Introduction to IEEE and Climate Change Initiatives

CMU Executive Forum
Climate Change Initiative of IEEE

2 NOVEMBER 2023
1.00 - 2.30 pm
HYBRID EVENT

VENUE
Engineering Auditorium
Faculty of Engineering
Chiang Mai University

LIVE
ZOOM and facebook page
www.facebook.com/engineeringcmu

Prof. Saifur Rahman
2023 IEEE President & CEO
Director, Virginia Tech Advanced Research Institute, USA

www.srahman.org

Advancing Technology for Humanity
IEEE 2023
Board of Directors Retreat Focus

INNOVATE
COORDINATE
COMMUNICATE
COOPERATE
Synergy among IEEE’s areas of focus

 MEMBER

 430,000 + Members in 190 Countries
 10 Regions
 39 Societies

 TECHNOLOGY

 Over 2,000 Conferences
 Over 200 Periodicals

 EDUCATION

 IEEE Learning Network (ILN)

 STANDARDS

 Over 1300 Standards Published

 CLIMATE CHANGE

 Cross-cutting Program Across All of IEEE

 IEEE
https://climate-change.ieee.org
Climate Change and CO2 Emissions

History of CO2 Emissions
For millennia, atmospheric carbon dioxide had never been above this line. The current level is higher than any previous measurement, with a significant increase since 1950.

Source: NASA
CO₂ in the atmosphere and annual emissions (1750-2019)

Data: NOAA, ETHZ, Our World in Data

NOAA Climate.gov
Impacts of Carbonization
Temperature rise since 1850

Global mean temperature change from pre-industrial levels, °C

Source: Met Office


Temperature rise target is below 1.5. More than 2.0 Point of No Return
The July global surface temperature was 1.12°C (2.02°F) above the 20th-century average of 15.8°C (60.4°F), making it the warmest July on record. This marked the first time a July temperature exceeded 1.0°C (1.8°F) above the long-term average.

July 2023 was 0.20°C (0.36°F) warmer than the previous July record from 2021. July 2023 marked the 47th-consecutive July and the 533rd-consecutive month with temperatures at least nominally above the 20th-century average.
Monthly temperature anomalies from 1880 to August 2023 measured with respect to the baseline period 1951-1980.

This graph includes the seasonal cycle showing that June 2023, July 2023, and August 2023 were each consecutively the warmest month on record.

Source: https://svs.gsfc.nasa.gov/14407
Climate-change Impacts
How Are We Serving the Humanity?

Clean-tech Solutions for Climate Sustainability
IEEE Discusses 6 Simple Solutions to Climate Change at COP27. They include switching to LEDs and making coal plants more efficient.
Opportunities of Decarbonization in the Electric Power Supply Industry

Source: IEEE Spectrum, Jan 2023

Reduce Carbon Emissions

1. Use less electricity, energy efficiency
2. Use low carbon fossil fuel power plants
3. Use H₂ & other storage technologies
4. Promote more renewables
5. Accept some nuclear
6. Promote cross-border power transfer
IEEE’s Presence at the UN Conference on Climate Change (COP27) Egypt, November 2022
IEEE at UN Climate Change Conference
Global Alliance of Universities on Climate
Presentation at GAUC
Partnership with International Renewable Energy Agency (IRENA)

Founding Partners: Energy Transition Education Network
Speakers at the IRENA Panel at COP27

International Renewable Energy Agency
COP27 Event by IRENA

Energy Transition Education Network
IEEE/WFEO/EIC Participants at COP27
Energy Day 15 November 2022
IEEE at UN COP28
Dubai, December 2023
As the world's largest organization of technical professionals, IEEE has both the opportunity and the responsibility to assist in organizing the response of engineers, scientists, and technical professionals across the world to address the causes, mitigate the impact, and adapt to climate change.

IEEE's scholarly publications, events, conference proceedings, technical standards, and other materials help foster the exchange of technical knowledge and information for the critical climate issues that our planet faces today.

https://climate-change.ieee.org
IEEE MEETINGS, CONFERENCES & EVENTS—DRIVING INNOVATION IN CLIMATE CHANGE

Register for events from IEEE related to climate change and sustainable resources. IEEE sponsors over 2,000 annual conferences and events worldwide, curating cutting-edge content for all of the technical fields of interest within IEEE.

LEARN MORE

https://climate-change.ieee.org
NEWSLETTER SUBSCRIPTION

Sign up today to receive newsletters related to climate change.

First Name: *

Last Name: *

Email Address: *

https://climate-change.ieee.org
IEEE Climate Change Engagement Opportunities

Sections, Regions, Globally
The Climate Change Pavilions in the Sections Congress in Canada and the IEEE TenCon Conference in Chiang Mai, Thailand
There are four social media channels for the IEEE President:

https://www.facebook.com/ieeepresident

https://www.instagram.com/ieeepresident/

https://www.linkedin.com/showcase/ieeepresident

https://twitter.com/ieeepresident
Thank you

web: www.srahman.org