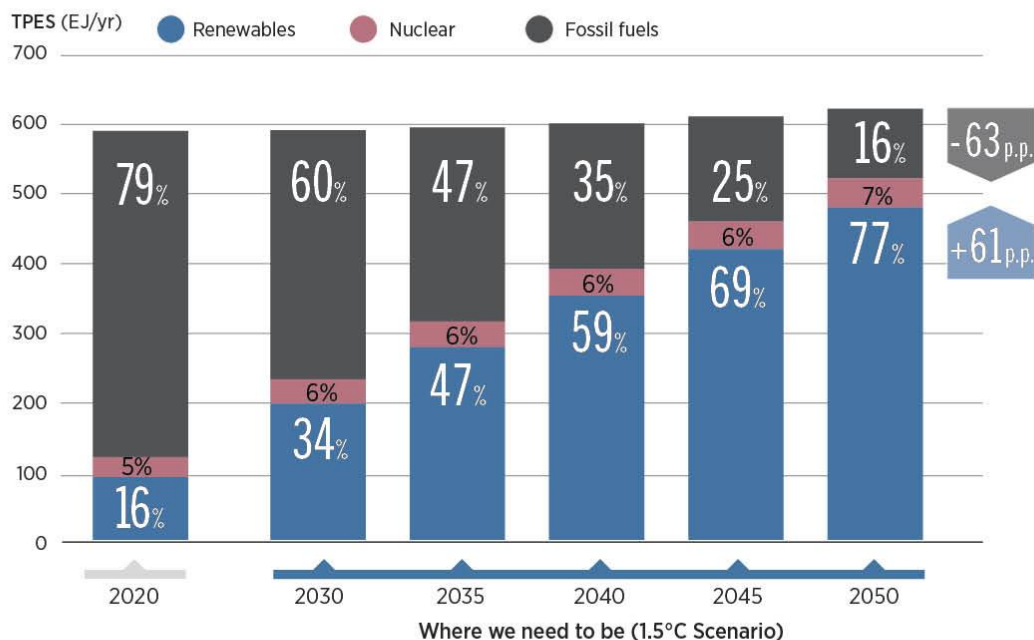
ENERGY TRANSITION AT A GLANCE

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

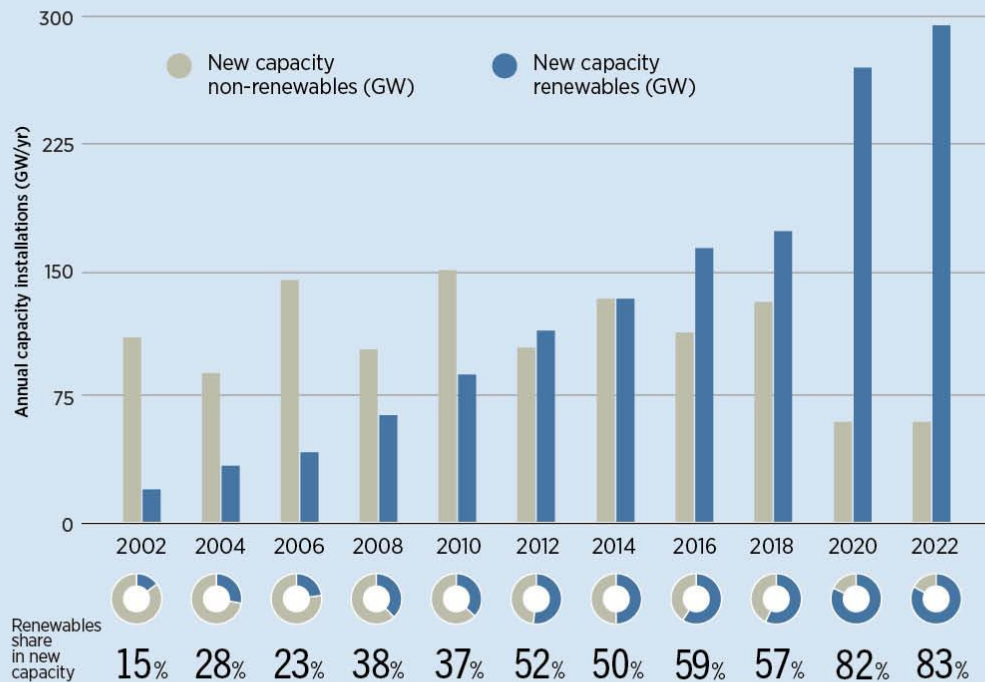
Indicators		Recent years	2030	2050	Progress (Off / on track)
RENEWABLES	ELECTRIFICATION WITH RENEWABLES				
	Share of renewables in electricity generation	28% ²¹	67%	91%	
	Renewable power capacity additions	295 GW/yr ²¹	975 GW/yr	1 066 GW/yr	
	Annual solar PV additions	191 GW/yr ⁴	551 GW/yr	615 GW/yr	
	Annual wind energy additions	75 GW/yr ⁵¹	329 GW/yr	335 GW/yr	
	Investment needs for RE generation	486 USD billion/yr ⁶¹	1 300 USD billion/yr	1 382 USD billion/yr	
	Investment needs for power grids and flexibility	274 USD billion/yr ⁷¹	548 USD billion/yr	790 USD billion/yr	
	DIRECT RENEWABLES IN END-USES AND DISTRICT HEAT				
	Share of renewables in final energy consumption	19% ⁸¹	34%	83%	
	Solar thermal collector area	746 million m ² /yr ⁹¹	1 700 million m ² /yr	3 700 million m ² /yr	
	Modern use of bioenergy (direct use)	1.5 EJ ¹⁰¹	44 EJ	56 EJ	
ENERGY EFFICIENCY	Geothermal consumption (direct use)	0.4 EJ ¹¹¹	1.3 EJ	2.2 EJ	
	Renewables based district heat generation	0.9 EJ ¹²¹	4.3 EJ	12 EJ	
	Investment needs for renewables end uses and district heat	13 USD billion/yr ¹³¹	269 USD billion/yr	216 USD billion/yr	
	Energy intensity improvement rate	0.6 %/yr ¹⁴¹	3.5 %/yr	2.9 %/yr	
	Investment needs for energy conservation and efficiency	295 USD billion/yr ¹⁵¹	1 772 USD billion/yr	1 493 USD billion/yr	
ELECTRIFICATION	Share of direct electricity in final energy consumption	22% ¹⁶¹	29%	51%	
	Passenger electric cars on the road	10.5 million ¹⁷¹	355 million	2 180 million	
	Investments needs for charging infrastructure of EV's and EV adoption support	30 USD billion/yr ¹⁸¹	141 USD billion/yr	364 USD billion/yr	
	Investment needs for heat pumps	64 USD billion/yr ¹⁹¹	266 USD billion/yr	258 USD billion/yr	
HYDROGEN	Clean hydrogen production	0.7 Mtpa ²⁰¹	21.4 Mtpa	518 Mtpa	
	Electrolyser capacity	0.5 GW ²¹¹	233 GW	5 722 GW	
	Investment needs for clean hydrogen and derivatives infrastructure	1.1 USD billion/yr ²²¹	80 USD billion/yr	170 USD billion/yr	
	Clean hydrogen consumption - industry	0.04 EJ ²³¹	2.4 EJ	40 EJ	
CCS AND BECCS	CCS/CCU to abate emissions in industry	0.01 GtCO ₂ capture/yr ²⁴¹	1.0 GtCO ₂ capture/yr	3.0 GtCO ₂ capture/yr	
	BECCS and others to abate emissions in industry	0.002 GtCO ₂ capture/yr ²⁵¹	0.7 GtCO ₂ capture/yr	1.0 GtCO ₂ capture/yr	
	Investment needs for carbon removal and infrastructure	6.4 USD billion/yr ²⁶¹	18 USD billion/yr	107 USD billion/yr	

ENERGY TRANSITION AT A GLANCE

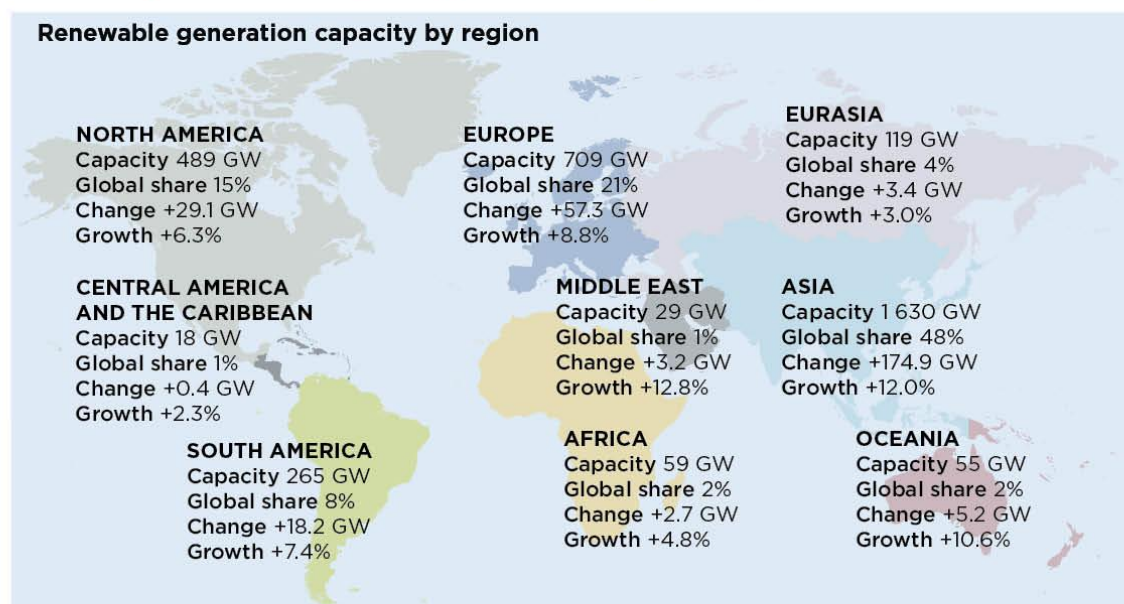
Total investment by technological avenue from 2023 to 2050



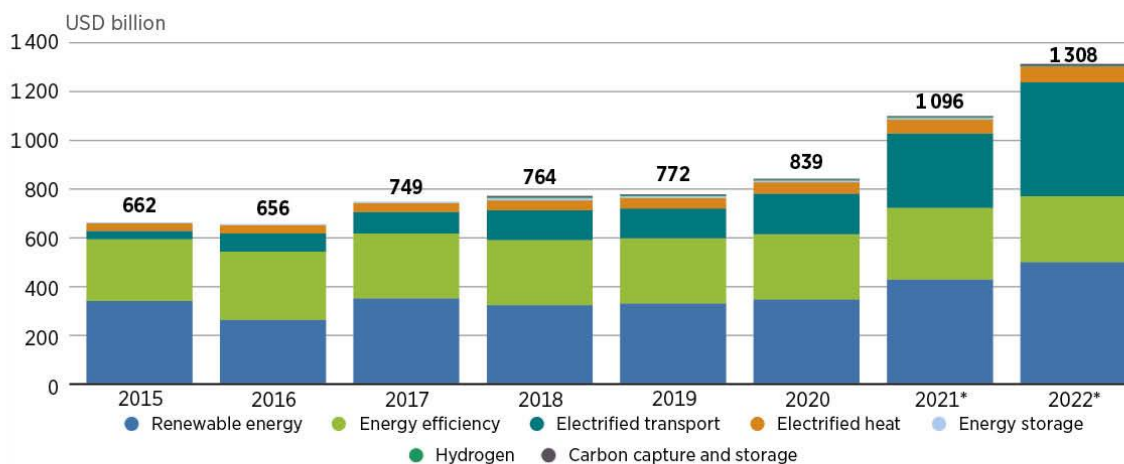
Renewable share of annual power capacity expansion



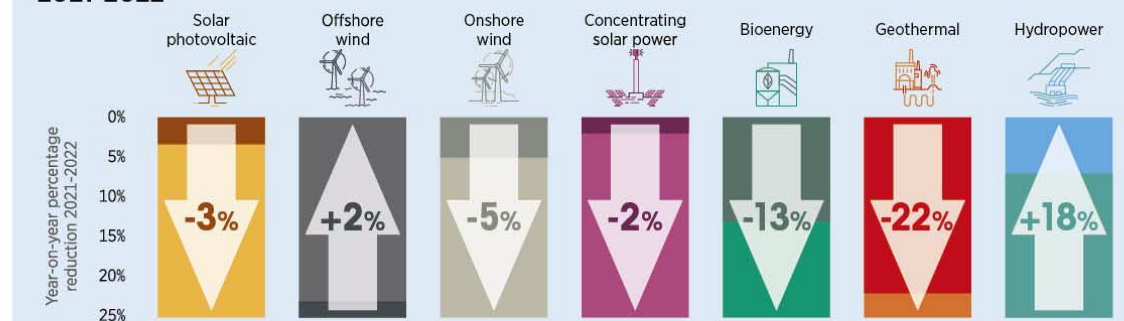
ENERGY TRANSITION AT A GLANCE



Annual global investment in renewable energy, energy efficiency and other transition-related technologies, 2015-2022.








Global LCOE from newly commissioned, utility-scale renewable power technologies, 2021-2022













ENERGY TRANSITION AT A GLANCE

Primary indicators of global progress toward the SDG 7 targets

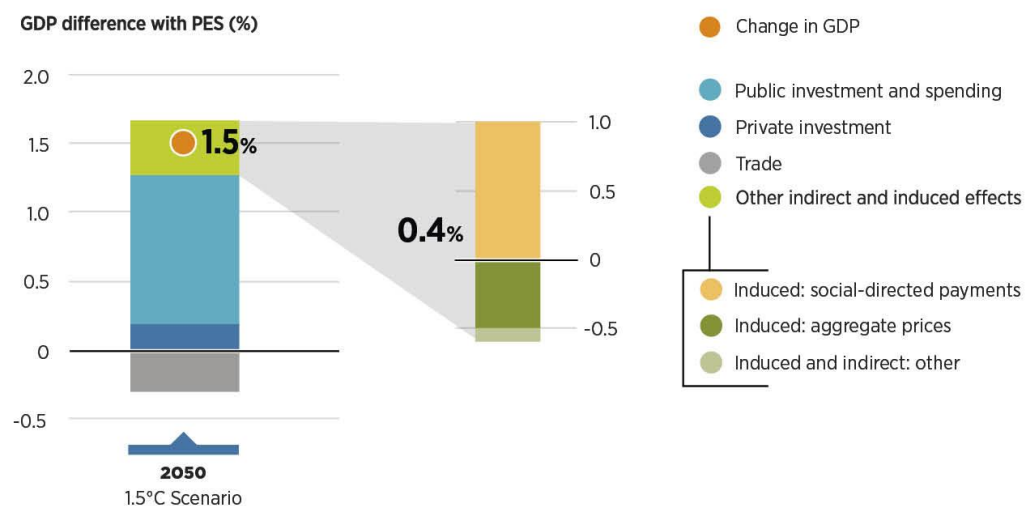
	INDICATOR	2010	LATEST YEAR
	7.1.1 Proportion of population with access to electricity	1.1 billion people without access to electricity	675 million people without access to electricity (2021)
	7.1.2 Proportion of population with primary reliance on clean fuels and technology for cooking	2.9 billion people without access to clean cooking	2.3 billion people without access to clean cooking (2021)
	7.2.1 Renewable energy share in total final energy consumption	16% share of total final energy consumption from renewables	19.1% share of total final energy consumption from renewables (2020)
	7.3.1 Energy intensity measured as a ratio of primary energy and GDP	5.53 MJ/USD primary energy intensity	4.63 MJ/USD primary energy intensity (2020)
	7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems	11.9 USD billion international financial flows to developing countries in support of clean energy	10.8 USD billion international financial flows to developing countries in support of clean energy (2021)

Critical materials are fundamentally different to fossil fuels

FOSSIL FUELS	CRITICAL MATERIALS	Notes:
 Large mining quantities In 2021, 15 billion tonnes of fossil fuels were extracted. ¹	 Low mining quantities Some 10 million tonnes energy transition minerals were produced in 2022 for low-carbon technologies. ²	<p>[1] Figure is for 2021 and taken from BP's Statistical Review of World Energy. Oil and coal figures were available in tonnes; gas data were converted from billion cubic metres (bcm) to billion tonnes using the formula (1 m³ = 0.712 kg), based on BP's methodology, which is also used by Hannah Ritchie: https://hannahritchie.substack.com/p/mining-low-carbon-vs-fossil [2] Based on IRENA calculations, production of materials (copper, lithium graphite, nickel, cobalt, manganese, rare earth elements and platinum group metals) for renewable energy-related technologies in 2022 amounted to some 10 million tonnes (megatonnes) (see Chapter 2 for more details). [3] In 2021, exports of crude petroleum (HS 2709) generated USD 951 billion; refined petroleum (HS 2710) generated USD 746 billion; liquefied natural gas (HS 27111000) generated USD 162 billion; and natural gas in gaseous state (HS 271121) generated USD 173 billion. [4] In 2021, exports of copper ores and concentrates (HS 2603) generated USD 91.1 billion; nickel ores and concentrates (HS 2604) generated USD 4.24 billion; cobalt ores and concentrates (HS 2605) generated USD 118 million. With respect to rare-earth metals, scandium and yttrium (HS 280530) generated USD 586 million. [5] Calculated from IEA's World Energy Balance (2020), available from: www.iea.org/Sankey.</p>
 Generate huge rents Oil and gas exports alone represented a value of USD 2 trillion in 2021. ³	 Generate smaller profits Exports of copper, nickel, lithium, cobalt and rare earths generated 96 billion in 2021. ⁴	
 Combusted as fuel Fossil fuels are primarily burned as fuel, accounting for approximately 94% of their usage. ⁵	 Input to manufacturing Critical materials are housed within energy assets that typically have a 10–30 year lifespan.	
 Energy security risk A disruption in the supply of fossil fuels can lead to immediate energy shortages and price spikes.	 Energy transition risk Disruptions in the supply of critical minerals can delay the construction of new clean energy assets, but do not affect current energy prices or supply.	
 Not recyclable Fossil fuels are primarily consumed through combustion and cannot be recovered or repurposed.	 Reusable and recyclable High potential for reducing use, reusing and recycling.	

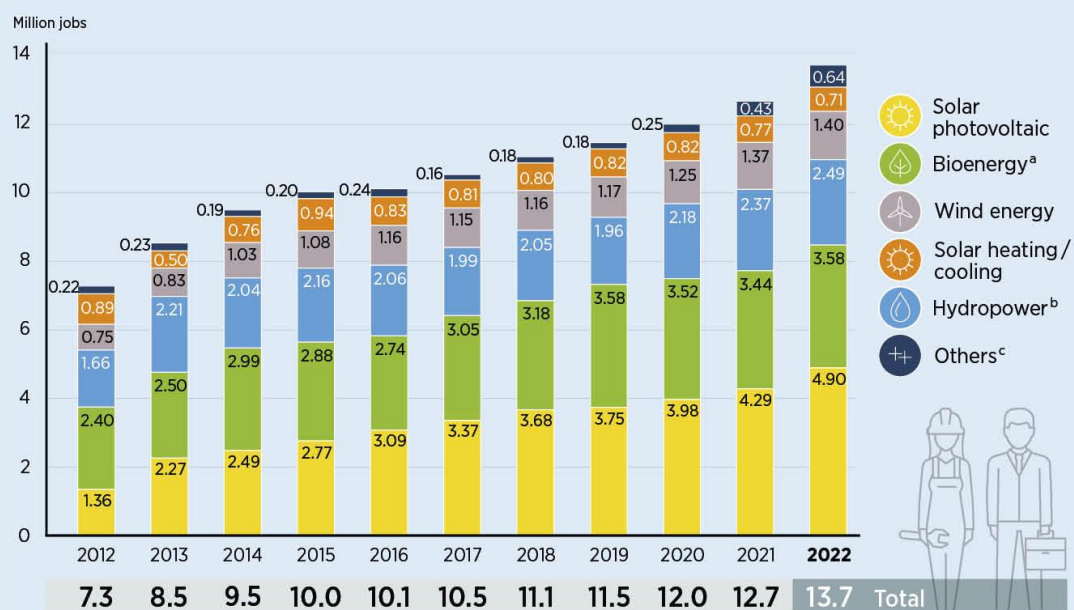
ENERGY TRANSITION AT A GLANCE

Global GDP, average percentage difference between the PES and 1.5°C scenario, 2023-2050.



Note: GDP = gross domestic product; PES = Planned Energy Scenario.

Evolution of global renewable energy employment by technology, 2012-2022



^a Includes liquid biofuels, solid biomass and biogas.

^b Direct jobs only.

^c "Others" includes geothermal energy, concentrated solar power, heat pumps (ground based), municipal and industrial waste, and ocean energy.

SECRETARIAT AT A GLANCE



95
publications

- World Energy Transitions Outlook 2023 Vol.1 and Vol. 2
- Global landscape of renewable energy finance 2023
- Geopolitics of the Energy Transition: Critical Materials
- Innovation landscape for smart electrification



8
publications
were translated into:



223
events organised/
co-organised by IRENA



70 + **153**
virtual events in-person events

IRENA employs a talented and diverse workforce

188 posts filled



77 nationalities

stationed in Abu Dhabi, Bonn and New York,
46% are women and 54% are men.

9 loaned
or seconded officers

Senior Team
Gender Balance



12 073
applications received
for 53 vacancies



Media coverage:

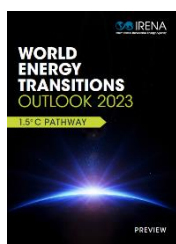
67 100 in
media articles

58 across
languages

177
countries

Progress towards a net-zero world

IRENA's Work Programme and Budget for 2022-2023 spanned analytical, empirical, and country support, underpinned by partnerships and collaborative arrangements, while aiming for impact on real-life and value-add at the local, regional, and global levels. This programme translated WETO into meaningful programmatic activities to fill knowledge gaps, helped shape the immediate steps for just and inclusive transitions and drove investment at scale toward a renewables-based energy system worldwide. This report presents the implementation of the Agency's programmatic activities since January 2023.



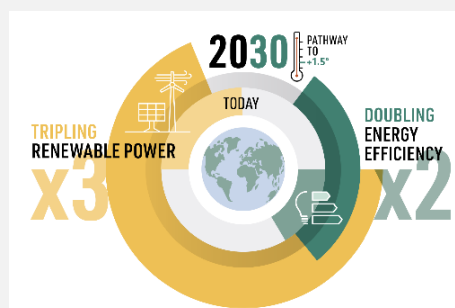
The preview of IRENA's flagship **World Energy Transitions Outlook (WETO)**¹ report was released at the Berlin Energy Transition Dialogue (BETD) on 30 March 2023. Citing WETO, the May 2023 G7 communique urged rapid action and expressed the commitment to increase offshore wind by 150 GW and Solar PV by 1 TW by 2030, in line with IRENA's 1.5 °C pathway.

Subsequently, full WETO was released highlighting that the world remains off-track to realise a timely energy transition for 1.5°C net-zero future. While most of the progress achieved to date has been in the power sector, due to a virtuous circle of technology, policy, and innovation, 1,000 GW of renewables must be deployed annually worldwide to achieve the climate goals. WETO also discussed the socio-economic impacts of IRENA's Paris Agreement-compliant 1.5°C Scenario, compared to the Planned Energy Scenario (PES).

In Focus

Tripling renewable power and doubling energy efficiency by 2030

COP28 adopted a decision on the Global Stocktake, which includes a global pledge to triple renewable energy and double energy efficiency, based on the findings of IRENA's WETO. In preparation for COP28, IRENA, together with COP28 Presidency and the Global Renewables Alliance (GRA), prepared the **'Tripling renewable power and doubling energy efficiency by 2030: Crucial steps towards 1.5°C'**² report, providing concrete recommendations on the means to meet renewable power and energy efficiency targets. According to the analysis, to ensure a climate safe world, total global renewable power generation capacity must be tripled, and energy efficiency improvements must be doubled by 2030. Moreover, a combination of deployment and enabling policies, as well as efficiency measures will also have to be set in place. Critically, though, the report underlines that structural change will have to be pursued to ensure the transition to an energy-efficient economy and a renewables-based power system is just and fair and provides benefits for all.



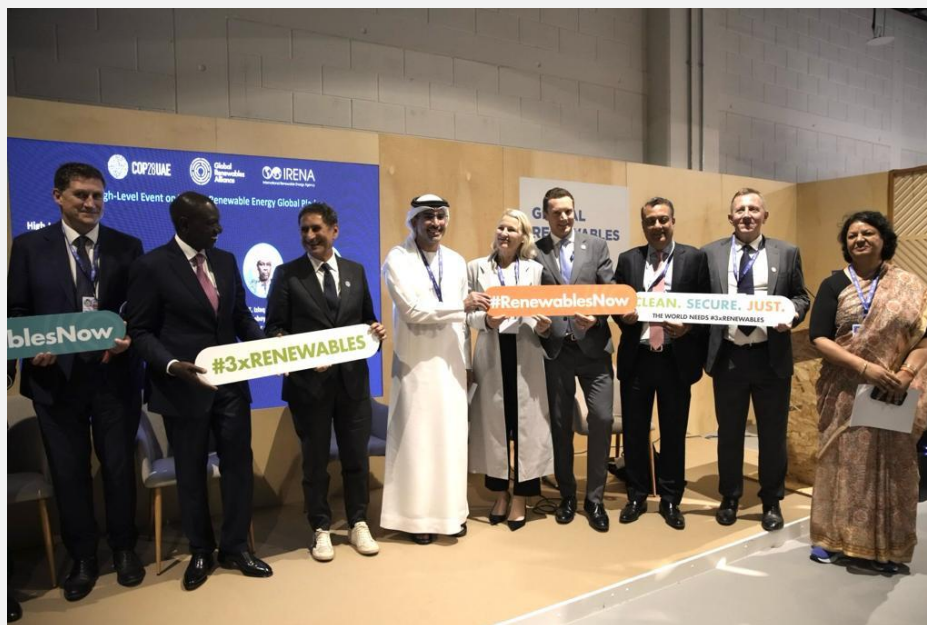
At COP28, IRENA co-organised a **High-level Event on Tripling Renewable Energy Global Pledge**³ on 2 December 2023, to discuss the path forward in achieving the global goals of tripling renewable energy and

¹ Available [here](#).

² Available [here](#).

³ More information [here](#).

doubling energy efficiency by 2030, aligning with IRENA's 1.5°C pathway from WETO 2023. This high-level event allowed Heads of States and Ministerial-level participants to discuss the path forward in achieving the global goals of tripling renewable energy and doubling energy efficiency by 2030. Discussions also focused on identifying critical success factors, immediate implementation opportunities, exploring options for coordinating and monitoring the pledge's implementation, and future convening. IRENA will work closely with countries to turn their commitments into concrete actions.



Significant acceleration is needed across energy sectors and technologies, from deeper end-use electrification of transport and heat, to direct renewable use, energy efficiency and infrastructure additions (Table 1). The analysis also shows that renewable energy through direct supply of low-cost power, efficiency, electrification, bioenergy with carbon capture and storage (CCS) and clean hydrogen will dominate the decarbonisation of the energy system in 2050.

To achieve this, the report highlights the need for cumulative investments totaling USD 150 trillion to be made by 2050, with energy transition technologies representing 80% of the investment (Figure 1). Global investment in energy transition technologies reached USD 1.3 trillion in 2022. However, the scale and extent of the change achieved to-date fall far short of what is required to stay on the 1.5°C pathway. In addition, renewable energy investment remains concentrated in a limited number of countries and focused on only a few technologies. For instance, 85% of global renewable energy investment benefitted less than 50% of the world's population and Africa accounted for only 1% of additional capacity in 2022.

Current energy structures were designed to support fossil fuels and must be redesigned to support renewable energy systems. Therefore, the emphasis must shift from supply to demand, toward overcoming the structural obstacles that impede progress. The report outlines three priority pillars – physical infrastructure; policy and regulatory enablers; and a well-skilled workforce that must be addressed simultaneously, requiring significant investment and a new paradigm for international co-operation in which all actors can engage in the transition and play an optimal role.



WETO
2023, Vol.1

Table 1: Tracking progress of key energy system components to achieve the 1.5°C scenario

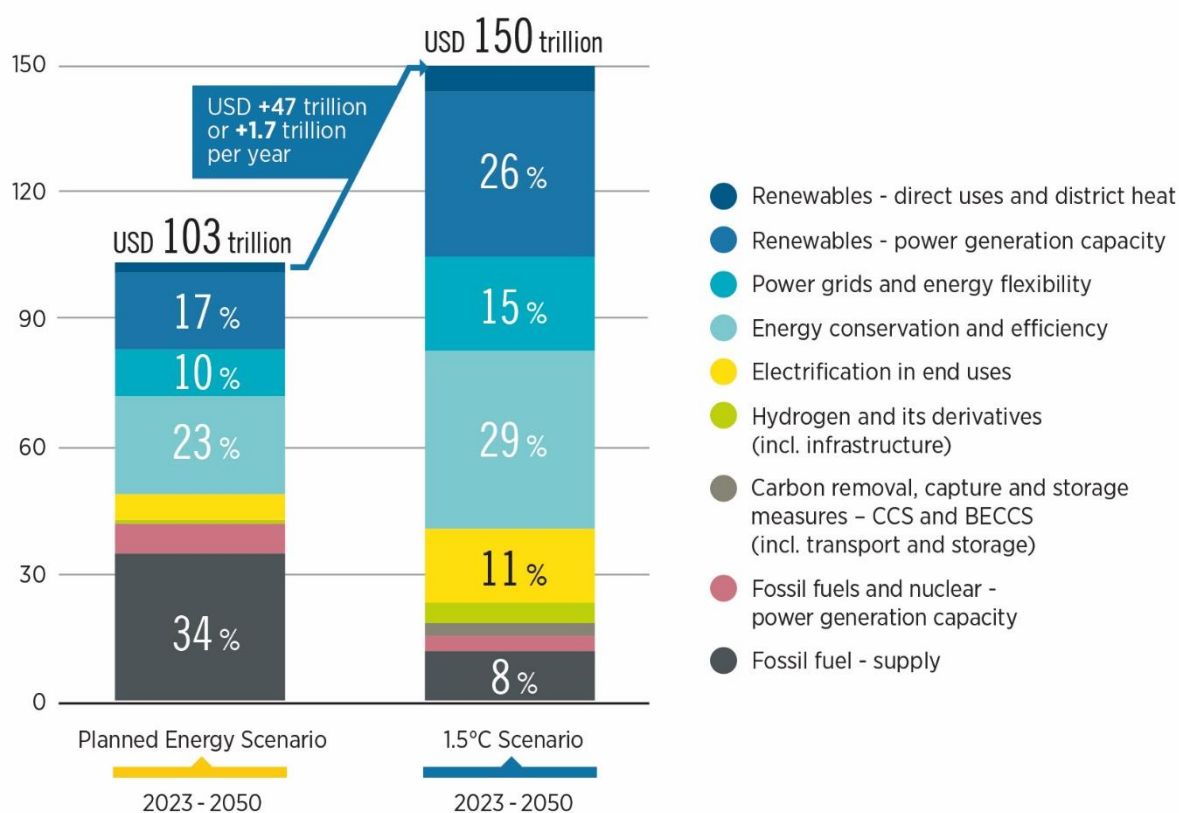
Indicators	Recent years	2030 ¹⁾	2050 ¹⁾	Progress (Off / on track)
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Share of renewables in electricity generation	28% ²⁾	67%	91%	
Renewable power capacity additions ²⁷⁾	295 GW/yr ³⁾ 	975 GW/yr 	1 066 GW/yr 	
Annual solar PV additions ²⁷⁾	191 GW/yr ⁴⁾ 	551 GW/yr 	615 GW/yr 	
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Renewables based district heat generation	0.9 EJ ¹²⁾	4.3 EJ	12 EJ	
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HYDROGEN	Clean hydrogen production	H ₂ 0.7 Mt/yr ²⁰⁾	H ₂ 21.4 Mt/yr	H ₂ 518 Mt/yr	
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CCS AND BECCS	CCS/CCU to abate emissions in industry	0.01 GtCO ₂ captured/yr ²⁴⁾	1.0 GtCO ₂ captured/yr	3.0 GtCO ₂ captured/yr	
	BECCS and others to abate emissions in industry	0.002 GtCO ₂ captured/yr ²⁵⁾	0.7 GtCO ₂ captured/yr	1.0 GtCO ₂ captured/yr	
	Investment needs for carbon removal and infrastructure ²⁶⁾	6.4 USD billion/yr	18 USD billion/yr	107 USD billion/yr	

Source: IRENA, *World Energy Transitions Outlook*, Vol. 1, 2023

Figure 1: Total primary energy supply by energy carrier group, 2020-2050 under the 1.5°C Scenario

Cumulative energy sector investments, 2023 - 2050 (USD trillion)

Source: IRENA, *World Energy Transitions Outlook*, Vol. 1, 2023

Volume 2⁴ of WETO - released on 29 November 2023 - discusses the socio-economic impacts of IRENA's Paris Agreement-compliant 1.5°C Scenario. The report uses the scenario roadmaps from Volume 1 and provides policy makers with insights into how economic activity, employment and wellbeing may be affected under the 1.5°C pathway, compared to current policy settings.



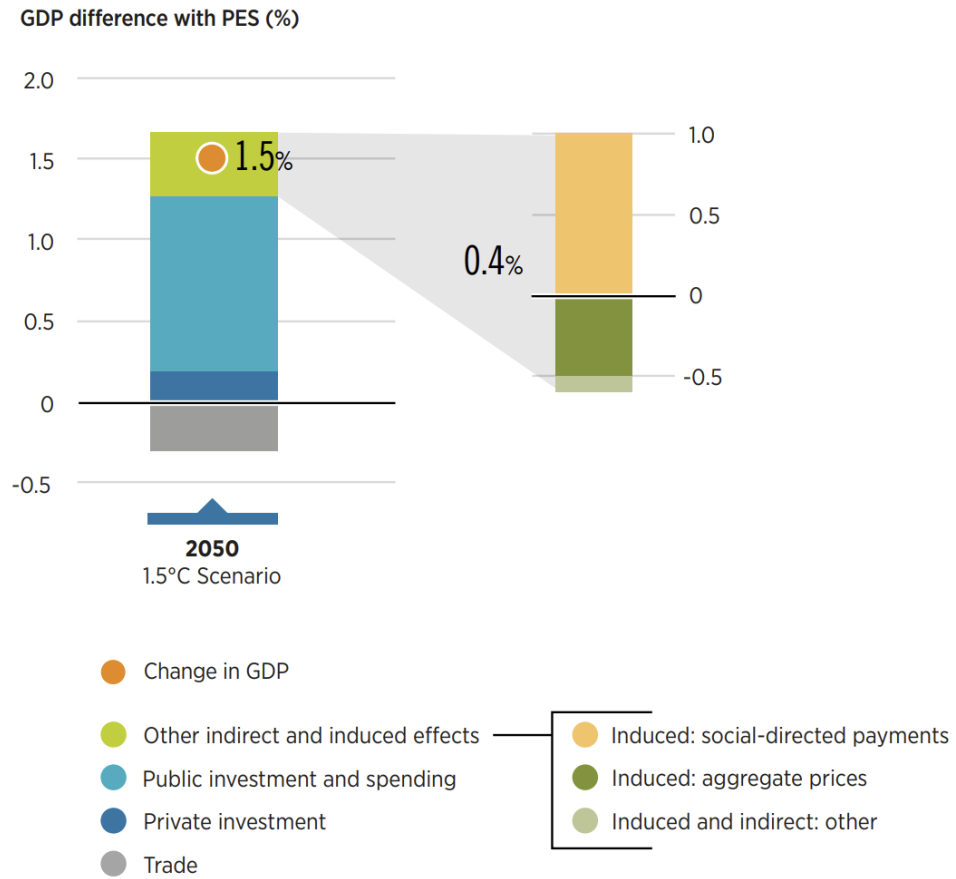
This report contends that the socio-economic dimension, which entails ensuring widespread sharing of benefits, is critical to the success of the transition. However, growth rates vary markedly across regions and countries, highlighting disparities in economic development and underscoring the imperative for inclusive economic strategies. Moreover, policy makers worldwide have paid limited attention to the socio-economic dimension to-date in most settings, focusing predominantly on technological and some microeconomic aspects.

IRENA's analysis showed that international financial collaboration can be a central factor in improving the socio-economic outcomes of the transition. Public investment in the energy transition would drive robust GDP growth and pave the way for a just and inclusive transition. Compared to the business-as-usual plan, global GDP would see an average annual increase of 1.5% under the 1.5°C Scenario between 2023 and 2050 (Figure 2). In addition, the 1.5°C Scenario would lead to in average annual terms, 1.7% higher economy-wide employment, with renewable energy sector employment expected to triple from 2021 levels to about 40 million jobs worldwide by 2050 (Figure 3). To realise this, IRENA's socio-economic analyses indicate that policy

⁴ Available [here](#).

making must be inspired by a holistic framework that balances technological considerations with social, economic and environmental imperatives (Figure 4).

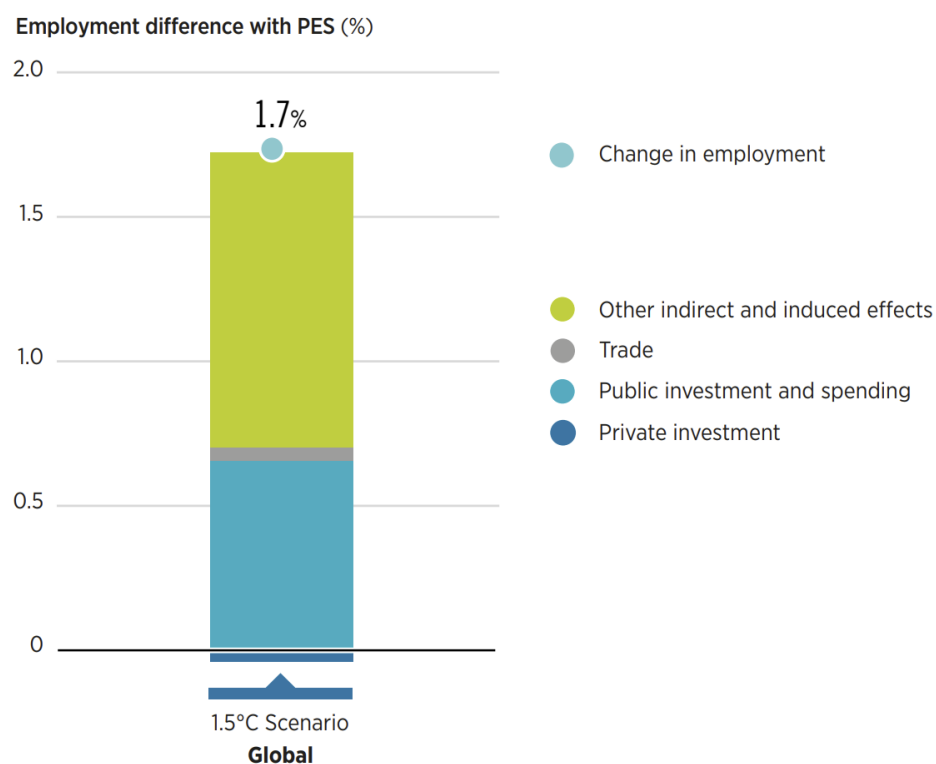
Figure 2: Global GDP, average percentage difference between the PES and 1.5°C scenario, 2023-2050



Note: GDP = gross domestic product; PES = Planned Energy Scenario.

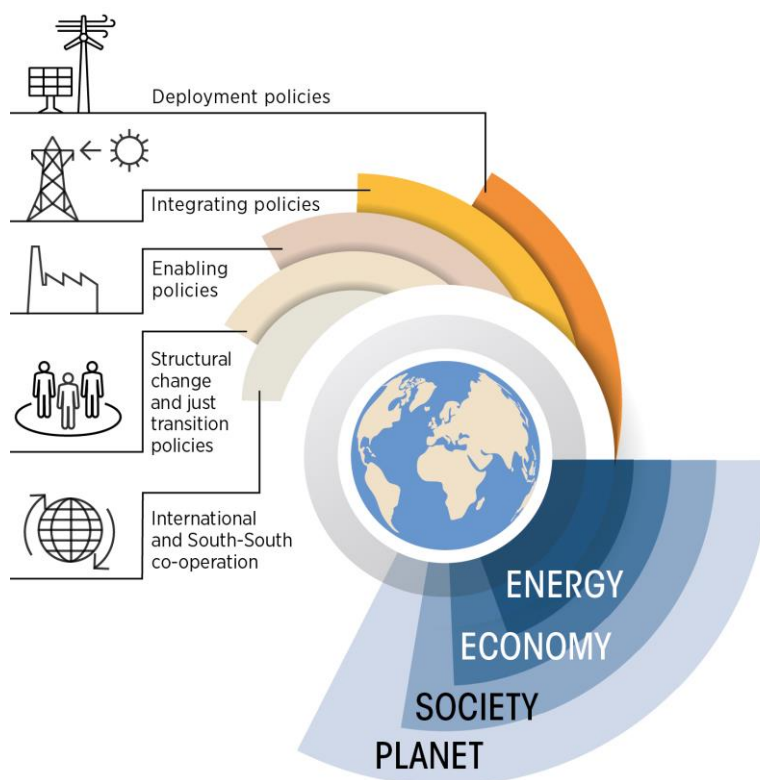
Source: IRENA, *World Energy Transitions Outlook*, Vol. 2, 2023

Figure 3: Global economy-wide employment, average percentage difference between PES



Source: IRENA, *World Energy Transitions Outlook*, Vol. 2, 2023

Figure 4: A comprehensive policy framework for the energy transition



Source: IRENA, *World Energy Transitions Outlook*, Vol. 2, 2023



IRENA at COP28

The 28th session of the Conference of the Parties (COP28) to the UNFCCC took place in Dubai, UAE from 30 November to 12 December 2023. Under the Presidency of the UAE, COP28 presented a unique opportunity to advance a positive, action-orientated energy agenda, placing accelerated energy transitions at the centre of the climate discourse. IRENA worked closely with the Presidency on a range of climate action topics to support a

successful outcome. Notably, the COP28 Presidency had been calling for tripling of renewables by 2030, drawing on WETO findings on what is required to stay on a 1.5-degree pathway.

IRENA also supported the UAE by convening global and regional meetings to showcase how the energy transition can support achievement of the Paris Agreement goals. IRENA is also the energy lead in the Marrakech Partnership for Global Climate Action (MPGCA). IRENA advanced several initiatives in line with the UAE's vision for COP28 and its outcomes, and under the established focus areas of adaptation, mitigation, and finance, amongst others. These initiatives leveraged IRENA's wide-ranging and cross-cutting analyses, supporting a holistic approach to the achievement of intended outcomes and accelerating the global energy transformation. IRENA organised activities under these initiatives throughout the year, in coordination with the UAE and partner organisations. The IRENA monthly COP28 newsletter provided updates to Members, and included highlights from latest publications, as well as messages from Members and stakeholders on the importance of advancing impactful actions in the leadup to COP28 and beyond. Bearing in mind the UAE Presidency goals and IRENA institutional priorities, IRENA's work at COP28 focused on breaking down the barriers that delay the transition and promoting the necessary solutions.

At COP28, IRENA, together with the Global Renewables Alliance (GRA) and REN21 as a strategic partner, hosted the **Global Renewables Hub** in the Blue Zone, bringing together policymakers, industry experts and key stakeholders from around the world to work together and drive a just and inclusive renewables-based energy transition. It was envisioned as an Energy Transition Hub that would leverage the Agency's global reach and active multi-sectoral engagement to promote renewables-based energy transitions as a solution to climate change. Over 30 events were organised by IRENA at the Global Renewables Hub, alongside an additional 30 events that were co-organised with partners and hosted at other Pavilions in the Blue and Green Zones. The Agency's expertise was also sought in several High-Level meetings and other events throughout COP28, on the topics of energy access, energy nexus issues, innovation, financing the energy transition and unlocking investment, industrial decarbonisation, accelerating a just and inclusive energy transition, as well as youth and stakeholder engagement, amongst others.

The following highlight some activities on the run up to COP28 and COP28 itself.⁵

⁵ More information [here](#).

IRENA continued to support the UNFCCC processes including the Mitigation Work Programme and the Global Stocktake, which concluded at COP28. The COP28 Presidency and UNFCCC had requested IRENA to support the organisation of the second *Global Dialogue*⁶ held on 15-16 October 2023, and the second *Investment-Focused (IFE)* event under the Sharm el-Sheikh Mitigation Ambition, held on 17 October 2023, both convened in Abu Dhabi. The events were envisioned as a lead-up to COP28 to address the topic of Accelerating Just Energy Transition. The Global Dialogue offered the Parties the opportunity to learn from one another on concrete mitigation challenges, opportunities, and best practices, IFE zoomed in particularly on unlocking finance towards implementing mitigation actions and projects on the ground in line with the Parties' NDCs.



On 2 December 2023, IRENA organised an *Accelerated Partnership for Renewables in Africa (APRA) Heads of State meeting*,⁷ to showcase APRA's vision and political leadership. In a Joint Declaration⁸, Kenya's President William Samoei Ruto, Namibia's Deputy-Prime Minister Netumbo Nandi-Ndaitwah, the Danish Prime Minister Mette Frederiksen and the German Chancellor Olaf Scholz underscored APRA's role in galvanizing action and inspiring global climate leadership. In addition, Honorable Dr Kandeh K. Yumkella, Chairman of the Presidential Initiative on Climate Change, Renewable Energy, and Food Security of Sierra Leone read a statement of support on behalf of President Julius Bio. Moreover, H.E. Mr Herbert Krappa, Deputy Minister of Energy of Ghana and Hon Edgar Moyo, Minister of Energy and Power Development of Zimbabwe were also in attendance. This gathering served as a platform to present the milestones achieved thus far and to lay out a roadmap for future action, inspiring other leaders, and communities worldwide to embark on similar transformative journeys.



⁶ More information [here](#).

⁷ More information available [here](#).

⁸ Available [here](#).

Following the APRA Heads of State event at the World Climate Action Summit on 2 December, an **APRA Ministerial Roundtable** was held on 5 December 2023, offering the opportunity for a concrete and practical discussion on the implementation of the Partnership, including with finance and private sector actors. The Discussion featured H.E. Dr Eng Habtamu Iteta Geleta, Minister of Water and Energy of Ethiopia, Honorable Dr Kandeh K. Yumkella, Chairman of the Presidential Initiative on Climate Change, Renewable Energy, and Food Security of Sierra Leone, H.E. Mr Dan Jorgensen, Minister for Development Cooperation and Minister for Global Climate Policy of Denmark, H.E. Ms Jennifer Lee Morgan, State Secretary and Special Envoy for International Climate Action, Federal Republic of Germany, Ms Gloria Magombo, Secretary for Energy and Power Development, Ministry of Energy and Power Development of Zimbabwe, Mr Rick Duke, Deputy Special Envoy for Climate, Office of the US Special Presidential Envoy for Climate of USA, Dr Kevin Kanina Kariuki, Vice President for Power, Energy, Climate and Green Growth of the African Development Bank, and high level representatives from the private and finance sector.



On 5 December 2023, IRENA and the Alliance of Small Island States (AOSIS) in collaboration with COP28 UAE through the SIDS Lighthouses Initiative co-hosted an event on ***Small Island Developing States: A Just and Equitable Energy Transition Towards A Climate-Resilient Future.***⁹ At the event, H.E. Surangel Whipps Jr, President of Palau, Hon Seve Paeniu, Minister of finance of Tuvalu, Hon Shawn Edward, Minister of sustainable development of Saint Lucia, Hon Kerryne James, Minister of Climate resilience, the Environment and Renewable energy of Grenada, and Mr Norbert Gorissen, Deputy Special Envoy for International Climate Action, Germany agreed that while SIDS do not contribute to the global emissions in any meaningful way, they simply carry the burden of climate change. The event served to showcase SIDS achievements and progress, share SIDS perspectives on the operationalisation of the Loss and Damage Fund and highlight strategies and support needs to accelerate the deployment of renewables in SIDS.



⁹ More information available [here](#).

On the same day, IRENA organised the ***Global Offshore Wind Alliance (GOWA) Ministerial meeting***¹⁰. At the event, participants reiterated the pledge to triple the target to maintain momentum for offshore wind, discussed collaboration on offshore wind, and showcased a concrete initiative on jobs and skills for the energy transition. The event fostered dialogue on policy refinement, innovative financing, and skills development in the offshore wind sector, while aligning with climate objectives and catalysing finance and investment. The event underlined the need for continued research to improve offshore wind turbines. Participants also agreed that to accelerate offshore wind deployment in a sustainable and environmentally sensitive manner, global players need to cooperate and work together. Going forward, cooperation must seek to leverage existing successes to enable market in the offshore wind industry while addressing current challenges and barriers.



Energy Transition Accelerator Financing (ETAF) Platform

At COP28, the ETAF Platform demonstrated its achievements and progress by highlighting the combined social and environmental impact of the projects and emphasising collaborative efforts. In preparation, several events were held throughout the year to review partner-funded projects, welcome new partners to the Platform, analyse the ETAF business model, explore potential next steps, and share first-hand developer experiences with ETAF and the support received from partners. At the COP28 meeting on ***Accelerating energy transition through project facilitation and partnerships***,¹¹ four new partners – bringing the total to thirteen - made financial pledges towards the ETAF platform reaching USD 4.05 billion, thus, surpassing the original target for COP28 by more than fourfold, and signaling strong momentum for renewable energy financing in developing countries.



Alliance for Industry Decarbonisation (AFID)

¹⁰ More information available [here](#).

¹¹ More information available [here](#).

The AFID¹² is a global initiative that aims to accelerate net-zero ambitions and the decarbonisation of industrial value chains in pursuit of the Paris Agreement climate goals. A high-level ***CEO Roundtable on Accelerating implementation of Industrial Decarbonization***¹³ was held at the UAE Pavilion. The meeting gathered CEOs of over 60 industry partners to step up efforts to combat climate change through joint targets in renewables, green energy technologies, human skills, and finance at COP28, to communicate members' achievements and commitments towards quantified decarbonisation targets. The individual reduction plans of AFID members have the combined aim to reduce 51% of direct and indirect GHG emissions and increase installed renewable capacity to 187 GW in 2030. AFID members also commit to almost double installed green hydrogen, drive green energy solutions, increase workforce re-skilling to 91% and significantly boost investments in energy transition projects to more than USD 50 billion by the end of this decade. Joint achievements and targets will be reviewed on an annual basis to ensure significant progress towards net zero.



Coalition for Action

Established in 2014, the IRENA Coalition for Action is a multi-stakeholder network with over 140 leading players that facilitates dialogue on industry trends, best practices and actions to accelerate the global energy transformation.¹⁴ The Coalition's Steering Group meeting was held at the sidelines of the Bonn Climate Change Conference in June 2023, focusing discussions on the COP28 activities planned under these working groups.

Utilities for Net Zero Alliance (UNEZA)

On 5 December, UNEZA was officially launched with 31 partners, including 25 global utilities and power companies that collectively serve more than 250 million customers, uniting for a landmark joint commitment to advance electrification, renewables-ready grids, and clean energy deployment in line with 2030 Breakthrough goals and a net zero future by 2050. Led by the Abu Dhabi National Energy Company (TAQA), the Alliance will be facilitated by IRENA and the UN Climate Change High-Level Champions as strategic partners and will develop a plan of action to mitigate macro energy transition challenges including capital mobilisation, supply chain de-risking, capabilities and talent building, and facilitating policy and regulatory support.

Empowering Lives and Livelihoods – Renewables for climate action

¹² The AFID's members and eco-system knowledge partners, consisting of private and public companies, organisations and stakeholders operating in energy-intensive sectors, commit to collaborate toward the common vision of a green future. IRENA coordinates and facilitates the activities of the Alliance and offers technical expertise and knowledge to enhance understanding of renewables-based solutions and their adoption by industry, with a view to contributing to country-specific net-zero goals.

¹³ More information [here](#).

¹⁴ Coalition members engage on key renewable energy topics through working groups, the annual Public-Private Dialogue and various strategic and programmatic activities of IRENA, which acts as the Secretariat of the Coalition. The Coalition's working groups discuss industry trends, determine actions, share knowledge, and exchange best practices, to drive the global energy transition by focusing on various aspects related to the role of non-governmental actors.

Given the need for stronger international collaboration in climate financing to developing countries, the Empowering Lives and Livelihoods initiative aims to bring together governments, foundations, trusts, philanthropists, and the private sector, to commit substantial funds for programmatic support to Least Developed Countries (LDCs) and SIDS, to enable and enrich lives and livelihoods through renewable energy solutions. Pledges to the Facility will be invested in various initiatives and enterprises specialising in climate-smart innovation, research and development activities and pursuing practical and actionable solutions to strengthen agri-food and health value chains powered by renewables. Recognising the crucial role of women along these value chains, this Facility also presents an opportunity to achieve greater gender and social equity in both the agri-food and health sectors.

IRENA is simultaneously conducting assessment studies, with support from some Members – UAE, Belgium (Walloon region), Germany and Denmark – to gain a deeper understanding of suitable renewable energy solutions and cost estimations to help develop the initiative at a programmatic level. Currently, IRENA is at various stages of engagement with thirteen countries. IRENA is also engaging with major philanthropy institutions such as the Bezos Earth Fund, Ikea Foundation and Rockefeller Foundation, amongst others; with global alliances such as the Global Energy Alliance for People and Planet (GEAPP); with multilateral banks such as African Development Bank, Islamic Development Bank and Caribbean Development Bank; and with impact investors and implementation organisations/companies that leverage private sector capital to finance enterprises and initiatives on the ground. In preparation, IRENA organised a technical session at SPIREC Madrid in March 2023; a session with UAE in April 2023 in New York to shed light on the initiative to philanthropies and government representatives, and a high-level session with UAE and Bezos Earth Fund on the sidelines of UNGA in September 2023. The initiative was officially launched at COP28 on 4 December 2023.¹⁵



Youth in Climate-Energy Innovation

IRENA's engagement at COP28 placed a special focus on Youth to amplify the voice of renewables from the perspective of the New Generation of decision-makers and ensure avenues for their active participation as a fundamental pillar of the energy transition. The IRENA NewGen Renewable Energy Accelerator (NewGen)

¹⁵ More information available [here](#).

programme and IRENA Youth Award are two interlinked initiatives that aim to harness youth potential, mobilise youth action, and serve as a global showcase for youth-led innovation and solutions in the climate and sustainable energy sectors. They will contribute to building renewable energy skills and capacities of youth, while providing mechanisms to support and fund youth innovations.

Launched during the World Utilities Congress at the Youth Energy Forum held by the TAQA Youth Council in Abu Dhabi in May 2023, the first edition of the NewGen programme selected a total of 40 youth innovators and entrepreneurs from 20 start-ups. They have benefitted from a series of training, mentoring, and knowledge-sharing activities to scale business impact, boost youth climate impact, and help them secure investments to implement their business plans and solutions. Eight of the best solutions from this programme were selected to pitch their ideas in front of potential investors and investment experts at COP28, and three winners were ultimately selected by a guest panel of judges for the inaugural IRENA NewGen Rising Stars Award: Climatenza Solar from India (first place); HD Photovoltaics from Argentina (second place); and Apeiro Energy Private Limited from India (third place).

Teaching for Net Zero Campaign: Educating the Educators on Renewable Energy

IRENA, with the support of the UAE and in collaboration with members of the Energy Transition Education Network also presented the Teaching for Net Zero Award to six educators from Belgium, Benin, Nigeria, Colombia, Bhutan, and Morocco, who demonstrated innovative teaching methods to help inspire students and educate them about the need to accelerate the energy transition. ETEN¹⁶, the Teaching for Net-Zero Campaign aims to ‘educate educators’ for a renewable energy future. Launched at COP27 as a multistakeholder partnership, it brings together leading players in both energy and sustainability education, including UNESCO, Teach for All, the Association for the Development of Education in Africa (ADEA) and the Institute of Electrical and Electronics Engineers (IEEE).

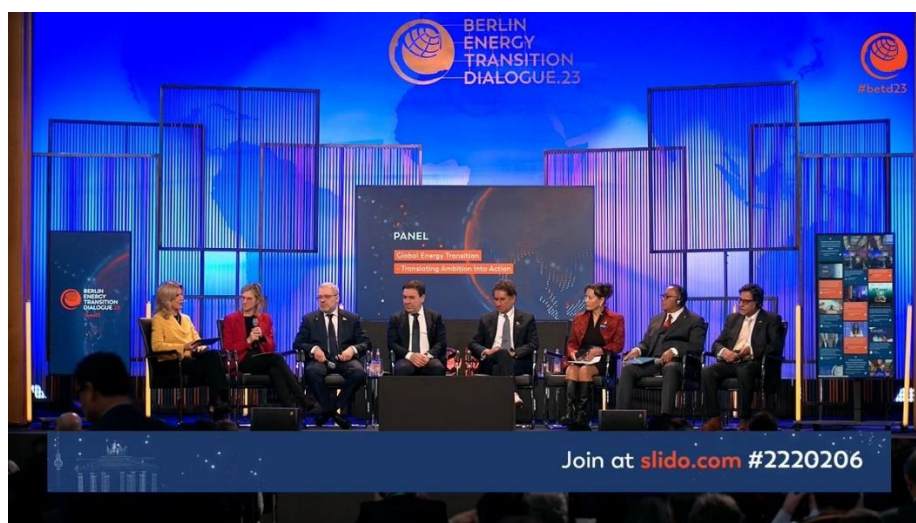
The Campaign targets educator champions from around the world, using a training-of-trainers approach. A Teaching for Net Zero curriculum guide with teacher resources for different age groups and subject areas was launched during COP28. This guide will enable educators, as well as education ministries, to integrate renewable energy learning into their teaching practices. Training workshops will be held in collaboration with ETEN members, and educator champions will also be called on to share how they are teaching for net zero.

IRENA is also actively engaged as a key partner organisation in the UNESCO-led Greening Education Partnership, including as a coordinator of the pillar on Greening Curriculum, to ensure renewable energy education is embedded into broader sustainability education initiatives. IRENA also shaped and contributed to the programme of the Education Pavilion at COP28.

At the **Berlin Energy Transition Dialogue (BETD)**¹⁷ - organised on 28-29 March 2023, the IRENA Director-General set the scene at a high-level panel ***Global Energy Transition - Translating Ambition into Action***. This session discussed several key levers to globally accelerate and sustain the energy transition: decarbonising industry, electrifying sectors, allocating space for renewable energy production, harnessing supply chains, designing a sustainable industrial strategy, providing adequate financing, and extending transnational infrastructure from electricity grids, green-hydrogen pipelines, and shipping routes.

¹⁶ ETEN is working to foster collaboration in areas such as curriculum development and educator capacity building as well as facilitating a global exchange of good practices.

¹⁷ More information available [here](#).













The supply of critical materials will impact the successful realisation of the energy transition. IRENA's **Geopolitics of the Energy Transition: Critical materials**¹⁸ report highlights that while there is no scarcity of reserves, capabilities for mining and refining them are limited. Moreover, while the dependency and supply dynamics fundamentally differ from fossil fuels (Table 2), their mining and processing is geographically concentrated, with a few major companies dominating. This poses challenges related to resource security and geopolitical dynamics. External shocks, resource nationalism, export restrictions, mineral cartels, instability, and market manipulation could also increase the risks of supply shortages. As such, supply disruptions could impact the speed of the energy transition in the short to medium term. The report stresses the importance of international cooperation and prudent policy choices to ensure that the energy transition advances at the necessary speed worldwide. In addition, it urges the development of transparent markets with coherent standards and norms, grounded in human rights, environmental stewardship, and community engagement. The report also examines possibilities for developing countries to advance their industrialisation strategies and capture greater economic value from their mineral wealth.



Geopolitics:
Critical
materials

¹⁸ Available [here](#).

Table 2: Differences between critical materials and fossil fuels

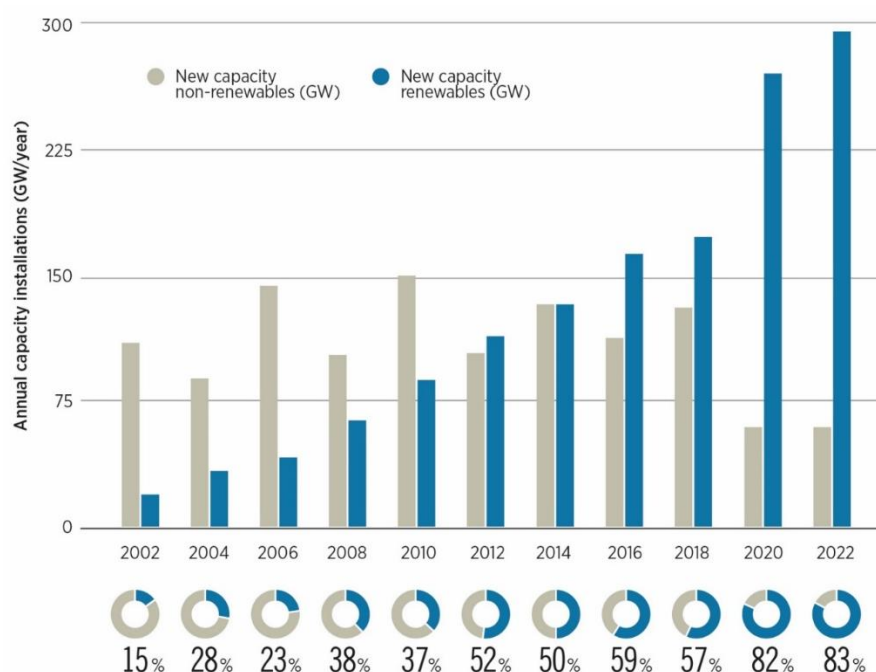
FOSSIL FUELS	CRITICAL MATERIALS
 Large mining quantities In 2021, 15 billion tonnes of fossil fuels were extracted. ¹	 Low mining quantities Some 10 million tonnes energy transition minerals were produced in 2022 for low-carbon technologies. ²
 Generate huge rents Oil and gas exports alone represented a value of USD 2 trillion in 2021. ³	 Generate smaller profits Exports of copper, nickel, lithium, cobalt and rare earths generated 96 billion in 2021. ⁴
 Combusted as fuel Fossil fuels are primarily burned as fuel, accounting for approximately 94% of their usage. ⁵	 Input to manufacturing Critical materials are housed within energy assets that typically have a 10–30 year lifespan.
 Energy security risk A disruption in the supply of fossil fuels can lead to immediate energy shortages and price spikes.	 Energy transition risk Disruptions in the supply of critical minerals can delay the construction of new clean energy assets, but do not affect current energy prices or supply.
 Not recyclable Fossil fuels are primarily consumed through combustion and cannot be recovered or repurposed.	 Reusable and recyclable High potential for reducing use, reusing and recycling.

Source: IRENA, *Geopolitics of the Energy Transition: Critical Materials*, 2023

The latest edition of the **Renewable capacity statistics 2023**¹⁹ report comes as a statement to the world that renewables are the de-facto energy choice for new power generation, despite the devastating recent global crises in geopolitical shocks rippling through the energy sector. According to the analysis, by the end of 2022 more than 295 gigawatts (GW) of renewables were added - more than in 2021 - while staying well above the long-term trend (Figure 5). Specifically, the total renewable generation capacity reached 3,372 GW, which is a 9.6% increase compared to the year before, and accounting for 40% of global installed power capacity. Asia accounted for 60% of new capacity in 2022, increasing its renewable capacity by 174.9 GW to reach 1.63 TW (48% of the global total). A huge part of this increase occurred in China (+141 GW). Capacity in Europe and North America expanded by 57.3 GW (+8.8%) and 29.1 GW (+6.3%) respectively. Africa continued to expand steadily with an increase of 2.7 GW (+4.8%), slightly less than in 2021. Oceania continued its double-digit growth with an expansion of 5.2 GW (+10.6%), largely due to expansion in Australia, and South America continued an upward trend, with a capacity expansion of 18.2 GW (+7.4%). The Middle East also recorded its highest expansion on record, with 3.2 GW of new capacity commissioned in 2022 (+12.8%) (Table 3). 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.

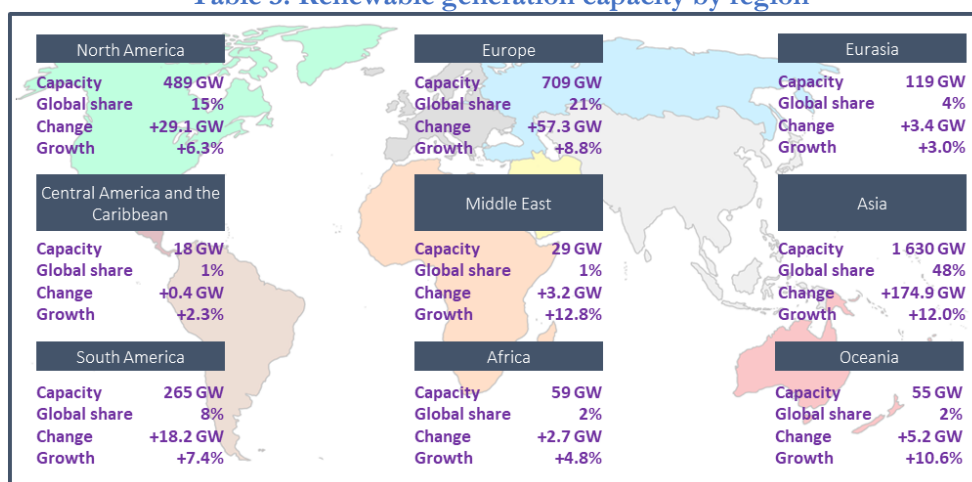
¹⁹ Available [here](#).

Figure 5: Renewable share of annual power capacity expansion, 2002-2022



Source: IRENA, *World Energy Transitions Outlook*, Vol. 1, 2023

Table 3: Renewable generation capacity by region



Source: IRENA, *Renewable Capacity Statistics 2023*, 2023

IRENA's **Renewable energy statistics**²⁰ report highlights the steadily increasing trajectory of global renewable electricity generation. A 5.4% increase was registered compared in 2020, with the total amount of electricity generated from renewables reaching 7,858 TWh in 2020. Hydro accounted for 4,275 TWh (55%), followed by wind with 1,838 TWh (23%) solar with 1,034 TWh (13%), bioenergy with 615 TWh (8%), geothermal with 95 TWh (1%) and marine with 1 TWh (Figure 6). Solar and wind generation experienced an increase of 23% and 16% respectively in 2021, and thus, continued to dominate growth in renewable generation, accounting for 80% of growth since 2016 (Figure 7). Asia remained the region accounting for most growth in

²⁰ Available [here](#).

renewable electricity generation, with the continent's share of global renewable generation reaching 42%, while Europe and North America had shares of 19% and 18% respectively, followed by South America (11%) and Eurasia (5%). Notably, public investment in renewable energy continued to decline across all technologies in 2020, with a total investment of USD 17 billion compared to USD 18 billion and USD 22 billion in 2019 and 2018 respectively.

Figure 6: Cumulative renewable electricity generation, 2017-2021

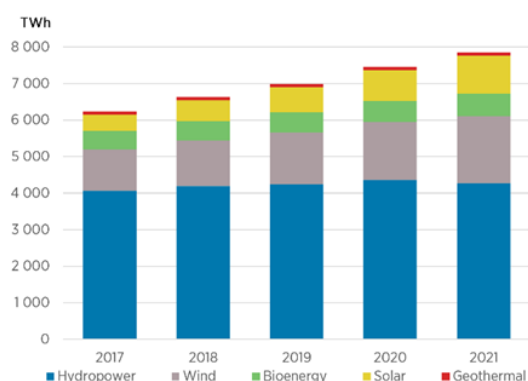
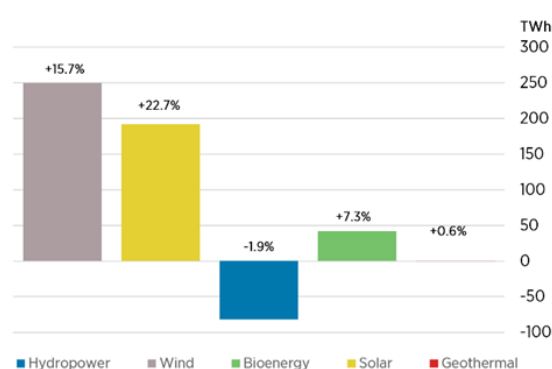


Figure 7: Additions in renewable energy generation capacity, 2020-2021



Source: IRENA, *Renewable Energy Statistics*, 2023

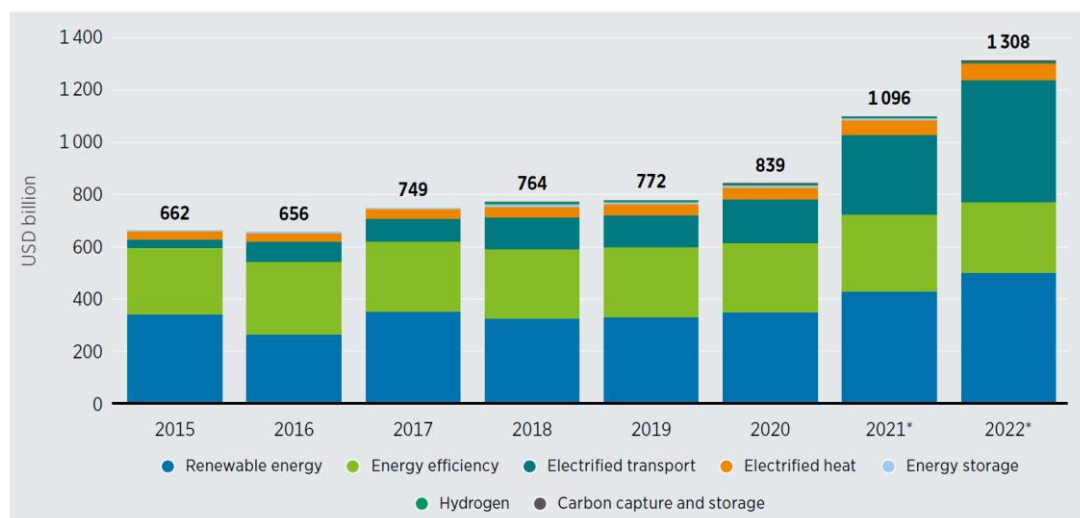
The **Global landscape of renewable energy finance 2023**²¹ report, the third edition of the biannual joint report by IRENA and Climate Policy Initiative, analyses renewable energy investment trends by technology, sector, region, source of finance and financial instrument in the period 2013-2020, with preliminary analysis for 2021-2022. According to the report, global investment in renewable energy reached a record high at USD 0.5 trillion in 2022, whereas global investments in energy transition technologies reached USD 1.3 trillion, a record high (Figure 8). Yet, the current pace of investment is not sufficient to put the world on track towards meeting climate or socio-economic development goals. The analysis identifies financing gaps to support informed policy making for the deployment of renewables at the scale needed to accelerate the energy transition. Accordingly, to achieve the 1.5°C goal, it is imperative to divest USD 0.7 trillion per year from fossil fuels to energy-transition-related technologies and reform lending practices to developing countries seeking to deploy renewables. In addition, the report stresses the need for a much stronger role for public financing and for stronger North-South collaboration to substantially increase financial flows, and outlines policy instruments.



Global Energy
Finance 2023

²¹ Available [here](#).

Figure 8: Annual global investment in renewable energy, energy efficiency and other transition-related technologies, 2015-2022



Notes: Renewable energy investments for 2021 and 2022 represent preliminary estimates based on data from Bloomberg New Energy Finance (BNEF). As BNEF has limited coverage of large hydropower investments, these were estimated at USD 7 billion per year, the annual average investment in 2019 and 2020. Energy efficiency data are from IEA (2022a). These values are in constant 2019 dollars, while all other values are at current prices and exchange rates. Due to the lack of more granular data, the units could not be harmonised across the databases. For this reason, these numbers are presented together for indicative purposes only and should not be used to make comparisons between data sources. Data for other energy transition technologies come from BNEF (2023a).

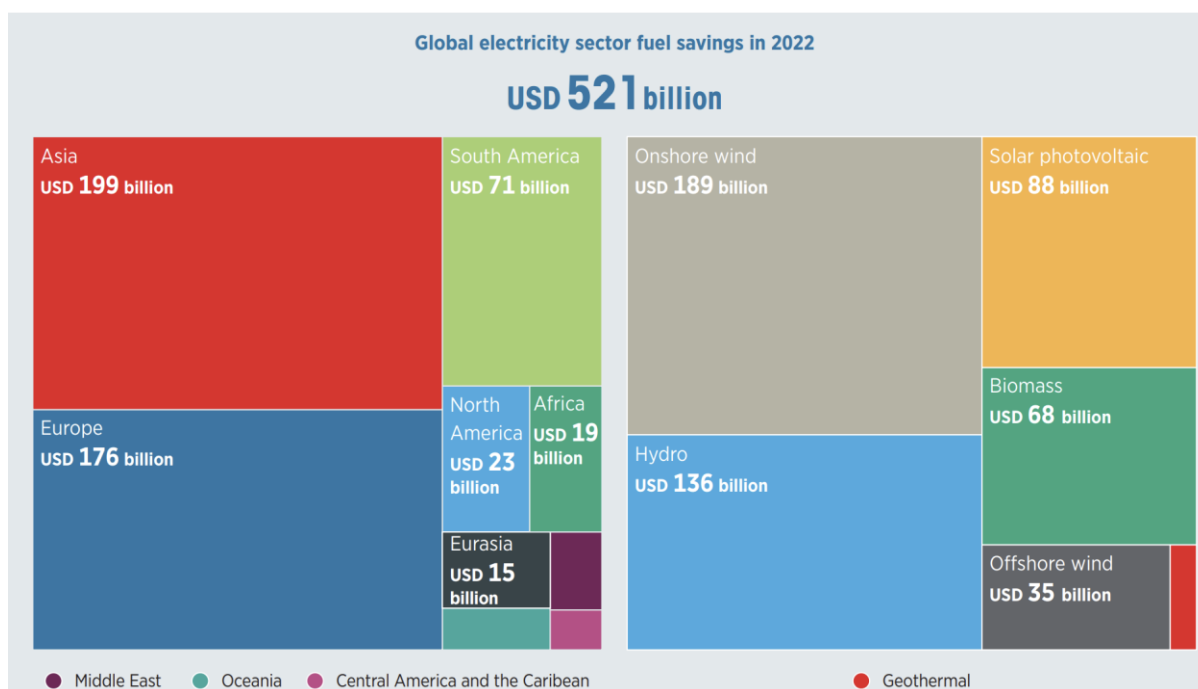
Based on: IEA (2022a) and BNEF (2023a).

Source: IRENA, *Global landscape of renewable energy finance 2023*, 2023

After decades of falling costs and improving performance in solar and wind technologies, the economic benefits of renewable power generation, in addition to its environmental benefits, are now compelling. IRENA's **Renewable power generation costs in 2022**²² report shows that due to soaring fossil fuel prices, the 2021 to 2022 period saw one of the largest improvements in the competitiveness of renewable power in the last two decades. This was despite the fact that most markets, excluding China, saw equipment price increases for solar photovoltaic modules and wind turbines, and that many markets experienced overall solar wind power cost inflation. In 2021, nine out of the 20 countries for which IRENA has detailed data saw the competitiveness of their utility-scale solar PV improve by more than the global weighted average levelized cost of electricity (LCOE) for that year. In 2022, eight countries saw such an improvement. For onshore wind, the situation was even starker. In 2021-2022, 15 out of the 20 countries examined for onshore wind saw their largest absolute improvement in competitiveness since the detailed data became available. This included markets which saw total installed costs increase, with fossil fuel prices rising far more than the prices of their renewable competitors. In addition, 2022 was the year that the energy security benefits of renewables were widely 'rediscovered'. In 2022, the renewable power deployed globally since 2000 saved an estimated USD 521 billion in fuel costs in the electricity sector (Figure 9).

²² Available [here](#).

Figure 9: Global electricity sector fuel savings 2022 in USD



Source: IRENA, *Power Generation Cost 2022*, 2023

The cost of capital for renewable power generation technologies is a very important driver of total costs, determining the cost of electricity from renewable power generation technologies. Yet, reliable, easily accessible, and up-to-date financing data that are differentiated by country and technology, have not been readily available. IRENA's **The cost of financing for renewable power**²³ report fills in this key information gap. The report presents new cost of capital data, gathered from an expert survey and interviews covering 45 countries on six continents for onshore wind, offshore wind and solar photovoltaic.

Access to low-cost finance for the energy transition, and the deployment of critical technologies, is a key requirement in increasing the competitiveness of renewables, especially considering the limited public financial resources. The **Low-cost finance for the energy transition**²⁴ report was developed by IRENA, at the request of the Ministry of New and Renewable Energy under the Energy Transition Working Group of India's G20 Presidency. The report highlights the significant role of access to low-cost capital in financing energy transition projects, especially regarding markets for offshore wind, which are now opening up in emerging economies, including India. It also underlines the criticality of collaboration between public and private sectors to catalyse institutional capital flows and includes recommendations for enhancing collaboration to finance projects with low-cost capital in G20 and other countries.

Renewable energy development changes the mix of energy sources powering the world's economies, but also creates jobs, builds economic value and enhances human wellbeing. The tenth edition of the **Renewable energy and jobs: Annual review 2023**²⁵, and the third produced in collaboration with the International Labour Organization, finds that renewable energy employment worldwide has continued to expand to an estimated 13.7 million direct and indirect jobs in 2022 (Figure 10), with almost two-thirds of them generated in Asia, mostly China which accounts for 41% of the global total.

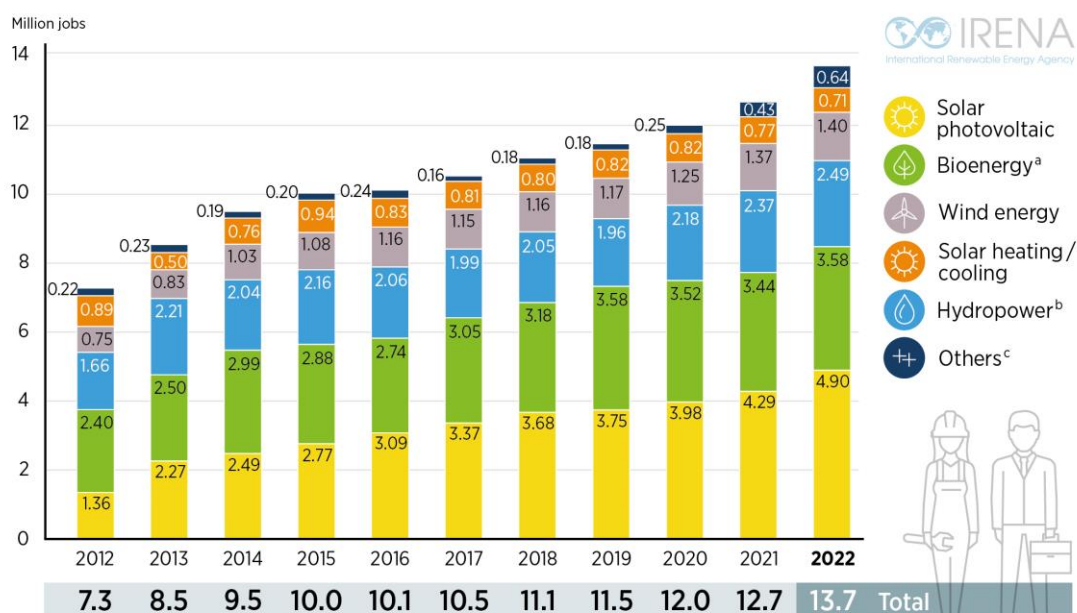
²³ Available [here](#).

²⁴ Available [here](#).

²⁵ Available [here](#).

The trend continues with solar PV being the fastest-growing sector, accounting for more than one-third of the total renewable energy workforce. Notably, 40% of these jobs are occupied by women. The hydropower sector also saw a 2.3% increase compared to 2021, reaching 2.5 million jobs - almost two-thirds of them were in operation and maintenance. Furthermore, the report finds that employment levels in the biofuels sector reached equally 2.5 million jobs in 2022, mostly in the agricultural supply chain. Despite progress, challenges such as the concentration of jobs in a relatively small number of countries, reflecting the uneven geographic footprint of equipment manufacturing and capacity installations remain. If education and skills development programmes are appropriately expanded, workforce development programmes are put in place, and labour markets respond to evolving needs, then many millions of additional jobs could be created in the coming years and decades.

Figure 10: Global renewable energy employment by technology, 2012-2022



Source: IRENA, *Renewable energy and jobs: Annual review 2023*, 2023

The findings of the 2023 edition of the **Tracking SDG 7: The Energy progress report**²⁶, published annually by the custodian agencies²⁷ and showing progress in achieving SDG 7, paints a sad picture for the timely realisation of the Goal (Figure 11). Specifically, it shows that the current pace of implementation will not lead to the achievement of SDG 7 and that the uneven progress across regions persists. The health crisis and enduring economic challenges are hindering progress, and although certain policy responses to the global energy crisis could improve the outlook for renewables and energy efficiency, universal access to electricity and clean cooking as well as financial flows, continue to lag. Between 2010 and 2021, the number of people without electricity almost halved from 1.1 billion in 2010 to 675 million in 2021; however, the pace of annual growth slowed during 2019–2021 to 0.6 percentage points. Similarly, even though the global population lacking access to clean cooking fell from 2.9 billion in 2010 to 2.3 billion in 2021, with the current trend, some 1.9 billion people would still be in this position in 2030. The falling trajectory of international public financial flows in support of clean energy in developing countries had begun before the COVID-19 pandemic and continued through 2021, amounting to USD 10.8 billion – a significant drop since the 2017 peak of USD 26.4 billion.

²⁶ Available [here](#).

²⁷ IRENA, International Energy Agency (IEA), United Nations Statistics Division (UNSD), World Bank, and World Health Organization (WHO).

Figure 11: Key findings of the Tracking SDG 7: Energy Progress Report 2023

	INDICATOR	2010	LATEST YEAR
	7.1.1 Proportion of population with access to electricity	1.1 billion people without access to electricity	675 million people without access to electricity (2021)
	7.1.2 Proportion of population with primary reliance on clean fuels and technology for cooking	2.9 billion people without access to clean cooking	2.3 billion people without access to clean cooking (2021)
	7.2.1 Renewable energy share in total final energy consumption	16% share of total final energy consumption from renewables	19.1% share of total final energy consumption from renewables (2020)
	7.3.1 Energy intensity measured as a ratio of primary energy and GDP	5.53 MJ/USD primary energy intensity	4.63 MJ/USD primary energy intensity (2020)
	7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems	11.9 USD billion international financial flows to developing countries in support of clean energy	10.8 USD billion international financial flows to developing countries in support of clean energy (2021)

Source: IRENA, IEA, UNSD, World Bank, WHO, *Tracking SDG7: The Energy Progress Report*, 2023

Furthermore, around 2.3 billion people lacked access to clean cooking technologies and fuels in 2023, and despite progress, the goal of achieving universal access to clean cooking may not be achieved by 2030 at the current rate of progress. As a result, the continued use of polluting fuels and inefficient cookstoves will continue affecting negatively human health and livelihoods as well as the environment. IRENA's **Renewables-based electric cooking: Climate commitments and finance**²⁸ report assessed countries' status on access to renewables-based electric cooking and climate commitments to understand the current situation and priorities on electric cooking. According to the analysis, few countries assessed have already incorporated electric cooking into their climate commitments, with 22 countries including electric cooking in their Nationally Determined Contributions (NDCs) or Long-term low emission development strategies (LT-LEDS). The report also looked into the financial landscape, challenges and supportive policies, and provides recommendations to scale up electric cooking solutions for different country groups based on their current status.

The COVID-19 pandemic also highlighted the importance of well-functioning and well-equipped health systems, among others. In several corners of the world though the lack of access to electricity – so fundamental to the provision of health services – remains evasive. Indeed, this critical aspect of essential health care has not attracted the attention it deserves in the decades-long push to improve health service delivery and health outcomes. The **Energizing health: accelerating electricity access in health-care facilities**²⁹ report – prepared jointly with the World Health Organization, Sustainable Energy for All, and the World Bank – maps out electricity access in low- and middle-income countries worldwide. The report shows that at least one billion people globally are served by health facilities that lack reliable access to electricity and provides recommendations on how to accelerate health facility electrification, while transitioning to clean, sustainable energy systems.



“Energy security, climate change, and inequalities are variables of the same equation.

Solutions should focus on clean energy demand and building the necessary physical, legal, and institutional infrastructure to support its rapid deployment.”

Francesco La Camera, IRENA Director-General

²⁸ Available [here](#).

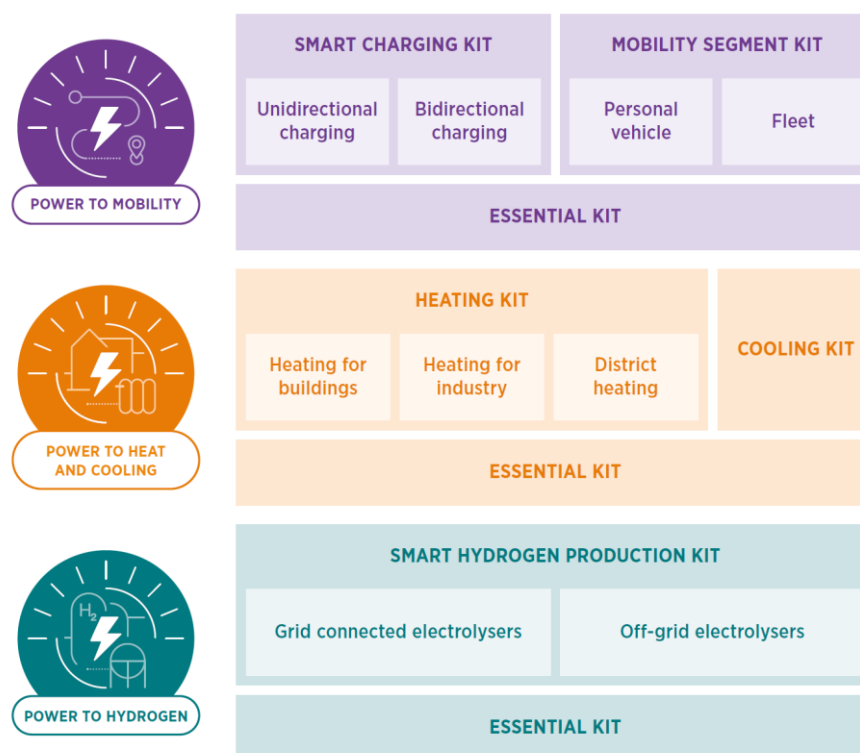
²⁹ Available [here](#).

Harnessing technology and innovation



Under IRENA's 1.5°C Scenario, electricity would account for more than 50% of global energy consumption by 2050. While many smart electrification solutions are already available and ready for commercialisation, targeted government actions must support innovation and integrate emerging solutions to meet the rising demand. The 2023 edition of the **Innovation landscape for smart electrification**³⁰ report provides a toolbox of 100 innovations (Figure 12) that countries can embed in tailored national strategies to decarbonise end-use sectors. The report was launched in a joint event with Ms Kadri Simson, EU Commissioner for Energy.

Figure 12: Toolbox for smart electrification strategies



Source: IRENA, *Innovation landscape for smart electrification*, 2023



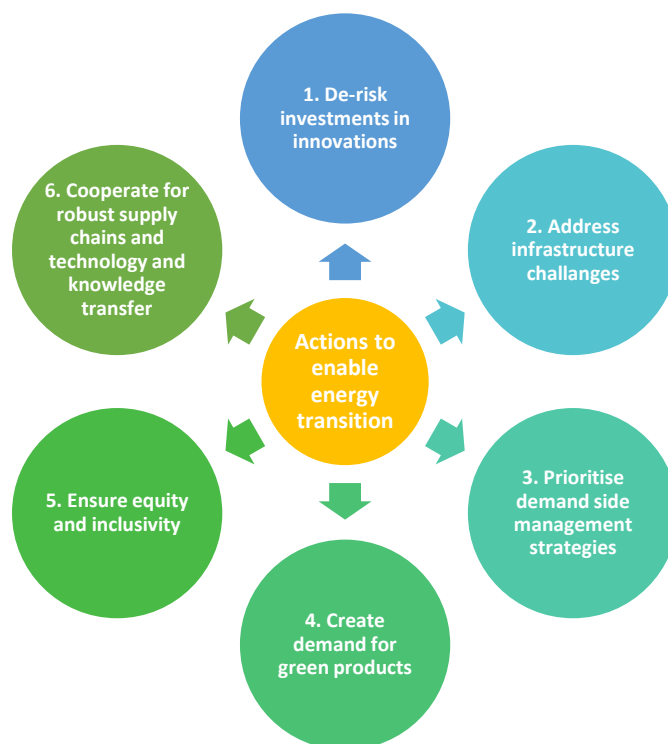
Building on previously successful editions, the **Innovation Week 2023**³¹ Innovation focused on expanding shared knowledge on renewable solutions to decarbonise end-use sectors. Underpinned by IRENA's in-depth analyses and informed by first-hand project experiences, the Innovation Week gathered a diverse range of experts in the field to exchange knowledge on the latest developments and solutions. Specifically, this fourth edition broadened the discussion on decarbonising end-use sectors and was informed by IRENA's recent flagship report *Innovation landscape for Smart Electrification*. IRENA Innovation Week's four days of

³⁰ Available [here](#).

³¹ More information available [here](#).

discussion showcased many emerging solutions from around the world and explored the actions needed to fully unlock the potential of renewables in the end-use sectors. Figure 13 shows the six main actions for the consideration of policymakers for the way forward.

Figure 13: 2023 Innovation Week policy recommendations



Source: IRENA 2023 Innovation Week internal records

It is increasingly recognised that hydrogen and its derivatives, both low carbon and renewable, are key elements in transitioning away from fossil fuels and decarbonising hard-to-abate sectors. However, the development of a new trade in hydrogen requires the setting up of certification that also abides by environmental, social and governance standards. IRENA and the Rocky Mountain Institute (RMI) prepared the **Creating a global hydrogen market: Certification to enable trade**³² report that provides an assessment of existing certification systems globally, identifying gaps that could hinder the development of hydrogen trade. The report is also a contribution to the work on the G7 Hydrogen Action Pact, supporting the creation of regulatory frameworks for low-carbon and renewable hydrogen and its derivatives.

The scale-up of green hydrogen also requires the development of new supply chains, which will impact the international trade of renewable hydrogen and related commodities, as well as trade in associated equipment and services along the value chain. IRENA and the World Trade Organization (WTO) jointly produced the **International trade and green hydrogen: Supporting the global transition to a low-carbon economy**³³ report that explores how trade policies can support the development of green hydrogen. The report maps trade-related challenges within the hydrogen supply chain, assesses potential global trade scenarios, and provides concise recommendations for policy makers to scale-up green hydrogen-related markets.

³² Available [here](#).

³³ Available [here](#).

WETO 2022 highlighted the crucial role hydropower will play in achieving the 1.5°C goal as well as increasing power, flexibility, and reliable support for power systems. IRENA's **The changing role of hydropower: Challenges and opportunities**³⁴ report provides a snapshot of the status of hydropower and lays out a vision of how to maximise and realise its potential. Produced in the context of IRENA's Collaborative Framework on Hydropower, the report stresses the need to substantially increase the hydropower's deployment pace, especially considering the projected increase in clean electricity demand.

Geothermal energy's contribution to the energy transition is equally important. To ensure countries can harness its potential, IRENA's **Global geothermal market and technology assessment**³⁵ report provides an overview of developments in the geothermal sector and an analysis on the parameters that are likely to shape the market and the technologies that can help scale up its use. The report concludes that in the coming years the accelerated deployment of geothermal energy will be driven by advancements in geothermal technologies, cross-industry collaborations between geothermal and related sectors, as well as the rising deployment of geothermal for heating and cooling applications. It also includes recommendations on how to grow the geothermal market, exploit the potential of geothermal energy and further expand its integration within global energy systems.

IRENA's **Long-term Energy Scenarios (LTES) Network**³⁶ explores how governments develop and use LTES to navigate the clean energy transition. The LTES Network maintains its strategic and outreach activities through constant communication and the creation of thematic advisory groups to enhance engagement on technical topics. A critical factor in realizing national and global net-zero targets is putting in place long-term energy scenarios (LTES). IRENA's **Long-term energy scenarios and low-emission development strategies: Stocktaking and alignment**³⁷ report examines twenty-four LTES and thirty-six long-term low [greenhouse gas] emission development strategies (LT-LEDS) from 45 countries. It focuses on the institutional and governance framework in which LTES and scenario-based LT-LEDS publications are developed; and the coverage of energy transition elements assessed in them. The report includes guidelines for developing effective LTES and scenario-based LT-LEDS.

Furthermore, the **Scenarios for the energy transition: Experience and good practices in Africa**³⁸ report provides a summary of the presentations and discussions that transpired at the webinar series entitled **Long-Term Energy Scenarios (LTES) for Developing National Energy Transition Plans in Africa**³⁹ convened in 2021 and 2022. The report presents key findings and recommendations that are broadly relevant to African countries, as well as to stakeholders attempting to improve their planning processes across the world.

IRENA's support to the development of the **Continental Power Systems Master Plan (CMP)** continues apace. The CMP covers three main pillars: future demand assessment, capacity expansion planning, and network planning. IRENA's support consists of targeted training workshops on the second pillar. Four weeks of in-person training, supplemented by two virtual training and weekly support sessions provided by IRENA over the past months, enabled the CMP modelling team to develop the long-term power sector scenarios towards 2040. At the Kigali training held on 13-17 March 2023 - the final in-person training - the modelling team scrutinized the sensitivity of the models and discussed the key insights from the modelling results for the future African interconnectivity and infrastructure needs for the CMP. The post-training survey revealed participants' satisfaction with the high-quality training provided by IRENA.

³⁴ Available [here](#).

³⁵ Available [here](#).

³⁶ More information available [here](#).

³⁷ Available [here](#).

³⁸ Available [here](#).

³⁹ More information available [here](#).



In this context, IRENA released the **Planning and prospects for renewable power: North Africa**⁴⁰ report, which is part of IRENA's series on planning and prospects for renewable energy, focusing on renewable electricity generation in African power pools.⁴¹ The report presents various scenarios for power system expansion in North Africa through 2040, including through hydrogen production and interconnections within and outside the region. It also includes avenues to diversify electricity generation mixes and reduce fossil fuel reliance in this timeframe. Based on the analysis, the large-scale roll-out of variable renewable electricity generation from solar and wind power would be a cost-efficient way to achieve this.



Pacific Small Island Developing States (SIDS) are particularly vulnerable to the impacts of climate change and remain heavily dependent on fossil fuel imports to meet energy needs. Understanding energy consumption through an energy audit is the first step to an efficient energy management process and provides the basis for informed decision making. On 27 February - 3 March 2023, IRENA, through the SIDS Lighthouses Initiative (LHI) and in collaboration with Pacific Community (SPC), the Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE) and the Ministry of Public Works, Transport and Meteorological

Services of Fiji, organised a **Pacific Regional Capacity Building Programme on Energy Management and Energy Audit**. The five-day training served to strengthen the capacity of entry level officers in the Pacific SIDS Energy Divisions, Power Utilities and other relevant sectors to conduct energy audits to better understand and manage energy consumption. The event was attended by 31 participants from 14 Pacific SIDS.

In response to the request from the Government of Ukraine, IRENA conducted a **mission in Kyiv** on 18-25 August 2023. The mission's objective was to discuss with Ukrainian Government, as well as active international development partners in the field, the most suitable support that IRENA could provide to foster the deployment of renewable energy solutions and measures. This support is envisioned to be provided at immediate, short, medium, and long-term intervals, in collaboration with all active international development partners, Multilateral Development Banks (MDBs), International Financial Institutions (IFIs), and other organisations active on the ground. The objectives of this work are to develop timely knowledge and create a

⁴⁰ Available [here](#).

⁴¹ Reports have been previously published for [Eastern and Southern Africa](#) (2021) and [West Africa](#) (2018).

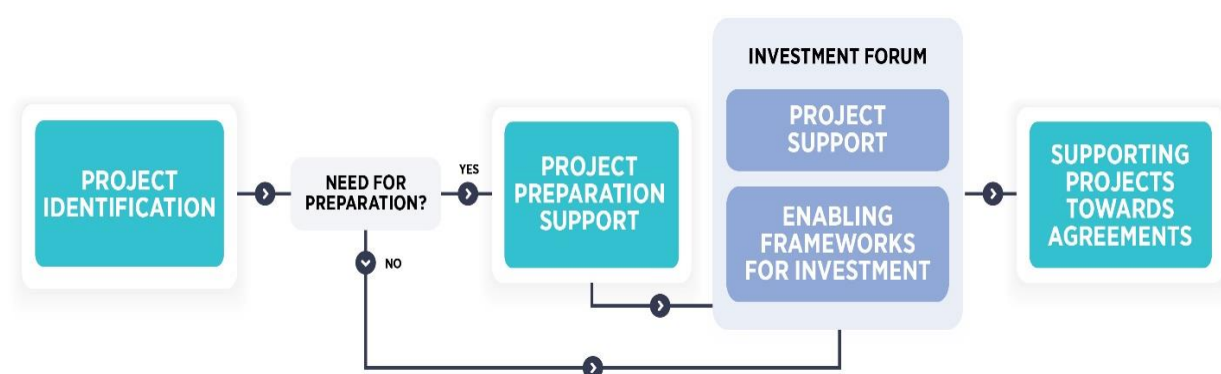
portfolio of renewable energy projects to expedite the greening of Ukraine's reconstruction; align support through the development of joint analyses, tools and assessments that leverage the complementarity of expertise and scale up impact by utilising existing financing and comparative advantages.



Investments for a sustainable future

IRENA supports the acceleration of renewable energy deployment through the **Climate Investment Platform (CIP)** and the **Energy Transition Accelerator Financing Platform (ETAF)**, 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 (Figure 14).

Figure 14: CIP project support cycle



Now in its third year, 427 projects have been sourced on the CIP, with 209 projects eligible for support. Of these, 87 projects are actively supported; 39 have benefitted from technical assistance support, 13 were matched with interested financing partners, and four projects achieved financial close. The regional distribution of projects is as follows: 153 are from sub-Saharan Africa, 62 are from South America, 28 are from MENA, 31 are from Southeast Asia, 43 are from South Asia, 15 are from Southeast Europe, eleven are from Central Asia, and 29 are from SIDS (Table 4). The remaining projects are based in other locations.

Table 4: Number of projects supported by region

Region	# of Total projects	# of Projects supported
Central Asia	11	-
MENA	28	2
South America	62	19
South Asia	43	8
Southeast Asia	31	13
Southeast Europe	15	2
SIDS	29	22
Sub-Saharan Africa	153	21
Other	55	-
Total	427	87

In total, 87 projects are currently actively supported, out of which 39 projects are supported with PIDs and currently at the matchmaking stage and 13 projects have already been matched to potential financiers. Of these, four projects have achieved financial close, one is currently running, and three projects have started construction, representing a cumulative value of USD 52.6 million and a total of 42.6 MWs to be deployed on full commissioning (Table 5). In addition to the standard CIP support, two of these projects have also benefitted from IRENA Regional Investment Forums. All four projects are from the West African and Southeast Asian regions.

Table 5: Climate Investment Platform

Number of MW Supported (70 projects)	2272 MW
Number of MW Gained Financiers Interest (12 projects)	396 MW
Number of MW Financial Closed (4 Projects)	44.8 MW
Total Cost of Financial Closed Projects	USD 62.9 million
Technology Type Most Matched	Solar
Minimum Project Size Matched	2.2
Maximum Project Size Matched	117
Region with Most Matches	Sub-Saharan Africa
Cumulative Financial Value of Projects Matched	USD 782.07 million

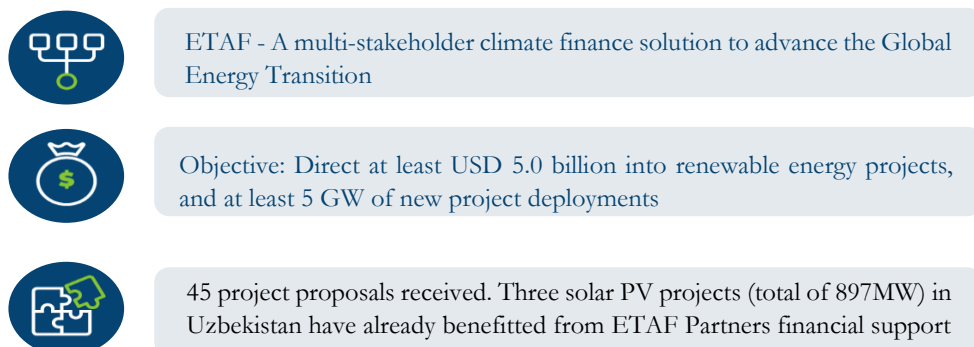
On 20 July, IRENA organised its first webinar on *Submission of project applications and insights on the assessment criteria and support process*.⁴² This webinar on CIP targeted the Latin America Region, attracting a wide audience of project developers, government officials and financiers.

The **Energy Transition Accelerator Financing (ETAF) Platform**, an initiative led by IRENA, was established to mobilize capital from global financial institutions such as Multilateral Development Banks, Development Financial Institutions, and the corporate sector. The primary objective is to expedite the implementation of renewable energy projects and accelerate the energy transition in developing countries (Figure 15). The platform aims to mobilise an initial USD 1 billion in soft pledges for project investment by 2023 and expand to USD 5 billion by 2030. It also aims to facilitate investments supporting a minimum of 1.5

⁴² More information available [here](#).












GW of renewable energy technologies by 2024, increasing to at least 5 GW by 2030. This will be achieved through backing renewable-supportive infrastructure, including electricity transmission services and storage.



Figure 15: Energy Transition Accelerator Financing (ETAF) Platform



In 2021, the United Arab Emirates pledged USD 400 million in anchor funding for the ETAF at COP26 through the Abu Dhabi Fund for Development (ADFD). The Asian Infrastructure Investment Bank, Masdar and Swiss RE joined ADFD as funding partners by signing ETAF Cooperation Agreements during COP27 in Sharm El Sheikh, Egypt. Additionally, the Platform's capital commitment experienced a substantial surge, increasing to USD 1.25 billion and surpassing the initial goal of USD 1 billion. This was made possible with the integration of new partners such as the OPEC Fund for International Development and the Inter-America Development Bank. Collaboration agreements with the European Bank for Reconstruction and Development (EBRD), HSBC, the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA) were signed with IRENA at COP28. As a result, financial pledges to the ETAF platform reached USD 4.05 billion, surpassing its original target for COP28 by more than fourfold (Table 6).

Table 6: Status of ETAF partners and their pledges

Partners	Status	Pledge
 ADFD ABU DHABI FUND FOR DEVELOPMENT	Agreement signed	USD 400 million
 AIIB ASIAN INFRASTRUCTURE INVESTMENT BANK	Agreement signed	USD 300 million
 MASDAR	Agreement signed	USD 200 million
 Swiss Re	Agreement signed	De-risking products
 OPEC FUND OF INTERNATIONAL DEVELOPMENT	Agreement signed	USD 250 million
 IDB Inter-American Development Bank	Agreement signed	USD 100 million
 EDB بنك التنمية الاقتصادية Economic Development Bank	Agreement signed	USD 350 million
 IsDB البنك الإسلامي للتنمية Islamic Development Bank	Agreement signed	USD 250 million
 ICIEC THE ISLAMIC CORPORATION FOR THE INSURANCE OF INVESTMENT AND EXPORT CREDIT Member of the Islamic Development Bank Group	Agreement signed	De-risking products
 European Bank for Reconstruction and Development	Agreement signed	USD 1000 million
 IFC International Finance Corporation WORLD BANK GROUP Creating Markets, Creating Opportunities	Agreement signed	USD 1000 million

 MIGA Multilateral Investment Guarantee Agency WORLD BANK GROUP	Agreement signed	De-risking products
 HSBC	Agreement signed	USD 200 million

ETAF is accepting eligible renewable energy project submissions through its online platform, following an official Call for Projects launched at COP27. Over 45 project proposals have been submitted to the ETAF Platform; among those, three solar PV projects in Uzbekistan for a total of 897 MW have already benefitted from ETAF partners' financial support. These projects will produce enough electricity to power more than 1 million homes and 5 million inhabitants, while displacing more than 1 million tons of CO₂ emissions each year. The projects are expected to begin operations in 2024 (Table 7).

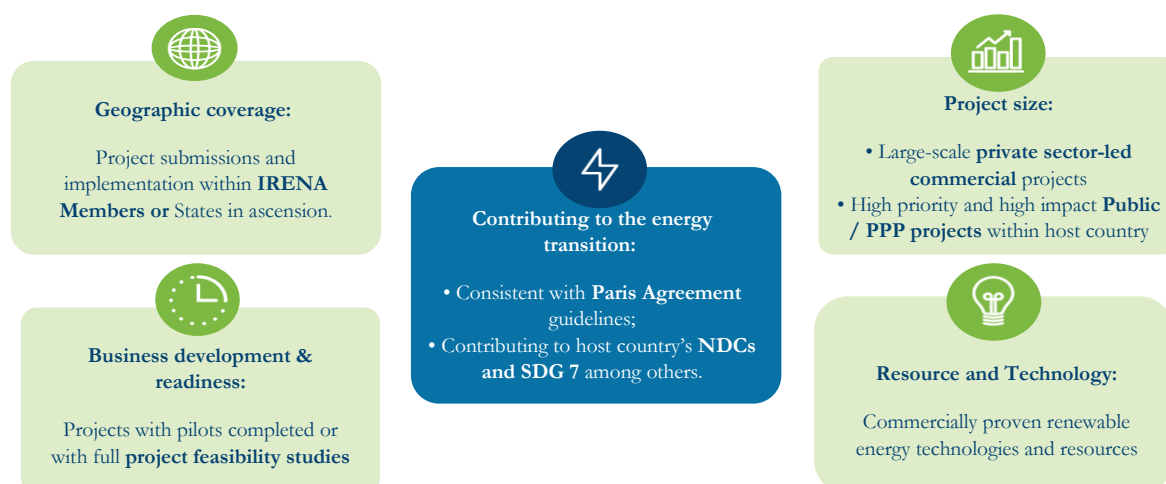
Table 7: ETAF Platform

Number of Projects Proposals Received	45 (4841 MW)
Number of Projects Received Interest of Partner(s)	14 (2579MW)
Number of Projects Financially Closed	3
Number of MWs Financial Closed	897
Total Cost of Financial Closed Projects	USD 1 billion
Technology Type Received Most Interest of Partner(s)	Solar
Minimum Project Size Received Interest of Partner(s)	33 MW
Maximum Project Size Received Interest of Partner(s)	1000 MW
Region with Most Applications Submitted	Sub-Saharan Africa
Cumulative Financial Value of Projects Recommended to Partners	USD 3.3 billion

IRENA is working together with the founding partners to create and put into action the ETAF Charter. This document will outline the governance framework for partner collaboration, highlighting the roles and responsibilities of all partners. Five partner meetings were conducted in 2023 covering various aspects, including governance, project eligibility, mobilising new partners with additional financial, de-risking & technical assistance products, and improvements to ETAF's operational procedures, among others. Together with ETAF founding partners, IRENA signed the ETAF Joint Declaration in October 2023. This document outlines the governance framework for partner collaboration, highlighting the roles and responsibilities of all partners, including IRENA, which serves as the ETAF Secretariat. In addition, the operational manual was drafted to guide the day-to-day activities carried out by IRENA's ETAF secretariat while also highlighting procedures that are expected to be completed by partners to deliver on ETAF's mandate. The draft manual is under review and is expected to come into effect in 2024.

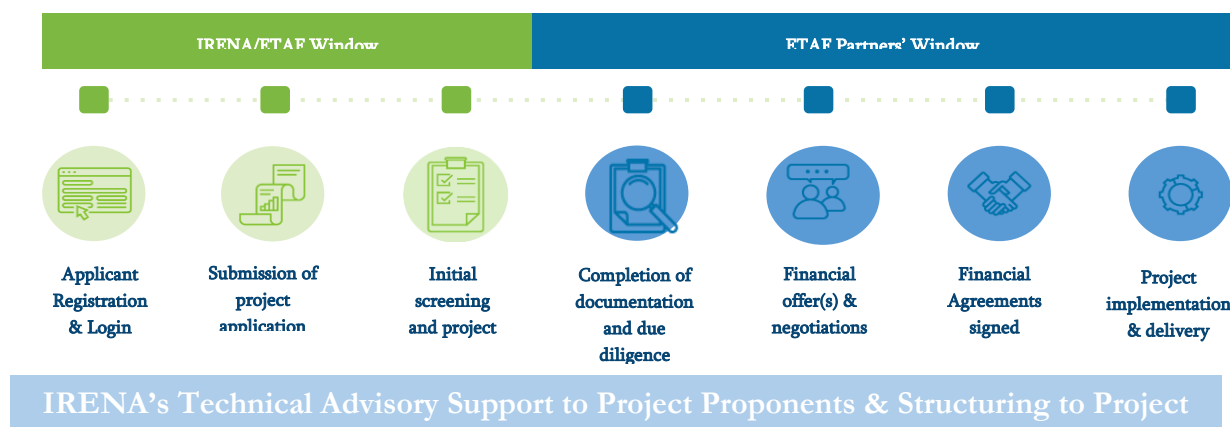
Within the ETAF structure, IRENA acts as the Secretariat and manages the ETAF platform from project sourcing to financial close. As part of its responsibilities, IRENA undertakes outreach activities, identifying prospective projects and partners, training and assisting project proponents for their submittals, and performing the technical management and maintenance of the online platform. IRENA also screens the proposed projects, guaranteeing that all needed information is present, scoring the projects as per the established eligibility, and ensuring that these are aligned with the SDGs as well as NDCs of respective countries (Figure 16).

Figure 16: ETAF Eligibility Criteria



All projects must have a positive impact on the renewables-based energy transition and the reduction of greenhouse gases, while contributing to the host country's infrastructure development and social wellbeing. Eligible projects are presented to partners on a recurring basis. To improve the bankability of selected projects, IRENA provides technical advisory support at the request of the proponent. If needed, IRENA also collaborates with ETAF partners during the financial analysis and structuring of the submitted projects (Figure 17).

Figure 17: ETAF Application Process



To foster understanding and readiness among potential project proponents, IRENA is organising a series of webinars, the first of which was held on 27 April 2023, attracting over 200 registrants, and covering important topics, including project submission and readiness. A second webinar focused on Latin America was held on 14 September 2023, engaging Latin American project proponents by sharing insights on the ETAF platform's processes and critical assessment requirements.

The Government of Barbados and IRENA, through the SIDS Lighthouses Initiative, co-hosted an event on the ***IRENA-Caribbean Cooperation for Fostering Energy Transition Investments and Finance***⁴³ on 30 May to 1 June 2023. The event gathered key stakeholders in the region to discuss issues pertaining to the development and sustainability of robust, sustainable, and bankable pipelines of renewable energy projects. IRENA sought close collaboration with regional organisations and financial institutions active in the region to boost energy transition investments, move beyond pledges to action and help close the financing gap. During the Forum, IRENA organised a Project Exhibition event, connecting business partners and facilitating investment opportunities between Caribbean SIDS developers and financiers. As a result, a total of 17 projects from ten private and public project developers were introduced, representing an aggregate of approximately 167 MW in installed capacity, and a capital mobilization of roughly USD 741 million in terms of grants and concessional loans, covering the technologies of solar PV, geothermal, biogas, ocean thermal, hydrogen and battery storage systems. In addition, a Project Training and Capacity Building session was held and attended by 65 delegates from Governments and private sector.



On 24 August 2023, IRENA organised the **High Level-CEO Dialogue** together with GIZ, Ministry of Energy and Mineral Resources of Indonesia and ASEAN Centre for Energy. The meeting took place during the ASEAN Energy Business Forum, in conjunction with the ASEAN Ministers on Energy Meeting in Bali, Indonesia. The Dialogue facilitated an in-depth discussion on financing the energy transition in Southeast Asia and provided a platform for sharing successful case studies and innovative financing mechanism, while fostering strategic alliances among public and private stakeholders. It also helped strengthen the ability of decision-makers to foster strong enabling environment for energy transition-related investments and attract private and public investments.

The first ever **Investment Forum in Latin America**⁴⁴ was convened in Uruguay on 7-9 November 2023. Co-hosted by IRENA and the Government of Uruguay, in cooperation with Latin America Energy Organization (OLADE) and Inter-American Development Bank (IDB). Along with high-level discussions on topics relevant to Latin America, the Forum included dedicated sessions to explore ground-level challenges faced by developers and financiers in the region that hinders the creation of a bankable pipeline of projects and the expansion of capital mobilization. In addition, during the forum matchmaking sessions were held to help public and private project proponents connect with potential commercial and financial partners. An exhibition area was also available to highlight additional projects from the region and to offer the opportunity to network with a diverse group of stakeholders who aim to advance the energy transition.

⁴³ More information available [here](#).

⁴⁴ More information available [here](#).



International cooperation and partnerships

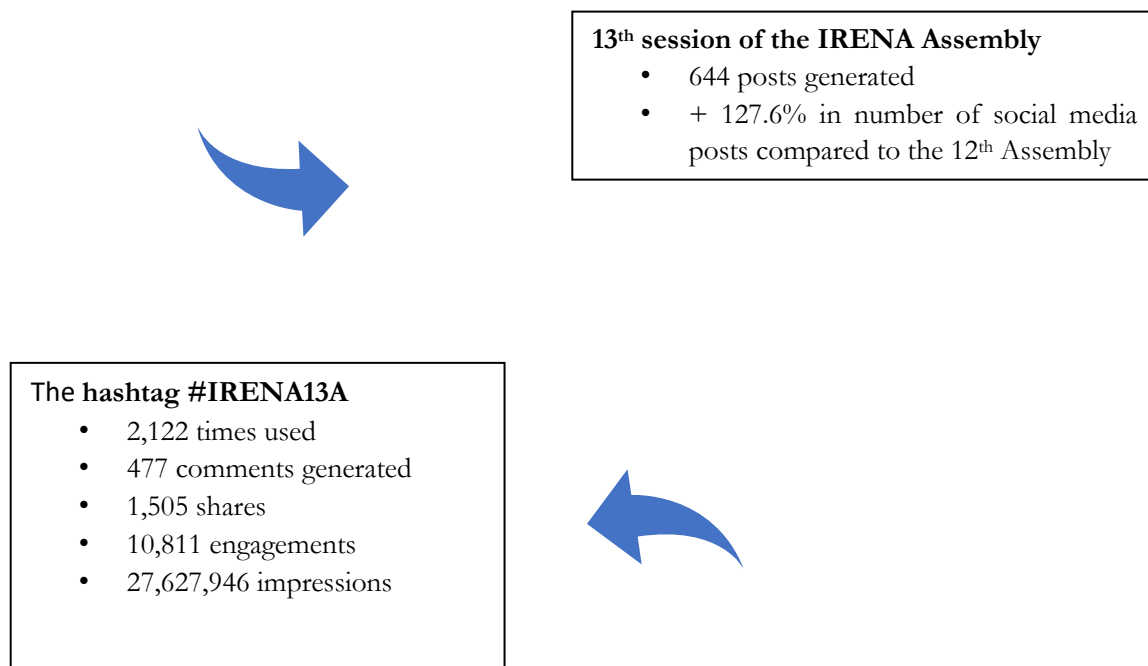
The 13th session of the **IRENA Assembly**⁴⁵ was held in-person from 14 to 15 January 2023 under the theme “World Energy Transition – The Global Stocktake”, attended by Heads of State/Government, Ministers, and energy decision-makers, as well as multilateral organisations, global stakeholders, and private actors. The Assembly served to bring together global leaders and energy decision-makers to take stock of operational plans and policies and highlight the concerted action undertaken to implement the energy transition across countries, regions, and the world. Overall, there were over 2,000 registered participants to the Assembly, including 85 Heads of State or Government and Ministers, along with delegates from 147 countries and the European Union and representatives from 250 organisations.



13 Assembly



⁴⁵ More information available [here](#).



The Official Opening on 14 January 2023 also marked the celebration of the 3rd World Energy Transition Day. The Opening featured a **High-level Plenary Meeting on the World Energy Transition – The Global Stocktake**, aligned with the Assembly theme. The high-level plenary meeting set the scene for the Assembly’s deliberations and considered the role of energy transitions in the context of the Global Stocktake to be concluded at COP28 in Dubai, UAE. In preparation for COP28, it reflected on the key priorities of the energy transition, in diverse geographical and sectoral settings. IRENA’s WETO sets out a pathway aligned with a 1.5°C future that can help guide the Global Stocktake, and the Agency is supporting the process by providing the best available science as well as a venue for dialogue and a framework for action.

On the Pre-Assembly Day on 13 January 2023 and during the Assembly on 14-15 January 2023, IRENA organised several Ministerial and High-level Meetings, focusing on critical and pertinent energy transition. This year’s SIDS Ministerial meeting focused on ***Climate Pledges to Action: Amplifying Energy Transition for Sustainable Development in SIDS*** and provided a status update on the implementation of the SIDS Lighthouses Initiative towards the achievement of the S.A.M.O.A Pathway, Paris Agreement and SDGs and an opportunity to share insights in the lead up to COP28.

The **High-Level meeting on the Energy Compact on Renewable Energy for the United Nations Peacekeeping** discussed the alignment of climate and development objectives related to the greening of peacekeeping operations and the development priorities of host communities. At the **Ministerial Roundtable Decarbonising Shipping: The role of ports in addressing supply, demand and trade of renewable-based fuels**, Members exchanged knowledge on strategies to decarbonise the shipping sector. The **Ministerial Dialogue on Regional Energy Transition Outlooks: Southeast Asia Energy Transitions** considered strategies to scale up the renewable energy uptake in Southeast Asia, to support the region’s ambitions to achieve sustainable growth and prosperity. De-risking supply and improving the environmental and social sustainability of supply chains was the focus of the **Ministerial Dialogue on Critical materials for the Renewables-Centred Energy Transition: How to jointly harness opportunities**. Lastly, the **Ministerial Dialogue on ETAF Platform** focused on approaches to reduce barriers to investment growth in renewable energy, reduce project risk and raise capital.

Like every year, IRENA organised several stakeholder engagement events, facilitating the exchange of perspectives on the energy transition from parliamentarians, youth, and the private sector. The 2023 edition of

the **IRENA's Legislators Forum** was held on 13 January under the theme *Ensuring a more sustainable energy transition through international co-operation – National Strategies on Green Hydrogen*. The focus of the meeting was on the role of green hydrogen strategies in fostering early adoption of policies to support supply and demand of green hydrogen, including local and regional co-ordination as well as international cooperation.

Convened under the theme *Towards Just and Inclusive Energy Transitions: Social Dialogue, Skills, and Decent Jobs for all*, the 2023 **IRENA Public-Private Dialogue**⁴⁶ gathered representatives from governments, labour unions and the private sector to share their perspectives and discuss what a just energy transition means in practice. The Dialogue suggested decisive actions from governments to lead the system transformation, with people at its core, and stressed the need for long-term commitment, adequate financing and application of the just transition principles. At the meeting, participants had the opportunity to hear the preliminary findings from a Just Transition Brief, identify further possible areas of cooperation as well as outline key challenges and concrete actions to address them.



IRENA's Youth Forum convened for the fourth time under the theme *Empowering Youth to Lead an Equitable Energy Transition for a Sustainable Future*. The Forum offered a platform to over 150 youth representatives from 50 countries to provide their perspective to the global energy discourse in terms of energy policy and financing mechanisms supporting youth-led solutions and capacity building.

The Assembly also featured thematic meetings and side events on issues of great relevance and importance to the Membership. For example, in the context of the African Continental Power Systems Master Plan, IRENA organised an event on *Establishing a continent-wide planning process* to explore the current and future link of the CMP initiative with national planning processes and highlight the importance of building robust and nationally owned processes for designing long-term energy scenarios as means to meet national and pan-African energy milestones.

Along similar lines, IRENA's *Renewable Energy Roadmaps for Latin America: Perspectives and way forward* event served to present the respective REmap study's objectives, scope and expected outcomes, as well as to delve into the overall insights and lessons learned from the development of the Central America and South America reports.

In recognition of the issues growing importance, IRENA convened the *Advancing renewables-based clean cooking solutions* meeting to discuss opportunities, challenges, and solutions to accelerate the adoption of renewables-based clean cooking solutions in contribution to SDG 7. Together with partners, IRENA is also organizing a virtual knowledge exchange series in April 2023 focused on each renewables-based solutions, including bioethanol, electric cooking and biodigesters.

In addition, IRENA held an event on *Solar Photovoltaic (PV): A Gender Perspective* to discuss main findings of the respective report⁴⁷ released in 2022 on the role of women in the solar PV sector, while broadening the conversation on best measures and practices to “engender” the overall energy sector. This event also featured discussions on best practices that can be replicated to ensure an energy transformation that is rapid, inclusive and leaves no one behind.

The **Global Geothermal Alliance (GGA)** held its annual meeting on 15 January 2023 at the IRENA Assembly. It gathered several ministers and senior government officials from the GGA Member States, and representatives of the GGA partner institutions. At the meeting IRENA shared updates about the latest geothermal activities undertaken in the framework of the Alliance, and the efforts to promote the deployment of geothermal energy

⁴⁶ More information available [here](#).

⁴⁷ Available [here](#).

in the end use sectors, among others. Members and partners also reflected on the activities of the Alliance and exchanged views on the strategic approach for the coming years, based on the results of a recent review carried out in consultation with the constituency. They also provided updates on their geothermal related activities.

The eleventh **Renewables Talk for IRENA Permanent Representatives**⁴⁸ was jointly organised by IRENA and the European Union Delegation to the UAE, in partnership with the Permanent Representation of UAE to IRENA and held on 12 April 2023. The theme was “The European Green Deal: challenges, opportunities, and best practices in reaching renewable energy targets”, and Members had the opportunity to have for in-depth exchanges on challenges, opportunities and best practices that the transition towards clean and renewable energy systems can bring to a country, a region and the entire world.

In fall 2022, IRENA and the International Solar Alliance (ISA) took up the role of Secretariat in the new **Clean Energy Ministerial (CEM) Initiative on Transforming Solar Supply Chains**. Currently, Australia and the United States of America serve as co-chairs of the initiative. The initiative has three workstreams, namely on (1) Diversification; (2) Innovation; and (3) Standards and transparency. IRENA coordinates the work of workstreams 2 and 3, whereas ISA supports workstream 3. On the eve of the IRENA Assembly, IRENA hosted a high-level workshop on *Envisioning a future with a resilient and diverse global solar supply chain* at its Headquarter. The meeting promoted engagement and dialogue among policy makers and industry to seize shared opportunities and strengthen solar industry supply chains globally. Key considerations informed the work of the Initiative and served as input into related discussions at the IRENA Assembly.



A second stakeholder workshop was held virtually on 27-28 February 2023, bringing together governments and industry counterparts to discuss opportunities and challenges for the diversification of solar energy manufacturing chains. The workshop highlighted unique regional characteristics or circumstances and mapped global similarities of establishing solar manufacturing industries.

On 20-23 March 2023, Brazil hosted the 2023 **CEM Senior Officials' Meeting**⁴⁹ in Rio de Janeiro. The meeting provided an opportunity to strengthen and energise the CEM community; identify and advance practical actions to help achieve CEM's mission, the CEM 3.0 strategy; and mobilise countries to bring their boldest ambitions to the 14th Clean Energy Ministerial in India, to ensure its success. At the meeting, Members

⁴⁸ More information available [here](#).

⁴⁹ More information available [here](#).

discussed the draft Workplan of the Initiative and IRENA presented its proposals on deliverables under the two workstreams it supports. IRENA also participated in several side events.

The **14th Clean Energy Ministerial and 8th Mission Innovation meeting (CEM14/MI-8)**⁵⁰ took place from 19-22 July 2023 on the margins of the G20 Energy Transitions Ministerial Meeting. The meeting featured high-level ministerial dialogues, global initiative launches, award announcements, minister-CEO roundtables, and a wide array of side-events cutting across diverse themes of clean energy transition. IRENA organised five events and participated in several others, covering issues such as industry decarbonisation pathways through clean hydrogen, energy access, the water-energy-food nexus etc.



In response to Members' call for in-depth programmatic discussions to form part of the IRENA Councils' agenda, the **25th meeting of the Council**⁵¹, held on 23-24 May 2023, included meetings on selected issues. After the official opening of the Council, IRENA held a ***High-level Panel on the Road to COP28: Renewables-based energy transitions and critical materials*** that served to share selected highlights from IRENA's report on the Geopolitics of Critical Materials, rooted in the latest WETO analysis. The High-Level Dialogue

also considered different aspects of the topic, as the global focus on the renewables-based energy transitions intensifies in preparation for COP28 in Dubai.

On 24 May 2023, a meeting on ***Global Status of Geothermal Market and Technology*** was held, to share the key findings of the report on Global Geothermal Market and Technology Assessment as well as discuss recent trends, challenges, potential solutions, and opportunities to accelerate the development of the sector. In addition, a meeting on the ***Global Landscape of Renewable Energy Finance*** took place to share experiences in attracting private capital for renewables, the role that public funds, and the need for international cooperation. The ***Accelerating Finance for Energy Transition*** meeting served to present an overview of the ETAF Platform, its work, and the projects promoted through the Platform.

⁵⁰ More information available [here](#).

⁵¹ More information available [here](#).



Energy plays a fundamental role in Africa's development pathway, and improving livelihoods and access to opportunities will depend crucially on the expansion of access to reliable, affordable, and sustainable energy. Kenya, Ethiopia, Namibia, Rwanda, Sierra Leone, and Zimbabwe have formed the **Accelerated Partnership for Renewables in Africa (APRA)** to lead high levels of renewable energy deployment and green industrialisation on the continent. IRENA is facilitating APRA with Germany, Denmark, and UAE as leading supporting counties and several other partners⁵². The Partnership was officially launched by H.E. William Ruto, President of Kenya on the first day of the Africa Climate Summit on 4 September 2023 in Nairobi, Kenya. H.E. Julius Maada Wonie Bio, President of Sierra Leone, and H.E Nangolo Mbumba, Vice President of Namibia also participated in the APRA launch. The initiative has already held two in-country consultations – the first on 16 August 2023 in Namibia and the second on 31 August 2023 in Kenya – to shape the work at the country level and engage with partner active on the ground.⁵³ APRA was also featured at COP28 in two events during the World Climate Summit and on the Energy Day.

⁵² Climate Analytics, COP28 UAE, Danish Energy Agency, German Watch, GIZ, Global Energy Alliance for People and Planet (GEAPP), Power Shift Africa, Rockefeller Bother's Fund, and Tufts University.

⁵³ More information available [here](#).



At the UN High-Level Political Forum on Sustainable Development in New York on 17 July 2023, IRENA together with the Permanent Mission of the UAE to IRENA, the Permanent Mission of Norway to the United Nations, partner countries, host countries and Friends of the **Energy Compact on Renewable Energy for the United Nations Peacekeeping**⁵⁴ organized a roundtable discussion. The event served to profile and mobilise support as well as provided an opportunity to share ideas and strategies to effectively implement it and coordinate on the actions under a Joint Communiqué⁵⁵ to achieve the Compact's goals.

In acknowledgement of IRENA's leading role in accelerating the global, renewables-based energy transition, the United Nations General Assembly (UNGA) adopted a resolution on 25 August 2023, proclaiming 26 January as the **International Day of Clean Energy**⁵⁶, the anniversary day of the founding of IRENA in 2009. IRENA endorsed UN resolution, calling it a meaningful step towards achieving a just and inclusive energy transition.

⁵⁴ More information available [here](#).













⁵⁵ Available [here](#).

⁵⁶ More information available [here](#).

Collaborative Frameworks

IRENA's **Collaborative Frameworks**⁵⁷ (Table 8) reflect 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.

Table 8: List of Collaborative Frameworks and their respective Co-facilitators

Collaborative Framework on Critical Materials for the Energy Transition		
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 Just and Inclusive Energy Transition		
Collaborative Framework on Ocean Energy/Offshore Renewables		
Collaborative Framework on Project Facilitation to Support on-the- ground Energy Transition		

⁵⁷ More information available [here](#).

The **Collaborative Framework on Critical Materials for the Energy Transition** promotes the exchange of knowledge and best practices, and coordinate actions to ensure that the scarcity of minerals and materials does not threaten the accelerated deployment of renewable energy. Peru and the United Kingdom are co-facilitators, and the Framework has three Workings Groups focusing on Observatory, De-risking supply, as well as ESG and mining. The Framework met on 12 October to discuss findings from the Geopolitics report on Critical Materials and the forthcoming report on materials for electric vehicle batteries. Discussions also focused on areas where IRENA can support its Members and organisational matters.

The **Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems** organised a meeting on 22 May 2023. The meeting was dedicated to the exchange of experiences on cross-sectoral alignment on renewable energy solutions in support of SDGs, with emphasis on the water, agri-food, and health nexus. The meeting was a deep dive into different aspects of productive use of energy in agri-food sector including technology options, policy and regulations, delivery and business model and financing. The meeting highlighted the lack of inter-sectoral approaches on the ground and called for promoting cross-sectoral strategies and access to finance, through instruments supporting local enterprises, and providing risk reduction instruments to farmers. The Framework met on 27 September 2023 to share experiences on energy system innovation, with a specific focus on innovative technology and business solutions for cost-effective integration of high shares renewables in energy system.

The **Collaborative Framework on the Geopolitics of Energy Transformation** released the second flagship publication on the **Geopolitics of the Energy Transition: Critical Materials**⁵⁸ (see also section above). The Framework is preparing a project on Geopolitics of the Energy Transformation: Indicators and Trends (GET-IT), to assist policymakers and others by monitoring and analysing geopolitical trends, risks, and opportunities of the energy transition. It seeks to provide an empirical foundation for nuanced analyses of geopolitical patterns and trends of the energy transition, and their linkages with interrelated issues such as climate change, fragility, peace and security, migration, and unforeseen crises. Indicators will be grouped into geopolitical themes such as energy security, fossil fuel dependence, electricity and new energy interdependencies, green energy and technology leaders, human security, and development.

On 26 April 2023, a meeting of the **Collaborative Framework on Green Hydrogen (CFGH)** took place. In May 2022, G7 Members launched the **Hydrogen Action Pact (G7-HAP)**, committing to accelerate the development of low-carbon and renewable hydrogen, and other Power-to-X value chains, domestically and at global scale.⁵⁹ IRENA has developed recommendations on how to bring the G7-HAP into action. This year's CFGH sessions will build upon the G7-HAP and contribute to fulfil the G7-HAP recommendations.⁶⁰ To provide a complete picture of the current status quo, two sessions will be held; one on the demand and the other on the supply side and how developing countries can benefit from the evolving hydrogen value chains. The outcomes of both meetings will feed into the COP28 discussions in Dubai. The first meeting⁶¹ was convened on 26 April and discussed the latest developments in hydrogen and its derivatives from the demand perspective.

The sixth meeting of the **Collaborative Framework on Hydropower** was convened on 3 May 2023 to discuss the results of the thematic scope survey and help define the Framework's scope and workplan for the biennium. At the meeting, the co-facilitators had the opportunity to present their national hydropower landscapes, challenges, solutions, and priorities.

The **Collaborative Framework on Just and Inclusive Energy Transition** held its third meeting on 27 March 2023⁶², focusing on workforce development priorities in the context of just and inclusive energy

⁵⁸ Available [here](#).

⁵⁹ [G7 Climate, Energy and Environment Ministers' Communiqué](#)

⁶⁰ These are Pillar 01: Align efforts on standards and certification; Pillar 02: Collaborate internationally and share lessons from early implementation; Pillar 03: Balance focus on supply with demand creation; and Pillar 04: Conduct outreach to civil society and industry stakeholders.

⁶¹ More information available [here](#).

⁶² More information available [here](#).

transitions. The virtual dialogue sought to facilitate peer-to-peer exchanges among IRENA Members and relevant stakeholders on skilling, education, and inclusion to build the workforce of tomorrow and will also inform IRENA's future work in this space.

The **Collaborative Framework on Ocean Energy/Offshore Renewables** was held on 4 May 2023⁶³. The sixth meeting of the Framework served to present the IRENA-Ocean Energy Europe Brief entitled **Scaling Up Investment for Ocean Energy Technologies** and solicit a second round of feedback and opinions for **Enabling Frameworks for Offshore Wind Scaleup: innovation in permitting** brief prepared by IRENA and the Global Wind Energy Council. Discussions also focused on floating offshore wind developments and approaches to implement offshore renewable strategies. It was also the first session where Colombia and Denmark served as the new Co-Facilitators for the 2023-2024 cycle.

The **Collaborative Framework on Project Facilitation to Support on-the-ground Energy Transition** took place on 17 May 2023. The meeting discussed the details of the implementation modalities and how to operationalize the Investment Lab concept through innovative business models and financing mechanisms within the framework of IRENA's CIP and ETAF platforms. Examples of successful projects that have benefited from the CIP's project facilitation services were presented to serve as a pilot for similar projects.

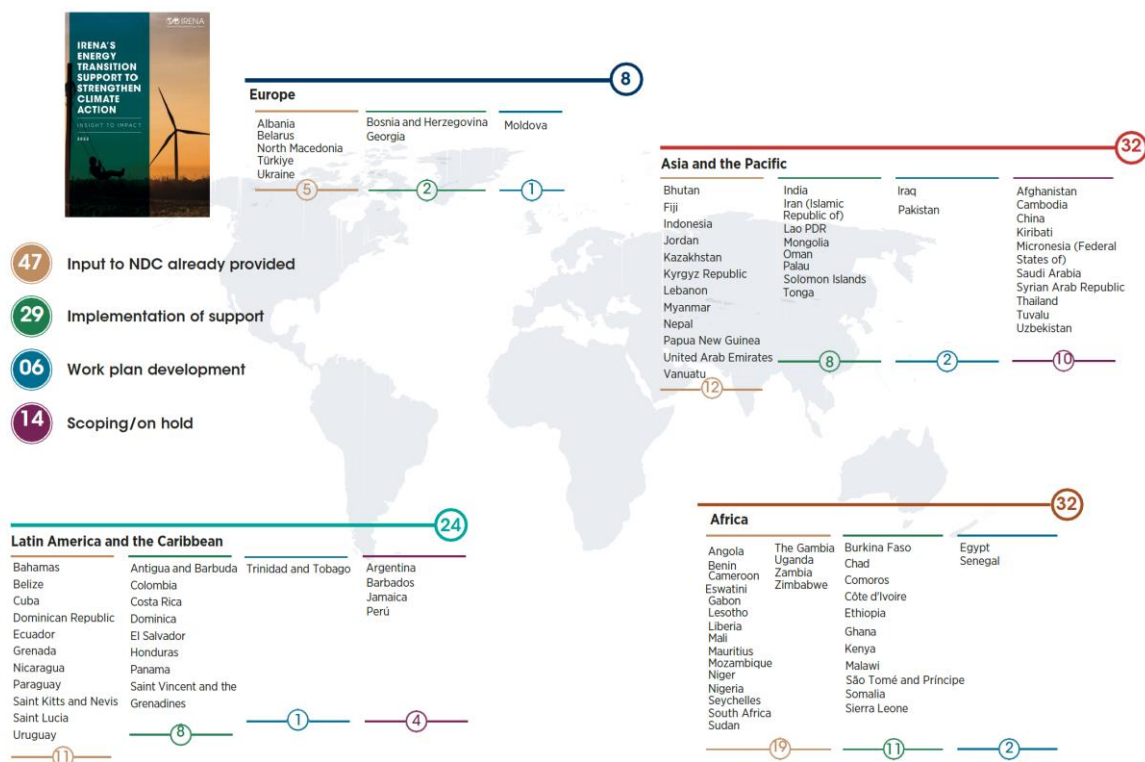
Targeted Climate Action

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 96 countries in terms of NDC enhancement and implementation across all continents. This is equivalent to 5.2 billion people and covers an equivalent of total energy related greenhouse gas emission of 30,250 megatonnes of carbon dioxide equivalent.⁶⁴ Currently, IRENA's NDC enhancement and implementation support includes 190 activities to support the needs of IRENA Members, who are the Parties to the 2015 Paris Agreement, in enhancing and implementing their energy transition plans while reflecting these climate action commitments in NDC submissions (Figure 18). IRENA's contribution to long-term strategies includes six work packages, of which four exist within the NDC Support umbrella.

⁶³ More information available [here](#).

⁶⁴ Data retrieved from World Resources Institute Climate Watch Historical Data Location: World. Sectors/Subsectors: Energy. Gases: All GHG. Calculation: Total. Show data by Countries.

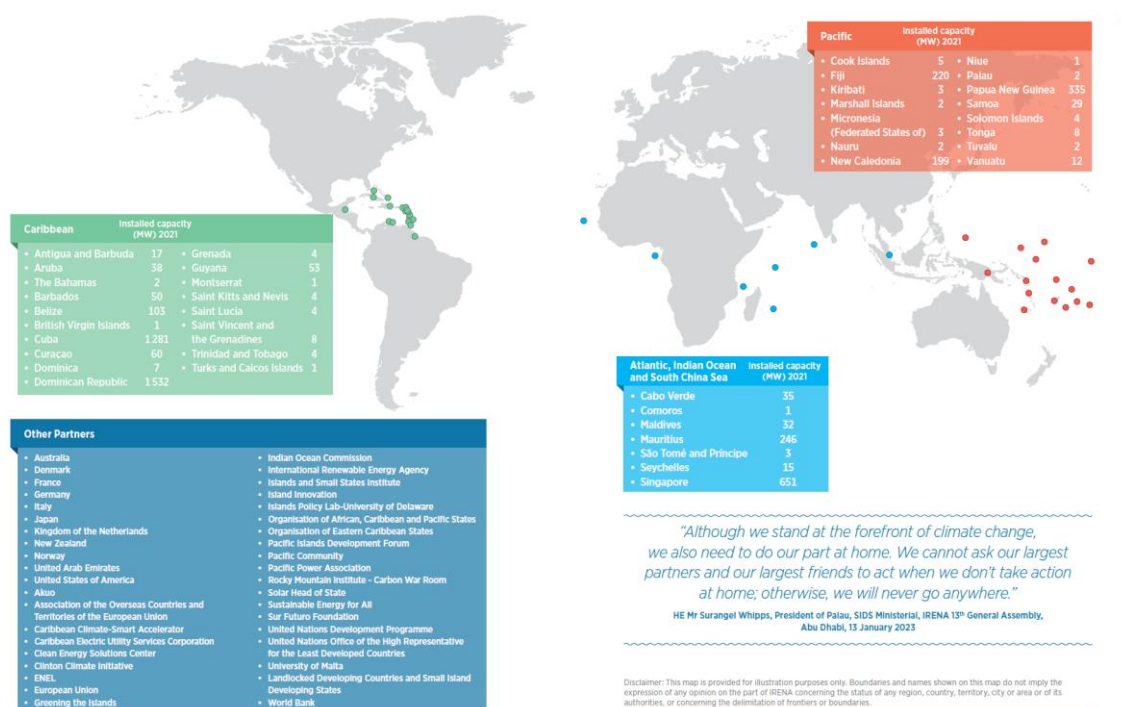
Figure 18: IRENA's engagement



The positive trajectory of the work under the SIDS Lighthouses Initiative (LHI) continues apace. The 2023 edition of the **SIDS Lighthouses Initiative: Progress**⁶⁵ report summarises the remarkable achievements of SIDS across the Initiative's 11 Priority Areas during 2021-2022, to realise the SDGs and their respective NDCs, with the support of a wide range of partners. According to the analysis, since the Initiative's launch of the SIDS LHI in 2014 until 2021 (Figure 19), total installed renewable energy capacity has almost doubled, with the greatest growth documented in solar having grown sevenfold in capacity. The report highlights the vital role of renewables in nexus areas such as agrifood, health, education, tourism, fisheries, transport, etc. that will positively impact lives and livelihoods. It also documents the actions taken to go beyond implementation, fostering a renewable approach to development and climate adaptation.

⁶⁵ Available [here](#).

Figure 19: Total installed renewable energy capacity (MW) of SIDS that are LHI partners, 2021



Source: IRENA, *SIDS LHI: Progress and way forward*, 2023

In May 2023, IRENA launched the SIDS Short Video Series on **Human Impacts of Energy Transition Efforts in Small Island Developing States**,⁶⁶ featuring Samoa, Seychelles and Saint Vincent and the Grenadines. The videos aim to raise awareness among the public, partners and other key stakeholders on the achievements, opportunities, and challenges SIDS face during their energy transition. They also serve as a call to action for the international community to support replication and scalability in other SIDS through the provision of appropriate financial support, technical assistance, and capacity building.

IRENA, through the SIDS LHI, participated in the **5th Pacific Regional Energy and Transport Ministers' Meeting (PRETMM)** held in Port Vila, Vanuatu from 8-12 May 2023. Based on a discussion paper jointly submitted by the IRENA, the University of New South Wales, Department of Climate Change, Energy, the Environment and Water, United Nations Industrial Development Organisation and Pacific Community, IRENA delivered a presentation on Green Hydrogen at the Energy Officials and Ministers' Meetings. The presentation provided an overview of green hydrogen development globally and highlighted key challenges, opportunities, and considerations. A key outcome of the discussion is IRENA's intent to support the development of a Pacific Regional Green Hydrogen Roadmap.

In the margins of the United Nations General Assembly, IRENA, through the SIDS Lighthouses Initiative, hosted a high-level event under the theme ***Moving beyond the status quo: Actions towards accelerating SIDS Energy Transition to Strengthen Climate Resilience***.⁶⁷ The event served to showcase SIDS' NDC implementation achievements, identify and prioritise energy transition actions and gaps across mitigation, adaptation, and resilience that would feed into preparations for COP28. Participants used this opportunity to share insights on innovative financing, technological solutions, and effective partnerships that could be replicated to advance climate action and energy transition projects in SIDS.

⁶⁶ See them [here](#).

⁶⁷ More information available [here](#).

IRENA continues to support the achievement of the Breakthrough Agenda goals by contributing to the **Breakthrough Agenda 2023**⁶⁸ report that built on the analysis in the 2022 report. The 2023 edition of the report provides an overview of progress in each sector against the objectives of the Breakthrough Agenda Goal; an assessment of the state of collaboration and progress since the publication of the 2022 edition; make the case for strengthened additional international collaborative action in accelerating progress towards those goals; and make detailed recommendations on where and how to strengthen international collaborative action. It will present updates to the power, hydrogen, steel, transport, and agriculture sectors, and provide new assessments of the buildings and cement sectors.

IRENA and the World Meteorological Organization (WMO) prepared the **2022 Year in Review: Climate-driven Global Renewable Energy Potential Resources and Energy Demand**⁶⁹ report to advance the understanding of renewable energy resource potential, and its intricate relationship with climate variability and change. To meet the 1.5 °C goal, global renewable power capacity must triple by 2030, while energy efficiency improvements must double. This report highlights the inherent links between renewable energy sources and weather and climate conditions and emphasizes the importance of considering climate variability in the contexts of renewable energy operations, management, planning and investment. Climate influences not only energy supply but also demand, particularly in the context of heating and cooling.

Ahead of COP28, IRENA and Bloomberg Philanthropies⁷⁰ announced a new COP28 partnership to turbocharge clean energy deployment and capital mobilization in emerging markets and developing economies. Through this partnership, Bloomberg Philanthropies' support will enable IRENA to advance efforts to drive the widespread adoption of renewable energy and reduce political, technical, and financial barriers to the energy transition.



⁶⁸ Available [here](#).

⁶⁹ Available [here](#).

⁷⁰ More information available [here](#).

Communications and Outreach – Amplifying Impact

IRENA continues to strengthen its communication and outreach activities. Since the beginning of 2023, IRENA has been referenced in over 67,100 media articles in 58 languages across 177 countries, representing a 55% increase compared to the same period in 2022.

Global media outreach accompanied the launch of flagship reports, including a joint report with the COP28 Presidency on Tripling Renewable Power and Doubling Energy Efficiency by 2030: Crucial Steps Towards 1.5 °C, WETO 2023 Volume 1 and Volume 2, the Geopolitics of the Energy Transition: Critical Materials and the Global Landscape of Renewable Energy Finance 2023 report. Since launch, the first volume of IRENA's World Energy Transitions Outlook 2023 and its preview were mentioned by 2,066 articles in 19 languages across 71 countries. Moreover, IRENA's Renewable Capacity Statistics 2023 report was disseminated through a press release in nine languages. In its first two weeks, the report was mentioned 817 times in 25 languages across 67 countries, representing an 11% increase in mentions seen in the first two weeks from launch. The report has been referenced by a wide range of top-tier outlets, including AFP, Daily Mail, Reuters, and Time.

For the IRENA Innovation Week, IRENA prepared full event branding, on-the-ground coverage, visual story, daily blog articles, videos, social media and a press release. The interactive Innovation Toolbox based on the Innovation Landscape for smart electrification report was also published in times for the event and showcased on large touchscreens.

The number of visitors to the IRENA website reached almost 1.5 million. Overall, www.irena.org generated over 5 million pageviews. Continuity of new formats like interactive visual stories has encouraged user interaction and helped to establish the website as a reliable hub of knowledge on the energy transition.

The peak days this year were marked by major events, such as the 13th session of the IRENA Assembly or COP28, and flagship publication launches, including for the World Energy Transitions Outlook 2023, Renewable capacity statistics or Geopolitics of the energy transition: Critical materials reports. For example, all content related to the Renewable Power Generation Costs 2022 report accumulated over 13,000 pageviews in two weeks post publication, resulting in almost 7,500 report downloads. To date the report has registered over 25,000 downloads. The press release on the record growth in renewable capacity in 2022 was the most read news item, with almost 16,500 views.

The new interactive versions of IRENA reports were a success and generated high engagement, with the WETO reports (2022 and 2023) attracting over 37,000 views since January 2023, and Geopolitics of energy transition almost 9,000 views since August. These products substantially increase engagement, adding to the download numbers for these reports, amounting to over 39,000 and 12,00 respectively. The Annual Report has also been produced in a digital format accompanied by an interactive infographic and attracted significant attention. In addition, visual stories cumulatively viewed more than 27,000 times facilitate overview and enhance access to the reports and strengthen the outreach.

In 2023, IRENA produced and circulated more than 84 videos, which encompassed video stories, stakeholder interviews, tripling renewables pledge interviews by Members, more than 11 youth-voice campaigns videos, in-house-produced videos on critical topics and reports, animations, promotion of major IRENA initiatives, and showcasing of key events such as the COP28, Assembly and Council.

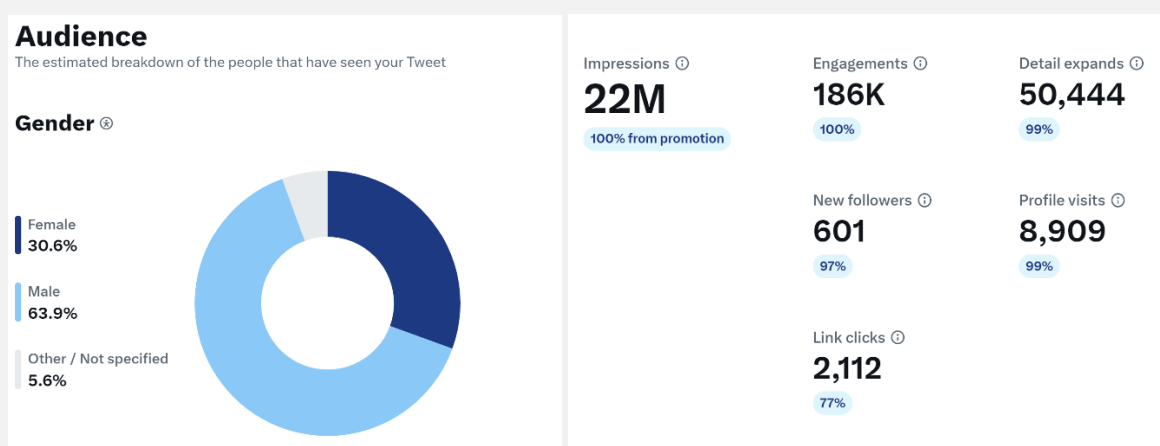
By 6 December 2023, dedicated mailing campaigns provide targeted information on IRENA press releases, publications, and events to a pool of 82,679 stakeholders, including Member focal points. Between 1 January and 6 December 2023, IRENA sent a total of 95 mailers, including 17 dedicated to COP28; 4 dedicated to 13th Assembly; 33 press releases; 26 job alerts; and 14 invitations. In the same period, the highest open rate was generated by the invitation for the LTES Asia webinar at 57.8%, followed by the daily COP28 newsletter on

Opening Day (30 November) at 43.8%. The highest click rate was generated by the press release of WETO 2023 Preview at 21.5%.

In Focus: Geopolitics of the Energy Transition: Critical materials

Geopolitics of the Energy Transition: Critical Materials attracted significant attention as is evident from the social media statistics. On Twitter, the report generated 22 million impressions, with the profile visited 8,909 times (Figure 20). The report performed well on LinkedIn, generating 656,954 impressions, and 6,264 engagements.

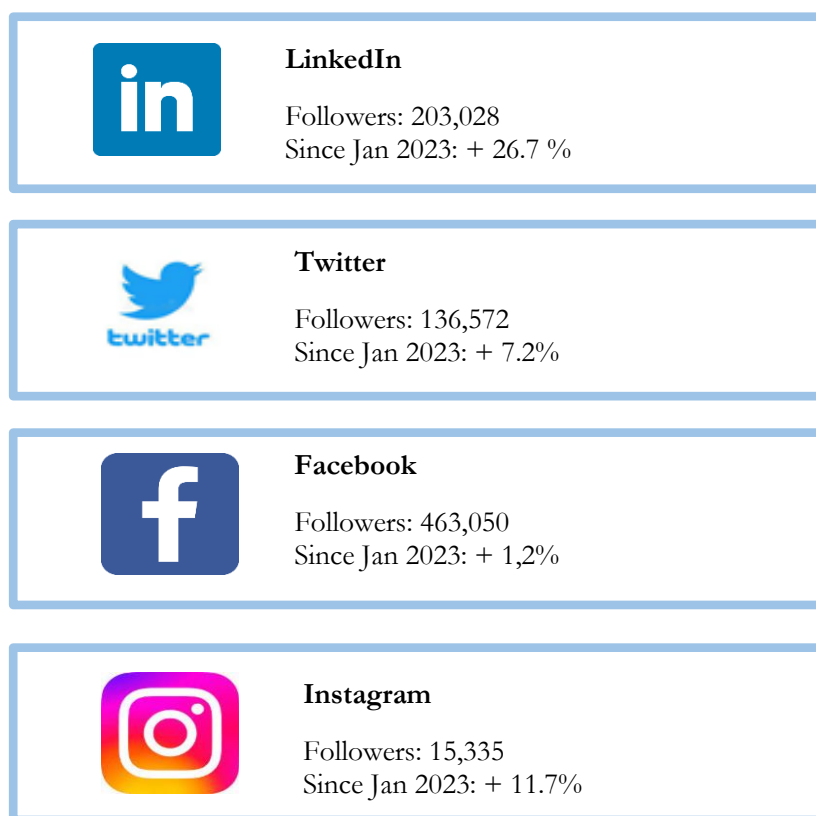
Figure 20: Social media metrics of the Critical Materials report on Twitter



In terms of social media presence, IRENA has reached 203,028 LinkedIn followers, up from 160,259 followers in January 2023, an increase of 26.7%. Furthermore, IRENA's Twitter account has now 136,572 followers, up from 127,366 followers in January 2023 - an increase of 7.2%. It is worth highlighting that, after two consecutive years of decreasing Facebook followers, 2023 so far saw a 1.2% increase from 457,412 to 463,050 followers. Instagram saw a 11.7% increase in followers, reaching 15,335 as of the reporting date. LinkedIn remains IRENA's fastest-growing social media platform. (Figure 21).

IRENA has implemented and explored some innovative formats on social media. For example, Twitter Carousel had been used to promote IRENA flagship reports as well as ministerial meetings during the 13th Assembly. Polls had been used on Twitter and LinkedIn regularly to engage with our audience. Instagram grid was used to present IRENA13A family photo.

Figure 21: IRENA's Social Media Statistics (as of 10 December 2023)



IRENA's social media accounts built a strong multilingual presence. During the reporting period, IRENA interacted with followers and timely provided information in five languages (Arabic, Chinese, English, French, and Spanish) on the work and priorities of the Agency across the major social media platforms.

To engage youth, IRENA used more multimedia content, emojis, and creative ways to reach out. During the reporting period, the Agency promoted Youth Day, spotlighted our youth engagements by launching an #IRENAImpact campaign, as well as promoting IRENA NewGen Accelerator Programme and conducted extensive coverage of the IRENA's NewGen Rising Stars Award during COP28. In addition, the Agency's presence on Instagram, a platform popular with young people, keeps expanding.



Significant communications work was done for COP28, including eleven press-releases, four newsroom stories, two visual stories, 84 videos, including animated, daily dedicated newsletter and multi-platform coverage on social media, as well as organized and coordinated multiple media interviews. A new IRENA social media channel on WhatsApp was also launched in time for COP28.

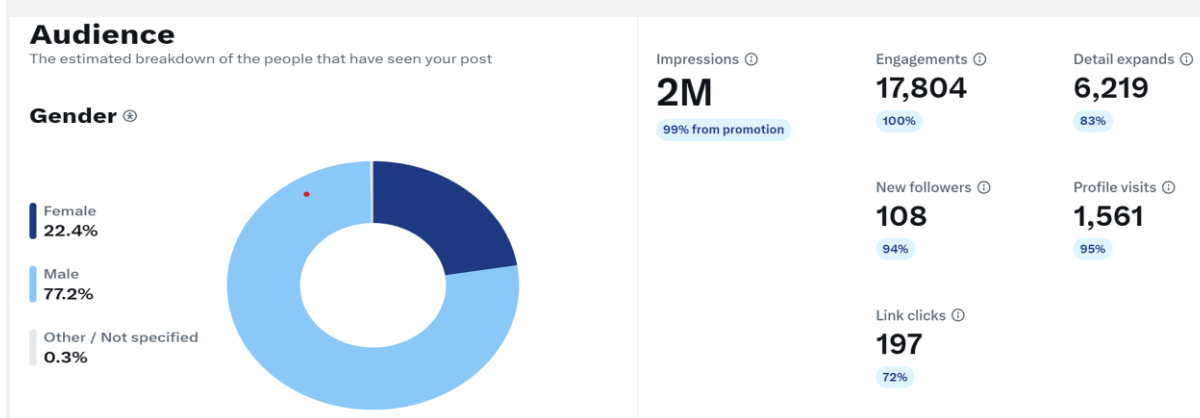
In line with communication priorities aimed at highlighting IRENA's role for COP28, more than 600 posts were posted across all social media platforms, either in the lead-up to it throughout the year or covering IRENA's involvement during COP28. Among these posts, there were 334 tweets and 129 LinkedIn posts. In addition, 35 social media cards were created to promote events at the IRENA Pavilion.

In a dedicated effort to foster stronger connections with youth, IRENA introduced Social Media Ambassadors for COP28. This initiative involved the selection of four youth volunteers to take photographs and provide coverage of IRENA events beyond our Pavilion.

In Focus: IRENA at COP28

IRENA Director-General recorded a video to raise awareness and call for action in the lead up to COP28. On Twitter, the video generated 2 million impressions, with 17.8 thousand engagements (Figure 22).

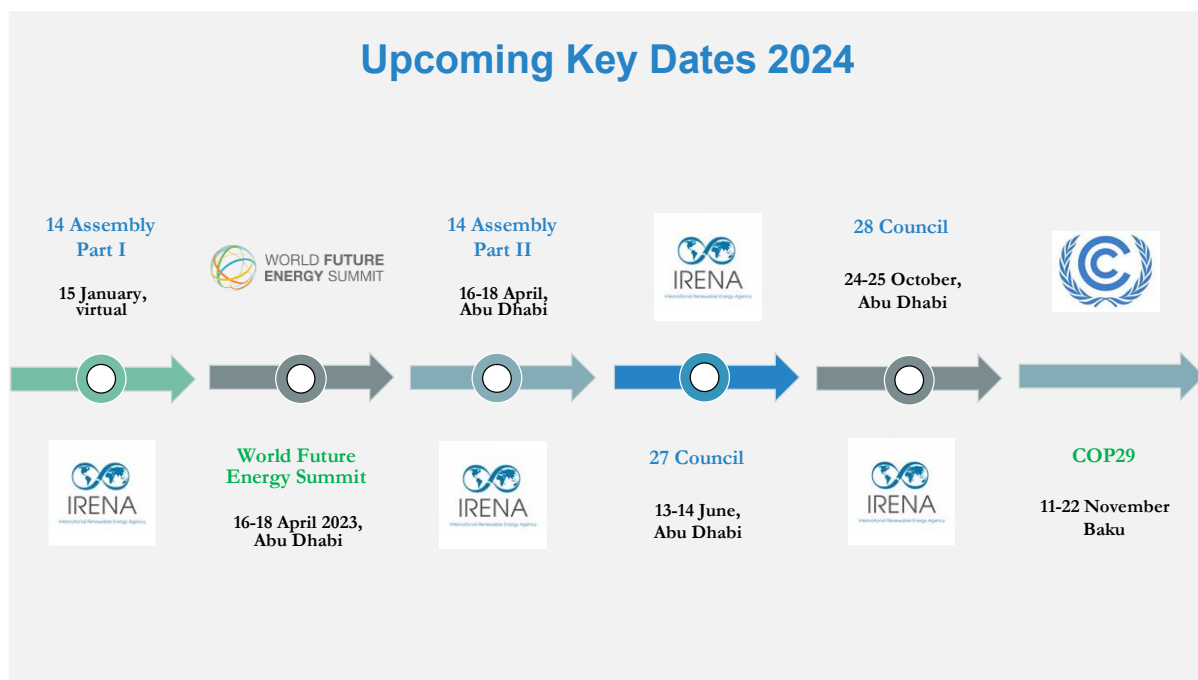
Figure 22: Social media metrics of DG's video message on Twitter ahead of COP28



Looking ahead

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

Upcoming key events



Selected upcoming IRENA events and publications

Table 9: Tentative list of IRENA Events, 2024

Date	Event name
15-Jan	14 IRENA Assembly - Part I
16-18-April	14 IRENA Assembly - Part II
16-18-April	World Future Energy Summit
13-14-June	27 IRENA Council
24-25 -Oct	28 IRENA Council
11-22 Nov-2024	COP29, Azerbaijan

Table 10: Selected upcoming publications, 2024

Date	Provisional Report Title
Dec-2023	Renewable energy market analysis: GCC
Dec-2023	International trade in green hydrogen: Supporting the transition to a low-carbon economy
Dec-2023	Off-grid renewable energy statistics 2023
Dec-2023	Policy toolkit for green industrialisation
Dec-2023	Renewables Readiness Assessment: Burkina Faso
Dec-2023	NDCs and Renewable Energy Targets in 2023
Jan-2024	IRENA energy taxonomy
Jan-2024	End-of-Life Management of PV and Battery Storage in the Energy Transition
March-2024	World Energy Transitions Outlook 2024: 1.5 °C Pathway; Preview
March-2024	Renewable capacity statistics 2024

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 regular enhancement of the ERP system and other online tools continue to facilitate timely and streamlined support to programme implementation.

Budget

The Budget Section provides strategic advice to the senior leadership team and programme managers on planning, administration and management of IRENA's financial resources. The support to the Agency also includes preparation of IRENA's budget, in cooperation with Planning and Programme Support office, reporting processes, and administration of core and voluntary contributions through budgeting and control services, forecast information and preparation of financial reports for management, governing bodies, and donors.

Finance

The Finance Section continues to provide a critical role in the overall functioning of the Agency and is responsible for managing the financial resources and preparation of Annual Financial Statements, ensuring full compliance with IRENA's Rules and Regulation and International Accounting standards.

The Section also manages the day-to-day financial operations, including payment processing, payroll, investments and contributions. In addition, it ensures accuracy, timeliness and compliance in financial transactions. Finance endeavours to continue to seek improvements and increase efficiencies in its processes whilst maintaining internal controls and mitigating potential risks.

Information and Communication Technology (ICT)

ICT continues to serve as a strategic enabler and tool for the Agency in the implementation of its Work Programme by providing state-of-the-art IT services and solutions to IRENA business units. ICT is regularly maintaining and consolidating its IT capabilities through initiatives for infrastructure modernisation (in HQ as well as in Bonn and New York Offices, cloud and on premise), operational excellence (IT governance, cost optimisation, proactive maintenance, regular monitoring) and internal capacity building (trainings, technology workshops).

As per the IT strategy that is closely aligned with the IRENA Medium-term Strategy, ICT is strengthening its role as:

- Driver of digital transformation towards higher institutional effectiveness and efficiency through the maintenance and enhancement of the Executive dashboard, ERP and other online tools for collaboration and knowledge sharing. For example, a new ERP recruitment module was implemented to enhance the candidate's experience while submitting to the vacancy announcements.
- Enabler of the development of value-added business capabilities on renewable energy through the maintenance and enhancement of the IRENA website and web platforms on renewable energy. New IRENA website was launched including several enhancements on the design, structure, and visitor's experience, as well as its underlying infrastructure. Further enhancements related to COP28 implemented.

- Pillar of the organisational resilience and compliance through the implementation of the cybersecurity management framework and the business resilience plan. For example, a new information security awareness training was launched to all staff.

Human Resources

During the 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 2023, 53 vacancies (core and project, including Interns and Associate Professionals) were announced and over 12,073 applications were received. Out of 93 core posts, 82 are filled or under recruitment (72 filled and 10 under active recruitment) and 11 are vacant (Table 11). The 72 staff in core posts are from 45 nationalities out of which 43% are women and 57% are men. There are also 129 project posts that are currently filled or under recruitment (116 filled and 13 under active recruitment). Combined core and project posts amount to a total of 188 staff (Figure 23), who come from 77 nationalities with 46% women and 54% men (Figures 24 and 25). There are also six loaned officers and three seconded officers (Tables 12 and 13).

Figure 23: Staff Status as of 15 November 2023

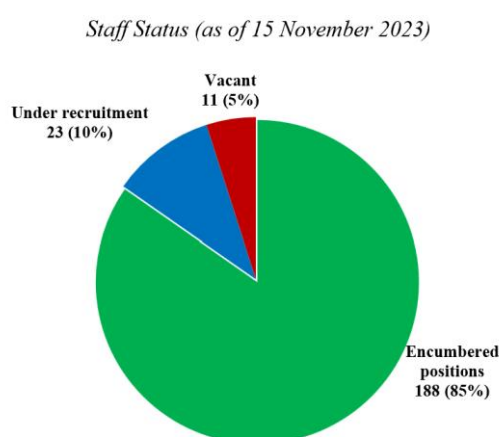


Figure 24: Employee Profile Statistics

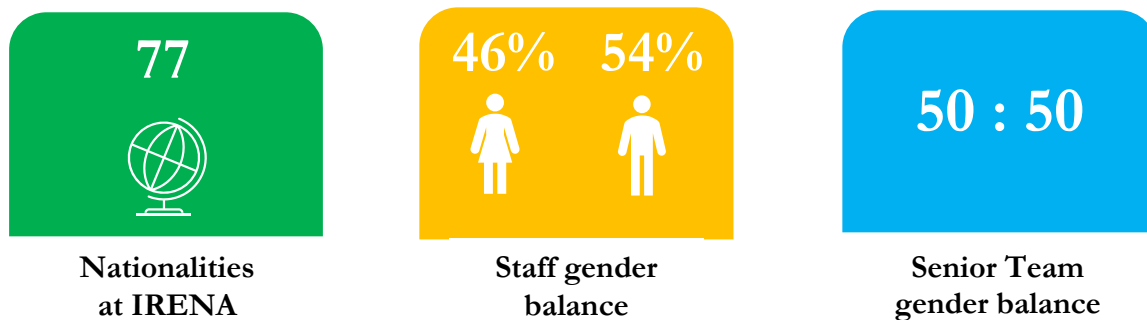


Figure 25: Geographical Distribution (core and project posts), as of 15 November 2023

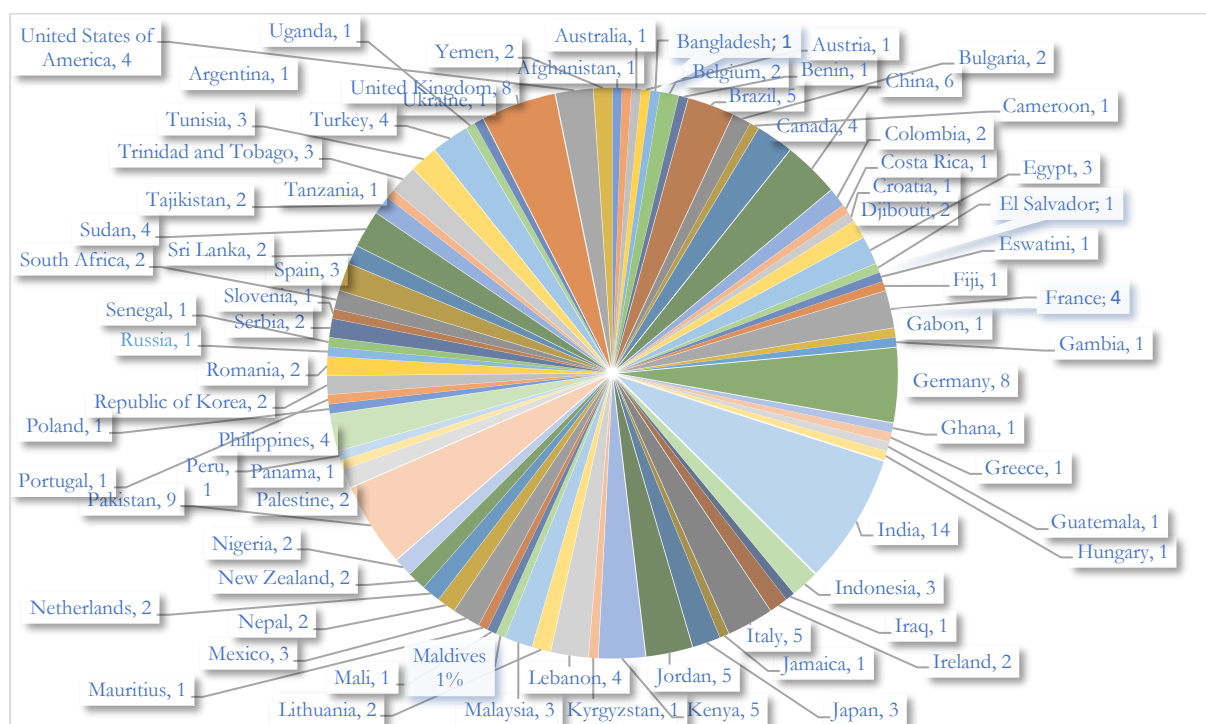


Table 11: Filled/Under Recruitment of Core and Project Posts by Level as of 15 November 2023

Level	Filled or Under Recruitment	Total
ASG	1	1
D-2	1	1
D-1	7	7
P-5	22	24
P-3/4	76	80
P-2/1	65	65
Sub-total Professional and above	172	178
General Services	39	44
Total	211	222

Table 12: Loaned Personnel as of 15 November 2023

Division	Title	Loaned from
CEP	Programme Officer	United Arab Emirates
CEP	Programme Officer, State Grid Corporation of China	China
ODG	Liaison and Protocol Officer	United Arab Emirates
ODG	Communications Officer	United Arab Emirates
PFS	Programme Officer, ENI	Italy
PFS	Loaned Officer - EGP	Italy

Table 13: Seconded Officers (Voluntary Contributions) as of 15 November 2023

Division	Title	Seconded from
CEP	Programme Officer	Republic of Korea
ODG	Senior Advisor to the Director-General	Italy
IITC	Junior Professional Officer	Germany

Procurement

The Agency has continued to implement its administration of cost-effective procurement process for goods, services, and other related requests. To ensure transparency, fairness, openness, and competitiveness of the procurement process bidding opportunities, the Request for Proposals (RFP) or Invitation to Bid (ITB) are mostly posted on IRENA's website and disseminated to the vendors registered with IRENA's vendors' database. In addition, high value and complex procurement opportunities are also uploaded and advertised on the United Nations Global Market (UNGM) portal, to maximise competition and include international vendors.

From January 2023 and as of 15 November 2023, more than 375 procurement contracts and agreements for goods and services have been awarded totalling USD 6.2 million. Furthermore, as of 15 November 2023, the number of vendors registered in Procurement Section database has increased within the last three years also to reach almost 673 vendors from various countries worldwide.

General Services and Travel

Travel support and services were provided to staff, delegates and participants in conferences and workshops. From 1 January to 23 November 2023, the Agency facilitated travel of delegates and staff along with 74 workshops. 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 continues to explore further enhancement measures for Health and Safety to provide an even better work environment for staff.

Implementation Progress Overview

There are a total of 64 Work Programme outputs for the 2022-2023 biennium, spreading across the four strategic objectives or pillars identified in the current Medium-term Strategy: 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 (Table 14). At the twenty-third meeting of the Council, Members requested more granular reporting on the status of implementation of activities under each output and detailed information on whether they are funded by core assessments or voluntary contributions.

The assessment on progress is undertaken based on the average progress on delivering the activities. Based on the overview of progress today, the implementation of outputs continues as envisioned.

Table 14: IRENA's Strategic Objectives

Centre of Excellence for Energy Transition	Global Voice of Renewables	Network Hub for Energy Transformation	Source of Advice
Empower effective policy and decision-making by providing authoritative knowledge and analysis on renewables-based energy transformation at global, national, and sectoral levels.	Shape the global discourse on energy transformation by providing relevant, timely, high-quality information and access to data on renewable energy.	Provide an inclusive platform for all stakeholders to foster action, the convergence of efforts and knowledge sharing for impact on the ground.	Support country-level decision-making to accelerate the renewables-based transformation of their energy systems, advance strategies to decrease global emissions and achieve sustainable development.

Resource overview

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

Biennial budget overview

Table 15: 2022-2023 Biennium Budget utilisation by funding source (in USD Thousands)

Funding Source	2022-2023 Biennium Budget	Utilisation as of 15 Nov 2023	
		Commitment and Expenses	Proportion of 2022-2023 Biennium Budget
Assessed Contributions (Core Budget)	44,778	42,708	95%
Core Non-Assessed UAE			
UAE Support	5,000	4,657	93%
Governing Body Meetings	3,200	3,091	97%
IT Infrastructure Support	920	920	100%
Subtotal	9,120	8,668	95%
Core Non-Assessed Germany			
Innovation and Technology Centre	10,890	10,595	97%
Subtotal	10,890	10,595	97%
Total Core Non-Assessed	20,010	19,263	96%
Grand Total	64,788	61,971	96%

In addition to Core Non-assessed contributions, UAE and Germany provide annual in-kind contributions of approximately USD 5 million and USD 1.8 million respectively.

Table 16: 2022-2023 Biennium Budget Utilisation by division (in USD Thousands)

Division	2022-2023 Biennium Budget	Utilisation as of 15 Nov 2023	
		Commitment and Expenses	Proportion of 2022-2023 Biennium Budget
Project Facilitation and Support	3,421	3,284	96%
Office of the Director-General	18,288	16,822	92%
Knowledge, Policy and Finance Centre	10,500	10,355	99%
IRENA Innovation and Technology Centre	10,890	10,595	97%
Country Engagement and Partnerships	8,426	8,245	98%
Administration and Management Services	13,263	12,670	96%
Grand Total	64,788	61,971	96%

Table 17: Core Non-Assessed Contributions (in USD Thousands)

<i>Core Non-Assessed and other Voluntary Contributions</i>		
<i>as of 15 November 2023, in USD</i>		
<i>Budgeted Voluntary Contributions</i>		
	2022-2023	
	Committed	Received
GERMANY		
IRENA Innovation and Technology Centre	10,890,000	10,890,000
United Arab Emirates (UAE)		
UAE Support	5,000,000	5,000,000
Governing Body Meetings	3,200,000	3,200,000
IT Infrastructure Support	920,000	920,000
Subtotal UAE Contributions	9,120,000	9,120,000
Total Budgeted Voluntary Contributions	20,010,000	20,010,000
<i>Other Voluntary Contributions</i>		
	2022-2023	
Donor/Project	Committed	Received
Australia	269,831	190,588
Germany	2,726,727	2,726,727
Japan	1,278,551	1,278,551
Luxembourg	16,060	16,060
Republic of Korea	624,473	624,473
United Arab Emirates (UAE)	4,186,204	4,106,204
United Kingdom of Great Britain and Northern Ireland	247,525	-
Total	9,349,371	8,942,603

Other Voluntary Contributions - Non-Members

Donor/Project	2022-2023	
	Committed	Received
Open Society Foundations	1,000,000	-
United Nations Office for Project Services (UNOPS)	250,000	250,000
Rockefeller Brothers Fund	250,000	250,000
Total	1,500,000	500,000

Multi-Year Voluntary Contributions

Donor/Project	Multi-Year Commitments	Received prior to 2022	Received during 2022-2023
Canada	385,712	-	385,712
Denmark*	7,535,164	5,764,034	1,771,130
Denmark (Support to IRENA 2023-2027)	21,936,645	-	-
European Commission	9,229,315	-	3,294,752
Germany (International Climate Initiative)*	6,903,824	5,693,564	1,210,260
Germany (Physikalisch-Technische Bundesanstalt (PTB)/BMZ)	564,667	-	280,899
Government of the Walloon Region, Belgium	3,110,491	-	2,104,331
Kingdom of the Netherlands	800,320	-	400,160
Norway	1,888,969	-	1,888,969
Total	52,355,107	11,457,598	11,336,213

*Contributions pledged and partially received prior to 2022

Multi-Year Voluntary Contribution - Non-Members

Donor/Project	Multi-Year Commitments	Received prior to 2022	Received during 2022-2023
United Nations Development Programme (UNDP)	6,265,000	1,433,715	551,000
Total	6,265,000	1,433,715	551,000

Fund for Developing Countries Representatives

	2022-2023	
Donor	Committed	Received
Flanders Region of Belgium	25,286	12,533
United Arab Emirates (UAE)	100,000	100,000
Total	125,286	112,533

Figure 26: Received and outstanding assessed contributions for 2022 core budget (in USD millions, as of 15 November 2023)

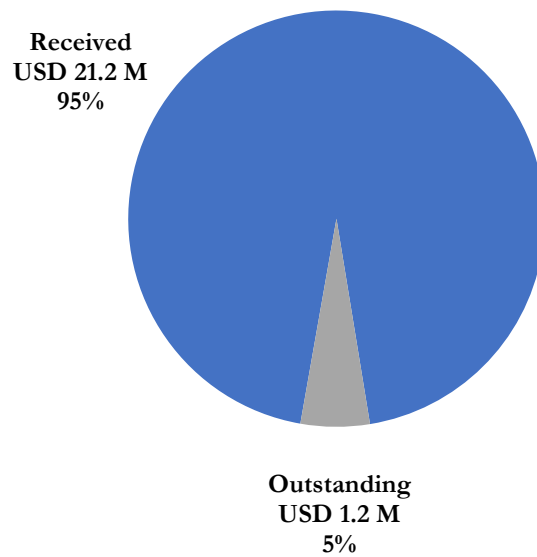
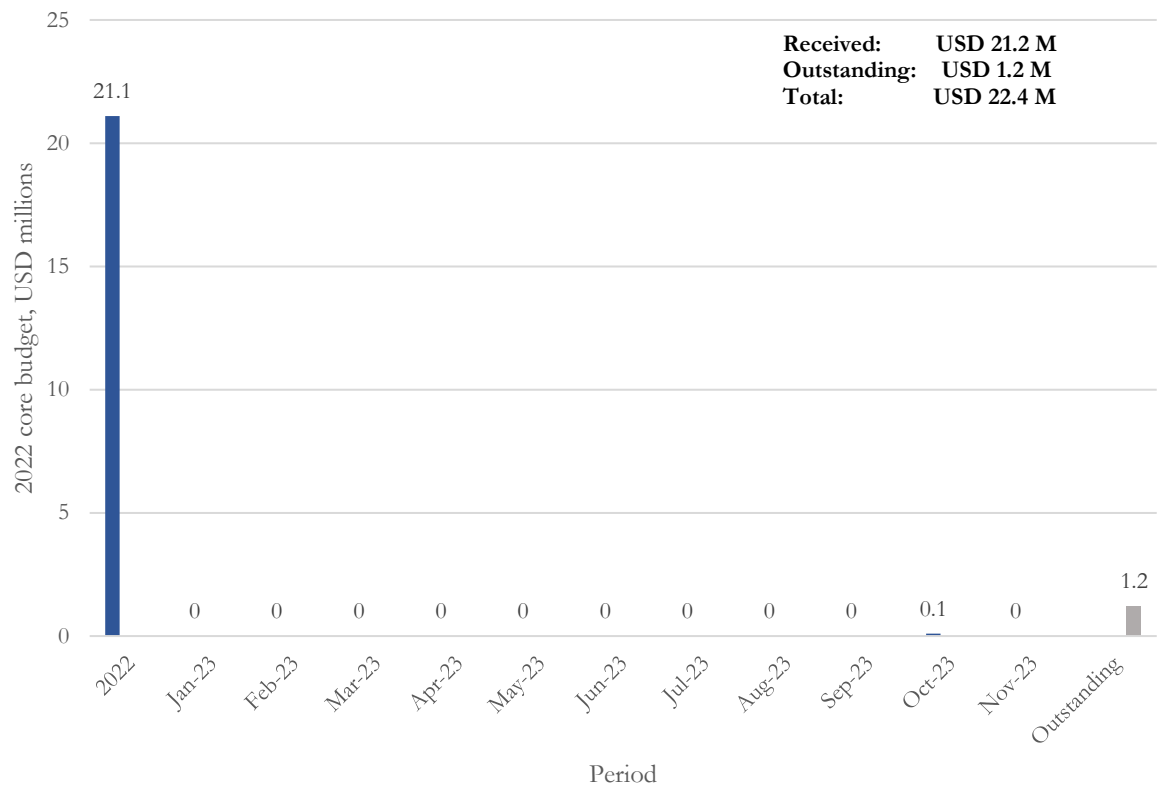


Figure 27: Received and outstanding assessed contributions for 2023 core budget (in USD millions, as of 15 November 2023)

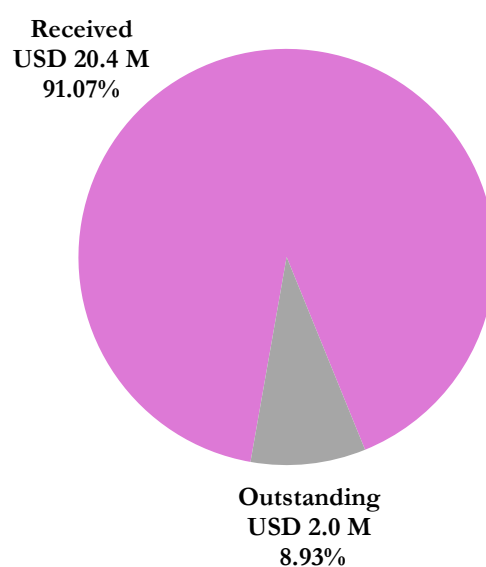
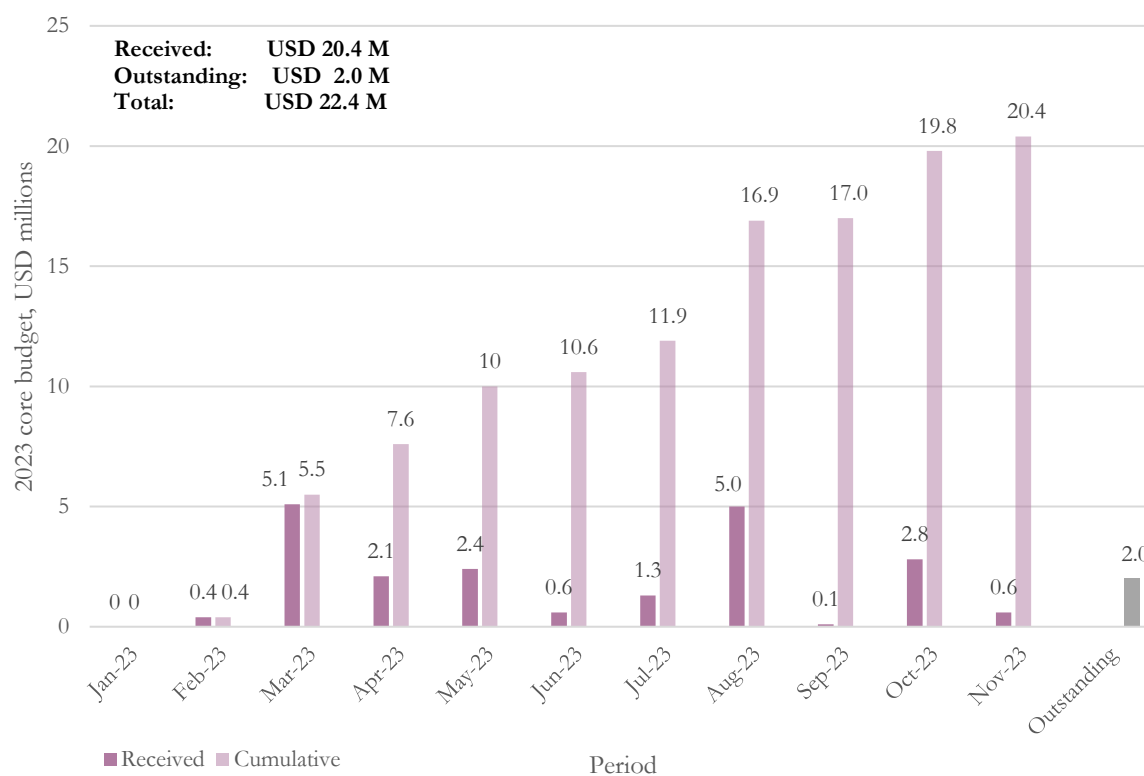


Figure 28: Number of Members with received and outstanding contributions to the 2022 core budget (15 November 2023)

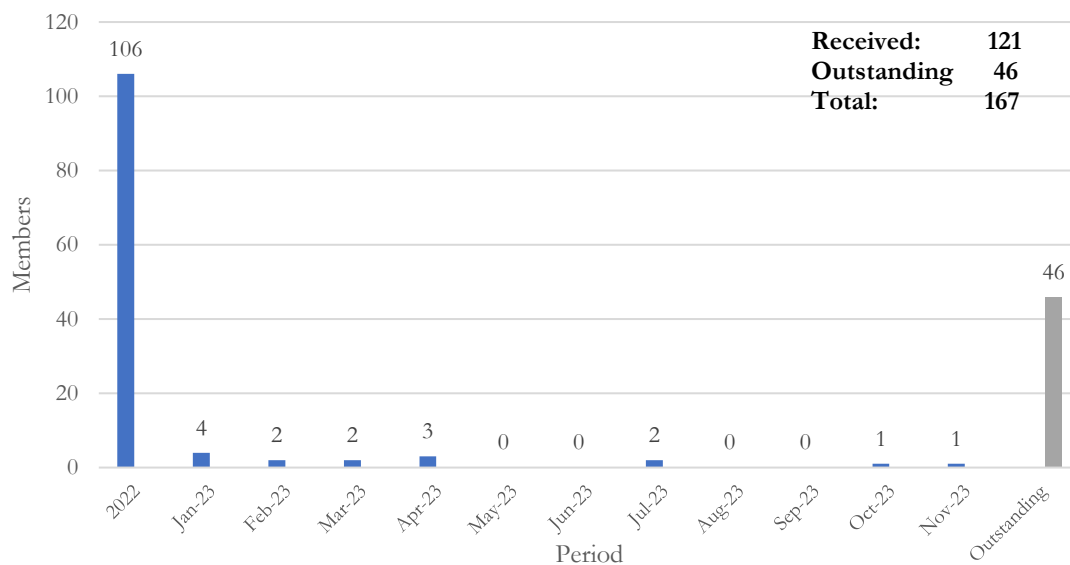
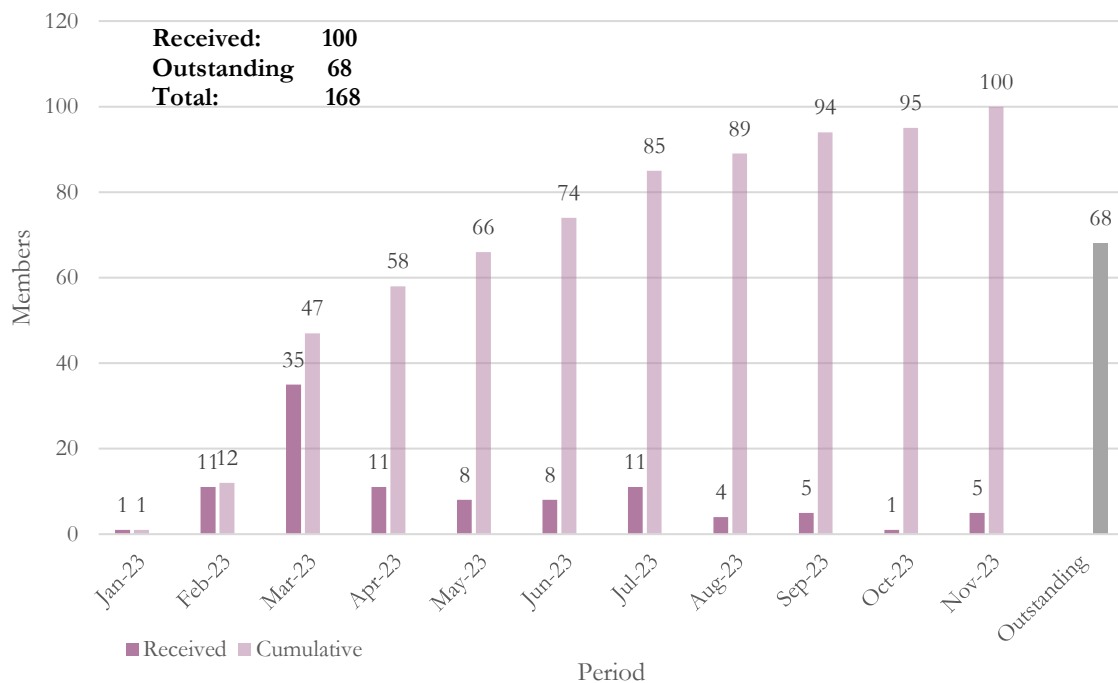












Figure 29: Number of Members with received and outstanding contributions to the 2023 core budget (15 November 2023)



IRENA Donors (2022-2023) *(as of 15 November 2023)*

	Australia Department of Climate Change, Energy, the Environment and Water	Breakthrough Agenda report & Solar supply chain
	Canada Ministry of Natural Resources	Global Initiative for Transitioning Remote Communities to Renewable Energy
	Denmark Ministry of Foreign Affairs	Long-term Planning SIDS Lighthouses Initiative 2.0 IRENA support for 2023-2027
	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	Innovation to foster the renewable energy transition.
	DG INTPA	Conditions and obstacles for the development and integration of renewable energy sources in the Eastern Partner countries.
	Flanders Region of Belgium	Fund for Developing Country Representatives (FDCR)
	Germany Federal Ministry of Economics and Technology (BMWK) Federal Foreign Office International Climate Initiative Physikalisch-Technische Bundesanstalt (PTB) GIZ	World Energy Transitions Outlook, Long-term Energy Scenarios, Green Hydrogen & CEM Transforming Solar Supply. Geopolitics of Hydrogen Economy SIDS Lighthouses Quality Infrastructure for Green Hydrogen Senegal's clean energy transition

	Japan Ministry of Agriculture, Forestry and Fisheries (MAFF) Ministry of Economy, Trade and Industry (METI)	Development of Circular Economy with Bioenergy and Co-products Biomass Strategy for Sustainable Bioenergy Production Various Projects
	Luxembourg	Various projects
	Kingdom of the Netherlands Ministry of Foreign Affairs	Geopolitics of the Energy Transition
	Norway Ministry of Foreign Affairs	Various Projects
	Republic of Korea	Seconded official
	Government of the Walloon Region, Belgium	Deployment of renewable energy and decentralised renewable energy with a focus on Francophone Africa.
	United Arab Emirates	COP28, UAE FlexTool, Clean cooking, Education and FDCR
	United Kingdom of Great Britain and Northern Ireland Department for Business, Energy & Industrial Strategy	COP26 activities under the Glasgow Breakthrough Agenda & loaned personnel.
	Open Society Foundations	Empowering Lives and Livelihoods
	Rockefeller Brothers Fund	Acceleration Partnership for Renewables in Africa



United Nations Development
Programme (UNDP)

UNDP Climate Promise & Market
Transformation for Sustainable Rural
Housing in Uzbekistan



United Nations Office for
Project Services (UNOPS)

Climate Vulnerable Forum

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 21,442,349 through voluntary contributions, with an additional USD 1,419,520 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 output and by pillar, resourced by both core and voluntary contributions.

The asterisk (*) indicates that the delivery of the programmatic output is financially supported by one or more voluntary contributions. If there is not an asterisk, then the delivery of the programmatic activity is exclusively covered by the core non-assessed and/or core assessed contributions.

At the twenty-third meeting of the Council, Members requested more nuanced information in the implementation matrix section in the form of a traffic light system. In response, the IRENA Secretariat is introducing a speedometer in the ‘Status’ column with four traffic lights (and an arrow that would resolve possible issues, if printed black and white) indicating:

- Red for an activity stalled long-term or will be abandoned,
- Orange for when progress is lagging, but we are confident we will deliver within the programmatic cycle,
- Green for when it is on track or has not started yet and
- Blue for when it is completed.

The legend below outlines some of the risk factors/reasons why progress for an activity might be lagging or stalling, but the list is not exhaustive.

Risk Factors	
External Risks	<ul style="list-style-type: none"> • Project affected by difficulties in engagement/commitment of stakeholders.
	<ul style="list-style-type: none"> • Commitments affected due to changes of government and/or political priorities.
	<ul style="list-style-type: none"> • Lack of access to data.
	<ul style="list-style-type: none"> • Limited capacity of local partners impedes progress and results.
	<ul style="list-style-type: none"> • Catastrophic events (e.g. natural hazards and disasters, pandemics etc.) affect operations and schedules.
Internal Risks	<ul style="list-style-type: none"> • Key IRENA staff working on the activity has left.
	<ul style="list-style-type: none"> • Shifting priorities in the course of the year.

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) * ⁷¹		▪ “World Energy Transitions Outlook 2022” (March 2022) [Click here] .
		▪ “World Energy Transitions Outlook 2023”. Preview (March 2023) ▪ “World Energy Transitions Outlook 2023” Volume 1 (June 2023) [Click here] .
		▪ “World Energy Transitions Outlook 2023” Volume 2 [Click here] .
Regional Energy Transitions Outlooks (selected regions in Africa, Europe, Latin America) *		▪ “Renewable Energy Roadmap for Central America” report (March 2022) ⁷² [Click here] .
		▪ “Renewable Energy Outlook for ASEAN: Towards a regional energy transition” report (September, 2022) ⁷³ [Click here] .
		▪ “Green Hydrogen Trade Outlook for ASEAN” report. ⁷⁴
		▪ “Renewable Energy Roadmap for South America” report. ⁷⁵
		▪ “Renewable Energy Roadmap for EU” report. ⁷⁶
		▪ “Regional report on conditions and obstacles for the development and integration of renewable energy sources in the Eastern Partner countries” report. ⁷⁷
		▪ “Renewable Energy Transition Outlook for West Africa” report. ⁷⁸
		▪ “Renewable Energy Transition Outlook for Southern Africa” report. ⁷⁹
		▪ “Renewable Energy Transition Outlook for North Africa” report. ⁸⁰
		▪ “Renewable Energy Transition Outlook for Eastern Africa” report. ⁸¹
		▪ “Renewable Energy Transition Outlook for Central

⁷¹ Supported by the Government of Germany.

⁷² Supported by the Government of Norway.

⁷³ Supported by the Government of Denmark.

⁷⁴ Supported by the Government of Japan.

⁷⁵ Supported by the Government of Norway.

⁷⁶ Supported by the European Commission.

⁷⁷ Supported by the Government of Norway.

⁷⁸ Supported by the European Commission.

⁷⁹ Supported by the European Commission.

⁸⁰ Supported by the European Commission.

⁸¹ Supported by the European Commission.


		Africa” report. ⁸²
Innovation Landscape for the Energy Transition		▪ “Innovation landscape for smart electrification” report (June 2023) [Click here] . ⁸³
		▪ “Smart Electrification with Renewables: Driving the Transformation of Energy Services” report (February 2022) [Click here] . ⁸⁴
		▪ Brief on 100% RE power system.
Geopolitics of the Energy Transformation: biennial report on trends *		▪ “Geopolitics of Energy Transformation: Indicators and Trends” report. ⁸⁵
Global Landscape: Renewable Energy Finance report		▪ “Global Landscape of Renewable Energy Finance 2023” report (February 2023) [Click here] .
		▪ Launch of the Global Landscape of Renewable Energy Finance 2023 (February 2023) [Click here] .
		▪ Global Landscape of Renewable Energy Finance 2023 webinar (March 2023) [Click here] .
		▪ G20 “Low-Cost Finance for the Energy Transition” report (May 2023) [Click here] .
Renewable Energy Capacity and Generation (annual update)		▪ “Renewable Capacity Statistics 2023” report (March 2023) [Click here] .
		▪ “Renewable Capacity Statistics 2022” report (March 2022) [Click here] .
		▪ Downloadable query tools update 2023 [Click here] .
		▪ Interactive dashboards update 2023 [Click here] .
		▪ IRENASTAT online database update 2023 [Click here] .
		▪ “Renewable energy statistics 2023” report (July 2023) [Click here] .
		▪ “Renewable energy statistics 2022” report (July 2022) [Click here] .
		▪ Energy profiles update 2023 (Sept 2023) [Click here] .
		▪ “Off-grid renewable energy statistics 2023” report.
		▪ “Off-grid renewable energy statistics 2022” report (Dec 2022) [Click here] .
		▪ Annual data update for SDG 7 (indicators 7.a.1 and 7.b.1/12.a.1). (March 2023) [Click here] .
		▪ Participating in the International Energy Statistics UN Task Team on the revision of Standard International Energy Product Classification (SIEC).
		▪ Revision of IRENA Energy Taxonomy.

⁸² Supported by the European Commission.












⁸³ Supported by the Government of Norway and the Government of Japan.

⁸⁴ See related webinar [here](#).

⁸⁵ Supported by the Government of Netherlands and the Government of Norway.

Power Generation Costs (annual update)		▪ “Renewable Power Generation Costs in 2021” report (July 2022) [Click here].
		▪ “Renewable Power Generation Costs in 2022” report. [Click here].
		▪ “The Cost of Financing for Renewable Power” report (May 2023) [Click here].
		▪ G20 “Low-cost finance for the energy transition” report (May 2023) [Click here].
Costs and Performance of End-use Technologies – selected insights		▪ “Renewable solutions in end-uses: Heat pump costs and markets” report (Nov 2022) [Click here].
Annual Jobs Review (annual update)		▪ “Renewable Energy and Jobs 2022” report (Sept 2022) [Click here].
		▪ “Renewable Energy and Jobs 2023” report (Sept 2023). [Click here].
Patents and Standards database INSPIRE (annual update)		▪ Updated tool [Click here].
		▪ “Innovation Trends in Electrolysers for Hydrogen Production” report (May 2022) ⁸⁶ [Click here].
		▪ “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) [Click here].
		▪ International Forum for Quality Infrastructure within India's Solar PV Sector (March 2023) [Click here].
Global Atlas updates on renewable potentials		▪ Improving functionalities of the IRENA Global Atlas for Renewable Energy platform [Click here for news articles, Click here to access the version 4.1, and Click here to see demo].
		▪ Maintaining the operation of the Global Atlas for Renewable Energy platform by upgrading Geoserver and backend.
		<ul style="list-style-type: none"> ▪ Annual update of the renewable energy resource datasets from data providers (Members, international institutions and private sectors – WCMC-UNEP, ORNL, WRI, NOVELTIS, ANU, FAO, TheWindPower, and Meteotest). ▪ Integration of zones for investment opportunities for utility-scale solar PV and wind projects in selected countries in Africa, Latin America, and Southeast Asia [Click here for news articles]. ▪ Integration of archived time-series meteorological dataset from the National Aeronautics and Space Administration (NASA) and the European Centre for Medium-Range Weather Forecasts (ECMWF).

⁸⁶ See webinar [here](#).

		<ul style="list-style-type: none"> ▪ Bioenergy Simulator⁸⁷ [Click here for news article. Click here for simulator].
		<ul style="list-style-type: none"> ▪ Maintaining the operation of the Bioenergy simulator platform by upgrading the backend.
		<ul style="list-style-type: none"> ▪ Revamping of the Bioenergy simulator platform – updating of the datasets, improving the methodology, and upgrading the user interface.
		<ul style="list-style-type: none"> ▪ Webinars on the Global Atlas for Renewable Energy <ul style="list-style-type: none"> ➤ <i>Open-Source Geospatial Solutions for Energy Access</i> organised by the World Resource Institute (April 2022) [Click here]. ➤ <i>Energy System Modelling for the Energy Transition</i> organised by the SDG 7 Youth Constituency (Sept 2022) [Click here]. ➤ <i>Webinar to release the new version of the Global Atlas version 4.1</i> [Click here].
		<ul style="list-style-type: none"> ▪ 2022 Year in Review: Climate-driven Global Renewable Energy Potential Resources and Energy Demand” report (December 2023) [Click here]
SDG 7 Tracking Report (2022 and 2023 editions) ^{*88}		<ul style="list-style-type: none"> ▪ “Tracking SDG 7: The Energy Progress Report” (2022) report (June 2022) [Click here].
		<ul style="list-style-type: none"> ▪ “Tracking SDG 7: The Energy Progress Report” (2023) report [Click here].
Innovation Week		Innovation Engagements and Networks: <ul style="list-style-type: none"> ▪ Innovation Day: Canada March 2022 (March 2022) [Click here].
		<p>Support to Mission Innovation (MI) and Clean Energy Ministerial (CEM). In 2022 and 2023, it included:</p> <ul style="list-style-type: none"> ➤ MI: Support by providing inputs into action plans and policies to Missions on Power, Hydrogen, Net-zero industry, Cities, Biorefineries and Shipping.
		<ul style="list-style-type: none"> ▪ MI: Member of the Technical Advisory Group; and member of the MI Secretariat and designing and developing inputs to the MI Insights Module.
		<ul style="list-style-type: none"> ▪ MI Signed a new MI-IRENA MoU in GCEAF in Pittsburgh [Click here]. <ul style="list-style-type: none"> ➤ Job Creation and Gender Balance in the Energy Transition: Priority Actions and Perspectives. ➤ Pathways for Rapid Decarbonisation of Power Systems. ➤ LTES Campaign Global dialogue on long-term transition pathways for road transport.⁸⁹ ➤ Facilitating and Accelerating PtX-Market Ramp-up. ➤ Accelerating technology-based carbon removals: BECCS and DAC. ➤ Innovation cooperation: global approaches to enhancing national policies and measuring progress.

⁸⁷ Supported by the Government of Norway.

⁸⁸ Supported by the International Bank for Reconstruction and Development.

⁸⁹ Supported by the Government of Germany and Denmark.

		<ul style="list-style-type: none"> Active participation in CEM/MI Senior Official Meeting in Rio de Janeiro, Brazil [Click here]. ➤ Organised side event on <i>Accelerating the Clean Energy Transition: Insights from the Long-Term Energy Scenario (LTES) Initiative</i>⁹⁰
		<ul style="list-style-type: none"> CEM: Leading Long-Term Energy Scenario Initiative, knowledge partner to Transforming Solar Supply Chains Initiative and the Clean Energy Marine Hubs initiative.⁹¹
		<ul style="list-style-type: none"> Coordinating the work of the CEM Initiative on Transforming Solar Supply Chains⁹².
		<ul style="list-style-type: none"> Support to Glasgow Breakthrough Agenda – The Breakthrough Agenda Report 2022⁹³ (September 2022) [Click here].
		<ul style="list-style-type: none"> Support to Glasgow Breakthrough Agenda - The Breakthrough Agenda Report 2023⁹⁴ (hydrogen and power, contributing to steel, cement and road transport) [Click here].
		<ul style="list-style-type: none"> Support for Global Offshore Wind Alliance (GOWA) meeting with countries (March 2022).
Human resources and workforce planning strategy		<ul style="list-style-type: none"> 32 new staff appointments and internal movements and seven new Associate Professional.
		<ul style="list-style-type: none"> Reclassification and comprehensive review of all Terms of Reference.
		<ul style="list-style-type: none"> Directives on Individual Consultants.
		<ul style="list-style-type: none"> Directives on Performance Management and Recruitment.

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) ⁹⁵		<ul style="list-style-type: none"> “Socio-economic Footprint of the Energy Transition: Japan” report (September 2022) [Click here].
		<ul style="list-style-type: none"> “Socio-economic Footprint of the Energy Transition: Indonesia” report (January 2023) [Click here].

⁹⁰ Supported by the Government of Germany and Denmark.

⁹¹ Supported by Government of Denmark and Government of Germany.

⁹² Supported by the Government of Australia and the Government of Germany.

⁹³ Supported by the Government of the United Kingdom.

⁹⁴ Supported by the Government of the United Kingdom.

⁹⁵ Supported by Government of Denmark and Government of Japan.

		▪ “Socio-economic Footprint of the Energy Transition: Southeast Asia” report (July 2023) [Click here] .
		▪ “Socio-economic Footprint of the Energy Transition: Egypt” report (November 2023) [Click here] .
		▪ “Socio-economic Footprint of the Energy Transition: South Africa” report (November 2023) [Click here] .
Leveraging Local Capabilities (selected technologies)		▪ “Leveraging Local Capacity for Small Scale Hydropower” report (Sept 2023) [Click here] .
		▪ “Leveraging Local Capacity for CSP” report.
Ecosystems for Sustainable Livelihoods*		▪ “Fostering Livelihoods with Decentralised Renewable Energy: An Ecosystems Approach” report (January 2022) [Click here] .
Decentralised Renewable Energy Solutions* ⁹⁶ (policies for mini-grids; solutions for clean cooking)		▪ “Policies and Regulations for Renewable Energy Mini-grids” report.
		▪ “Public Financing Instruments for Universal Energy Access” report.
		▪ “Advancing renewables-based clean cooking solutions: Key outputs from IRENA’s webinar series”.
		▪ IRENA’s West Africa Electrification Platform: Assessment of the potential for battery storage to provide affordable electricity access through solar PV mini grids in West Africa (Burkina-Faso, Senegal, , Nigeria, Mali) [Click here] . ➤ Organised a mini workshop with international organisations (WBG ESMAP, WRI, SE4ALL, KTH) to raise awareness on platform (Aug 2023). ➤ Platform is available and running on the IRENA server.
Renewable Energy Policies in the Power Sector (decentralised generation; high-risk environments)		▪ “Renewable Energy Auctions: design in higher risk contexts” report.
		▪ “Green Hydrogen Auctions” report.
		▪ “Renewable Energy Auctions: Southeast Asia” report (December 2022) [Click here] .
Power Market Design for the Energy Transition Report		▪ “Re-organising Power Systems for the Transition” report (June 2022) [Click here] .
Renewable Energy Education and Skills*		▪ “Education for the Energy Transition” report, in collaboration with UNESCO.
		▪ Initiative on Educating the Educators including “Renewable Energy Toolkit for Teachers” ⁹⁷ .
		▪ Workshop bringing together global education partners and stakeholders held in Abu Dhabi to form a new Energy Transition Education Network (July 2022) ⁹⁸ .

⁹⁶ Supported by the Government of Walloon region, Belgium.

⁹⁷ Supported by Government of the United Arab Emirates.

⁹⁸ Supported by Government of the United Arab Emirates.

		▪ Energy Transition Education Network launched at COP27 (November 2022) [Click here].
		▪ E-learning platform with online self-study courses on key renewable energy topics. ⁹⁹
Renewable Energy Policies for Cities: localising end-use value chains		“Renewable Energy Policies in Cities: Enabling Local Benefits” report.
Climate Policy: renewable energy and NDCs *		▪ “NDCs and Renewable Energy Targets in 2021” report (January 2022) [Click here].
		▪ “Renewable Energy Targets in 2022: A Guide to Design” report ¹⁰⁰ (November 2022) [Click here].
		▪ “Renewable energy targets in small island developing states” technical paper (November 2022) [Click here].
		▪ NDCs in 2023 and the pledge to tripling renewables.
Climate Change Adaptation: methodology and country analyses *		▪ “Renewable Energy in Adaptation: Methods and Metrics” report.
Geopolitics of the Energy Transformation: deep dive on a selected topic *		▪ “Geopolitics of the Energy Transition: Critical Materials” report ¹⁰¹ (July 2023) [Click here].
Gender and Renewable Energy report: tracking global progress		▪ “Solar PV: A Gender Perspective” report. (Sept 2022) [Click here].
		▪ “Gender and Renewable Energy Report: Tracking Global Progress” survey.
Energy Transition for End-uses (transport and industry decarbonisation)		▪ Innovation Day: Canada March 2022, with focus on Road Freight and Decarbonisation of Iron & Steel sectors (March 2022) [Click here] ¹⁰² .
		▪ Innovation to Foster the Renewable Energy Transition (IFRET). Analysis on enablers to facilitate the decarbonisation of industry and buildings sectors, and the trade of green hydrogen and green commodities. ¹⁰³
		▪ “Bioenergy for the Transition: Ensuring Sustainability and Overcoming Barriers” report (Aug 2022) [Click here].
		▪ “Innovation Outlook: Renewable Ammonia” report (May 2022) [Click here].
		▪ G20 “Towards a circular steel industry” report (July 2023) [Click here].
		▪ Partnership Agreement between IRENA and the International Chamber of Shipping.

⁹⁹ Supported by Government of Norway.

¹⁰⁰ Supported by Government of the Walloon Region, Belgium.

¹⁰¹ Supported by the Government of Netherlands and the Government of Norway.

¹⁰² More information available [here](#).

¹⁰³ Supported by the European Commission.

		▪ Collaboration agreement with UN Global Compact as knowledge partners of the Just Transition Maritime Task Force.
		▪ Bioenergy workshop held in Sao Paulo Brazil: Sustainable Bioenergy Pathways in South America - Fostering investment in the bioenergy sector. ¹⁰⁴
		▪ Technical Brief – “Fomenting investment in the bioenergy sector in Latin America”. ¹⁰⁵
		▪ “Assessment of the sustainable bioenergy potential in the Caribbean Small Island Developing States – Bioenergy Potential, Impacts Assessment and Recommendations” ¹⁰⁶ report.
		▪ “Agricultural residue-based bioenergy: Regional potential and scale-up strategies.” Report (Nov 2023) [Click here] . ¹⁰⁷
End-use Decarbonisation: guides for policy-making (procurement; heating and cooling; transport; green hydrogen) *		▪ “Green hydrogen for industry: A guide to policy making” ¹⁰⁸ report (March 2022) [Click here] .
		▪ “Renewable energy policies for decarbonisation of transport” report.
		▪ “Creating a global hydrogen market: Certification to enable trade” report (January 2023) [Click here] .
Greening the Gas System *		▪ Accelerating hydrogen deployment in the G7: recommendations for the Hydrogen Action Pact (November 2022) [Click here] ¹⁰⁹ .
Energy Transition and Critical Materials *		▪ “Critical Materials For The Energy Transition: Lithium” brief (January 2022) [Click here] .
		▪ “Critical Materials for The Energy Transition: Rare Earth” brief (May 2022) ¹¹⁰ [Click here] .
		▪ “Critical Materials for the Energy Transition: EV Batteries” report.
		▪ Ministerial Dialogue at 13th Assembly: ‘Critical Materials for the Renewables-Centred Energy Transition: How to Jointly Harness Opportunities’ (Jan 2023).
End of Life and Circular Economy * (storage and batteries; solar PV panels)		▪ “End-of-Life Management of Solar Photovoltaic and Storage Batteries in the Energy Transition” report.
Corporate Sourcing of Renewable Energy *		▪ Activities cancelled due to lack of funding.

¹⁰⁴ Supported by the Government of Japan.

¹⁰⁵ Supported by the Government of Denmark.

¹⁰⁶ Supported by the Government of Denmark.

¹⁰⁷ Supported by the Government of Japan.







¹⁰⁸ Supported by the Government of Japan.



¹⁰⁹ Supported by the Government of Germany.









¹¹⁰ See webinar [here](#).

Comprehensive Global Communication Strategy with accessible and multilingual content and information *		<ul style="list-style-type: none"> Comprehensive Global Communication Strategy for 2022 was successfully implemented, including the second phase of strategic media partnership and social media campaign.
		<ul style="list-style-type: none"> Press release translations, international media outreach and communications amplified reach of key publications such as “Tripling Renewable Power and Doubling Energy Efficiency by 2030: Crucial Steps Towards 1.5 °C”, “Geopolitics of the Energy transition: Critical Materials”, “Renewable Capacity Statistics 2023”, “Global Landscape of Renewable Energy Finance” and Volume 1 and 2 of the “World Energy Transitions Outlook 2023”.
		<ul style="list-style-type: none"> Press release translations, international media outreach and communications amplified reach of key publications such as “WETO 2023” and the “Geopolitics of the Energy Transformation: The Hydrogen Factor.”¹¹¹
		<ul style="list-style-type: none"> Strategic communications support around key, global high-level events, including IRENA Assembly, IRENA Innovation Week, COP28, Africa Climate Week, G7, G20, BETD etc.
		<ul style="list-style-type: none"> Issued 95 IRENA publications, comprising 42 reports [Click here] and an additional 53 specialised publications.
		<ul style="list-style-type: none"> “Tripling renewable power and doubling energy efficiency by 2030: Crucial steps towards 1.5°C” report (Oct 2023) [Click here].
		<ul style="list-style-type: none"> Eight IRENA report translations issued (in Chinese, English, French, Japanese, and Mongolian).
		<ul style="list-style-type: none"> IRENA publications featured on knowledge sharing platforms and in electronic libraries/stores, including Apple store, Scribd, Refinitiv, Amazon and others.
		<ul style="list-style-type: none"> Maintained regular strategic publication output, with predictable flagship reports, timely thematic studies, and other specialised releases.
		<ul style="list-style-type: none"> Continued application of the Agency’s digital-first communication approach, with printing limited to key publications and/or peripherals for major events, and the issuance of the first IRENA Publications Catalogue featuring QR codes for PDF downloads.
		<ul style="list-style-type: none"> Issued an updated “IRENA standard abbreviations” document to ensure harmonisation across the Agency’s published materials.
		<ul style="list-style-type: none"> Issued “IRENA guidelines for editors” to provide rules and guidance for editorial consultants working with the Agency.
		<ul style="list-style-type: none"> Issued “IRENA guidelines for designers” to provide rules and guidance for design consultants working with the Agency.

¹¹¹ Supported by the Government of Germany.



		<ul style="list-style-type: none"> ▪ Hosted introductory briefing with new IRENA staff to highlight key procedures and stages in IRENA publishing and quality control processes.
		<ul style="list-style-type: none"> ▪ Completed assessment of potential software solutions to ensure greater efficiency, security and transparency in IRENA peer review processes for publications and began the roll-out of PleaseReview (Ideagen) as the single platform for peer review of IRENA reports.
		<ul style="list-style-type: none"> ▪ Ongoing communication support provided in relation to publication releases, webinars, press releases, digital stories, short videos, website updates etc.
		<ul style="list-style-type: none"> ▪ IRENA Insights webinar series in 2022 [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> ➤ <i>Innovation trends in electrolysers for hydrogen production</i> ➤ <i>Innovation Outlook - Renewable Ammonia</i> ➤ <i>Grid Codes for Renewable Powered Systems</i> ➤ <i>Renewable Energy Roadmap for Central America: Towards a Regional Energy Transition</i> ➤ <i>Grid Codes for Renewable Powered Systems</i> ➤ <i>Global Hydrogen Trade to Meet the 1.5C Climate Goal</i> ➤ <i>Renewable Power Generation Cost Report 2021</i> ➤ <i>Powering Agri-Food Value Chains with Geothermal Heat: A Guidebook for Policymakers</i> ➤ <i>Renewable Energy: Jobs along the supply chain</i> ➤ <i>Solar PV: A Gender Perspective</i>
		<ul style="list-style-type: none"> ▪ IRENA Insights webinar series in 2023 [Click here]. <ul style="list-style-type: none"> ➤ <i>Renewable Energy Roadmap: Nigeria</i> ➤ <i>Global Landscape of Renewable Energy Finance 2023 Report</i> ➤ <i>Global Geothermal Market and Technology Assessment Report</i> ➤ <i>Long-term energy scenarios and low-emission development strategies</i> ➤ <i>Renewable Power Generation Costs in 2022</i>
		<ul style="list-style-type: none"> ▪ Webinar series: Critical Materials for the Energy Transition [Click here] <ul style="list-style-type: none"> ➤ <i>Rare Earth Elements</i> ➤ <i>Deep-Sea Mining Technology</i> ➤ <i>Do We Have a Lithium Supply Problem?</i>

		<ul style="list-style-type: none"> ▪ 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] ➤ <i>Restructuring the power system for the energy transition</i> (June 2022) [Click here] ➤ <i>Sustainable bioenergy for the energy transition</i> (June 2022) [Click here]
		<ul style="list-style-type: none"> ▪ Events and workshops <ul style="list-style-type: none"> ➤ <i>REN21 RENdez-vous Africa: What Could an African Green Deal Look Like?</i> (February 2022) ➤ <i>UNDP Regional Bureau for Africa Energy Workshop</i> (March 2022) ➤ <i>RENAC Training Seminar</i> (March 2022) ➤ <i>MENA Climate Week</i> (March 2022) ➤ <i>Meetings of the UN Interdepartmental Task Force on African Affairs</i> (April and June 2022) ➤ <i>MENA Europe Future Energy Dialogue</i> (June 2022) ➤ <i>Africa Climate Week</i> (August 2022) ➤ <i>Africa-EU Energy Partnership Forum</i> (September 2022) ▪ Online content <ul style="list-style-type: none"> ➤ <i>Social media campaign with AfDB</i> ➤ <i>Social media videos</i> ➤ <i>Blog posts</i>
		<ul style="list-style-type: none"> ▪ Dissemination of the “Renewable Energy Roadmap for Central America” report (March 2022) [Click here]. <ul style="list-style-type: none"> ➤ <i>Renewable Energies in Latin America and the Caribbean: Towards a Regional Energy Transition</i> (June 2022) ➤ <i>Insights Webinar</i> (“Renewable Energy Roadmap for Central America: Towards a Regional Energy Transition”) (June 2022) ➤ <i>COREN 2022 - El Salvador</i> (“Las energías renovables como impulsoras en la electrificación de los sectores de uso final”) (August 2022) ➤ <i>IRENA invited to present the study at the CDMER Meeting Nr. 96</i> (August 2022) - <i>Consejo Director del Mercado Eléctrico Regional de América Central</i> ➤ <i>CIER 57th Annual Meeting – Paraguay</i> (“Hojas de Ruta de Energía Renovables de Centroamérica y Suramérica”) (November 2022) ➤ <i>RRA Honduras – Honduras, IITC/REmap division to present “Renewable Energy Roadmap for Central America: Towards a Regional Energy Transition” and Honduras country case</i> (December 2022) ➤ <i>IRENA invited to present in the OLADE Energy Week 2022 in Panama City, IITC/REmap division to present “Renewable Energy Roadmap for Central and South America”</i> (December 2022)

		<p>➤ IRENA presented in the Clean Energy Ministerial, Senior Officials Meeting Session: Strengthening International Cooperation and Regional Collaboration to support Latin America's Energy Transition (March 2023)</p>
		<ul style="list-style-type: none"> ▪ Dissemination of the “Geopolitics of the Energy Transformation” report (January 2022)¹¹² [Click here] ➤ Launch of “Geopolitics of Energy Transformation: The Hydrogen Factor” report during the twelfth session of the IRENA Assembly (January 2022) [Click here]. ➤ “Hydrogen Economy Hints at New Global Power Dynamics” (January 2022). ➤ IRENA Insights webinar: <i>Geopolitics of the Energy Transformation: The Hydrogen Factor</i> (March 2022) [Click here]. ➤ Presentation by IRENA’s Director-General in March 2022 at an in-person event co-hosted by the Governments of Germany, Norway, and the UAE, as well as separate presentations requested by the Governments of Chile, Italy, the United Kingdom, and United States of America. ➤ Presentations for non-Member organisations, including the African Union Development Bank, the Africa Renewable Energy Initiative, the Clingendael Institute, the 2022 Financial Times Hydrogen Summit, the German Institute for International and Security Affairs, the GIZ Hydrogen Diplomacy Initiative, the Spanish Energy Club, and the United Nations Global Compact in Poland. ➤ Podcasts including with the Columbia SIPA and Reuters/Aramco.
Regional Communication Strategies		<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.
		<ul style="list-style-type: none"> ▪ Strategic communications support around key regional events such as Africa Climate Week, Astana International Forum 2023, BETD 2023, India Energy Week 2023, SPIREC 2023 and IRENA’s first Investment Forum for Southeast Asia¹¹³.
Promotion and use of digital knowledge products and information *		<ul style="list-style-type: none"> ▪ Ongoing placement of IRENA e-books on selected e-stores.
		<ul style="list-style-type: none"> ▪ Nine interactive visual stories developed and published from January to August 2023.
		<ul style="list-style-type: none"> ▪ Four digital reports based on flagship publications published.
		<ul style="list-style-type: none"> ▪ IRENA publications organised by theme on the publication’s online pages.
		<ul style="list-style-type: none"> ▪ Technical papers section under the Education component of the website implemented.

¹¹² Supported by the Government of Norway.

¹¹³ Supported by the Government of Denmark.

		▪ New upgraded irena.org website successfully launched on 25 October 2022.
		▪ 84 videos published across the website and social media.

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 *		▪ G20 Energy Transitions Investment Forum Pre Event in collaboration with B20 2 nd Partners in Energy Transition Meeting in Jakarta, Indonesia (Southeast Asia region) (July 2022) [Click here] ¹¹⁴
		▪ G20 Energy Transitions Investment Forum in Bali, Indonesia (Southeast Asia region) (September 2022) [Click here] ¹¹⁵ .
		▪ West Africa Investment Forum ¹¹⁶ Nigeria [Postponed].
		▪ Latin America Energy Transition Investment Forum, Uruguay (7-9 November 2023) [Click here].
		▪ IRENA-Caribbean Cooperation For Fostering Energy Transition Investments and Finance, Barbados (30 May -1 June 2023) [Click here].
		▪ High Level – CEO Dialogue on <i>Financing Energy Transition and The Role of Private Sector in Southeast Asia</i> , co-organised with GIZ, Ministry of Energy and Mineral Resources of Indonesia and ASEAN Centre for Energy. (24 August 2023) [Click here].
		▪ G20 India side event - High Level Dialogue on <i>Low-Cost Finance for New and Emerging Energy Technologies</i> , Mumbai, India (15 May 2023) [Click here].
Regional Action Agendas and Clean Energy Corridors		Africa ▪ “Mano River Union Renewable Energy Market Analysis” report (Sept 2023) [Click here].
		▪ Side event, <i>Energy Transition for Africa</i> , during TICAD ¹¹⁷ (August 2022) [Click here].
		▪ 1-year long (250 hours) Capacity Building Programme on <i>Long-Term Energy Planning in the Republic of Cameroon</i> ¹¹⁸ : ➤ First training course (July 2021) [Click here]. ➤ Second training course (Aug 2021) [Click here].

¹¹⁴ Supported by the Government of Denmark.

¹¹⁵ Supported by the Government of Denmark.

¹¹⁶ Supported by Government of the Walloon Region, Belgium.

¹¹⁷ Supported by the Government of Japan.

¹¹⁸ Supported by the Government of Denmark.

		<ul style="list-style-type: none"> ➤ Third training course (Dec 2021) [Click here]. ➤ Fourth training course (March 2022) [Click here]. ➤ Final consultation workshop (Nov 2022) [Click here].
		<ul style="list-style-type: none"> ▪ WACEC: Regional capacity building workshop on <i>Design and Negotiation of Bankable Power Purchase Agreements in West Africa</i>, organised with ECREEE, ERERA, WAPP and GIZ (September 2022) [Click here].
		<ul style="list-style-type: none"> ▪ WACEC: Regional Capacity Building for Open Solar Contracts in West African Countries (November 2022) [Click here].
		<ul style="list-style-type: none"> ▪ Chad Renewable Readiness Assessment: Kickoff event (October 2022).
		<ul style="list-style-type: none"> ▪ Renewable Energy Roadmap for Nigeria – Final engagement workshop with national stakeholders (December 2022).
		<ul style="list-style-type: none"> ▪ Eni-IRENA Capacity Building programme in Biofuels [Click here]: <ul style="list-style-type: none"> ➤ First Cohort (September 2023) ➤ Second Cohort (May 2023) ➤ Third Cohort (July 2023)
		<ul style="list-style-type: none"> ▪ National Consultation Workshop on Accelerating Namibia's Energy Transition (August 2023).
		<ul style="list-style-type: none"> ▪ National Consultation Workshop on Accelerating Kenya's Energy Transition (August 2023) [Click here].
		<ul style="list-style-type: none"> ▪ National Consultation Workshop on Accelerating Sierra Leone's Energy Transition (Oct 2023) [Click here].
		<ul style="list-style-type: none"> ▪ Regional Consultation for Africa on COP28 Global Renewables and Energy Efficiency Pledge (Nov 2023).
		<ul style="list-style-type: none"> ▪ National Consultation Workshop on Accelerating Kenya's Energy Transition (August 2023) [Click here]
		<ul style="list-style-type: none"> ▪ Facilitation and establishment of the Acceleration Partnership for Renewables in Africa (APRA)¹¹⁹.
		<p>Asia</p> <ul style="list-style-type: none"> ▪ 2023 International Forum on Energy Transition (IFET2023) co-organized by IRENA and the National Energy Administration of China (September 2023) [Click here].
		<ul style="list-style-type: none"> • Long-term energy scenarios (LTES) for developing national clean energy transition plans in Asia (Aug-Sept 2023) [Click here].
		<ul style="list-style-type: none"> • Asia Regional Consultation on COP28 Pledge on Tripling RE (Oct 2023).
		<ul style="list-style-type: none"> • <i>Bangladesh Renewable Readiness Assessment</i>: Inception workshop (November 2023).

¹¹⁹ Supported by the Rockefeller Brothers Fund

		<ul style="list-style-type: none"> ▪ The 41st ASEAN Ministers on Energy Meeting (AMEM) (August 2023).
		<ul style="list-style-type: none"> • G20 India Environment and Climate Sustainability Working Group and Minister's Meeting, India (26-28 July 2023)
		<ul style="list-style-type: none"> • G20 India Energy Transition Working Group and Minister's Meeting, India (Goa, India, 19-21 July 2023) <ul style="list-style-type: none"> ➢ IRENA organized the official side event on the 3rd ETWG meeting (Mumbai, 15 May 2023) on <i>Low Costs Finance for New & Emerging Energy Technologies</i> ➢ Launch of IRENA report "Low Cost Finance for the Energy Transition" (15 May 2023).
		<ul style="list-style-type: none"> • CEM14/MI8: IRENA organized multiple High-Level Dialogues and side events during CEM14/MI8 Ministerial in Goa, India (19-22 July 2023) [Click here].
		<ul style="list-style-type: none"> • The 41st ASEAN Senior Officials Meeting on Energy (SOME) (June 2023). <ul style="list-style-type: none"> ➢ Side event on <i>Transitioning Remote and Island Communities to Renewable Energy</i> (June 2023) [Click here].
		<ul style="list-style-type: none"> • The 30th ASEAN Renewable Energy Subsector Network (RE-SSN) Meeting (May 2023).
		<ul style="list-style-type: none"> ▪ Malaysia Energy Transition Outlook¹²⁰ (March 2023) [Click here].
		<ul style="list-style-type: none"> ▪ India Energy Week and Asian Energy Ministerial Roundtable (February 2023).
		<ul style="list-style-type: none"> ▪ Ministerial Dialogue on Regional Energy Transition Outlooks: Southeast Asia Energy Transition during 13th Session of the IRENA Assembly (January 2023).
		<ul style="list-style-type: none"> ▪ Launch of the Kyrgyz Republic Renewable Readiness Assessment (December 2022) [Click here].
		<ul style="list-style-type: none"> ▪ Event on <i>Socioeconomic footprint of the energy transition: Egypt and Southeast Asia</i> at COP27 (November 2022) [Click here].
		<ul style="list-style-type: none"> ▪ Event on <i>Renewable Energy Transitions in the ASEAN Region</i> at COP27 (November 2022) [Click here].
		<ul style="list-style-type: none"> ▪ Two technical workshops building off the ASEAN, Indonesian and Malaysia Energy Transition Outlooks (Japan METI VC). 1) Workshop in Indonesia complete (May 2023). ▪ Workshop on <i>Towards an Energy Transition in Indonesia</i> (May 2023) [Click here]. ▪ Workshop on energy transition in ASEAN complete, Johor Bahru, Malaysia (November 2023).
		<ul style="list-style-type: none"> ▪ The 2nd Singapore – IRENA High-Level Forum (October 2022) [Click here].
		<ul style="list-style-type: none"> ▪ Launch of the Indonesia Energy Transition Outlook

¹²⁰ Supported by the Government of Denmark.

		report in Jakarta, Indonesia ¹²¹ (October 2022) [Click here].
		▪ The 40 th ASEAN Ministers on Energy Meeting (AMEM) including the 6 th AMEM-IRENA Dialogue (September 2022).
		▪ G20 Energy Transition Working Group Webinar on <i>Expanding Solar, Wind, and Ocean Energy Solution</i> (June 2022) [Click here].
		▪ G20 Energy Transition Working Group Webinar on <i>Accelerating Green Hydrogen Technologies and Energy Storage for the Energy Transitions</i> (June 2022) [Click here].
		▪ “Renewable Energy for Agriculture: Insights from Southeast Asia, A focus on heating and cooling needs” report (June 2022) [Click here].
		▪ The 40 th ASEAN Senior Officials Meeting on Energy (SOME) (June 2022). ¹²²
		▪ The 29 th ASEAN Renewable Energy Subsector Network (RE-SSN) Meeting (May 2022).
		▪ ASEAN-IRENA Consultation Workshop (May 2022) [Click here]. ¹²³
		▪ <i>Capacity Building for Renewable Energy Targets</i> in the Kyrgyz republic (March 2022) [Click here].
		▪ “Scaling Up Biomass for the Energy Transition: Untapped Opportunities in Southeast Asia” report (February 2022) ¹²⁴ [Click here].
		▪ “Renewable Energy Outlook for ASEAN: Towards a Regional Energy Transition” report (September 2022) ¹²⁵ [Click here].
		▪ <i>Renewable Readiness Assessment for the Kyrgyz Republic: Validation Workshop</i> (February 2022) [Click here].
		Latin America and Caribbean
		▪ <i>Regional Energy Congress for Central America (COREN)</i> . Hosting of Renewable Energy Day (August 2023).
		▪ <i>Firm Capacity in Central America: Definitions and implications for Variable Renewable Energy</i> (August 2023) [Click here].
		▪ <i>Accelerating Geothermal Development in LAC: Lessons Learned and Technological Advances RELAC Initiative</i> (June 2023).
		▪ <i>Honduras Renewable Readiness Assessment: Validation workshop event</i> (March 2023).

¹²¹ Supported by the Government of Denmark.

¹²² Supported by the Government of Denmark.

¹²³ Supported by the Government of Denmark.

¹²⁴ Supported by the Government of Japan.

¹²⁵ Supported by the Government of Denmark and the Government of Japan.

	<ul style="list-style-type: none"> ▪ Clean Energy Ministerial, Senior Officials Meeting, side-event: <i>Strengthening International Cooperation and Regional Collaboration to Support Latin America's Energy Transition</i>. (March 2023).
	<ul style="list-style-type: none"> ▪ Hybrid webinar: <i>Sustainable Bioenergy pathways in Latin America</i> (March 2023).
	<ul style="list-style-type: none"> ▪ Virtual Webinar: <i>Agricultural Residue potential in South America</i> (Feb 2023).
	<ul style="list-style-type: none"> ▪ <i>Renewable Energy Roadmaps for Latin America: Perspectives and way forward</i> during the 13th Session of the IRENA Assembly (Jan 2023).
	<ul style="list-style-type: none"> ▪ Green Hydrogen Capacity Building Program in El Salvador. (Jan 2023).
	<ul style="list-style-type: none"> ▪ <i>Honduras Renewable Readiness Assessment: Consultation Workshop</i> (Dec 2022).
	<ul style="list-style-type: none"> ▪ <i>Honduras Renewable Readiness Assessment: Kickoff event</i> (Sept 2022).
	<ul style="list-style-type: none"> ▪ Virtual event: <i>Regional Energy Congress for Central America (COREN)</i>. Hosting of Renewable Energy Day (August 2022).
	<ul style="list-style-type: none"> ▪ Side event on <i>Renewable Energy to Accelerate Regional Climate Action and Build momentum towards Net- Zero across the LAC Region</i> during the 2022 Latin America and Caribbean Climate Week (July 2022).
	<ul style="list-style-type: none"> ▪ RELAC Initiative: Virtual event: <i>REmap Central America Showcase</i> (June 2022).
	<ul style="list-style-type: none"> ▪ Itaipú Binacional Water and Energy Hybrid event (June 2022).
	<ul style="list-style-type: none"> ▪ Hybrid webinar for <i>Renewable Energy and Energy Efficiency in Paraguay</i>, co-organised with WEC and the Vice Minister of Energy and Mines of Paraguay (March 2022).
	<ul style="list-style-type: none"> ▪ <i>Firm Capacity for RE Projects using PPAs in Central America: Stakeholder Consultation Workshop and Questionnaire</i> (February 2022) [Click here].
	<ul style="list-style-type: none"> ▪ Webinar on <i>Accelerating the Energy Transition in Colombia: Renewable Energy Auctions</i>, co-organised with USAID (February 2022). [Click here].
	<p>Middle East and North Africa</p> <ul style="list-style-type: none"> ▪ Somalia Renewable Readiness Assessment: Expert Consultation Workshop (Nov 2023).
	<ul style="list-style-type: none"> ▪ Open Solar Contracts Capacity Building Workshop: Iraq, co-organised with UNDP & UK Embassy, (June 2022).
	<ul style="list-style-type: none"> ▪ <i>MENA Europe Future Energy Dialogue meeting</i>, co-hosted with the Federal Government of Germany and Jordanian Ministry of Energy and Mineral Resources (June 2022) [Click here].


















	<ul style="list-style-type: none"> ▪ <i>A Dialogue Between EU and Gulf Cooperation Council on a Regulatory Framework to Develop Green Hydrogen Supply, Demand and Trade</i>, co-organised with the European Union, (April 2022) [Click here].
	<ul style="list-style-type: none"> ▪ 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].
	<ul style="list-style-type: none"> ▪ A two-day <i>Energy Transition Workshop in Iraq: Best Practices & Scoping</i>, co-organised with the United Nations Development Programme (March 2022).
	<ul style="list-style-type: none"> ▪ <i>Consultative workshop on IRENA's North African Power Pool modelling</i>, 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 (March 2022) [Click here].
	<ul style="list-style-type: none"> ▪ Virtual regional capacity building workshop: <i>Renewable Energy Targets setting in Arab Countries</i> (February 2022).
	<ul style="list-style-type: none"> ▪ 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).
	<ul style="list-style-type: none"> ▪ A workshop on <i>Enabling Measures</i>, co-organised with the World Economic Forum (January 2022) [Click here].
	<p>Southeast Europe</p> <ul style="list-style-type: none"> ▪ Workshop on <i>Capacity building workshop on quantifying and reporting greenhouse emissions</i> (September 2023) [Click here].
	<ul style="list-style-type: none"> ▪ Launch for the Renewable Readiness Assessment Report for Bosnia and Herzegovina (September 2023) [Click here].
	<ul style="list-style-type: none"> ▪ Georgia REA initiated (Sept 2023).
	<ul style="list-style-type: none"> ▪ COP 28 Event on <i>Shift to renewables in Southeast Europe: NDCs and NECPs as financial roadmaps</i> [Click here].
	<ul style="list-style-type: none"> ▪ Workshop on <i>Renewable energy solutions for heating and cooling systems in Moldova</i> (Nov 2023) [Click here].
	<ul style="list-style-type: none"> ▪ Kick off workshop for presentation of the European Union Renewable Energy Transition Outlook (EU RETO) work and Member States involvement¹²⁶ (April 2023).
	<ul style="list-style-type: none"> ▪ Kick off workshop for Eastern Partnership Renewable Energy Transition Outlook work (EaP RETO) (April 2023)¹²⁷.

¹²⁶ Supported by the European Commission

¹²⁷ Supported by the European Commission

		▪ Regional Workshop on <i>Design and Financing of district heating and cooling systems and projects in Southeast Europe</i> (April 2023) [Click here].
		▪ Workshop on <i>Capacity building workshop on quantifying and reporting greenhouse emissions</i> (Sept 2023).
		▪ Regional capacity building workshop on <i>Sustainable Use of Bioenergy</i> , organised with Energy Community Secretariat (Nov 2022) [Click here].
		▪ Regional capacity building workshop on <i>Long Term Energy Scenarios</i> , organised with IAEA (Nov 2022).
		▪ EU Sustainable Energy Week 2022: <i>The Potential of Renewable Gases to support the Energy Transition and Guarantee Security of Supply</i> , joint event with Centre on Regulation in Europe and Florence School of Regulation (September 2022) [Click here].
		▪ A workshop on <i>Hydropower as a key factor in improving energy efficiency and promoting renewable energy</i> , co-organised with the Ministry of Energy of Kyrgyz Republic and State Standardization Committee of Republic of Belarus.
		▪ <i>Renewable Readiness Assessment for Bosnia and Herzegovina: Validation Workshop</i> (April 2022) [Click here] ¹²⁸
Energy Compacts & Collaborative Frameworks Implementation *		▪ Roundtable discussion to profile and mobilize support for the <i>Energy Compact on Renewable energy for United Nations Peacekeeping</i> , co-organized event with Permanent Mission of the UAE to IRENA, Permanent Mission of Norway to the UN and Friends of the Compact. It was held during the UN High-Level Political Forum on Sustainable Development (17 July 2023).
		▪ IRENA-FAO Energy Compact on ‘Energising Agri-food Systems with Renewable Energy’.
		▪ Multilateral Energy Compact on ‘Renewable energy for peacekeeping’.
		▪ Event on <i>Renewable Energy Opportunities in UN Peacekeeping Settings</i> , co-organised event with UN-DOS and United Arab Emirates, held during SEforALL Forum 2022 (May 2022) [Click here].
		▪ Multilateral compact for ‘Health Facility Electrification’.
		▪ IRENA-GGA-IGA Energy Compact on ‘Scaling up geothermal heating and cooling globally’.
		▪ IRENA-AOSIS Energy Compact on ‘Islands Energy Transition towards a 1.5-degree world’ - operationalised through the SIDS Lighthouses Initiative.
		▪ NDC analysis for SIDS.

¹²⁸ Supported by the Government of Norway.












		Collaborative Frameworks: ▪ Establishment of a new Collaborative Framework on Critical Materials for the Energy Transition ¹²⁹ (March 2022) [Click here].
		▪ Collaborative Framework Critical Materials: Working Group 'De-risking Critical Materials and Minerals Supply' (June 2022) [Click here].
		▪ Collaborative Framework Critical Materials: Working Group 'Observatory for Critical Materials and Minerals' (July 2022) [Click here].
		▪ Collaborative Framework Critical Materials: Working Group 'ESG and Mining' (Sept 2022) [Click here].
		▪ Collaborative Framework Critical Materials: 2 nd meeting (Oct 2023) [Click here].
		▪ Collaborative Framework on the Geopolitics of Energy Transformation: 5th meeting (April 2022) [Click here]. ¹³⁰
		▪ Collaborative Framework on the Geopolitics of Energy Transformation: 6th meeting (Nov 2022) [Click here]. ¹³¹
		▪ Collaborative Framework on Hydropower: 4 th meeting (June, 2022) [Click here].
		▪ Collaborative Framework on Hydropower: 5 th meeting (December, 2022) [Click here].
		▪ International Conference on Hydropower, co-organised with the Government of Switzerland (October 2022).
		▪ Collaborative Framework on Hydropower, 6 th virtual meeting (May 2023) [Click here].
		▪ Collaborative Framework on Hydropower, 7 th meeting (Hybrid) (November 2023).
		▪ Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems: 5 th meeting (June 2022) [Click here].
		▪ Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems: 6 th meeting (June 2022) [Click here].
		▪ Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems: 7 th meeting (May 2023) [Click here].
		▪ Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems: 7 th meeting (Sept 2023) [Click here].
		▪ Collaborative Framework on Green Hydrogen: 6 th meeting (October 2022) [Click here].

¹²⁹ Supported by the Government of Norway

¹³⁰ Supported by the Government of Germany, the Government of Netherlands, and the Government of Norway.

¹³¹ Supported by the Government of Germany, the Government of Netherlands, and the Government of Norway.

		▪ Collaborative Framework on Green Hydrogen: 7 th meeting (April 2023). [Click here] .
		▪ Collaborative Framework on Green Hydrogen: 8 th meeting (April 2023) [Click here] .
		▪ Collaborative Framework on Ocean Energy/Offshore Renewables: 5 th meeting (November 2022) [Click here] .
		▪ Collaborative Framework on Ocean Energy/Offshore Renewables (May 2023). [Click here]
		▪ Collaborative Framework on Just and Inclusive Energy Transition (March 2023) [Click here] .
		▪ “The changing role of hydropower: Challenges and opportunities” report (February 2023) [Click here] .
		▪ Scaling up Investments in Ocean Energy Technologies (March 2023) [Click here] .
		▪ Collaborative Framework on Project Facilitation to Support Energy Transition 1 st meeting (May 2022) [Click here] .
		▪ Collaborative Framework on Project Facilitation to Support on-the-ground Energy Transition (May 2023) [Click here] .
		▪ Support for the establishment of the intergovernmental Global Offshore Wind Alliance (GOWA) in collaboration with international stakeholders, including the Government of Denmark and GWEC.
Off-Grid Renewable Energy Solutions: Agri-food systems*, health*, clean cooking		▪ Assessment of Decentralised Renewable Energy (DRE) Solutions for Powering the Fisheries Sector in Mauritania Inception mission to country.
		▪ Assessment of Decentralised Renewable Energy (DRE) Solutions for Powering the Agri-food Sector in Nepal. Inception mission to country (Aug 2023).
		▪ Assessment of Decentralised Renewable Energy (DRE) Solutions for Powering the Agri-food Sector in Malawi. Inception mission to country (March 2023).
		▪ Assessment of Decentralised Renewable Energy (DRE) Solutions for Powering the Agri-food Sector in Guinea. Inception mission to country (March 2023).
		▪ Assessment of Decentralised Renewable Energy (DRE) Solutions for Health Care in Mali. Kick-off meeting (February 2023).
		▪ Assessment of Decentralised Renewable Energy (DRE) Solutions for Powering Health care in Mozambique. Kick-off meeting (February 2023).
		▪ Launched the Beyond Food Partnership, a new joint initiative with the Government of the United Arab Emirates (March) [Click here] .

		<ul style="list-style-type: none"> IRENA-WRI webinar on <i>Scaling-up solar irrigation: Lessons from policies and programmes</i> (February 2022) [Click here].
		<ul style="list-style-type: none"> <i>Renewable Energy for Agri-food Systems: Scaling Investments towards Climate Action and 2030 Agenda</i> event during COP27, Egypt (November 2022) [Click here].
		Publications: <ul style="list-style-type: none"> IRENA's input to joint publication of “Global Health Assessment” report with clear picture of status of healthcare electrification and requirements.¹³²
		<ul style="list-style-type: none"> Electrification with Renewables: Enhancing Healthcare Delivery in Burkina Faso report¹³³ (October 2022) [Click here].
		<ul style="list-style-type: none"> Decentralised Solar Electricity for Agri-food Value Chains in the Hindu Kush Himalaya Region (September 2022) [Click here].
		<ul style="list-style-type: none"> Report for technical recommendations, including design, of decentralised RE to electrify health centres Mali¹³⁴ and Sao Tome & Principe.
6 th International Off-grid Renewable Energy Conference (IOREC) *		<ul style="list-style-type: none"> 6th edition of IOREC (Nigeria, November 2022)¹³⁵ [Postponed].
SIDS Lighthouses Initiative* ¹³⁶		<ul style="list-style-type: none"> Workplan development and implementation with CCCCC/CCREEE, CDF, and SIDS DOCK.
		<ul style="list-style-type: none"> Updating the knowledge base in SIDS: Cost data collection and cost-benchmarking tool development.
		<ul style="list-style-type: none"> Implementation and capacity building, as well as completion of Quicksans for Belize, Barbados and Grenada.
		Initiative coordination: <ul style="list-style-type: none"> One new partner joined the initiative: Airborne Wind Europe. Total: 40 SIDS ¹³⁷ and 44 development partners.¹³⁸

¹³² Supported by the Government of the Walloon Region, Belgium.

¹³³ Supported by the Government of the Walloon Region, Belgium.

¹³⁴ Supported by the Government of Walloon Region, Belgium

¹³⁵ Supported by the Government of the Walloon Region, Belgium.







¹³⁶ Supported by the Government of Denmark and Germany, as part of the German Government International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative based on a decision adopted by the German Bundestag.

¹³⁷ Antigua & Barbuda, Aruba, , Bahamas, Barbados, Belize, British Virgin Islands, Cabo Verde, Comoros, Cook Islands, Cuba, Curaçao, Dominica, Dominican Republic, Fiji, Grenada, Guyana, Kiribati, Maldives, Marshall Islands, Mauritius, Micronesia (Federated States of), Montserrat, Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Sao Tome and Principe, Seychelles, Singapore, Solomon Islands, Tonga, Trinidad and Tobago, Turks and Caicos, Tuvalu, Vanuatu.







¹³⁸ Australia, Denmark, France, Germany, Italy, Japan, New Zealand, Norway, The Netherlands, United Arab Emirates, United States of America, Akuo, Association of the Overseas Countries and Territories of the European Union, Caribbean Climate-Smart Accelerator (CCSA), Caribbean Development Bank, Caribbean Electric Utility Services Corporation, CARILEC, Clean Energy Solutions Center, Clinton Climate Initiative, ENEL, European Union, Greening the Islands,

		Events: ▪ Development of progress indicators and impact measures for the implementation of the SIDS Lighthouses Initiative Priority Areas for the upcoming Caribbean Region Consultative Workshop (Jan 2024).
		▪ Small Island Developing States: A Just and Equitable Energy Transition towards a Climate-Resilient Future (Dec 2023)
		▪ 7 th International Conference on Renewable Energy Sources and Energy Efficiency (RESEE2023) (Oct 2023).
		▪ Validation workshop: Sector Assessment on electrification of healthcare facilities (October 2023).
		▪ Solomon Islands RRA Validation Workshop (Sept 2023).
		▪ Provision of development of the progress indicators and impact measures of the implementation of the SIDS Lighthouses Initiative Priority Areas” - Pacific Region Consultative Workshop, Honiara, Solomon Islands (22 – 25 Sept 2023).
		▪ Moving beyond the status quo: Actions towards accelerating SIDS Energy Transition to Strengthen Climate Resilience, UNGA, New York (Sept 2023).
		▪ 2023 Caribbean Economic Forum (Sept 2023).
		▪ Fifth Pacific Regional Energy and Transport Ministers’ Meeting (5th PRE/TMM), Vanuatu (May 2023).
		▪ Solomon Islands RRA: Stakeholder consultations (November 2022).
		▪ Solomon Islands Renewable Readiness Assessment – Expert Workshop (March 2023).
		▪ Pacific Regional Capacity Building on Energy Management and Energy Audits (February 2023).
		▪ Virtual Training Workshop on Climate Financing for Small Island Developing States – in cooperation with the Ministry of the Environment of Japan and the Green Climate Fund (Feb 2023).
		▪ SIDS Ministerial – Climate Pledges to Action: Amplifying Energy Transition for Sustainable Development in SIDS during the 13 th Session of the IRENA Assembly (Jan 2023) [Click here] .

Island Innovation, Islands and Small States Institute (ISSI), Indian Ocean Commission, International Renewable Energy Agency, Organisation of Eastern Caribbean States, Pacific Islands Development Forum, Pacific Community (SPC), Pacific Power Association, Rocky Mountain Institute - Carbon War Room, Solar Head of State, Sustainable Energy for All, Sur Futuro Foundation, United Nations Development Programme, United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UNOHRLLS), University of Delaware, University of Malta, World Bank.





		<ul style="list-style-type: none"> Capacity Building on PPA for Caribbean SIDS, St. Vincent and the Grenadines¹⁴⁴F (Nov 2022) [Click here].
		<ul style="list-style-type: none"> Event on <i>Closing the Gap: Securing Lives, Creating Livelihoods in Small Islands Developing States</i>, held during COP27 in Egypt¹⁴⁶F (Nov 2022) [Click here].
		<ul style="list-style-type: none"> Capacity Building Initiative on <i>Design of Bankable Power Purchase Agreements (PPAs) in the Atlantic, Indian Ocean and South China Sea (AIS) Small Island Developing States (SIDS)</i> (Sept 2022).
		<ul style="list-style-type: none"> A two-day event on <i>Energy Management and Energy Audits in Small Island Developing States</i> (June 2022) [Click here].
		<ul style="list-style-type: none"> Technical webinar support series¹⁴: <i>Grenada Capacity Building Programme for Energy Management & Energy Audits</i> (April 2022) [Click here]; (May 2022) [Click here]; (June 2022).
		<ul style="list-style-type: none"> Capacity Building on Climate Investment and Financial Flows in the Energy Sector in the Seychelles¹⁴⁸ (April 2022) [Click here].
		<ul style="list-style-type: none"> <i>Training Workshop on Climate Financing for Small Island Developing States</i> – co-organized with the Ministry of the Environment of Japan & Green Climate Fund (March 2022) [Click here].
		<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>Publications</p> <ul style="list-style-type: none"> Annual Progress Report: SIDS Lighthouses Initiative – Progress and way forward (May 2023) [Click here].
		<ul style="list-style-type: none"> Annual Progress Report: SIDS Lighthouses Initiative – Progress and way forward (July 2022) [Click here].
		<p>Digital Story</p> <ul style="list-style-type: none"> Short Videos Showcasing Human Impacts of Energy Transition Efforts in Small Island Developing States, including Seychelles, Samoa and St. Vincent and the Grenadines [Click here].
		<ul style="list-style-type: none"> Digital Story “<i>We likkle but we tallawah</i>” on SIDS energy transition progress towards a 1.5 °C world [Click here].
Global Geothermal Alliance (GGA)*		<p>Facilitation and coordination of the GGA¹³⁹:</p> <ul style="list-style-type: none"> Growing GGA constituency. New GGA Member State: Spain, Grenada, Malawi, St Lucia, Azerbaijan. New GGA Partners: Queen’s University (Belfast), African Geothermal Association, New Zealand Geothermal Association, Geothermal Association of Ireland.

¹³⁹ Supported by the Government of Japan.









		<ul style="list-style-type: none"> ▪ Total 55 Countries¹⁴⁰ and 59 Partners¹⁴¹.
		GGA website developed into a knowledge sharing platform: <ul style="list-style-type: none"> ▪ Updated constituency and communication of events and activities.
		<ul style="list-style-type: none"> ▪ Updated GGA Brochure [Click here].
		<ul style="list-style-type: none"> ▪ Themes on International Training Centres [Click here] and Geothermal Resource Assessment Methodologies. [Click here].
		Revised geothermal heating and cooling targets for the GGA: <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].
		<ul style="list-style-type: none"> ▪ Development of a strategic and forward- looking implementation plan for the GGA.
		Publications: <ul style="list-style-type: none"> ▪ “Powering Agri-Food Value Chains with Geothermal Heat – A guidebook for policy makers” report (June 2022) [Click here].

¹⁴⁰ Argentina, Azerbaijan, Bolivia, Burundi, Chile, Colombia, Comoros, Costa Rica, Djibouti, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, France, Germany, Grenada, Guatemala, Honduras, Iceland, India, Indonesia, Italy, Japan, Kenya, Kingdom of the Netherlands, Malawi, Malaysia, Mexico, Montserrat, New Zealand, Nicaragua, Pakistan, Panama, Papua New Guinea, Peru, Philippines, Poland, Portugal, Romania, Saint Lucia, Saint Vincent & the Grenadines, Solomon Islands, Spain, Switzerland, Tonga, Türkiye, Uganda, United Kingdom, United Republic of Tanzania, United States of America, Uruguay, Vanuatu, Zambia, Zimbabwe.

¹⁴¹ African Development Bank, African Geothermal Association, 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), Atlantic Council, Australian Geothermal Association, Canadian Geothermal Energy Association, Bulgarian Association on Geothermal Energy, Caribbean Electric Utility Services Corporation (CARILEC), Centro Mexicano de Innovación en Energía Geotérmica (CeMIEGeo), Chilean Geothermal Council, Chinese Renewable Energy Industries Association (CREIA), Chinese Renewable Energy Engineering Institute, Colombian Geothermal Association, 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), Geoscience Ireland, Geothermal Association of Ireland, Geothermal Energy Advancement Association, Geothermal Power Plants Investors Association (Türkiye), Geothermal Rising (USA), Geothermal Training Programme in Iceland (GRO GTP), Iceland GeoSurvey, Iceland Geothermal Cluster Initiative, Iceland School of Energy, Inter-American Development Bank, International Geothermal Association, International Renewable Energy Agency, Islamic Development Bank, Macedonian Geothermal Association, Mexican Geothermal Association, National Energy Authority (Iceland), New Partnership for Africa’s Development, New Zealand Geothermal Association, Nordic Development Fund, Organization of American States, Organisation of Eastern Caribbean States, Pacific Community, Peruvian Renewable Energy Association, Queen’s University Belfast, 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 (UNEP), United Nations Industrial Development Organization (UNIDO), United States Energy Association (USA), University of Geneva, Women in Geothermal, World Bank.

		<ul style="list-style-type: none"> ▪ “Global Geothermal Market and Technology assessment” report (Feb 2023) [Click here].
		<ul style="list-style-type: none"> ▪ “Renewable Energy Solutions for Heating Systems in Mongolia: Developing a strategic heating plan” report (Aug 2023) [Click here].
		Events <ul style="list-style-type: none"> ▪ Renewable Energy Solutions for the Heating Sector in Mongolia (Aug 2023) [Click here].
		<ul style="list-style-type: none"> ▪ 25th Meeting of the IRENA Council: <i>Programmatic Discussion on the Global Status of Geothermal Market and Technology</i> (May 2023) [Click here].
		<ul style="list-style-type: none"> ▪ Validation Workshop on the <i>Development of a Strategic Heating Plan for Mongolia</i> (March 2023) [Click here].
		<ul style="list-style-type: none"> ▪ Global Geothermal Alliance Annual Meeting, held during 13th Session of the IRENA Assembly (Jan 2023).
		<ul style="list-style-type: none"> ▪ 2nd High-Level Conference of the Global Geothermal Alliance – <i>Geothermal: Driving the Energy Transition for Fostering Sustainable Development & Climate Action</i> (Sept 2022) [Click here].
		<ul style="list-style-type: none"> ▪ <i>Powering Agri-food Value Chains with Geothermal Heat to Enhance Food Security and Climate Action – Africa</i>, Training, Djibouti (Nov 2022).
		<ul style="list-style-type: none"> ▪ <i>Geothermal as an Integral Energy Solution in SIDS</i> – Workshop, El Salvador (Sept 2022) [Click here].
		<ul style="list-style-type: none"> ▪ <i>Powering agri-food value chains with Geothermal Heat</i> – Latin America Workshop, El Salvador (Sept 2022) [Click here].
		<ul style="list-style-type: none"> ▪ <i>Powering agri-food value chains with Geothermal Heat – Africa Capacity Building</i> Webinar (July 2022) [Click here].
		<ul style="list-style-type: none"> ▪ <i>Powering agri-food value chains with Geothermal Heat – Global Capacity Building</i> Webinar (June 2022) [Click here].
		<ul style="list-style-type: none"> ▪ Capacity building events on <i>Integrating Renewable Energy Solutions in Mongolia’s District Heating Systems</i>, in collaboration with Mongolian Ministry of Energy: <ul style="list-style-type: none"> ➤ <i>Strategic Heating and Cooling Planning</i> (May 2022) [Click here]. ➤ <i>Enabling Framework Conditions and Addressing Technical Barriers</i> (June 2022) [Click here].
		Alliance for Industry Decarbonization (AFID) <p>Facilitation and coordination of the AFID :</p> <ul style="list-style-type: none"> ▪ Growing AFID membership. ▪ Total 50 member companies and 13 ecosystem knowledge partners. ▪ Monthly meetings of six working groups regular meetings: Renewables, Green Hydrogen, Bioenergy with CCUS, Heat optimization, Human Capital and Finance.















		<ul style="list-style-type: none"> Creation of dedicated website - Updated membership, communication of events, news, publications, useful tools and members log in area with document management system. <p>Decarbonization Commitment and Joint Targets to 2030:</p> <ul style="list-style-type: none"> Members of AFID have individual reduction plans that combined aim to reduce 51% of direct and indirect greenhouse gas (GHG) emissions and grow the installed renewable capacity from 84 gigawatts (GW) today to 187 GW in 2030. Alliance members committed to increase workforce re-skilling from currently 15% to 91% and significantly boost investments in energy transition projects to more than USD 50 billion” [Click here].
		<ul style="list-style-type: none"> Development of a strategic and forward- looking implementation plan for the AFID [Click here].
		<p>Publications:</p> <ul style="list-style-type: none"> “Green Hydrogen Unveiled: A Cross-Industry Dialogue for Sustainability” report. “Blueprints for Solutions to Decarbonize Heat in Steel Industry” report. “From Nice to Have.....to Necessity - Accelerating Decarbonisation through BECCUS” report. “Advancing Carbon Capture, Utilization, and Storage (CCUS) - Policies, Regulations, MRVs and Certification” report.
		<p>Tools</p> <ul style="list-style-type: none"> Developed “MyChange” digital platform for the members to raise awareness on the challenges connected to the SDG’s and the Agenda 2030, (December 2023), [Click here].
		<p>Events</p> <ul style="list-style-type: none"> Six thematic events and CEO roundtable on <i>Accelerating implementation of Industrial Decarbonization</i>, COP 28 (Dec 2023) [Click here]. <i>Strategies & technological solutions for achieving carbon emissions reduction under the -1.5 C° scenario</i>, NY Climate Week, (Sept 2023), [Click here]. Online capacity building workshop on <i>Quantifying and reporting greenhouse emissions</i> (Sept 2023) [Click here]. <i>Accelerating net-zero ambitions through clean hydrogen for decarbonization of industrial value chains</i>, CEM Ministerial, (July 2023) [Click here]. <i>Global Panel Discussion on Exploring the role of utilities in decarbonising industrial demand</i>, World Utilities Congress, (May 2023) [Click here]. <i>Decarbonizing industries – Tackling the tough stuff</i>, Hannover Messe, (April 2023) [Click here].
Long-term Energy Scenarios initiative		<p>Membership and partnerships:</p> <ul style="list-style-type: none"> Growing membership, with 29 country members and 13 technical partners. Currently in conversations with India, Spain to join the LTES Network.

and network ^{*142}		<ul style="list-style-type: none"> ▪ Bilateral discussions with technical partners on long-term collaboration, mainly with the following: <ul style="list-style-type: none"> ➤ UNFCCC to continue strengthening the link between long-term energy scenarios and the climate community. ➤ World Energy Council to co-design or co-brand events to support the workstream on participatory and consultation processes for developing long-term energy scenarios for the clean energy transition. ➤ Joint Research Centre (JRC) European Commission, to create a collaborative agreement to address scientific challenges in achieving climate neutrality through accelerated clean energy solutions that includes, among other aspects, knowledge exchanges on Long-Term Energy Scenarios. ➤ GET.transform/GIZ on long-term scenarios and planning in the Global South.
		<ul style="list-style-type: none"> ▪ Workplan survey conducted with members and partners to formulate May 2023-April 2024 working plan.
		<p>Events:</p> <p>Webinar series on <i>Long-Term Energy Scenarios (LTES) For Developing National Energy Transition Plans In Africa</i> (January 2022) [Click here].</p>
		<ul style="list-style-type: none"> ▪ 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].
		<ul style="list-style-type: none"> ▪ Side event at the International Energy Workshop 2022 on <i>Participatory Processes in Long-term Energy Scenario Development</i> (May 2022).
		<ul style="list-style-type: none"> ▪ Side events at the CEM/MI (September 2022) [Click here]. <ul style="list-style-type: none"> ➤ <i>Job Creation and Gender Balance in the Energy Transition: Priority Actions and Perspectives.</i> ➤ <i>Pathways for Rapid Decarbonisation of Power Systems.</i> ➤ <i>The Breakthrough Agenda Report 2022: Accelerating Sectoral Transitions through Stronger International Collaboration.</i> ➤ <i>LTES Campaign Global dialogue on long-term transition pathways for road transport</i> ➤ <i>Facilitating and Accelerating PtX-Market Ramp-up.</i> ➤ <i>Accelerating technology-based carbon removals: BECCS and DAC.</i> ➤ <i>Innovation cooperation: global approaches to enhancing national policies and measuring progress.</i>
		<ul style="list-style-type: none"> ▪ 4th International Forum on Long-Term Energy Scenarios (December 2022). [Click here].
		<ul style="list-style-type: none"> ▪ Side event at 13th IRENA Assembly. <i>National frameworks for scenario development towards net-zero target-setting</i> (January

¹⁴² Supported by the Governments of Denmark and Germany.

		2023). [Click here] .
	▪ Side event at Senior Official’s Meeting Clean Energy Ministerial “ <i>Accelerating the Clean Energy Transition: Insights from the Long-Term Energy Scenario (LTES) Initiative</i> ” (March 2023). [Click here] .	
	▪ Asia webinar series on <i>Long-Term Energy Scenarios (LTES) for the clean energy transition in progress</i> (August 2023) [Click here] .	
	▪ LTES sessions in the margins of the Bonn Climate Change Conference 2023 (SB 58) (June 2023).	
	▪ Side event at Clean Energy Ministerial 14 on <i>Shaping the Future of Energy Systems: Strategic Agenda of the Long-Term Energy Scenarios (LTES) Initiative</i> (July 2023). [Click here] .	
	▪ LTES Network M&P peer-to-peer learning sessions to offer Members & Partners a dedicated platform where they can engage in meaningful discussion on any of the prioritized topics with their peers.	
	Publications and analysis: ▪ Updating of National Energy Transition Planning dashboard (March 2022) [Click here] .	
	Updating of National Energy Transition Planning dashboard (Dec 2023).	
	▪ “Scenarios for the energy transition – Experience and good practices in Latin America and the Caribbean” report (July 2022) [Click here] .	
	▪ “Scenarios for the energy transition – Experience and good practices in Africa” report (January 2023) [Click here] .	
	▪ “Long-term energy scenarios and low-emission development strategies: Stocktaking and alignment” report (January 2023) (with UNFCCC). [Click here] .	
	▪ Participatory processes for developing long-term energy scenarios in governments. ➤ <i>Workshop on participatory processes for developing national long-term energy scenarios during the 4th International Forum on LTES, December 2022.</i> ➤ <i>Virtual workshop on Participatory Processes for Long-term Energy Scenario Development with focus on Country Experiences and Challenges, July 2023.</i> ➤ <i>Virtual workshop Public Participation in Energy and Grid Planning: Sharing regional experiences. November 2023.</i> ➤ <i>Hybrid workshop on stakeholder-driven energy scenarios for a just transition: Dialogue with the scientific community. November 2023.</i>	
	▪ “Follow-up report on Long-term energy scenarios and low-emission development strategies: Stocktaking and alignment.” Analysis at country level.	
	▪ “Planning for the renewable future: Demand Profiles in the context of Clean Energy Transition.”	




Peer-to-Peer Network “Energy Transition Connect”		<ul style="list-style-type: none"> Support provided by an ETC expert towards development of Strategic Heating Plan for Mongolia under GGA.
		<ul style="list-style-type: none"> Support provided by an ETC expert towards development of a guidebook of firm capacity for variable renewable energy in Central America.
Coalition for Action		Reports/briefs published, and events held: <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 (Jan 2022) [Click here].
		<ul style="list-style-type: none"> Public-Private Dialogue at the 13th IRENA pre-Assembly Just and Inclusive Energy Transitions – Social Dialogue, Skills, and Decent Jobs for All (Jan 2023) [Click here].
		<ul style="list-style-type: none"> Coalition Annual Strategy Meeting (Jan 2022).
		<ul style="list-style-type: none"> Coalition Annual Strategy Meeting (Jan 2023).
		<ul style="list-style-type: none"> Coalition for Action “Decarbonising End-Use Sectors: Green hydrogen certification” brief (March 2022) [Click here].
		<ul style="list-style-type: none"> Coalition for Action country papers for Coalition Business and Investors Group: the Philippines (March 2022) [Click here].
		<ul style="list-style-type: none"> Coalition for Action brief on “Finding Common Ground for a Just and Renewable Energy Future: Labour and employers’ perspectives on a just transition” (Aug 2023) [Click here].
		<ul style="list-style-type: none"> Coalition for Action regional/country papers of the Coalition Business and Investors Group: West Africa (Oct 2023) [Click here].
		<ul style="list-style-type: none"> Coalition for Action regional/country papers of the Coalition Business and Investors Group: Argentina and associated bilateral meetings with government representatives.
		<ul style="list-style-type: none"> Coalition for Action white papers on “Community energy benefits” and a “Community energy checklist for governments.”
		<ul style="list-style-type: none"> Coalition for Action white paper on “Towards 100% renewable energy: Opportunities and challenges of sector coupling” [Click here].
		<ul style="list-style-type: none"> Coalition for Action brief on “Comparative review of 100% renewable energy scenarios”.
		<ul style="list-style-type: none"> Coalition for Action white paper on “Boosting social support and public acceptance for a sustainable energy transformation”.
		<ul style="list-style-type: none"> Coalition for Action series of webinars: Labour perspectives, employers’ perspectives and a joint discussion on a just transition convening Coalition members, labour unions and selected governments.

		<ul style="list-style-type: none"> Coalition for Action white paper on “Best practices in integrating renewables into agriculture” and associated webinar with stakeholders.
		<ul style="list-style-type: none"> Coalition for Action white paper on “Making green hydrogen economically viable: opportunities, challenges and key recommendations” and associated webinar with stakeholders.
		<ul style="list-style-type: none"> Coalition for Action white paper on “Green hydrogen and decarbonisation: Creating socioeconomic benefits”.
		<ul style="list-style-type: none"> IRENA Report on “The Role of Citizens in the Energy Transition”.
Resilient Remote Communities ^{*143}		<ul style="list-style-type: none"> Decentralised Renewable Energy Solutions for Remote and Isolated Communities during 13th Session of the IRENA Assembly (Jan 2023).
		<ul style="list-style-type: none"> Guidebook for implementation of decentralised RE in isolated remote communities.
		<ul style="list-style-type: none"> <i>Transitioning remote communities to renewables</i> event during COP27, Egypt (Nov 2022).
Youth Forum		<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 (Jan 2022) [Click here].
		<ul style="list-style-type: none"> 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 (Feb 2022) [Click here].
		<ul style="list-style-type: none"> Fourth IRENA Youth Forum during the 13th Assembly to discuss about empowering youth to lead an equitable energy transition for a sustainable future (Jan 2023) [Click here].
		<ul style="list-style-type: none"> 2022/2023 edition of the IRENA Student Trainee Programme to support Governing Body Meetings.
		<ul style="list-style-type: none"> 2023/2024 edition of the IRENA Student Trainee Programme to support Governing Body Meetings.
		<p>Development of Italy-IRENA Action for Climate Toolkit (I ACT), in cooperation with UNICEF and 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. Training of peer educators from around 50 countries held April/May 2023.¹⁴⁴</p>
		<ul style="list-style-type: none"> Launch of the IRENA New Gen Renewable Energy Accelerator Programme for Youth¹⁴⁵ (May 2023) [Click here].

¹⁴³ Supported by the Government of Canada.

¹⁴⁴ Supported by the Government of Italy.

¹⁴⁵ Supported by the Government of UAE

Youth Talk		▪ Seventh edition of the IRENA Youth Talk (June 2022) [Click here].
		▪ Career guide for young people to determine skill requirements to pursue a professional career in sustainable energy sectors.
		▪ Virtual training workshop for youth on <i>Energy System Modelling for the Energy Transition</i> (September 2022) [Click here].
		▪ Eighth edition of the IRENA Youth Talk on <i>Promoting a Just Energy Transition powered by Youth innovation</i> , held at the Youth Energy Forum during the World Utilities Congress (May 2023) [Click here].
		▪ IRENA Youth Workshop on <i>Accelerating Energy Transition through Peer-to-Peer Education</i> , held at the Youth Energy Forum during the World Utilities Congress (May 2023).
		▪ IRENA-IEEE Townhall on <i>Climate and Sustainability Processes and Engagement of Young Professionals in a Global Setting</i> (April 2023) [Click here].
		▪ Ninth edition of the IRENA Youth Talk organised in cooperation with the Arab Youth Center as part of the Youth4Capacity initiative during UNFCCC Bonn Conference (June 2023).
		▪ IRENA-IEEE Dual Workshop on <i>Young Practitioners Working on Off-Grid Energy Solutions and the Related Policy Environment</i> (Aug 2023) [Click here].
		▪ Youth & Innovators Hub at the IRENA Innovation Week 2023 edition (Sept 2023) [Click here].
		▪ Youth event on <i>Youth-led acceleration of Just Energy transition & resilience in Africa</i> , organised as part of the Youth4Capacity initiative during the Africa Climate Week (Sept 2023) [Click here].
		▪ Youth event organised as part of the Youth4Capacity initiative during the MENA Climate Week (Oct 2023).
		▪ First edition of the IRENA NewGen Rising Starts events at COP28 (Dec 2023).
		▪ Youth event “Youth in Energy Stock Take: Entrepreneurial impact of Youth-Led Energy & Clean technology Startups” organised at COP28 at the Children and Youth Pavilion (Dec 2023).
		▪ Youth event “Enabling youth action on SDG7” organised by IRENA Global Council on Youth for SDG7 at COP28 at the IRENA Pavilion (Dec 2023).
Legislators Forum		▪ 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 (Jan 2022) [Click here].
		▪ IRENA Legislators Dialogue “G20: from Commitment to Action”, held during G20 Energy Week (August 2022) [Click here].

		▪ IRENA Legislators Dialogue “Multi-Actor Partnerships for Renewable Energy” held at COP27 (Nov 2022) [Click here] .
		▪ Eighth IRENA Legislators Forum during the 13 th Assembly to discuss about national strategies on green hydrogen aiming at ensuring a more sustainable energy transition through international co-operation (Jan 2023) [Click here] .
		▪ Parliamentarians Dialogue on <i>Driving Green Growth & Climate Finance Solutions for Africa and the World: Legislative Pathways</i> , held in the margins of the Africa Climate Summit, jointly organised with the Climate Vulnerable Forum’s Global Parliamentary Group (CVF GPG), the United Nations Office for Disaster Risk Reduction (UNDRR), the Global Center on Adaptation (GCA) and the Global Renewables Congress (GRC) (Sept 2023) [Click here] .
		▪ Parliamentarians Dialogue on <i>Upscaling Renewable Energy Deployment for the Good of All: The Role of Legislators</i> , held in the margins of the MENA Climate Week, jointly organised with ParlAmericas, and the Global Renewables Congress (GRC) (Oct 2023).
		▪ IRENA Legislators Dialogue on <i>Tripling renewable energy power by 2023</i> , held in the margins of COP28 (Dec 2023).
		▪ <i>Parliamentary Accountability Summit</i> , held at COP28 in partnership with Climate Vulnerable Forums Global Parliamentary Group (CVF GPG), the United Nations Office for Disaster Risk Reduction (UNDRR), the Global Center on Adaptation (GCA) (Dec 2023) [Click here] .
		▪ Review for Parliamentarians issue n.14.
IRENA Student Leaders Programme		▪ 10-week virtual training for university students consisting of lectures and research assignments. Over 200 trainees from around the world took part in the Spring 2022 Cohort.

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 *		▪ RRA of Burkina Faso. ¹⁴⁶

¹⁴⁶ Supported by the Government of the Walloon Region, Belgium.

		▪ RRA of Bosnia and Herzegovina ¹⁴⁷
		▪ RRA Solomon Islands ¹⁴⁸
		▪ RRA of Chad ¹⁴⁹
		▪ RRA of Somalia.
		▪ RRA Honduras.
		▪ RRA of the Kyrgyz Republic (Dec 2022) [Click here] .
Energy Transition Outlooks* (country level)		▪ Indonesia Energy Transition Outlook report ¹⁵⁰ (Oct 2022) [Click here] .
		▪ Malaysia Energy Transition Outlook report ¹⁵¹ (March 2023) [Click here] .
		▪ Renewable Energy Roadmap for Nigeria* (Jan 2023) [Click here] .
		▪ Renewable Energy Roadmap and FlexTool Analysis for UAE (June 2023)
Policy Framework for Energy Transition (PFET) modules		▪ PFET Targets, with capacity building workshops done in the Arab region and Kyrgyzstan.
Renewable Energy Statistics collection and use * ¹⁵²		▪ Bioenergy survey for monitoring SDGs and NDCs: Ethiopia [phase 1 completed, phase 2 ongoing].
		▪ Bioenergy survey for monitoring SDGs and NDCs – Ghana.
		▪ Bioenergy survey for monitoring SDGs and NDCs – Kazakhstan.
		▪ Bioenergy survey for monitoring SDGs and NDCs – Lesotho.
		▪ Energy surveys for NDC implementation roadmaps – El Salvador.
		▪ Energy surveys for NDC implementation roadmaps – Saint Lucia.
		▪ Energy surveys for NDC implementation roadmaps – Sudan
		▪ Energy surveys for NDC implementation roadmaps – Tonga.
		▪ Data collection support for socioeconomic analysis - Antigua and Barbuda
		▪ Data collection support for socioeconomic analysis – Tonga.
		▪ Integration of energy data into NDC MRV System - Ecuador.

¹⁴⁷ Supported by the Government of Norway.

¹⁴⁸ Supported by the Government of Denmark.

¹⁴⁹ Supported by the Government of the Walloon Region, Belgium.









¹⁵⁰ Supported by the Government of Denmark.

¹⁵¹ Supported by the Government of Denmark.

¹⁵² Supported by the Government of Norway, Denmark and NDC Partnership.

Renewable Energy Policies for Cities ¹⁵³		<ul style="list-style-type: none"> ▪ Maintaining the operation of the SolarCity simulator platform by updating the backend [Click here].
		<ul style="list-style-type: none"> ▪ Adding new functionalities to the SolarCity simulator platform, including translations to French, Portuguese, and Uzbek [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for San Salvador, El Salvador [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for Bamako, Mali [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for Sao Tome, Sao Tome and Principe [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for Khartoum, Sudan [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for Sahinbey, Türkiye [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for Charlestown, Saint Kitts and Nevis [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for Basseterre, Saint Kitts and Nevis [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for Tashkent, Uzbekistan (development conducted with UNDP) [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulator for Honiara, Solomon Island [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulators for Moroni, Fomboni, and Mutsamudu, Comoros [Click here], [Click here], [Click here].
		<ul style="list-style-type: none"> ▪ SolarCity simulators for Ouagadougou, Kossodo, and Bobo Dioulasso, Burkina Faso [Click here], [Click here], [Click here].
		<ul style="list-style-type: none"> ▪ Capacity building on rooftop solar PV potential and the use of the SolarCity simulator <ul style="list-style-type: none"> ➤ Workshop for Mauritius high level government representatives (February 2022, 32 participants). ➤ 2nd NDC Investment Forum under the Caribbean NDC Finance Initiative (July 2022, over 100 participants). ➤ Webinar series on <i>Open-Source Geospatial Solutions for Energy Access</i> organised by the World Resource Institute (April 2022, 40 participants). ➤ Workshop on <i>Project Financing and Design of Bankable (PPA) in AIS and SIDS</i> (Aug 2022) ➤ Webinar on Energy System Modelling for the Energy Transition (September 2022, 25 participants) [Click here]. ➤ Workshop on <i>Project Financing and Design of Bankable (PPA) in the Caribbeans</i> (Nov 2022, 35 participants). ➤ Workshop for Saint Kitts and Nevis high level government representatives (January 2023, 19 participants) [Click here]. ➤ Workshop for Sudan high level government representatives (February 2023, 29 participants). ➤ Workshop for El Salvador high level government representatives, stakeholders, and companies in collaboration with International

¹⁵³ Supported by the Government of Japan and Denmark.

		<p>Solar Alliance (ISA) (May 2023, 66 participants).</p> <ul style="list-style-type: none"> ➤ Workshop for Mali high level government representatives, stakeholders, and companies in collaboration with International Solar Alliance (ISA) (June 2023, 66 participants) [Click here]. ➤ Participation in Workshop organized by UNDP to present methodology of SolarCity simulator for Uzbekistan (May 2023, 33 participants). ➤ Presentation of methodology of SolarCity simulator to the Mayors of South Korea (May 2023, 40 participants). ➤ Workshop for Sao Tome high level government representatives, stakeholders, and companies in collaboration with International Solar Alliance (ISA) (Oct 2023, 35 participants). ➤ Webinar for Uzbekistan high level government representatives, stakeholders, and companies in collaboration with UNDP (Nov 2023, 45 participants) [Click here]. ➤ Presentation of methodology of SolarCity simulator to the government of Honduras during the launch of the RRA (Nov 2023, 25 participants).
Renewable Energy Education and Skills *		<ul style="list-style-type: none"> ▪ Support provided to the Ministry of Education, UAE on how to integrate renewable energy into the national education curriculum.¹⁵⁴
		<ul style="list-style-type: none"> ▪ Development of Italy-IRENA Action for Climate Toolkit (I ACT), in cooperation with UNICEF and 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. Training of peer educators from around 50 countries held April/May 2023.¹⁵⁵
Cross-sectoral assessments for decentralised renewable solutions *		<ul style="list-style-type: none"> ▪ Assessment of DRE solutions for fishing sector in Mauritania¹⁵⁶.
		<ul style="list-style-type: none"> ▪ Assessment of DRE solutions for Agri-food sector in Zimbabwe¹⁵⁷.
		<ul style="list-style-type: none"> ▪ Assessment of DRE solutions for powering health care in Zimbabwe¹⁵⁸.
		<ul style="list-style-type: none"> ▪ Assessment of DRE solutions for Agri-food sector in Nepal¹⁵⁹.
		<ul style="list-style-type: none"> ▪ Assessment of DRE solutions for Agri-food sector in Guinea¹⁶⁰.
		<ul style="list-style-type: none"> ▪ Assessment of DRE solutions for Agri-food sector in

¹⁵⁴ Supported by the Government of the United Arab Emirates.

¹⁵⁵ Supported by the Government of Italy.

¹⁵⁶ Supported by the Government of Italy.

¹⁵⁷ Supported by the Government of the United Arab Emirates.

¹⁵⁸ Supported by the Government of Walloon region, Belgium.

¹⁵⁹ Supported by the Government of the United Arab Emirates.

¹⁶⁰ Supported by the Government of the Walloon region, Belgium.

		Malawi ¹⁶¹ .
		▪ Assessment of DRE solutions for powering health care in Mali ¹⁶² .
		▪ Assessment of DRE solutions for powering health care in Mozambique ¹⁶³ .
		▪ Assessment of DRE solutions for Agri-food sector in Dominica.
African Continental Power Systems Master Plan (CMP) * ¹⁶⁴		▪ Support provided to the development, kick-off and timely finalization of six support studies: Green hydrogen, battery energy storage system, hydro reservoir and pump storage plants, geothermal power plants, wind power, solar power.
		▪ The CMP training programme developed together with AUDA-NEPAD team.
		▪ Continental Africa SPLAT-MESSAGE model completed and undergoing testing.
		▪ Training session #1, one week training sessions with the CMP modelling team in Addis. [Click here] .
		▪ Training session #2, one week training sessions with the CMP modelling team in Cairo. [Click here] .
		▪ Training session #3, one week training sessions with the CMP modelling team in Bonn. [Click here] .
		▪ Training session #4, one week training sessions with the CMP modelling team in Kigali. [Click here] .
		▪ Side event during 13 th Session of the IRENA Assembly (January 2023) to sensitize the CMP initiative and highlight importance of locally owned processes for designing long-term energy scenarios to achieve energy transition.
		▪ Report launched at the 13 th Assembly: Planning and prospects for renewable power: North Africa [Click here] .
		▪ Model supply region (resource zoning for modelling) report.
		▪ Cooperation framework around energy planning hub with GIZ [Contract to be finalized].
		▪ SPLAT web user manual launched to assist new/experienced staff of CMP partners and general modelling community (link)
		▪ “Advancements in continental power system planning for Africa” report (IRENA SPLAT-Africa Model Documentation Version 2023).
		▪ Cameroon national masterplan development support programme [Click here] . ¹⁶⁵
		▪ National masterplan development capacity building programme for Senegal, with GIZ. • Kick-off event [Click here] .

¹⁶¹ Supported by the Government of the Walloon region, Belgium.

¹⁶² Supported by the Government of Walloon region, Belgium.

¹⁶³ Supported by the Government of Walloon region, Belgium.

¹⁶⁴ Supported by the Government of Denmark and the Government of Walloon, Belgium, the European Commission and GIZ.

¹⁶⁵ Supported by the Government of Denmark.

		<ul style="list-style-type: none"> • First training [Click here]. • Second training [Click here].
		<ul style="list-style-type: none"> ▪ Regional modelling analysis & planning support programme for CAPP countries [Phase 2]¹⁶⁶ <ul style="list-style-type: none"> ➤ Programme development with stakeholders ➤ Kick off meeting (Sep 2022) ➤ First training (Oct 2022) ➤ Second training (Nov 2022) ➤ Closing meeting (July 2023) ➤ IRENA publication
		<ul style="list-style-type: none"> ▪ Regional Modelling Analysis & Planning Support Programme for CAPP countries [Phase 1 completed] [Click here].
Climate Action Innovation and Technology: mitigation, adaptation and NDC implementation *		<ul style="list-style-type: none"> ▪ Capacity building workshop on <i>Regional (AFRA) Training Course on Energy Supply Analysis - Modelling and Development of Power System Sub-regional Case Studies</i>, organised with the Ghana Atomic Energy Commission, with the support of IAEA cooperation (31 July-4 August 2023).
		<p>Publications and analysis:</p> <ul style="list-style-type: none"> ▪ Briefs on mitigation analysis in SIDS and LDCs (i.e., Antigua and Barbuda, Saint Kitts and Nevis, Sao Tome and Principe, El Salvador, The Gambia).
		<ul style="list-style-type: none"> ▪ Brief on Power System Resilience for Climate Adaptation.
		<ul style="list-style-type: none"> ▪ “Synthesis of past IRENA grid assessment studies for SIDS” report.
		<ul style="list-style-type: none"> ▪ “Grid Integration Assessment for the Republic of Mozambique” report.¹⁶⁷
		<p>Technical assistance and capacity building:</p> <ul style="list-style-type: none"> ▪ Technology and Infrastructure toolkit including mitigation analysis, transport sector decarbonization.
		<ul style="list-style-type: none"> ▪ Technical assistance for NDC implementation (Sao Tome and Principe, Antigua and Barbuda, Bosnia and Herzegovina, Belarus, Seychelles) and LT-LEDS development support (Kazakhstan and Mongolia).
		<ul style="list-style-type: none"> ▪ Capacity building for NDC implementation (Caribbean SIDS, Southeast Asia, Southern Africa).
		<ul style="list-style-type: none"> ▪ Grid Assessment and Modelling capacity building workshop(s) in Sub-Saharan Africa.¹⁶⁸
		<ul style="list-style-type: none"> ▪ Grid Assessment and Modelling technical assistance and capacity building for SIDS (Seychelles).

¹⁶⁶ Supported by the Government of the Walloon Region, Belgium.

¹⁶⁷ Supported by the Government of Norway.

¹⁶⁸ Supported by the Government of the Walloon Region, Belgium.

		<ul style="list-style-type: none"> Implementation of Quicksans activities in SIDS.¹⁶⁹
		<ul style="list-style-type: none"> Support at a technical and organisational level with planning efforts, to establish an intergovernmental Global Offshore Wind Alliance (GOWA), in collaboration with international stakeholders. 14 member countries joined the Alliance including Australia, Belgium, Colombia, Denmark, Germany, Ireland, Japan, Portugal, Saint Lucia, Spain, the Netherlands, Norway, the UK, and the US.
		Events <ul style="list-style-type: none"> Contribution to the Bonn Climate Change Conference for the Ocean and Climate Change Dialogue (June 2022) [Click here].
		<ul style="list-style-type: none"> Global Offshore Wind Alliance COP27 launch event on <i>Offshore Wind as a Key Solution to the Climate and Energy Security Crises</i> [Click here].
		<ul style="list-style-type: none"> Global Offshore Wind Alliance High Level Event at IRENA Assembly [Click here].
		<ul style="list-style-type: none"> Kick-off meeting of the Global Offshore Wind Alliance (GOWA) [Click here].
		<ul style="list-style-type: none"> Global Offshore Wind Alliance High Level Event at European Sustainability Energy Week (EUSEW).
		<ul style="list-style-type: none"> Support to other COP27 events and activities. [Click here].
		<ul style="list-style-type: none"> Climate Action webinars in preparation for COP27 and COP28.
		<ul style="list-style-type: none"> “IRENA’s Energy Transition Support to Strengthen Climate Action: Insight to Impact 2022” report (Nov 2022) [Click here].
		<ul style="list-style-type: none"> “The Breakthrough Agenda Report 2022: Accelerating Sector Transitions through Stronger International Cooperation” report (Sept 2022) [Click here].
		<ul style="list-style-type: none"> “The Breakthrough Agenda Report 2023: Accelerating Sector Transitions through Stronger International Cooperation” report (Sept 2023) [Click here].
		<ul style="list-style-type: none"> IRENA is engaging with 88 countries on NDC enhancement and NDC implementation through direct country request and institutional partners.¹⁷⁰ <ul style="list-style-type: none"> Scoping/on hold (13) Work plan development (06) Implementation of Support (24) Input to NDC already provided (45) Climate action support provided to Albania, Bahamas, Belarus, Belize, Benin, Bhutan, Burkina Faso, Cameroon, Cuba, Dominican Republic, Ecuador, Eswatini, Fiji, Gabon, Grenada, Indonesia, Jordan, Kazakhstan, Kyrgyz Republic, Lebanon, Lesotho, Liberia, Mali, Mauritius, Mozambique, Myanmar, Nepal, Nicaragua, Niger, Nigeria, North Macedonia, Papua

¹⁶⁹ Supported by the Government of Denmark.










¹⁷⁰ Supported by NDC CAEP and United Nations Development Programme.

		<p>New Guinea, Paraguay, Saint Lucia, Seychelles, South Africa, Sudan, The Gambia, Türkiye, Uganda, United Arab Emirates, Uruguay, Vanuatu, Zambia, Zimbabwe, in reviewing mitigation and adaptation targets set by countries towards the enhancement of their NDC.</p> <ul style="list-style-type: none"> Climate action support on-going to Antigua and Barbuda, Bosnia and Herzegovina, Burkina Faso, Chad, Colombia, Comoros, Dominica, El Salvador, Ethiopia, Georgia, Ghana, Honduras, Lao PDR, Mongolia, Palau, Panama, Guinea, Malawi, Somalia, Saint Kitts and Nevis, Saint Vincent and Grenadines, Samoa, Tonga, Sao Tome and Principe, Solomon Islands, towards the implementation of their NDC. Climate action support under preparations to Afghanistan, Argentina, Barbados, Egypt, Kiribati, Micronesia (Federal States of), Moldova, Jamaica, Morocco, Syrian Arab Republic, Thailand, Tuvalu, Saudi Arabia, Pakistan, Trinidad and Tobago, Iraq, Senegal, and Ukraine, Uzbekistan, towards the implementation of their NDC.
		<ul style="list-style-type: none"> IRENA's contribution to LTS support includes 6 work packages which exist within the LTS development and review in the following countries Ecuador, Kazakhstan, The Gambia, Jordan, and Mongolia.
		<p>Events</p> <ul style="list-style-type: none"> Support to Latin America and Caribbean Climate Week (July 2020) [Click here].
		<ul style="list-style-type: none"> Support to MENA Climate Week (March 2022) [Click here].
		<ul style="list-style-type: none"> Support to Africa Climate Week (Aug-Sept 2022) [Click here].
		<ul style="list-style-type: none"> Support to Africa Climate Week (September 2023) [Click here]
		<ul style="list-style-type: none"> Support to Asia Pacific Climate Week (November 2023)
Climate Investment Platform implementation: 14 clusters ^{*171}		<p>CIP coordination.</p> <ul style="list-style-type: none"> 394 partners registered.
		<ul style="list-style-type: none"> 427 projects registered.
		<ul style="list-style-type: none"> 207 projects eligible for support.
		<ul style="list-style-type: none"> 87 projects (2.27GW) actively supported through development of Project Information Documents (PIDs) or Project Information Sheet (PIS).
		<ul style="list-style-type: none"> 39 projects that received technical assistance in the form of completed PIDs.
		<ul style="list-style-type: none"> 13 projects matched to financing partners.

¹⁷¹ Supported by UNDP and the Governments of Denmark (SIDS), Norway; and 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.











		<ul style="list-style-type: none"> Development of online platform (CRM) to semi-automate the work of the CIP.
		<ul style="list-style-type: none"> CIP Webinar focused on developers in LATAM region (July 2023).
Energy Transition Accelerator Financing Platform * (ETAF) ¹⁷²		<p>ETAF Partnerships Mobilisation</p> <ul style="list-style-type: none"> USD 400m commitment announced by UAE through ADFD USD 200m commitment announced by Masdar USD 300m commitment announced by AIIB De-risking products commitment announced by Swiss Re. USD 250m commitment announced by OPEC Fund USD 100m commitment announced by IDB USD 350m commitment announced by EDB USD 250m commitment announced by Islamic Development Bank De-risking products commitment announced by ICIEC USD 1000m commitment announced by EBRD USD 1000m commitment announced by IFC De-risking products commitment announced by MIGA USD 200m commitment announced by HSBC
		<ul style="list-style-type: none"> Five ETAF Partners' meeting held during 2023.
		<ul style="list-style-type: none"> The ETAF Joint Declaration (Governance document) signed by partners in October 2023.
		<ul style="list-style-type: none"> ETAF Webinar: Mastering project submission (May 2023).
		<ul style="list-style-type: none"> ETAF Webinar focused on LATAM region (Sept 2023).
		<ul style="list-style-type: none"> Project facilitation showcase and announcement of new ETAF partners event at COP 28 (Dec 2023) [Click here].
		<ul style="list-style-type: none"> Project facilitation Ministerial dialogue (Dec 2023) [Click here].
		<p>Project Pipeline</p> <ul style="list-style-type: none"> 45 project proposals have been submitted on the ETAF Platform. Three batches of projects presented to partners (May 2023, Jun 2023, Aug 2023) 14 project proposals recommended to partners. Three solar PV projects (Uzbekistan, total of 897MW) have benefitted from ETAF partners' financial support (USD 1 bn in financing).
Risk Mitigation Facility *		<ul style="list-style-type: none"> Concept note developed.
		<ul style="list-style-type: none"> Procurement of consultant services for the Market Assessment.
		<ul style="list-style-type: none"> Conducted market assessments for affordable financing of DRE solutions to power Agri-food











¹⁷² Supported by the Government of Norway and the Abu Dhabi Fund for Development.

		sector in Rwanda and Uganda.
Facilitation and development of a pipeline of projects *		<ul style="list-style-type: none"> ▪ Engagement with UN Agencies, MDBs and other stakeholders to further develop a project pipeline.
Project site assessments and feasibility assessments ¹⁷³		<ul style="list-style-type: none"> ▪ Project site assessment for 12 solar PV, parabolic trough collector, and onshore wind sites earmarked for project development in El Salvador.
		<ul style="list-style-type: none"> ▪ Project site assessment for 9 solar PV, parabolic trough collector, and onshore wind sites earmarked for project development in Mali.
		<ul style="list-style-type: none"> ▪ Support Mauritania in wind concessions area allocation for green hydrogen production zones.
		<ul style="list-style-type: none"> ▪ Project site assessment for 5 onshore wind sites earmarked for project development in Montserrat.
		<ul style="list-style-type: none"> ▪ Calculated country-wide capacity factor profiles for Bolivia, Peru, and Paraguay
		<ul style="list-style-type: none"> ▪ RE potential assessment for utility-scale solar PV and wind projects in Africa and Latin America, including Mali, El Salvador, and Colombia.
		<ul style="list-style-type: none"> ▪ Analysis of Global Small Hydropower potential based on IRENA Global Atlas datasets [pg 12-13: Click here].
		<ul style="list-style-type: none"> ▪ Improvement of zoning assessment methodology – energy profiles and costing calculations.
		<ul style="list-style-type: none"> ▪ Extended the project site assessment service to include concentrated solar power (CSP) technologies – parabolic trough collector (PTC), central receiver system (CRS), and linear Fresnel reflector (LFR).
		<ul style="list-style-type: none"> ▪ Development of training material on concentrated solar power (CSP) technologies – parabolic trough collector (PTC), central receiver system (CRS), and linear Fresnel reflector (LFR).
		<ul style="list-style-type: none"> ▪ Capacity building for: <ul style="list-style-type: none"> ➢ Arab States on resource potential assessment and zoning analysis (February 2022, 29 participants). ➢ Training on resource assessment during IRENA's Student Leadership Program (April 2022, 150 participants). ➢ African countries on renewable potential assessment, workshop organised by Commonwealth, AfDB, and Chatham House (July 2022, 60 participants). ➢ Mozambique on generation profiles, workshop on grid integration analysis (July 2022). ➢ Mozambique on Wind Power organised by Global Wind Energy Council (October 2022, 33 participants). ➢ Renewable Potential Assessment: African Countries, 2023 Global Energy Interconnection Conference, Energy-Meteorology Synergy Development Parallel Session (September 27, 80 participants).

¹⁷³ Supported by the Government of the Walloon Region, Belgium.


		<ul style="list-style-type: none"> ▪ Bilateral discussions with high level technical partners on long-term collaboration, mainly with the following: <ul style="list-style-type: none"> ➤ Mauritania on wind concession area allocation for green hydrogen production zones ➤ European Space Agency (ESA) on using their satellite-based data in IRENA's resource assessment tools and services. ➤ World Meteorological Organisation on impact of climate change on renewables deployment globally.
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ADDITIONAL OUTPUTS		
Strategic Management		
Outputs	Status	Description
Governance Support Office		In-person engagement with Members to discuss and exchange views on enhancing strategic collaboration through the coordination of over 110 high-level Members' visits to the IRENA HQ (Heads of States, Ministers of Foreign Affairs, Ministers of Energy, Special Envoys for Climate Change, etc.).
		▪ 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.
		▪ In-person engagement with IGOs, Academia and Private Sectors representatives to discuss and exchange views on enhancing strategic collaboration.
		Governing Body meetings: ▪ Organisation and conduct of the 12 th session of the IRENA Assembly for peer-to-peer engagement among Members and Stakeholders (January 2022) [Click here].
		▪ Summary Report of the 12 th session of the IRENA Assembly [Click here].
		▪ 23 rd Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) [Click here].
		▪ Summary Report of the 23 rd Council meeting [Click here].
		▪ 24 th Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) [Click here].
		▪ Summary Report of the 24 th Council meeting [Click here].
		▪ Organisation and conduct of the 13 th session of the IRENA Assembly for peer-to-peer engagement among Members and Stakeholders (January 2023) [Click here].

		<ul style="list-style-type: none"> Summary Report of the 13th session of the IRENA Assembly [Click here].
		<ul style="list-style-type: none"> 25th Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) (May 2023) [Click here].
		<ul style="list-style-type: none"> Summary Report of the 25th Council meeting [Click here].
		<ul style="list-style-type: none"> 26th Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) (Oct 2023) [Click here].
		<ul style="list-style-type: none"> Organisation of the 14th session of the IRENA Assembly for peer-to-peer engagement among Members and Stakeholders (Part I in Jan 2024 and Part II in April 2024).
		High-Level Meetings: <ul style="list-style-type: none"> Second edition of the Global High-Level Forum on Energy Transition.
		Permanent Representatives: <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 36 ceremonies for the Presentation of Credential Letters and in an increased number (70) of accredited Permanent Representatives.
		<ul style="list-style-type: none"> 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].
		<ul style="list-style-type: none"> Eighth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Embassy of Switzerland to the UAE aiming at fostering discussion about delivering transformative change to coastal communities and island territories through the innovative power of renewables (April 2022) [Click here].
		<ul style="list-style-type: none"> Ninth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Embassy of Malta to the UAE (Nov 2022) [Click here].
		<ul style="list-style-type: none"> Tenth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Permanent Mission of UAE to IRENA (Dec 2022) [Click here].
		<ul style="list-style-type: none"> Eleventh edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Delegation of the European Union to UAE (April 2023) [Click here].
		<ul style="list-style-type: none"> Twelfth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Royal Danish Embassy to UAE (June 2023) [Click here].
		<ul style="list-style-type: none"> Thirteenth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Permanent Mission of UAE to IRENA (Oct 2023) [Click here].









		<ul style="list-style-type: none"> On-going preparation for the last quarterly edition of the Renewables Talk for IRENA Permanent Representatives for 2023.
		Women in Diplomacy <ul style="list-style-type: none"> First edition of the Women in Diplomacy, held in the margins of the twenty-fourth meeting of the IRENA Council (Oct 2022).
		<ul style="list-style-type: none"> Second edition of the Women in Diplomacy, held in the margins of the thirteenth session of the IRENA Assembly (Jan 2023).
		<ul style="list-style-type: none"> Third edition of the Women in Diplomacy, held in the margins of the twenty-fifth meeting of the IRENA Council (May 2023).
		<ul style="list-style-type: none"> Fourth edition of the Women in Diplomacy, held in the margins of the twenty-sixth meeting of the IRENA Council (Oct 2023).
New York Liaison Office		<ul style="list-style-type: none"> Facilitation of participation of the UN high-level stakeholders at the 13th session of the IRENA Assembly.
		<ul style="list-style-type: none"> Facilitation of participation of the UN high-level stakeholders at the 12th session of the IRENA Assembly.
		<ul style="list-style-type: none"> Follow up on the implementation of the UN-Energy Plan of Action.
		<ul style="list-style-type: none"> Preparation and submission of inputs to the thematic review of the 2023 UN High-level Political Forum on Sustainable Development [Click here].
		<ul style="list-style-type: none"> Preparation of the official side event of the High-Level Political Forum on Sustainable Development on Financing SDG 7: Solidarity, Equity and Ambition (July 2023) [Click here].
		<ul style="list-style-type: none"> Coordination of IRENA participation in the 2022 UN High-level Political Forum on Sustainable Development, including side events.
		<ul style="list-style-type: none"> Coordination of IRENA participation in the 2023 UN High-level Political Forum on Sustainable Development, including side events.
		<ul style="list-style-type: none"> Outreach to selected UN bodies and New York based Permanent Missions on the launch of the World Energy Transitions Outlook 2023.
		<ul style="list-style-type: none"> Outreach to selected UN bodies and New York based Permanent Missions on the launch of the World Energy Transitions Outlook 2022.
		<ul style="list-style-type: none"> Engagement with the New York based Permanent Missions to the UN with the purpose of strengthening IRENA voice at the UN level.
		<ul style="list-style-type: none"> Engagement with the UN system based in New York for the purpose of exploring opportunities to work closely on the ground.
		<ul style="list-style-type: none"> Support to preparation of the “Tracking SDG 7: The Energy Progress 2023” Report.






		▪ Support to preparation of the “Tracking SDG 7: The Energy Progress 2022” report.
		▪ Inputs to the UN-Energy Annual Report.
		▪ Coordination of IRENA inputs to the UN Interdepartmental Taskforce on African Affairs (IDTFAA) with the focus on energy financing, technology and innovation, planning.
		▪ IRENA inputs to 2023 ECOSOC Forum on Financing for Development.
		▪ IRENA inputs to 2022 ECOSOC Forum on Financing for Development.
		▪ IRENA inputs to Political Declaration of the 2023 SDG Summit.
		▪ Participation in the Global South-South Development Expo 2022 and showcasing of IRENA products to the Global South in support to energy transition and achievement of SDGs.
		▪ Coordination of IRENA’s participation in the 2023 UN High-Level Week.
		▪ Coordination of IRENA’s participation in the 2022 UN High-Level Week.
		▪ Finalisation of and support to the launch of the joint UNOHRRLLS-IRENA report “Scaling up Renewables in LLDCs”.
		▪ Statements delivery and discussions on the related aspects of the work of the Second Committee of the 78 th General Assembly.
		▪ Engagement with the New York based Permanent Missions in light of the General Assembly Resolution “Ensuring access to affordable, reliable, sustainable and modern energy for all”; preparation and dissemination of the inputs to the Resolution.
		▪ Engagement with the New York-based Permanent Missions in light of the General Assembly Resolution 77/327 on “International Day of Clean Energy”; preparation and dissemination of elements of language and strategies throughout the negotiations. By this resolution, the UN General Assembly proclaimed the 26th of January (the anniversary of the founding of IRENA in 2009) as the International Day of Clean Energy [Click here] .
		▪ Coordination and facilitation of IRENA participation at the LDC5 conference (Doha, 5-9 March 2023); Delivery of IRENA statement [Click here] .
		▪ Facilitation of participation of the UN high-level stakeholders at the 13th session of the IRENA Assembly.

Legal Office		The Legal Office has been providing legal advice and guidance in relation to all the areas of activity of the Agency. More than 300 requests for assistance have been processed from 1 January to the end of November 2023 covering, among others, institutional and governance matters; preparation of and advise on the preparation of internal issuances, guidelines and directives; administrative matters and others related to human resources (HR); commercial contracts; collaborative arrangements, agreements and strategic partnerships; communications; and publications matters, as further described below.
		Institutional and governance matters: The Legal Office provided legal support for the preparation and conduct of the 25 th and 26 th Council. In sum, the Legal Office advised individual Members in their submission of the credentials; and reviewed from a legal perspective the relevant documentation submitted to IRENA's governing bodies. The Legal Office has been involved on matters concerning the interpretation and application of the Statute of IRENA and the Rules of Procedure of the Council. Furthermore, the Legal Office has provided legal support as needed in connection to proposals and queries submitted by the Members to IRENA and in relation to the credentials submitted by the Members for their Permanent Representatives.
		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.
		Administrative and HR matters: The Legal Office has been closely involved in advising on several HR matters, including but not limited to advising on internal appeals and the proposed revisions to the IRENA's Code of Conduct. The Legal Office has also been involved in establishing an internal approval process for the representation of IRENA in organs of outside entities.
		Cooperation arrangements and commercial contracts: More than 10 requests have been processed concerning conclusion of cooperation arrangements, including MoUs, partnership agreements, cooperation agreements, voluntary contributions, etc. Several 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, including those relevant for the IRENA's platforms, such as ETAF. Specifically, the Legal Office supported the negotiations and finalisation of the ETAF Joint Declaration with partner institutions.


		Communications and ICT: The Legal Office has been closely involved in providing legal support on matters relating to the fraudulent use of IRENA's name and logo. The Legal Office has also been closely involved in the review of licensing agreements with third parties for their use of images that are part of IRENA's communication materials.
		Publications: The Legal Office has been providing advice on matters related to the use of IRENA's intellectual property, use of IRENA's name and logo, disclaimers, etc. It has also provided advice on the conclusion of data sharing agreements for the use of data owned by third parties in IRENA's publications.
		Other matters: The Legal Office has been providing 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.
Events Unit		<ul style="list-style-type: none"> Events and Missions database for internal and external communication maintained.
		<ul style="list-style-type: none"> Organised 233 events since January 2023, of which 70 were virtual and 153 were in-person.
		<ul style="list-style-type: none"> Student Leaders Programme, part of Growth@IRENA programme: Around 500 IRENA Alumina students were reached out to be engaged during IRENA's Youth events at Abu Dhabi Sustainability Week 2023, COP28 youth related events as well as other youth and educational engagement throughout 2023.
		<ul style="list-style-type: none"> Outreach activities with the UAE, including COP 28 World Government Summit, Abu Dhabi Sustainability Week (ADSW)/ The World Future Energy Summit (WFES), Abu Dhabi Global Markets (ADGM), Abu Dhabi Creative Hub, Dubai Cares, Dubai Electricity & Water Authority (DEWA) Innovation Centre and Arab Youth Council/ International day of clean energy/world utilities congress/ UAE climate tech/ Abu Dhabi Environmental Research Network/ ADSW web series: The Role of Education in shaping a Net Zero Future Ma'an Social Incubator/ Global Institute for Disease Elimination (GLIDE)/ Renewable Emoji initiative/ Dubai Cares/ Arab Youth Center/ Student Energy Summit in Abu Dhabi/ Collaboration with Masdar City Festival During COP28/ Collaboration with Abu Dhabi Aviation..
		<ul style="list-style-type: none"> Continue to maintain the Fund for Developing Country Representatives (FDCR) and supported the participation of 85 eligible LDC and SIDS Members to attend the 13th IRENA Assembly, 25th and 26th Council and related meetings.
Diversification of resource base		Contributions concluded in 2022-23: <ul style="list-style-type: none"> Australia (Solar supply chain & Breakthrough Agenda report) Walloon region, Belgium (Various projects, focus on French speaking Africa). Flanders region, Belgium (FDCR)

		<ul style="list-style-type: none"> ▪ Denmark (IRENA support for 2023-2027) ▪ European Commission (RETOs, Innovation) ▪ Germany BMWK (G7 support on Hydrogen, WETO and LTS; CEM), PTB (Quality infrastructure for Green Hydrogen) & GIZ (Senegal clean energy transition) ▪ Japan METI (Various projects) ▪ Japan MAFF (Biomass Strategy for Sustainable Bioenergy Production) ▪ Luxembourg (Various projects) ▪ Republic of Korea (seconded official) ▪ Netherlands (Geopolitics) ▪ Norway (Various projects, extension with additional funds) ▪ United Arab Emirates (COP28, Greening peacekeeping operations, UAE Flextool, Clean cooking, education, and FDCR) ▪ United Kingdom, BEIS (Breakthrough Agenda) ▪ Open Society Foundation (Lives & Livelihoods) ▪ Rockefeller Brothers Fund (Acceleration Partnership for Renewables in Africa) ▪ UNDP (Climate Promise & Market Transformation for Sustainable Rural Housing in Uzbekistan) ▪ UNOPS (Climate Vulnerable Fund)
Monitoring and evaluation system		▪ Development of IRENA's Theory of Change.
		▪ Internal coordination to improve and enhance IRENA's M&E system.
		▪ Development of a results-based management system.
Programmatic reports to the Council and Assembly		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] .
		24th meeting of the IRENA Council: <ul style="list-style-type: none"> ▪ "Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023" [Click here].
		▪ Draft Medium-term Strategy 2023-2027 – Report of the Director-General [Click here] .
		▪ Since January 2022, IRENA Director-General attended 534 events and held 897 bilaterals with representatives from different entities (including regional bodies, non-governmental organisations and the sector as well as 88 Governments.)

		<ul style="list-style-type: none"> Active outreach by IRENA Deputy Director-General and Director to Members, intergovernmental organisations, multilateral and regional entities and other stakeholders.
		13th session of the IRENA Assembly: <ul style="list-style-type: none"> “Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023” (Dec 2022) [Click here].
		<ul style="list-style-type: none"> Medium-term Strategy 2023- 2027 (Dec 2022) [Click here].
		25th 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” (April 2023) [Click here].
		<ul style="list-style-type: none"> Draft Framework for the Work Programme and Budget 2024-2025 (April 2023) [Click here].
		26th meeting of the IRENA Council: <ul style="list-style-type: none"> “Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023” (Oct 2023) [Click here].
		<ul style="list-style-type: none"> “Proposed Work Programme and Budget 2024-2025” (Sept 2023) [Click here].
		<ul style="list-style-type: none"> “Work Programme Self-Assessment (2022-2023)” report (Oct 2023) [Click here].
		14th session of the IRENA Assembly: <ul style="list-style-type: none"> “Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023” (Dec 2023).
		<ul style="list-style-type: none"> “Work Programme and Budget 2024-2025” (Dec 2023).

Enabling IRENA delivery		
Outputs	Status	Description
Upgrades and enhancements to the IRENA website, platforms, and other IT systems.		<ul style="list-style-type: none"> CIP back-end processing tool.
		<ul style="list-style-type: none"> ETAF platform enhancements.
		<ul style="list-style-type: none"> Country Engagement Platform launched.
		<ul style="list-style-type: none"> New IRENA Intranet launched, as well as other enhancements.
		<ul style="list-style-type: none"> Website upgrade - new website launched as well as enhancements for COP28.
		<ul style="list-style-type: none"> ERP quarterly upgrades for 2022 and 2023 completed successfully.

		▪ Enhancements in ERP reporting and other modules (HR, Budget, Finance) implemented.
		▪ Executive dashboard and other Dashboards enhancements implemented [Staff accounts, Events, Procurement and Ethics dashboard completed, others].
		▪ New ERP Recruitment module implemented.
		▪ Continuous support to hybrid and virtual events including collaborative framework meetings and COP28.
Efficient budget services		▪ 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.
		▪ Budget Section supported development and rollout of internal Executive budget dashboard, and its maintenance.
Delivery of efficient financial services		▪ IRENA and IRENA SPF 2022 Audited Annual Financial Statements submitted to Assembly.
		▪ IRENA and IRENA SPF 2021 Audited Annual Financial Statements submitted to Assembly.
		▪ Provision of full financial services to the Agency.
Support to the Provident Fund operations		▪ Annual meeting of members conducted on 22 March 2022.
		▪ Annual meeting of members conducted on 30 March 2023.
		▪ PF Management Board holds quarterly meetings to review Provident Fund performance.
Efficient procurement services		▪ Maintain open, fair, transparent, and competitive procurement bidding process in line with relevant regulations and policies.
		▪ Develop a process of procurement operation through establishment of 34 Long-Term Agreements LTA to allow for an effective and efficient response and implementation of work programme.
		▪ Automate the annual and quarterly procurement plan continues to be maintained and updated throughout the year.
Effective general and travel services		▪ Administration support, enhancement of Facility Management and other services.
		▪ Health and Safety program continues to take further measures to enhance the work environment.

		<ul style="list-style-type: none">▪ Travel Logistic services: 2000 travel services for 74 workshops worldwide, for the period of 1 January to 23 November 2023.
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