PURSUING AFFORDABLE AND CLEAN ENERGY FOR RESILENT ECONOMY IN ASEAN COMUNITIES

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One Community for Sustainable Energy

Affordable & Clean Energy for ASEAN

Collecting the Countries' Perspective

'Clean and affordable energy' definition could mean a bit different in ASEAN due to the wide diversity of available resources among the 10 ASEAN Member States (AMS).

Affordability component	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
National expenditure on energy	•	•	•	•		•			•	•
Energy service cost: electricity		•	•	•	•	•	•	•	•	
Energy service cost: cooking fuel					•	•				
Energy service cost: transport fuel				•						
Prices for specific community		•	•	•	•				•	•
Community purchasing power			•	•	•		•			
Subsidy			•	•		•		•	•	
Price disparity on location			•							
Competitive price of energy			•				•	•	•	
Maintain energy efficiency and conservation									•	•
Market mechanism pricing									•	•

Table 1. Affordability component in ASEAN countries mentioned in its national energy policies
Source: ACE database

Affordable & Clean Energy for ASEAN

ASEAN Member States are aiming clean energy for its people, regionally and nationally.

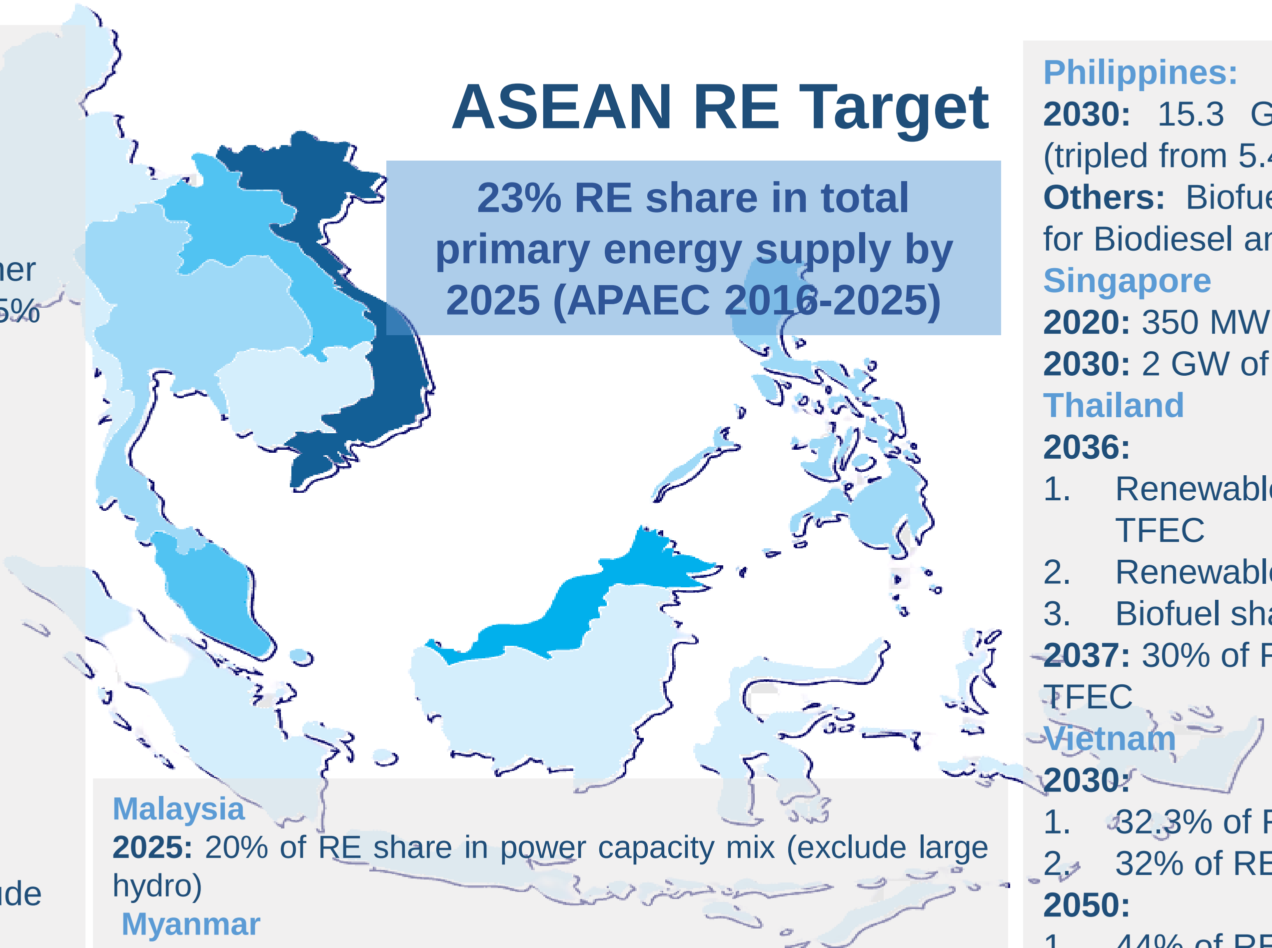
Brunei Darussalam
2035: 10% of RE share in total installed capacity.

Cambodia
2035: 55% of Hydro, 10% of other renewable energy* in power generation mix by 2030 (*other renewable energy: 6.5% from biomass and 3.5% from solar)

Indonesia
2020: Biodiesel blending ratio target: 30%
2025:
1. 23% of RE share in TPES
2. Biodiesel blending ratio target: 30%
3. Bioethanol blending ratio target: 20%

2050:
1. 31% of RE share in TPES
2. Biodiesel blending ratio target: 30%
3. Bioethanol blending ratio target: 20%

Lao PDR
2025:
1. 20% renewable electricity share (exclude large hydro)
2. 10% biofuel share (blending ratio 5-10%)



ASEAN RE Target

23% RE share in total primary energy supply by 2025 (APAEC 2016-2025)

Malaysia
2025: 20% of RE share in power capacity mix (exclude large hydro)

Myanmar
2030: 12% of RE share in power generation (exclude large hydro)

Philippines:
2030: 15.3 GW of RE installed capacity (tripled from 5.4 GW in 2010)
Others: Biofuels blending ratio around 2% for Biodiesel and 10% of Bioethanol

Singapore
2020: 350 MW of solar PV
2030: 2 GW of solar PV

Thailand
2036:
1. Renewable electricity share: 15-20% in TFEC
2. Renewable heat share: 30-35% in TFEC
3. Biofuel share: 20-25% in TFEC

2037: 30% of RE share in Overall National TFEC

Vietnam
2030:
1. 32.3% of RE share in TPES
2. 32% of RE share in power generation

2050:
1. 44% of RE share in TPES
2. 43% of RE share in power generation

Affordable & Clean Energy for ASEAN

As well as joining the global effort to pursue clean energy..

ASEAN Member States	NDC Target		SDG Progress	
	Year	Target	Electrification Ratio (%)	Renewable Energy Share
Brunei Darussalam	2035	Reduce total energy consumption by 63% (unconditional)	100%	0.05% of RE share in power generation
Cambodia	2030	Reduce GHG emissions by 27% (conditional)	92%	62% of RE share in total energy consumption (mostly hydropower)
Indonesia	2030	Reduce GHG emissions by 41% (conditional) and 29% (unconditional)	98.86%	12.2% of RE share in power generation (mostly hydropower and geothermal)
Lao PDR	-	Reduce CO_2 from transportation by 191 $ktCO2_e$/year (unconditional)	98%	80% of RE share in power generation (mostly hydro)
Malaysia	2030	Reduce GHG emissions per GDP by 45% (conditional) and 35% (unconditional)	100%	5% of RE share in power generation
Myanmar	2030	Realise electricity saving potential by 20%	66%	61% of RE share in total energy mix
Philippines	2030	Reduce GHG emissions by 70%	95%	68.1% of RE share in total energy mix (mostly geothermal)
Singapore	2030	Reduce GHG emissions per GDP by 36%	100%	1% of RE share in total energy mix
Thailand	2030	Reduce GHG emissions by 20%	100%	15% of RE share in total energy consumption, 10% of RE share in power generation
Vietnam	2030	Reduce GHG emissions by 8%	100%	2.1% of RE share in power generation (mostly hydro)

Table 2. ASEAN countries NDCs Target and SDG Progress on energy

Existing Policy Supports for Affordable & Clean Energy

AMS put effort both in providing affordable and clean energy in its energy policies.

Various policies & incentives are established within AMS to ensure affordable & clean energy for the people.

Gradual subsidy reform from fossil-fuel to renewables are seen in AMS.

RE incentives	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
RE Target	•	•	•	•	•	•	•	•	•	•
FiT		•	•		•		•		•	•
Self-Consumption scheme		•	•		•		•	•	•	•
Competitive Bidding		•	•		•	•		•	•	•
Tax Incentives	•	•	•	•	•	•	•		•	•
Soft Loan			•		•				•	
Capital Subsidy									•	
Tradable RECs								•	•	

Table 3. Summary of available RE incentive in ASEAN Member States

Necessity for pushing Renewable Energy

Why should ASEAN pursue and push RE in the region?

Declining RE price trend

ASEAN is region with high climate-disaster risk

Chance for a green recovery from pandemic to ‘build back better’

Escalate ASEAN effort for Affordable & Clean Energy

To conclude:

Affordable and clean energy as a focus in SDGs no.7 is **also pushed** by AMS, despite diverse meaning it has within the region.

The diverse concept of 'affordable and clean' is rooted from various ***economic capabilities***, ***geographical conditions***, and ***resource availability*** that exist within the region.

ASEAN no longer needs to choose between affordable OR clean, since providing **affordable AND clean energy** is urgent and now become feasible

Way Forward for ASEAN:

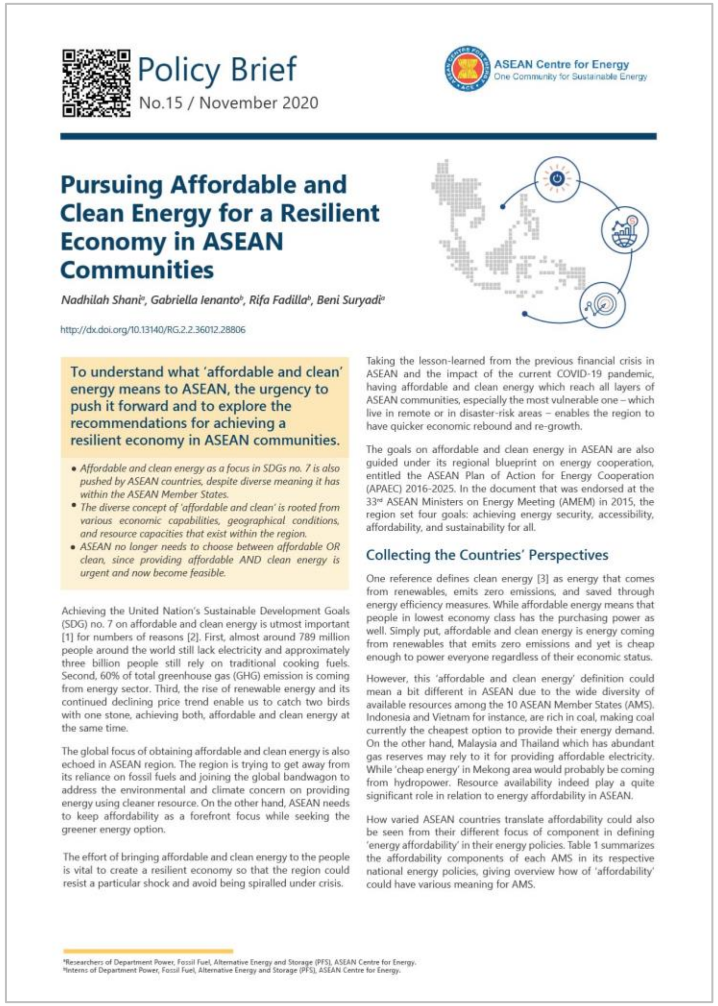
Benchmarking to other region & learn from each other

Incorporate inclusivity in its policy

Thinking outside in & act inward out

Having long-term vision in its short term action

ACE Policy Brief



Policy Brief

No.15 / November 2020

ASEAN Centre for Energy
One Community for Sustainable Energy

Pursuing Affordable and Clean Energy for a Resilient Economy in ASEAN Communities

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To understand what 'affordable and clean' energy means to ASEAN, the urgency to push it forward and to explore the recommendations for achieving a resilient economy in ASEAN communities.

- *Affordable and clean energy as a focus in SDGs no. 7 is also pushed by ASEAN countries, despite diverse meaning it has within the ASEAN Member States.*
- *The diverse concept of 'affordable and clean' is rooted from various economic capabilities, geographical conditions, and resource capacities that exist within the region.*
- *ASEAN no longer needs to choose between affordable OR clean, since providing affordable AND clean energy is urgent and now become feasible.*

Achieving the United Nation's Sustainable Development Goals (SDG) no. 7 on affordable and clean energy is utmost important [1] for numbers of reasons [2]. First, almost around 789 million people around the world still lack electricity and approximately three billion people still rely on traditional cooking fuels. Second, 60% of total greenhouse gas (GHG) emission is coming from energy sector. Third, the rise of renewable energy and its continued declining price trend enable us to catch two birds with one stone, achieving both, affordable and clean energy at the same time.

The global focus of obtaining affordable and clean energy is also echoed in ASEAN region. The region is trying to get away from its reliance on fossil fuels and joining the global bandwagon to address the environmental and climate concern on providing energy using cleaner resource. On the other hand, ASEAN needs to keep affordability as a forefront focus while seeking the greener energy option.

The effort of bringing affordable and clean energy to the people is vital to create a resilient economy so that the region could resist a particular shock and avoid being spiralled under crisis.

Taking the lesson-learned from the previous financial crisis in ASEAN and the impact of the current COVID-19 pandemic, having affordable and clean energy which reach all layers of ASEAN communities, especially the most vulnerable one – which live in remote or in disaster-risk areas – enables the region to have quicker economic rebound and re-growth.

The goals on affordable and clean energy in ASEAN are also guided under its regional blueprint on energy cooperation, entitled the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025. In the document that was endorsed at the 33rd ASEAN Ministers on Energy Meeting (AMEM) in 2015, the region set four goals: achieving energy security, accessibility, affordability, and sustainability for all.

Collecting the Countries' Perspectives

One reference defines clean energy [3] as energy that comes from renewables, emits zero emissions, and saved through energy efficiency measures. While affordable energy means that people in lowest economy class has the purchasing power as well. Simply put, affordable and clean energy is energy coming from renewables that emits zero emissions and yet is cheap enough to power everyone regardless of their economic status.

However, this 'affordable and clean energy' definition could mean a bit different in ASEAN due to the wide diversity of available resources among the 10 ASEAN Member States (AMS). Indonesia and Vietnam for instance, are rich in coal, making coal currently the cheapest option to provide their energy demand. On the other hand, Malaysia and Thailand which has abundant gas reserves may rely to it for providing affordable electricity. While 'cheap energy' in Mekong area would probably be coming from hydropower. Resource availability indeed play a quite significant role in relation to energy affordability in ASEAN.

How varied ASEAN countries translate affordability could also be seen from their different focus of component in defining 'energy affordability' in their energy policies. Table 1 summarizes the affordability components of each AMS in its respective national energy policies, giving overview how of 'affordability' could have various meaning for AMS.

[a]Researchers of Department Power, Fossil Fuel, Alternative Energy and Storage (PFS), ASEAN Centre for Energy.
[b]Interns of Department Power, Fossil Fuel, Alternative Energy and Storage (PFS), ASEAN Centre for Energy.

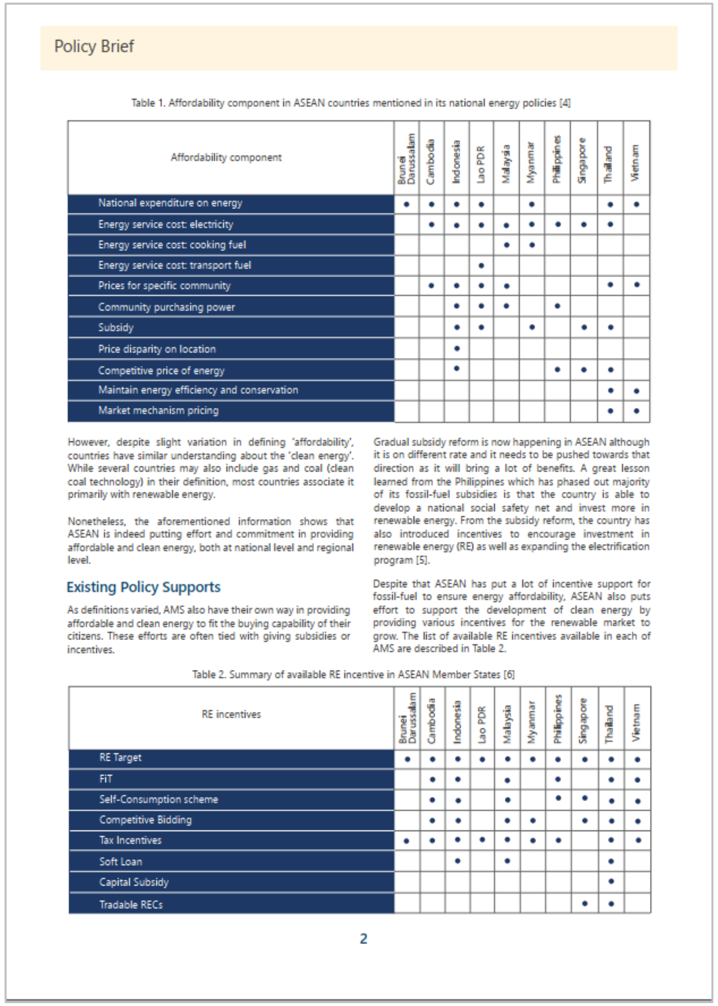

Table 1. Affordability component in ASEAN countries mentioned in its national energy policies [4]

Affordability component	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
National expenditure on energy	•	•	•	•		•			•	•
Energy service cost: electricity		•	•	•	•	•	•	•	•	
Energy service cost: cooking fuel					•	•				
Energy service cost: transport fuel				•						
Prices for specific community		•	•	•	•				•	•
Community purchasing power			•	•	•		•			
Subsidy			•	•		•		•	•	
Price disparity on location			•							
Competitive price of energy			•				•	•	•	
Maintain energy efficiency and conservation									•	•
Market mechanism pricing									•	•

However, despite slight variation in defining 'affordability', countries have similar understanding about the 'clean energy'. While several countries may also include gas and coal (clean coal technology) in their definition, most countries associate it primarily with renewable energy.

Nonetheless, the aforementioned information shows that ASEAN is indeed putting effort and commitment in providing affordable and clean energy, both at national level and regional level.

Existing Policy Supports

As definitions varied, AMS also have their own way in providing affordable and clean energy to fit the buying capability of their citizens. These efforts are often tied with giving subsidies or incentives.

Gradual subsidy reform is now happening in ASEAN although it is on different rate and it needs to be pushed towards that direction as it will bring a lot of benefits. A great lesson learned from the Philippines which has phased out majority of its fossil-fuel subsidies is that the country is able to develop a national social safety net and invest more in renewable energy. From the subsidy reform, the country has also introduced incentives to encourage investment in renewable energy (RE) as well as expanding the electrification program [5].

Despite that ASEAN has put a lot of incentive support for fossil-fuel to ensure energy affordability, ASEAN also puts effort to support the development of clean energy by providing various incentives for the renewable market to grow. The list of available RE incentives available in each of AMS are described in Table 2.

Table 2. Summary of available RE incentive in ASEAN Member States [6]

RE incentives	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
RE Target	•	•	•	•	•	•	•	•	•	•
FiT		•	•		•		•		•	•
Self-Consumption scheme		•	•		•		•	•	•	•
Competitive Bidding		•	•		•	•		•	•	•
Tax Incentives	•	•	•	•	•	•	•		•	•
Soft Loan			•		•				•	
Capital Subsidy									•	
Tradable RECs								•	•	

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