

ASEAN-IEA Webinar: Stimulating Innovation towards High-Efficiency Cooling Solutions



Friday, 25 June 2021 (14.00 – 15.30 GMT +7)





Participants should ensure a convenient environment and reduce background noises such as turn-off cell phones and etc.



Participants should mute their microphone and only unmute if they wish to present/speak. Participants should only turn on their video camera when presenting or making an intervention as turning on the video may impact the quality of the connections and voice quality.



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#### For Q&A session:



- Those who wish to ask or speak may use the chat room by typing their country and name and send it to everyone. The Moderator will acknowledge the requests to speak and determine the speaking order.
   Once the Moderator acknowledged, they may turn on the video.
- Only unmute the microphone once you are called by the Moderator to speak.



### **Opening Remarks**



# **Mr. Bintang Widhana**

Sustainable Energy, Renewable Energy, and Energy Efficiency Officer, ASEAN Centre for Energy



## Moderator & Panelists

#### **Moderator**



Mr. Jean-Baptiste Le Marois Energy Innovation Programme Officer, International Energy Agency

Mr. Rajat Sud

Managing Director, Energy Efficiency Services Limited Ms. Pauline Henriot Energy Analyst, International Energy Agency

#### **Panelists**



Mr. Isagani Erna

Assistant Director Standard and Conformance Division, ASEAN Secretariat

# Webinar Agenda



TIME (Jakarta)	ACTIVITIES
14:00 – 14:05	Introduction and Webinar Overview Mr. Bintang Widhana, Sustainable Energy, Renewable Energy, and Energy Efficiency Officer, ASEAN Centre for Energy
14:05 – 15:25	<ul> <li>Moderator: Mr. Jean-Baptiste Le Marois, Energy Innovation Programme Officer, International Energy Agency</li> <li>Panellists: <ol> <li>Mr. Rajat Sud, Managing Director, Energy Efficiency Services Limited, "EESL's Roadmap on Energy Efficient Space Cooling"</li> <li>Ms. Pauline Henriot, Energy Analyst, International Energy Agency, "Digitalisation and Smart Efficient Cooling"</li> <li>Mr. Isagani Erna, Assistant Director, Standard and Conformance Division, ASEAN Secretariat, "The ASEAN EE MRA &amp; AHEEERR"</li> </ol> </li> <li>10-minute presentations each, followed by a Q&amp;A Session</li> </ul>
15:25 – 15:30	Webinar Closing Remarks Mr. Bintang Widhana, Sustainable Energy, Renewable Energy, and Energy Efficiency Officer, ASEAN Centre for Energy
15:30	End of Webinar

Programme Area No. 4: Energy Efficiency and Conservation, ASEAN Plan of Action for Energy Cooperation (APAEC) Phase 2

' To Reduce Energy Intensity at 32% by 2025'

**Australian** Aid

#### **Outcome-Based Strategies and Programmes**





#### **ASEAN Roadmaps on Sustainable and Energy Efficient Buildings and Cooling**

#### " The process of develop the roadmaps buildings, and cooling""

#### Vision statement: Actions and strategy and Tracking progress What a sustainable/low-carbon future How you get there and How you know you looks like and aims to achieve. are on track? Assessment framework: Multiple benefits: Describe the elements being assessed, Why achieving these goals are beneficial?. focusing on the priority elements needed to secure a sustainable low carbon building and cooling stock. **Future goals**: Current status: Where we need to go?

Using the above framework to evaluate the status across the AMS



#### Moderator



# **Mr. Jean-Baptiste Le Marois**

Energy Innovation Programme Officer, International Energy Agency



#### 1<sup>st</sup> Presentation



# EESL's Roadmap on Energy Efficient Space Cooling

Mr. Rajat Sud Managing Director, Energy Efficiency Services Limited

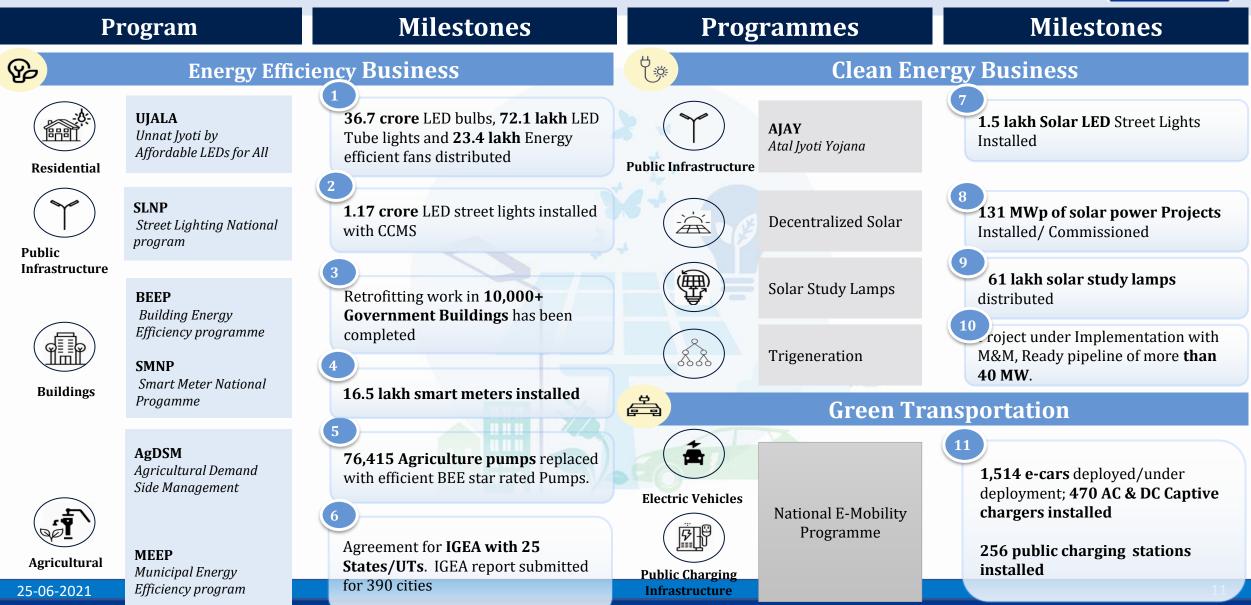


# EESL's Roadmap on Energy Efficient Space Cooling

25th June 2021

## **About EESL**

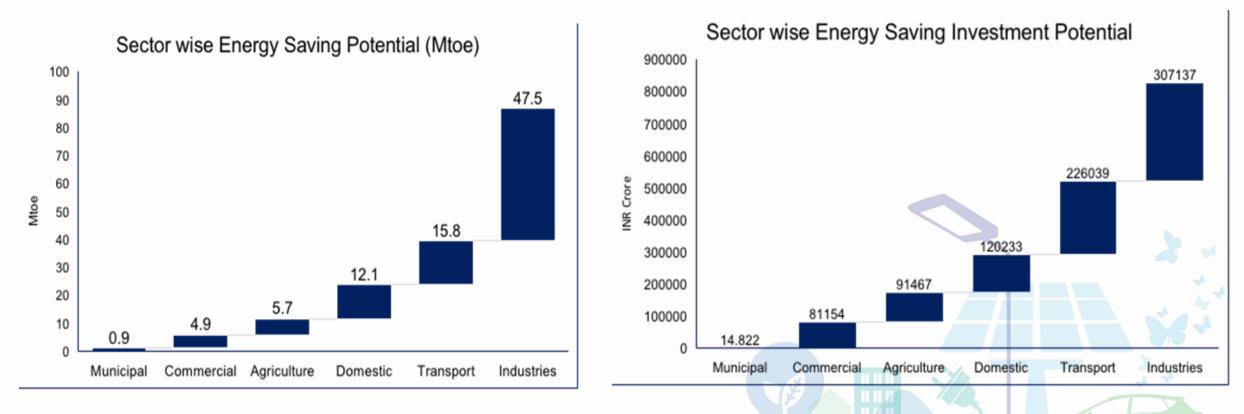




# **Energy Efficiency Market in India**



- **Primary Energy Demand in India:** 625 MTOE (2019-20):
- Energy Saving potential: 87 Mtoe by 2031; (11.64 Mtoe by 2021)
- Energy Efficiency Investment potential: \$130 Billion by 2031



# **Main drivers for Energy Efficiency in India**



#### **Policy Drivers**

- Energy Conservation Act, 2001
- Standard & Labeling Program Mandatory MEPS
- National Action Plan on Climate Change, 2008
- National Cooling Action Plan (NCAP), 2018
- Energy Conservation Building Codes

#### **Technology Drivers**

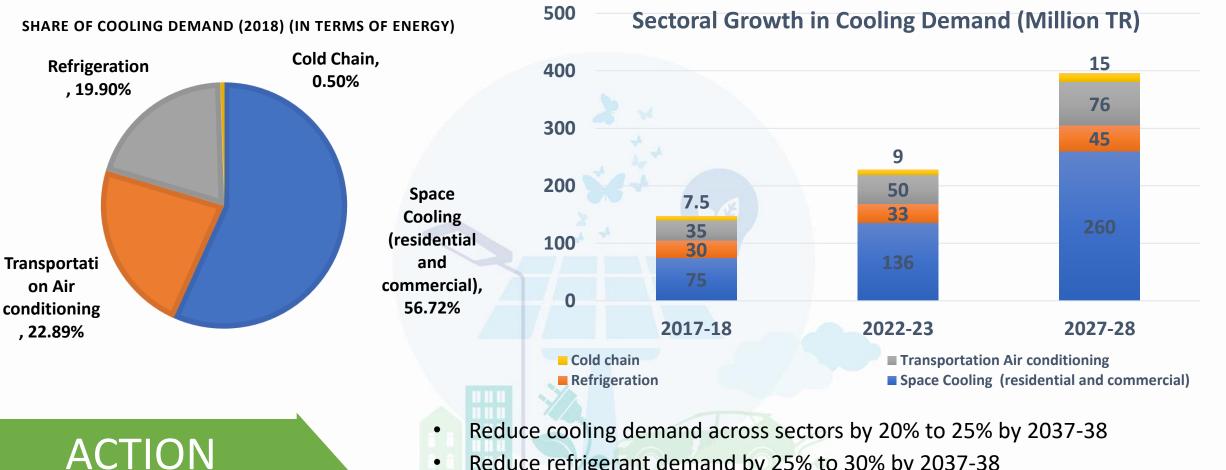
- Upgradation of MEPS Standard get tightened in every 2 years for ACs
- Inverter ACs 30% of sold ACs in 2017 are of Inverter Type
- New Technologies Green Refrigerants, Tri-generation, Solar Air-Conditioning

#### **Market Drivers**

- Rising energy demand for domestic / institutional and commercial sectors
- DSM and DR Programs by Utilities
- Bulk Procurement by State Run entity EESL
- Consumer Awareness for EE products and increase in per-capita income

# **India Cooling Action Plan (ICAP):**





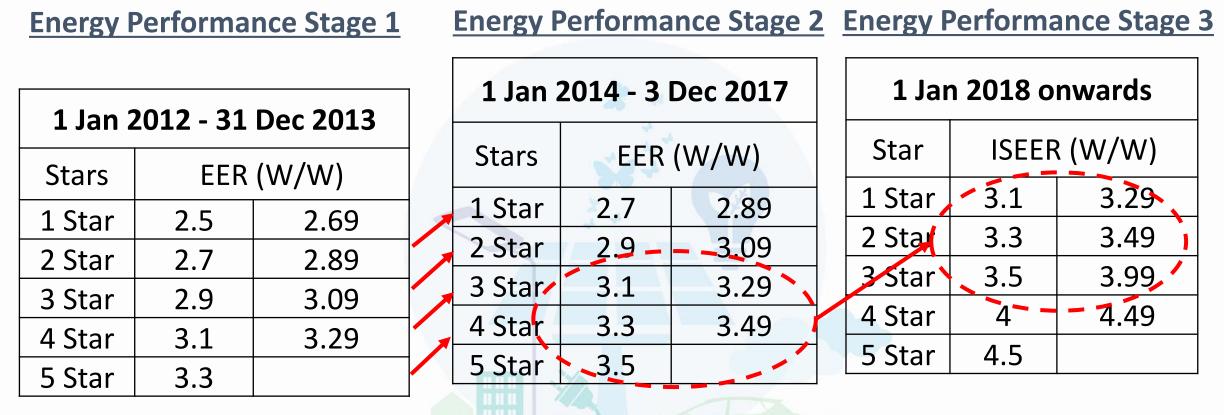
- Reduce refrigerant demand by 25% to 30% by 2037-38 •
- Reduce cooling energy requirements by 25% to 40% by 2037-38 •

India will observe the largest demand for space cooling globally potential share of 28% of electricity demand and 44% of the peak load

**PLANNED** 

## **Improving Performance Standards**





- In 2018 BEE changed its star rating scheme from EER to ISEER rating
- Energy performance of 3, 4 and 5 star until 2017 is equal to 1, 2 and 3 star ACs from Jan 2018 onwards

# **Cooling Initiatives of EESL**



#### Launched:

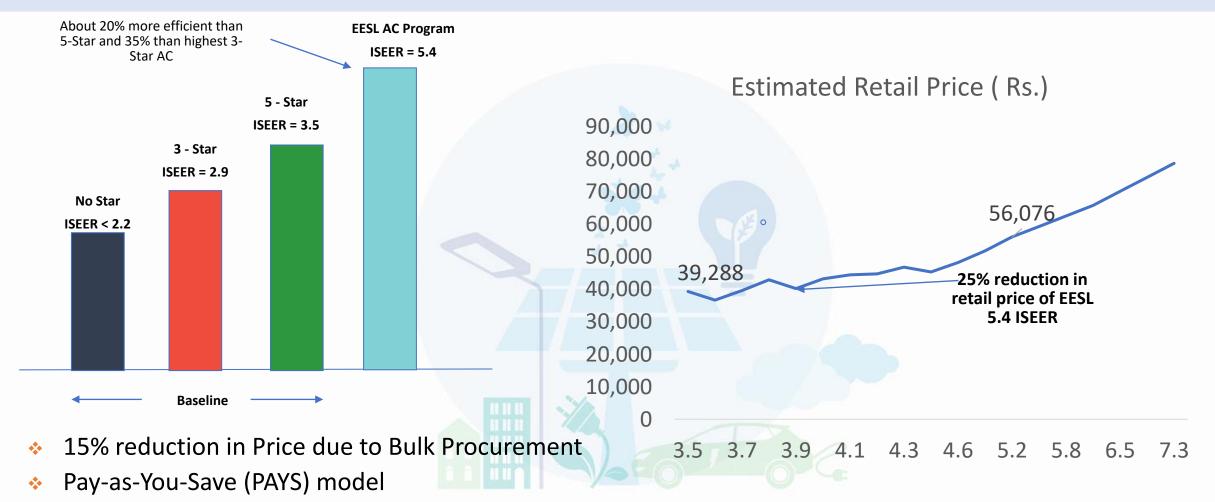
- Super Efficient AC Program
- Ceiling Fans
- Retrofit of Air-conditioning to improve Indoor air quality for Safety and Efficiency (RAISE)
- Capacity Building & Training Program on behalf of Ministry of Environment, Forest and Climate Change (MoEF&CC) on HCFC Phaseout Management Plan (HPMP)

#### In planning/process:

- High efficiency BLDC fan program
- District Energy in Cities Initiative with UNEP
- Cold Chain and Chiller Replacement Program

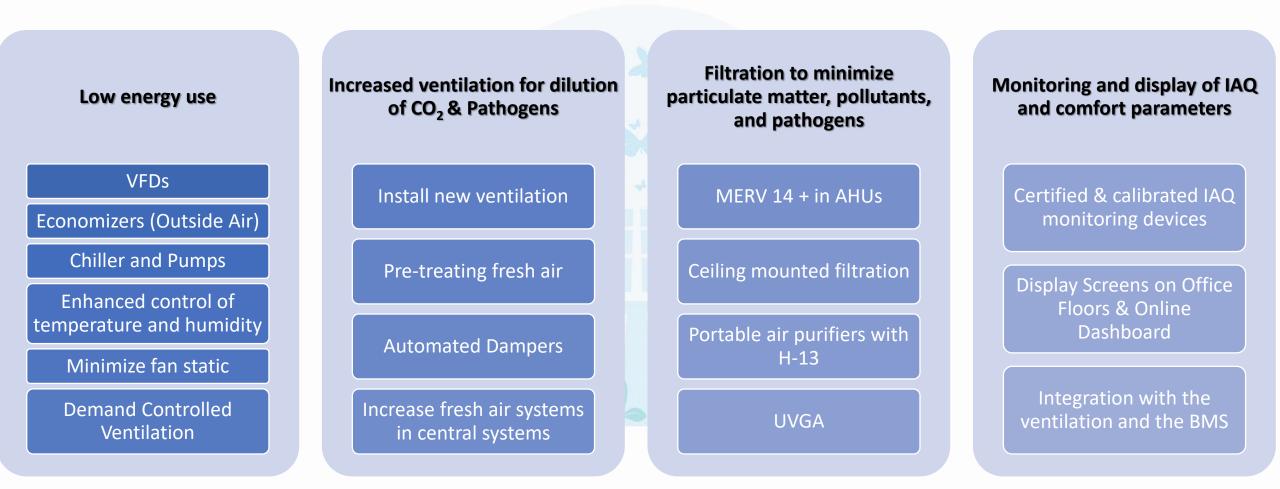
## **Attributes of Super-Efficient AC Program**





# Retrofit of Air-conditioning to improve Indoor air quality for Safety and Efficiency (RAISE)





## High Efficiency fans (BLDC) Program



- EESL distributed 2.35 Million ceiling fans.
- Every year 30 Million Ceiling Fans are sold in India
- Market size of \$ 1.3 billion
- Recently launched 5 star rated BLDC fan (28-35 W vs. conventional 70 W)



## **Capacity Building & Training Program with MoEF & CC**



Launch of Book on HPMP linkage on International Ozone Day



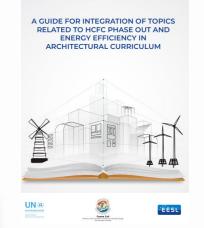


Developed for :

- Building professionals
- Policy makers
- Building owners
- Academicians
- Other stakeholders

#### Regional Workshops on HPMP Awareness



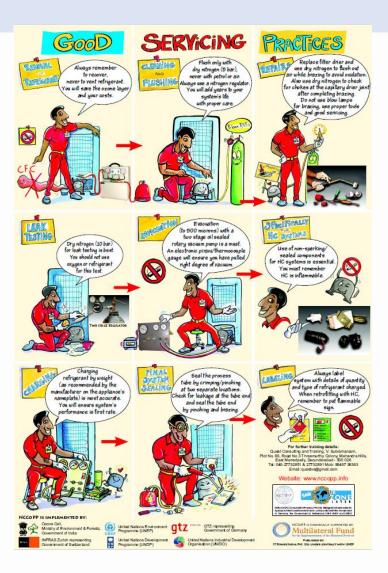


#### Launch of Video on HPMP EESL Work on International Ozone Day



## **Knowledge Products – Posters Journey**













Registered and Corporate Office: NFL Building, 5<sup>th</sup> & 6<sup>th</sup> Floor, Core – III, SCOPE Complex, Lodhi Road, New Delhi – 110003 Tel.: +91 (011) 45801260 Website: www.eeslindia.org



### 2<sup>nd</sup> Presentation



# Digitalisation and Smart Efficient Cooling

**Ms. Pauline Henriot** Energy Analyst, International Energy Agency



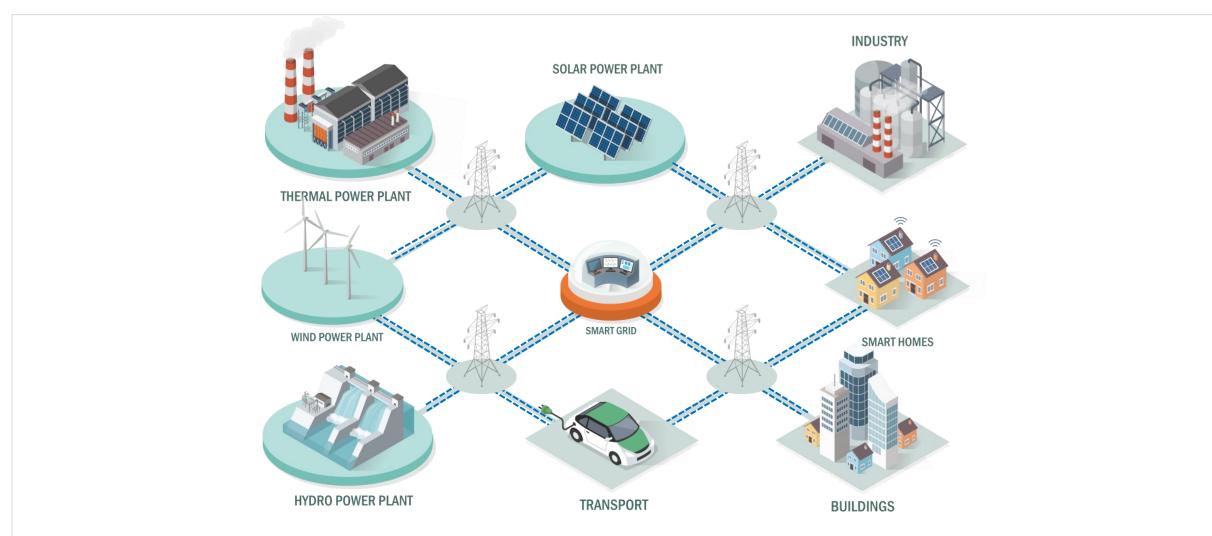
# **Digitalisation and Smart efficient cooling**

ASEAN-IEA Webinar on Stimulating Innovation towards High-Efficiency Cooling Solutions

25 June 2021

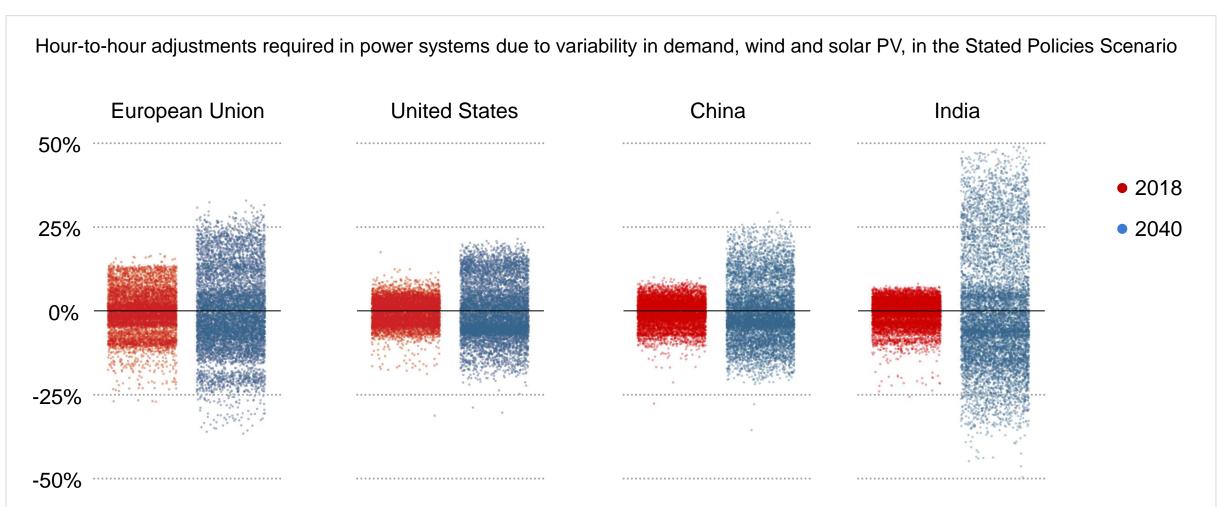
Pauline Henriot, Energy Policy Analyst

## The digital transformation of the energy system



Pre-digital energy systems are defined by unidirectional flows and distinct roles, digital technologies enable a multidirectional and highly integrated energy system

# Electricity and flexibility move to the heart of modern energy security



Global flexibility requirements double by 2040. A wide set of distributed flexibility sources, including storage and demand-response will be needed to ensure to electricity security.

# Harnessing the Flexibility Potential

Digitalisation enables flexibility to be harnessed at affordable costs, and in enough quantity.

#### **Global Demand Response Capacity**



**Theoretical potential in 2020** 

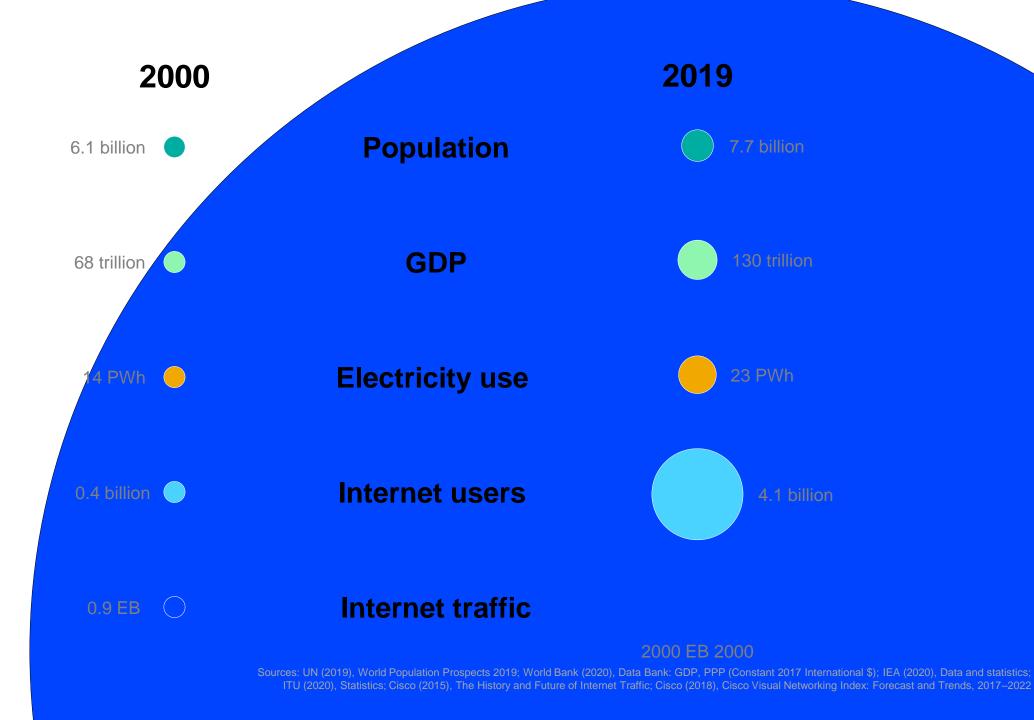
15%

of today's potential is tapped

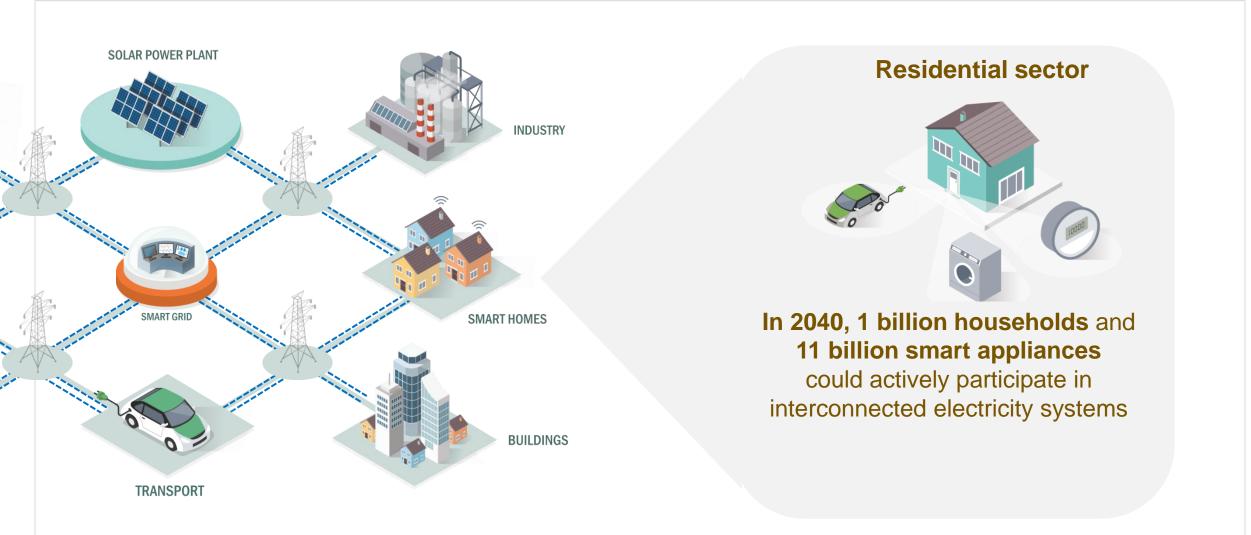
7400 TWh

**Theoretical potential in 2040** 

Of which more than 4000 TWh could come from buildings



## **Smart demand response**

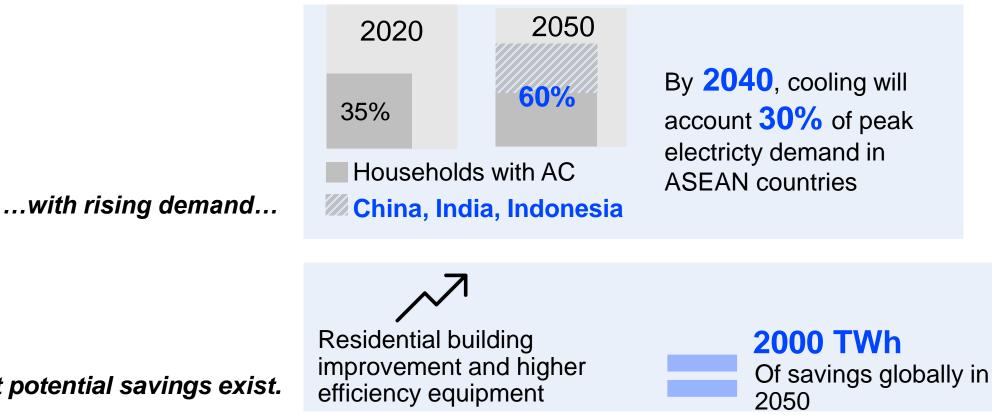


Demand response programs globally – in buildings, industry and transport - could provide 185 GW of flexibility, and avoid USD 270 billion of investment in new electricity infrastructure

## Case for cooling

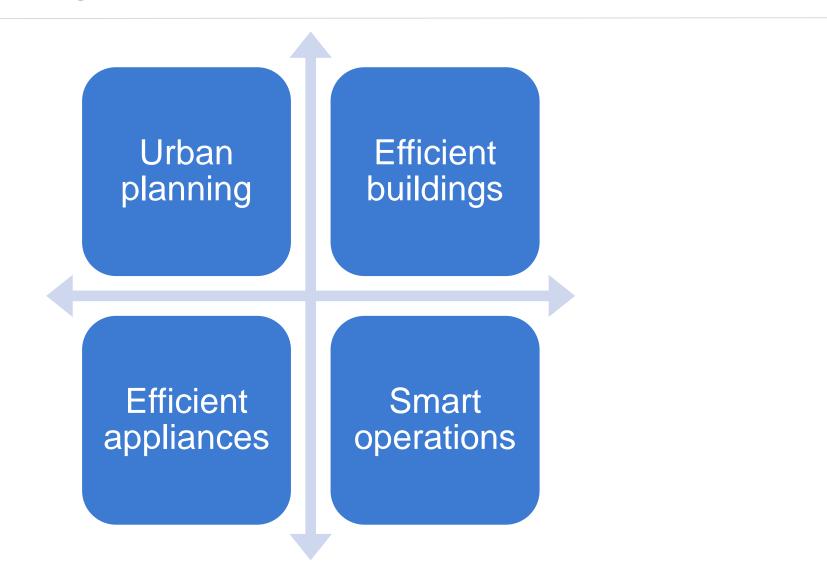
Energy- and emissionsintensive technology...

**8.5%** of electricity consumption & 1 GtCO<sub>2</sub> in 2019



...but potential savings exist.

### **Towards smarter cooling**



All layers of energy efficiency will be needed to ensure efficient smart cooling

Investment in procedures	<ul> <li>Updating current practises (including software enhancement)</li> <li>Use existing technology</li> <li>Updating procedures for new technology</li> </ul>
Investment in policy and institutions	<ul> <li>Incentivising uptake</li> <li>Tracking of uptake and utilisation (including software)</li> <li>Requirements for new investments</li> </ul>
Investment in hardware "smart- ready infrastructure"	<ul> <li>Sensors and Meters</li> <li>Demand-response enabled appliances</li> </ul>

To yield the benefits of digitalisation,

procedures, policy and institutions must support hardware

# **Digital Demand-Driven Electricity Networks Initiative (3DEN)**

- Aim of the Project with the generous support of the Government of Italy, the IEA is providing
  actionable guidance to policy makers on the policy, regulatory, technology and investment context
  needed to accelerate progress on power system modernisation and effective utilisation of demand side
  resources.
- A consultative expert group is contributing to the project, and advising in further developing project activities
- Duration: 2020 2023
- **Outputs :** Inputs into G20 working group
  - Tools and policy guidance documents
  - Pilot projects assessment guide to demonstrate the benefit digitalisation can bring for power





## 3<sup>rd</sup> Presentation



# **The ASEAN EE MRA & AHEEERR**

### Mr. Isagani Erna

Assistant Director, Standard and Conformance Division, ASEAN Secretariat



# The ASEAN EE MRA & AHEEERR

#### **ASEAN-IEA Webinar:**

Stimulating Innovation towards High-Efficiency Cooling Solutions

25 June 2021



- I. BRIEF INFORMATION ABOUT ASEAN CONSULTATIVE COMMITTEE FOR STANDARDS AND QUALITY (ACCSQ).
- II. ASEAN SECTORAL MUTUAL RECOGNITION ARRANGEMENT FOR ELECTRICAL AND ELECTRONIC EQUIPMENT (ASEAN EE MRA)
- III. ASEAN HARMONISED ELECTRICAL AND ELECTRONIC EQUIPMENT REGULATORY REGIME (AHEEERR)



#### Benefits of TBT Elimination

Increased GDP

Better international trade relations



Government

- Lower trade costs
- Increased business opportunities



- Increased variety of consumer choices
- Competitive price, quality

ASEAN Consultative Committee for Standards and Quality (ACCSQ) :

Established in 1992 to eliminate technical barriers to trade (TBT) related to Standards, Technical Regulations and Conformity Assessment Procedures (STRACAP)

- Information exchange on Laws, Rules, Regulatory Regimes on Standards and Conformity Assessment Procedures.
- Harmonisation of standards, technical requirements and conformity assessment procedures, including legal metrology.
- Mutual Recognition Arrangements (MRA)
- Harmonisation of Regulatory Regimes
- Cooperation with Dialogue Partners
- Implementation of TBT chapter of ASEAN +1 Free Trade Area (FTA)Agreement.

#### ADDRESSING TECHNICAL BARRIERS TO TRADE

Harmonisation of Standards, Technical Requirements, Conformity Assessment Procedures

Mutual Recognition Arrangement (MRA)



Development of Single/ harmonised Regulatory Regime

Harmonise national standard of the ASEAN Member States with relevant international standards, e.g. safety, specification and/or performance requirements of electrical and electronic equipment. MRAs provide for recognition of test results and product certifications. MRAs allow the product to be tested and certified by laboratories and certification bodies listed by ASEAN. This will save cost and reduce time to deliver the products without compromising consumer safety and product quality. Going beyond harmonisation of standards and technical requirements and MRA, ASEAN seeks to establish coherent regulatory regimes in ASEAN.

Priority Sectors	
Agro-based products (prepared foodstuff)	Automotive
Healthcare products (Cosmetics, Medical Device, Pharmaceutical, Traditional Medicines and Health Supplements)	Rubber-based products
	Electrical and Electronic Equipment (EEE)
Wood based products	Building and Construction
Digital Trade Standards and Conformance	

Joint Sectoral Committee for Electrical and Electronic Equipment (JSC EEE)

• Monitor and implement: (1)ASEAN Sectoral Mutual Recognition Arrangement for Electrical and Electronic Equipment (ASEAN EE MRA); (2) ASEAN Harmonised Electrical and Electronic Equipment Regulatory Regime (AHEEERR).

• Listing of testing laboratories and certification bodies.

### **ASEAN EE MRA**

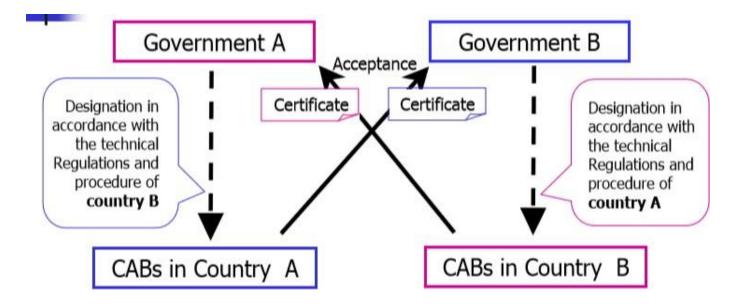
"To reduce technical barriers to trade through reducing or avoiding the need for re-testing and recertification of regulated EE products"

### Covers:

- All new electrical and electronic equipment
- Low Voltage Power supply:
  - **50-1000V for AC**
  - **75-1500V for DC**
- Not included products covered by the Telecommunication MRA
- Does not apply to Medical Equipment

# ASEAN EE MRA

- Information Exchange
- Mutual acceptance of
  - Test reports by listed Testing Laboratories
  - Certificates by listed Certification Bodies



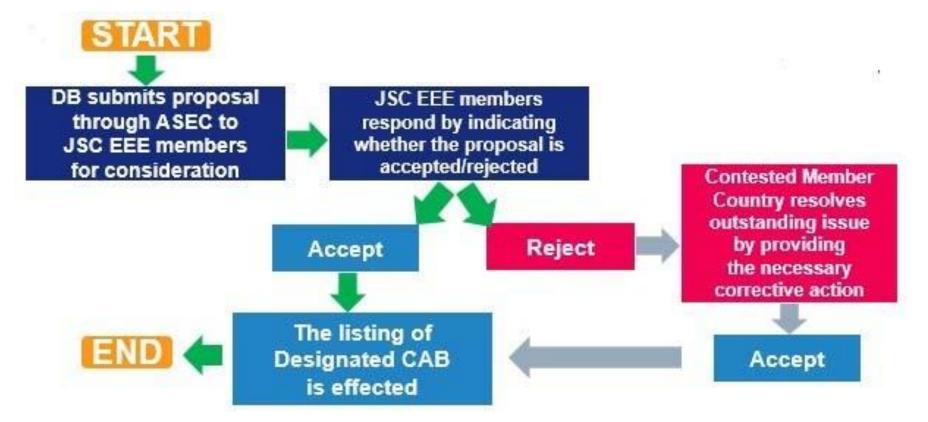
### **TESTING LABORATORY**

- General requirements for the competence of testing and calibration laboratories
  - Accredited to ISO/IEC 17025
  - Accreditation process conducted in compliance with ISO/IEC 17011 : 2004 – Conformity assessment --General requirements for accreditation bodies accrediting conformity assessment bodies
- Accreditation body:
  - Signatory Member of the Asia-Pacific Laboratory Accreditation Cooperation
  - Membership to IEC EE CB Scheme

### **CERTIFICATION BODY**

- General requirements for bodies operating product certification systems:
  - Accreditation to ISO/IEC 17065
  - Accreditation process conducted in compliance with ISO/IEC 17011 - Conformity assessment -- General requirements for accreditation bodies accrediting conformity assessment bodies
- Accreditation body:
  - Member of the Pacific Accreditation Cooperation (PAC)
  - Signatory to the PAC MRA
  - Membership of IEC EE FCS Scheme

### **ASEAN EE MRA STRUCTURE AND PROCESS**



The Frequently Asked Question for the ASEAN EE MRA can be downloaded in this link: <u>https://asean.org/?static\_post=frequently-asked-questions-on-the-asean-sectoral-mutual-recognition-arrangement-for-electrical-electronic-equipment-asean-ee-mra</u>

### STATUS OF IMPLEMENTATION OF ASEAN EE MRA

- All AMS participate in the recognition of Test Reports and Certificates
- 20 Testing Laboratories and 7 Certification Bodies are Listed (results are accepted by respective AMS).
- The Listed Testing and Certification Bodies are uploaded on ASEAN website through this link <u>https://asean.org/?static\_post=listed-testing-laboratories-</u> and-certification-bodies-under-the-asean-sectoral-mra-forelectrical-and-electronic-equipment-2
- Collaboration among EEC SSN/ACE and JSC EEE "Guidelines for the Integration of Energy Efficiency into the ASEAN Sectoral Mutual Recognition Arrangement for Electrical and Electronic Equipment"

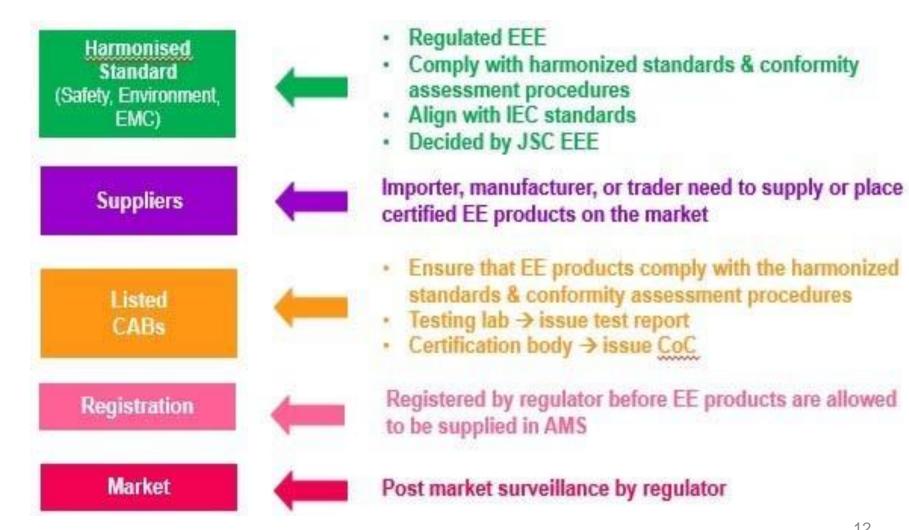
### ASEAN HARMONISED ELECTRICAL AND ELECTRONIC EQUIPMENT REGULATORY REGIME (AHEEERR)

"All regulated EEE shall comply with the <u>Essential</u> <u>Requirements</u> and registered, if necessary, with the respective regulatory authorities of Member States before being allowed to be supplied."

Essential Requirements are:

- o Safety
- Electromagnetic Compatibility EMC
- Environment (in particular Energy Efficiency)

### AHEEERR PRINCIPLES



### TABLE OF COMPARISON OF ASEAN EE MRA & AHEEERR

Items	ASEAN EE MRA	AHEEERR
Objective	To mutually accept test reports/Certificate of Conformity (CoC) issued by listed CABs	To eliminate restrictions to trade of EE products through harmonization of technical requirements and registration
Scope of products	All new products	All new products, manufactured within the boundary of ASEAN
Mutual acceptance	Test reports/Certificate of Conformity (CoC) for a license	CoCs for a license and registration
Mandatory standards	Each AMS's mandatory standards	ASEAN harmonized mandatory standards based on IEC standards and focusing on safety, environment, EMC
Conformity assessment regime	Each AMS's conformity assessment regime	Common conformity assessment regime, depending on the level of risk of the EE products as described in ISO/IEC 17067 • High risk → Type 5 • Medium risk → Type 1b • Low risk → Type 1a
Post-market surveillance	Subject to product certification system of each AMS	Post-market surveillance required

### **THANK YOU!**





### **Q&A** Session

### **Moderator**



Mr. Jean-Baptiste Le Marois Energy Innovation Programme Officer, International Energy Agency

Mr. Rajat Sud

Managing Director, Energy Efficiency Services Limited Ms. Pauline Henriot Energy Analyst, International Energy Agency

**Panelists** 

Mr. Isagani Erna Assistant Director Standard and Conformance Division, ASEAN Secretariat



### **Closing Remarks**



### Mr. Bintang Widhana

Sustainable Energy, Renewable Energy, and Energy Efficiency Officer, ASEAN Centre for Energy

## **Roadmap Survey**





### Roadmap for Energy Efficient Buildings and Construction - ASEAN

The energy demand of the ten countries of the Association of Southeast Asian Nations (ASEAN) has grown by 60% over the past 15 years and is projected to further increase by 80% over the next 25 years. Cooling is the fastest-growing end use in buildings, as energy demand for cooling more than tripled between 1990 and 2018.

This project aims to help address the pressures of increasing energy demand and emissions and improve collaboration between stakeholders in the region, by developing an ASEAN Energy Efficient Buildings and Construction Roadmap and an ASEAN Sustainable Cooling Roadmap.

The road mapping process will engage key stakeholders and assist them to develop and implement strategies, plans, policies and programmes to reduce the energy demand of buildings, construction sectors and cooling.

The roadmaps are intended to assist policy makers when designing their national buildings and climate strategies, as well as organisations in designing their medium-term and longterm policies and determining their investment allocations.



# THANK YOU