Oil and Gas Security in ASEAN

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For presentation at the 4th APERC Oil and Gas Security Network Forum, 6-8 March 2018, Tokyo, Japan

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Outline of Presentation

ABOUT ACE	AEC & APAEC	5TH AEO FINDINGS	POLICY DEVELOPMENT	WAY FORWARD

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About ACE

Think Tank

Identifying and surfacing innovative solutions

Energy Data and Knowledge Hub

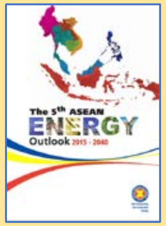
Provide a knowledge depository for AMS

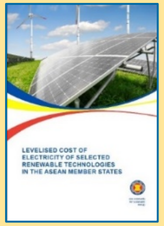
Catalyst

Unify and strengthen ASEAN Energy Cooperation and Integration

- Policies, Legal & Regulatory Frameworks and Technologies
- Policy and Research Analytics
- Energy Database
- APAEC Activities, including with DPs/IOs
- Secretariat

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





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AEC Blueprint 2025

- ASEAN economy continues to perform strongly – with combined GDP at USD 2.55 trillion in 2016, with real GDP growth of 4.8%.

- Inflows of foreign direct investment to ASEAN reached USD 96.72 billion in 2016, 24.8% of which was intra-ASEAN. The top three (3) sources of FDI inflows to the region are the EU, Japan, and US.

- In 2017, there 118 AEC priorities, 60 are under the purview of AEM and 58 under other AEC ministerial bodies, including 5 under AMEM. It is expected that by the end of the 49th AEM, 25 out of the 60 would have been implemented.

- Highly Integrated & Cohesive Economy

  - *to facilitate the seamless movement of goods, services, investment, capital, and skilled labour within ASEAN*

- Competitive, Innovative & Dynamic ASEAN

  - *to focus on elements that contribute to increasing the region's competitiveness and productivity*

- Enhanced Connectivity & Sectoral Cooperation

  - *to enhance economic connectivity involving various sectors, namely, transport, telecommunication and energy,*

- Resilient, Inclusive, People-Oriented & People-Centered ASEAN

  - *"Equitable Economic Development" by deepening existing elements and incorporating other key elements*

GLOBAL ASEAN

to make steady progress towards integrating the region into the global economy

ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025

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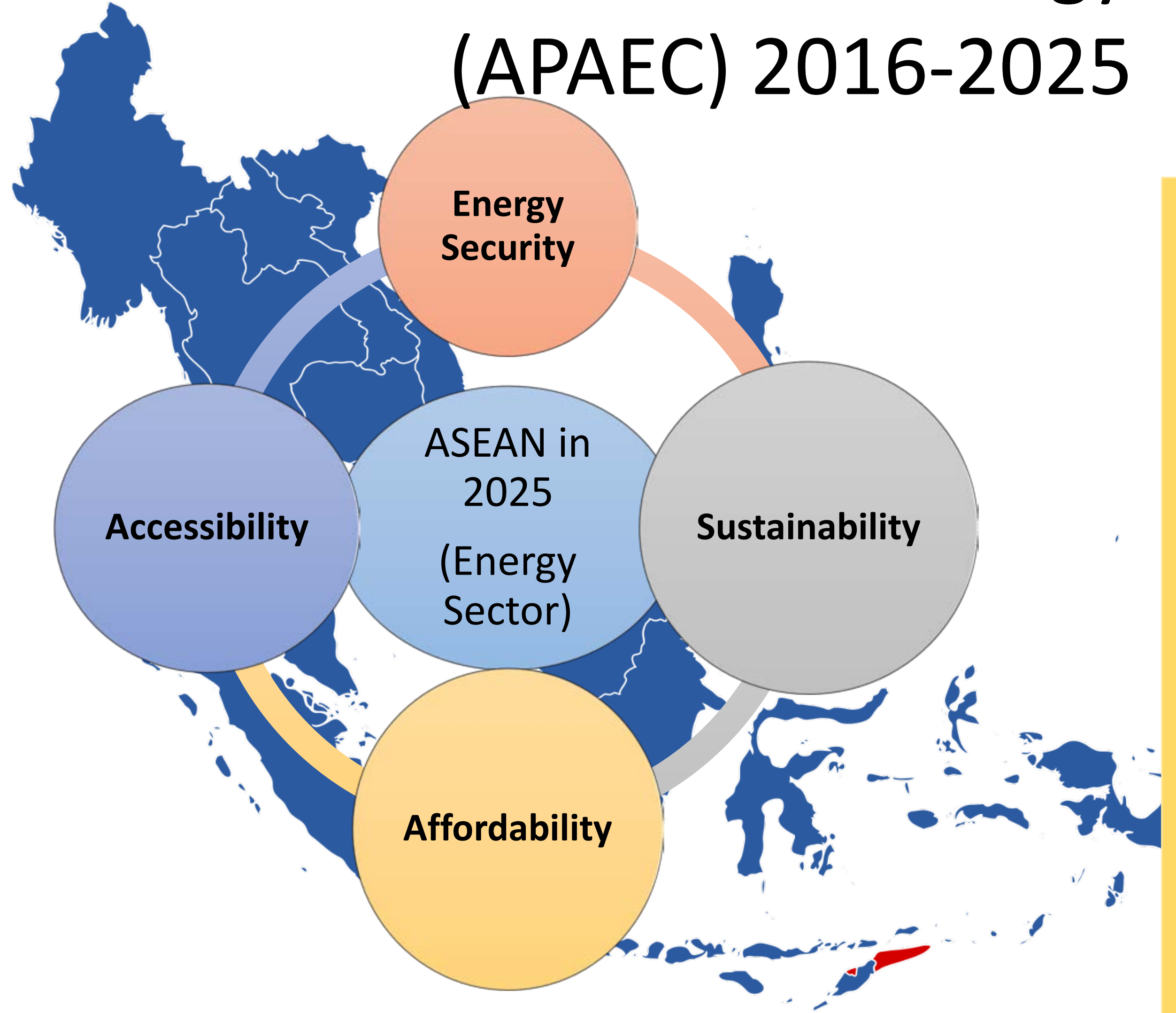
APAEC is in its 2nd year of implementation and ASEAN is on track.

ACE is initiating a mid-term review in 2018 to assess and evaluate the performance and directions of APAEC.

In 2019, ACE will commence the drafting of Phase 2 document of APAEC for 2021 - 2025



"Enhancing Energy Connectivity and Market Integration in ASEAN to Achieve Energy Security, Accessibility, Affordability & Sustainability for All".

i. To initiate multilateral electricity trade in at least one sub-region by 2018. (**APG**)
ii. To enhance connectivity for energy security & accessibility via pipelines & regasification terminals. (**TAGP**)
iii. To enhance the image of coal through promotion of clean coal technologies. (**CCT**)
iv. To reduce energy intensity by 20% in 2020 based on 2005 level. (**EE&C**)
v. Aspirational target to increase the component of RE to 23% by 2025 in ASEAN Energy Mix. (**RE**)
vi. To better profile the energy sector internationally. (**REPP**)
vii. To build capabilities in policy, technology & regulatory aspects of nuclear energy. (**CNE**)

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Key Findings and Messages of 5th ASEAN Energy Outlook for Oil and Gas

- **TFEC in ASEAN is expected to increase in the next decades with a steeper growth in BAU, in comparison to the historical period. It will grow from 427 Mtoe in 2015 to 1,046 Mtoe in 2040.**

- With the exception of non-energy uses and the residential sector, all other sectors will experience a strong growth with approx. 4% per year. The transport, commercial and industry sectors will expand the most

- The increasing energy demand in the transport and industry sectors reflects on the one hand, urbanization trends, which lead to an increased need for transport services, and on the other hand, the shift from agriculture towards a more industrialised ASEAN.

The launch of the 5th ASEAN Energy Outlook
with the Philippine Secretary of Energy, Alfonso G. Cusi, Manila, 28 September 2017

TFEC Projections in BAU, by Fuels

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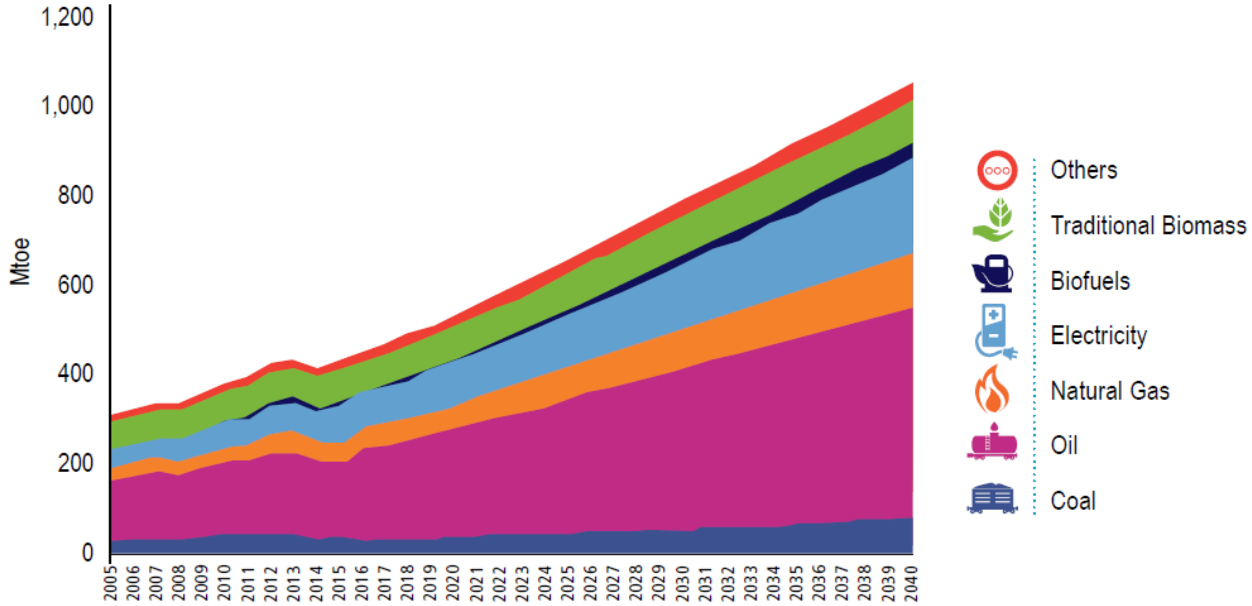
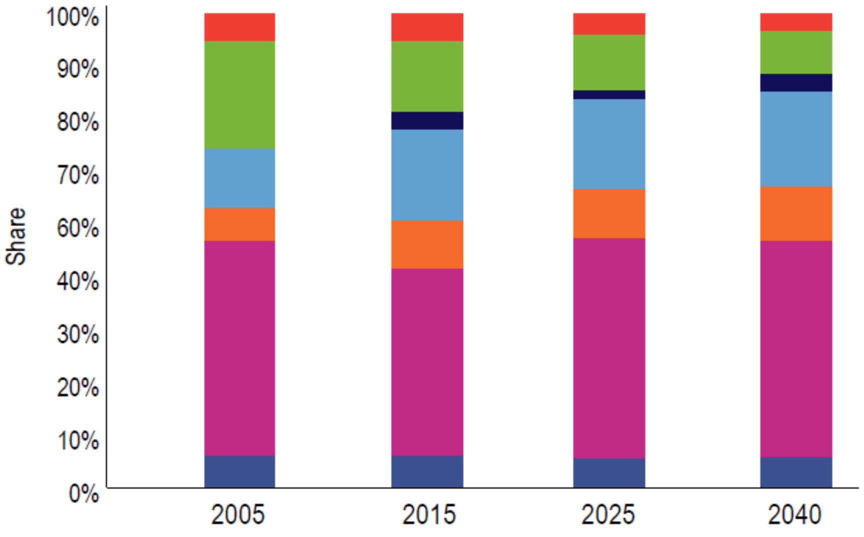
- TFEC in ASEAN is expected to increase by almost 2.5x from 427 Mtoe in 2015 to 1,046 Mtoe in 2040.
- *Oil keeps its share at 40-50% between 2015-2040 due to the strong increase of demand in transport sector.*
- *Electricity demand is increasing due to increasing demand in industry and commercial sectors as well as massive electrification programme.*
- Natural gas is also expanding by 2.75 times 2015 to 2040 (from 44 Mtoe in 2015 to 121 Mtoe in 2040.)





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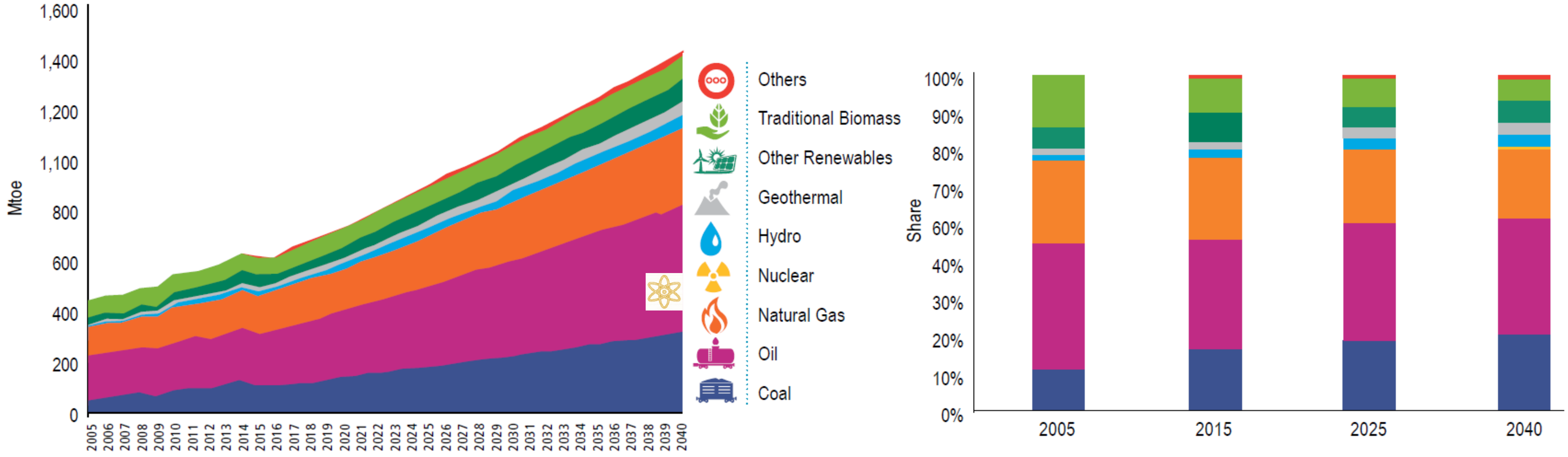
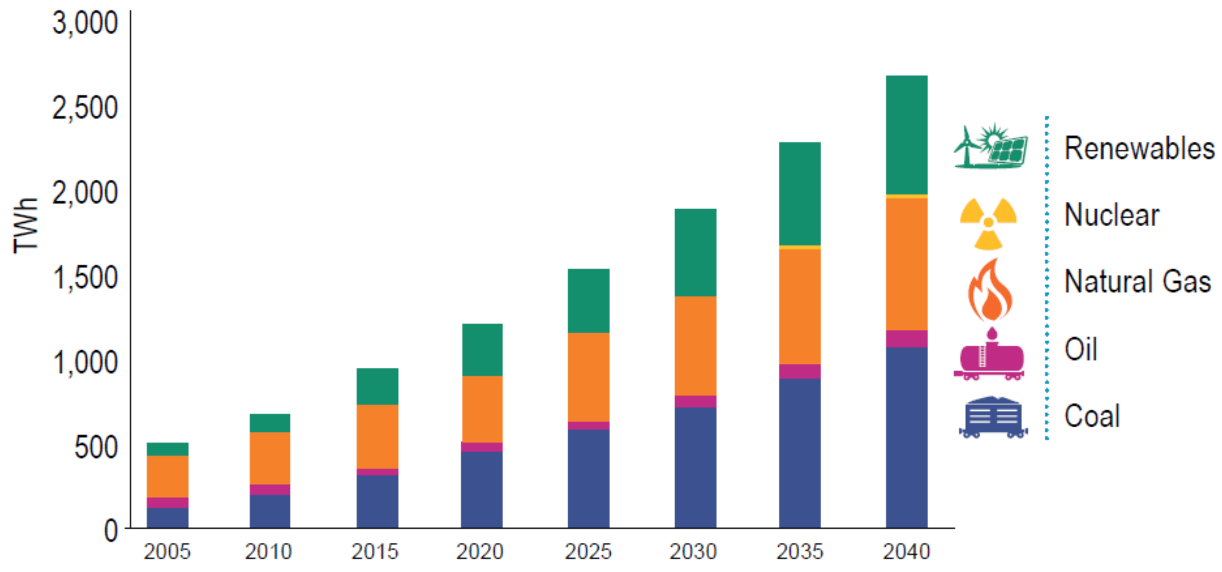
TPES Projections in BAU, by Fuels

- In 2015, TPES consist of oil 33%, natural gas 23.7% and coal at 18.5%
- *In 2040, oil, coal and gas will have combined share of 78.6%*

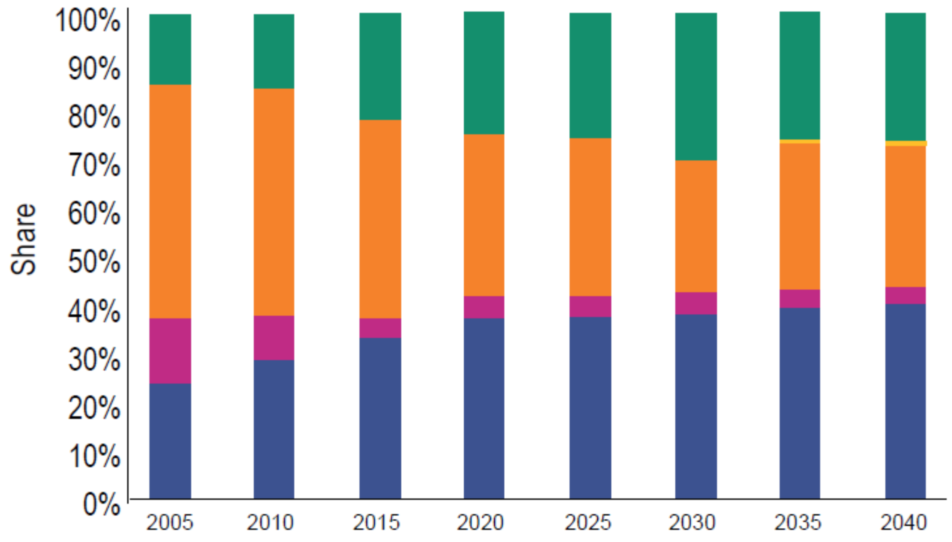


Generation Projections in BAU, all Technologies

- *Electricity production will be dominated by coal with a share of* 40.3% in 2040
- Electricity production from natural gas will almost double during the period. But in terms of capacity, natural gas share is projected to decrease from 41.1% in 2015 to 29.2% in 2040.
- Electricity production from oil share will increase by a factor 2.5 but its capacity share will decrease from 4.0% in 2015 to 3.5% in 2040



Electricity production



Generation capacity

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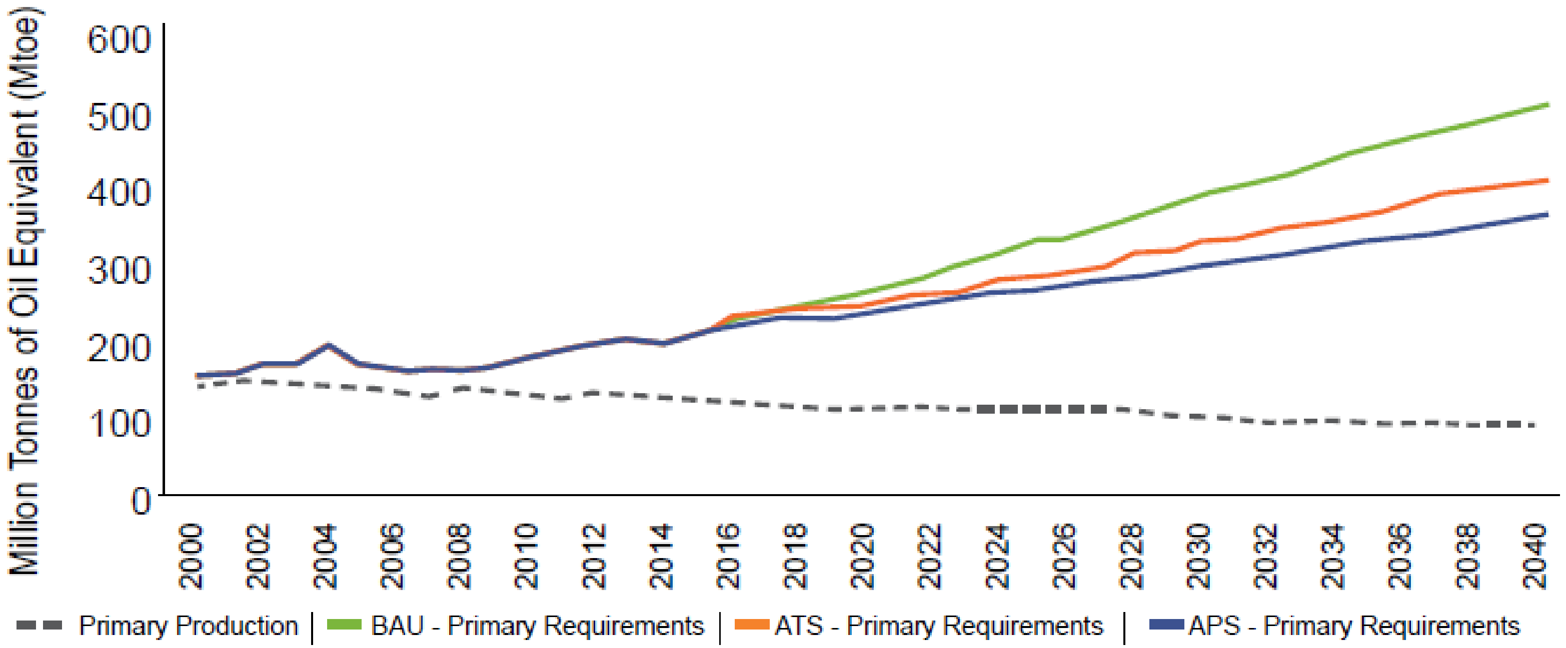
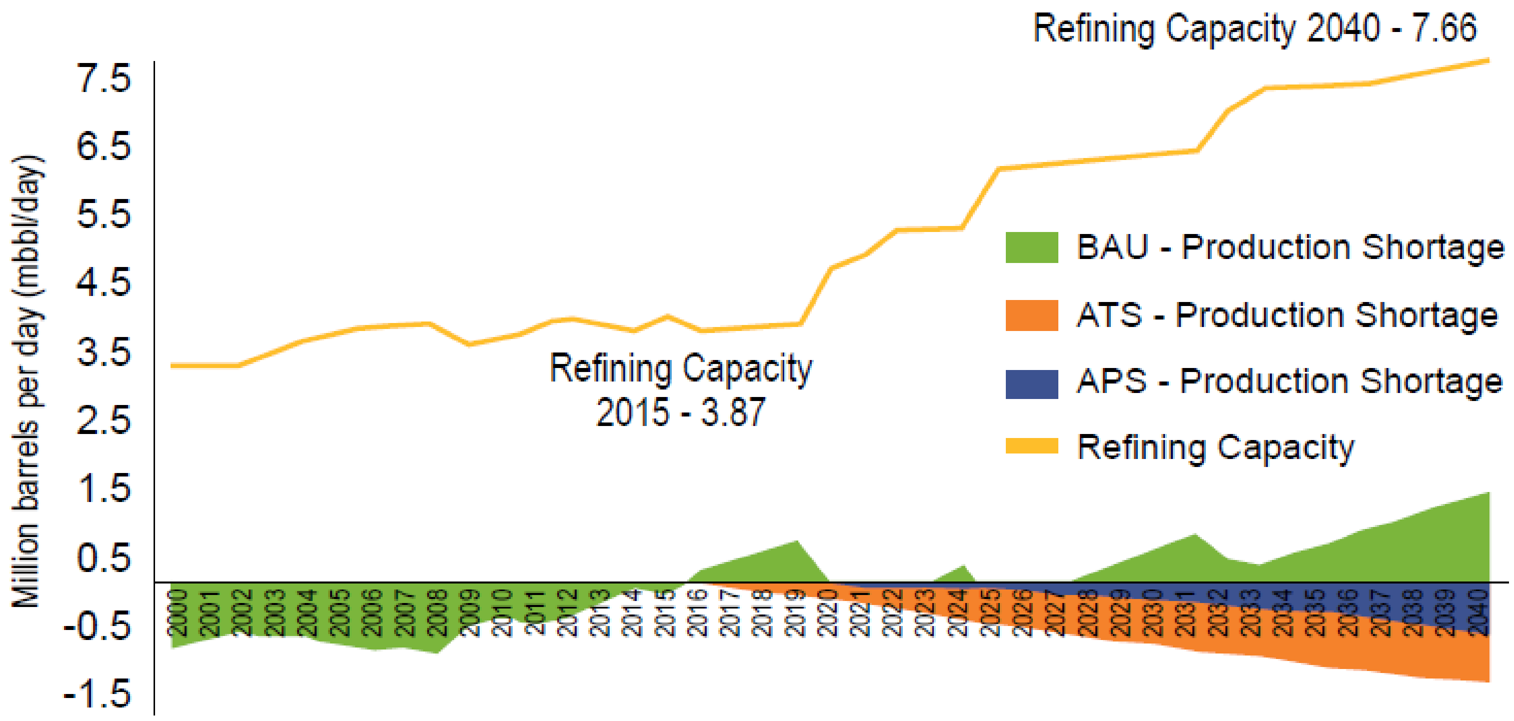
Oil – Production vs. Requirements



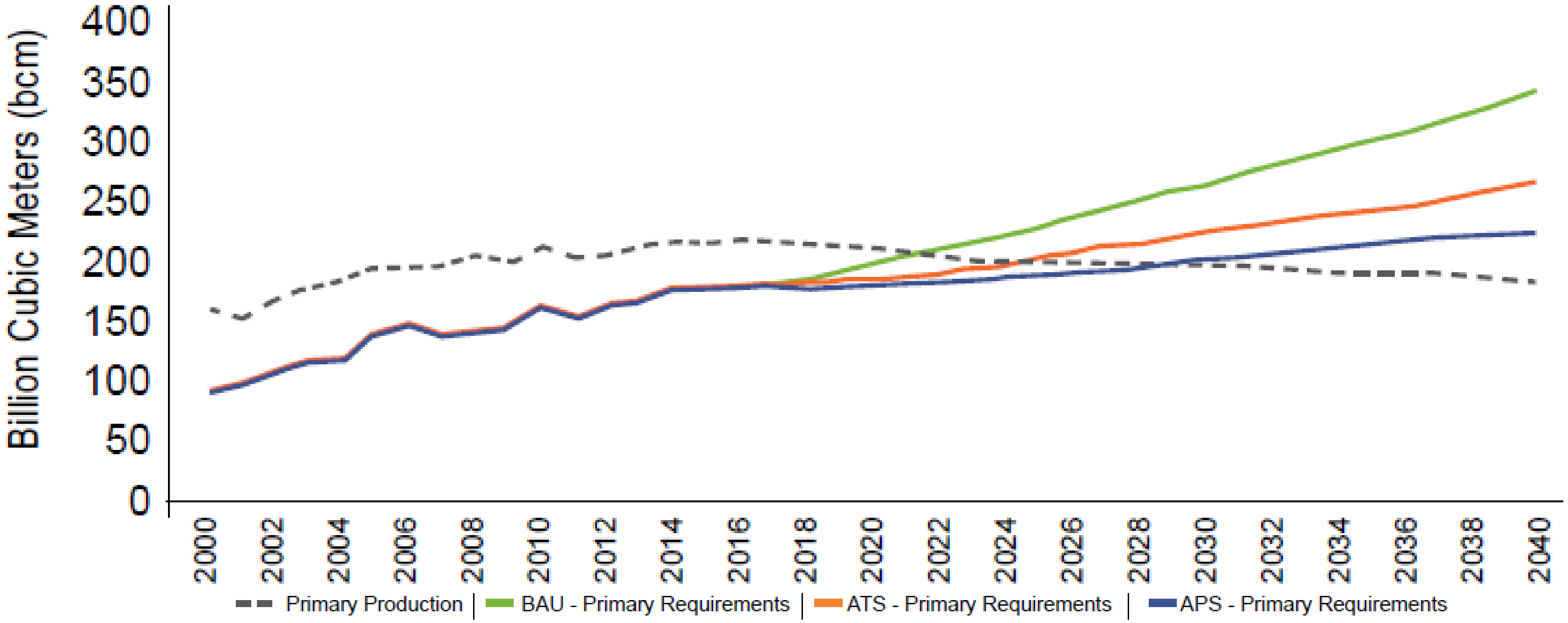
- *While the primary production of will steadily decline, crude oil requirements are expected to rise in all scenarios.*
- *Implementation of EE and RE targets in ATS and APS will reduce oil import dependency.*

Oil – Refining Landscapes



- *In BAU, oil products demand will exceed the refining capacity, indicating the possible need to import oil products.*
- *In ATS and APS, the projected refining capacity will surpass the domestic demand, corresponding to reaching the EE and RE targets.*

Natural Gas – Production vs. Requirements



- *Projected production of natural gas will not meet the projected demand in all scenarios.*
- *ASEAN will be gas net importer by around 2022-2029.*

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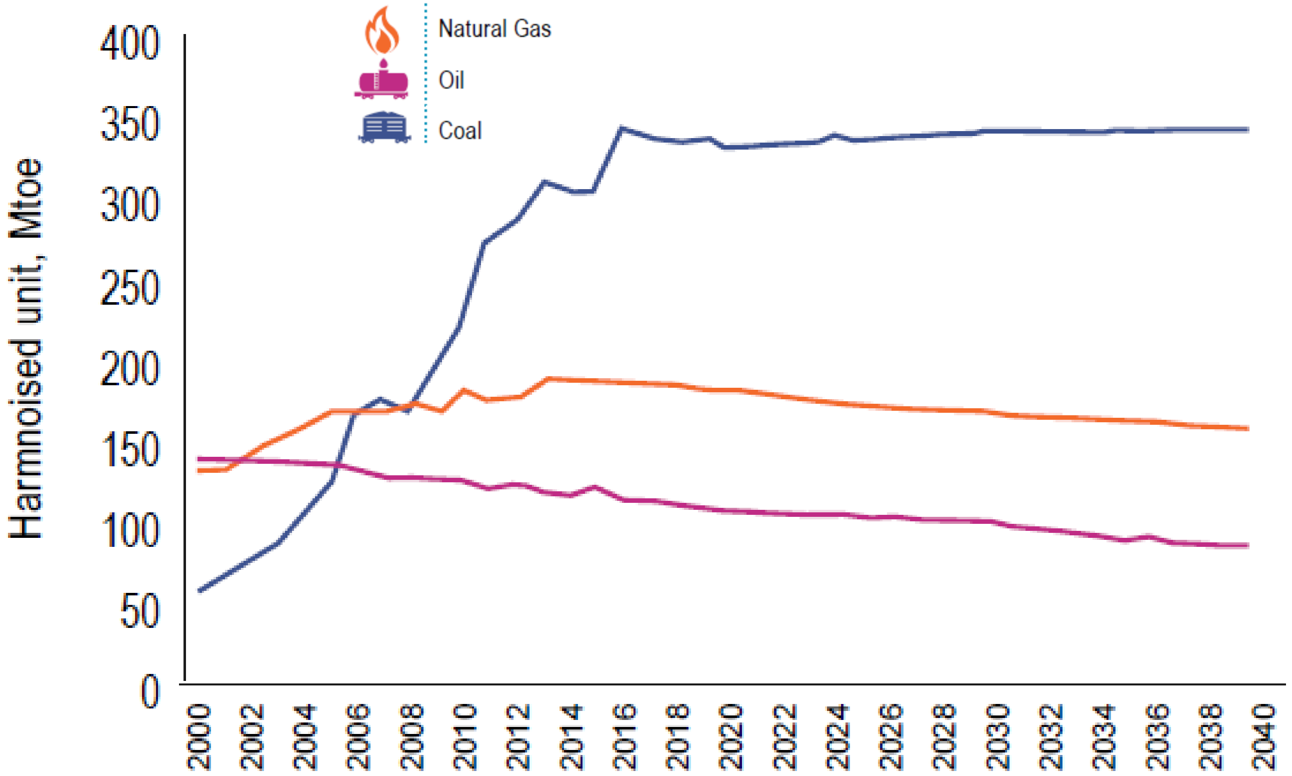
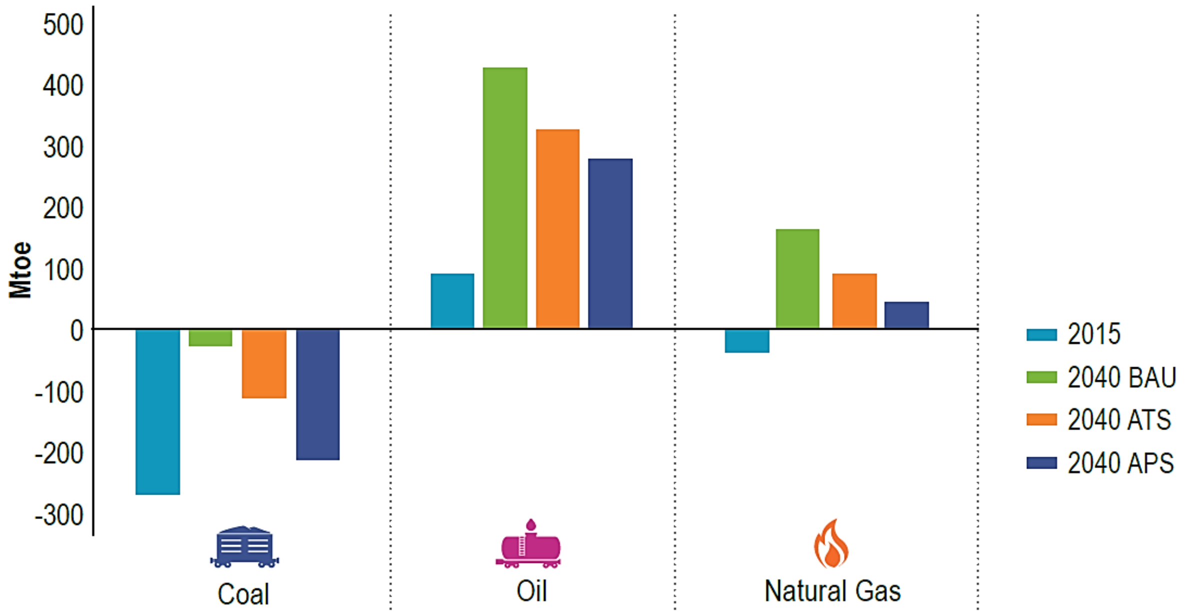
Fossil Fuels Production



- *ASEAN is a major producer of coal, oil and natural gas. For the projection period 2015-2040, the primary production of coal shows a slightly increasing trend, but oil and natural gas show a decreasing trend.*

Security Challenges



- *Region remains a net exporter of coal but rising demand affects capability to export and generate economic value.*
- *Dependency on natural gas import increases; limited pipeline options, ASEAN will rely on LNG.*
- *Significant additional imports of oil will be required, as demand for oil surpasses refining capacity.*

Update on TAGP

<u>Enhancing connectivity via pipeline and LNG regasification:</u>

(i) Approval on expansion of LNG regasification in AMS (e.g. Malaysia, Indonesia, Singapore and Thailand) and possibility of new regasification terminal in the Philippines or Vietnam;

(ii) Three (3) AMS have gained regulatory approval to implement Third Party Access (TPA) or open access systems, namely: Singapore, Thailand and Malaysia;

(iii) ASCOPE is updating the ASEAN Gas Infrastructure Database (pipeline and LNG data).

<u>Enhancing gas and LNG accessibility via pipeline and LNG regasification</u>:

(i) Completion of a model LNG Master Sales and Purchase Agreement (SPA) without destination restrictions;

(ii) Ongoing preparation of an appropriate instrument for ASEAN LNG cooperation based on the principles of long term ASEAN LNG SPA; and,

(iii) Completion of draft Manual Operationalisation of the ASEAN Petroleum Security Agreement (APSA).

APSA Study Phase 1 (2015)

1. Maintain APSA. It expires in March 2023
2. Review APSA in conjunction with the development of APAEC Phase II (2021-2025), as appropriate.

APSA Documents for Adoption

1. Review of the ASEAN Petroleum Security Agreement (APSA)
2. Manual for Operationalisation of APSA
3. Localisation Guideline for operationalization of the APSA

ASEAN+3

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14^{th} AMEM+3 Joint Ministerial Statement

…" affirmed the need to achieve energy security with economic efficiency and environmental sustainability. … "recognised the importance of developing high-quality and resilient energy infrastructure, bearing in mind the lifecycle costs, environmental impacts and safety aspects of projects.

Energy Security

…"noted the progress of cooperation and collaboration in sharing best practices and policy development relating to energy security for the region on oil, coal, natural gas and civilian nuclear energy, amongst others.

ASEAN+3

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Oil Market and Natural Gas Forum and Business Dialogue

… "encouraged the ASEAN+3 countries to deepen and strengthen collaboration particularly in sharing and exchanging of information on policy updates, best practices, experiences, technologies on oil and natural gas exploration and production, human resource development, private sector involvement and challenges and opportunities.

…"emphasised the necessity for continued investment in oil and natural gas development and infrastructure for stable and competitively priced supply in future.

Recognising the important role of natural gas in tackling climate change, enhancing energy security, driving sustainable economic growth in the region, and also growing Asian LNG demand continuously as a centre of the world's LNG market, the Ministers underscored the importance of enhancing regional connectivity through the promotion of transparent flexible and competitive gas markets. The Ministers noted the LNG Destination Flexibility Study by ASCOPE and the Flexible LNG Market Research in Asia by JOGMEC.

ACHIEVING AEC GOALS – The Way Forward

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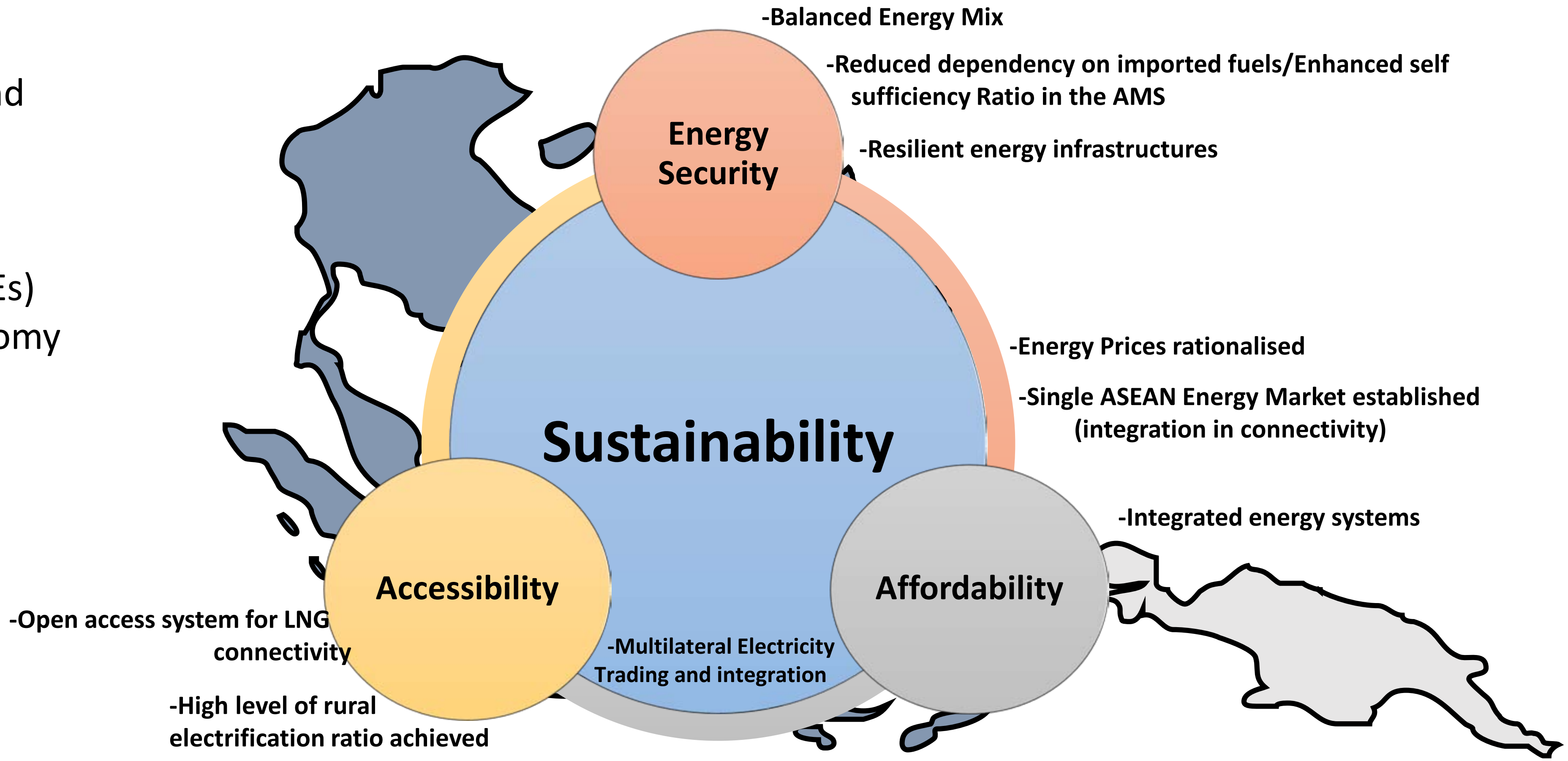
Guiding Theme:

(i) increasing trade and investment

(ii) integrating micro, small and medium enterprises (MSMEs) in the Digital Economy

(iii) developing an innovation-driven economy.



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Thank you

Scenario Philosophy

Projection Period till 2040; Base year 2015.

Business-as-Usual Scenario (BAU): *Given no significant changes to past practices.*

AMS Targets Scenario (ATS): *Assuming officially energy policies and targets at national level are fully attained.*

ASEAN Progressive Scenario (APS): *Assumes a higher ambition level in esp. EE & RE technologies where APAEC targets on EE and RE are fully attained.*

Conclusions

- Energy demand will considerably increase, expecting economic and population growth materialises as targeted.
- Fossil fuels remains the main sources but national and regional efforts slow its growth while more renewable energy are penetrating.
- APAEC Targets:
  - Well on track to reach EI target – stronger efforts could be targeted.
  - Reaching RE component will require stronger efforts than currently foreseen – not only focusing on the power sector, but also in end-use sectors of Transport and Industry.
- If efforts to integrate RE in the power mix is combined with continuous efforts to enhance EE, then the required investments for both will significantly decrease in the long term.

Recommendations

1. Enhance synergies between EE and RE targets.

2. Implement stronger policies in both EE and RE to reach both the EI and RE components of the APAEC 2016-2025 targets.

3. Formulate RE policies beyond the power sector.

4. Improve data availability.

Gaps and Shortcomings of APSA

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Main topic area:	Recommendation overview:	Implications for APSA:	Key initial steps to be taken:
Operational bodies made to function	Bring bodies into actual existence; begin carrying out main functions; have committees meet regularly; etc.	Changes to APSA not necessary.	Activation of full-time, dedicated APSA Secretariat (Sec.); determine funding.
Communication links	Establish elaborated communications protocol, including system and tools necessary for regular information sharing in non-crisis periods.	Changes to APSA not necessary.	Adoption of guidelines; designate contacts in each MS; MS actively communicate w/ Sec.
Short term emergency measures	Each Member State should put in place short-term emergency measures, including emergency oil stocks, and contingency response plans.	Changes to APSA would not be required.	MS review existing measures and plan for developing any needed new measures.
Coordinated emergency response measures	Each Member State clarify the specific emergency measures and adopt specific plans which would allow participation in a coordinated action; Secretariat assess the appropriateness of these measures.	Changes to APSA would not be required.	MS submit to Sec. their review of existing measures and plans for any needed new measures.
Standardization of methodology	Sec. elaborates clear methodology regarding calculations of baseline measures and operating procedures with ASCOPE, ACE and ASec; each Member State adopts standard.	Changes to APSA would not be required.	Sec. activates and refines guidelines, consulting and interacting with other operational bodies

Gaps and Shortcomings of APSA

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Main topic area:	Recommendation overview:	Implications for APSA:	Key initial steps to be taken:
Data and information gathering	The specific data requirements necessary for the established methodology, including definitions of data points and timeframe of regular and emergency data gathering, should be determined.	Changes to APSA not necessarily required, can be based on willingness of MS.	MS systematically provide Sec. existing available data (e.g. JODI); Sec. assess and define additional needs; MS commit to reporting.
Inclusion of natural gas	Oil emergency response policies and procedures should be treated separately from natural gas.	Would require modifying definition of petroleum in Article 2.9 to remove natural gas.	All MS agree to change definition in art. 2.9; Sec. develops more elaborated procedures for gas, in consultation with Management Committee (MC).
Designation of Secretariat	Change designation of Secretariat under APSA, from ASCOPE Secretariat to more appropriate, dedicated and permanent body.	Would require amending Article 5.2.	All MS agree to change definition in art. 5.2; agree on alternative body and means for funding this new Sec.
Flexibility to respond to a crisis	Develop a more flexible framework for activating emergency measures than the prescribed trigger under APSA.	Would require amending or fully re-writing CERM under APSA.	Sec. drafts revised agreement with MC consultation; submit to GB for approval.
Voluntary based assistance	A specific commitment by all Member States to establish short term emergency measures would significantly strengthen APSA.	Substantive change to APSA would be required.	Sec. drafts revised agreement with MC consultation; submit to GB for approval.