Version 16 Aug

SDG7 Energy Compact of the World Meteorological Organization
A next Decade Action Agenda to advance SDG7 on sustainable energy for all, in line with the goals of the Paris Agreement on Climate Change

SECTION 1: AMBITION

1.1. Ambitions to achieve SDG7 by 2030.

	7.2.1 – The extended toolkit will include global renewables potential assessment of wind, solar, and hydro, using historical, observational, and climate projection data. This extension of the toolkit will guide on optimum site selection for renewable power plants by considering the effects of climate change. In addition, the tool will help to detect high potential remote areas in terms of wind and solar energy to establish decentralized wind and solar power plants. 7.2.2 – Global renewable capacity is estimated to be tripled by 2030 (IRENA, 2014, and UN HLD, 2021). Given the diverse application of the fully developed toolkit, it is estimated that it will contribute to 100% increase in global renewable capacities by scaling up global modern renewable capacity in more than 100 developing countries.
7.3. By 2030, double the global rate of improvement in energy efficiency.	Target(s): 7.3.1 – Extend the toolkit to provide weather, water, and climate services for renewable power plants and electricity generation sector (3rd version of the toolkit) 7.3.2 – Increase global average energy efficiency by 1.2% Time frame: 7.3.1 – By 2024 7.3.2 – By 2030 Context for the ambition(s): 7.3.1 – The extended version of the toolkit (3rd version) will provide weather, water, and climate services to the energy sector players, including transmission system operators (TSOs), renewables power plants operators, and energy sector policymakers. These services, such as high-resolution short- to medium-term weather prediction, sub-seasonal to seasonal climate forecasting, and multi-hazard early warning system, will help to increase the resiliency and efficiency of clean electricity generation and grid integration. 7.3.2 –The fully developed toolkit will contribute to increase global energy efficiency, mainly by facilitating energy transition from fossil fuels to renewables.

developing States, and land-locked developing countries, in accordance with their respective programs of support.	

1.2. Other ambitions in support of SDG7 by 2030 and net-zero emissions by 2050.

Target(s):
Reduction of 5 billion tons of GHG emissions

Time frame:
2030

Context for the ambition(s):
One important application of the proposed toolkit is to help countries to decarbonize their economies by supporting the development of both interconnected and decentralized renewable energies systems. The estimated GHG emission reduction is equal to the amount of emitted GHG by a fossil fuel power plant replaced by a renewable one that generates the same unit of electricity. Referring to item 7.1, about 500 GW renewable energy generation is required to assure energy access to 150 million people. Generating this amount of electricity by traditional fossil fuels will produce about 5 billion tons of GHG. This amount of GHG emission will be reduced if renewable power plants are being used instead of burning coal, oil and natural gas. (U.S. Energy information administration, 2020)

SECTION 2: ACTIONS TO ACHIEVE THE AMBITION

2.1. Please add at least one key action for each of the elaborated ambition(s) from section 1. *[Please add rows as needed].*

Description of action (please specify for which ambition from Section 1)	*Start and end date*
2.1.1 – WMO approval and resource allocation for developing the tool (For all ambitions)	August 2021 – December 2021
Description of action (please specify for which ambition from Section 1) 2.1.2 – Establishment of international consortium and Development of the 1st version of the toolkit (Global Energy Resilience Atlas) (For all ambitions)	*Start and end date* December 2021 – December 2022
Description of action (please specify for which ambition from Section 1) 2.1.3 – Development of the 2nd version of the toolkit to include global renewables potential assessment for wind, hydro, and solar. (For all ambitions)	*Start and end date* December 2022 – December 2023
Description of action (please specify for which ambition from Section 1) 2.1.4 – Development of the 3rd version of the toolkit to include other climate-energy services (high-resolutions short to medium range weather forecast services for renewable energy power plants and provide energy mix plans for cities and countries around the world focusing on developing countries)	

SECTION 3: OUTCOMES

3.1. Please add at least one measurable and time-based outcome for each of the actions from section 2. *[Please add rows as needed].*

Outcome Internal organizational approval and allocated resources to start the project (For action 2.1.1)	*Date* October 2021
Outcome Launching the 1st version of the tool and open it to public use (For action 2.1.2)	*Date* October 2022
Outcome Launching the 2nd version of the tool and open it to public use (For action 2.1.3)	*Date* October 2023
Outcome Launching the 3rd version of the tool and open it to public use (For action 2.1.4)	*Date* October 2024
Outcome Facilitate energy access to more than 150 million people by 2030 (50 million by 2025), Contribute to 100% increase in global modern renewables capacity (50% by 2025), Contribute to reduce 500 million tons of global GHG emission (250 Gt by 2025), and Facilitate to create about 2 million new renewable energy jobs (up to 700 thousand by 2025) (For action 2.1.4)	*Date* October 2030

SECTION 4: REQUIRED RESOURCES AND SUPPORT

4.1. Please specify required finance and investments for each of the actions in section 2.

The required finance and investments for development phases of the toolkit and the operational costs until 2030 is summarized below. Some finance is secured to initiate developing the 1st version of the tool, but to complete it and to develop the 2nd and 3rd versions, external financial support is needed.

$ 800,000: 1st version of the tool (Global energy resilience atlas) (For action 2.1.2)
$ 2,400,000: 2nd version of the tool (Global renewable energy potential assessment) (For action 2.1.3)
$ 3,500,000: 3rd version of the tool (Integrating weather and climate forecasts services for renewable energies power plants and energy mix plans) (For action 2.1.4)
$ 500,000: Yearly operational cost from the 4th year, equal to $ 3,000,000 until 2030)
In total, $ 9,700,000 investment is required until 2030, and average of 90,000 per year.

4.2. [For countries only] In case support is required for the actions in section 2, please select from below and describe the required support and specify for which action.

[Examples of support for Member States could include: Access to low-cost affordable debt through strategic de-risking instruments, capacity building in data collection; development of integrated energy plans and energy transition pathways; technical assistance, etc.]

Financing	*Description*
In-Kind contribution	*Description*
Technical Support	*Description*

Other/Please specify	*Description*

SECTION 5: IMPACT

5.1. Countries planned for implementation including the number of people potentially impacted.

The toolkit is planned to be fully developed in three phases. In each phase, an additional new service will be provided. The tool follows a world coverage approach for all the development phases to ensure the maximum benefit for the world population, particularly for the developing countries. In order to estimate the number of potentially impacted people, we need to consider both direct and indirect impacted populations. The first group is estimated 150 million as targeted in 7.1. The second group is much larger in terms of population and includes the residents of those cities and countries that will use the WMO energy toolkit (either global energy resilience atlas, global renewables potential assessment, or weather and climate services) to improve their electricity operation systems or establishment of new renewable power plants. Hence, this is not straightforward to estimate the potentially impacted people, however, by considering 100 developing countries indicated in targets 7.2 and 7.3, it can be estimated that a population of 500 million to 1 billion will be indirectly affected.

5.2. Alignment with the 2030 Agenda for Sustainable Development – Please describe how <u>each</u> of the actions from section 2 impact advancing the SDGs by 2030.

[up to 500 words, please upload supporting strategy documents as needed]

The renewable energy (RE) resources potential assessment will guide countries in identifying the best locations for building new REs plants or retrofitting existing plants. The tool will provide information based on historic past (reanalysis), current observational data, near- and long-term forecast and climate projections for decades ahead. Providing RE resources assessment based on this wide time horizon of weather and climate information will provide a higher level of accuracy and a justification of financial investments in new projects for RE development. Hence, applications of the developed tool will result in more REs power plants, increasing the share of renewables in the global energy mix and more energy efficiency. With that introduction, the role of the actions in advancing the SDGs by 2030 is summarised below:

SDG 1 and 2: NO POVERTY, NO HUNGER:
Energy access is a critical enabler of development and hence poverty reduction. Energy systems are crucial for all aspects of people's lives and livelihoods, including access to healthcare and education, digital

Version 16 Aug

SDG 11: SUSTAINABLE CITIES AND COMMUNITIES:
Energy plays a fundamental role in building inclusive, safe, resilient, and sustainable cities and human settlements. The dev

Version 16 Aug

Africa Asia and Pacific Europe Latin America and Caribbean North America West Asia Global

8.6. Please select the Energy Compact thematic focus area(s)

Energy Access Energy Transition Enabling SDGs through inclusive just Energy Transitions Innovation, Technology and Data Finance and Investment.

SECTION 9: ADDITIONAL INFORMATION (IF REQUIRED)

Please provide additional website link(s) on your Energy Compact, which may contain relevant key documents, photos, short video clips etc.

References

IRENA, 2014,
REmap 2030, A renewable energy roadmap.
IRENA, 2020, Renewable Energy and Jobs, Annual review.
IRENA, 2015, Synergies between renewable energy and energy efficiency, A working paper based on REmap 2030.
U.S. Energy information administration, 2020, https://www.eia.gov/tools/faqs/faq.php?id=74&t=11.
United Nations, 2021, United Nations High-level dialogue on energy, Global Roadmap -Technical Working Group II on Energy Transition