



**ASEAN Centre for Energy**  
One Community for Sustainable Energy

# ASEAN Energy Transition Framework 2026-2030: Focus on Biofuels

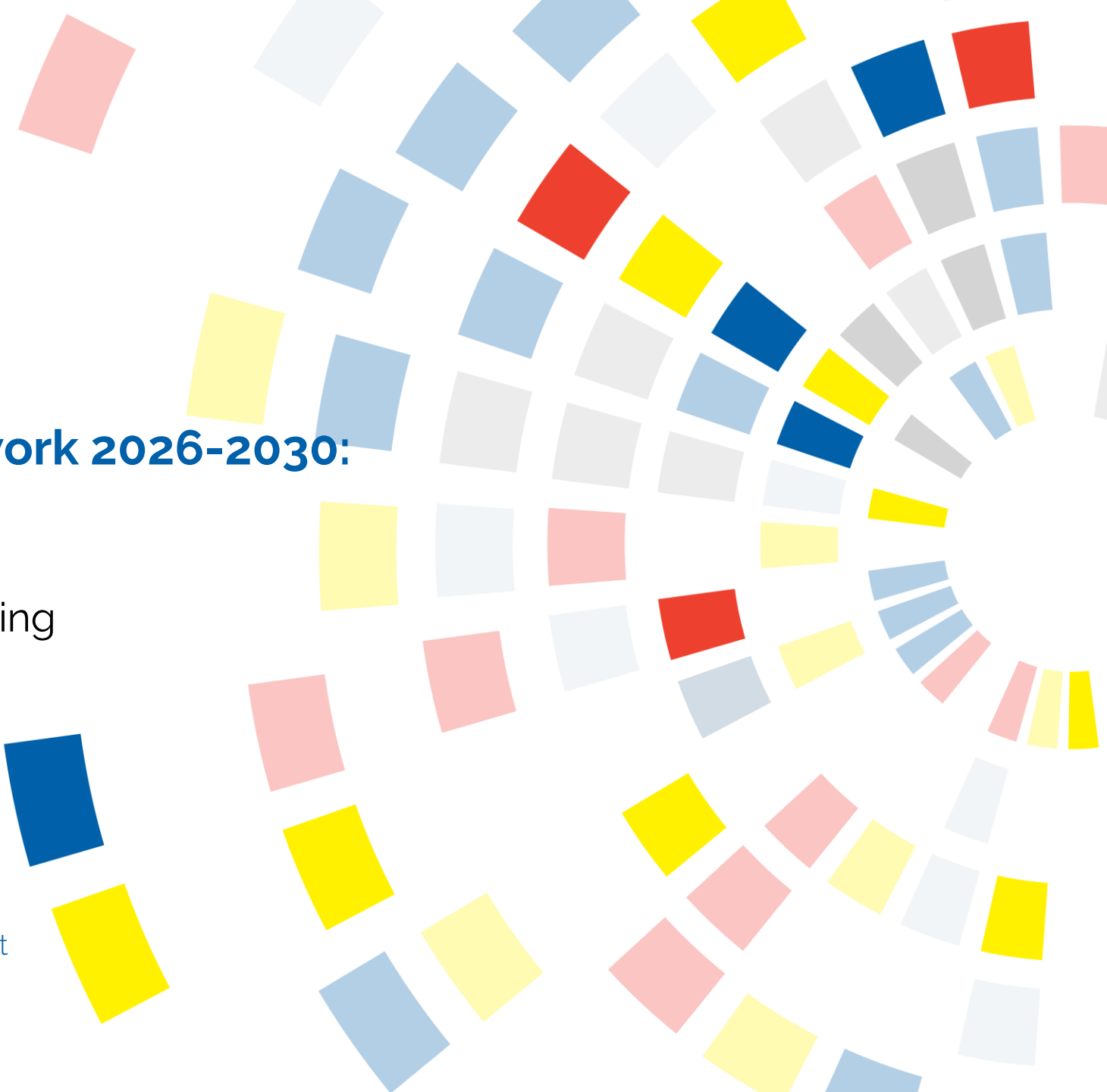
APEC EGEEC 66 & EGNRET 64 Joint Meeting

Presentation by:

Dr. Tharinya Supasa

Head of Sustainable and Renewable Energy Department

ASEAN Centre for Energy (ACE)



ASEAN launched the ASEAN Renewable Energy Roadmap serves as a strategic blueprint, reflecting and aligning the ASEAN economic outlook with the energy transition and climate mitigation strategies. It also provides a conceptual framework for shaping activities throughout this APAEC cycle.

1

Vision Alignment

ASEAN Community Vision 2045

ASEAN RE Long-Term Roadmap 2045

A strategic pathways outlining how ASEAN will transition its energy system to promote economic growth and enhance human welfare

2

Turn “*Vision*” to “*Action*”

Short

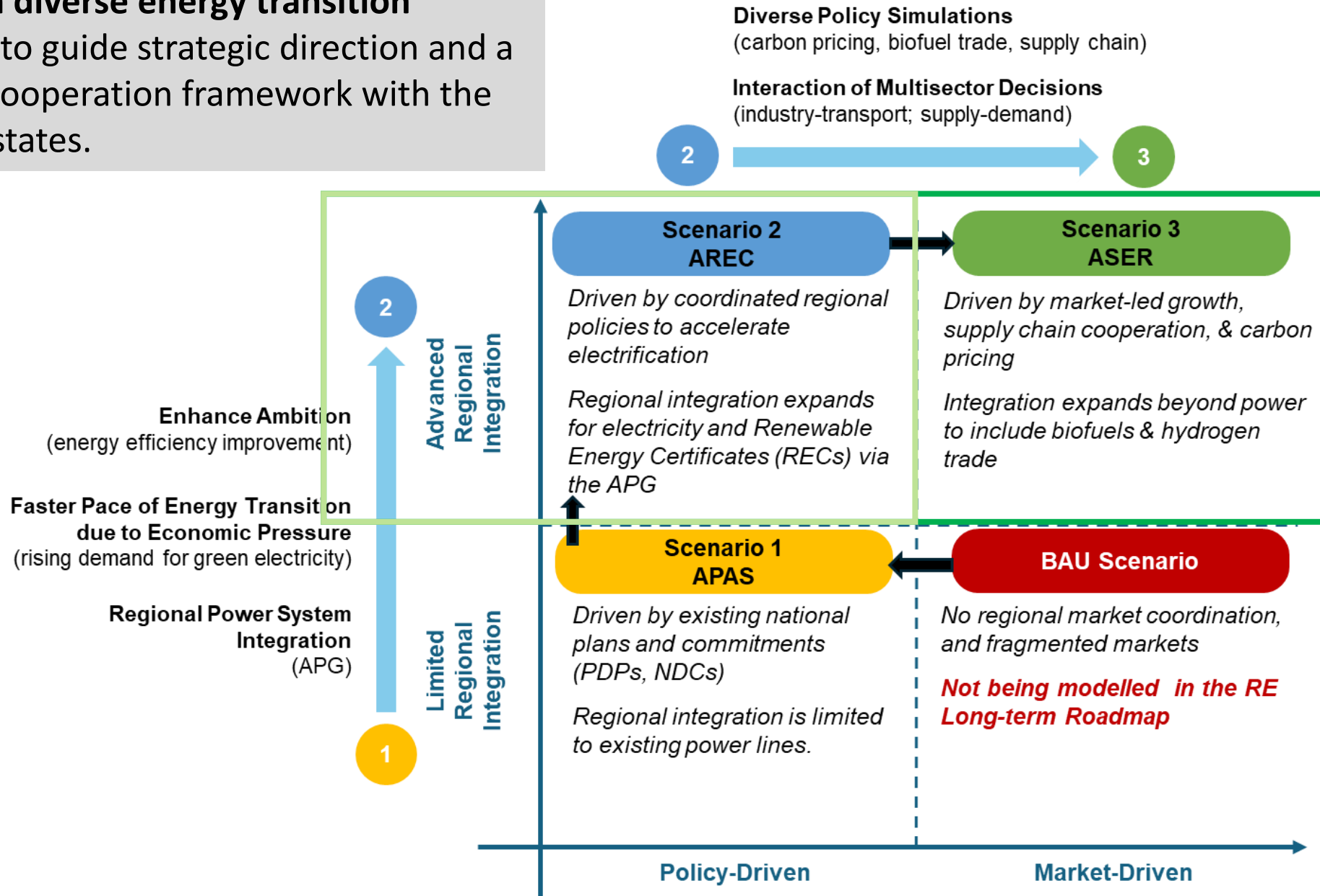
Medium

Long

APAEC 2026 - 2030



The roadmap **simulates multiple policy choices in diverse energy transition corridors** to guide strategic direction and a regional cooperation framework with the member states.





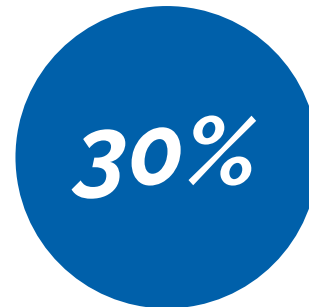
With a long-term vision ...

***ASEAN Energy Future 2045: Secure, resilient,  
and interconnected low-carbon energy future***

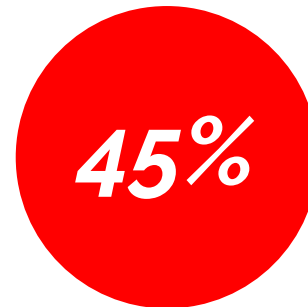
... and the theme of the APAEC 2026-2030 ...

***Advancing regional cooperation in ensuring  
energy security and accelerating decarbonisation  
for a just and inclusive energy transition***

... ASEAN is committed: by 2030 to achieve ...



***Share of RE in TPES***

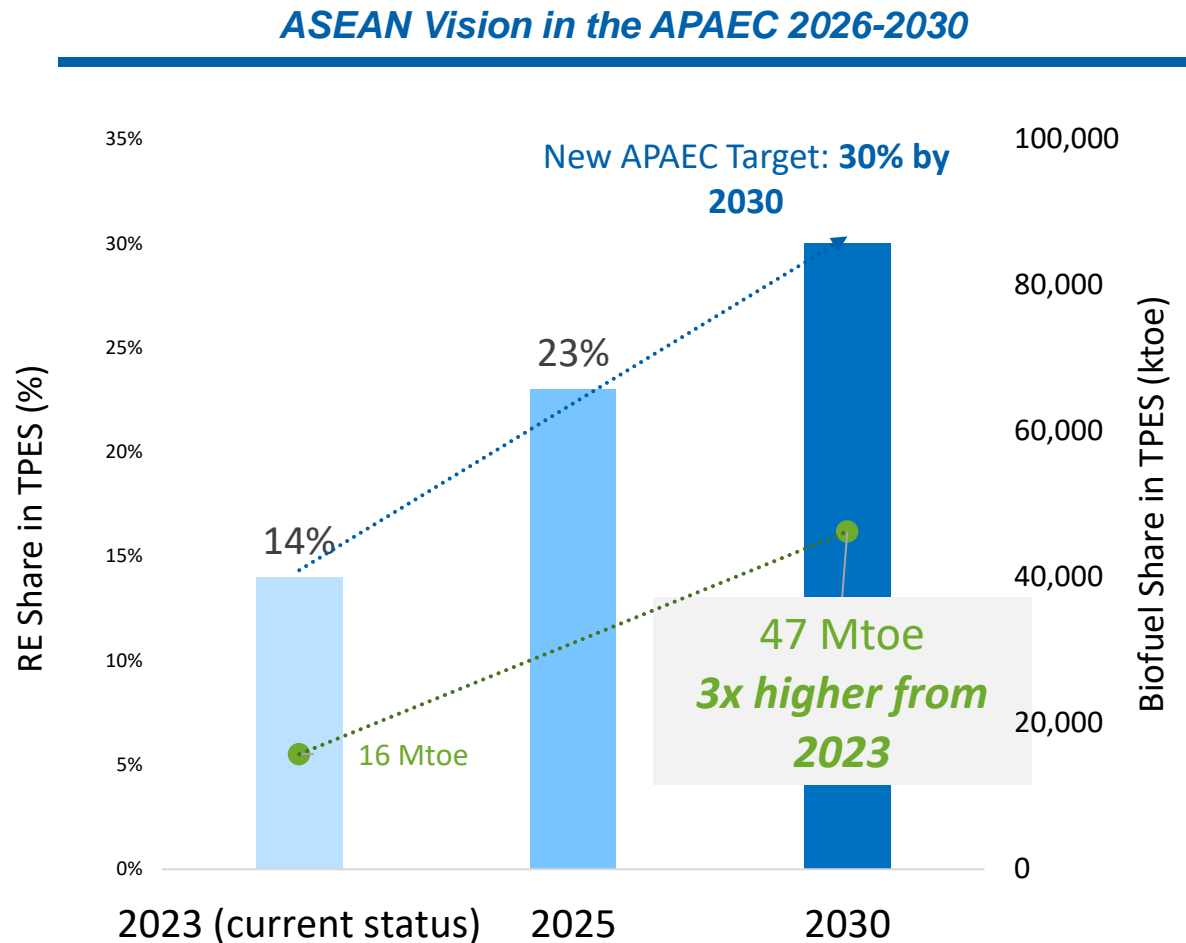


***Share of RE in  
installed capacity***



***EI reduction  
from the 2005 baseline***

Progressing towards the 2030 renewable energy vision will necessitate a **threefold increase in the use of biofuels by 2030**. This requirement also applies to biomass, hydrogen (H<sub>2</sub>), and low-carbon fuels.



It shows the need for a **rapid scale-up in transport** to close the gap.

Several **barriers** to bioenergy utilisation, for example

- Policy and regulatory uncertainty
- Cost
- Technical challenges (technologies, supply chain)
- Environmental and social concerns
- Net carbon impacts

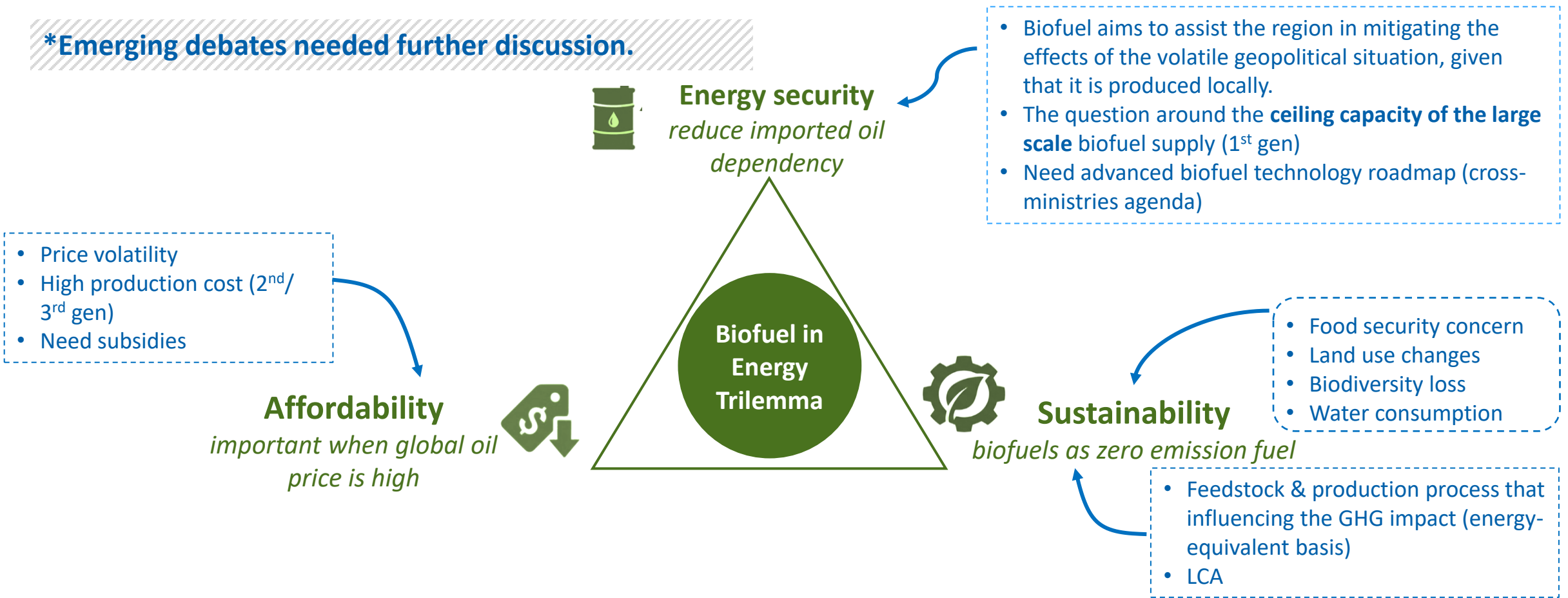
**hinder its adoption.**

**Industry and transportation** still have limited decarbonisation and energy transition interventions available to reduce energy demand.

# Biofuels in ASEAN Energy Transition

Biofuels are essential for **lowering oil imports and reducing price spikes amid global oil market volatility**. But the **emerging global debate** surrounding biofuels highlights the need for a robust and competitive strategy to secure long-term benefits.

**\*Emerging debates needed further discussion.**



# Why ASEAN Biofuel Strategy Must Integrate Sustainability for Long-term Value

Energy Security is Today's Focus for Biofuel Use

However, **it's not sufficient for long-term** because:

- Blending mandates reduce oil import dependency
- Support local agriculture and income
- Focuses on domestic feedstock utilisation

	<p><b>Carbon Credibility</b> Biofuel must deliver <b>real</b> emission reduction</p>
	<p><b>Market Access &amp; Competitiveness</b> Global trade requires sustainability certification</p>
	<p><b>Resource Constraints</b></p> <ul style="list-style-type: none"> <li>• (1st gen) Feedstock limitation, supply chain, seasonality</li> <li>• Feedstock and land limits require sustainable, long-term, integrated plan and management</li> </ul>
	<p><b>Future Demand and Investment</b> Aviation, shipping, and investors require low-carbon fuel</p>

*Energy security ensures supply today, but **sustainability** ensures competitiveness in **the long-term***

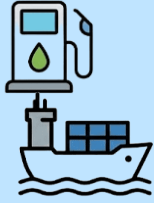
**Present**



**Future**

## ASEAN Energy Development Goals

1



To **increase biofuel** supply and consumption, including fostering **intra-region bioenergy trade**

2



To support policymakers across various ministries in enhancing biofuel utilisation and **aligning carbon market policies**

### The **challenges** hindering biofuel development in ASEAN countries.



#### Environmental & Social Concerns

- **Food security**  
sensitive issue of food-based feedstock to energy and balancing policy
- **Land use changes**
- **Biodiversity loss**
- **Water consumption**



#### Cost & Production Technology

- **No clear technology development pathway**
- **Biofuel Technology readiness and its implication on costs**  
e.g. converting agricultural waste/any waste to Biofuel
- **High Costs**



#### Regulatory & Policy Limitation

- **Unclear policy direction**
- **Uncertain transport decarbonisation strategy**
- **Data, traceability, and sustainability certification**
- **Regulation on import and export, and trade**



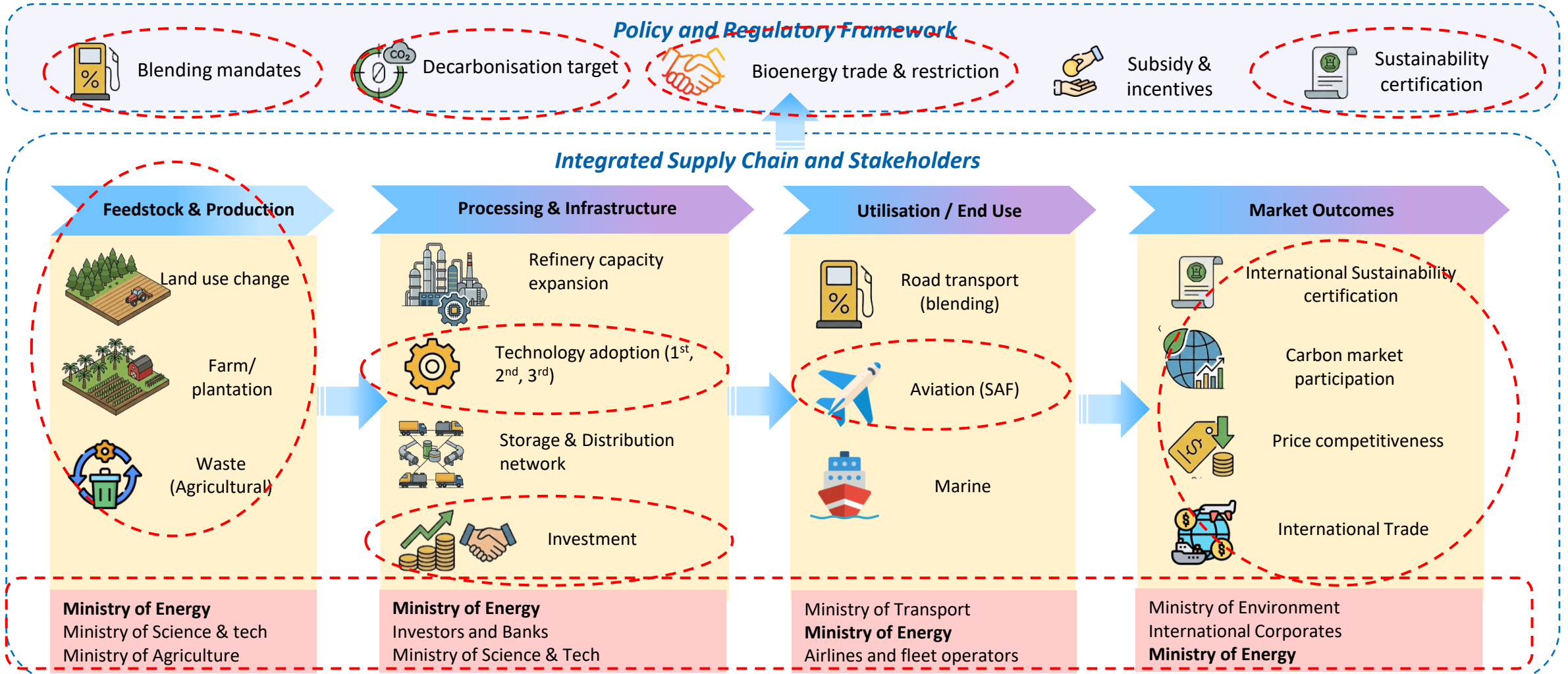
#### Cross-sectoral Ministries

- **Biofuel is cross-sectoral** with social, agricultural, and environmental
- **Need fair & equitable** biofuel development plan
- Biofuel shift towards **circular economy** (e.g., waste-to-energy)



**The biofuel development framework for 2026–2030  
under the ASEAN platform**

During 2026 - 2030, ASEAN will collaboratively work to specific topics but also integrate the fragmented discussions and clarify ambiguities, striving for a more concrete and structured biofuel strategy.

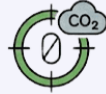


**By 2030,** ASEAN will collaboratively work to specific topics but also integrate the fragmented discussions and clarify ambiguities, striving for a more concrete and structured biofuel strategy.

**Policy and Regulatory Framework**



Blending mandates



Decarbonisation target



Bioenergy trade & restriction



Subsidy & incentives



Sustainability certification

**Integrated Supply Chain and Stakeholders**

**Feedstock & Production**



Land use change



Farm/  
plantation



Waste  
(Agricultural)

**Ministry of Energy**  
Ministry of Science & tech  
Ministry of Agriculture

**Processing & Infrastructure**



Refinery capacity  
expansion



Technology adoption (1<sup>st</sup>,  
2<sup>nd</sup>, 3<sup>rd</sup>)



Storage & Distribution  
network



Investment

**Ministry of Energy**  
Investors and Banks  
Ministry of Science & Tech

**Utilisation / End Use**



Road transport  
(blending)



Aviation (SAF)



Marine

Ministry of Transport  
**Ministry of Energy**  
Airlines and fleet operators

**Market Outcomes**



International Sustainability  
certification



Carbon market  
participation



Price competitiveness



International Trade

Ministry of Environment  
International Corporates  
**Ministry of Energy**

# Thank you.

[sre@aseanenergy.org](mailto:sre@aseanenergy.org)

