



# **ANNUAL REPORT OF THE DIRECTOR-GENERAL**

on the implementation  
of the Work Programme  
and Budget for **2022-2023**

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The International Renewable Energy Agency (IRENA) serves as the principal platform for international co-operation, a centre of excellence, a repository of policy, technology, resource and financial knowledge, and a driver of action on the ground to advance the transformation of the global energy system. An intergovernmental organisation established in 2011, IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy, in the pursuit of sustainable development, energy access, energy security and low carbon economic growth and prosperity.

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# IRENA AT A GLANCE



## DIRECTOR GENERAL

Francesco La Camera  
Director-General  
since 4 April 2019



## DEPUTY DIRECTOR GENERAL

Gauri Singh  
Deputy Director-General  
since 8 January 2020



**Year of establishment**  
**2011**

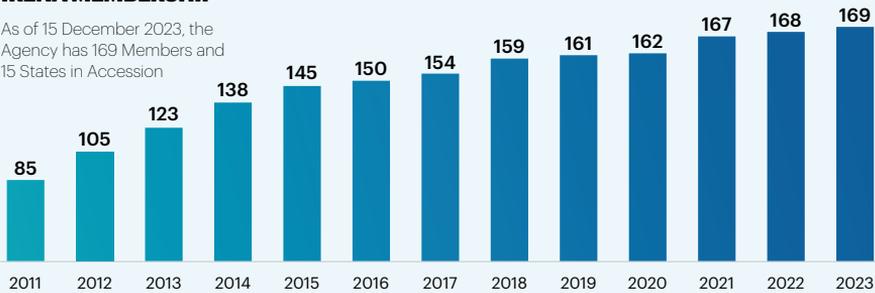


## Offices

Headquarters in Abu Dhabi  
Innovation and Technology Centre in Bonn  
UN liaison office in New York

## IRENA MEMBERSHIP

As of 15 December 2023, the Agency has 169 Members and 15 States in Accession



## 14<sup>TH</sup> ASSEMBLY BUREAU



**President:** Rwanda

### Vice-Presidents:



Angola



Dominican Republic



Georgia



Iraq

## COUNCIL

21 Members

### 27<sup>TH</sup> Council

Chair-designate: Zimbabwe

Vice-Chair-designate: Bangladesh

### 28<sup>TH</sup> Council

Chair: TBC

Vice-Chair: TBC

## Committees

### Administration & Finance

Chair:  Tonga

Vice-Chair:  United Arab Emirates

### Programme & Strategy

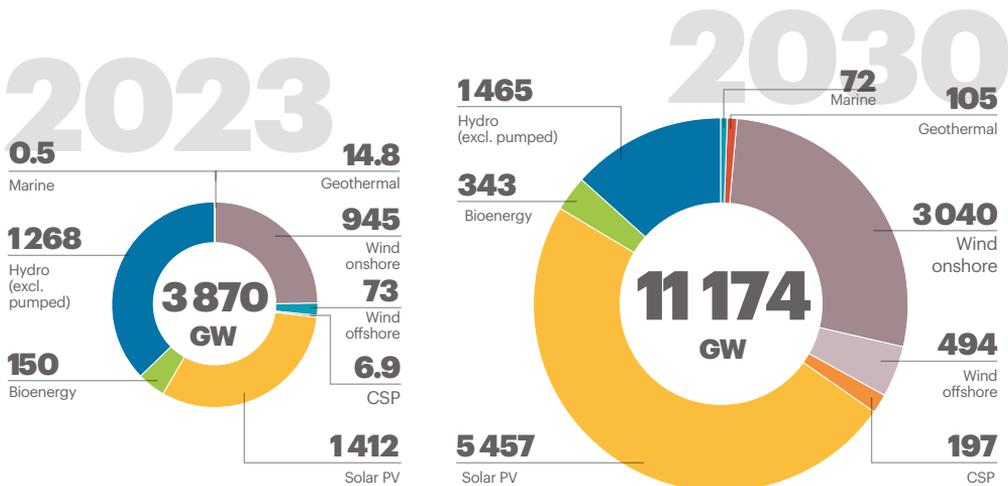
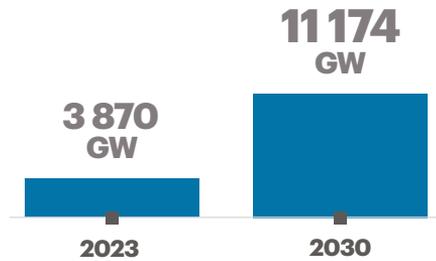
Chair:  El Salvador

Vice-Chair:  United States

# ENERGY TRANSITION AT A GLANCE

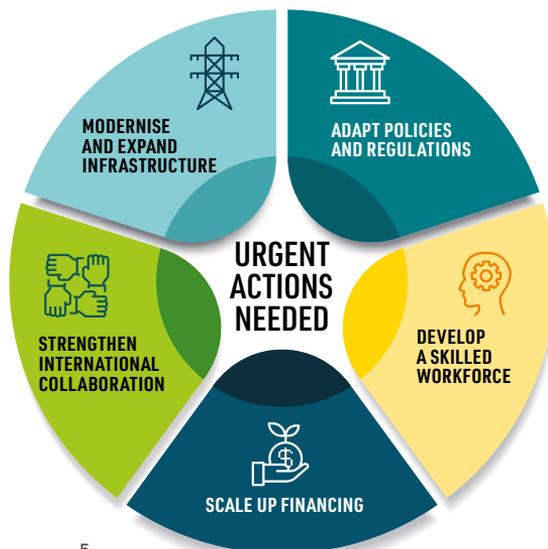
## More **ACTION** is needed to **TRIPLE RENEWABLE CAPACITY BY 2030**

Installed renewable capacity will need to **reach 11 000+ GW**



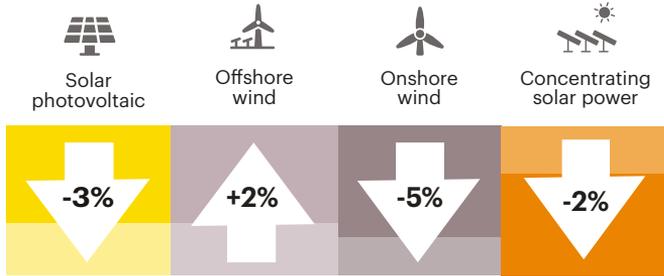
## SYSTEMIC GLOBAL CHANGE

is required to overcome barriers to the transition

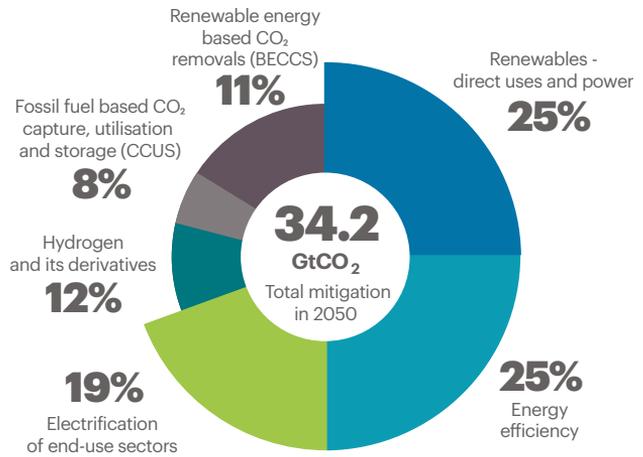


## Most renewable power generation COSTS continue to fall

Year-on-year percentage reduction 2021-2022 (levelised cost of electricity, newly commissioned)



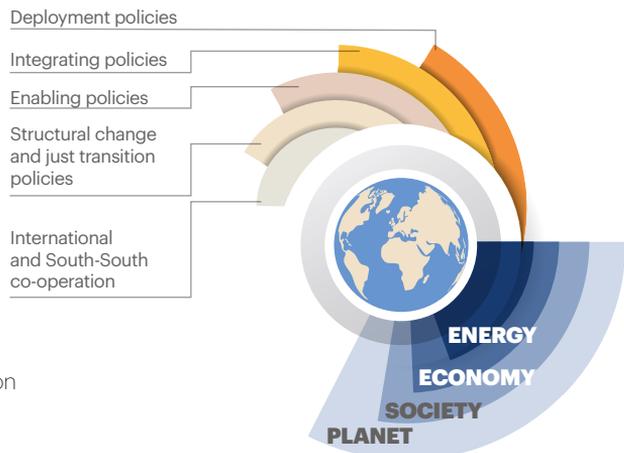
## Technological SOLUTIONS are readily available



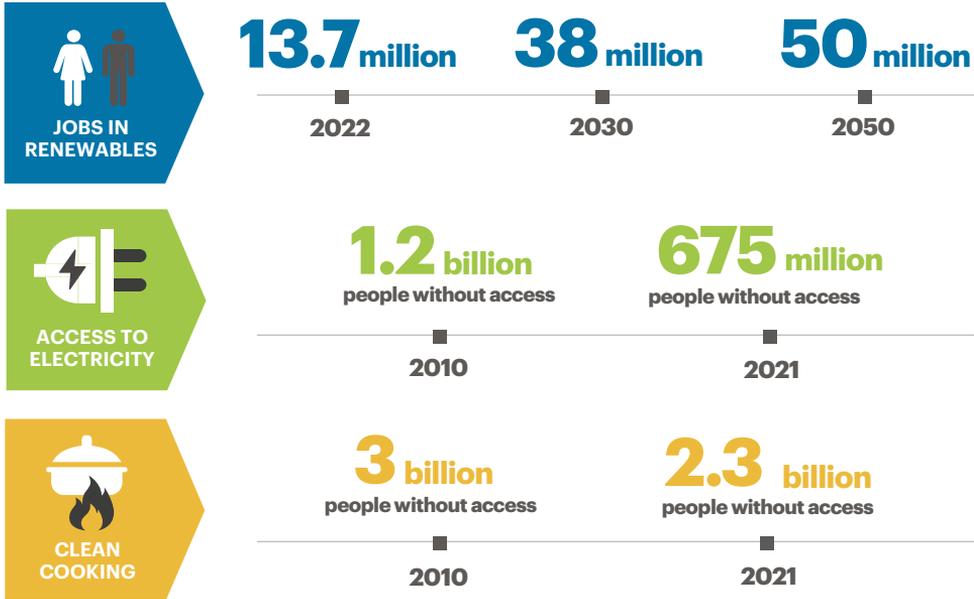
Reducing emissions by 2050 through six technological avenues

## POLICY is crucial

**An enabling policy framework**  
for a just and inclusive energy transition



The energy transition has positive **IMPACTS** on people, climate and communities



The energy transition should **LEAVE NO ONE BEHIND**



In **2022**, half of the world's population - mainly in developing and emerging economies - received **less than 15%** of investment

We must act **NOW** to **TRIPLE** renewable generation capacity by **2030**

# SECRETARIAT AT A GLANCE



**109** publications released

- World energy transitions outlook 2023
- Renewable power generation costs in 2022
- Global landscape of renewable energy finance 2023
- Geopolitics of the energy transition: Critical materials
- Innovation landscape for smart electrification

**55** reports **54** papers and briefs

**15**

publications translated into nine languages



**12 073**

applications received for 53 vacancies



**223**

events organised/co-organised by IRENA

**70** virtual events + **153** hybrid 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

Senior Management Team gender balance



**9**

loaned or seconded officers



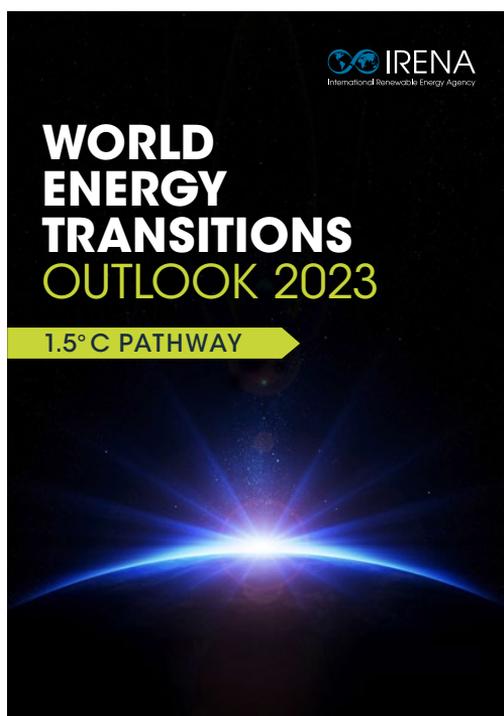
**MEDIA COVERAGE**

**67 100** in **58** across **177**  
media articles languages countries

**1.5 million** visitors to irena.org

**5 million** page views

# 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 to improve lives and add value at the local, regional and global levels. As articulated in IRENA's flagship **World Energy Transitions Outlook (WETO)**<sup>1</sup> its aims were to fill knowledge gaps, shape just and inclusive transitions and drive investment at scale towards a renewables-based energy system worldwide.

This report presents the implementation of the Agency's programmatic activities since January.

The WETO preview 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.

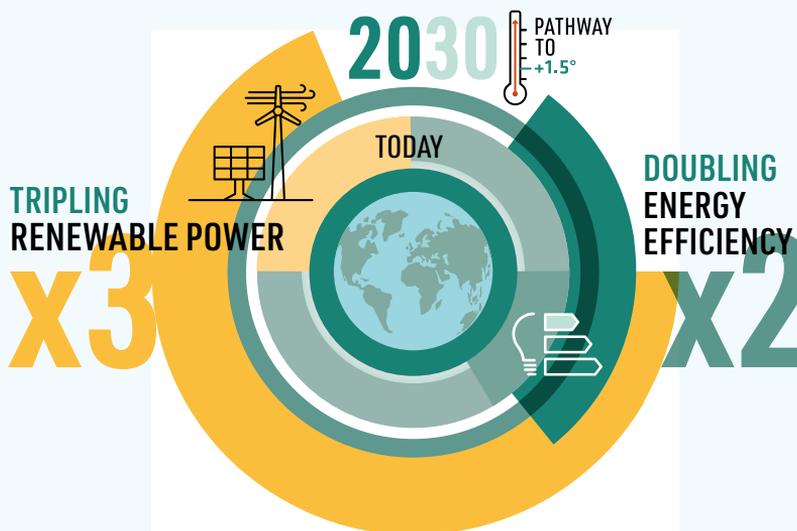
Released later in the year, the full WETO report demonstrated that the world remains off-track to realise a timely energy transition to a 1.5°C net zero future. Owing to a virtuous circle of technology, policy and innovation, most of the progress achieved to date has been in the power sector, but now 1 000 GW of renewables will have to be deployed annually worldwide to achieve the world's climate goals. WETO also discussed the socio-economic impacts of IRENA's Paris Agreement-compliant 1.5°C Scenario, as compared with the Planned Energy Scenario (PES).

<sup>1</sup> Available [here](#).

## 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 the COP28 Presidency and the Global Renewables Alliance (GRA), released a report entitled **Tripling renewable power and doubling energy efficiency by 2030: Crucial steps towards 1.5°C<sup>2</sup>** which provides concrete recommendations on how to meet renewable power and energy efficiency targets. To ensure a climate safe world, according to the analysis, global renewable power generation capacity must be tripled, and energy efficiency improvements doubled, by 2030. Moreover, a combination of deployment and enabling policies, as well as efficiency measures will also have to be put in place. Critically, though, the report underlines that structural change will have to be pursued to ensure that the transition to an energy-efficient economy and a renewables-based power system is just and fair and provides benefits for all.

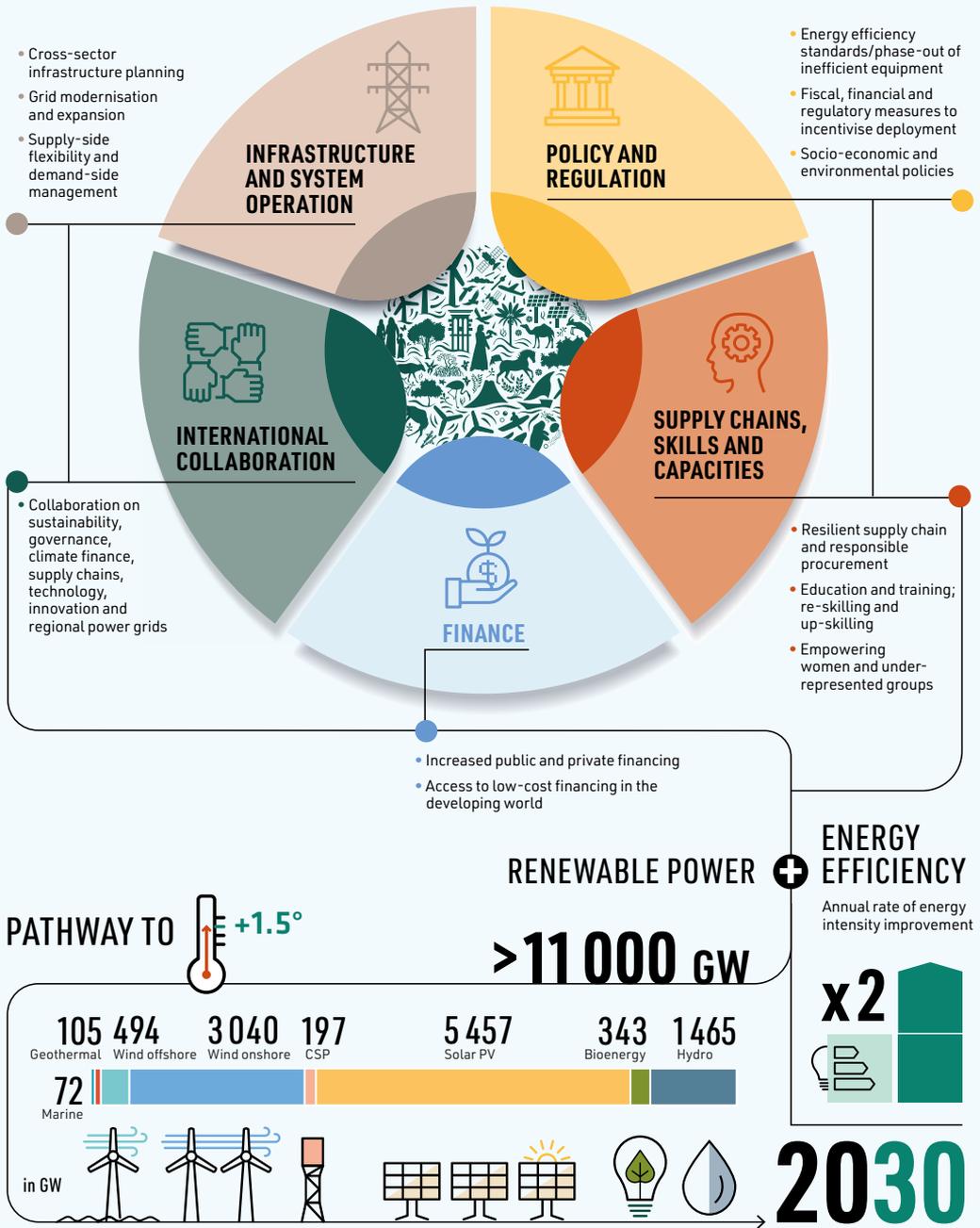


At COP28, IRENA co-organised a **High-level Event on the Tripling Renewable Energy Global Pledge<sup>3</sup>** on 2 December 2023 to discuss how best to achieve the global goals of tripling renewable energy and doubling energy efficiency by 2030, aligning with IRENA's 1.5°C pathway from WETO 2023. This high-level event allowed heads of state and ministerial-level participants to discuss the path forward. Discussions also focused on identifying critical success factors, immediate opportunities and options for co-ordinating and monitoring implementation of the pledge. IRENA will work closely with countries to turn their commitments into actions.

<sup>2</sup> Available [here](#).

<sup>3</sup> More information [here](#).

**Figure 1** Key enablers: Tripling renewable power and doubling energy efficiency





## World Energy Transitions Outlook, 2023

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

To achieve this, the report highlights the need for cumulative investments totalling USD 150 trillion to be made by 2050, with energy transition technologies representing 80% of the investment (Figure 2). 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 and towards overcoming the structural obstacles that impede progress. The report outlines three priority pillars – physical infrastructure; policy and regulatory enablers; and a well-skilled workforce. The three 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.

**TABLE 1** Tracking progress of key energy system components to achieve the 1.5°C Scenario

| Indicators   | Recent years                                       | 2030 <sup>1)</sup>                                   | 2050 <sup>1)</sup>                                   | Progress<br>(off / on track) |
|--|--|--|--|------------------------------|
| <b>ELECTRIFICATION WITH RENEWABLES</b>                     |  |  |  |                              |
| Share of renewables in electricity generation              | 28% <sup>2)</sup>                                  | 68%  | 91%  |                              |
| Renewable power capacity additions                         | 295 GW/yr <sup>3)</sup><br>+++++                   | 975 GW/yr <sup>4)</sup><br>+++++                     | 1 066 GW/yr <sup>4)</sup><br>+++++                   |                              |
| Annual solar PV additions                                  | 191 GW/yr <sup>5)</sup><br>●                       | 551 GW/yr <sup>5)</sup><br>●                         | 615 GW/yr <sup>5)</sup><br>●                         |                              |
| Annual wind energy additions                               | 75 GW/yr <sup>6)</sup><br>●                        | 329 GW/yr <sup>6)</sup><br>●                         | 335 GW/yr <sup>6)</sup><br>●                         |                              |
| Investment needs for RE generation                         | 486 USD billion/yr <sup>7)</sup><br>■              | 1 300 USD billion/yr <sup>7)</sup><br>■              | 1 380 USD billion/yr <sup>7)</sup><br>■              |                              |
| Investment needs for power grids and flexibility           | 274 USD billion/yr <sup>8)</sup><br>■              | 605 USD billion/yr <sup>8)</sup><br>■                | 800 USD billion/yr <sup>8)</sup><br>■                |                              |
| <b>DIRECT RENEWABLES IN END-USES AND DISTRICT HEAT</b>     |  |  |  |                              |
| Share of renewables in final energy consumption            | 17% <sup>9)</sup>                                  | 35%  | 82%  |                              |
| Solar thermal collector area                               | 585 million m <sup>2</sup> /yr <sup>10)</sup><br>■ | 1 552 million m <sup>2</sup> /yr <sup>10)</sup><br>■ | 3 882 million m <sup>2</sup> /yr <sup>10)</sup><br>■ |                              |
| Modern use of bioenergy (direct use)                       | 21 EJ <sup>11)</sup><br>■                          | 46 EJ <sup>11)</sup><br>■                            | 53 EJ <sup>11)</sup><br>■                            |                              |
| Geothermal consumption (direct use)                        | 0.9 EJ <sup>12)</sup><br>■                         | 1.4 EJ <sup>12)</sup><br>■                           | 2.2 EJ <sup>12)</sup><br>■                           |                              |
| Renewables based district heat generation                  | 0.9 EJ <sup>13)</sup><br>■                         | 4.3 EJ <sup>13)</sup><br>■                           | 13 EJ <sup>13)</sup><br>■                            |                              |
| Investment needs for renewables end uses and district heat | 13 USD billion/yr <sup>14)</sup><br>■              | 290 USD billion/yr <sup>15)</sup><br>■               | 210 USD billion/yr <sup>15)</sup><br>■               |                              |

RENEWABLES

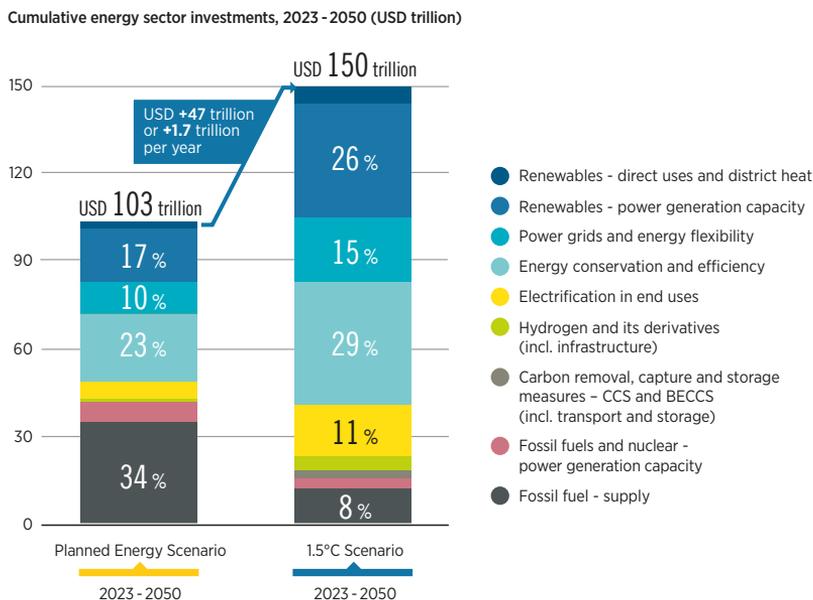
► continued

|                   | Indicators  | Recent years                                       | 2030 <sup>1)</sup>                      | 2050 <sup>1)</sup>                      | Progress<br>(off / on track) |
|-------------------|---|--|---|---|------------------------------|
| ENERGY EFFICIENCY | Energy intensity improvement rate   | 1.7%/yr <sup>16)</sup>                             | 3.3%/yr                                 | 2.8%/yr                                 |                              |
|                   | Investment needs for energy conservation and efficiency <sup>17)</sup>            | 295 USD billion/yr <sup>18)</sup>                  | 1780 USD billion/yr                     | 1525 USD billion/yr                     |                              |
| ELECTRIFICATION   | Share of direct electricity in final energy consumption                           | 22% <sup>19)</sup>                                 | 29%                                     | 51%                                     |                              |
|                   | Passenger electric cars on the road   | 10.5 million <sup>20)</sup>                        | 360 million                             | 2 180 million                           |                              |
|                   | Investments needs for charging infrastructure of EV's and EV adoption support     | 30 USD billion/yr <sup>21)</sup>                   | 137 USD billion/yr                      | 364 USD billion/yr                      |                              |
|                   | Investment needs for heat pumps   | 64 USD billion/yr <sup>22)</sup>                   | 237 USD billion/yr                      | 230 USD billion/yr                      |                              |
| HYDROGEN          | Clean hydrogen production   | H <sub>2</sub> 0.7 Mt/yr <sup>23)</sup>            | H <sub>2</sub> 125 Mt/yr <sup>24)</sup> | H <sub>2</sub> 523 Mt/yr <sup>25)</sup> |                              |
|                   | Electrolyser capacity   | 0.5 GW <sup>26)</sup>                              | 428 GW                                  | 5 722 GW                                |                              |
|                   | Investment needs for clean hydrogen and derivatives infrastructure <sup>27)</sup> | 1.1 USD billion/yr <sup>28)</sup>                  | 100 USD billion/yr                      | 170 USD billion/yr                      |                              |
| CCS AND BECCS     | CCS/U - emissions abated  | 0.04 GtCO <sub>2</sub> captured/yr <sup>29)</sup>  | 1.4 GtCO <sub>2</sub> captured/yr       | 3.2 GtCO <sub>2</sub> captured/yr       |                              |
|                   | BECCS and others to abate total emissions   | 0.002 GtCO <sub>2</sub> captured/yr <sup>30)</sup> | 0.8 GtCO <sub>2</sub> captured/yr       | 3.8 GtCO <sub>2</sub> captured/yr       |                              |
|                   | Investment needs for carbon removal and infrastructure <sup>31)</sup>             | 6.4 USD billion/yr                                 | 38 USD billion/yr                       | 107 USD billion/yr                      |                              |

**Notes:** [1] Average annual investments requirement to reach the 1.5°C target during the period 2023 - 2030 and 2023 - 2050 are shown in the investments rows under 2030 and 2050, respectively. All investment figures for recent years are in current USD; the particulars of recent years used for the indicators are: [2] 2020; [3] net capacity additions for 2030 and 2050 are excluding replacement stock for end-of-life units; [4] 2022; [5] 2022; [6] 2022; [7] 2022; [8] 2022; [9] 2020; [10] 2021; [11] 2020 - non-energy uses are not included; [12] 2020; [13] 2020; [14] future investments needed in renewables in end uses, district heating, biofuels and bio-based innovative fuels; [15] 2022; [16] Recent years value is an average between 2010 and 2020; [17] future investments in energy conservation and efficiency include those in bio-based plastics and organic materials, chemical and mechanical recycling and energy recovery; [18] 2021; [19] 2020; [20] 2022; [21] 2022; [22] 2022; [23] 2021; [24] the share for green hydrogen is 40% in 2030; [25] the share for green hydrogen is 94% in 2050; [26] 2022; [27] future investments needed in electrolysers, infrastructure, H<sub>2</sub> stations, bunkering facilities and long-term storage; [28] 2022; [29] Includes CO<sub>2</sub> capture in natural gas processing, hydrogen, other fuel supply, power and heat, industry, direct air capture of facilities in operation, 2022; [30] Current total capture corresponds to fuel supply, 2022; [31] 2022. CCS/U = carbon capture and storage/use; BECCS = bioenergy, carbon capture and storage; EV = electric vehicle; RE = renewable energy; yr = year; m<sup>2</sup> = square metre; EJ = exajoule; Gt = gigatonne.

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

**Figure 2** Total primary energy supply by energy carrier group, 2020-2050 under the 1.5°C Scenario



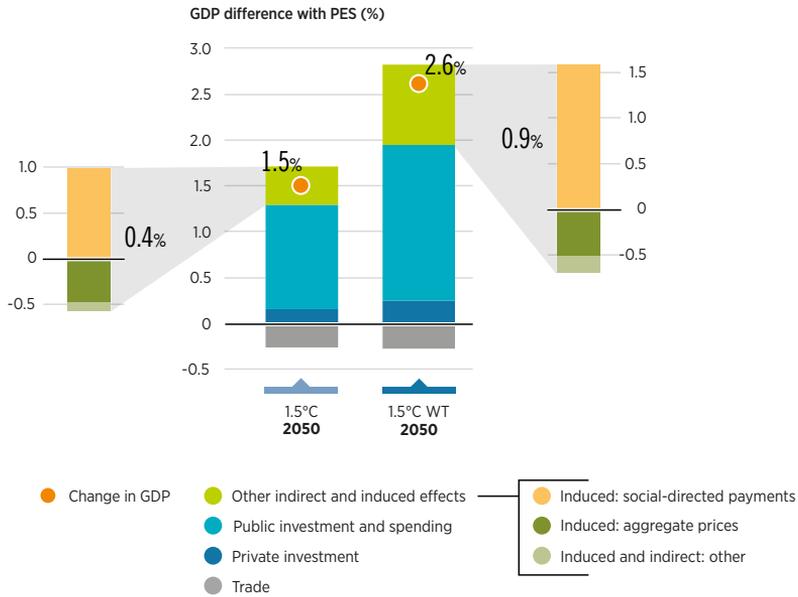
Source: IRENA, *World Energy Transitions Outlook, 2023*.

The second volume of the *World Energy Transitions Outlook 2023* discusses the socio-economic impacts of IRENA's 1.5°C Scenario which is compliant with the Paris Agreement. The report uses the scenario roadmaps laid out in volume 1 (the "Preview" published in March) and provides policy makers with insights into how economic activity, employment and wellbeing may be affected under the 1.5°C pathway, compared with current policy settings.

The report contends that the socio-economic dimension of the transition, which involves the 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.

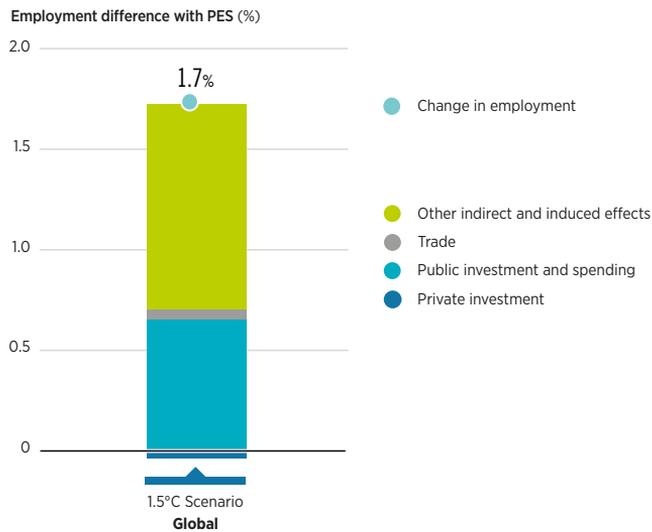
IRENA's analysis showed that international financial collaboration can be a central factor in improving the socio-economic outcomes of the transition. Public investment in the energy transition would drive robust GDP growth and pave the way for a just and inclusive transition. Compared with the business-as-usual plan, global GDP would see an average annual increase of 1.5% under the 1.5°C Scenario between 2023 and 2050 (Figure 3). In addition, the 1.5°C Scenario would lead (in average annual terms) to 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 4). To realise this, IRENA's socio-economic analyses indicate that policy making must be inspired by a holistic framework that balances technological considerations with social, economic and environmental imperatives (Figure 5).

**Figure 3** 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, 2023*.

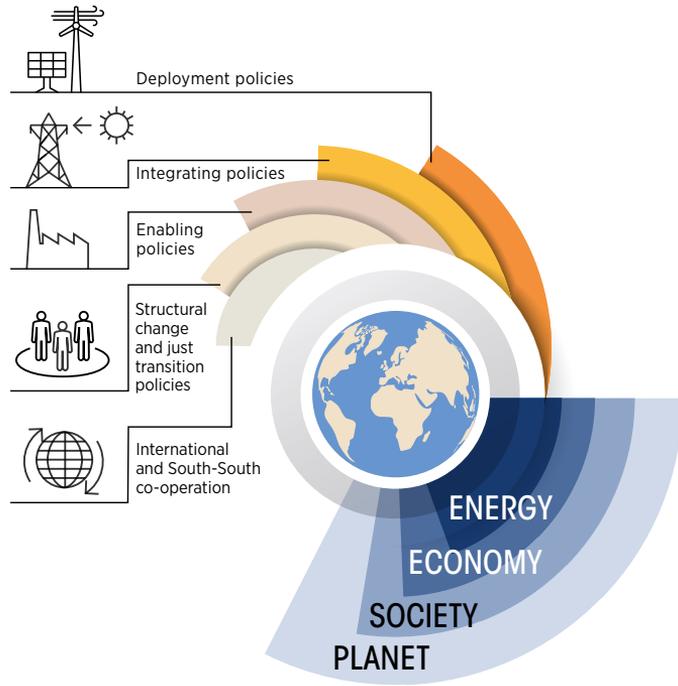
**Figure 4** Global economy-wide employment, average percentage difference between PES



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

**Figure 5**

**A comprehensive policy framework for the energy transition**



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

## IRENA at COP28



The 28<sup>th</sup> 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°C pathway.

Leading up to COP28, IRENA advanced several initiatives in line with the UAE's vision for the conference and its outcomes under the established focus areas of adaptation, mitigation and finance. 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 related to these initiatives throughout the year, in co-ordination with the UAE and partner organisations. The Agency's monthly COP28 newsletter provided updates to Members, highlights from recent publications, and messages from Members and stakeholders on the importance of advancing impactful actions in the lead-up to COP28 and beyond. Bearing in mind the UAE Presidency's 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 policy makers, industry experts and key stakeholders from around the world to work together and drive a just and inclusive renewables-based energy transition. The hub was envisioned as one that would leverage the Agency's global reach and activate multi-sectoral engagement to promote renewables-based energy transitions in response to climate change. Over 30 events were organised by IRENA at the Global Renewables Hub, alongside an additional 30 events co-organised with partners and hosted at other pavilions in the Blue and Green Zones. The Agency's expertise was also sought in high-level meetings and other events throughout the conference on the topics of energy access, the energy nexus, innovation, financing the energy transition and unlocking investment, industrial decarbonisation, accelerating a just and inclusive energy transition, and youth and stakeholder engagement, amongst others.

Some of the activities undertaken in the run up to COP28 and at COP28 are reviewed below<sup>4</sup>.

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 asked IRENA to support the organisation of the **Second Global Dialogue**<sup>5</sup> which as held on 15-16 October 2023, and the second **investment-focused 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 a 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 for mitigation actions and projects in line with the Parties' Nationally Determined Contributions (NDCs).



<sup>4</sup> More information [here](#).

<sup>5</sup> More information [here](#).

On 2 December 2023, IRENA organised an **Accelerated Partnership for Renewables in Africa (APRA) Heads of State meeting**,<sup>6</sup> to showcase APRA’s vision and political leadership. In a joint declaration<sup>7</sup>, Kenya’s President William Samoei Ruto, Namibia’s Deputy-Prime Minister Netumbo Nandi-Ndaitwah; Danish Prime Minister Mette Frederiksen; and German Chancellor Olaf Scholz underscored APRA’s role in galvanising action and inspiring global climate leadership. In addition, Hon Dr Kandeh K. Yumkella, Chair 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. Also in attendance were H.E. Mr Herbert Krappa, Deputy Minister of Energy of Ghana and Hon Edgar Moyo, Minister of Energy and Power Development of Zimbabwe. The gathering served as a platform to present the milestones achieved thus far and to lay out a roadmap for future action, thus inspiring other leaders, and communities worldwide to embark on similar transformative journeys.



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. The event offered the opportunity for a concrete and practical discussion on the implementation of the partnership, including actors from the private sector and the financial sector. The discussion featured H.E. Dr Eng Habtamu Itefa Geleta, Minister of Water and Energy of Ethiopia; Hon 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; and Dr Kevin Kanina Kariuki, Vice President for Power, Energy, Climate and Green Growth of the African Development Bank.



6 Available [here](#).

7 Available [here](#).

On 5 December, 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**.<sup>8</sup> 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 global emissions in any meaningful way, they carry the burden of climate change. The event served to showcase SIDS achievements and progress, share SIDS perspectives on the operationalisation of the COP28 Loss and Damage Fund for vulnerable countries and highlight strategies and support needs to accelerate the deployment of renewables in SIDS.



On the same day, IRENA organised the **Global Offshore Wind Alliance (GOWA) Ministerial meeting**.<sup>9</sup> At the event, participants renewed the pledge to maintain momentum for 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 close co-operation among global players is needed to accelerate offshore wind deployment in a sustainable and environmentally sensitive manner. Co-operation must leverage existing successes to expand the market in the offshore wind industry while addressing challenges and barriers.



Additional events at COP28 are discussed below under the headings of the organisations behind them.

### Energy Transition Accelerator Financing (ETAF) Platform

At COP28, **Energy Transition Accelerator Financing (ETAF) Platform** demonstrated its achievements and progress by highlighting the combined social and environmental impact of its 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. At the COP28 meeting on **Accelerating energy transition through project facilitation and partnerships**,<sup>10</sup> four new partners – bringing the total to thirteen – made financial pledges towards the ETAF platform to bring pledged funding to USD 4.05 billion, surpassing the original target for COP28 by more than fourfold and signalling strong momentum for renewable energy financing in developing countries.



<sup>8</sup> More information available [here](#).

<sup>9</sup> More information available [here](#).

<sup>10</sup> More information available [here](#).

### Alliance for Industry Decarbonisation (AFID)

The AFID<sup>11</sup> is a global initiative that aims to accelerate net zero ambitions and the decarbonisation of industrial value chains in pursuit of the Paris Agreement's climate goals. A high-level **CEO Roundtable on Accelerating implementation of Industrial Decarbonisation**<sup>12</sup> was held at the UAE pavilion. The meeting gathered the CEOs of 60 industry partners to step up efforts to combat climate change through joint targets in renewables, green energy technologies, human skills, and finance, thus communicating members' achievements and commitments towards quantified decarbonisation targets. The decarbonization plans of AFID members have the combined aim of reducing 51% of direct and indirect GHG emissions and increasing installed renewable capacity to 187GW by 2030. AFID members have also committed to nearly double installed green hydrogen, drive green energy solutions, increase workforce re-skilling 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, IRENA's **Coalition for Action** is a multi-stakeholder network of more than 140 leading players that facilitates dialogue on industry trends, best practices and actions to accelerate the global energy transformation. The Coalition's steering group met on the sidelines of the Bonn Climate Change Conference in June 2023, focusing discussions on the COP28 activities planned for these working groups. Coalition members engage on key renewable energy topics through working groups, the annual Public-Private Dialogue and other 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 the role of non-governmental actors.

### Utilities for Net Zero Alliance (UNEZA)

On 5 December, **Utilities for Net Zero Alliance (UNEZA)** was officially launched with 31 partners, including 25 global utilities and power companies that collectively serve more than 250 million customers. The partners are united around 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. It 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

Given the need for stronger international collaboration in climate financing for 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 the least developed countries and SIDS to enrich lives and livelihoods through renewable energy. Pledges will be invested in initiatives and enterprises specialising in climate-smart innovation, research and development activities, and practical and actionable solutions to strengthen agri-food and health value chains powered by renewables. Recognising the crucial role of women in these value chains, Empowering Lives and Livelihoods also presents an opportunity to achieve greater gender and social equity in both the agri-food and health sectors.

<sup>11</sup> 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 co-ordinates 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.

<sup>12</sup> More information available [here](#).

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 philanthropic institutions such as the Bezos Earth Fund, the Ikea Foundation and the Rockefeller Foundation, amongst others; with global alliances such as the Global Energy Alliance for People and Planet (GEAPP); with multilateral banks such as the African Development Bank, the Islamic Development Bank and the Caribbean Development Bank; and with impact investors, organisations and companies that leverage private sector capital to finance enterprises and initiatives on the ground. In preparation for the launch of Empowering Lives and Livelihoods, IRENA organised a technical session at SPIREC Madrid in March 2023; a session with UAE in April 2023 in New York to present the initiative to philanthropies and government representatives, and a high-level session with UAE and Bezos Earth Fund on the sidelines of the UN General Assembly in September 2023. The initiative was officially launched at COP28 on 4 December 2023.<sup>13</sup>



### Youth in Climate-Energy Innovation

IRENA's engagement at COP28 placed a special focus on youth to amplify the voice of a new generation of decision-makers and encourage their active participation in the energy transition. The IRENA NewGen Renewable Energy Accelerator (NewGen) programme and IRENA Youth Award are linked 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 phase of the NewGen programme selected 40 young innovators and entrepreneurs from 20 start-ups. Those selected have benefitted from a series of training, mentoring, and knowledge-sharing activities to scale their business impact and help them secure investments to implement their plans and solutions. Eight of the best solutions from the programme were selected for presentations before potential investors and investment experts at COP28; three winners were ultimately selected by a guest panel of judges for the inaugural IRENA NewGen Rising Stars Award: Climatedza 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 (ETEN),<sup>14</sup> presented the Teaching for Net Zero Award to six educators from Belgium, Benin, Nigeria, Colombia, Bhutan and Morocco who have devised innovative teaching methods to inspire students about the need to accelerate the energy transition. Launched at COP27 as a multistakeholder partnership, the Teaching for Net Zero Campaign 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, containing teaching resources for different age groups and subject areas, was unveiled at COP28. The 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 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 co-ordinator of the pillar on Greening Curriculum, to ensure that renewable energy education is embedded into broader sustainability-education initiatives.

IRENA also shaped and contributed to the programme of the Education Pavilion at COP28.

<sup>13</sup> More information available [here](#).

<sup>14</sup> ETEN fosters collaboration in curriculum development, capacity building for educators, and global exchanges of good practices.

At the **Berlin Energy Transition Dialogue (BETD)**<sup>15</sup> - organised on 28-29 March 2023, the IRENA Director-General set the scene at a high-level panel on **Global Energy Transition - Translating Ambition into Action**. The session discussed key levers to 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.



## Geopolitics of the Energy Transition: Critical materials

The supply of critical materials will shape the realisation of the energy transition. **IRENA's Geopolitics of the Energy Transition: Critical materials**<sup>16</sup> 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 those of 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 affect the speed of the energy transition in the short to medium term. The report stresses the importance of international co-operation 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, markets 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.

<sup>15</sup> More information available [here](#).

<sup>16</sup> Available [here](#).

**Table 2** Differences between critical materials and fossil fuels

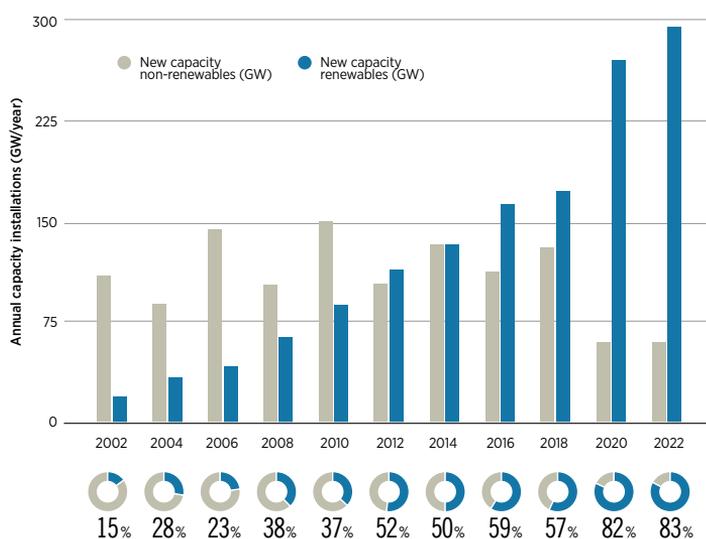
| FOSSIL FUELS  | CRITICAL MATERIALS  |
|---|---|
|  <p><b>Large mining quantities</b><br/>In 2021, 15 billion tonnes of fossil fuels were extracted.<sup>1</sup></p>                            |  <p><b>Low mining quantities</b><br/>Some 10 million tonnes energy transition minerals were produced in 2022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

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

The latest edition of **Renewable capacity statistics 2023**<sup>17</sup> 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 and geopolitical shocks rippling through the energy sector. According to the analysis, more than 295 gigawatts (GW) of renewables had been added by the end of 2022 – more than in 2021 – well above the long-term trend (Figure 6). Specifically, total renewable generation capacity reached 3 372 GW in 2022, a 9.6% increase from the year before; renewables now account 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.

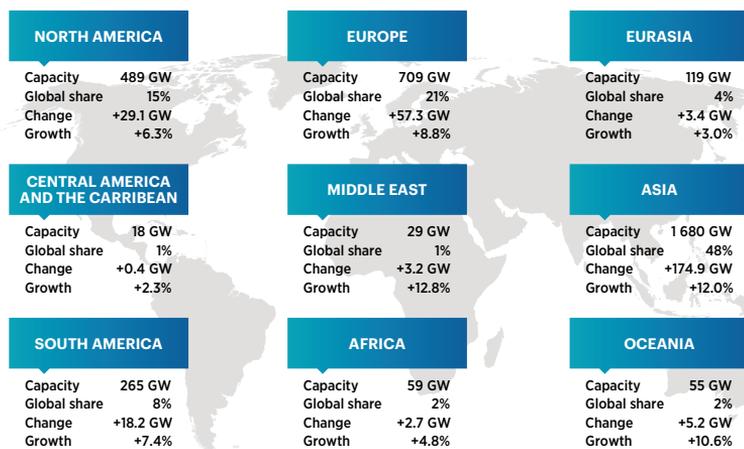
<sup>17</sup> Available [here](#).

**Figure 6** 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

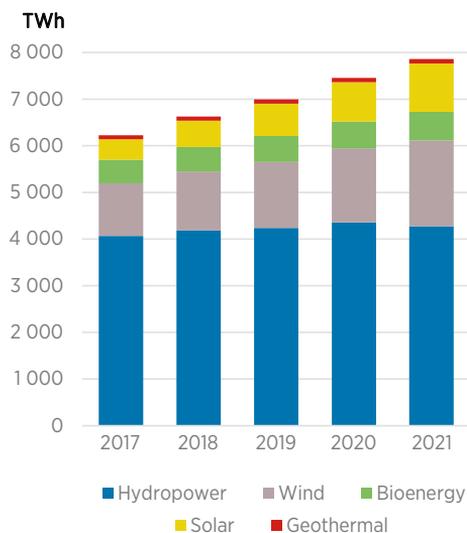


Source: IRENA, *Renewable Capacity Statistics 2023, 2023*

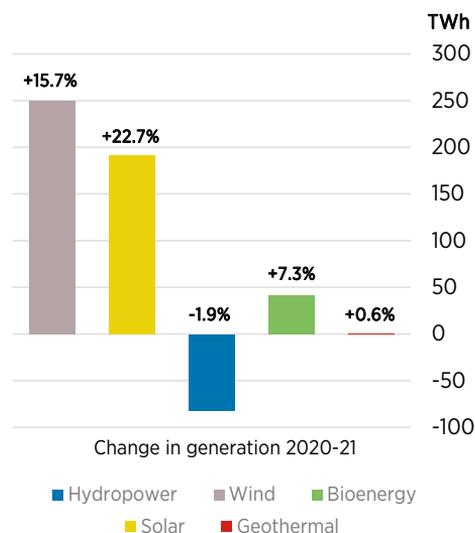
IRENA's **Renewable energy statistics 2023**<sup>18</sup> highlights the steadily rising trajectory of global renewable electricity generation. A 5.4% increase was registered in 2021 over the previous year, with the total amount of electricity generated from renewables reaching 7 858 TWh in 2021. Hydro 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 7). 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 8). Asia remained the region accounting for most growth in renewable 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.

<sup>18</sup> Available [here](#).

**Figure 7** Cumulative renewable electricity generation, 2017-2021



**Figure 8** Additions in renewable energy generation capacity, 2020-2021



Source: IRENA, *Renewable Energy Statistics*, 2023

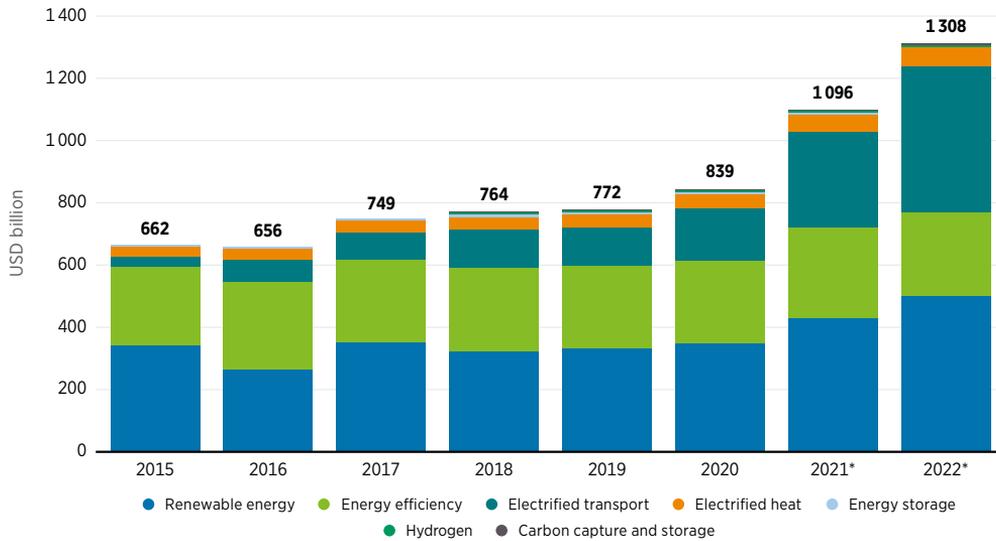


## Global landscape of renewable energy finance 2023

**Global landscape of renewable energy finance 2023**<sup>19</sup> is the third edition of the biannual joint report by IRENA and the 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 of USD 0.5 trillion in 2022, whereas global investments in energy transition technologies reached USD 1.3 trillion, another record high (Figure 9). Yet the current pace of investment is not sufficient to put the world on track towards meeting climate targets or goals for socio-economic development. To inform policy making, the analysis identifies financing gaps blocking 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.

<sup>19</sup> Available [here](#).

**Figure 9** Annual global investment in renewable energy, energy efficiency and other transition-related technologies, 2015-2022



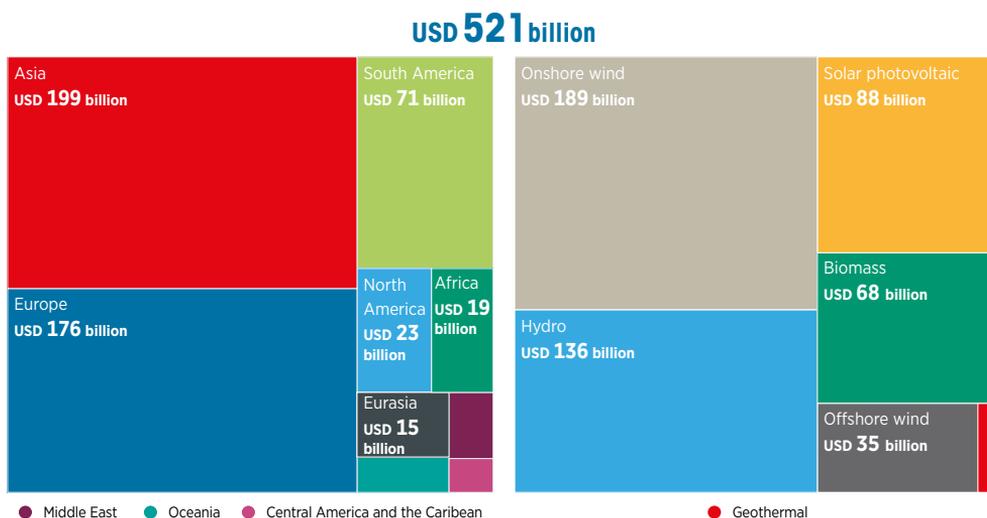
**Notes:** Renewable energy investments for 2021 and 2022 represent preliminary estimates based on data from Bloomberg New Energy Finance (BNEF). As BNEF has limited coverage of large hydropower investments, these were estimated at USD 7 billion per year, the annual average investment in 2019 and 2020. 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).

**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**<sup>20</sup> shows that 2021-2022 saw one of the most substantial improvements in the competitiveness of renewable power in the last two decades, owing in part to soaring fossil fuel prices. The gains came in spite of the fact that most markets, excluding China, saw equipment price increases for solar photovoltaic modules and wind turbines, and that many markets experienced inflation in solar wind power costs. 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 levelised 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 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 when 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 10).

<sup>20</sup> Available [here](#).

**Figure 10** Global electricity sector fuel savings 2022 in USD



Source: IRENA, Power Generation Cost 2022, 2023

Although the cost of capital is a very important driver of the cost of electricity, reliable, easily accessible, and up-to-date financing data (differentiated by country and technology) have not been readily available. IRENA's **Renewable Power Generation Costs in 2022**<sup>21</sup> fills this key information gap. The report presents new data on the cost of capital for onshore wind, offshore wind and solar photovoltaic gathered from an expert survey and interviews covering 45 countries on six continents.

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. **Low-cost finance for the energy transition**<sup>22</sup> 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 in markets for offshore wind, which are now opening up in emerging economies, including India. It also underlines the criticality of public and private collaboration to catalyse institutional capital flows and includes recommendations for enhancing collaboration to finance projects with low-cost capital within the G20 and in other countries.

Renewable energy development changes the mix of energy sources powering the world's economies, while also creating jobs, building economic value and enhancing human wellbeing. The tenth edition of **Renewable energy and jobs: Annual review 2023**,<sup>23</sup> the third produced in collaboration with the International Labour Organization, finds that renewable energy employment worldwide expanded to an estimated 13.7 million direct and indirect jobs in 2022 (Figure 11), two-thirds of them in Asia – mostly China, which accounts for 41% of the global total.

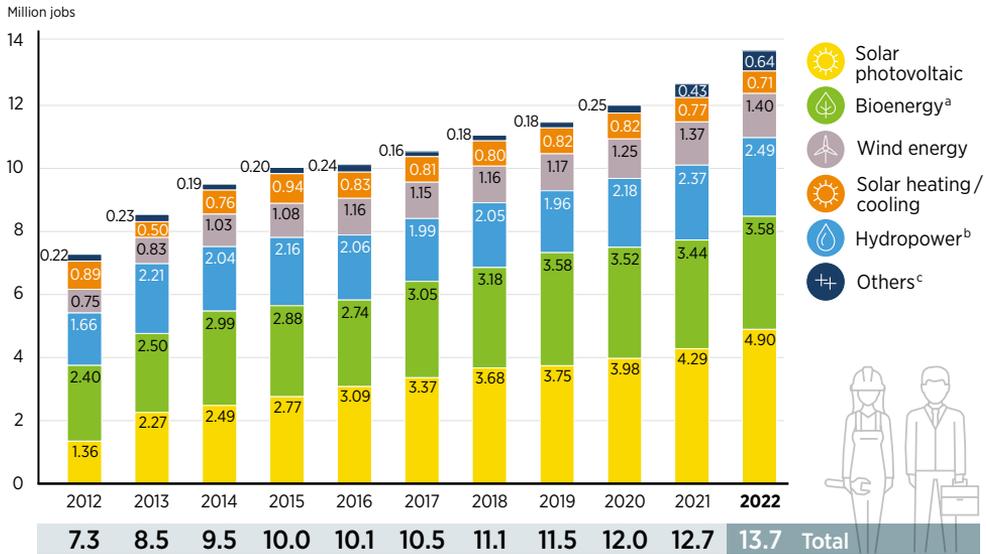
The trend continues, with the fastest-growing sector, solar PV, accounting for more than one-third of the total renewable energy workforce. Notably, 40% of these jobs are occupied by women. The hydropower sector also saw a 2.3% increase over 2021, reaching 2.5 million jobs, two-thirds of them in operation and maintenance. Furthermore, the report finds that employment levels in the biofuels sector reached 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, if workforce development programmes can be put in place, and if labour markets respond to evolving needs then many millions of additional jobs could be created in the coming years and decades.

21 Available [here](#).

22 Available [here](#).

23 Available [here](#).

**Figure 11** Global renewable energy employment by technology, 2012-2022



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

The 2023 edition of **Tracking SDG 7: The Energy progress report**,<sup>24</sup> paints a sad picture for the timely realisation of Sustainable Development Goal 7: affordable, reliable, sustainable and modern energy for all by 2030 (Figure 12). The report shows that the current pace of implementation is not sufficient to achieve the goal and that the uneven progress across regions persists. The pandemic and enduring economic challenges have hindered progress. Although certain policy responses to the global energy crisis could improve the outlook for renewables and energy efficiency, the same would not necessarily be true for universal access to electricity and clean cooking – or for financial flows to support access to clean and modern forms of energy. Between 2010 and 2021, the number of people without electricity was cut nearly in half, dropping 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 current trends, 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.

24 Available [here](#). *Tracking SDG 7* is published annually by IRENA, the International Energy Agency (IEA), the United Nations Statistics Division (UNSD), the World Bank, and the World Health Organization (WHO).

**Figure 12** 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  | <b>1.1 billion</b><br>people without access to electricity  | <b>675 million</b><br>people without access to electricity (2021)  |
|    | 7.1.2 Proportion of population with primary reliance on clean fuels and technology for cooking   | <b>2.9 billion</b><br>people without access to clean cooking  | <b>2.3 billion</b><br>people without access to clean cooking (2021)  |
|    | 7.2.1 Renewable energy share in total final energy consumption   | <b>16%</b><br>share of total final energy consumption from renewables                                       | <b>19.1%</b><br>share of total final energy consumption from renewables (2020)                                     |
|   | 7.3.1 Energy intensity measured as a ratio of primary energy and GDP   | <b>5.53 MJ/USD</b><br>primary energy intensity  | <b>4.63 MJ/USD</b><br>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 | <b>11.9 USD billion</b><br>international financial flows to developing countries in support of clean energy | <b>10.8 USD billion</b><br>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

Some 2.3 billion people still lacked access to clean cooking technologies and fuels in 2023. Despite progress, therefore, the goal of achieving universal access to clean cooking will not be achieved by 2030 at the current rate. As a result, the continued use of polluting fuels and inefficient cookstoves will continue to damage human health and livelihoods as well as the environment. IRENA's report on **Renewables-based electric cooking: Climate commitments and finance**<sup>25</sup> assessed countries' status on access to renewables-based electric cooking and climate commitments to understand the current situation and priorities. According to the analysis, too few countries assessed have incorporated electric cooking into their climate commitments: 22 countries include 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. It offers recommendations to scale up electric cooking solutions for country groups based on their current status.

The COVID-19 pandemic also highlighted the importance of well-functioning and well-equipped health systems. In several corners of the world, however, access to electricity – so fundamental to the provision of health services – remains elusive. 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. **Energizing health: accelerating electricity access in health-care facilities**<sup>26</sup> – 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 a billion people around the world are served by health facilities that lack reliable access to electricity. Recommendations are offered on how to accelerate 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

## Harnessing technology and innovation

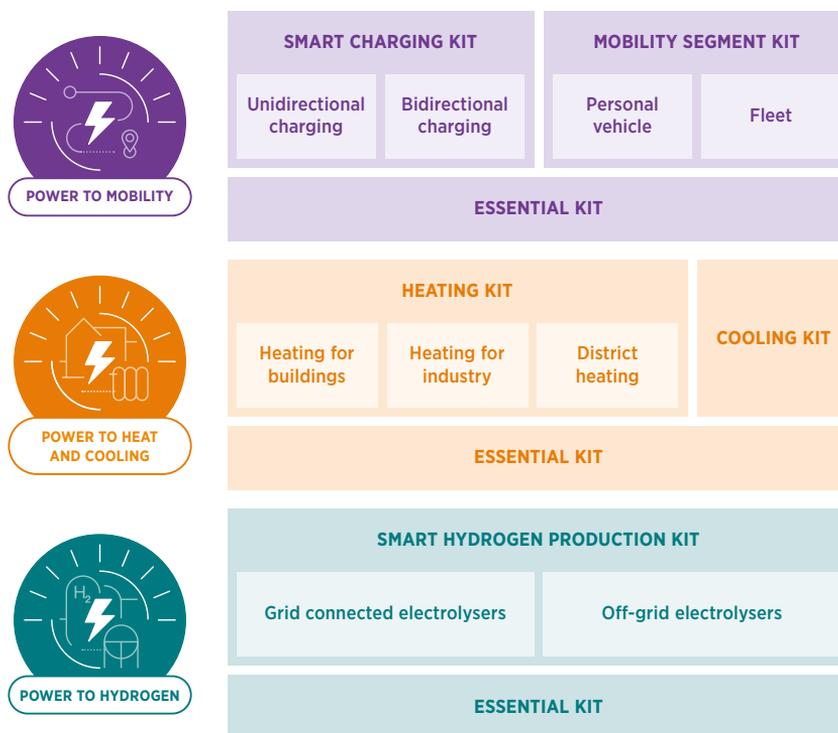
Under IRENA's 1.5°C Scenario, electricity will account for more than 50% of global energy consumption by 2050. Many smart electrification solutions are already available and ready for commercialisation, but to meet the rising demand for electricity that those solutions represent, targeted government actions will be needed. The 2023 edition of the **Innovation landscape for smart electrification**<sup>27</sup> provides a toolbox of 100 innovations (Figure 13) 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.

<sup>25</sup> Available [here](#).

<sup>26</sup> Available [here](#).

<sup>27</sup> Available [here](#).

**Figure 13** Toolbox for smart electrification strategies



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



Building on successful previous events, **Innovation Week 2023**<sup>28</sup> focused on expanding shared knowledge about renewable solutions to decarbonise end-use sectors. Underpinned by IRENA’s in-depth analyses and informed by first-hand project experiences, Innovation Week 2023 gathered a range of experts in the field to exchange knowledge on the latest developments and solutions. Specifically, this fourth iteration of the event broadened the discussion on decarbonising end-use sectors and was informed by IRENA’s recent flagship report, **Innovation Landscape for Smart Electrification**. Innovation Week’s four days of discussion showcased emerging solutions from around the world and explored the actions needed to fully unlock the potential of renewables in the end-use sectors. Figure 14 shows six major actions for the consideration of policy makers in the years ahead.

28 More information available [here](#).

Figure 14 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 setting up a certification system that abides by environmental, social and governance standards. IRENA and the Rocky Mountain Institute prepared **Creating a global hydrogen market: Certification to enable trade**<sup>29</sup>. The publication assesses existing certification systems globally, identifying gaps that could hinder the development of hydrogen trade. The report is also a contribution to work on the G7 Hydrogen Action Pact, which supports 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 that will shape international trade in 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 **International trade and green hydrogen: Supporting the global transition to a low-carbon economy**,<sup>30</sup> which 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 markets in green hydrogen.

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 report on **The changing role of hydropower: Challenges and opportunities**<sup>31</sup> examines 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 pace of hydropower deployment to meet the projected increase in demand for clean electricity.

29 Available [here](#).

30 Available [here](#).

31 Available [here](#).

Geothermal energy's contribution to the energy transition is equally important. To ensure that countries can harness its potential, IRENA's **Global geothermal market and technology assessment**<sup>32</sup> provides an overview of developments in the geothermal sector and an analysis of the parameters that are likely to shape the market and the technologies that can help scale up its use. The report concludes that in coming years the accelerated deployment of geothermal energy will be driven by advancements in geothermal technologies, cross-industry collaborations between geothermal and related sectors, and the rising deployment of geothermal energy for heating and cooling. 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.

**Long-term Energy Scenarios (LTES) Network**<sup>33</sup> 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. Long-term energy scenarios will be critical to the realisation of national and global net zero targets. IRENA's **Long-term energy scenarios and low-emission development strategies: Stocktaking and alignment**<sup>34</sup> examines twenty-four LTES and thirty-six long-term low-emission development strategies (LT-LEDS) in 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 the 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**<sup>35</sup> summarises the presentations and discussions that occurred at the 2021-2022 webinar series on **Long-Term energy scenarios (LTES) for developing national energy transition plans in Africa**<sup>36</sup>. The report presents key findings and recommendations that are broadly relevant to African countries, as well as to stakeholders across the world attempting to improve their planning processes.

IRENA's support for the development of Africa's **Continental Power Systems Master Plan (CMP)** continues apace. The CMP has three main pillars: assessment of future demand, planning for capacity expansion 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 through 2040. At the Kigali training held on 13-17 March 2023 – the final in-person training – the modelling team analysed the sensitivity of the models and discussed the key insights from the modelling results for African interconnectivity and infrastructure under the CMP. The post-training survey revealed participants' satisfaction with the quality of training provided by IRENA.



In this context, IRENA released **Planning and prospects for renewable power: North Africa**,<sup>37</sup> part of the Agency's series on planning and prospects for renewable energy. The report focuses on renewable electricity generation in African power pools.<sup>38</sup> 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 within this timeframe. Based on the analysis, the large-scale roll-out of electricity generation from solar and wind power would be a cost-efficient way to achieve this.

32 Available [here](#).

33 More information available [here](#).

34 Available [here](#).

35 Available [here](#).

36 More information available [here](#).

37 Available [here](#).

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



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 their 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. From 27 February to 3 March 2023, IRENA, through the SIDS Lighthouses Initiative and in collaboration with Pacific Community, the Pacific Centre for Renewable Energy and Energy Efficiency and the Ministry of Public Works, Transport and Meteorological Services of Fiji, organised a **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 carried out **a mission in Kyiv** on 18-25 August 2023. The objective was to discuss with the Ukrainian government, as well as 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-term, medium-term, and long-term intervals in collaboration with active international development partners, multilateral development banks, international financial institutions and other organisations. The objectives of this work are to develop timely knowledge and create a portfolio of renewable energy projects to expedite the greening of Ukraine's reconstruction; to align support through the development of joint analyses, tools and assessments; and to scale up impact by utilising existing financing and comparative advantages.

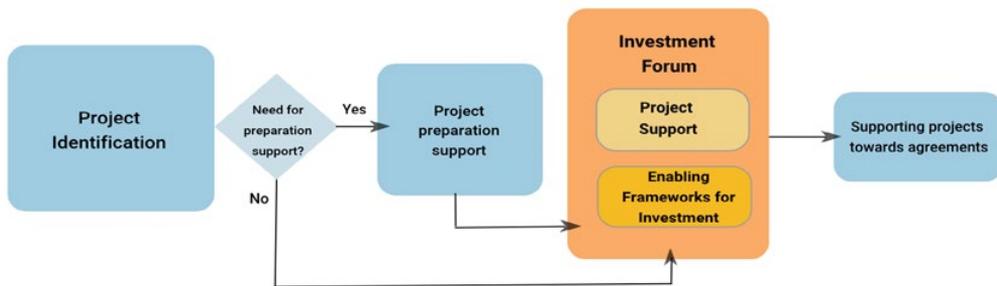




## Investments for a sustainable future

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. CIP acts as a bridge between renewable energy projects and actors seeking to contribute to the development of renewable energy projects through finance, technical assistance and research. Once projects qualify for support under CIP, IRENA provides technical assistance to develop comprehensive project information documents that present the information necessary to attract financing. Projects are then introduced to financial partners. A project and a financier are considered matched once IRENA’s introduction leads to both parties agreeing to explore the possibility of funding the project (Figure 15).

**Figure 15** CIP project support cycle



Now in its third year, 427 projects have been sourced on CIP, with 209 eligible for support. Of these, 87 are actively supported; 39 have benefitted from technical assistance (including project information documents), 13 were matched with interested financing partners, and 4 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, 11 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                  | -                       |
| <b>Total</b>       | <b>427</b>          | <b>97</b>               |

Of the four having reached financial closing, one is currently running, and three have started construction, representing a cumulative value of USD 52.6 million and a total of 42.6 MW to be deployed on full commissioning (Table 5). All four projects are from the West African and Southeast Asian regions. In addition to the standard CIP support, two of these projects have also benefitted from IRENA Regional Investment Forums.

**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**.<sup>39</sup> The event targeted Latin America, 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 mobilise capital from multilateral development banks, development finance 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 16). The platform aims to mobilise an initial USD1 billion in soft pledges for investment by 2023 and expand to USD5 billion by 2030. It also aims to facilitate investments supporting a minimum of 1.5 GW of renewable energy technologies by 2024, rising to 5 GW or more by 2030. This will be achieved by backing renewable-supportive infrastructure, including electricity transmission services and storage.

<sup>39</sup> More information available [here](#).

In 2021, at COP26, the United Arab Emirates pledged USD 400 million in anchor funding for the ETAF 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 Co-operation Agreements during COP27 in Sharm El Sheikh, Egypt. The Platform’s capital commitment surged to USD1.25 billion, surpassing the initial goal of USD1 billion, with the integration of new partners, including the OPEC Fund for International Development and the Inter-American 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 the original target for COP28 by more than fourfold (Table 6).

**Table 6** Status of ETAF partners and their pledges

| Partners   | Status           | Pledge              |
|--|------------------|---------------------|
| Abu Dhabi Fund For Development   | Agreement signed | USD 400 million     |
| AIIB<br>(Asian Infrastructure Investment Bank)                                       | Agreement signed | USD 300 million     |
| Masdar   | Agreement signed | USD 200 million     |
| Swiss RE   | Agreement signed | De-risking products |
| IRENA and OPEC Fund  | Agreement signed | USD 250 million     |
| IDB<br>(Inter-American Development Bank)   | Agreement signed | USD 100 million     |
| Emirates Development Bank  | Agreement signed | USD 350 million     |
| ISDB<br>(Islamic Development Bank)   | Agreement signed | USD 250 million     |
| ICIEC<br>(The Islamic Corporation for the Insurance of Investment and Export Credit) | Agreement signed | De-risking products |
| European Bank for Reconstruction and Development                                     | Agreement signed | USD 1000 million    |
| IFC<br>(International Finance Corporation)   | Agreement signed | USD 1000 million    |
| MIGA<br>(Multinational Investment Guarantee Agency)                                  | Agreement signed | De-risking products |
| HSBC   | Agreement signed | USD 200 million     |

ETAF is accepting eligible renewable energy project submissions through its online platform, following a call for projects issued at COP27. Over 45 project proposals have been submitted to the Platform (Table 7). Of these, three solar PV projects in Uzbekistan totalling 897 MW have already benefitted from ETAF partners' financial support. These projects will produce enough electricity to power more than a million homes, while displacing more than 1 million tons of CO<sub>2</sub> emissions each year. The projects are expected to begin operations in 2024.

**Table 7** ETAF Platform

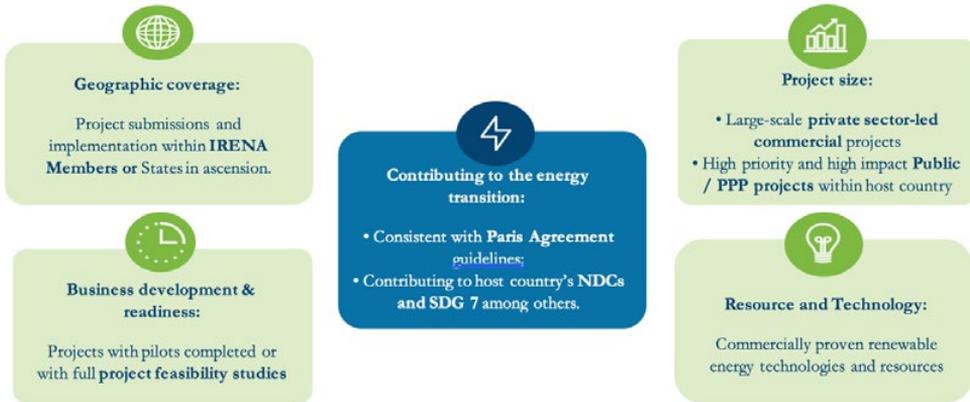
|  |                    |
|--|--------------------|
| Number of Projects Proposals Received                          | 45 (4 841 MW)      |
| Number of Projects Received Interest of Partner(s)             | 14 (2 579MW)       |
| Number of Projects Financially Closed                          | 3                  |
| 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)           | 1 000 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 and technical assistance products; and improving ETAF's operational procedures.

Together with ETAF's other 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, an operational manual was drafted to guide the day-to-day activities carried out by the 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.

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

**Figure 16** ETAF Eligibility Criteria



All projects must advance the renewables-based energy transition, help reduce greenhouse gases, and contribute to the host country's infrastructure 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 has organised a series of webinars. The first, held on 27 April 2023, attracted over 200 registrants and covered project submission and readiness, among other topics. A second webinar focused on Latin America was held on 14 September 2023. It engaged 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 a forum on **IRENA-Caribbean Co-operation for Fostering Energy Transition Investments and Finance**<sup>40</sup> 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 closer 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 to connect business partners and facilitate investment opportunities among Caribbean SIDS developers and financiers. As a result, a total of 17 projects from 10 private and public project developers were introduced, representing an aggregate of approximately 167MW in installed capacity and a capital mobilisation of roughly USD 741 million in grants and concessional loans. The technologies covered were solar PV, geothermal, biogas, ocean thermal, hydrogen and battery storage systems. In addition, a session on project training and capacity building was attended by 65 delegates from governments and the private sector.

On 24 August 2023, during the ASEAN Energy Business Forum in Bali, IRENA organised a **highlevel-CEO dialogue** with Germany's GIZ, the Ministry of Energy and Mineral Resources of Indonesia and the ASEAN Centre for Energy. The dialogue included an in-depth discussion of financing the energy transition in Southeast Asia and provided a platform for sharing successful case studies and innovative financing mechanisms, while fostering strategic alliances among public and private stakeholders. It also strengthened the ability of decision-makers to build strong enabling environments for transition-related investments and to attract private and public investments.

The first ever **Investment Forum in Latin America**<sup>41</sup> was convened in Uruguay on 7-9 November 2023. Co-hosted by IRENA and the government of Uruguay, in co-operation with Latin American Energy Organization and the Inter-American Development Bank. Along with high-level discussions on topics relevant to Latin America, the Forum included dedicated sessions to explore ground-level challenges that hinder the creation of a bankable pipeline of projects in the region and the expansion of capital mobilisation. In addition, matchmaking sessions were held to help public and private project proponents connect with potential commercial and financial partners. An exhibition area made it possible to highlight additional projects from the region and to offer the opportunity to network with a diverse group of stakeholders keen to advance the energy transition.

40 More information available [here](#).

41 More information available [here](#).

## International co-operation and partnerships

The 13th session of the **IRENA Assembly**<sup>42</sup> was held in person from 14 to 15 January 2023 under the theme “World Energy Transition: The Global Stocktake”. In attendance were heads of state and government, ministers, and energy decision-makers, as well as leaders from multilateral organisations, global stakeholders, and private actors. The Assembly brought 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 and regions.

The 2 000 registered participants in the Assembly included 85 heads of state or government and ministers, along with delegates from 147 countries and the European Union and representatives from 250 organisations.



### 13th IRENA Assembly



#### THE HASHTAG #IRENA13A

- 2 122 times used
- 477 comments generated
- 1 505 shares
- 10 811 engagements
- 27 627 946 impressions

#### 13<sup>TH</sup> SESSION OF THE IRENA ASSEMBLY

- 644 posts generated
- +127.6% in number of social media posts compared to the 12th IRENA Assembly

The Assembly generated a healthy amount of social media coverage. The 644 posts generated were more than double those of the previous assembly. The **hashtag #IRENA13A** was used 2 122 times, generating 477 comments, 1 505 shares, 10 811 engagements, and 27 627 946 ‘impressions’.

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** aligned with the Assembly theme, **The Global Stocktake**. The plenary 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 **World Energy Transitions Outlook (WETO)**<sup>43</sup> sets out a pathway aligned with a 1.5°C future that can 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.

42 More information available [here](#).

43 Available [here](#).

On the Pre-Assembly Day, 13 January 2023, and during the Assembly on 14-15 January 2023, IRENA organised several ministerial and high-level Meetings focusing on critical aspects of the energy transition. This year's SIDS ministerial meeting on **Climate pledges to action: Amplifying energy transition for sustainable development in SIDS** provided an update on the implementation of the SIDS Lighthouses Initiative towards the achievement of the SIDS Accelerated Modalities of Action (SAMOA) Pathway, the Paris Agreement and the SDGs, as well as an opportunity to share insights in the lead-up to COP28.

The high-level meeting on the **Energy Compact on Renewable Energy for Peacekeeping** discussed the alignment of climate and development objectives related to the greening of UN peacekeeping operations and the development priorities of host communities. At the ministerial roundtable on **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 increase the uptake of renewable energy 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 the ETAF Platform focused on approaches to reduce barriers to investment growth in renewable energy, reduce project risk and raise capital.

As it does 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 **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 the early adoption of policies to support supply and demand of green hydrogen, including local and regional co-ordination as well as international co-operation.

Convened under the theme **Towards Just and Inclusive Energy Transitions: Social Dialogue, Skills, and Decent Jobs for All**, the 2023 **IRENA Public-Private Dialogue**<sup>44</sup> 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 transformation, with people at its core, and stressed the need for long-term commitment, adequate financing and application of just transition principles. At the meeting, participants had the opportunity to hear preliminary findings from a brief on the just transition, identify possible areas for further co-operation, outline key challenges and identify concrete actions to address those challenges.



**IRENA's Youth Forum** met for the fourth time under the theme **Empowering Youth to Lead an Equitable Energy Transition for a Sustainable Future**. The Forum gave 150 youth representatives from 50 countries a platform from which to offer their perspective on the global energy dialogue with a focus on policy and financing mechanisms to support 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 Africa's 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 continental master plan initiative with national planning processes and highlight the importance of building nationally owned processes for designing long-term energy scenarios capable of meeting national and pan-African energy milestones.

<sup>44</sup> More information available [here](#).

Along similar lines, IRENA's event on **Renewable energy roadmaps for Latin America: Perspectives and way forward** presented the REmap study's objectives, scope and expected outcomes<sup>45</sup>, while also delving into the insights and lessons learned from the development of the Central America and South America reports.

In recognition of the issue's growing importance, IRENA convened a meeting on **advancing renewables-based clean cooking solutions** to discuss opportunities, challenges, and solutions to accelerate the adoption of renewables-based clean cooking solutions in the context of the achievement of SDG 7. Together with partners, IRENA also organised a virtual knowledge exchange series in April 2023 focused on specific solution, including bioethanol, electric cooking and biodigesters.

In addition, IRENA held an event on **Solar photovoltaic (PV): A gender perspective** to discuss the findings of a report released in 2022 on the role of women in the solar PV sector<sup>46</sup>, while broadening the conversation on best measures and practices to "engender" the overall energy sector. The 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, as well as representatives of GGA partner institutions. At the meeting IRENA shared updates about the latest geothermal activities undertaken in the framework of the Alliance, and about efforts to promote the deployment of geothermal energy in end-use sectors. Members and partners also reflected on the activities of the Alliance, exchanged views on the best strategic approach for the coming years and provided updates on their geothermal-related activities.

The eleventh **Renewables Talk for IRENA Permanent Representatives**<sup>47</sup> held on 12 April 2023, was jointly organised by IRENA and the European Union Delegation to the UAE, in partnership with the permanent representation of UAE to IRENA. Taking as their theme **The European Green Deal: Challenges, opportunities, and best practices in reaching renewable energy targets**, Members had the opportunity to engage in-depth exchanges on what renewable energy systems can bring to a country, a region and the world.

In fall 2022, IRENA and the International Solar Alliance took up the role of secretariat of the new **Clean Energy Ministerial (CEM) Initiative on Transforming Solar Supply Chains**. Currently, Australia and the United States serve as co-chairs of the initiative. The initiative has three workstreams: (1) diversification; (2) innovation; and (3) standards and transparency. IRENA co-ordinates workstreams 2 and 3, whereas ISA supports workstream 3. On the eve of the IRENA Assembly in January 2023, IRENA hosted at its Abu Dhabi headquarters a high-level workshop on **envisioning a future with a resilient and diverse global solar supply chain**. The meeting promoted engagement and dialogue among policy makers and industry to seize shared opportunities and strengthen solar industry supply chains. The work of the Initiative served as input into related discussions at the IRENA Assembly.



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

On 20-23 March 2023, Brazil hosted the 2023 **CEM senior officials' meeting**<sup>48</sup> in Rio de Janeiro. The meeting provided an opportunity to strengthen and energise the CEM community; identify and advance practical actions to

45 More information available [here](#).

46 Available [here](#).

47 More information available [here](#).

48 More information available [here](#).

achieve CEM's mission and the CEM 3.0 strategy; and mobilise countries to bring their boldest ambitions to the 14<sup>th</sup> Clean Energy Ministerial in India. At the meeting, Members 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 **14<sup>th</sup> Clean Energy Ministerial and 8th Mission Innovation meeting (CEM14/MI-8)**<sup>49</sup> took place 19-22 July 2023 on the margins of the G20 Energy Transitions Ministerial Meeting. The meeting featured high-level ministerial dialogues, the launches of several global initiatives, award announcements, roundtables of ministers and CEOs, and a wide array of side events cutting across the themes of the clean energy transition. IRENA organised five events and participated in several others, covering issues such as industry decarbonisation pathways using clean hydrogen, energy access and the water-energy-food nexus.



In response to calls from Members, the **25<sup>th</sup> meeting of the Council**,<sup>50</sup> held on 23-24 May 2023, included in-depth programmatic discussions on selected issues. After the official opening of the Council, IRENA held a high-level panel on the road to COP28. Entitled **Renewables-based energy transitions and critical materials**, the panel discussed highlights from IRENA's report, *Geopolitics of the energy transition: Critical materials*, which is 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 intensified in preparation for COP28 in Dubai.

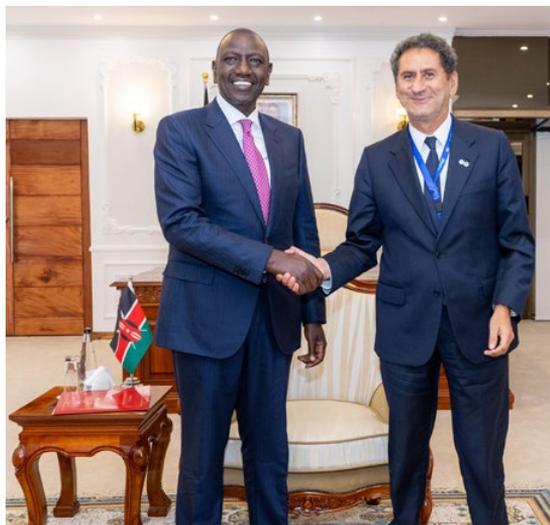
On 24 May 2023, a meeting on **Global Status of Geothermal Market and Technology** was held to share the key findings of the report on *Global geothermal market and technology assessment* and to discuss recent trends, challenges, solutions and opportunities to accelerate the development of the sector. 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 of public funds, and the need for international co-operation. (The issues discussed at the meeting are elaborated in IRENA's report by the same name).<sup>51</sup> Another meeting, entitled **Accelerating finance for energy transition**, presented an overview of the ETAF Platform, its work and the projects promoted through the Platform.

49 More information available [here](#).

50 More information available [here](#).

51 The publication 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 countries, along with several other partners.<sup>52</sup> The Partnership was officially launched by H.E. William Ruto, President of Kenya, on 4 September 2023, the first day of the Africa Climate Summit 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 work at the country level and engage with partners active on the ground.<sup>53</sup> APRA was also featured at two COP28 events: the World Climate Summit and Energy Day.



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**<sup>54</sup> organised 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 co-ordinate on the actions under a Joint Communiqué<sup>55</sup> 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**,<sup>56</sup> the anniversary day of the founding of IRENA in 2009. IRENA endorsed the UN resolution, calling it a meaningful step towards achieving a just and inclusive energy transition.

<sup>52</sup> 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.

<sup>53</sup> More information available [here](#).

<sup>54</sup> More information available [here](#).

<sup>55</sup> Available [here](#).

<sup>56</sup> More information available [here](#).

## Collaborative Frameworks

IRENA's **Collaborative Frameworks**<sup>57</sup> (Table 8) reflect the Agency's commitment to enhancing Member engagement and ownership of programme outputs, while enabling peer-to-peer collaboration and exchange of national experiences, challenges and solutions.

**TABLE 8** List of Collaborative Frameworks and their respective Co-facilitators

|  |   |   |
|--|---|---|
| COLLABORATIVE FRAMEWORK<br><b>on Critical Materials for the Energy Transition</b>                      |    |    |
| COLLABORATIVE FRAMEWORK<br><b>on Enhancing Dialogue on High Shares of Renewables in Energy Systems</b> |    |    |
| COLLABORATIVE FRAMEWORK<br><b>on the Geopolitics of Energy Transformation</b>                          |    |    |
| COLLABORATIVE FRAMEWORK<br><b>on Green Hydrogen</b>  |    |    |
| COLLABORATIVE FRAMEWORK<br><b>on Hydropower</b>  |    |    |
| COLLABORATIVE FRAMEWORK<br><b>on Just and Inclusive Energy Transition</b>                              |   |   |
| COLLABORATIVE FRAMEWORK<br><b>on Ocean Energy/Offshore Renewables</b>                                  |  |  |
| COLLABORATIVE FRAMEWORK<br><b>on Project Facilitation to Support on-the-ground Energy Transition</b>   |  |  |

The **Collaborative Framework on Critical Materials for the Energy Transition** promotes actions and exchanges of knowledge and best practices to ensure that scarcity of minerals and materials does not threaten the accelerated deployment of renewable energy. Co-ordinated by Peru and the United Kingdom, the Framework has three working groups focusing on observation (through an observatory), de-risking supply, and ESG and mining. The Framework met on 12 October to discuss findings from **Geopolitics of the energy transition: Critical materials**<sup>58</sup> and IRENA's forthcoming report on materials for electric vehicle batteries.

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 the SDGs, with emphasis on the nexus of water, agri-food and health. The meeting took a deep dive into various aspects of the productive use of energy in the agri-food sector, including technology options, policy and regulations, delivery and business models, and financing. The meeting highlighted the paucity of inter-sectoral approaches on the ground and called for promoting cross-sectoral strategies and

<sup>57</sup> More information available [here](#).

<sup>58</sup> Available [here](#).

access to finance through instruments supporting local enterprises and reducing farmers' risks. 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** (see also section on critical materials above). The Framework is preparing a project dubbed Geopolitics of the Energy Transformation: Indicators and Trends (GET-IT) to assist policy makers and others by monitoring and analysing geopolitical trends, risks and opportunities in the energy transition. The project will provide an empirical foundation for nuanced analyses of geopolitical patterns and trends and their linkages with 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; human security; and development.

The **Collaborative Framework on Green Hydrogen (CFGH)** met on 26 April 2023 to follow up on the **Hydrogen Action Pact (G7-HAP)**, launched by the G7 in May 2022. G7-HAP is designed to accelerate the development of low-carbon and renewable hydrogen, as well as other Power-to-X value chains, both domestically and at global scale.<sup>59</sup> IRENA developed recommendations on how to bring the G7-HAP into action. Framework sessions built on the G7-HAP and are helping to fulfil its recommendations.<sup>60</sup> To provide a complete picture of the current status quo, two sessions were held during 2023 – one on demand; the other on supply and how developing countries can benefit from the evolving hydrogen value chains. The outcomes of both meetings fed into the COP28 discussions in Dubai. The first meeting<sup>61</sup> 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 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 2023,<sup>62</sup> focusing on workforce development priorities in the context of just and inclusive energy 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. The ongoing dialogue will also inform IRENA's future work in this space.

The **Collaborative Framework on Ocean Energy/Offshore Renewables** met on 4 May 2023.<sup>63</sup> This sixth meeting served to present an IRENA-Ocean Energy Europe brief entitled **Scaling up investment for ocean energy technologies** and to solicit a second round of feedback and opinions for a brief on **Enabling frameworks for offshore wind scaleup: innovation in permitting** prepared by IRENA and the Global Wind Energy Council. Discussions also focused on developments in floating offshore wind and approaches to implementing 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 operationalise 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.

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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](#).

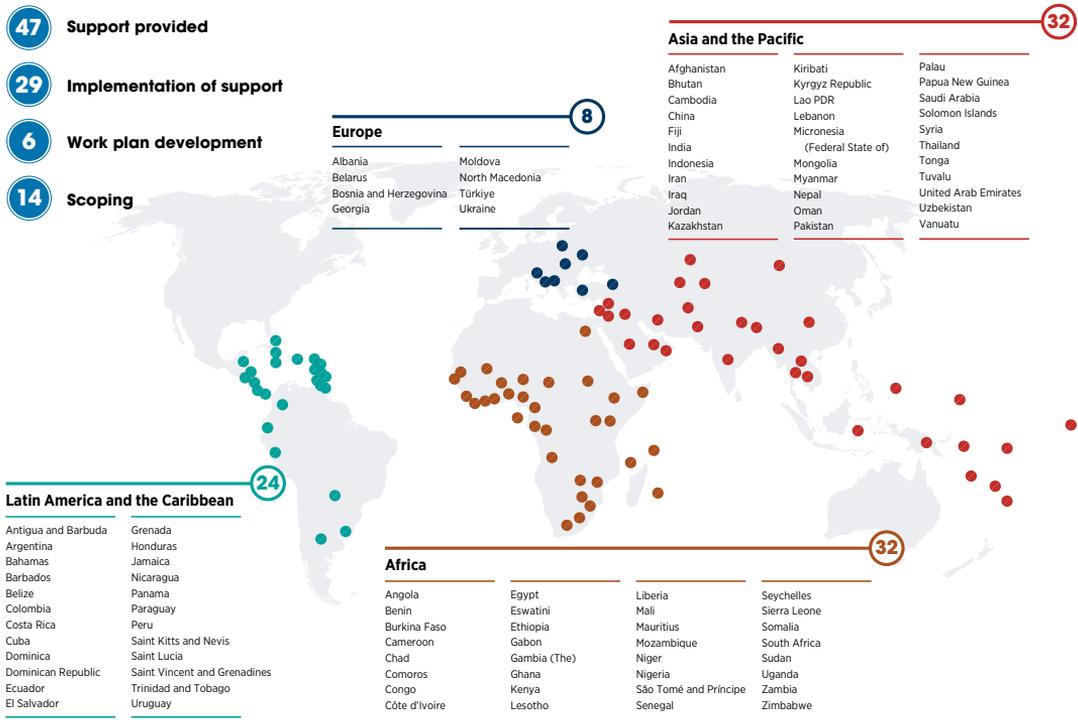
62 More information available [here](#).

63 More information available [here](#).

## Targeted Climate Action

IRENA Members that are party to the 2015 Paris Agreement have asked the Agency for targeted support for climate action to enhance their NDCs and support their implementation. In response, IRENA is providing such assistance to 96 countries across all continents. The recipient countries are home to 5.2 billion people and account for energy-related greenhouse gas emissions of 30 250 megatonnes of carbon dioxide equivalent.<sup>64</sup> Currently, IRENA’s support includes 190 activities to implement energy transition plans while reflecting these climate actions 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.

**Figure 18** IRENA’s efforts to enhance Members’ NDCs and support their implementation

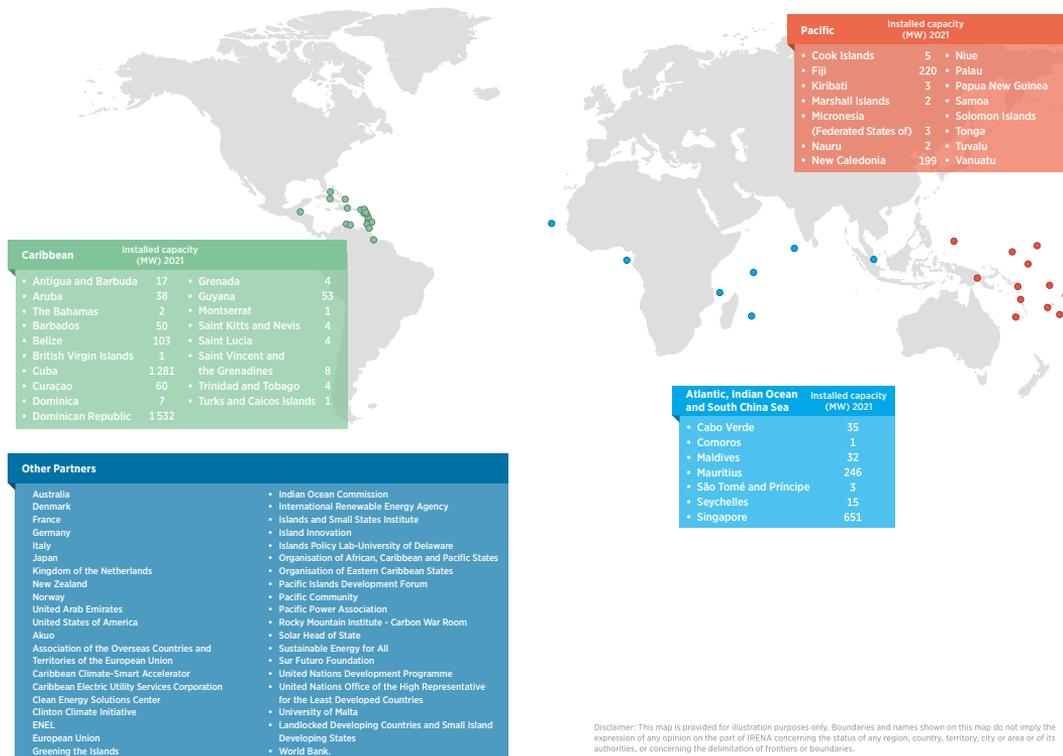


The positive trajectory of the work under the SIDS Lighthouses Initiative (LHI) continues apace. The 2023 edition of **SIDS Lighthouses Initiative: Progress**<sup>65</sup> summarises the remarkable achievements of SIDS in realising the SDGs and their respective NDCs across the Initiative’s 11 priority areas during 2021-2022. From the Initiative’s launch in 2014 through 2021, the total installed renewable energy capacity of LHI members almost doubled (Figure 19), with solar capacity growing sevenfold. The report highlights the role of renewables in improving lives and livelihoods in nexus areas such as agri-food, health, education, tourism, fisheries and transport. The report also documents the actions taken to go beyond implementation, fostering a renewable approach to development and climate adaptation. LHI’s many partners are listed in the figure.

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.

65 Available [here](#).

**Figure 19** Total installed renewable energy capacity (MW) of members of the SIDS Lighthouses Initiative, 2021



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

In May 2023, IRENA launched a short video series on **Human Impacts of Energy Transition Efforts in Small Island Developing States**,<sup>66</sup> 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 Lighthouses Initiative, participated in the **5<sup>th</sup> Pacific Regional Energy and Transport Ministers' Meeting** in Port Vila, Vanuatu, on 8-12 May 2023. Based on a discussion paper jointly submitted by the IRENA; the Department of Climate Change, Energy, the Environment and Water of the University of New South Wales; United Nations Industrial Development Organisation; and Pacific Community, IRENA delivered a presentation surveying green hydrogen development globally and highlighting key challenges and opportunities. A key outcome of the discussion is IRENA's decision to support the development of a Pacific Regional Green Hydrogen Roadmap.

On the sidelines of the United Nations General Assembly, IRENA, through the SIDS Lighthouses Initiative, hosted a high-level event on the theme of **Moving beyond the status quo: Actions towards accelerating SIDS Energy Transition to Strengthen Climate Resilience**.<sup>67</sup> The event served to showcase SIDS' NDC implementation achievements and to prioritise energy transition actions and gaps across mitigation, adaptation, and resilience – all as part of the preparations for COP28. Participants used the 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 contributed to the **Breakthrough Agenda 2023**,<sup>68</sup> which built on the analysis in the 2022 report. The 2023 edition provides an overview of progress in each sector against the objectives of the respective Breakthrough Agenda goal; an assessment of the state of collaboration and progress since the publication of the 2022 edition; arguments for strengthened international collaborative action to accelerate progress towards the Breakthrough Agenda's goals; and detailed recommendations on how to strengthen international collaborative work. In addition to offering updates for the power, hydrogen, steel, transport and agriculture sectors, it provided 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**<sup>69</sup> to advance understanding of the resource potential behind renewable energy 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. The report highlights the inextricable links between renewable energy sources and weather and climate conditions, while emphasising the importance of considering climate variability in decisions about renewable energy operations, management, planning and investment. Climate influences not only energy supply but also demand, particularly in the context of heating and cooling.

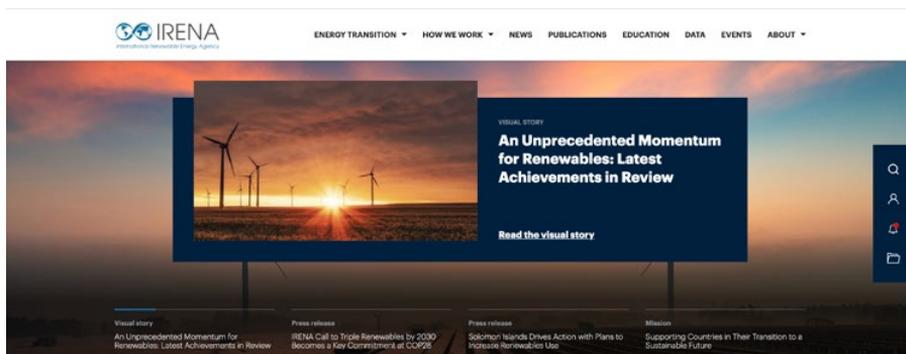
Ahead of COP28, IRENA and Bloomberg Philanthropies<sup>70</sup> announced a new COP28 partnership to turbocharge clean energy deployment and capital mobilisation in emerging markets and developing economies. Through this partnership, Bloomberg Philanthropies' support will enable IRENA to advance efforts 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 67100 media articles in 58 languages across 177 countries, representing a 55% increase over 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, World energy transitions outlook (WETO) 2023** (Volumes 1 and 2), **Geopolitics of the energy transition: Critical materials**, and **Global landscape of renewable energy finance 2023**. Since launch, the first volume of WETO 2023 and its preview were mentioned in 2,066 articles in 19 languages across 71 countries. In its first two weeks, IRENA's **Renewable capacity statistics 2023**, disseminated through a press release in nine languages, 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 stories, daily blog articles, videos, social media and a press release. An interactive innovation toolbox based on **Innovation landscape for smart electrification** was also published in time 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](http://www.irena.org) generated over 5 million page views. New formats like interactive visual stories has encouraged user engagement 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 13<sup>th</sup> session of the IRENA Assembly or COP28, and flagship publication launches, including that for *WETO 2023*, *Renewable capacity statistics* and *Geopolitics of the energy transition: Critical materials*. **Renewable power generation costs 2022** accumulated over 13 000 page views in two weeks after publication, resulting in almost 7500 report downloads. To date the report has been downloaded more than 25 000 times. The press release on the record growth in renewable capacity in 2022 was the Agency's read news item, with almost 16 500 views.

The new interactive versions of IRENA reports generated high engagement, with *WETO* (2022 and 2023) attracting over 37 000 views since January 2023, and *Geopolitics of the energy transition* almost 9 000 views since August. The interactive segments substantially increase engagement, adding to the download numbers for the full reports. The **Annual Report** has also been produced in a digital format accompanied by an interactive infographic, attracting significant attention. In addition, visual stories – cumulatively viewed more than 27 000 times – provide overviews, enhance access to the larger reports and strengthen outreach.

In 2023, IRENA produced and circulated more than 84 videos comprising video stories, stakeholder interviews, pledge interviews by Members, more than 11 youth-voice campaign videos, in-house-produced videos on critical topics and reports, animations, promotions of major IRENA initiatives, and showcases of major events such as COP28, the Assembly and the Council.

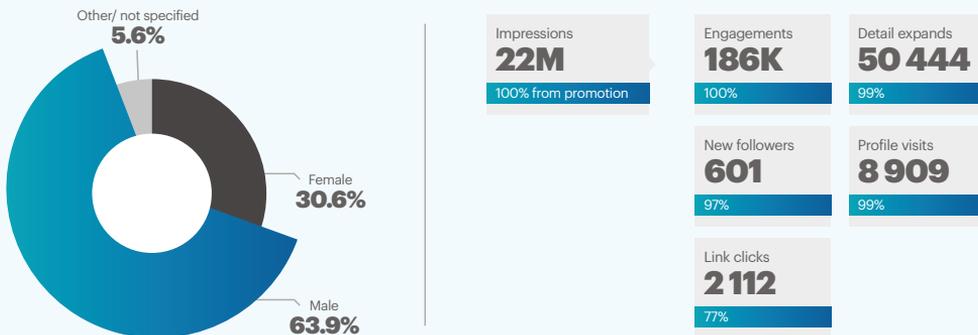
By 6 December 2023, dedicated mailing campaigns provided targeted information on IRENA press releases, publications and events to 82,679 stakeholders. Between 1 January and 6 December 2023, IRENA sent a total of 95 mailers, including 17 dedicated to COP28; 4 dedicated to the 13<sup>th</sup> Assembly; 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; 43.8%). The highest click rate was generated by the press release on the **WETO 2023 Preview** (21.5%).

## IN FOCUS

# Geopolitics of the Energy Transition: Critical materials

**Geopolitics of the energy transition: Critical materials**<sup>71</sup> attracted significant attention, as evidenced by 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.

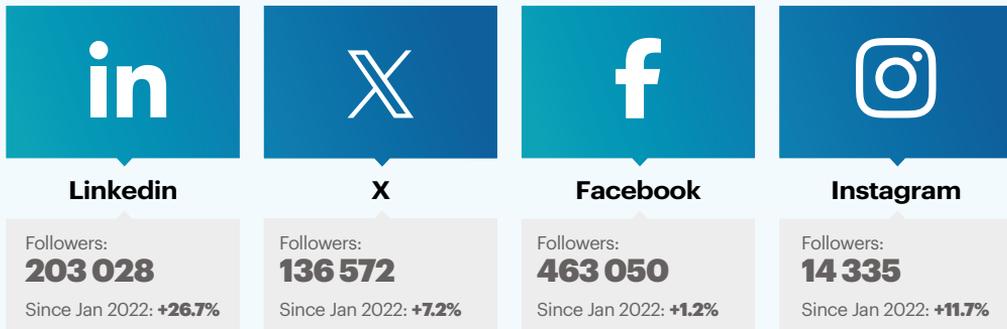
**Figure 20** Social media metrics of IRENA’s critical materials report on Twitter



In terms of social media presence, IRENA has reached 203 028 LinkedIn followers, up from 160 259 in January 2023, an increase of 26.7%. Furthermore, IRENA’s Twitter account now has 136 572 followers, up from 127 366 in January 2023 – an increase of 7.2%. It is worth highlighting that, after two consecutive years of fewer Facebook followers, 2023 saw a 1.2% increase – from 457 412 to 463 050 by mid-December. 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 was used to promote IRENA flagship reports and ministerial meetings during the 13<sup>th</sup> Assembly. Polls have been used regularly on Twitter and LinkedIn to engage with audiences. Instagram grid was used to present a ‘family photo’ for IRENA’s 13<sup>th</sup> Assembly.

**Figure 21** IRENA’s Social Media Statistics (as of 10 December 2023)



<sup>71</sup> Available [here](#).

IRENA's social media accounts have built a strong multilingual presence (Figure 21). During the reporting period, IRENA interacted with followers and provided timely information in 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, promoted the IRENA NewGen Accelerator Programme and provided 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, is expanding steadily.

## IN FOCUS IRENA at COP28



Significant communications work was done for COP28: eleven press-releases, four newsroom stories, two visual stories, 84 videos (some animated), a daily newsletter, multi-platform broadcasting on social media, and 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 in COP28, more than 600 posts were made on social media platforms, either during the year preceding the event or as it was taking place. Among these posts 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.

IRENA's 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

A timeline of key 2024 events appears in Figure 23. Some recent and upcoming IRENA publications are listed in Table 9. To deliver on the Agency’s mandate, IRENA relies on the contributions and support of its Members, co-operation with a wide range of experts and institutions, and the commitment of its talented staff.

## Upcoming key dates in 2024

|  IRENA<br>International Renewable Energy Agency |  WORLD FUTURE<br>ENERGY SUMMIT |  IRENA<br>International Renewable Energy Agency |  IRENA<br>International Renewable Energy Agency |  IRENA<br>International Renewable Energy Agency |  |
|--|---|--|--|---|---|
| <b>14<sup>th</sup> Assembly<br/>Part 1</b>   | <b>World Future<br/>Energy Summit</b>   | <b>14<sup>th</sup> Assembly<br/>Part 2</b>   | <b>27<sup>th</sup> Council</b>   | <b>28<sup>th</sup> Council</b>  | <b>COP29</b>  |
| <b>15</b><br>January<br>Virtual  | <b>16-18</b><br>April<br>Abu Dhabi  | <b>16-18</b><br>April<br>Abu Dhabi   | <b>13-14</b><br>June<br>Abu Dhabi  | <b>24-25</b><br>October<br>Abu Dhabi  | <b>11 - 22</b><br>November<br>Baku  |

**TABLE 9** Selected recent and upcoming IRENA publications

| Date   | Provisional report title   |
|--------|--|
| Mar-24 | Renewable capacity statistics 2024   |
| Apr-24 | Geopolitics of the energy transition: Energy security in the renewable era |
| Jun-24 | Tracking SDG7: The energy progress report                                  |
| Jul-24 | Renewable energy statistics 2024   |
| Jul-24 | Renewable power generation costs in 2024                                   |
| Sep-24 | World Energy Transitions Outlook 2024                                      |
| Sep-24 | Renewable energy and jobs: Annual review 2024                              |
| Dec-24 | Off-grid renewable energy statistics 2024                                  |

# EFFECTIVE FUNCTIONING OF THE ORGANISATION

To deliver on the Agency's mandate, IRENA relies on the contributions and support of its Members, on co-operation with a wide range of experts and institutions, and on the commitment of a talented staff.

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 continues 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 section's role also includes 1) preparation of the Agency's budget (in co-operation with the Planning and Programme Support office) and 2) administration of core and voluntary contributions through budgeting and control services, 3) forecasting, and 4) preparation of financial reports for management, governing bodies and donors.

## Finance

The Finance Section manages the Agency's financial resources and prepares annual financial statements, ensuring full compliance with IRENA's rules and regulations and with international accounting standards.

The section also manages day-to-day financial operations, including payment processing, payroll, investments and contributions. In addition, it ensures accuracy, timeliness and compliance in financial transactions. Finance continually seeks to increase efficiencies in its processes while maintaining internal controls and mitigating potential risks.

## Information and Communication Technology (ICT)

ICT provides state-of-the-art IT services and solutions to IRENA business units. The section continually improves its IT capabilities through initiatives for infrastructure modernisation (at headquarters in Abu Dhabi, in the Bonn and New York offices, and in the cloud), operational excellence (IT governance, cost optimisation, proactive maintenance, regular monitoring) and internal capacity building (trainings, technology workshops).

Pursuant to the Agency's IT strategy – which is closely aligned with its medium-term strategy – ICT is strengthening its role as:

- A driver of digital transformation and institutional effectiveness 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 introduced to ensure that candidates' experience was more prominent in responses to vacancy announcements.
- An enabler of value-added business capabilities on renewable energy through the maintenance and enhancement of the IRENA website and web platforms on renewable energy. A new IRENA website was launched, including enhancements of the design, structure and visitors' experience. Additional enhancements were made relative to COP28.

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

## Human Resources

During the biennium, the work of the Agency’s Human Resources unit spanned administrative, operational and strategic activities. Significant efforts were made to align human resource policies and processes more closely with the Agency’s strategic and programmatic objectives. Those efforts included widening the sourcing of personnel and building the organisational capabilities needed to achieve the Agency’s operational objectives through the right combination of skills, knowledge, competencies and expertise, while also promoting geographical, cultural and gender diversity.

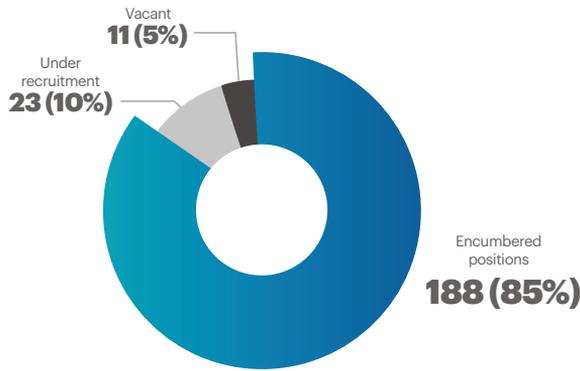
Human resources practices, rules and procedures have been continually refined and updated to be responsive to the emerging and evolving needs and challenges of the Agency while safeguarding its core values and principles. Attracting, developing and retaining highly qualified staff is key to the Agency’s 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.

Since 1 January 2023, 53 vacancies (core and project, including interns and associate professionals) were announced and over 12 073 applications were received. Of 93 core posts, 82 are filled or under recruitment (72 filled and 10 under active recruitment) and 11 are vacant (Table 10). The 72 staff in core posts are from 45 nationalities, 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 24) of 77 nationalities, with 46% women and 54% men (Figures 25 and 26). There are also six loaned officers and three seconded officers (Tables 11 and 12).

**TABLE 10** Core and project posts filled or under recruitment 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                          | 23         |
| P-3/4                                   | 76                          | 80         |
| P-2/1                                   | 65                          | 65         |
| <b>Sub-total Professional and above</b> | <b>172</b>                  | <b>178</b> |
| <b>General Services</b>                 | <b>39</b>                   | <b>44</b>  |
| <b>Total</b>                            | <b>211</b>                  | <b>222</b> |

**Figure 23** Status of staff positions as of 15 November 2023



**FIGURE 24** Employee profile

**Nationalities at IRENA**



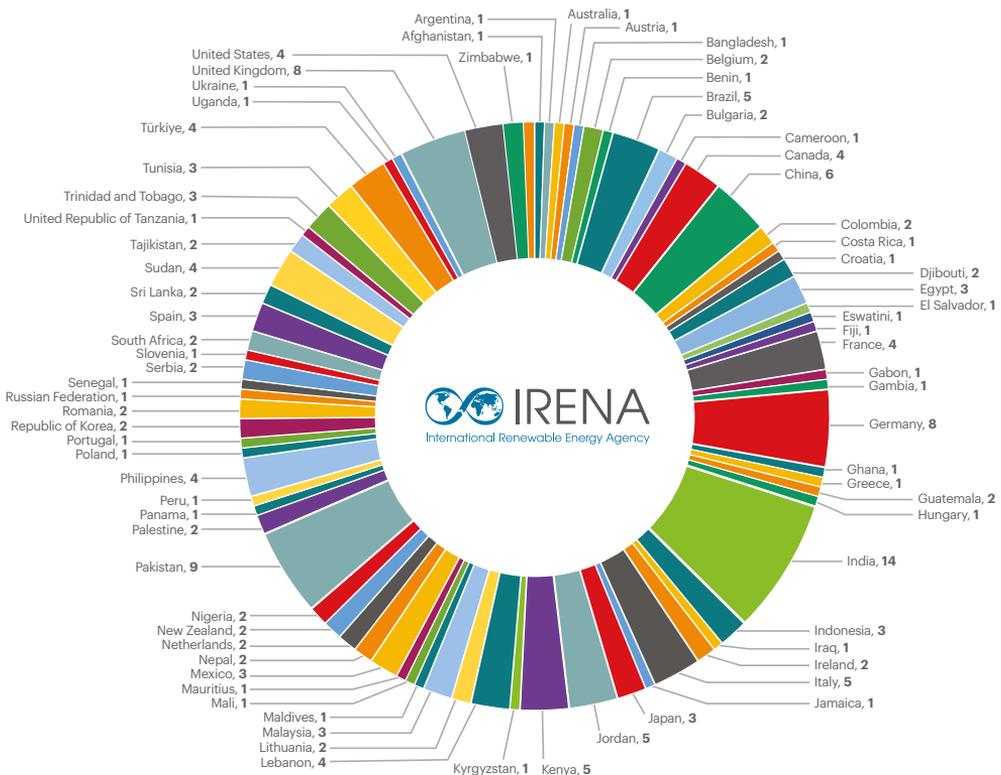
**Staff gender balance**



**Senior team gender balance**



**FIGURE 25** Geographical distribution of IRENA's core and project posts, as of 15 November 2023



**TABLE 11** 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 12** Seconded officers (voluntary contributions) as of 15 November 2023

| Division | Title                                  | Loaned 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 pursue cost-effective procurement of goods and services. To ensure transparency, fairness, openness and competitiveness of bidding opportunities, requests for proposals and invitations to bid are posted on IRENA's website and disseminated to vendors registered in IRENA's vendors' database. High value and complex procurement opportunities are also uploaded and advertised on the United Nations Global Market portal, to maximise competition and include international vendors.

From January 2023 through 15 November 2023, more than 375 procurement contracts and agreements for goods and services were awarded for a total of USD 6.2 million. As of 15 November 2023, the number of vendors registered in the Procurement Section's database had grown to reach 673 vendors 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, staff and participants in 74 workshops. The section continues to provide facility management services for IRENA Headquarters and staff. This important function 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 health and safety enhancements to provide an even better work environment for staff.

# OVERVIEW OF PROGRESS IN IMPLEMENTATION

In line with IRENA's current medium-term strategy and four pillars, in 2023-2024 a total of 64 work programme outputs maintained, and furthered, IRENA's status as a centre of excellence for knowledge and innovation in support of the ongoing energy transition, a global voice of renewable energy, a network hub for all stakeholders in the energy transition and a source of advice and support for countries (Table 13). At the 23<sup>rd</sup> meeting of the Council, Members requested more granular reporting on the implementation of activities under each output, and detailed information on whether they are being funded by core assessments or voluntary contributions.

**Table 13** IRENA's four pillars

| 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 energy systems, advance strategies to decrease global emissions and achieve sustainable development. |

The overall assessment of progress outlined here is based on the average pace of individual activities' implementation, which continues as envisioned.

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

## Resource overview

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

**TABLE 14** 2022-2023 Biennium Budget utilisation by funding source (USD thousands)

|   | 2022-2023<br>Biennium budget | Utilisation as of 15 Nov 2023 |   |
|---|------------------------------|-------------------------------|---|
|   |                              | Commitment and<br>expenses    | Proportion of 2022-<br>2023 Biennium budget |
| <b>Assessed contributions (core budget)</b> | 44 778                       | 42 708                        | 95%   |
| <b>Core non-assessed UAE</b>                |                              |                               |   |
| UAE support                                 | 5 000                        | 4 657                         | 93%   |
| Governing body meetings                     | 3 200                        | 3 091                         | 97%   |
| IT infrastructure support                   | 920                          | 920                           | 100%  |
| <b>Subtotal</b>                             | <b>9 120</b>                 | <b>8 668</b>                  | <b>95%</b>                                  |
| <b>Core non-assessed Germany</b>            |                              |                               |   |
| Innovation and Technology Centre            | 10 890                       | 10 595                        | 97%   |
| <b>Subtotal</b>                             | <b>10 890</b>                | <b>10 595</b>                 | <b>97%</b>                                  |
| <b>Total core non-assessed</b>              | <b>20 010</b>                | <b>19 263</b>                 | <b>96%</b>                                  |
| <b>Grand total</b>                          | <b>64 788</b>                | <b>61 971</b>                 | <b>96%</b>                                  |

## Biennial budget overview

**TABLE 15** 2022-2023 Biennium Budget utilisation by division (USD thousands)

| Division                               | 2022-2023<br>Biennium<br>budget | Utilisation as of 15 Nov 2023 |   |
|--|---------------------------------|-------------------------------|---|
|  |                                 | Commitment and<br>expenses    | Proportion of 2022-<br>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%   |
| <b>Grand total</b>                     | <b>64 788</b>                   | <b>61 971</b>                 | <b>96%</b>                                  |

**TABLE 16** Core non-assessed contributions (USD Thousands)

### Core non-assessed and other voluntary contributions

as of 15 November 2023, in USD

| Budgeted voluntary contributions                     |                   |                   |
|--|-------------------|-------------------|
|  | 2022-2023         |                   |
|  | Committed         | Received          |
| <b>Germany</b>                                       |                   |                   |
| IRENA Innovation and Technology Centre               | 10 890 000        | 10 890 000        |
| <b>United Arab Emirates (UAE)</b>                    |                   |                   |
| UAE support  | 5 000 000         | 5 000 000         |
| Governing body meetings                              | 3 200 000         | 3 200 000         |
| IT infrastructure support                            | 920 000           | 920 000           |
| <b>Subtotal UAE contributions</b>                    | <b>9 120 000</b>  | <b>9 120 000</b>  |
| <b>Total budgeted voluntary contributions</b>        | <b>20 010 000</b> | <b>20 010 000</b> |
| <b>Other voluntary contributions</b>                 |                   |                   |
| Donor/project  | 2022-2023         |                   |
|  | Committed         | Received          |
| Germany  | 269 831           | 190 588           |
| Japan  | 2 726 727         | 2 726 727         |
| Norway   | 1 278 551         | 1 278 551         |
| Republic of Korea                                    | 16 060            | 16 060            |
| United Arab Emirates (UAE)                           | 624 473           | 624 473           |
| United Kingdom of Great Britain and Northern Ireland | 4 186 204         | 4 106 204         |
| United Nations Office for Project Services (UNOPS)   | 247 525           | -                 |
| <b>Total</b>   | <b>9 349 371</b>  | <b>8 942 603</b>  |

### 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        |
| <b>Total</b>                                       | <b>1 500 000</b> | <b>500 000</b> |

### Multi-Year voluntary contribution

| 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                   |
| <b>Total</b>  | <b>52,355,107</b>      | <b>11 457 598</b>      | <b>11 336 213</b>           |

\*Contributions pledged and partially received prior to 2022.

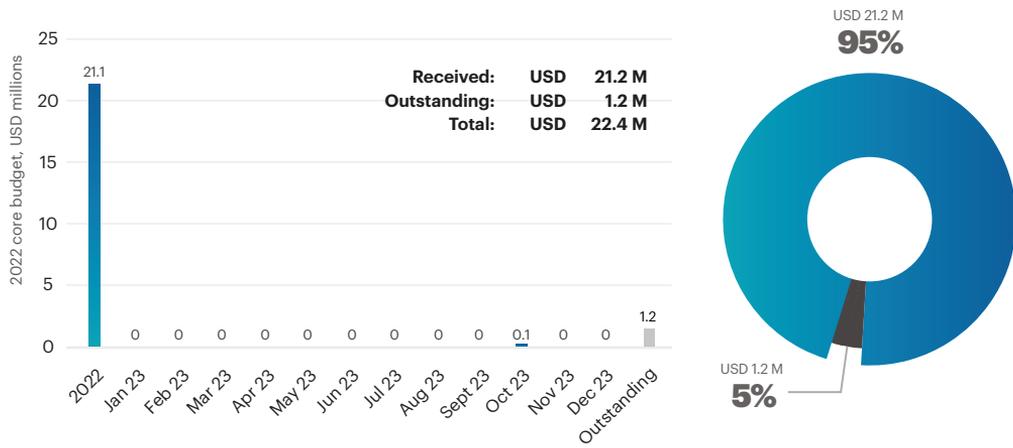
### Multi-Year voluntary contribution - Non-members

| 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                     |
| <b>Total</b>                                | <b>6 265 000</b>       | <b>1 433 715</b>       | <b>551 000</b>              |

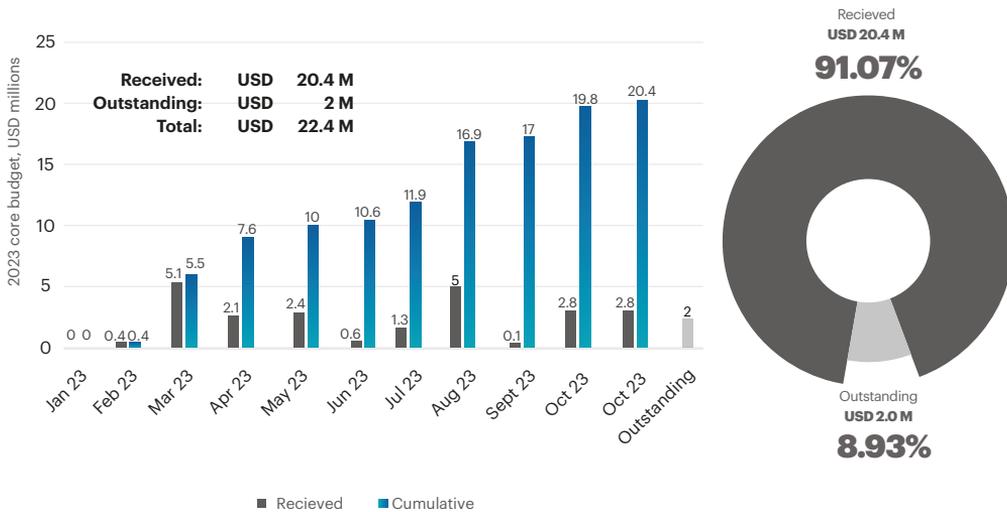
### Fund for developing countries representatives

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

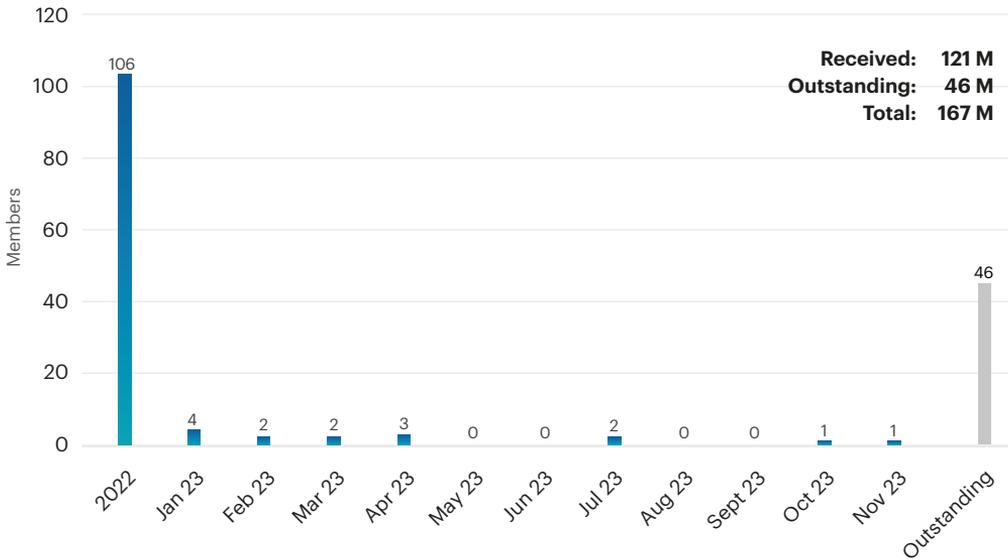
**FIGURE 26** Received and outstanding assessed contributions for 2022 core budget (in USD millions, as of 15 November 2023)



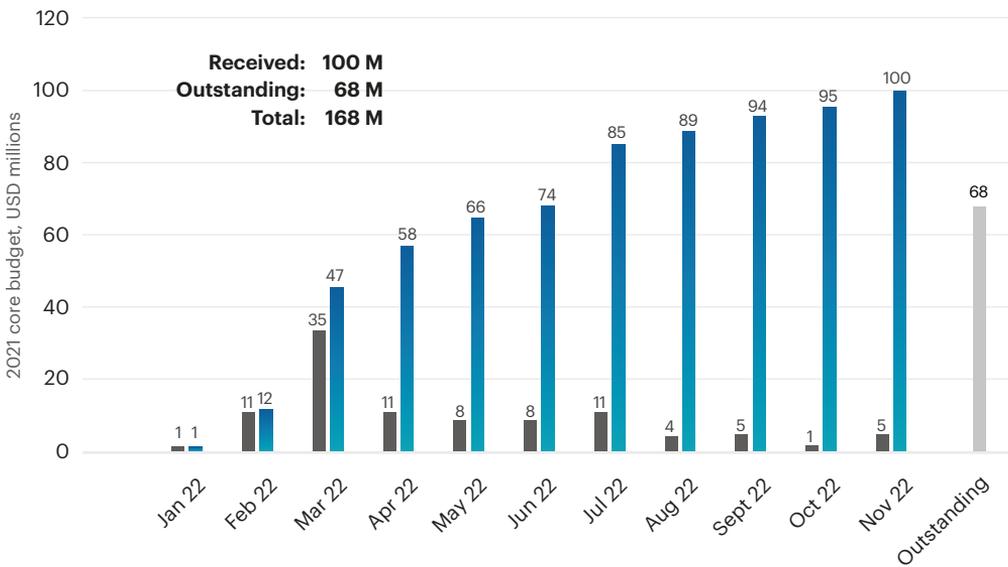
**FIGURE 27** Received and outstanding assessed contributions for 2023 core budget (in USD millions, as of 15 November 2023)



**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 Lighthouse Initiative 2.0  
IRENA support for 2023-2027

## Denmark

**European Commission  
DG ENER**

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



**DG NEAR**

Innovation to foster the renewable energy transition.

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

**DG INTPA**

Regional Energy Transition Outlooks in Africa and Latin America and Caribbean.

## Flanders Region of Belgium



Fund for Developing Country Representatives (FDCR)

## Germany

**Federal Ministry of Economics and Technology (BMWK)**

World Energy Transitions Outlook, Long-term Energy Scenarios, Green Hydrogen & CEM Transforming Solar Supply.



**Federal Foreign Office  
International Climate Initiative  
Physikalisch-Technische Bundesanstalt (PTB)  
GIZ**

Geopolitics of Hydrogen Economy  
SIDS Lighthouses  
Quality Infrastructure for Green Hydrogen  
Senegal's clean energy transition

# IRENA Donors (2022-2023)

(as of 15 November 2023)

## Japan



**Ministry of Agriculture, Forestry and Fisheries (MAFF)**

Development of Circular Economy with Bioenergy and Co-products  
Biomass Strategy for Sustainable Bioenergy Production

**Ministry of Economy, Trade and Industry (METI)**

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

## Walloon Region of 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

# IRENA Donors (2022-2023)

(as of 15 November 2023)

## Open Society Foundations



Empowering Lives and Livelihoods

## Rockefeller Brothers Fund



Acceleration Partnership for Renewables in Africa

## United Nations Development Programme (UNDP)



Climate Vulnerable Forum

## United Nations Office for Project Services (UNOPS)



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

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

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.

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 | Project affected by difficulties in engagement/commitment of stakeholders.                                |
|                | Commitments affected due to changes of government and/or political priorities.                            |
|                | Lack of access to data.   |
|                | Limited capacity of local partners impedes progress and results.  |
|                | Catastrophic events (e.g. natural hazards and disasters, pandemics etc.) affect operations and schedules. |
| Internal risks | Key IRENA staff working on the activity has left.   |
|                | 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) <sup>71</sup>                                     |    | "World Energy Transitions Outlook 2022" (March 2022) <a href="#">↗</a>  |
|  |    | "World Energy Transitions Outlook 2023" Preview (March 2023)  |
|  |    | "World Energy Transitions Outlook 2023" Volume 1 (June 2023) <a href="#">↗</a>  |
|  |    | "World Energy Transitions Outlook 2023" Volume 2 <a href="#">↗</a>  |
| Regional Energy Transition Outlooks (selected regions in Africa, Europe, Latin America) <sup>*</sup> |    | "Renewable Energy Roadmap for Central America" report (March 2022) <sup>72</sup> <a href="#">↗</a>  |
|  |    | "Renewable Energy Outlook for ASEAN: Towards a regional energy transition" report (September, 2022) <sup>73</sup> <a href="#">↗</a>                                 |
|  |   | "Green Hydrogen Trade Outlook for ASEAN" report <sup>74</sup>   |
|  |  | "Renewable Energy Roadmap for South America" report <sup>75</sup>   |
|  |  | "Renewable Energy Roadmap for EU" report <sup>76</sup>  |
|  |  | "Regional report on conditions and obstacles for the development and integration of renewable energy sources in the Eastern Partner countries" report <sup>77</sup> |
|  |  | "Renewable Energy Transition Outlook for West Africa" report. <sup>78</sup>   |
|  |  | "Renewable Energy Transition Outlook for Southern Africa" report. <sup>79</sup>   |
|  |  | "Renewable Energy Transition Outlook for North Africa" report. <sup>80</sup>  |
|  |  | "Renewable Energy Transition Outlook for Eastern Africa" report. <sup>81</sup>  |
|  |  | "Renewable Energy Transition Outlook for Central Africa" report. <sup>82</sup>  |

\* Outputs supported by voluntary contributions.



72 Supported by the Government of Germany.  
 73 Supported by the Government of Norway.  
 74 Supported by the Government of Denmark.  
 75 Supported by the Government of Japan.  
 76 Supported by the Government of Norway.  
 77 Supported by the European Commission.  
 78 Supported by the Government of Norway.  
 79 Supported by the European Commission.  
 80 Supported by the European Commission.  
 81 Supported by the European Commission.  
 82 Supported by the European Commission.  
 83 Supported by the European Commission.

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

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

85 See related webinar [here](#).

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

|   |   |  |
|---|---|--|
| Power Generation Costs<br>(annual update)                               |    | "Renewable Power Generation Costs in 2021" report (July 2022) <a href="#">↗</a>  |
|   |    | "Renewable Power Generation Costs in 2022" report <a href="#">↗</a>  |
|   |    | "The Cost of Financing for Renewable Power" report (May 2023) <a href="#">↗</a>  |
| Costs and Performance of<br>End-use Technologies –<br>selected insights |    | G20 "Low-cost finance for the energy transition" report (May 2023) <a href="#">↗</a>   |
|   |    | "Renewable solutions in end-uses: Heat pump costs and markets" report (Nov 2022) <a href="#">↗</a>   |
| Annual Jobs Review<br>(annual update)                                   |    | "Renewable Energy and Jobs 2022" report (September 2022) <a href="#">↗</a>   |
|   |    | "Renewable Energy and Jobs 2023" report (September 2023) <a href="#">↗</a>   |
| Patents and Standards<br>database INSPIRE<br>(annual update)            |    | Updated tool <a href="#">↗</a>   |
|   |    | "Innovation Trends in Electrolysers for Hydrogen Production" report (May 2022) <sup>86</sup> <a href="#">↗</a>   |
|   |    | "Grid Codes for Renewable Power Systems" report (April 2022) <a href="#">↗</a>   |
|   |    | "Renewable Technology Innovation Indicators: Mapping progress in costs, patents and standards" report (March 2022) <a href="#">↗</a>   |
|   |    | International Forum for Quality Infrastructure within India's Solar PV Sector (March 2023) <a href="#">↗</a>   |
| Global Atlas updates on<br>renewable potentials                         |    | Improving functionalities of the IRENA Global Atlas for Renewable Energy platform [ <a href="#">↗</a> news articles, <a href="#">↗</a> to access the version 4.1, <a href="#">↗</a> 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"> <li>Annual update of the renewable energy resource datasets from data providers (Members, international institutions and private sectors – <a href="#">WCMC-UNEP</a>, <a href="#">ORNL</a>, <a href="#">WRI</a>, <a href="#">NOVELTIS</a>, <a href="#">ANU</a>, <a href="#">FAO</a>, <a href="#">TheWindPower</a>, and <a href="#">MeteoTest</a>)</li> <li>Integration of zones for investment opportunities for utility-scale solar PV and wind projects in selected countries in Africa, Latin America, and Southeast Asia [ <a href="#">↗</a> for news articles].</li> <li>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).</li> </ul> |
|   |  | Bioenergy Simulator <sup>87</sup> [ <a href="#">↗</a> news article, <a href="#">↗</a> for simulator]   |
|   |  | Maintaining the operation of the Bioenergy simulator platform by upgrading the backend   |
|   |  | Revamping of the Bioenergy simulator platform – updating of the datasets, improving the methodology, and upgrading the user interface  |
|   |  | Webinars on the Global Atlas for Renewable Energy <ul style="list-style-type: none"> <li>• <i>Open-Source Geospatial Solutions for Energy Access</i> organised by the World Resource Institute (April 2022) <a href="#">↗</a></li> <li>• <i>Energy System Modelling for the Energy Transition</i> organised by the SDG 7 Youth Constituency (September 2022) <a href="#">↗</a></li> <li>• <i>Webinar to release the new version of the Global Atlas version 4.1</i> <a href="#">↗</a></li> </ul>   |
|   |  | 2022 Year in Review: Climate-driven Global Renewable Energy Potential Resources and Energy Demand" report (December 2023) <a href="#">↗</a>  |

87 See webinar [here](#).

88 Supported by the Government of Norway.

|  |   |  |
|--|---|--|
| SDG 7 Tracking Report<br>(2022 and 2023 editions)*88 |    | "Tracking SDG 7: The Energy Progress Report" (2022) report (June 2022) <a href="#">↗</a>   |
|  |    | "Tracking SDG 7: The Energy Progress Report" (2023) report <a href="#">↗</a>   |
| Innovation Week                                      |    | Innovation Engagements and Networks during the reporting period include:<br>Innovation Day: Canada March 2022 (March 2022) <a href="#">↗</a>   |
|  |    | Support to Mission Innovation (MI) and Clean Energy Ministerial (CEM). In 2022 and 2023, it included:<br>MI: Support by providing inputs into action plans and policies to Missions on Power, Hydrogen, Net-zero industry, Cities, Biorefineries and Shipping  |
|  |    | MI: Member of the Technical Advisory Group; and member of the MI Secretariat and designing and developing inputs to the MI Insights Module<br>MI Signed a new MI-IRENA MoU in GCEAF in Pittsburgh <a href="#">↗</a>  |
|  |    | <ul style="list-style-type: none"> <li>• Job Creation and Gender Balance in the Energy Transition: Priority Actions and Perspectives.</li> <li>• Pathways for Rapid Decarbonisation of Power Systems.</li> <li>• LTES Campaign Global dialogue on long-term transition pathways for road transport<sup>89</sup></li> <li>• Facilitating and Accelerating PtX-Market Ramp-up</li> <li>• Accelerating technology-based carbon removals: BECCS and DAC</li> <li>• Innovation co-operation: global approaches to enhancing national policies and measuring progress</li> </ul> |
|  |    | Active participation in CEM/MI Senior Official Meeting in Rio de Janeiro, Brazil <a href="#">↗</a>   |
|  |  | <ul style="list-style-type: none"> <li>• Organised side event on <i>Accelerating the Clean Energy Transition: Insights from the Long-Term Energy Scenario (LTES) Initiative</i><sup>90</sup></li> </ul>  |
|  |  | CEM: Leading Long-Term Energy Scenario Initiative, knowledge partner to Transforming Solar Supply Chains Initiative and the Clean Energy Marine Hubs initiative <sup>91</sup>  |
|  |  | Co-ordinating the work of the CEM Initiative on Transforming Solar Supply Chains <sup>92</sup>   |
|  |  | Support to Glasgow Breakthrough Agenda – The Breakthrough Agenda Report 2022 (September 2022) <sup>93</sup> <a href="#">↗</a>  |
|  |  | Support to Glasgow Breakthrough Agenda - The Breakthrough Agenda Report 2023 <sup>94</sup> (hydrogen and power, contributing to steel, cement and road transport) <a href="#">↗</a>  |
| Human resources and<br>workforce planning strategy   |  | Support for Global Offshore Wind Alliance (GOWA) meeting with countries (March 2022)   |
|  |  | 32 new staff appointments and internal movements and seven new Associate Professional  |
|  |  | Reclassification and comprehensive review of all Terms of Reference.   |
|  |  | Directives on Individual Consultants   |
|  |  | Directives on Performance Management and Recruitment   |

89 Supported by the International Bank for Reconstruction and Development.

90 Supported by the Government of Germany and Government of Denmark.

91 Supported by the Government of Germany and Government of Denmark.

92 Supported by Government of Denmark and Government of Germany.

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

94 Supported by the Government of the United Kingdom.

## 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) <sup>95</sup>                            |        | "Socioeconomic Footprint of the Energy Transition: Japan" report (September 2022) <a href="#">↗</a>   |
|  |        | "Socioeconomic Footprint of the Energy Transition: Indonesia" report (January 2023) <a href="#">↗</a>   |
|  |        | "Socio-economic Footprint of the Energy Transition: Southeast Asia" report (July 2023) <a href="#">↗</a>  |
|  |        | "Socioeconomic Footprint of the Energy Transition: Egypt" report (November 2023) <a href="#">↗</a>  |
|  |        | "Socioeconomic Footprint of the Energy Transition: South Africa" report (November 2023) <a href="#">↗</a>   |
| Leveraging Local Capabilities (selected technologies)  |        | "Leveraging Local Capacity for Small Scale Hydropower" report (September 2023) <a href="#">↗</a>  |
|  |        | "Leveraging Local Capacity for CSP" report  |
| Ecosystems for Sustainable Livelihoods*  |        | "Fostering Livelihoods with Decentralised Renewable Energy: An Ecosystems Approach" report (January 2022) <a href="#">↗</a>   |
| Decentralised Renewable Energy Solutions* <sup>96</sup> (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) <a href="#">↗</a> <ul style="list-style-type: none"> <li>Organised a mini workshop with international organisations (WBG ESMAP, WRI, SE4ALL, KTH) to raise awareness on platform (Aug 2023).</li> <li><a href="#">Platform</a> is available and running on the IRENA server</li> </ul> |

<sup>95</sup> Supported by the Government of the United Kingdom.

<sup>96</sup> Supported by Government of Denmark and Government of Japan.

|  |   |   |
|--|---|---|
| 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) <a href="#">↗</a>  |
| Power Market Design for the Energy Transition Report   |    | "Re-organising Power Systems for the Transition" report (June 2022) <a href="#">↗</a>   |
| 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" <sup>97</sup>   |
|  |    | Workshop bringing together global education partners and stakeholders held in Abu Dhabi to form a new Energy Transition Education Network (July 2022) <sup>98</sup> |
|  |    | Energy Transition Education Network launched at COP27 (November 2022) <a href="#">↗</a>   |
|  |    | E-learning platform with online self-study courses on key renewable energy topics <sup>99</sup>   |
| 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) <a href="#">↗</a>   |
|  |    | "Renewable Energy Targets in 2022: A Guide to Design" report (November 2022) <sup>100</sup> <a href="#">↗</a>   |
|  |    | "Renewable energy targets in small island developing states" technical paper (November 2022) <a href="#">↗</a>  |
|  |   | 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 Energy Transformation: Critical Materials" report (July 2023) <sup>101</sup> <a href="#">↗</a>  |
| Gender and Renewable Energy report: tracking global progress                                     |  | "Solar PV: A Gender Perspective" report. (September 2022) <a href="#">↗</a>   |
|  |  | "Gender and Renewable Energy Report: Tracking Global Progress" survey   |

97 Supported by the Government of Walloon region, Belgium.

98 Supported by Government of the United Arab Emirates.

99 Supported by Government of the United Arab Emirates.

100 Supported by Government of Norway.

101 Supported by Government of the Walloon Region, Belgium.

|  |   |  |
|--|---|--|
| 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) <a href="#">↗</a> <sup>102</sup>  |
|  |    | 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 <sup>103</sup> |
|  |    | “Bioenergy for the Transition: Ensuring Sustainability and Overcoming Barriers” report (August 2022) <a href="#">↗</a>   |
|  |    | “Innovation Outlook: Renewable Ammonia” report (May 2022) <a href="#">↗</a>  |
|  |    | G20 “Towards a circular steel industry” report (July 2023) <a href="#">↗</a>   |
|  |    | Partnership Agreement between IRENA and the International Chamber of Shipping  |
|  |    | 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 <sup>104</sup>   |
|  |    | Technical Brief – “Fomenting investment in the bioenergy sector in Latin America” <sup>105</sup>   |
|  |    | “Assessment of the sustainable bioenergy potential in the Caribbean Small Island Developing States – Bioenergy Potential, Impacts Assessment and Recommendations” report <sup>106</sup>                                      |
| End-use Decarbonisation: guides for policy-making (procurement; heating and cooling; transport; green hydrogen)* |    | “Agricultural residue-based bioenergy: Regional potential and scale-up strategies” report (Nov 2023) <sup>107</sup> <a href="#">↗</a>  |
|  |    | “Green hydrogen for industry: A guide to policy making” report (March 2022) <sup>108</sup> <a href="#">↗</a>   |
|  |   | “Renewable energy policies for decarbonisation of transport” report<br>“Creating a global hydrogen market: Certification to enable trade” report (January 2023) <a href="#">↗</a>  |
| Greening the Gas System*   |  | Accelerating hydrogen deployment in the G7: recommendations for the Hydrogen Action Pact (November 2022) <sup>109</sup> <a href="#">↗</a>  |
| Energy Transition and Critical Materials*  |  | “Critical Materials For The Energy Transition: Lithium” brief (January 2022) <a href="#">↗</a>   |
|  |  | “Critical Materials for The Energy Transition: Rare Earth” brief (May 2022) <sup>110</sup> <a href="#">↗</a>   |
|  |  | “Critical Materials for the Energy Transition: EV Batteries” report  |
|  |  | Ministerial Dialogue at 13 <sup>th</sup> 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 in the Energy Transition” report   |
| Corporate Sourcing of Renewable Energy*  |  | Activities cancelled due to lack of funding  |

102 More information available [here](#).

103 Supported by the European Commission.

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\*



Comprehensive Global Communication Strategy for 2022 was successfully implemented, including the second phase of strategic media partnership and social media campaign



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”



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”<sup>111</sup>



Strategic communications support around key, global high-level events, including IRENA Assembly, IRENA Innovation Week, COP28, Africa Climate Week, G7, G20, BETD etc.



Issued 95 IRENA publications, comprising 42 reports [↗](#) and an additional 53 specialised publications



“Tripling renewable power and doubling energy efficiency by 2030: Crucial steps towards 1.5°C” report (October 2023) [↗](#)



Eight IRENA report translations issued (in Chinese, English, French, Japanese, and Mongolian)



IRENA publications featured on knowledge sharing platforms and in electronic libraries/stores, including Apple store, Scribd, Refinitiv, Amazon and others



Maintain regular strategic publication output, with predictable flagship reports, timely thematic studies and other specialised releases



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



Issued an updated “IRENA standard abbreviations” document to ensure harmonisation across the Agency’s published materials



Issued “IRENA guidelines for editors” to provide rules and guidance for editorial consultants working with the Agency



Issued “IRENA guidelines for designers” to provide rules and guidance for design consultants working with the Agency



Hosted introductory briefing with new IRENA staff to highlight key procedures and stages in IRENA publishing and quality control processes



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



Ongoing communication support provided in relation to publication releases, webinars, press releases, digital stories, short videos, website updates etc

111 Supported by the Government of Germany.

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#### IRENA Insights webinar series in 2022 [↗](#)

- *Reaching Zero with Renewables: Capturing Carbon*
- *Sector Coupling in Facilitating the Integration of Variable Renewable Energy in Cities*
- *Pathways to Decarbonise the Shipping Sector by 2050*
- *INSPIRE: IRENA's Platform on Patent Data and International Standards for Renewables*
- *Geopolitics of the Energy Transformation: The Hydrogen Factor*
- *Smart Electrification with Renewables: Driving the Transformation of Energy Services*
- *Innovation trends in electrolysers for hydrogen production*
- *Innovation Outlook - Renewable Ammonia*
- *Grid Codes for Renewable Powered Systems*
- *Renewable Energy Roadmap for Central America: Towards a Regional Energy Transition*
- *Grid Codes for Renewable Powered Systems*
- *Global Hydrogen Trade to Meet the 1.5C Climate Goal*
- *Renewable Power Generation Cost Report 2021*
- *Powering Agri-Food Value Chains with Geothermal Heat: A Guidebook for Policymakers*
- *Renewable Energy: Jobs along the supply chain*
- *Solar PV: A Gender Perspective*



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#### IRENA Insights webinar series in 2023 [↗](#)

- *Renewable Energy Roadmap: Nigeria*
- *Global Landscape of Renewable Energy Finance 2023 Report*
- *Global Geothermal Market and Technology Assessment Report*
- *Long-term energy scenarios and low-emission development strategies*
- *Renewable Power Generation Costs in 2022*



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#### Webinar series: Critical Materials for the Energy Transition [↗](#)

- *Rare Earth Elements*
- *Deep-Sea Mining Technology*
- *Do We Have a Lithium Supply Problem?*



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#### Policy Talks 2022 webinar series [↗](#)

- *Enabling Green Hydrogen: Industrial Policy, Certification Systems, and Inclusiveness (March 2022) [↗](#)*
- *Reaping the socioeconomic benefits of the energy transition - building a comprehensive policy framework (January 2022) [↗](#)*
- *Restructuring the power system for the energy transition (June 2022) [↗](#)*
- *Sustainable bioenergy for the energy transition (June 2022) [↗](#)*



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#### Events and workshops

- *REN21 RENdez-vous Africa: What Could an African Green Deal Look Like? (February 2022)*
- *UNDP Regional Bureau for Africa Energy Workshop (March 2022)*
- *RENAC Training Seminar (March 2022)*
- *MENA Climate Week (March 2022)*
- *Meetings of the UN Interdepartmental Task Force on African Affairs (April and June 2022)*
- *MENA Europe Future Energy Dialogue (June 2022)*
- *Africa Climate Week (August 2022)*
- *Africa-EU Energy Partnership Forum (September 2022)*



#### Online content

- *Social media campaign with AfDB*
  - *Social media videos*
  - *Blog posts*
-

|   |   |  |
|---|---|--|
|   |    | <p>Dissemination of the “Renewable Energy Roadmap for Central America” report (March 2022) <a href="#">↗</a></p> <ul style="list-style-type: none"> <li>• <i>Renewable Energies in Latin America and the Caribbean: Towards a Regional Energy Transition</i> (June 2022)</li> <li>• <i>Insights Webinar (“Renewable Energy Roadmap for Central America: Towards a Regional Energy Transition”)</i> (June 2022)</li> <li>• <i>COREN 2022 - El Salvador (“Las energías renovables como impulsoras en la electrificación de los sectores de uso final”)</i> (August 2022)</li> <li>• <i>IRENA invited to present the study at the CDMER Meeting Nr. 96 (August 2022) - Consejo Director del Mercado Eléctrico Regional de América Central</i></li> <li>• <i>CIER 57th Annual Meeting – Paraguay (“Hojas de Ruta de Energía Renovables de Centroamérica y Suramérica”)</i> (November 2022)</li> <li>• <i>RRA Honduras – Honduras, IITC/REmap division to present “Renewable Energy Roadmap for Central America: Towards a Regional Energy Transition” and Honduras country case (December 2022)</i></li> <li>• <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” (December 2022)</i></li> <li>• <i>IRENA presented in the Clean Energy Ministerial, Senior Officials Meeting Session: Strengthening International Co-operation and Regional Collaboration to support Latin America’s Energy Transition (March 2023)</i></li> </ul> |
|   |    | <p>Dissemination of the “Geopolitics of the Energy Transformation” report (January 2022) <sup>112</sup> <a href="#">↗</a></p> <ul style="list-style-type: none"> <li>• <i>Launch of “Geopolitics of Energy Transformation: The Hydrogen Factor” report during the twelfth session of the IRENA Assembly (January 2022)</i> <a href="#">↗</a></li> <li>• <i>“Hydrogen Economy Hints at New Global Power Dynamics” (January 2022)</i></li> <li>• <i>IRENA Insights webinar: Geopolitics of the Energy Transformation: The Hydrogen Factor (March 2022)</i> <a href="#">↗</a></li> <li>• 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</li> <li>• 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</li> <li>• Podcasts including with the Columbia SIPA and Reuters/Aramco</li> </ul>   |
| <p>Regional Communication Strategies</p>                                |  | <p>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</p>  |
|   |  | <p>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 Asia<sup>113</sup></p>  |
| <p>Promotion and use of digital knowledge products and information*</p> |  | <p>Ongoing placement of IRENA e-books on selected e-stores</p>   |
|   |  | <p>Nine interactive visual stories developed and published from January to August 2023</p>   |
|   |  | <p>Four digital reports based on flagship publications published</p>   |
|   |  | <p>IRENA publications organised by theme on the publication’s online pages</p>   |
|   |  | <p>Technical papers section under the Education component of the website implemented</p>   |
|   |  | <p>New upgraded irena.org website successfully launched on 25 October 2022</p>   |
|   |  | <p>84 videos published across the website and social media</p>   |

112 Supported by the Government of Norway.  
113 Supported by the Government of Denmark.

### 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 <sup>nd</sup> Partners in Energy Transition Meeting in Jakarta, Indonesia (Southeast Asia region) (July 2022) <sup>114</sup> <a href="#">↗</a>                                   |
|                          |    | G20 Energy Transitions Investment Forum in Bali, Indonesia (Southeast Asia region) (September 2022) <sup>115</sup> <a href="#">↗</a>   |
|                          |    | West Africa Investment Forum <sup>116</sup> Nigeria [ <a href="#">Postponed</a> ].   |
|                          |    | Latin America Energy Transition Investment Forum, Uruguay (7-9 November 2023) <a href="#">↗</a>  |
|                          |   | IRENA-Caribbean Co-operation For Fostering Energy Transition Investments and Finance, Barbados (30 May -1 June 2023) <a href="#">↗</a>   |
|                          |  | 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) <a href="#">↗</a> |
|                          |  | G20 India side event - High Level Dialogue on <i>Low-Cost Finance for New and Emerging Energy Technologies</i> , Mumbai, India (15 May 2023) <a href="#">↗</a>   |

114 Supported by the Government of Denmark.

115 Supported by the Government of Denmark.

116 Supported by Government of the Walloon Region, Belgium.



**Africa**

“Mano River Union Renewable Energy Market Analysis” report (September 2023) [↗](#)



Side event, Energy Transition for Africa, during TICAD (August 2022)<sup>117</sup> [↗](#)



1-year long (250 hours) Capacity Building Programme on Long-Term Energy Planning in the Republic of Cameroon:<sup>118</sup>

- *First training course (July 2021)* [↗](#)
- *Second training course (August 2021)* [↗](#)
- *Third training course (December 2021)* [↗](#)
- *Fourth training course (March 2022)* [↗](#)
- *Final consultation workshop (November 2022)* [↗](#)



WACEC: Regional capacity building workshop on *Design and Negotiation of Bankable Power Purchase Agreements in West Africa*, organised with ECREEE, ERERA, WAPP and GIZ (September 2022) [↗](#)



WACEC: Regional Capacity Building for Open Solar Contracts in West African Countries (November 2022) [↗](#)



Chad Renewable Readiness Assessment: Kickoff event (October 2022)



Renewable Energy Roadmap for Nigeria – Final engagement workshop with national stakeholders (December 2022)



Eni-IRENA Capacity Building programme in Biofuels: [↗](#)

- *First Cohort (September 2023)*
- *Second Cohort (May 2023)*
- *Third Cohort (July 2023)*



National Consultation Workshop on Accelerating Namibia’s Energy Transition (August 2023)



National Consultation Workshop on Accelerating Kenya’s Energy Transition (August 2023) [↗](#)



National Consultation Workshop on Accelerating Sierra Leone’s Energy Transition (October 2023) [↗](#)



Regional Consultation for Africa on COP28 Global Renewables and Energy Efficiency Pledge (November 2023)



National Consultation Workshop on Accelerating Kenya’s Energy Transition (August 2023) [↗](#)



Facilitation and establishment of the Acceleration Partnership for Renewables in Africa (APRA)<sup>119</sup>



**Asia**

2023 International Forum on Energy Transition (IFET2023) co-organised by IRENA and the National Energy Administration of China (September 2023) [↗](#)



Long-term energy scenarios (LTES) for developing national clean energy transition plans in Asia (Aug-Sept 2023) [↗](#)



Asia Regional Consultation on COP28 Pledge on Tripling RE (October 2023).



*Bangladesh Renewable Readiness Assessment: Inception workshop* (November 2023)



The 41<sup>st</sup> ASEAN Ministers on Energy Meeting (AMEM) (August 2023)

117 Supported by the Government of Japan.

118 Supported by the Government of Denmark.

119 Supported by the Rockefeller Brothers Fund.



G20 India Environment and Climate Sustainability Working Group and Minister's Meeting, India (26-28 July 2023)



G20 India Energy Transition Working Group and Minister's Meeting, India (Goa, India, 19-21 July 2023)

- IRENA organised the official side event on the 3rd ETWG meeting (Mumbai, 15 May 2023) on *Low Costs Finance for New & Emerging Energy Technologies*
- Launch of IRENA report "Low Cost Finance for the Energy Transition" (15 May 2023)



CEM14/MI8: IRENA organised multiple High-Level Dialogues and side events during CEM14/MI8 Ministerial in Goa, India (19-22 July 2023) [↗](#)



The 41st ASEAN Senior Officials Meeting on Energy (SOME) (June 2023).

- Side event on *Transitioning Remote and Island Communities to Renewable Energy* (June 2023) [↗](#)



The 30<sup>th</sup> ASEAN Renewable Energy Subsector Network (RE-SSN) Meeting (May 2023)



Malaysia Energy Transition Outlook (March 2023)<sup>120</sup> [↗](#)



India Energy Week and Asian Energy Ministerial Roundtable (February 2023).



Ministerial Dialogue on Regional Energy Transition Outlooks: Southeast Asia Energy Transition during 13<sup>th</sup> Session of the IRENA Assembly (January 2023)



Launch of the Kyrgyz Republic Renewable Readiness Assessment (December 2022) [↗](#)



Event on *Socioeconomic footprint of the energy transition: Egypt and Southeast Asia* at COP27 (November 2022) [↗](#)



Event on *Renewable Energy Transitions in the ASEAN Region* at COP27 (November 2022) [↗](#)



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 *Towards an Energy Transition in Indonesia* (May 2023) [↗](#)
- Workshop on energy transition in ASEAN complete, Johor Bahru, Malaysia (November 2023)



The 2<sup>nd</sup> Singapore – IRENA High-Level Forum (October 2022) [↗](#)



Launch of the Indonesia Energy Transition Outlook report in Jakarta, Indonesia<sup>121</sup> (October 2022) [↗](#)



The 40<sup>th</sup> ASEAN Ministers on Energy Meeting (AMEM) including the 6<sup>th</sup> AMEM-IRENA Dialogue (September 2022)



G20 Energy Transition Working Group Webinar on *Expanding Solar, Wind, and Ocean Energy Solution* (June 2022) [↗](#)



G20 Energy Transition Working Group Webinar on *Accelerating Green Hydrogen Technologies and Energy Storage for the Energy Transitions* (June 2022) [↗](#)



"Renewable Energy for Agriculture: Insights from Southeast Asia, A focus on heating and cooling needs" report (June 2022) [↗](#)



The 40<sup>th</sup> ASEAN Senior Officials Meeting on Energy (SOME) (June 2022)<sup>122</sup>



The 29<sup>th</sup> ASEAN Renewable Energy Subsector Network (RE-SSN) Meeting (May 2022)

120 Supported by the Government of Denmark.

121 Supported by the Government of Denmark.

122 Supported by the Government of Denmark.



ASEAN-IRENA Consultation Workshop (May 2022)<sup>123</sup> [↗](#)



*Capacity Building for Renewable Energy Targets* in the Kyrgyz republic (March 2022) [↗](#)



“Scaling Up Biomass for the Energy Transition: Untapped Opportunities in Southeast” report (February 2022)<sup>124</sup> [↗](#)



“Renewable Energy Outlook for ASEAN: Towards a Regional Energy Transition” report (September 2022)<sup>125</sup> [↗](#)



*Renewable Readiness Assessment for the Kyrgyz Republic: Validation Workshop* (February 2022) [↗](#)



### **Latin America and the Caribbean**

*Regional Energy Congress for Central America* (COREN). Hosting of Renewable Energy Day (August 2023)



*Firm Capacity in Central America: Definitions and implications for Variable Renewable Energy* (August 2023) [↗](#)



*Accelerating Geothermal Development in LAC: Lessons Learned and Technological Advances RELAC Initiative* (June 2023)



*Honduras Renewable Readiness Assessment: Validation workshop event* (March 2023)



Clean Energy Ministerial, Senior Officials Meeting, side-event: *Strengthening International Co-operation and Regional Collaboration to Support Latin America’s Energy Transition* (March 2023)



Hybrid webinar: *Sustainable Bioenergy pathways in Latin America* (March 2023)



Virtual Webinar: *Agricultural Residue potential in South America* (February 2023)



*Renewable Energy Roadmaps for Latin America: Perspectives and way forward during the 13<sup>th</sup> Session of the IRENA Assembly* (January 2023)



Green Hydrogen Capacity Building Program in El Salvador. (January 2023)



*Honduras Renewable Readiness Assessment: Consultation Workshop* (December 2022)



*Honduras Renewable Readiness Assessment: Kickoff event* (September 2022)



Virtual event: *Regional Energy Congress for Central America* (COREN). Hosting of Renewable Energy Day (August 2022)



Side event on *Renewable Energy to Accelerate Regional Climate Action and Build momentum towards Net Zero across the LAC Region* during the 2022 Latin America and Caribbean Climate Week (July 2022)



RELAC Initiative: Virtual event: *REmap Central America Showcase* (June 2022)



Itatipú Binacional Water and Energy Hybrid event (June 2022)

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.



Hybrid webinar for *Renewable Energy and Energy Efficiency in Paraguay*, co-organised with WEC and the Vice Minister of Energy and Mines of Paraguay (March 2022)



*Firm Capacity for RE Projects using PPAs in Central America: Stakeholder Consultation Workshop and Questionnaire* (February 2022) [↗](#)



Webinar on *Accelerating the Energy Transition in Colombia: Renewable Energy Auctions*, co-organised with USAID (February 2022)

### **Middle East and North Africa**

Somalia Renewable Readiness Assessment: Expert Consultation Workshop (November 2023)



Open Solar Contracts Capacity Building Workshop: Iraq, co-organised with UNDP & UK Embassy, (June 2022)



*MENA Europe Future Energy Dialogue meeting*, co-hosted with the Federal Government of Germany and Jordanian Ministry of Energy and Mineral Resources (June 2022) [↗](#)



*A Dialogue Between EU and Gulf Co-operation Council on a Regulatory Framework to Develop Green Hydrogen Supply, Demand and Trade*, co-organised with the European Union, (April 2022) [↗](#)



MENA Climate Week 2022 organised workshop in partnership with UNDP: *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* (March 2022) [↗](#)



A two-day *Energy Transition Workshop in Iraq: Best Practices & Scoping*, co-organised with the United Nations Development Programme a (March 2022)



*Consultative workshop on IRENA's North African Power Pool modelling*, 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) [↗](#)



Virtual regional capacity building workshop: *Renewable Energy Targets setting in Arab Countries* (February 2022)



Virtual sub-regional (North Africa) capacity building workshop: *Improving Resource Assessment Practice in the North Africa: A Solution to Streamline Early-Stage Solar and Wind Market Planning* (February 2022)



A workshop on *Enabling Measures*, co-organised with the World Economic Forum (January 2022) [↗](#)



### **Southeast Europe**

Workshop on *Capacity building workshop on quantifying and reporting greenhouse emissions* (September 2023) [↗](#)



Launch for the Renewable Readiness Assessment Report for Bosnia and Herzegovina (September 2023) [↗](#)



Georgia REA initiated (September 2023)



COP 28 Event on *Shift to renewables in Southeast Europe: NDCs and NECPs as financial roadmaps* [↗](#)



Workshop on *Renewable energy solutions for heating and cooling systems in Moldova* (November 2023) [↗](#)

|  |   |   |
|--|---|---|
|  |    | Kick off workshop for presentation of the European Union Renewable Energy Transition Outlook (EU RETO) work and Member States involvement (April 2023) <sup>126</sup>   |
|  |    | Kick off workshop for Eastern Partnership Renewable Energy Transition Outlook work (EaP RETO) (April 2023) <sup>127</sup>   |
|  |    | Regional Workshop on <i>Design and financing of district heating and cooling systems and projects in Southeast Europe</i> (April 2023) <a href="#">↗</a>  |
|  |    | Regional capacity building workshop on Sustainable Use of Bioenergy, organised with Energy Community Secretariat (November 2022) <a href="#">↗</a>  |
|  |    | 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) <a href="#">↗</a>   |
|  |    | 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) <a href="#">↗</a> <sup>128</sup>   |
|  |    | Roundtable discussion to profile and mobilise support for the <i>Energy Compact on Renewable energy for United Nations Peacekeeping</i> , co-organised 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) <a href="#">↗</a>  |
|  |  | 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.  |
|  |   | <b>Collaborative Frameworks</b>   |
|  |  | Establishment of a new Collaborative Framework on Critical Materials for the Energy Transition (March 2022) <sup>129</sup> <a href="#">↗</a>  |
|  |  | Collaborative Framework Critical Materials: Working Group 'De-risking Critical Materials and Minerals Supply' (June 2022) <a href="#">↗</a>   |
|  |  | Collaborative Framework Critical Materials: Working Group 'Observatory for Critical Materials and Minerals' (July 2022) <a href="#">↗</a>   |
|  |  | Collaborative Framework Critical Materials: Working Group 'ESG and Mining' (September 2022) <a href="#">↗</a>   |

Energy Compacts & Collaborative Frameworks Implementation\*

126 Supported by the European Commission.  
127 Supported by the European Commission.  
128 Supported by the Government of Norway.  
129 Supported by the Government of Norway.



Collaborative Framework Critical Materials: 2<sup>nd</sup> meeting (October 2023) [↗](#)



Collaborative Framework on the Geopolitics of Energy Transformation: 5<sup>th</sup> meeting (April 2022)<sup>130</sup> [↗](#)



Collaborative Framework on the Geopolitics of Energy Transformation: 6<sup>th</sup> meeting (November 2022)<sup>131</sup> [↗](#)



Collaborative Framework on Green Hydrogen: 6<sup>th</sup> meeting (October 2022) [↗](#)



Collaborative Framework on Hydropower: 4<sup>th</sup> meeting (June, 2022) [↗](#)



Collaborative Framework on Hydropower: 5<sup>th</sup> meeting (December, 2022) [↗](#)



Collaborative Framework on Hydropower: 4<sup>th</sup> meeting (June, 2022) [↗](#)



International Conference on Hydropower, co- organised with the Government of Switzerland (October 2022)



Collaborative Framework on Hydropower, 6<sup>th</sup> virtual meeting (May 2023) [↗](#)



Collaborative Framework on Hydropower, 7<sup>th</sup> meeting (Hybrid) (November 2023)



Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems: 3<sup>rd</sup> meeting (June 2022) [↗](#)



Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems: 4<sup>th</sup> meeting (October 2022) [↗](#)



Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems: 5<sup>th</sup> meeting (May 2023) [↗](#)



Collaborative Framework on Enhancing Dialogue on High Shares of Renewables in Energy Systems: 6<sup>th</sup> meeting (September 2023)



Collaborative Framework on Green Hydrogen: 6<sup>th</sup> meeting (October 2022) [↗](#)



Collaborative Framework on Green Hydrogen: 7<sup>th</sup> meeting (April 2023) [↗](#)



Collaborative Framework on Green Hydrogen: 8<sup>th</sup> meeting (April 2023) [↗](#)



Collaborative Framework on Ocean Energy/Offshore Renewables: 5<sup>th</sup> meeting (November 2022) [↗](#)



Collaborative Framework on Ocean Energy/Offshore Renewables (May 2023) [↗](#)



Collaborative Framework on Just and Inclusive Energy Transition (March 2023) [↗](#)



Scaling up Investments in Ocean Energy Technologies (March 2023) [↗](#)



Collaborative Framework on Project Facilitation to Support Energy Transition 1<sup>st</sup> meeting (May 2022) [↗](#)



Collaborative Framework on Project Facilitation to Support on-the-ground Energy Transition (May 2023) [↗](#)



Support on a technical and organisational level to the planning efforts for the establishment of an intergovernmental Global Offshore Wind Alliance (GOWA) in collaboration with international stakeholders including the overnment of Denmark and GWEC.

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.

|   |   |   |
|---|---|---|
|   |    | 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 (August 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)  |
| Off-Grid Renewable Energy Solutions: Agri-food systems, health, clean cooking |    | 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) <a href="#">↗</a>                              |
|   |    | IRENA-WRI webinar on <i>Scaling-up solar irrigation: Lessons from policies and programmes</i> (February 2022) <a href="#">↗</a>                                     |
|   |    | <i>Renewable Energy for Agri-food Systems: Scaling Investments towards Climate Action and 2030 Agenda</i> event during COP27, Egypt (November 2022)                 |
|   | <b>Publications</b>   |   |
|   |   | IRENA's input to joint publication of "Global Health Assessment" report with clear picture of status of healthcare electrification and requirements. <sup>132</sup> |
|   |  | Electrification with Renewables: Enhancing Healthcare Delivery in Burkina Faso report <sup>133</sup> (October 2022) <a href="#">↗</a>                               |
|   |  | Decentralised Solar Electricity for Agri-food Value Chains in the Hindu Kush Himalaya Region (September 2022) <a href="#">↗</a>                                     |
|   |  | Report for technical recommendations, including design, of decentralised RE to electrify health centres Mali and Sao Tome & Principe <sup>134</sup>                 |
|   | 6th International Off-grid Renewable Energy Conference (IOREC) <sup>135</sup>       |    |
| SIDS Lighthouses Initiative <sup>136</sup>                                    |  | Workplan development and implementation with CCCCC/CCREEE, CDF, and SIDS DOCK   |
|   |  | Updating the knowledge base in SIDS: Cost data collection and cost-benchmarking tool development.   |
|   |  | Implementation and capacity building, as well as completion of Quickscans for Belize, Barbados and Grenada.   |

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 the 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.



### Initiative co-ordination

Four new partners joined the initiative: Saint Kitts and Nevis and University of Delaware. Total: 40 SIDS<sup>137</sup> and 44 development partners<sup>138</sup>



### 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 (January 2024)



Small Island Developing States: A Just and Equitable Energy Transition towards a Climate-Resilient Future (December 2023)



7<sup>th</sup> International Conference on Renewable Energy Sources and Energy Efficiency (RESEE2023) (October 2023)



Validation workshop: Sector Assessment on electrification of healthcare facilities (October 2023)



Solomon Islands RRA Validation Workshop (September 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 September 2023)



Moving beyond the status quo: Actions towards accelerating SIDS Energy Transition to Strengthen Climate Resilience, UNGA, New York (September 2023)



2023 Caribbean Economic Forum (September 2023)



Fifth Pacific Regional Energy and Transport Ministers’ Meeting (5<sup>th</sup> PRETMM), 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 co-operation with the Ministry of the Environment of Japan and the Green Climate Fund (February 2023)



SIDS Ministerial – Climate Pledges to Action: Amplifying Energy Transition for Sustainable Development in SIDS during the 13<sup>th</sup> Session of the IRENA Assembly (January 2023) [🔗](#)



Capacity Building on PPA for Caribbean SIDS, St. Vincent and the Grenadines (November 2022) [🔗](#)

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, Akvo, 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, 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.

|                                   |  |   |
|-----------------------------------|--|---|
|                                   | Event on <i>Closing the Gap: Securing Lives, Creating Livelihoods in Small Islands Developing States</i> , held during COP27 in Egypt (November 2022) <a href="#">↗</a>  |   |
|                                   | 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> (September 2022)      |   |
|                                   | A two-day event on <i>Energy Management and Energy Audits in Small Island Developing States</i> (June 2022) <a href="#">↗</a>  |   |
|                                   | Technical webinar support series: <i>Grenada Capacity Building Programme for Energy Management &amp; Energy Audits</i> (April 2022) <a href="#">↗</a> ; (May 2022) <a href="#">↗</a> (June 2022).              |   |
|                                   | Capacity Building on Climate Investment and Financial Flows in the Energy Sector in the Seychelles (April 2022) <a href="#">↗</a>  |   |
|                                   | <i>Training Workshop on Climate Financing for Small Island Developing States</i> – co-organised with the Ministry of the Environment of Japan & Green Climate Fund (March 2022) <a href="#">↗</a>              |   |
|                                   | Technical webinar series on <i>Accelerating the development of Ocean Thermal Energy Conversion (OTEC) in SIDS</i> (February 2022) <a href="#">↗</a>  |   |
|                                   | <b>Publications</b><br>Annual Progress Report: SIDS Lighthouses Initiative – Progress and way forward (May 2023) <a href="#">↗</a>   |   |
|                                   | Annual Progress Report: SIDS Lighthouses Initiative – Progress and way forward (July 2022) <a href="#">↗</a>   |   |
|                                   | <b>Digital Story</b><br>Short Videos Showcasing Human Impacts of Energy Transition Efforts in Small Island Developing States, including Seychelles, Samoa and St. Vincent and the Grenadines <a href="#">↗</a> |   |
|                                   | Digital Story “ <i>We likkle but we tallawah</i> ” on SIDS energy transition progress towards a 1.5 °C world <a href="#">↗</a>   |   |
| Global Geothermal Alliance (GGA)* |  | <b>Facilitation and co-ordination of the GGA</b> <sup>139</sup><br><ul style="list-style-type: none"> <li>• Growing GGA constituency.</li> <li>• New GGA Member State: Spain, Grenada, Malawi, St Lucia, Azerbaijan</li> <li>• New GGA Partners: Queen’s University (Belfast), African Geothermal Association, New Zealand Geothermal Association, Geothermal Association of Ireland</li> <li>• Total 55 Countries<sup>140</sup> and 59 Partners<sup>141</sup></li> </ul> |
|                                   |  | <b>GGA website developed into a knowledge sharing platform</b><br>Updated constituency and communication of events and activities   |

139 Supported by the Government of Japan.

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, Icelandic 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.



Updated GGA Brochure [↗](#)



Themes on International Training Centres [↗](#) and Geothermal Resource Assessment Methodologies [↗](#)



**Revised geothermal heating and cooling targets for the GGA**

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” [↗](#)



Development of a strategic and forward- looking implementation plan for the GGA



**Publications**

“Powering Agri-Food Value Chains with Geothermal Heat – A guidebook for policy makers” report (June 2022) [↗](#)



“Global Geothermal Market and Technology assessment” report (February 2023) [↗](#)



“Renewable Energy Solutions for Heating Systems in Mongolia: Developing a strategic heating plan” report (August 2023) [↗](#)



**Events**

Renewable Energy Solutions for the Heating Sector in Mongolia (August 2023) [↗](#)



25th Meeting of the IRENA Council: *Programmatic Discussion on the Global Status of Geothermal Market and Technology* (May 2023) [↗](#)



Validation Workshop on the *Development of a Strategic Heating Plan for Mongolia* (March 2023) [↗](#)



Global Geothermal Alliance Annual Meeting, held during 13<sup>th</sup> Session of the IRENA Assembly (January 2023)



2nd High-Level Conference of the Global Geothermal Alliance – *Geothermal: Driving the Energy Transition for Fostering Sustainable Development & Climate Action* (September 2022) [↗](#)



*Powering Agri-food Value Chains with Geothermal Heat to Enhance Food Security and Climate Action – Africa*, Training, Djibouti (November 2022)



*Geothermal as an Integral Energy Solution in SIDS* – Workshop, El Salvador (September 2022) [↗](#)



*Powering agri-food value chains with Geothermal Heat – Latin America* Workshop, El Salvador (September 2022) [↗](#)



*Powering agri-food value chains with Geothermal Heat – Africa* Capacity Building Webinar (July 2022) [↗](#)



*Powering agri-food value chains with Geothermal Heat – Global* Capacity Building Webinar (June 2022) [↗](#)



Capacity building events on *Integrating Renewable Energy Solutions in Mongolia's District Heating Systems*, in collaboration with Mongolian Ministry of Energy:

- *Strategic Heating and Cooling Planning* (May 2022) [↗](#)
- *Enabling Framework Conditions and Addressing Technical Barriers* (June 2022) [↗](#)

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## Alliance for Industry Decarbonization (AFID)

### Facilitation and co-ordination of the AFID:

- 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 optimisation, Human Capital and Finance.
- Creation of dedicated [website](#) - Updated membership, communication of events, news, publications, useful tools and members log in area with document management system.



### Decarbonisation Commitment and Joint Targets to 2030:

- 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 [↗](#)



Development of a strategic and forward- looking implementation plan for the AFID [↗](#)

### Publications

- “Green Hydrogen Unveiled: A Cross-Industry Dialogue for Sustainability” report.
- “Blueprints for Solutions to Decarbonise Heat in Steel Industry” report.
- “From Nice to Have.....to Necessity - Accelerating Decarbonisation through BECCUS” report.
- “Advancing Carbon Capture, Utilisation, and Storage (CCUS) - Policies, Regulations, MRVs and Certification” report



### Tools

Developed “MyChange” digital platform for the members to raise awareness on the challenges connected to the SDG’s and the Agenda 2030, (December 2023) [↗](#)



### Events

- Six thematic events and CEO roundtable on *Accelerating implementation of Industrial Decarbonization*, COP 28 (December 2023) [↗](#)
- *Strategies & technological solutions for achieving carbon emissions reduction under the -1.5 C° scenario*, NY Climate Week, (September 2023) [↗](#)
- Online capacity building workshop on *Quantifying and reporting greenhouse emissions* (September 2023) [↗](#)
- *Accelerating net-zero ambitions through clean hydrogen for decarbonization of industrial value chains*, CEM Ministerial, (July 2023) [↗](#)
- *Global Panel Discussion on Exploring the role of utilities in decarbonising industrial demand*, World Utilities Congress, (May 2023) [↗](#)
- *Decarbonizing industries – Tackling the tough stuff*, Hannover Messe, (April 2023) [↗](#)





### Membership and partnerships

Growing membership, with 29 country members and 13 technical partners currently in conversations with India, Spain to join the LTES Network



Bilateral discussions with technical partners on long-term collaboration, mainly with the following:

- 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



Workplan survey conducted with members and partners to formulate May 2022-April 2023 working plan



### Events

Webinar series on Long-Term Energy Scenarios (LTES) For Developing National Energy Transition Plans In Africa (January 2022) [↗](#)



Side event at the Berlin Energy Transition Dialogue 2022 on Insights from Net-zero LTES for National Energy Planning (March 2022) [↗](#)



Side event at the International Energy Workshop 2022 on Participatory Processes in Long-term Energy Scenario Development (May 2022).



- Side events at the CEM/MI (September 2022) [↗](#)
- Job Creation and Gender Balance in the Energy Transition: Priority Actions and Perspectives.
  - Pathways for Rapid Decarbonisation of Power Systems.
  - The Breakthrough Agenda Report 2022: Accelerating Sectoral Transitions through Stronger International Collaboration.
  - LTES Campaign Global dialogue on long-term transition pathways for road transport
  - Facilitating and Accelerating PtX-Market Ramp-up.
  - Accelerating technology-based carbon removals: BECCS and DAC.
  - Innovation co-operation: global approaches to enhancing national policies and measuring progress.



4<sup>th</sup> International Forum on Long-Term Energy Scenarios (December 2022) [↗](#)



Side event at 13<sup>th</sup> IRENA Assembly. National frameworks for scenario development towards net-zero target-setting (January 2023) [↗](#)



Side event at Senior Official's Meeting Clean Energy Ministerial "Accelerating the Clean Energy Transition: Insights from the Long-Term Energy Scenario (LTES) Initiative" (March 2023) [↗](#)



Asia webinar series on Long-Term Energy Scenarios (LTES) for the clean energy transition in progress (August 2023) [↗](#)



LTES sessions in the margins of the Bonn Climate Change Conference 2023 (SB 58) (June 2023)

<sup>142</sup> Supported by the Government of Denmark and the Government of Germany.

|   |   |  |
|---|---|--|
|   |    | 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) <a href="#">↗</a>   |
|   |    | LTES Network M&P peer-to-peer learning sessions to offer <i>Members &amp; Partners a dedicated platform where they can engage in meaningful discussion on any of the prioritised topics with their peers</i>   |
|   |    | <b>Publications and analysis</b><br>Updating of National Energy Transition Planning dashboard update (March 2022) <a href="#">↗</a>  |
|   |    | Updating of National Energy Transition Planning dashboard (December 2023)  |
|   |    | “Scenarios for the energy transition – Experience and good practices in Latin America and the Caribbean” report (July 2022) <a href="#">↗</a>  |
|   |    | “Scenarios for the energy transition – Experience and good practices in Africa” report (January 2023) <a href="#">↗</a>  |
|   |    | “Long-term energy scenarios and low-emission development strategies: Stocktaking and alignment” report (January 2023) (with UNFCCC) <a href="#">↗</a>  |
|   |   | Participatory processes for developing long-term energy scenarios in governments. <ul style="list-style-type: none"> <li>• <i>Workshop on participatory processes for developing national long-term energy scenarios during the 4th International Forum on LTES, December 2022</i></li> <li>• <i>Virtual workshop on Participatory Processes for Long-term Energy Scenario Development with focus on Country Experiences and Challenges, July 2023</i></li> <li>• <i>Virtual workshop Public Participation in Energy and Grid Planning: Sharing regional experiences. November 2023</i></li> <li>• <i>Hybrid workshop on stakeholder-driven energy scenarios for a just transition: Dialogue with the scientific community, November 2023</i></li> </ul> |
|   |    |  |
|   |  | “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<br>“Energy Transition Connect” |  | Support provided by an ETC expert towards development of Strategic Heating Plan for Mongolia under GGA   |
|   |  | Support provided by an ETC expert towards development of a guidebook of firm capacity for variable renewable energy in Central America   |
| Coalition for Action                                |   | <b>Reports/briefs published, and events held</b>   |
|   |  | Public-Private Dialogue at the 12 <sup>th</sup> IRENA pre- Assembly on circular economy and end-of-life management of renewables (January 2022) <a href="#">↗</a>  |
|   |  | Public-Private Dialogue at the 13 <sup>th</sup> IRENA pre- Assembly Just and Inclusive Energy Transitions – Social Dialogue, Skills, and Decent Jobs for All (January 2023) <a href="#">↗</a>  |
|   |  | Coalition Annual Strategy Meeting (January 2022)   |
|   |  | Coalition Annual Strategy Meeting (January 2023)   |
|   |  | Coalition for Action “Decarbonising End-Use Sectors: Green hydrogen certification” brief (March 2022) <a href="#">↗</a>  |
|   |  | Coalition for Action country papers for Coalition Business and Investors Group: the Philippines (March 2022) <a href="#">↗</a>   |

|   |   |  |
|---|---|--|
|   |    | Coalition for Action brief on “Finding Common Ground for a Just and Renewable Energy Future: Labour and employers’ perspectives on a just transition” (August 2023) <a href="#">↗</a>  |
|   |    | Coalition for Action regional/country papers of the Coalition Business and Investors Group: West Africa (October 2023) <a href="#">↗</a>   |
|   |    | Coalition for Action regional/country papers of the Coalition Business and Investors Group: Argentina and associated bilateral meetings with government representatives  |
|   |    | Coalition for Action white papers on “Community energy benefits” and a “Community energy checklist for governments”  |
|   |    | Coalition for Action white paper on “Towards 100% renewable energy: Opportunities and challenges of sector coupling” <a href="#">↗</a>   |
|   |    | Coalition for Action brief on “Comparative review of 100% renewable energy scenarios”  |
|   |    | Coalition for Action white paper on “Boosting social support and public acceptance for a sustainable energy transformation”  |
|   |    | 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  |
|   |    | Coalition for Action white paper on “Best practices in integrating renewables into agriculture” and associated webinar with stakeholders   |
|   |    | Coalition for Action white paper on “Making green hydrogen economically viable: opportunities, challenges and key recommendations” and associated webinar with stakeholders  |
|   |    | Coalition for Action white paper on “Green hydrogen and decarbonisation: Creating socioeconomic benefits”  |
|   |    | IRENA Report on “The Role of Citizens in the Energy Transition”  |
| Resilient Remote Communities <sup>143</sup> |  | Decentralised Renewable Energy Solutions for Remote and Isolated Communities during 13 <sup>th</sup> Session of the IRENA Assembly (January 2023)  |
|   |  | Guidebook for implementation of decentralised RE in isolated remote communities  |
|   |  | <i>Transitioning remote communities to renewables</i> event during COP27, Egypt (November 2022)  |
| Youth Forum                                 |  | Third IRENA Youth Forum during the 12 <sup>th</sup> Assembly to showcase youth-led solutions to accelerate the energy transition and achieve climate objectives (January 2022) <a href="#">↗</a>   |
|   |  | Launch of the IRENA Global Council on Enabling Youth Action for SDG 7 to drive forward youth-led action on energy access and the transition to a renewable energy future (February 2022) <a href="#">↗</a>   |
|   |  | Fourth IRENA Youth Forum during the 13 <sup>th</sup> Assembly to discuss about empowering youth to lead an equitable energy transition for a sustainable future (January 2023) <a href="#">↗</a>   |
|   |  | 2022/2023 edition of the IRENA Student Trainee Programme to support Governing Body Meetings  |
|   |  | 2023/2024 edition of the IRENA Student Trainee Programme to support Governing Body Meetings  |
|   |  | Development of Italy-IRENA Action for Climate Toolkit (I ACT), in co-operation 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 <sup>144</sup> |
|   |  | Launch of the IRENA New Gen Renewable Energy Accelerator Programme for Youth (May 2023) <sup>145</sup> <a href="#">↗</a>   |

143 Supported by the Government of Canada.

144 Supported by the Government of Italy.

145 Supported by the Government of UAE.

|                   |   |  |
|-------------------|---|--|
|                   |    | Seventh edition of the IRENA Youth Talk (June 2022) <a href="#">↗</a>  |
|                   |    | 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) <a href="#">↗</a>   |
|                   |    | Eighth edition of the IRENA Youth Talk on Promoting a <i>Just Energy Transition powered by Youth innovation</i> , held at the Youth Energy Forum during the World Utilities Congress (May 2023) <a href="#">↗</a>  |
|                   |    | 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) <a href="#">↗</a>  |
| Youth Talk        |    | Ninth edition of the IRENA Youth Talk organised in co-operation 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> (August 2023) <a href="#">↗</a>   |
|                   |    | Youth & Innovators Hub at the IRENA Innovation Week 2023 edition (September 2023) <a href="#">↗</a>  |
|                   |    | Youth event on <i>Youth-led acceleration of Just Energy transition &amp; resilience in Africa</i> , organised as part of the Youth4Capacity initiative during the Africa Climate Week (September 2023) <a href="#">↗</a>   |
|                   |    | Youth event organised as part of the Youth4Capacity initiative during the MENA Climate Week (October 2023)   |
|                   |    | First edition of the IRENA NewGen Rising Starts events at COP28 (December 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 (December 2023)   |
|                   |    | Youth event "Enabling youth action on SDG7" organised by IRENA Global Council on Youth for SDG7 at COP28 at the IRENA Pavilion (December 2023)   |
|                   |    | Seventh IRENA Legislators Forum during the 12 <sup>th</sup> Assembly to discuss parliamentary and regulatory actions to shift the energy transition from commitments to implementation in the Decade of Action (January 2022) <a href="#">↗</a>  |
|                   |   | IRENA Legislators Dialogue "G20: from Commitment to Action", held during G20 Energy Week (August 2022) <a href="#">↗</a>   |
|                   |  | IRENA Legislators Dialogue "Multi-Actor Partnerships for Renewable Energy" held at COP27 (Nov 2022) <a href="#">↗</a>  |
| Legislators Forum |  | Eighth IRENA Legislators Forum during the 13 <sup>th</sup> Assembly to discuss about national strategies on green hydrogen aiming at ensuring a more sustainable energy transition through international co-operation (January 2023) <a href="#">↗</a>   |
|                   |  | Parliamentarians Dialogue on <i>Driving Green Growth &amp; 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) (September 2023) <a href="#">↗</a> |

|                                 |   |   |
|---------------------------------|---|---|
|                                 |  | Parliamentarians Dialogue on Upscaling Renewable Energy Deployment for the Good of All: The Role of Legislators, held in the margins of the MENA Climate Week, jointly organised with ParlAmericas, and the Global Renewables Congress (GRC) (October 2023)                   |
|                                 |  | IRENA Legislators Dialogue on Tripling renewable energy power by 2023, held in the margins of COP28 (December 2023)   |
|                                 |  | Parliamentary Accountability Summit, 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) (December 2023) <a href="#">↗</a> |
|                                 |  | 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 7146. 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 <sup>146</sup>   |
|   |  | RRA of Bosnia and Herzegovina <sup>147</sup>   |
|   |  | RRA Solomon Islands <sup>148</sup>   |
|   |  | RRA of Chad <sup>149</sup>   |
|   |  | RRA of Somalia   |
|   |  | RRA Honduras (November 2023) <a href="#">↗</a>   |
| Energy Transition Outlooks* (country level) |  | RRA of the Kyrgyz Republic (December 2022) <a href="#">↗</a>                               |
|   |  | Indonesia Energy Transition Outlook report (October 2022) <sup>150</sup> <a href="#">↗</a> |
|   |  | Malaysia Energy Transition Outlook report (March 2023) <sup>151</sup>                      |
|   |  | Renewable Energy Roadmap for Nigeria (January 2023)* <a href="#">↗</a>                     |
|   |  | Renewable Energy Roadmap and FlexTool Analysis for UAE (June 2023)                         |

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

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.

|   |   |   |
|---|---|---|
| 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 <sup>152</sup>                       |    | 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  |
| Renewable Energy Policies for Cities <sup>153</sup>                                 |    | Maintaining the operation of the SolarCity simulator platform by updating the backend <a href="#">↗</a>                                   |
|   |    | Adding new functionalities to the SolarCity simulator platform, including translations to French, Portuguese, and Uzbek <a href="#">↗</a> |
|   |   | SolarCity simulator for San Salvador, El Salvador <a href="#">↗</a>   |
|   |    | SolarCity simulator for Bamako, Mali <a href="#">↗</a>  |
|   |    | SolarCity simulator for Sao Tome, Sao Tome and Principe <a href="#">↗</a>   |
|   |    | SolarCity simulator for Khartoum, Sudan <a href="#">↗</a>   |
|   |    | SolarCity simulator for Sahinbey, Türkiye <a href="#">↗</a>   |
|   |    | SolarCity simulator for Charlestown, Saint Kitts and Nevis <a href="#">↗</a>  |
|   |    | SolarCity simulator for Basseterre, Saint Kitts and Nevis <a href="#">↗</a>   |
|   |    | SolarCity simulator for Tashkent, Uzbekistan (development conducted with UNDP) <a href="#">↗</a>  |
|   |    | SolarCity simulator for Honiara, Solomon Island <a href="#">↗</a>   |
|  | SolarCity simulators for Moroni, <a href="#">↗</a> Fomboni, <a href="#">↗</a> and Mutsamudu, <a href="#">↗</a> Comoros                |   |
|  | SolarCity simulators for Ouagadougou, <a href="#">↗</a> Kossodo, <a href="#">↗</a> and Bobo Dioulasso, <a href="#">↗</a> Burkina Faso |   |

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

153 Supported by the Government of Japan and Denmark.

Capacity building on rooftop solar PV potential and the use of the SolarCity simulator

- Workshop for Mauritius high level government representatives (February 2022, 32 participants)
- 2<sup>nd</sup> NDC Investment Forum under the Caribbean NDC Finance Initiative (July 2022, over 100 participants)
- Webinar series on Open-Source Geospatial Solutions for Energy Access organised by the World Resource Institute (April 2022, 40 participants)
- Workshop on Project Financing and Design of Bankable (PPA) in AIS and SIDS (August 2022)
- Webinar on Energy System Modelling for the Energy Transition (September 2022, 25 participants) [🔗](#)
- Workshop on Project Financing and Design of Bankable (PPA) in the Caribbeans (November 2022, 35 participants)
- Workshop for Saint Kitts and Nevis high level government representatives (January 2023, 19 participants) [🔗](#)
- 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 Solar Alliance (ISA) (May 2023, 66 participants)
- Workshop for Mali high level government representatives, stakeholders, and companies in collaboration with International Solar Alliance (ISA) (June 2023, 66 participants) [🔗](#)
- 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) (October 2023, 35 participants)
- Webinar for Uzbekistan high level government representatives, stakeholders, and companies in collaboration with UNDP (November 2023, 45 participants) [🔗](#)
- Presentation of methodology of SolarCity simulator to the government of Honduras during the launch of the RRA (November 2023, 25 participants)



Renewable Energy Education and Skills\*



Support provided to the Ministry of Education, UAE on how to integrate renewable energy into the national education curriculum<sup>154</sup>



Development of Italy-IRENA Action for Climate Toolkit (I ACT), in co-operation 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<sup>155</sup>

Cross-sectoral assessments for decentralised renewable solutions\*



Assessment of DRE solutions for fishing sector in Mauritania<sup>156</sup>



Assessment of DRE solutions for Agri-food sector in Zimbabwe<sup>157</sup>



Assessment of DRE solutions for powering health care in Zimbabwe<sup>158</sup>



Assessment of DRE solutions for Agri-food sector in Nepal<sup>159</sup>



Assessment of DRE solutions for Agri-food sector in Guinea<sup>160</sup>



Assessment of DRE solutions for Agri-food sector in Malawi<sup>161</sup>

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 Walloon region, Belgium.

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

|  |   |   |
|--|---|---|
|  |    | Assessment of DRE solutions for powering health care in Mali <sup>162</sup>   |
|  |    | Assessment of DRE solutions for powering health care in Mozambique <sup>163</sup>   |
|  |    | Assessment of DRE solutions for Agri-food sector in Dominica  |
|  |    | Support provided to the development and kick-off of six support studies: Green hydrogen, battery energy storage system, hydro reservoir and pump storage plants, geothermal power plants, wind power, solar power   |
|  |    | 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 <a href="#">↗</a>  |
|  |    | Training session #2, one week training sessions with the CMP modelling team in Cairo <a href="#">↗</a>  |
|  |    | Training session #3, one week training sessions with the CMP modelling team in Bonn <a href="#">↗</a>   |
|  |    | Training session #4, one week training sessions with the CMP modelling team in Kigali <a href="#">↗</a>   |
|  |    | Side event during 13 <sup>th</sup> 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 <sup>th</sup> Assembly: Planning and prospects for renewable power: North Africa <a href="#">↗</a>  |
|  |    | Model supply region (resource zoning for modelling) report  |
|  |   | Co-operation 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 <a href="#">↗</a>  |
|  |  | “Advancements in continental power system planning for Africa” report (IRENA SPLAT-Africa Model Documentation Version 2023)   |
|  |  | Cameroon national masterplan development support programme <sup>165</sup> <a href="#">↗</a>   |
|  |  | National masterplan development capacity building programme for Senegal, with GIZ <ul style="list-style-type: none"> <li>• Kick-off event <a href="#">↗</a></li> <li>• First training <a href="#">↗</a></li> <li>• Second training <a href="#">↗</a></li> </ul>   |
|  |  | Regional modelling analysis & planning support programme for CAPP countries [phase 2] <sup>166</sup> <ul style="list-style-type: none"> <li>• Programme development with stakeholders</li> <li>• Kick off meeting (September 2022)</li> <li>• First training (October 2022)</li> <li>• Second training (November 2022)</li> <li>• Closing meeting (July 2023)</li> <li>• IRENA publication</li> </ul> |
|  |  | “Regional Modelling Analysis & Planning Support Programme for CAPP countries [Phase 1 completed] <a href="#">↗</a>  |
|  |  | 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 co-operation (31 July-4 August 2023)   |

African Continental Power Systems Master Plan (CMP)<sup>164</sup>

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.

166 Supported by the Government of Walloon region, Belgium.

Climate Action Innovation and Technology: mitigation, adaptation and NDC implementation\*



### Publications and analysis

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).



Brief on Power System Resilience for Climate Adaptation.



“Synthesis of past IRENA grid assessment studies for SIDS” report



“Grid Integration Assessment for the Republic of Mozambique” report<sup>167</sup>



### Technical assistance and capacity building

Technology and Infrastructure toolkit including mitigation analysis, transport sector decarbonization



Technical assistance for NDC implementation (Sao Tome and Principe, Antigua and Barbuda, Bosnia and Herzegovina, Belarus) and LT-LEDS development support (Kazakhstan and Mongolia)



Capacity building for NDC implementation (Caribbean SIDS, Southeast Asia, Southern Africa)



Grid Assessment and Modelling capacity building workshop(s) in Sub-Saharan Africa<sup>168</sup>



Grid Assessment and Modelling technical assistance and capacity building for (Seychelles)



Implementation of Quicksans activities in SIDS<sup>169</sup>



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, Poland, Spain, the Netherlands, Norway, the UK, and the US



### Events

Contribution to the Bonn Climate Change Conference for the Ocean and Climate Change Dialogue (June 2022) [↗](#)



Global Offshore Wind Alliance COP27 launch event on *Offshore Wind as a Key Solution to the Climate and Energy Security Crises* [↗](#)



Global Offshore Wind Alliance High Level Event at IRENA Assembly [↗](#)



Kick-off meeting of the Global Offshore Wind Alliance (GOWA) [↗](#)



Global Offshore Wind Alliance High Level Event at European Sustainability Energy Week (EUSEW)



Support to other COP27 events and activities [↗](#)



Climate Action webinars in preparation for COP27 and COP28



“IRENA’s Energy Transition Support to Strengthen Climate Action: Insight to Impact 2022” report (November 2022) [↗](#)



“The Breakthrough Agenda Report 2022: Accelerating Sector Transitions through Stronger International Collaboration” report (September 2022) [↗](#)



“The Breakthrough Agenda Report 2023: Accelerating Sector Transitions through Stronger International Collaboration” report (September 2023) [↗](#)

<sup>167</sup> Supported by the Government of Norway.

<sup>168</sup> Supported by the Government of the Walloon Region, Belgium.

<sup>169</sup> Supported by the Government of Denmark.

IRENA is engaging with 88 countries on NDC enhancement and NDC implementation through direct country request and institutional partners<sup>170</sup>

- 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 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
- 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



IRENA's contribution to LTS support includes 6 work packages which exist within the LTS development and review in the following countries Ecuador, Kazakhstan, Jordan, and Mongolia

#### Events



Support to Latin America and Caribbean Climate Week (July 2020) [🔗](#)



Support to MENA Climate Week (March 2022) [🔗](#)



Support to Africa Climate Week (August-September 2022) [🔗](#)



Support to Africa Climate Week (September 2023) [🔗](#)



Support to Asia Pacific Climate Week (November 2023)

Climate Investment Platform implementation: 14 clusters<sup>171</sup>



CIP co-ordination<sup>176</sup>  
394 partners engaged



427 projects registered



207 projects eligible for support



87 projects (2.27GW) actively supported through development of Project Information Documents (PIDs) or Project Information Sheet (PIS)



39 projects that received technical assistance in the form of completed PIDs



13 projects matched to financing partners



Development of online platform (CRM) to semi-automate the work of the CIP



CIP Webinar focused on developers in LATAM region (July 2023)

<sup>170</sup> Supported by NDC CAEP and United Nations Development Programme.

<sup>171</sup> 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.

|   |   |  |
|---|---|--|
|   |    | <p><b>ETAF Partnerships Mobilisation</b></p> <ul style="list-style-type: none"> <li>• USD 400m commitment announced by UAE through ADFD</li> <li>• USD 200m commitment announced by Masdar</li> <li>• USD 300m commitment announced by AIB</li> <li>• De-risking products commitment announced by Swiss Re.</li> <li>• USD 250m commitment announced by OPEC Fund</li> <li>• USD 100m commitment announced by IDB</li> <li>• USD 350m commitment announced by EDB</li> <li>• USD 250m commitment announced by Islamic Development Bank</li> <li>• De-risking products commitment announced by ICIEC</li> <li>• USD 1 000m commitment announced by EBRD</li> <li>• USD 1 000m commitment announced by IFC</li> <li>• De-risking products commitment announced by MIGA</li> <li>• USD 200m commitment announced by HSBC</li> </ul> |
|   |    | <p>Five ETAF Partners' meeting held during 2023</p>  |
| <p>Energy Transition Accelerator Financing Platform* (ETAF)<sup>172</sup></p> |    | <p>The ETAF Joint Declaration (Governance document) signed by partners in October 2023</p>   |
|   |    | <p>ETAF Webinar: Mastering project submission (May 2023)</p>   |
|   |    | <p>ETAF Webinar focused on LATAM region (September 2023)</p>   |
|   |    | <p>Project facilitation showcase and announcement of new ETAF partners event at COP 28 (December 2023) <a href="#">↗</a></p>   |
|   |    | <p>Project facilitation Ministerial dialogue (December 2023) <a href="#">↗</a></p>   |
|   |    | <p><b>Project Pipeline</b></p> <ul style="list-style-type: none"> <li>• 45 project proposals have been submitted on the ETAF Platform.</li> <li>• Three batches of projects presented to partners (May 2023, Jun 2023, August 2023)</li> <li>• 14 project proposals recommended to partners</li> <li>• Three solar PV projects (Uzbekistan, total of 897 MW) have benefitted from ETAF partners' financial support (USD 1 bn in financing)</li> </ul>  |
| <p>Risk Mitigation Facility*</p>  |   | <p>Concept note developed</p>  |
|   |  | <p>Procurement of consultant services for the Market Assessment</p>  |
| <p>Facilitation and development of a pipeline of projects*</p>                |  | <p>Conducted market assessments for affordable financing of DRE solutions to power Agri-food sector in Rwanda and Uganda</p>   |
|   |  | <p>Engagement with UN Agencies, MDBs and other stakeholders to further develop a project pipeline</p>  |
| <p>Project site assessments and feasibility assessments<sup>173</sup></p>     |  | <p>Project site assessment for 12 solar PV, parabolic trough collector, and onshore wind sites earmarked for project development in El Salvador</p>  |
|   |  | <p>Project site assessment for 8 solar PV, parabolic trough collector, and onshore wind sites earmarked for project development in Mali</p>  |
|   |  | <p>Support Mauritania in wind concessions area allocation for green hydrogen production zones</p>  |
|   |  | <p>Project site assessment for 5 onshore wind sites earmarked for project development in Montserrat</p>  |
|   |  | <p>Calculated country-wide capacity factor profiles for Bolivia, Peru, and Paraguay</p>  |
|   |  | <p>RE potential assessment for utility-scale solar PV and wind projects in Africa and Latin America, including Mali, El Salvador, and Colombia</p>   |
|   |  | <p>Analysis of Global Small Hydropower potential based on IRENA Global Atlas datasets [pg 12-13: <a href="#">↗</a>]</p>  |
|   |  | <p>Improvement of zoning assessment methodology – energy profiles and costing calculations</p>   |

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

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

|   |  |
|---|--|
|  | 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)  |
|  | Development of training material on concentrated solar power (CSP) technologies – parabolic trough collector (PTC), central receiver system (CRS), and linear Fresnel reflector (LFR)  |
|  | <p>Capacity building for:</p> <ul style="list-style-type: none"> <li>• Arab states on resource potential assessment and zoning analysis (February 2022, 29 participants)</li> <li>• Training on resource assessment during IRENA's Student Leadership Program (April 2022, 150 participants)</li> <li>• African countries on renewable potential assessment, workshop organised by Commonwealth, AfDB, and Chatham House (July 2022, 60 participants)</li> <li>• Mozambique on generation profiles, workshop on grid integration analysis (July 2022)</li> <li>• Mozambique on Wind Power organised by Global Wind Energy Council (October 2022, 33 participants)</li> <li>• Renewable Potential Assessment: African Countries, 2023 Global Energy Interconnection Conference, Energy-Meteorology Synergy Development Parallel Session (September 27, 80 participants)</li> </ul> <p>Bilateral discussions with high level technical partners on long-term collaboration, mainly with the following:</p> <ul style="list-style-type: none"> <li>• Mauritania on wind concession area allocation for green hydrogen production zones</li> <li>• European Space Agency (ESA) on using their satellite-based data in IRENA's resource assessment tools and services</li> <li>• World Meteorological Organisation on impact of climate change on renewables deployment globally</li> </ul> |

## 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 co-ordination 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   |
|                           |  | <b>Governing Body meetings:</b> Organisation and conduct of the 12 <sup>th</sup> session of the IRENA Assembly for peer-to-peer engagement among Members and Stakeholders (January 2022) <a href="#">🔗</a>  |
|                           |  | Summary Report of the 12 <sup>th</sup> session of the IRENA Assembly <a href="#">🔗</a>  |
|                           |  | 23 <sup>rd</sup> Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) <a href="#">🔗</a>  |
|                           |  | Summary Report of the 23 <sup>rd</sup> Council meeting <a href="#">🔗</a>  |

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|    | 24 <sup>th</sup> Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) <a href="#">↗</a>   |
|    | Summary Report of the 24 <sup>th</sup> Council meeting <a href="#">↗</a>   |
|    | Organisation and conduct of the 13 <sup>th</sup> session of the IRENA Assembly for peer-to-peer engagement among Members and Stakeholders (January 2023) <a href="#">↗</a>   |
|    | Summary Report of the 13 <sup>th</sup> session of the IRENA Assembly <a href="#">↗</a>   |
|    | 25 <sup>th</sup> Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) (May 2023) <a href="#">↗</a>  |
|    | Summary Report of the 25 <sup>th</sup> Council meeting <a href="#">↗</a>   |
|    | 26 <sup>th</sup> Council meetings, including the meetings of the Administration and Finance Committee (AFC) and the Programme and Strategy Committee (PSC) (October 2023) <a href="#">↗</a>  |
|    | Organisation of the 14 <sup>th</sup> session of the IRENA Assembly for peer-to-peer engagement among Members and Stakeholders (Part I in January 2024 and Part II in April 2024)   |
|    | <b>High-Level Meetings:</b><br>Second edition of the Global High-Level Forum on Energy Transition  |
|    | <b>Permanent Representatives:</b><br>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. |
|  | Seventh edition of the Renewables Talk for Permanent Representatives to launch the Clean Cooking Platform with a view to fostering co-operation and co-ordinated action in promoting the deployment of clean cooking solutions (March 2022) <a href="#">↗</a>  |
|  | 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) <a href="#">↗</a>          |
|  | Ninth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Embassy of Malta to the UAE (November 2022) <a href="#">↗</a>   |
|  | Tenth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Permanent Mission of UAE to IRENA (December 2022) <a href="#">↗</a>   |
|  | Eleventh edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Delegation of the European Union to UAE (April 2023) <a href="#">↗</a>   |
|  | Twelfth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Royal Danish Embassy to UAE (June 2023) <a href="#">↗</a>   |
|  | Thirteenth edition of the Renewables Talk for IRENA Permanent Representatives hosted by the Permanent Mission of UAE to IRENA (Oct 2023) <a href="#">↗</a>   |

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|  | On-going preparation for the last quarterly edition of the Renewables Talk for IRENA Permanent Representatives for 2023   |
|  | <b>Women in Diplomacy</b>   |
|  | First edition of the Women in Diplomacy, held in the margins of the twenty-fourth meeting of the IRENA Council (October 2022)   |
|  | Second edition of the Women in Diplomacy, held in the margins of the thirteenth session of the IRENA Assembly (January 2023)  |
|  | Third edition of the Women in Diplomacy, held in the margins of the twenty-fifth meeting of the IRENA Council (May 2023)  |
|  | Fourth edition of the Women in Diplomacy, held in the margins of the twenty-sixth meeting of the IRENA Council (October 2023)   |
|  | Facilitation of participation of the UN high-level stakeholders at the 13 <sup>th</sup> session of the IRENA Assembly   |
|  | Facilitation of participation of the UN high-level stakeholders at the 12 <sup>th</sup> session of the IRENA Assembly   |
|  | Follow up on the implementation of the UN-Energy Plan of Action   |
|  | Preparation and submission of inputs to the thematic review of the 2023 UN High-level Political Forum on Sustainable Development <a href="#">🔗</a>  |
|  | 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) <a href="#">🔗</a>             |
|  | Preparation of the official side event of the High-Level Political Forum on Sustainable Development on Beyond the Talk: Financing Renewable Energy to Fuel the SDGs (July 2022) <a href="#">🔗</a> |
|  | Co-ordination of IRENA participation in the 2022 UN High-level Political Forum on Sustainable Development, including side events  |
|  | Co-ordination of IRENA participation in the 2023 UN High-level Political Forum on Sustainable Development, including side events  |
|  | Outreach to selected UN bodies and New York based Permanent Missions on the launch of the World Energy Transitions Outlook 2023   |
|  | Outreach to selected UN bodies and New York based Permanent Missions on the launch of the World Energy Transitions Outlook 2022   |
|  | Engagement with the New York based Permanent Missions to the UN with the purpose of strengthening IRENA voice at the UN level   |
|  | Engagement with the UN system based in New York for the purpose of exploring opportunities to work closely on the ground  |
|  | 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   |
|  | Co-ordination 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  |

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|  | 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  |
|  | Co-ordination of IRENA participation in the 2023 UN High-Level Week   |
|  | Co-ordination of IRENA participation in the 2022 UN High-Level Week   |
|  | Finalisation of and support to the launch of the joint UNOHRLLS-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 <sup>th</sup> 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 <a href="#">↗</a> |
|  | Co-ordination and facilitation of IRENA participation at the LDC5 conference (Doha, 5-9 March 2023); Delivery of IRENA statement  |
|  | Facilitation of participation of the UN high-level stakeholders at the 13 <sup>th</sup> session of the IRENA Assembly   |

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 the 1st of January to the end of November of 2023 covering, among others, institutional and governance matters; preparation of and advising 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<sup>th</sup> and 26<sup>th</sup> 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

Legal Office

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|                    | <p><b>Co-operation arrangements and commercial contracts</b></p> <p>More than 10 requests have been processed concerning conclusion of co-operation arrangements, including MoUs, partnership agreements, co-operation 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</p> |
|                    | <p><b>Communications and ICT</b></p> <p>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</p>   |
|                    | <p><b>Publications</b></p> <p>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</p>  |
|                    | <p><b>Other matters</b></p> <p>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</p>   |
|                    | <p>Events and Missions database for internal and external communication maintained</p>  |
|                    | <p>Organised 233 events since January 2023, of which 70 were virtual and 153 were in-person</p>   |
|                    | <p>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</p>  |
| <p>Events Unit</p> | <p>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 &amp; 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</p>  |
|                    | <p>Continue to maintain the Fund for Developing Country Representatives (FDCR) and supported the participation of 85 eligible LDC and SIDS Members to attend the 13<sup>th</sup> IRENA Assembly, 25<sup>th</sup> and 26<sup>th</sup> Council and related meetings</p>   |

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| <p>Diversification of resource base</p>                 |   | <p><b>New contributions concluded in 2022-23</b></p> <ul style="list-style-type: none"> <li>• Australia (Solar supply chain &amp; Breakthrough Agenda report)</li> <li>• Walloon region, Belgium (Various projects, focus on French speaking Africa).</li> <li>• Flanders region, Belgium (FDCR)</li> <li>• Denmark (IRENA support for 2023-2027)</li> <li>• European Commission (RETOS, Innovation)</li> <li>• Germany BMWK (G7 support on Hydrogen, WETO and LTS; CEM), PTB (Quality infrastructure for Green Hydrogen) &amp; GIZ (Senegal clean energy transition)</li> <li>• Japan METI (various projects)</li> <li>• Japan MAFF (Biomass Strategy for Sustainable Bioenergy Production)</li> <li>• Luxembourg (various projects)</li> <li>• Republic of Korea (seconded official)</li> <li>• Netherlands (Geopolitics)</li> <li>• Norway (Various projects, extension with additional funds)</li> <li>• United Arab Emirates (COP28, Greening peacekeeping operations, UAE Flextool, Clean cooking, education, and FDCR)</li> <li>• United Kingdom, BEIS (Breakthrough Agenda)</li> <li>• Open Society Foundation (Lives &amp; Livelihoods)</li> <li>• Rockefeller Brothers Fund (Acceleration Partnership for Renewables in Africa)</li> <li>• UNDP (Climate Promise &amp; Market Transformation for Sustainable Rural Housing in Uzbekistan)</li> <li>• UNOPS (Climate Vulnerable Fund)</li> </ul>  |
| <p>Monitoring and evaluation system</p>                 | <br><br>  | <p>Development of IRENA's Theory of Change</p> <p>Internal co-ordination to improve and enhance IRENA's M&amp;E system</p> <p>Development of a results-based management system</p>   |
| <p>Programmatic reports to the Council and Assembly</p> | <br><br><br><br><br><br><br><br><br><br><br><br><br><br> | <p><b>23<sup>rd</sup> meeting of the IRENA Council</b><br/> "Progress Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023" <a href="#">🔗</a></p> <p>Draft Framework for the Medium-term Strategy 2023- 2027 <a href="#">🔗</a></p> <p><b>24<sup>th</sup> meeting of the IRENA Council</b><br/> "Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023" <a href="#">🔗</a></p> <p>Draft Medium-term Strategy 2023-2027 – Report of the Director-General <a href="#">🔗</a></p> <p>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)</p> <p>Active outreach by IRENA Deputy Director-General and Director to Members, intergovernmental organisations, multilateral and regional entities and other stakeholders</p> <p><b>13<sup>th</sup> session of the IRENA Assembly</b><br/> "Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023" (December 2022) <a href="#">🔗</a></p> <p>Medium-term Strategy 2023- 2027 (December 2022) <a href="#">🔗</a></p> <p><b>25<sup>th</sup> meeting of the IRENA Council</b><br/> "Progress Report of the Director-General on the Implementation of the Work Programme and Budget or 2022-2023" (April 2023) <a href="#">🔗</a></p> <p>Draft Framework for the Work Programme and Budget 2024-2025 (April 2023) <a href="#">🔗</a></p> <p><b>26<sup>th</sup> meeting of the IRENA Council</b><br/> "Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023" (October 2023) <a href="#">🔗</a></p> <p>"Proposed Work Programme and Budget 2024-2025" (September 2023) <a href="#">🔗</a></p> |

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|  | "Work Programme Self-Assessment (2022-2023)" report (October 2023) <a href="#">↗</a>  |
|  | <b>14<sup>th</sup> session of the IRENA Assembly</b><br>Annual Report of the Director-General on the Implementation of the Work Programme and Budget for 2022-2023" (December 2023) |
|  | "Work Programme and Budget 2024-2025" (December 2023)   |

## Enabling IRENA delivery

| Outputs  | Status  | Description  |
|--|---|--|
| Upgrades and enhancements to the IRENA website, platforms, and other IT systems. |    | CIP back-end processing tool   |
|  |    | ETAF platform enhancements   |
|  |    | Country Engagement Platform launched   |
|  |    | New IRENA Intranet launched, as well as other enhancements   |
|  |   | Website upgrade - new website launched as well as enhancements for COP28   |
|  |  | 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   |

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| 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  |
|  |  | Travel Logistic services: 2 000 travel services for 74 workshops worldwide, for the period of 1 January to 23 November 2023   |



**A/14/3**

Fourteenth session of the Assembly

Part 1, Virtual, 15 January 2024

Part 2, Abu Dhabi, 16-18 April 2024