

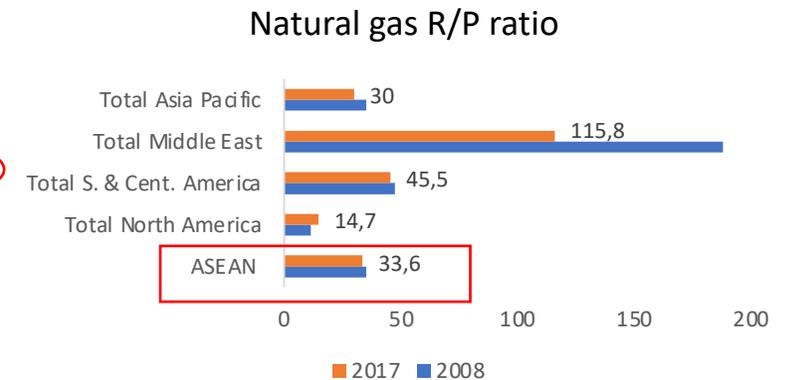
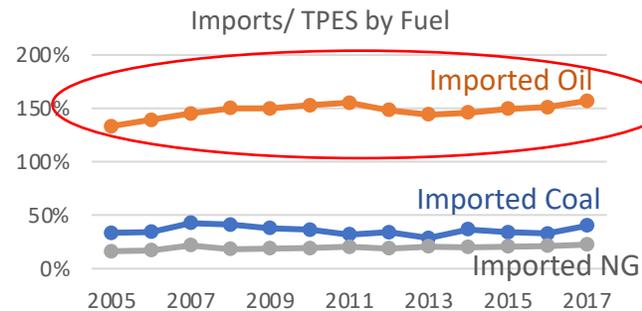
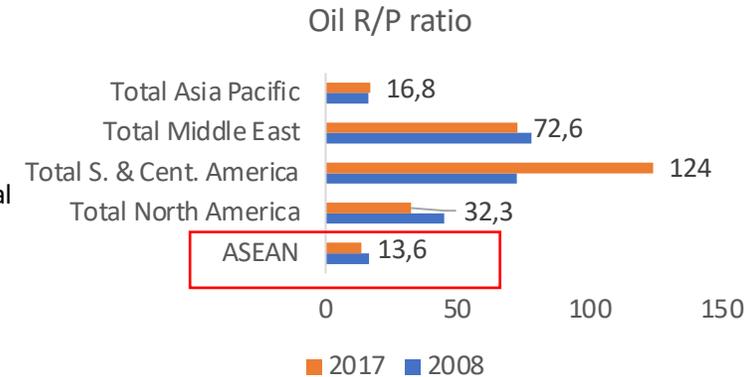
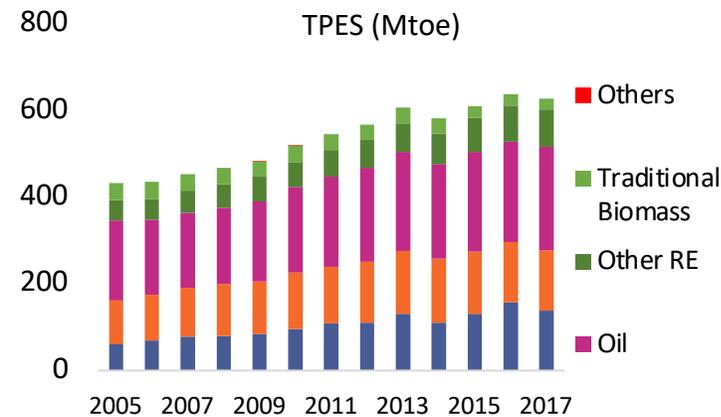
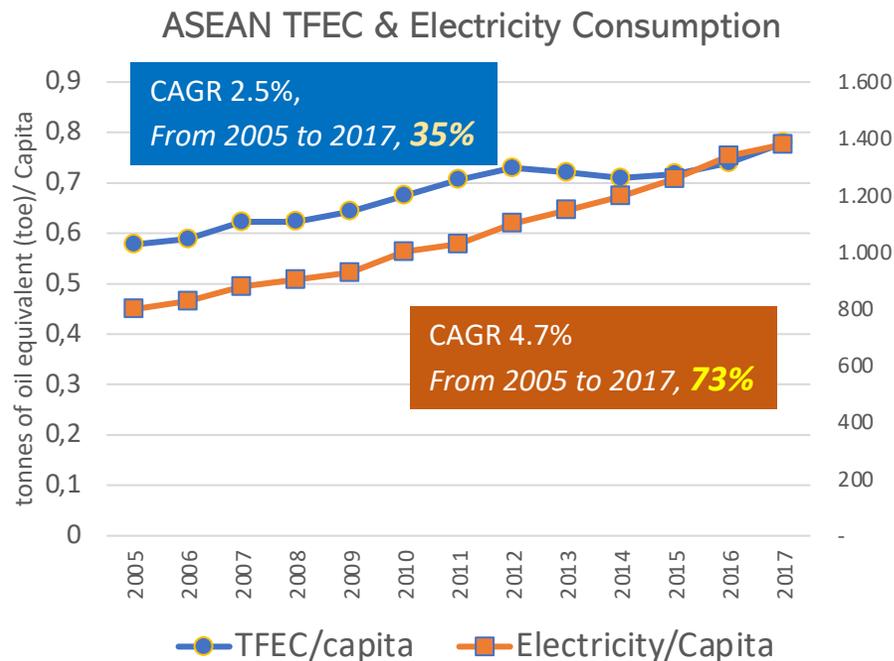
# Grid connections for Energy Security in ASEAN

Dr Nuki Agya Utama, ACE Executive Director

2020 APERC Online Energy Security Workshop, 10 September 2020

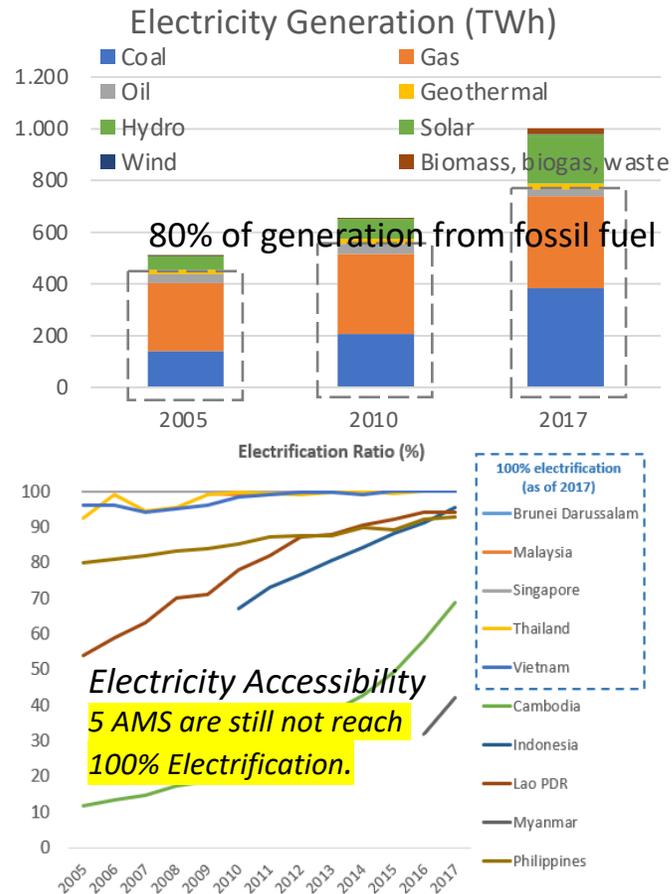
# Energy Landscape

- With a continuously growing demand, ensuring the availability of energy sources will be a key in sustaining ASEAN's collective growth as a region.
- The historical energy supply is still fossil-fuel based, dominated by oil with a growing proportion of coal.
- While ASEAN is showing growing reliance on fossil fuels, the ability to supply this energy domestically depends on its local reserves, and production.
- The lower of local fossil fuel resources, comparing to other regions, continues to put pressure on regional energy security, with the total energy import dependency of ASEAN at 40% in 2017.



# ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025: Phase I 2016 – 2020 and Phase II 2021 – 2025

*“Enhancing Energy Connectivity and Market Integration in ASEAN to Achieve Energy Security, Accessibility, Affordability and Sustainability for All”*



## Development of APAEC Phase II: 2021-2025

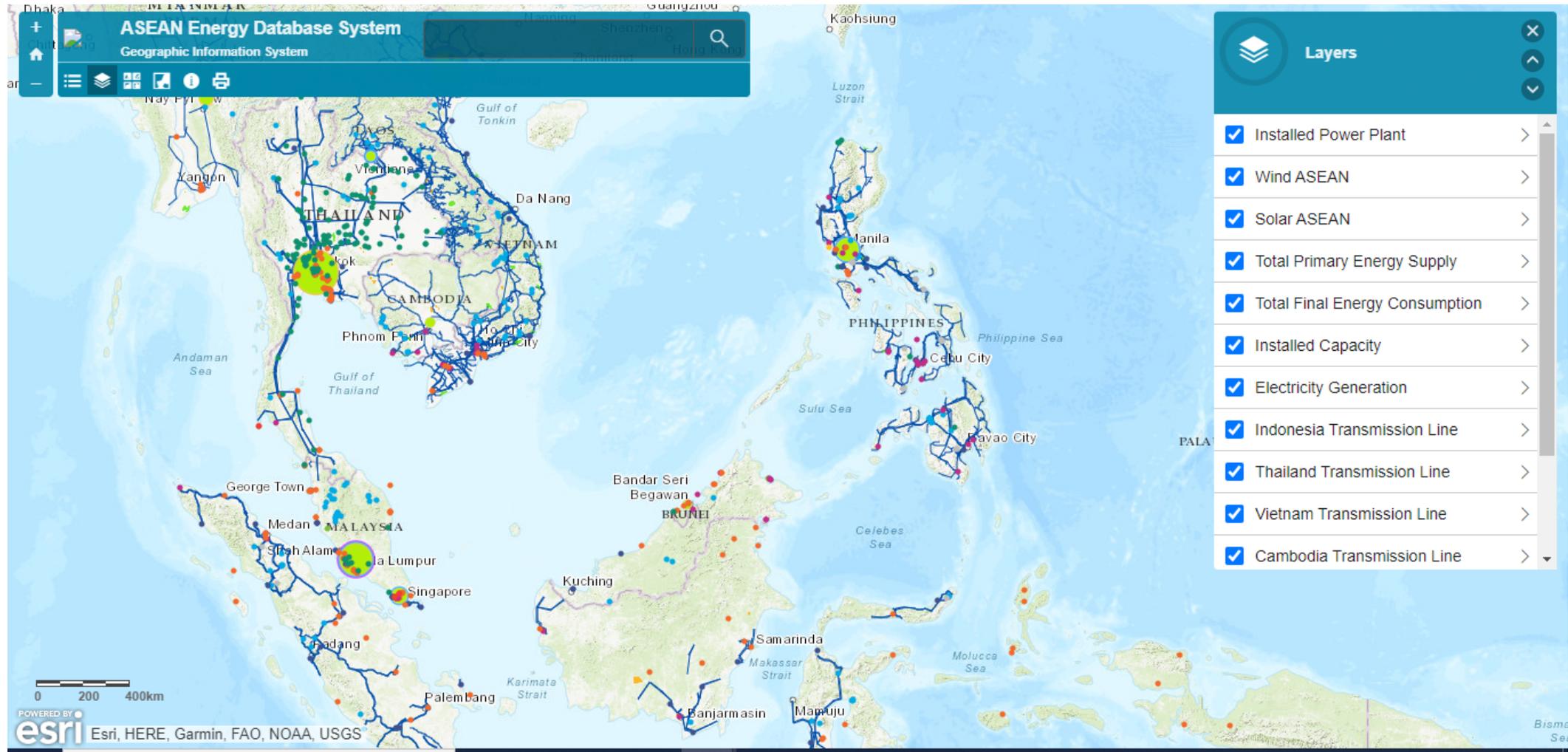
- ASEAN has engaged the ASEAN DPs and IOs during the 37<sup>th</sup> SOME last year.

Identified new areas of collaboration including:

- Multilateral power trade with greater integration of RE sources;
- Future of cooling and establishing green buildings codes;
- Capacity building in investments and financing in energy infrastructure;
- Deployment of LNG; and
- Emerging trends such as hydrogen and CCUS

- Final report is currently being finalised and will seek endorsement at the 38<sup>th</sup> AMEM in November 2020.

# ASEAN Energy Database System Geographical Information System



Source:

<http://aseanenergy.maps.arcgis.com/apps/View/index.html>

# APG Subregions

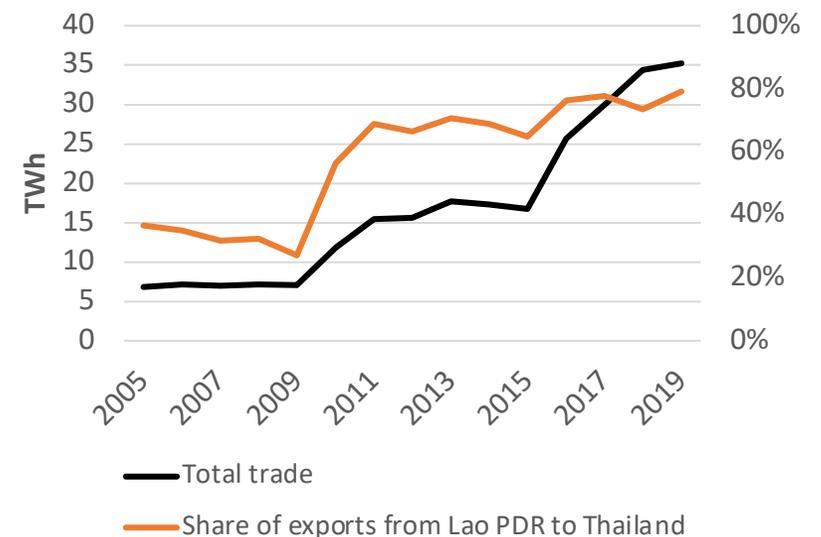
The Heads of ASEAN Power Utilities/Authorities (HAPUA) and ACE have investigated these possibilities in a series of ASEAN Interconnection Masterplan Studies (AIMS).

The AIMS projects have evaluated the potential for cross-border electricity trade, regional costs and benefits, and exploring the link between the APG and more ambitious renewable energy targets.

Leveraging the improved connectivity, power trade among AMS has grown substantially. Over the last 15 years, trade has increased more than five-fold. Power exports from Lao PDR to Thailand (APG-North) have made up an important and growing share of this amount (AEO6).



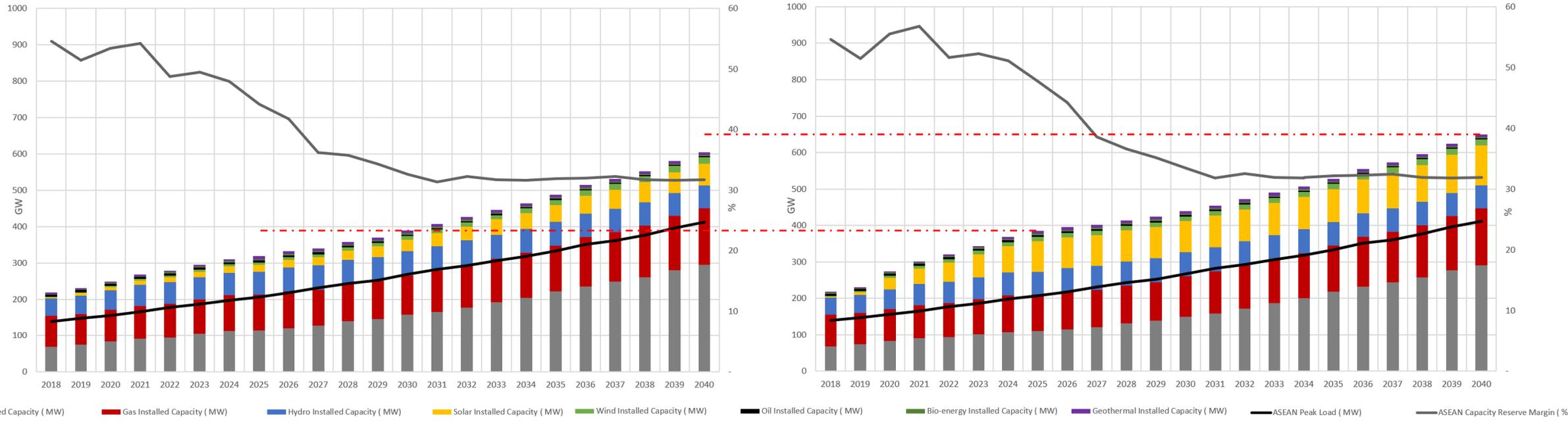
At present, most electricity trade within the APG occurs through bilateral agreements. But there is a pilot multilateral trading in Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP).



# High potential RE to be installed, increasing regional energy security

## Base Case: PDPs of all 10 AMS

## APAEC RE Target: 23% RE in Energy Mix by 2025



**Note:** Significant additional amount of RE should be installed to achieve APAEC RE Target, but it's possible based on the technical potential and also utilising the *possible interconnections*.



# Introduction: ASEAN Centre for Energy (ACE)



## Think Tank

Identifying and surfacing innovative solutions

Policies, Legal & Regulatory Frameworks and Technologies



## Energy Data and Knowledge Hub

Provide a knowledge depository for AMS

Policy and Research Analytics

Energy Database



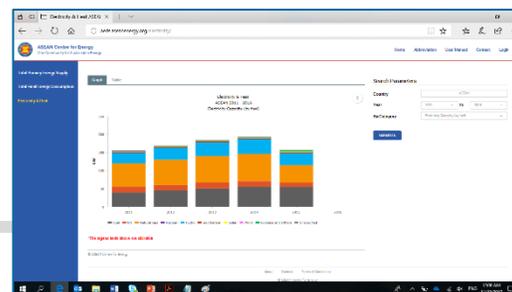
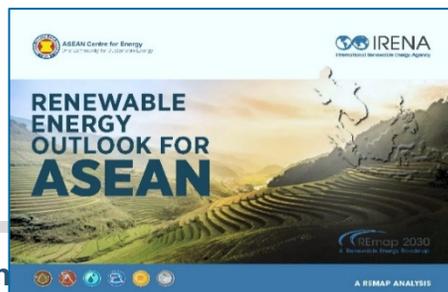
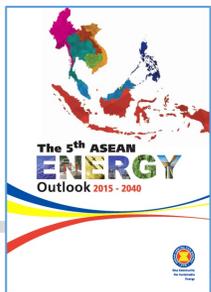
## Catalyst

Unify and strengthen ASEAN Energy Cooperation and Integration

APAEC Activities, including with DPs/IOs

Secretariat

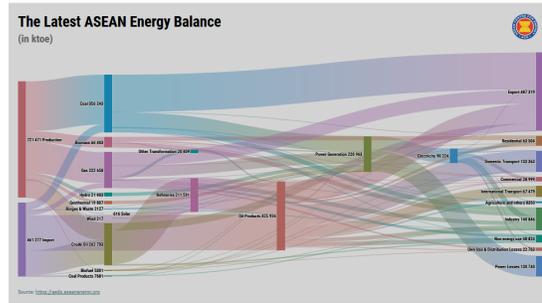
Research, publication, training, capacity building, workshop, policy exchange and recommendations, etc.



# Regional Energy Policy and Planning

ACE develop the ASEAN Energy Data and Information that used as a web-based system of integrated and comprehensive ASEAN energy data and information that cover both regional and national levels.

## Energy Data



## Policies Database

Handbook on The Malaysian Feed-in-Tariff For The Promotion of Renewable Energy

Category	Downloadable Materials	About
Country	Malaysia	
Year	2011	
Type	Others	
Institution	Others	
Policy Type	Others	
Last Updated	December 13, 2018	

## GIS/Map



## Newsroom & Clipping

Magway Region to build five small-scale refineries

Magway Region is developing five Onuma 92 mini refineries which will be able to refine up to 10,000 gallons of... (Read more)

## ASEAN Energy News Clipping 2019 Recap



## Energy Insight

### ASEAN Energy Insight: Electricity Sector Highlights 2019

- Electricity access is still on focus, pushing for growth**
  - Indonesia** stated to achieve 98.05% of household electrification
  - Philippines** 100% electrification target by 2022
  - Vietnam** the government claimed to reach 99% electrification already
- Electricity demand is soaring, triggers more bilateral power trade**
  - Vietnam** At the current power capacity of 47 GW, the country estimated to need 130 GW by 2030
  - Myanmar** the ministry of electricity plans to build over 1 GW power stations
  - Cambodia** has asked Vietnam and Lao PDR to supply more electricity
  - Lao PDR** managed to boost its installed capacity
- Evolving power market**
  - Vietnam** Vietnam is spotted to consider and prepare the regulatory framework for direct power sales from commercial companies to power plants
  - Malaysia** TNB Malaysia is getting ready for open market and plans to go through a market reform

- COVID-19 vs ASEAN Energy Sector: Oil & Gas** It is a bleak period for oil and gas industry, yet production and export remain.
- COVID-19 vs ASEAN Energy Sector: Renewables** The increasing uncertainty of the supply chain and the accompanying energy transition in pandemic recovery plan.
- COVID-19 vs ASEAN Energy Sector: Electricity** Involvement of energy electricity in pandemic recovery projects, and energy stability.



## Wrap Up Points

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- The on-going AIMS III study will set out the interconnection infrastructure needed to enable expanded power trade as well as integrate higher shares of renewables into the APG. Results of AIMS III will be the foundation to advance **Energy Security and Market Integration in ASEAN**.
- **Regional model presents various key benefits:** utilizing and sharing unused reserved margin as one system, shift of peak demand of the entire region, flatten load profile and variety of VRE available in different time zones, and identify a pilot projects of promoting multilateral traded → **enhance the regional energy security**.