



## Regional Conference on Energy Resilience through Decentralized Power Plants and Smart Grid Integration

15 September 2022

Queen Sirikit National Convention Center, Bangkok, Thailand (Hybrid event)

*[In conjunction with ASEAN Sustainable Energy Week 2022 (ASEW),*

*14-16 September 2022 in Bangkok, Thailand]*

*Jointly Organized by*

Thailand Institute of Scientific and Technological Research (TISTR)  
Ministry of Higher Education, Science, Research and Innovation (MHESI), Thailand

*And*

Asian and Pacific Centre for Transfer of Technology (APCTT) of the  
United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

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### Background

Ensuring sustainable energy security and supply while transitioning from fossil fuels to clean energy is a major challenge of climate resilient development. Rapid progress in development and modern lifestyle has led to a substantial increase in energy consumption in household and commercial sectors. For instance, the Asia-Pacific electric vehicle market is expected to grow at a CAGR of 33.1% from 2021 to 2028 to reach \$1,927.04 billion by 2028<sup>1</sup> thus indicating significant increase in demand for electricity in the transportation sector.

Conventionally, large-scale electricity generation has been through centralized power plants run by fossil fuels, and through nuclear or large hydroelectricity plants. The electricity is delivered to the consumers in remote areas through long transmission and distribution lines which is not only capital-intensive but also entails high rate of transmission and distribution losses. On the other hand, decentralized power plants provide promising opportunities for deploying locally available renewable energy sources as well as for expanding access to clean energy services to remote areas. These plants allow optimal use of renewable energy, reduce fossil fuel use, increase eco-efficiency, and reduce transmission and distribution inefficiencies and related economic and environmental costs.<sup>2</sup>

In recent times, integration of decentralized power plants with smart grids are gaining significance due to their intelligent systems, reliability and efficiency. Smart grid systems are

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<sup>1</sup> <https://www.meticulousresearch.com/product/asia-pacific-electric-vehicle-market-5236#:~:text=The%20Asia%2DPacific%20Electric%20Vehicle,25.9%25%20during%20the%20forecast%20period.>

<sup>2</sup> <https://www.unescap.org/sites/default/files/14.%20FS-Decentralized-energy-system.pdf>

considered more resilient to the electricity supply and demand than traditional power grids. Decentralized renewable systems integrated with smart grids encourage environment conservation that aligns with the Bioenergy–Circular–Green (BCG) economy and ensure access to affordable, reliable, sustainable and modern energy for all (SDG7). This Regional Conference will provide a platform to discuss and share experiences, success stories and challenges of decentralized energy generation and smart grid systems being deployed for enhancing the energy resilience among countries in Asia and the Pacific which include ASEAN+6 countries.

### Objectives

- Deliberate on enabling policy options and strategies to encourage deployment of decentralized power plants and their integration with smart grid systems
- Share experiences and good practices for achieving energy resilience through decentralized power plants integrated with smart grids
- Identify strategies for cross-border technology cooperation and transfer related to decentralized power plants and smart grids in the Asia-Pacific region, with focus on ASEAN countries

### Target Audience

Participants will include policy makers, representatives of international organizations, R&D institutions and private sector representatives involved in electricity regulation, generation and consumption.

## TENTATIVE PROGRAMME

**Date: 15 September 2022 | Time: 09:30 am – 04:15 pm (Thailand Time, GMT+7)**

OPENING SESSION		
0930-0950	Welcome Remarks	<b>Prof. Sirirung Songsivilai</b> Permanent Secretary, Ministry of Higher Education, Science, Research and Innovation (MHESI), Thailand (Tbc)
	Opening Remarks	<b>Ms. Preeti Soni</b> Head, Asian and Pacific Centre for Transfer of Technology (APCTT), UN ESCAP
	Special Remarks	<b>Mr. Hongpeng Liu</b> Director, Energy Division, United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP)

	<i>Group Photo</i>	
<b>SESSION I: Decentralized renewable energy-based power plants – opportunities and challenges for energy security</b> <b>Moderator: Ms. Gauri Singh</b> , Deputy Director-General, International Renewable Energy Agency (IRENA) (0950 – 1100)		
0950-1010	Decentralized renewable energy for energy security and addressing climate change	<b>Ms. Gauri Singh</b> Deputy Director-General, International Renewable Energy Agency (IRENA)
1010-1030	Role of R&D for supporting decentralized renewable power and integration with smart grids	<b>Dr. Pratip Vongbandit</b> Deputy Governor Research & Development Group for Sustainable Development, TISTR, Thailand
1030-1050	Decentralized energy options and delivery models– challenges and opportunities	<b>Md. Enamul Karim Pavel</b> Head of Renewable Energy, Infrastructure Development Company Limited (IDCOL), Bangladesh
1050-1100	Q & A	
1100-1120	<i>Coffee break</i>	
<b>SESSION II: Integration of decentralized power plants with smart grids – opportunities, challenges and barriers</b> <b>Moderator: Dr. Pratip Vongbandit</b> , TISTR (1120 – 1230)		
1120-1140	Emerging 4IR technologies and trends for enhancing resilience of smart grids	<b>Prof. Dr. Zhao Yang Dong</b> Professor, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore
1140-1200	Integration of distributed energy resources with virtual power plant platform - opportunities, challenges and barriers in Thailand	<b>Assoc. Prof. Dr.-Ing. Nipon Ketjoy</b> School of Renewable Energy and Smart Grid Technology (SGtech), Naresuan University, Thailand
1200-1220	Microgrid Service Solution: the zero net energy concept	<b>Dr. Yodthong Mensin</b> School of Renewable Energy and Smart Grid Technology (SGtech), Naresuan University, Thailand
1220-1230	Q & A	
1230-1330	<i>Lunch</i>	

**SESSION III: Enabling strategies for smart grids investment and commercialization**

**Moderator: Prof. Sivanappan Kumar**, Department of Energy, Environment and Climate Change, School of Environment, Resources and Development, Asian Institute of Technology (AIT), Thailand

(1330 – 1440)

1330-1350	Implementing decentralized renewable energy projects integrated with smart grids – challenges and opportunities	<b>Ms. Reena Suri</b> Executive Director, India Smart Grid Forum, India
1350-1410	Innovative financing and private investment for decentralized renewable energy projects with smart grids	<b>Mr. David Morgado</b> Senior Energy Specialist Asian Development Bank
1410-1430	Promotion of Energy Resilience and Grid Modernization through ASEAN Energy Resilience Initiative	<b>Dr. Kampanart Silva</b> Researcher, National Energy Technology Center (ENTEC), National Science and Technology Development Center (NSTDA), Thailand
1430-1440	Q & A	
1440-1500	<i>Coffee break</i>	

**SESSION IV: Panel discussion - Regional cooperation for energy resilience through decentralized power plants and smart grids to advance Bio-Circular-Green (BCG) economy**

**Moderator: Ms. Preeti Soni**, Head, APCTT-ESCAP

(1500 – 1600)

Panelists: To be added

**CLOSING SESSION**

1600-1615	Closing Remarks	<b>Ms. Preeti Soni</b> Head, APCTT-ESCAP  <b>Dr. Pratip Vongbandit</b> Deputy Governor, TISTR
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