

ASEAN Energy Transition Outlook



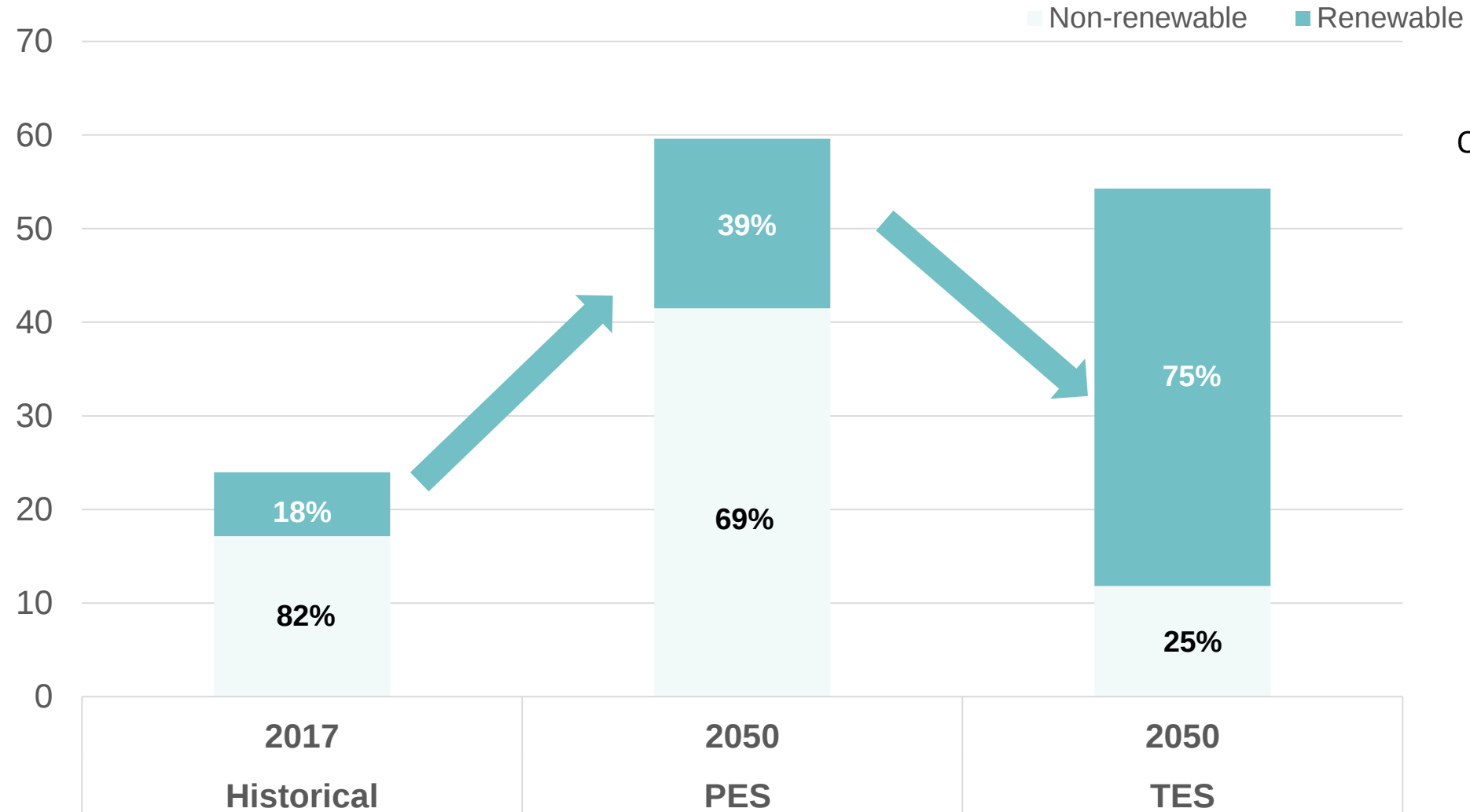
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Director, Innovation and Technology

The global preview to Asia Clean Energy Summit 2020, 18 August 2020

IRENA's Transforming Energy Scenario pathway for South East Asia

Total primary energy supply (EJ/yr)



Ongoing in-depth study
in cooperation with
ACE, supported by
Denmark:

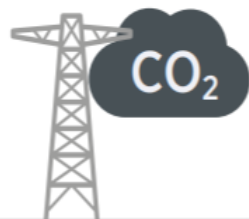
- ASEAN
- Malaysia
- Indonesia

1st results end 2020

IRENA's Transforming Energy Scenario pathway for South East Asia

Emissions

Energy-related CO₂
(Gt CO₂/yr)



2017

2030

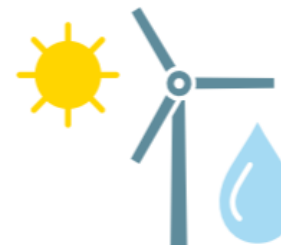
2050

1.4
Gt CO₂/yr

1.6
Gt CO₂/yr

0.8
Gt CO₂/yr

Renewable energy share in power generation (%)



2017

2030

2050

20%

53%

85%

Clean energy investments (USD billion per year)



2016-2030

2016-2050

143 USD bln

141 USD bln

Improved energy efficiency leading to lower energy consumption per capita



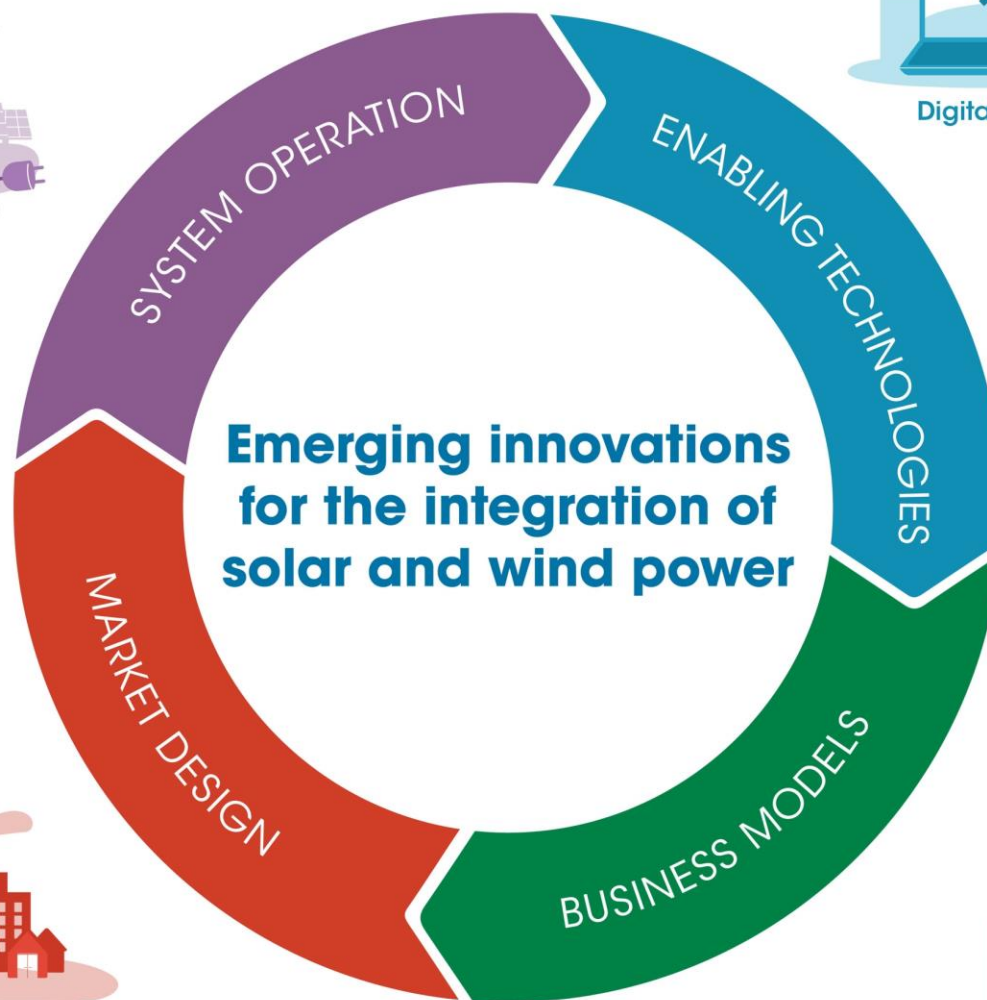
Southeast Asia



Energy consumption per capita (GJ/capita)

Consumption (TFEC) per capita	28	29	35	40	29	33	35
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Today's strong business case for renewable power

Levelised cost of electricity continues to decline

	2010 - 2019	2010 - 2021/23
Solar PV	-82%	-90%
Offshore wind	-29%	-49%
Onshore wind	-39%	-50%

56% of utility-scale renewable capacity added in 2019 cost less than cheapest new coal option :

- ▶ 89% of new hydropower capacity
- ▶ 75% of new onshore wind capacity
- ▶ 40% of new utility-scale solar PV capacity

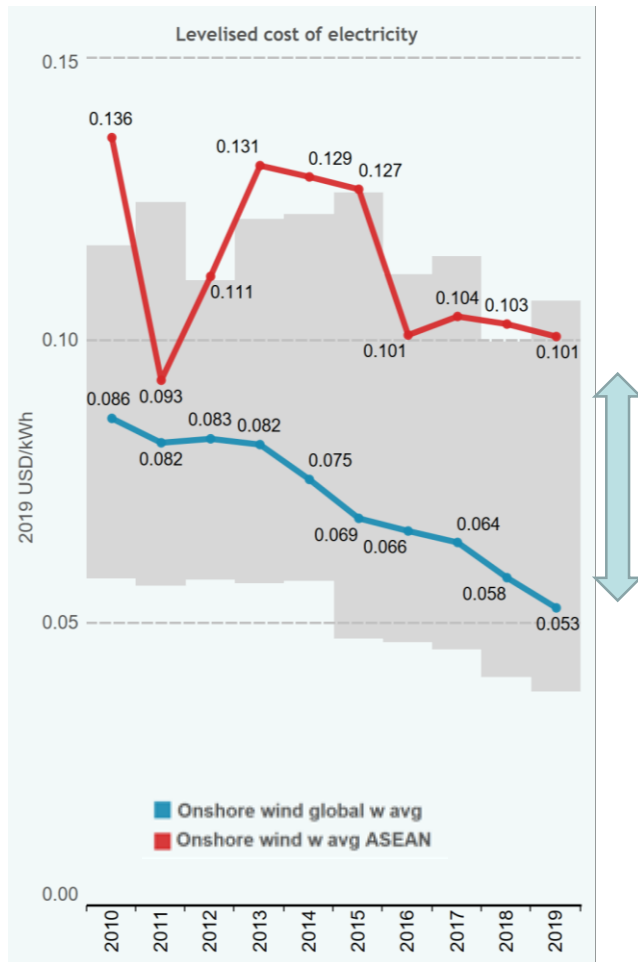
Next years:

- ▶ Global weighted average for solar PV and onshore wind will be well below of new utility-scale coal capacity
- ▶ Retiring the 500 GW of least competitive existing coal plant could save USD 12-23 billion per year

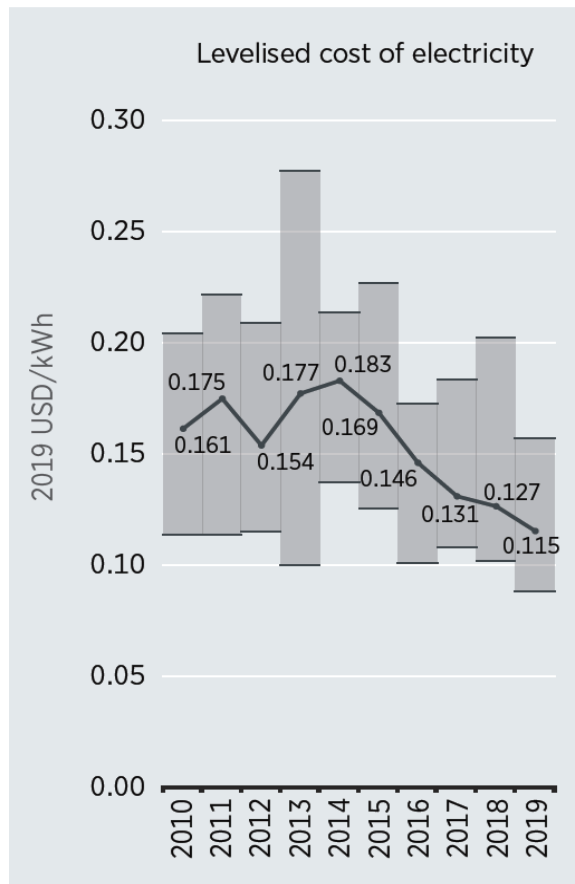
Levelised cost of electricity

Onshore wind, offshore wind, solar PV

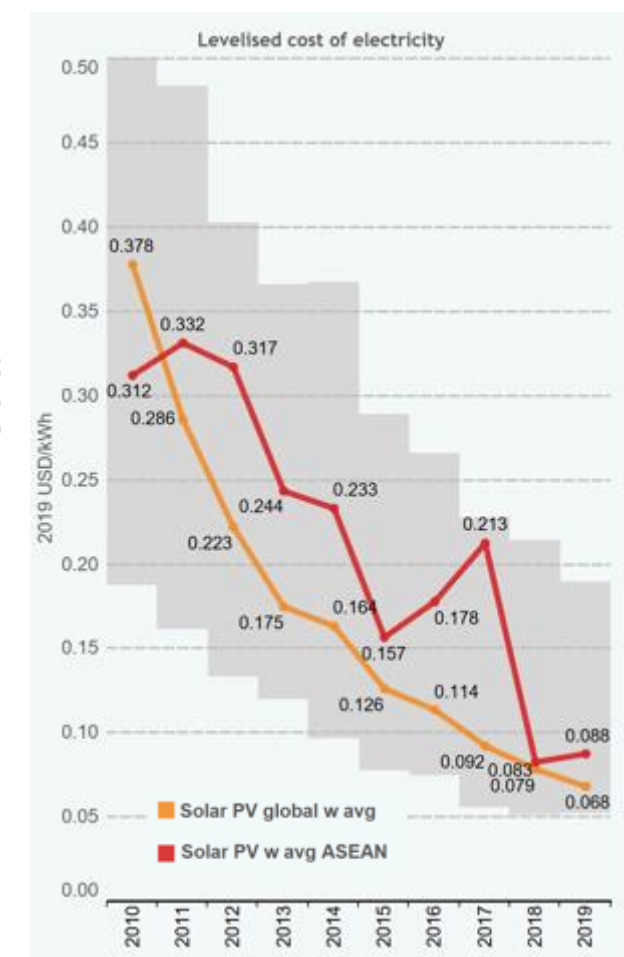
Onshore wind



Offshore wind



Solar PV



Source: IRENA
Renewable Cost
Database

Global weighted avg (2010-2019):

- Total installed cost reduced by **24% from USD 1 949/kW to USD 1 473/kW**
- Total installed costs **50% higher in ASEAN**

Global weighted avg (2010-2019):

- Total installed cost reduced by **29% from USD 4 650 to USD 3 800/kW**

Total installed costs weighted avg (2010-2019):

- Declined **13% from 2018 and 79% from 2010**
- ASEAN PV costs are in line with global costs

The role of cities in the Big Switch to a low-carbon energy future: Focus on Thailand

Sustained urbanisation must be powered by low-carbon energy supply, specifically renewables

Urbanisation:

- **Global:** over the next 3 decades, 2.5 billion people will become new urban dwellers, 90% of growth from Asia & Africa, resulting the increase of urbanisation rate from the present 55% to 68% in 2050.
- **SEA:** urbanisation rate will increase from 50% to 66%, with variation across member states.

Energy-related emission from cities:

- **Global:** 67-76% of global final energy use contributing to 71-76% of energy-related CO₂ emissions.
- **SEA:** electrification and flexibility in cities offer significant RE potential EV, cooling etc.

Thailand has stepped up its ambition and efforts in its energy transition towards renewable energy



Electric Vehicles (EVs)

- In 2017, IRENA, in collaboration with the Ministry of Energy of Thailand conducted “Renewable Energy Outlook for Thailand <https://irena.org/publications/2017/Nov/Renewable-Energy-Outlook-Thailand>”, facilitating the discussion around RE and EVs.
- In 2020, the Government of Thailand announced a roadmap for EV development, not only for Thailand but also for ASEAN.

Community-owned RE generation

- The Government has launched “Energy for ALL” scheme to support the development of community-owned renewable energy projects with the generation capacity no greater than 10 MW each.
- Part of the updated national power development plan (PDP).
- The expected investment would be around 3.3 billion Euros.
- IRENA has been requested by the Thai Ministry of Energy to assist.



Knowledge creation with **better statistics for renewables**, and wider exchange of **best-practice and technology information** is needed across ASEAN.



Power system flexibility needs to be ensured and transmission grid capacity should be expanded and strengthened for renewables integration. **Electrification of end-uses** is also an key solution that will play a more important role in the future and it requires a resilient and robust grid (electromobility etc).



End-use sector efforts should be significantly expanded as they make up two-thirds of the effort required to close the gap in realising ASEAN's **renewable energy target** for 2025, and make up a significant portion of the longer-term potential needed to transform the region's energy system over the coming decades.

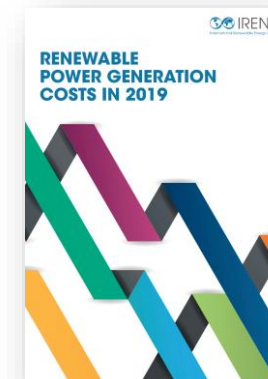


Align energy and climate policies and plans and use those as a central pillar for post COVID recovery. Countries should align climate and sustainability targets with national energy plans, and they should value these plans beyond just the effect on the energy sector and take a more holistic, socio-economic view as the energy transition across ASEAN as is more economically and socially beneficial than business as usual.

Thank You!



IRENA's Innovation Landscape
July 2020



RE Power Generation
Costs in 2019
June 2020



Global Renewables
Outlook
April 2020

