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## REGIONAL CONFERENCE

# INCLUSIVE ENERGY TRANSITION IN SOUTH ASIA AND BEYOND

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# IEEE and IEEE SA

Standards Ecosystem Enabling Energy Transition

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# GLOBAL IMPACT



Accelerating innovation



Leading change for human values and ethical consideration



Driving sustainable solutions for a planet positive for generations to come



Building bridges between policy markers, government and institutions



Promoting technology governance



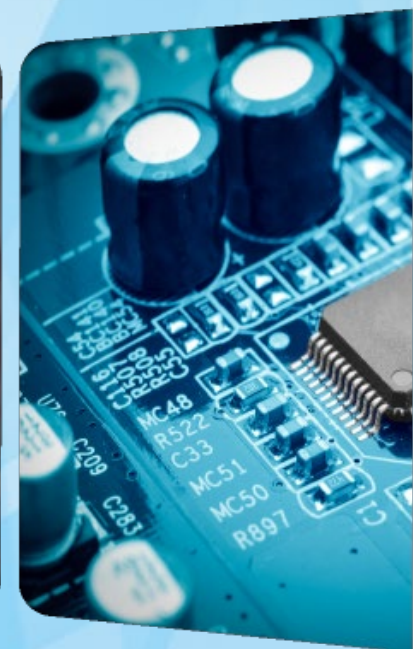
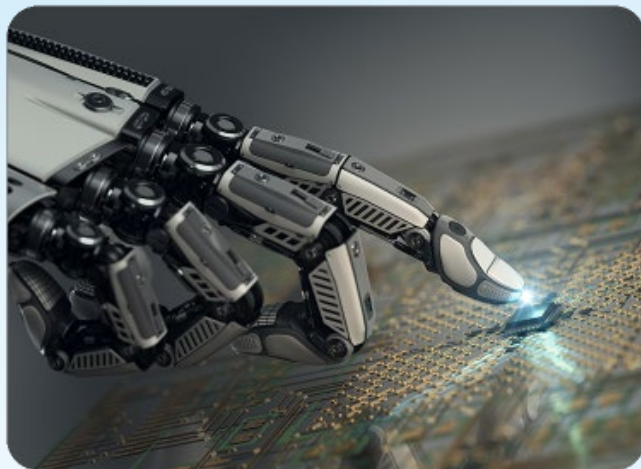
Protecting children's data

# IEEE GOVERNMENT ENGAGEMENT PROGRAM ON STANDARDS (GEPS)

- Grounded in an open, direct participation model, IEEE GEPS assists government bodies meet their technology, standards and policy goals.
- Tailored program for government officials from around the world where they gain strategic insights into IEEE standardization and contribute to discussions at the intersection of technology, standards, policy and regulation – from enabling technical excellence and global interoperability to promoting safety, sustainability and innovation to foster economic growth and society prosperity.

**Currently there are  
74 participants  
from 47 countries**





# Sustainability & Energy Transition

# **Sustainability & Energy Transition**

- **Impact of sustainability has been felt far more greater more recently, accelerating the need to look at critical solutions**
- **Sustainability considerations are not only from geographic or socio-economic perspectives but also need to be seen through time**
  - Can we create sustainability across future generations?
  - Sustainability is also based on the context of the individual (or the region) – point of view
- **Technology and Digital Resilience have been some of the key parameters in the post covid-19 era**
  - Technology has enabled lot of activity to progress despite lockdowns
- **There are many challenges need to be solved for more than couple of decades, but criticality of these challenges have increased**

# Addressing the Fundamentals

## Water

- Smart Water Management: Water bodies, rivers and oceans
- Technology to help address severe water challenges and crisis being faced by several cities: Atmospheric water, and recycling the water in communities

## Health

- Recent pandemic has exposed several shortcoming in healthcare systems and need to address these efficiently
- Technologies such as Big Data Analytics, Drones, AI have been applied to address COVID-19
- Addressing Preventable diseases, vaccinations for containing the preventable deceases and pandemics, reduce infant mortality continues to be a challenge

## Waste Management

- Progressive public policies and technological solutions to manage electronic waste
- Alternate solutions to replace single use plastic



# Economic Drivers

## Power

- DC systems also have significant impact on reduced carbon emissions
- Low Voltage DC distribution system – Progress in India towards standardization through IEEE enabling off grid solutions for unconnected communities
- Technology and standards focus in areas of Green ICT
- Energy Efficiency is a critical consideration: Emerging technologies such as blockchain, AI require more energy to be consumed and needs to be managed meaningfully
- E-Mobility and its impact on sustainability and impact on renewable
- Focus on reduction of heating/cooling needs – reconsiderations of real estate
- Integration of renewables to the power grid and off-grid DC powergrids as part of Energy Transition

## Agriculture

- IoT based agriculture, hydroponics, aquaponics – Reduce food transportation (consumption of food close to the point of generation)
- Food processing technologies and usage of sensors to enhance the shelf life and preserve the nutrition value of food.
- Usage of solar energy in food preservation and processing
- Sustainable Agriculture



# Community Development & Education

- **Early education on hygiene, personal care and usage of technology to improve the quality of life**
- **Sustainable programs for engineering community/engineering education**
  - Importance of online development platforms (IEEE BLP, IEEE ILN, IEEE SWEBOK)
- **Technologies to improve the quality of life (Healthcare)**
- **Engaging in developing key public policies which can help to improve the sustainable development programs**
- **Moving to a 4P model: Public-Private-People Partnership**
  - Village Level Entrepreneurship program in India managing “Personal Data Offices” on the IEEE 802.11 infrastructure
  - Development of training programs to enable VLEs (Building Wireless Community Networks)

# Other Key Considerations

- **Recent Pandemic is perhaps triggering a “de-urbanization” process (in India) where there is movement away from Urban**
  - Need to ensure economic opportunities and activities in the villages
- **Moving production outside of mega cities help to decongest and reduce pollution**
- **Redesigning of public facilities**
- **Importance of Circular Economy**
  - Circular manufacturing vs Linear manufacturing
  - Zero waste product design and manufacture
  - 3R: Reduce, Reuse, Recycle vs Take, Make, Use, Dispose

## THE INITIATIVE



### What is Planet Positive 2030?

Planet Positive 2030 is an open, global initiative that is focused on developing practical paths to achieve a sustainable planet—a Planet Positive future for 2030 and beyond.



### What do we mean by “Planet Positive?”

“Positive” = identifying how to ‘give back’ more to the Planet than is ‘removed’ (versus “climate neutral”) and not harming the biosphere/planet.



# IEEE SA: PLANET POSITIVE 2030

- **The Sustainable Infrastructures and Community Development program (IEEE SICDP)**
- The IEEE SA has created [Planet Positive 2030](#), an output of The Sustainable Infrastructures and Community Development program (IEEE SICDP), that brings together a global, open community of experts to chart a path for all people to achieve a flourishing future for 2030 and beyond.
- The program has also inspired a number of standards ideas, including the recently approved Standards Working Groups:
  - ✓ IEEE P7800, Addressing Sustainability, Environmental Stewardship and Climate Change Challenges in Professional Practice.
  - ✓ IEEE P7801, Technical Knowledge Commons Initiatives and Platforms
  - ✓ IEEE P7802, Measurement and Verification of Reduction of Greenhouse Gases for Climate Action Projects and Solutions
  - ✓ IEEE P7803, Inclusive Sustainable Smart Cities



# IEEE Standards Enabling Energy Transition

## IEEE SCC21 1547 Series of Standards

IEEE Std 1547™(2018) Standard for Interconnecting Distributed Resources with Electric Power Systems

IEEE Std P1547™(full revision) Draft **Standard** for Interconnection and **Interoperability** of Distributed **Energy** Resources with **Associated** Electric Power Systems **Interfaces**

IEEE Std 1547.1™(2005 and 2015 Amendment 1) **Standard** for Conformance Tests Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems

IEEE Std P1547.1 (full revision) Draft **Standard** for Conformance Tests Procedures for Equipment Interconnecting Distributed **Energy** Resources with Electric Power Systems **and Associated Interfaces**

IEEE Std 1547.2™(2008) **Application Guide** for IEEE 1547 Standard for Interconnecting Distributed Resources with Electric Power Systems

IEEE Std 1547.3™(2007) **Guide** for Monitoring Information Exchange, and Control of Distributed Resources with Electric Power Systems

IEEE Std 1547.4™(2011) **Guide** for Design, Operation, and Integration of Distributed Resource Island Systems with Electric Power Systems

IEEE Std 1547.6™(2011) **Recommended Practice** for Interconnecting Distributed Resources with Electric Power Systems Distribution Secondary Networks

IEEE Std 1547.7™ (2013) **Guide** to Conducting Distribution Impact Studies for Distributed Resource Interconnection

IEEE Std 1547.8™ **Recommended Practice** for Establishing Methods and Procedures that Provide Supplemental Support for Implementation Strategies for Expanded Use of IEEE Std 1547-2003

MicroGrid >>

# THANK YOU



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