

# CLIMATE ACTION WITH ENERGY TRANSITION

Enhancing and Implementing Nationally  
Determined Contributions



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*The upcoming climate conference, COP26, represents a significant milestone for reducing energy related emissions through enhanced and updated national climate pledges.*

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# CLIMATE CHANGE AND ENERGY TRANSITION

With fossil fuel consumption by the energy sector responsible for around two-thirds of global greenhouse gas emissions, renewable energy is vital in addressing one of the defining challenges of our times: climate change.

The upcoming 26<sup>th</sup> meeting of the Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC) – COP26 – in Glasgow offers an opportunity for the world to come together and drive ambitious GHG emission reductions for a climate resilient future, powered by renewables.

The global energy system needs to be transformed through a shift to renewable energy, high-levels of energy efficiency and increasing electrification of end-use sectors, such as heat and transport. This transition is imperative in fulfilling the goals of the landmark 2015 Paris Agreement.

The Nationally Determined Contributions (NDCs) submitted by countries under the Paris Agreement represent pledges on climate action that seek to limit global warming to well below 2°C over pre-industrial levels – and preferably 1.5 °C. Similarly, long-term, low emission development strategies under the Paris Agreement articulate countries' plans to achieve climate neutrality by mid-century.





Of the total 191 NDCs submitted by countries (by April 2021), some 141 (or 90%) include quantified renewable energy power targets, while 63 (or 71%) have quantified renewable energy targets for direct heat and transport sectors. In addition, all 26 long-term, low emission development strategy submissions to date include emission reductions based on renewables.

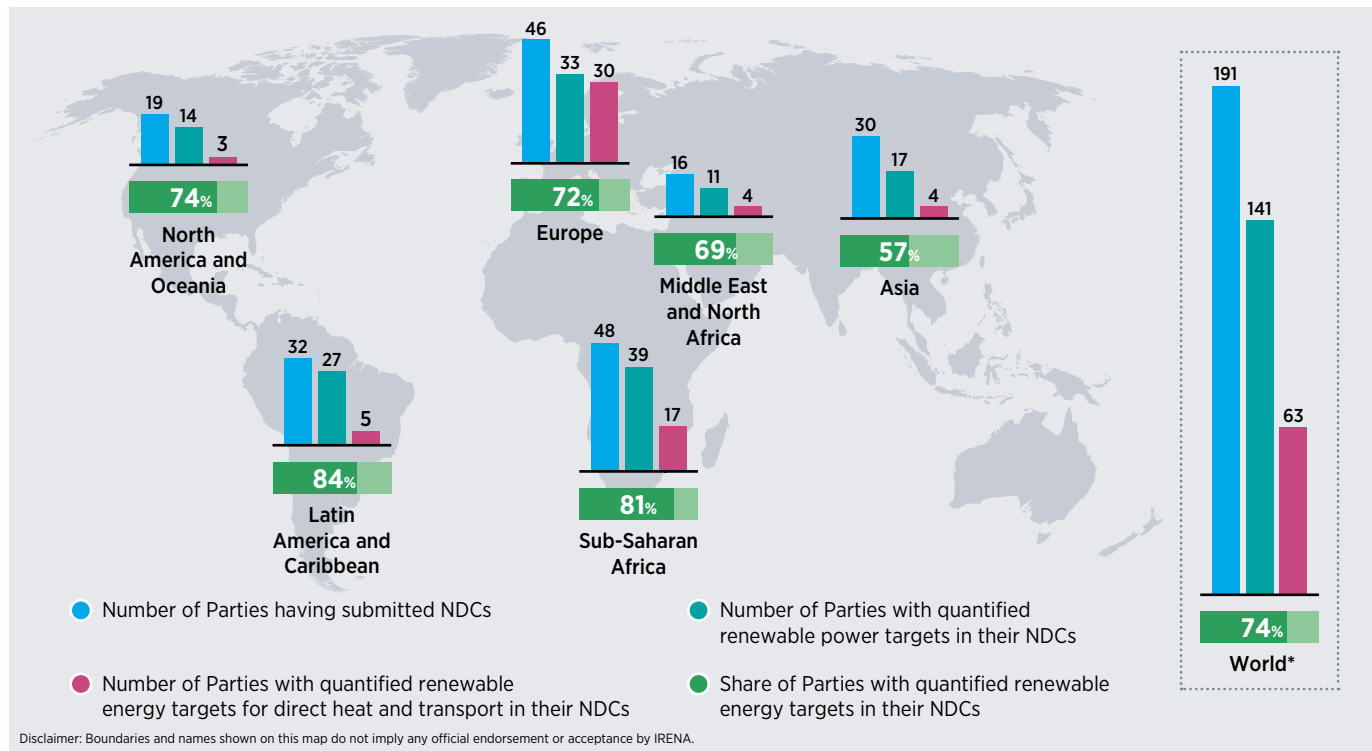
Now, more than five years after the Paris Agreement, countries around the world are seeking to update their NDCs with more ambitious targets for renewable energy based energy transition. This presents a crucial opportunity, as countries aim to submit updated climate pledges ahead of COP26, currently scheduled for late 2021.

The International Renewable Energy Agency (IRENA), which is dedicated to promoting renewables as a key climate solution, has set out to support the parties to the Paris Agreement worldwide in updating their NDCs.

An intergovernmental agency established in 2011, IRENA provides expertise, analysis and knowledge on technologies, policies and finance for the global energy transition. In the run-up to COP26, IRENA has been working closely with the UNFCCC, the COP26 presidency and other global, regional, national and local partners to build momentum for inclusive climate action, based on renewables.

The COVID-19 pandemic – although disrupting economies and devastating people’s lives over the past year – has also underlined the resilience of renewable energy based on locally available sources, independent of global fossil fuel supply chains. In responding to the crisis, governments have sought climate-resilient energy options, aiming to align stimulus investments with the creation of climate-safe infrastructure and new, green job opportunities.

## Renewable energy components in Nationally Determined Contributions



Note: Figures were last updated and verified on 5 April 2021.

Source: IRENA

# COUNTRY ENGAGEMENT

IRENA's current engagement with NDCs spans 70 countries with combined population of more than 1.8 billion. These countries also have energy related GHG emissions approaching 3.2 billion tonnes of carbon dioxide equivalent (CO<sub>2</sub>e) per year. These include 20 Small Island Developing States (SIDS) and 17 Least Developed Countries (LDCs).

IRENA's support spectrum covers all the regions of the world, including Asia-Pacific, South East Europe, Latin America and the Caribbean, the Middle East, North Africa and Sub-Saharan Africa. IRENA has set-up a comprehensive and robust mechanisms in scoping, planning and delivery of support to ensure effectiveness and efficiency in the implementation of activities.



IRENA is engaging with countries in various ways to help them accelerate their transition to renewables and build climate-resilient energy systems.

Through capacity building on data and statistics collection and management, IRENA has helped several countries improve their renewable energy statistics. Renewable Energy Roadmap (REmap) analysis and other energy planning offer long-term perspectives on country-specific, feasible decarbonisation options for power systems, as well as end-use sectors.

Renewables Readiness Assessment (RRA) studies based on country-led stakeholder consultations, along with Sectoral Analysis and capacity building in various areas of policy and technology, have helped countries create the conditions necessary for the scaling up of renewable energy investments. IRENA's Long-term Energy Scenario (LTES) Network offers a platform for government planners to exchange experience on the use and development of long-term energy scenarios in the context of the clean energy transition.

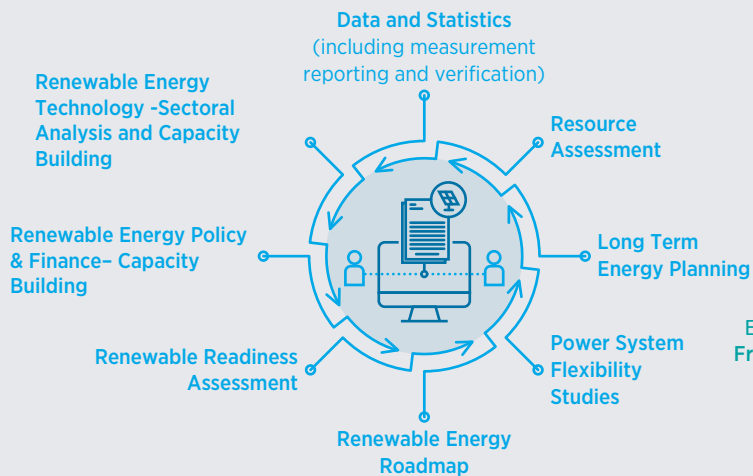
IRENA also provides assistance with the establishment of effective Monitoring, Reporting and Verification (MRV) systems, through which countries track and report on the implementation of NDCs.

IRENA extends support in the NDC implementation phase through the development of NDC implementation plans and investment frameworks, as well as providing project-level support to facilitate the realisation of investments.

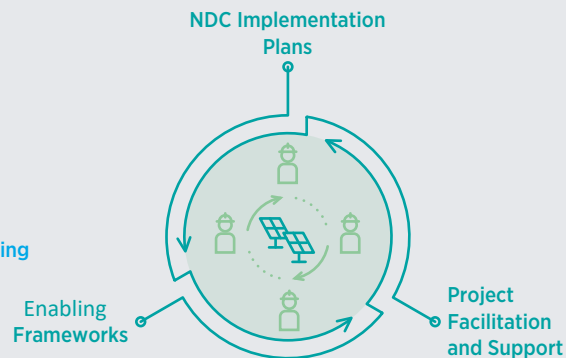
*The NDC revision process can benefit greatly from international insights and experience in all aspects of the energy transition.*

## How IRENA helps parties of the Paris Agreement strengthen their climate pledges:

### NDC Enhancement: Scaling up ambitions



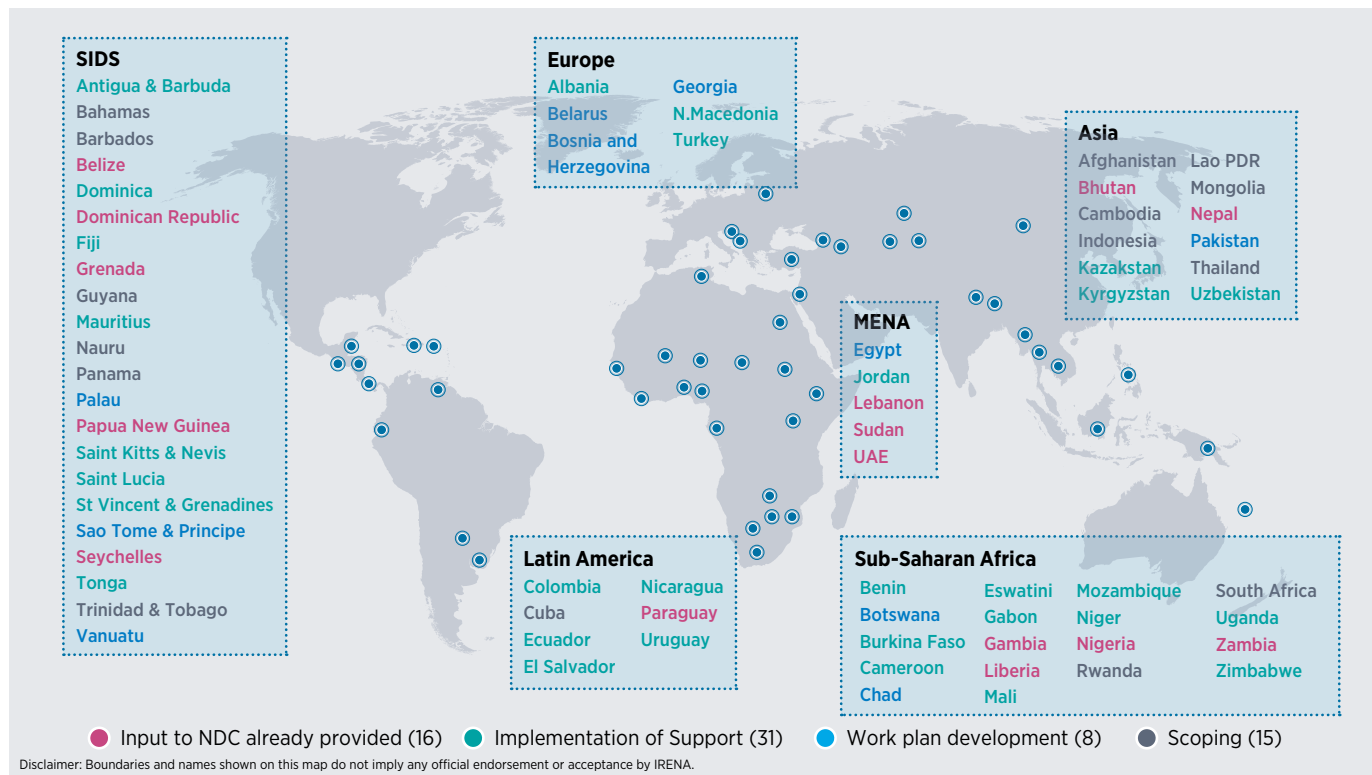
### NDC Implementation: Putting pledges into practice



Source: IRENA



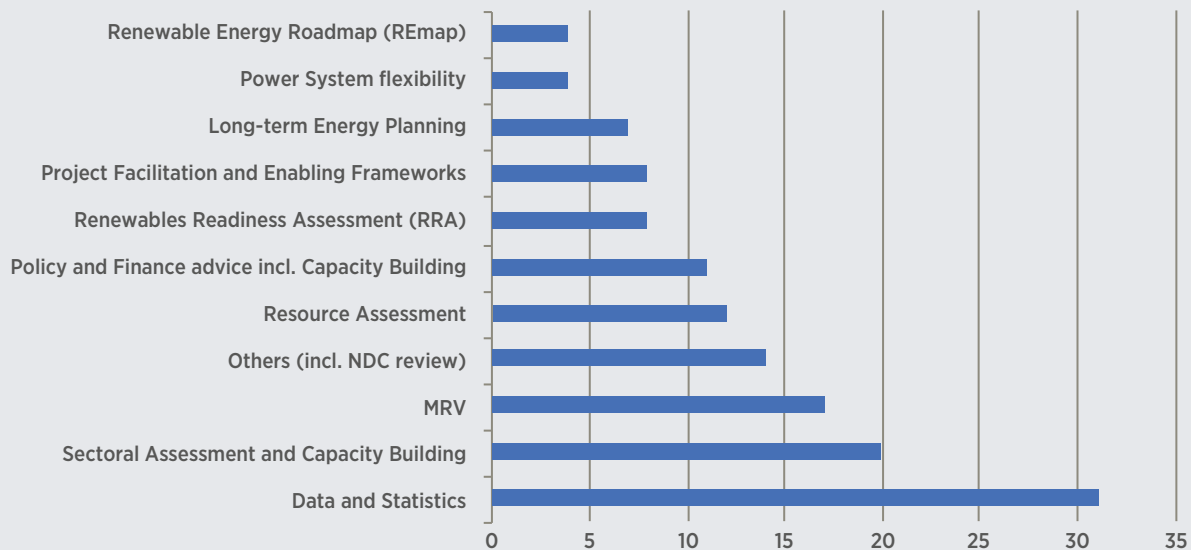
## IRENA's NDC Engagement



Source: IRENA (updated on 13 September 2021)

## Distribution of Work Packages

IRENA is currently pursuing 136 activities based on the needs and interests of the parties on different work packages in enhancing and implementing their renewable energy plans as climate actions.



Source: IRENA (updated on 13 September 2021)

*IRENA works directly with parties of the Paris Agreement and with development partners and agencies to fulfil requests and deliver support*

## Key Partnerships



*Empowered lives.  
Resilient nations.*

United Nations  
Development Programme  
(UNDP) Climate Promise



Regional Pacific NDC Hub



UK COP26 Presidency



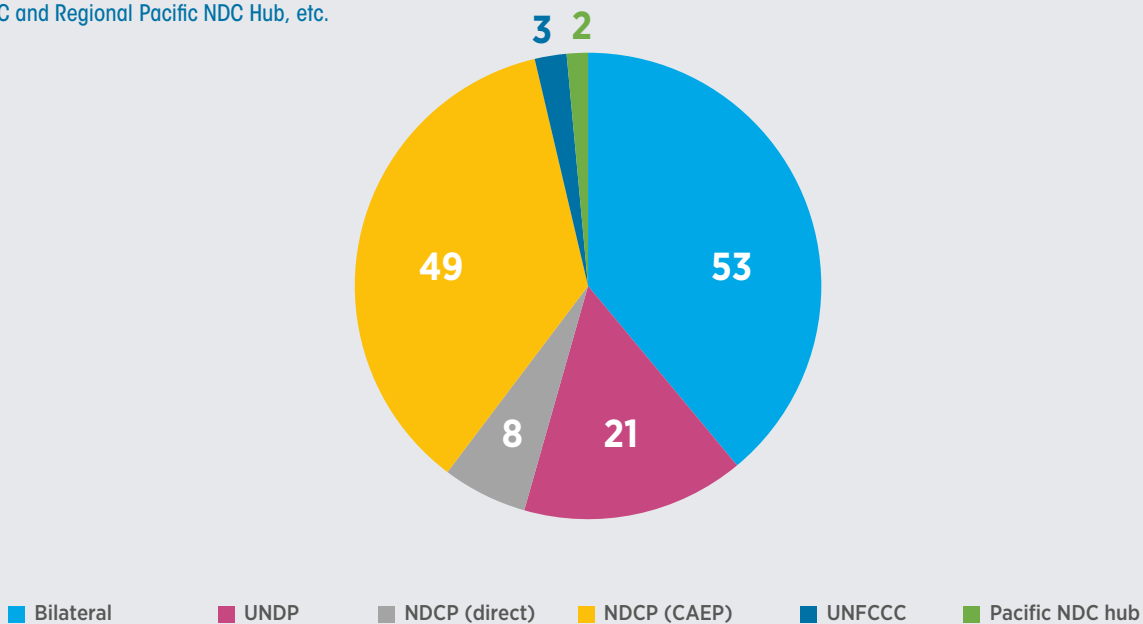
United Nations Framework on  
Climate Change Convention (UNFCCC)  
and its Regional Collaboration Centres (RCCs)



NDC Partnership

## Sources of Requests

The requests for support on energy transition as climate action are received through bilateral engagement with the parties, or through IRENA's institutional partnership and collaboration with UNDP, NDC Partnership (CAEP and direct requests), UNFCCC and Regional Pacific NDC Hub, etc.



Source: IRENA (updated on 13 September 2021)



*“Climate change is an existential threat and there is a need to take appropriate and timely actions to mitigate and adapt to the impacts of the change. G77 member countries are the most vulnerable to the effects of global warming. Despite principle of common but differentiated responsibilities and respective capabilities, developing countries are taking the lead to act on climate action and call on developed nations to achieve net-zero emissions and deliver on climate finance commitments. Energy sector remains the most important sector that can be transformed through accelerated adoption of renewable energy. IRENA as a lead intergovernmental agency on energy transition is supporting Guinea and several G77 member countries achieving mitigation commitments through renewable energy.”*

**H.E. Mr. Ahmadou Sebory Toure,**  
**Republic of Guinea, President of G77 & China**

# SELECTED CASES

## Belize



IRENA supported Belize in specifying NDC energy targets based on international guidelines and on-the-ground data, as well as proposing key progress indicators. IRENA is also supporting the development of a baseline energy scenario and the country's energy transition pathways through REmap analysis. It is also providing insights to the country's long-term decarbonisation strategy.

***"The updated NDC was supported by the NDC Partnership with IRENA, FAO and UNFCCC RCCMRVH."*** (Belize updated NDC, 01 Sept 2021).





*“SIDS are the frontline countries and they have special circumstances and needs arising from the adverse impacts of climate change and the resulting high cost. An Energy Transition through renewables is a key mitigation and adaptation strategy for islands since it can contribute to a resilient energy system while allowing for the capturing of abundant solar and wind resources. Antigua & Barbuda has been teaming up with our valuable partner IRENA on a decarbonisation roadmap for the country as well as a just transition to a climate neutral future.”*

**Ms. DIANN BLACK-LAYNE,**  
Ambassador for Climate Change, Antigua & Barbuda,  
Chief Negotiator for Alliance of Small Islands States (AOSIS) on Climate Change.



## Bhutan

Bhutan used the NDC revision process as an opportunity to reflect on energy transition in the country in its NDC revision process. Bhutan's RRA (IRENA, 2019) outlined a strategic roadmap for the energy sector. This has also fed into the NDC revision process, showing how Bhutan could achieve long-term energy security through a diversified and sustainable supply mix. RRA findings show that renewable energy technologies, such as solar photovoltaic (PV), wind, bioenergy and small hydropower, could offer opportunities for diversifying the country's energy mix and help address rising energy demand. Distributed renewables can also provide socioeconomic benefits, including income through productive uses and improvements in living conditions, while reducing indoor pollution and deforestation through enhanced access to energy.



## Ecuador

IRENA is supporting Ecuador on NDC implementation through a range of activities. These include automating the calculation of emissions factors, which enables the national grid to establish a long-term system for MRV. IRENA is also supporting the enhancement of local capacity through developing a long-term scenario for energy and climate target setting. Agency also supports NDC implementation plans, including the consideration of different technology options. Through concept development for Green Climate Fund (GCF) financing of bio-digesters, IRENA has also helped to secure key project finance in support of NDC implementation.





*“Least Developed Countries see renewable energy as a key remedy for climate change mitigation to achieve the Paris Agreement objectives. Bhutan has been working with IRENA on a Renewables Readiness Assessment and follow on actions to diversify our hydropower based energy system to include other renewable energy sources like solar and wind.”*

**H.E. MR. SONAM P. WANGDI,**  
Secretary of National Environment Commission, Royal Government of Bhutan  
and Chair of Least Developed Countries (LDC) Group on Climate Change.



### **El Salvador**

IRENA is supporting El Salvador in its NDC through a variety of service offerings. These include RRA, REmap, energy data, and MRV. The RRA analysis, which was launched in December 2020, identified challenges for renewable energy deployment in the country. It also outlines key recommendations for overcoming existing barriers, which can then be reflected in the revised NDC. IRENA is assisting El Salvador in expanding its use of renewable energy in agro-industrial processes such as heating, cooling, drying, sterilisation, and cleaning.

IRENA is also providing a country energy perspective for 2030, assessing renewable and energy efficiency penetration. This is part of the REmap Central America goal of facilitating analysis of energy emission reduction targets, sector by sector.



### **Grenada**

IRENA's support for Grenada in the development of renewable energy data and statistics has provided added clarity, transparency and understanding of NDC targets — and was well acknowledged by the government in its 2nd NDC (November 2020). IRENA's support also includes reviewing NDC content and target structures, conducting an energy audit in the building sector, and proposing a strategy to systematise data collection and calculations for transport-related GHG emissions.

***“The Government of Grenada is appreciative of the support provided by IRENA.”***

*(Grenada's 2nd NDC, November 30, 2020).*



### Lebanon

IRENA Renewable Energy Outlook: Lebanon 2020 has helped provide an analytical basis for enhancing the renewable energy targets to be included in its NDC. The recommendations made by the REO have also helped the country in preparing an action plan for the implementation of NDC mitigation targets, especially regarding renewable energy.

***“This NDC represents a progression beyond Lebanon’s 2015 NDC...guided by the IRENA Renewable Energy Outlook: Lebanon..”*** (Lebanon updated NDC, March 16, 2021)



### Papua New Guinea

IRENA has assisted Papua New Guinea in the revision of NDC targets for the energy sector. This has been in line with the Enhanced Transparency Framework (ETF) of the Paris Agreement and is recognised in the country’s enhanced NDC (Dec. 2020). IRENA will also provide guidance on the country’s implementation plan for the energy sector. It also helps organise meetings of the Energy Sub-Technical Working Committee, gathering stakeholders from across the sector, while reporting on the status of energy statistics and offering recommendations for improvement.

***“Special thanks also go to a number of development partners, including IRENA, etc., for invaluable support.”*** (Papua New Guinea’s enhanced NDC, December 16, 2020)

***IRENA supports countries in meeting their climate commitments and scaling up ambitions for renewables – both through bilateral engagement and through broader institutional partnerships.***



*“Africa suffers significantly from impacts of climate change. We would like all countries to increase their renewable energy ambition in their planned climate pledges and long-term emission reduction strategies. Gabon is working with IRENA on power sector analysis, as we aim to increase renewables in our energy system as part of our nationally determined contribution.”*

**MR. TANGUY GAHOUMA-BEKALE,**

Adviser to the President, Permanent Secretary Conseil National Climat, Gabon,  
Chair of the African Group of Negotiators on Climate Change.



### **Saint Kitts and Nevis**

The government of Saint Kitts and Nevis is collaborating with IRENA to enhance mitigation measures in the power and transport sectors through the use of renewable energy. The analysis allows for the evaluation of the cost-effectiveness of mitigation options proposed in sectoral action plans, as well as their potential adaptation co-benefits. As a result, effective mitigation measures are prioritised in the country's revised NDC, resulting in a higher level of ambition and a clearer path to meeting national climate goals.



### **The Gambia**

IRENA is supporting the Gambia in the enhancement of mitigation measures in the power sector through the use of renewable energy. The analysis allows for the evaluation of the cost-effectiveness of mitigation options proposed in sectoral action plans. As a result, effective power sector mitigation measures are prioritised in the country's revised NDC, resulting in a higher level of ambition and a clearer path to meeting national climate goals. This activity is the result of the ongoing collaboration between the European Commission and IRENA implemented through the European Union Technical Assistance Facility (TAF) for Sustainable Energy.



*“Climate Vulnerable Forum (CVF) and V20 member countries aspire to drive prosperity through climate action that ensures sustainability and resilient socio-economic growth. Energy transition through high shares of renewables is one of the main pillars of the Climate Prosperity Plan 2030 that is a strategic investment agenda to boost prosperity and tackle frontline climate threats. CVF and IRENA are working with several CVF members states in scaling up renewable energy ambition in implementing climate goals. CVF look forward to strengthening its collaboration with IRENA on climate action driven by high shares of renewable energy.”*

**H.E. MR. TOSI MPANU MPANU**

**CVF Thematic Ambassador for Renewable Energy, Chair, Subsidiary Body for Scientific and Technological Advice, UNFCCC, Ambassador, Cabinet of the Minister for Environment and Sustainable Development, Democratic Republic of the Congo.**

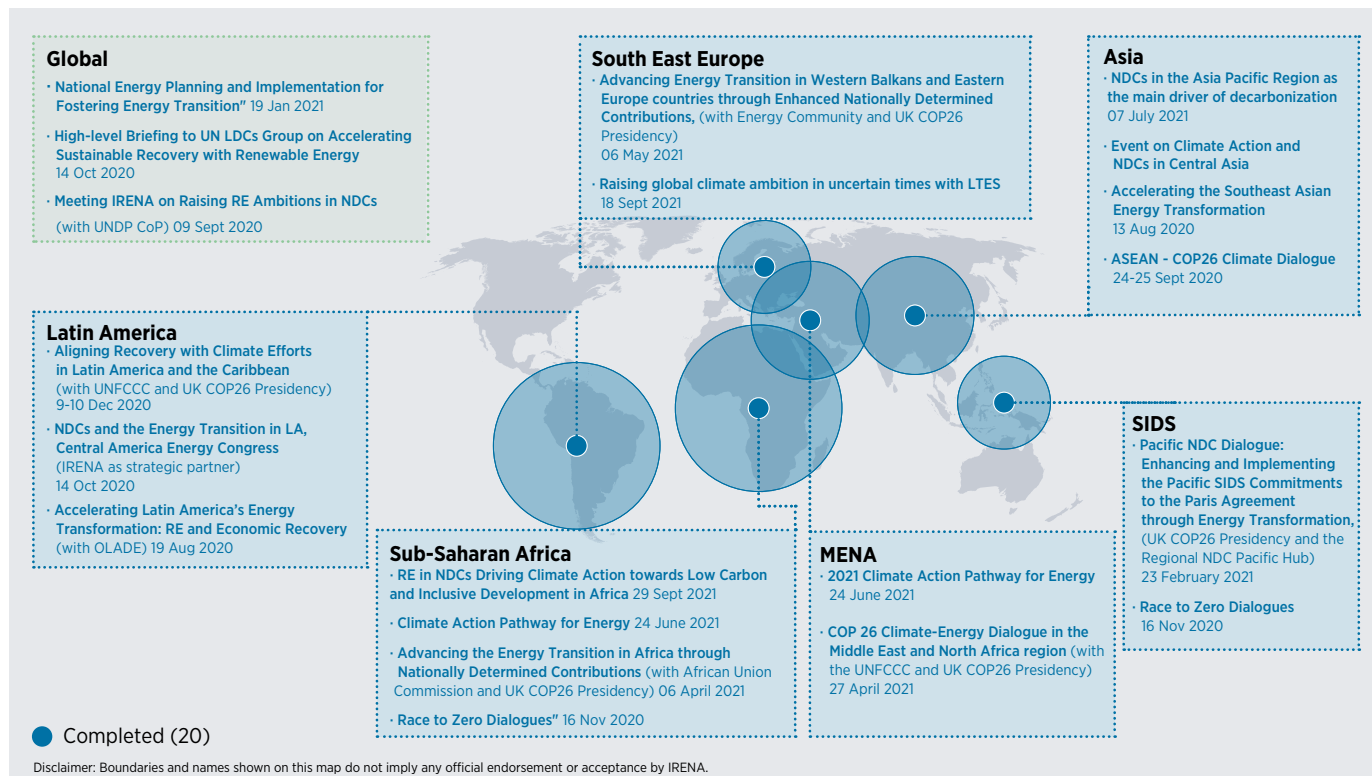
# ADVOCACY AND OUTREACH

IRENA has organised a range of events, webinars and dialogues on NDCs and climate action to showcase the global, regional and country-level impact of climate change, and to elicit discussion on options to mitigate these impacts and ensure long-term sustainability.



While the COVID-19 pandemic has constrained travel and mobility, IRENA has kept the message of climate action high on the agenda in countries' post-COVID recovery plans.

## IRENA's Global and regional events on NDCs



Source: IRENA (updated on 13 September 2021)



# HELPING COUNTRIES STRENGTHEN THEIR CLIMATE PLEDGES: NDC ENHANCEMENT

## Data and statistics

Repository of statistics on renewable energy capacity, generation, energy balances, finance and investments, and costs.

## Monitoring, reporting and verification (MRV)

Technical assistance and capacity building on collecting, analyzing, recording and reporting detailed and accurate data.

## Policy advice

Analysis of current policy and finance landscape to identify existing barriers to the deployment of renewable energy and policy recommendations to help attract investments into the sector, informing country-level climate action.



### Resource assessment

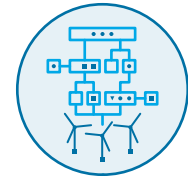
Site assessment, suitability assessment, zoning assessment, SolarCity simulator as well as capacity building to assess the potential of renewable energy.

### Long-term energy planning

Enhancement of long-term renewable energy planning scenarios and capacity building for energy planning and modelling.

### Power system flexibility

Assessment of the flexibility of the power system and identification of cost-effective, flexible solutions for a greater integration of variable renewable energy and increase the share of renewables including energy storage, demand-side flexibility and sector coupling options (i.e. power-to-hydrogen, power-to-heat and electric vehicles).

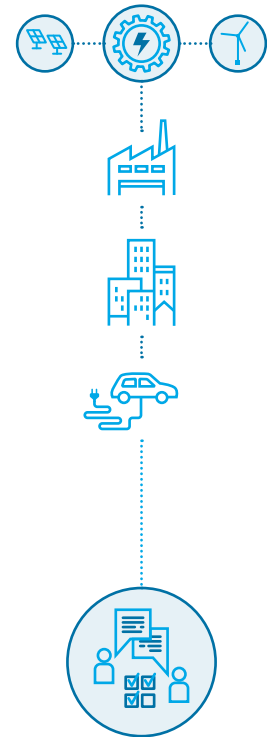


## Renewable energy roadmap

REmap assesses renewable energy potential in power, heating, cooling and transport, and studies possible technology pathways and other metrics like technology, costs, investments and externalities like air pollution, emissions, and economic indicators.

## Renewable Energy Technology – Sectoral Analysis and Capacity Building

Offering high-level technical assistance in the design and implementation of enhanced mitigation and adaptation measures in climate action plans using renewable energy technologies, as well as support in assessing their mitigation potential, related costs, and adaptation co-benefits. This includes developing datasets, tools, and insights focused on practical solutions for decarbonizing energy systems and building capacity to increase renewable energy use in buildings, industry, and transport sectors through innovative approaches.





### **Renewable readiness assessment**

A tool for carrying out comprehensive evaluations of the conditions for renewable energy deployment in countries that can inform the decision makers in scaling up renewable energy ambitions.

### **Capacity building on policy and finance**

Support to countries in enhancing their capacity on different topics, including renewable energy targets, policies and regulations, financial instruments and investment frameworks.

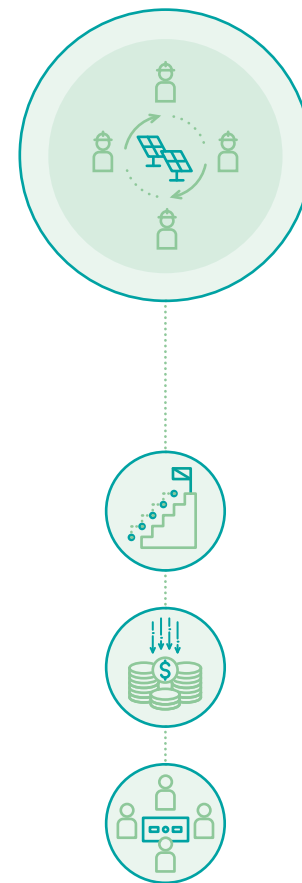


# NDC IMPLEMENTATION

IRENA supports countries in implementing their climate pledges through a dedicated set of activities aimed at achieving NDC targets.

Such support can include:

- **NDC implementation plan development:** IRENA helps countries prepare and follow a clear implementation plan and mechanism for achieving their NDC targets – particularly those regarding renewable energy – agency also supports NDC implementation plans, including those giving consideration to different technology options.
- **Project facilitator services:** IRENA assists countries access finance through the Climate Investment Platform (CIP) in partnership with UNDP, SEforAll and in collaboration with the GCF. IRENA teams up with financial institutions, project developers and the private sector in developing solid project pipelines backed by the governments; assisting in bankability and access to finance of projects. CIP will be further supported through a series of Investment Forums at regional levels.
- **Enabling Frameworks:** IRENA assists countries through strengthening enabling frameworks to promote investments. This is primarily done through technical assistance and capacity building on different areas of renewable energy data, policy, planning, regulation, technology and finance.





*“Today’s decisions will determine whether we make a sharp turn to a climate-resilience path, or remain locked in the systems of the past. This means fully aligning COVID-19 recovery with key climate goals and adopting a holistic policy approach for the global energy transformation. The upcoming climate conference, COP26, represents a significant milestone for reducing energy related emissions through enhanced and updated national climate pledges.”*

**FRANCESCO LA CAMERA,**  
Director General, IRENA.

*Meeting climate ambitions requires a combination of; technology and innovation to advance the energy transition and improve carbon management; supportive and proactive policies; associated job creation and socio-economic improvements; and international co-operation to guarantee energy availability and access*



*IRENA's NDC work has been supported through the generous voluntary contributions from;*

## Contributors



Federal Ministry  
for the Environment, Nature Conservatio  
and Nuclear Safety

International Climate Initiative  
(Supported by BMU Germany)



European Commission,  
INTPA



Wallonie

French Community,  
Belgium



MINISTRY OF FOREIGN AFFAIRS  
OF DENMARK



Empowered lives.  
Resilient nations.

United Nations  
Development Programme  
(UNDP) Climate Promise



NDC Partnership on Climate Action  
Enhancement Package  
(CAEP)



Norwegian Ministry  
of Foreign Affairs



## List of Abbreviations

<b>AOSIS</b>	Alliance of Small Island States	<b>LT LEDS</b>	Long term, low greenhouse gas emission development strategy
<b>AVRIL</b>	Addressing variable renewables in long term planning	<b>LTS</b>	Long term strategy
<b>CAEP</b>	Climate Action Enhancement Package	<b>MRV</b>	Monitoring, reporting and verification
<b>CO<sub>2</sub>e</b>	Carbon dioxide equivalent	<b>NDC</b>	Nationally Determined Conditions
<b>COP26</b>	Twenty-sixth meeting of the Conference of Parties to the UNFCCC (see below)	<b>PV</b>	Photovoltaic
<b>ETF</b>	Enhanced Transparency Framework	<b>RCC</b>	Regional Collaboration Centre
<b>GHG</b>	Greenhouse gas	<b>REmap</b>	Renewable energy roadmap
<b>GCF</b>	Green Climate Fund	<b>REO</b>	Renewable energy outlook
<b>ICTU</b>	Information, clarity, transparency and understanding	<b>SPLAT</b>	System planning test
<b>LTES</b>	Long-term energy scenario	<b>UNDP</b>	United Nations Development Programme
		<b>UNFCCC</b>	United Nations Framework Convention on Climate Change

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## About IRENA

The International Renewable Energy Agency (IRENA) serves as a centre of excellence, repository of policy, technology, resource and financial knowledge, as the principal platform for international co-operation and as a driver of action on the ground in advancing 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.



For more information about IRENA's work on NDC support, or to engage us to discuss collaboration, please contact us by e-mailing:

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