

Are ASEAN countries' NDCs ambitious enough? Assessing emission trajectories against GST 1 mitigation gaps

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Summary

The Association of Southeast Asian Nations (ASEAN) has become one of the most important regions in the global climate debate because it combines rapid economic growth, rising energy demand, and high climate vulnerability. This regional context has become more urgent after the outcome of the first Global Stocktake (GST 1) adopted at CMA.5 in 2023. The GST 1 recognised that, GHG emissions need to decline by 43% by 2030 and 60% by 2035 relative to 2019 levels, while global emissions are expected to peak between 2020 and at the latest before 2025 (UNFCCC, 2023). For ASEAN countries, this creates a critical analytical and policy question: are current NDC targets and projected emissions trajectories consistent with the mitigation direction signaled by the GST 1? The objective of this paper is to analyze whether ASEAN countries' projected emissions in 2030 and 2035, economy-wide or sectoral, move in the direction implied by the GST 1. To this end, the analysis draws on ASEAN NDC emission dataset alongside GST 1 benchmarks to assess the ambition of ASEAN countries' NDCs. The analysis reveals that current NDC trajectories across the ASEAN region predominantly illustrate an upward emissions trend through 2030. This increase is driven heavily by the energy sector and fluctuating carbon sinks in the FOLU sector. The collective ambition of ASEAN countries' NDCs reveals an ambition gap and falls critically short of the global 1.5°C mitigation pathways signaled by the GST 1 outcome. Most countries in the ASEAN region have “No alignment” with the emissions reduction of 43% by 2030 and 60% by 2035, relative to 2019 levels. For the emission peaking of the GST 1 outcome, under unconditional targets a few countries (Indonesia, Singapore, and Thailand) are assessed as “Weak alignment”, with emissions peaking projected between 2030 and 2035.

1 Introduction

The Association of Southeast Asian Nations (ASEAN) has become one of the most important regions in the global climate debate because it combines rapid economic growth, rising energy demand, high climate vulnerability and increasing pressure to strengthen mitigation ambition. The Sixth ASEAN State of the Environment Report shows that ASEAN faces intensifying environmental pressures linked to climate change, air pollution, land-use change and unsustainable development patterns (ASEAN, 2021a). The report emphasises that the region needs a whole-of-community response and stronger environmental management across sectors such as energy, transport, agriculture, forestry, and investment to achieve a more climate resilient development pathway. The ASEAN State of Climate Change Report, in 2021, estimated that regional collective greenhouse gas (GHG) emissions would rise until 2030 on the basis of the Intended Nationally Determined Contributions (INDC) and the first NDCs, pointing to the necessity of further GHG emission reductions for a long-term net-zero transition (ASEAN, 2021b).

This regional context has become more urgent after the outcome of the first Global Stocktake (GST 1) adopted at CMA.5 in 2023. The GST 1 concluded that Parties are not collectively on track to achieve the Paris Agreement (PA) temperature goal and it further recognised that, in pathways consistent with limiting warming to 1.5°C with no or limited overshoot, GHG emissions need to decline by 43 percent by 2030 and 60 percent by 2035 relative to 2019 levels, while global emissions are expected to peak between 2020 and at the latest before 2025 (UNFCCC, 2024). The GST 1 also noted that full implementation of current NDCs would only reduce global emissions modestly by 2030, revealing the need for significantly greater emission reductions to align with global GHG emission trajectories in line with the long-term goal of the PA.

For ASEAN countries, this creates a critical analytical and policy question: are current NDC targets and projected emissions trajectories consistent with the mitigation direction signaled by the GST 1? This question is important because many ASEAN countries' NDCs have different mitigation target types, including reductions relative to business-as-usual (BAU), intensity-based targets, conditional and unconditional targets, and sector-specific commitments. A regional assessment therefore requires converting stated targets into comparable emissions outcomes and examining whether projected 2030 and 2035 emissions of ASEAN countries, economy-wide or sectoral, indicate a credible shift toward peaking and decline.

Building against urgency and difficulty, this paper proposes an ASEAN-wide mitigation assessment focused on emissions outcomes rather than only textual commitments. The objective of this paper is to analyze whether ASEAN countries' projected emissions in 2030 and 2035, economy-wide or sectoral, move in the direction implied by the GST 1. To this end, the analysis draws on ASEAN NDC emission dataset alongside GST 1 benchmarks to assess the ambition of ASEAN countries' NDCs on the following two points:

- First, whether they are meaningful reductions from stated mitigation references in the GST 1 outcome, including emission reduction percentage;
- Second, whether they are consistent with reaching the emissions peaking timeline signaled in the GST 1 outcome.

2 GST 1 outcome as benchmarks for assessing ambition

This study assesses ASEAN countries' NDC ambition using a benchmark framework derived from the mitigation references of the GST 1 outcome. The purpose of this framework is not to impose a uniform burden-sharing rule on ASEAN Member States (AMS), but to establish a transparent set of criteria for judging whether current NDC trajectories move in a direction consistent with the PA 1.5°C goal as reflected in the GST 1 outcome. In this sense, GST 1 outcome is used as a policy and analytical benchmark for evaluating ambition and pathway direction. The benchmarks used in this study are

mitigation benchmarks and emissions peaking benchmarks.

2.1 Mitigation benchmarks

The first benchmark assesses the scale of emissions reductions implied by ASEAN countries' NDCs. The GST 1 expresses the indicative 1.5°C mitigation pathway relative to 2019 emissions, and so this study uses 2019 as the main comparison year. The benchmark values are therefore defined as in Table 1.

Table 1. Mitigation benchmarks

Year	GST 1 mitigation benchmark	Interpretation for this study
By 2030	43% reduction from 2019	Alignment with near-term mitigation ambition
By 2035	60% reduction from 2019	Alignment with medium-term mitigation ambition

2.2 Emissions peaking benchmarks

The second benchmark assesses the direction of emissions pathway, or the timing of their peaking. The GST 1 indicates that, in global pathways consistent with limiting warming to 1.5°C with no or limited overshoot, GHG emissions peak between 2020 and at the latest before 2025. Since this is a global benchmark rather than a country-specific requirement, this study adapts the peaking signal to the 2030 - 2035 timeframe, suitable for national assessment in the ASEAN region comparing with the base year 2019. The study uses the following interpretation shown in Table 2.

Table 2. Emissions peaking benchmarks

GST 1 emissions peaking benchmark	Interpretation for this study
Peak before 2030	Moderate alignment
Peak after 2030 and before 2035	Weak alignment
No clear peak around 2030 and/or 2035	No alignment

3 Analysis method

This paper uses a comparative regional assessment of ASEAN countries' NDC emissions ambition. This approach combines quantitative emissions analysis with the above policy benchmark assessment based on the GST 1 outcome. The quantitative part estimates NDC emissions in 2019, 2030 and 2035 including unconditional or conditional targets and all sectors from the ASEAN database. The GST 1 benchmark part interprets those outcomes against the GST 1's mitigation direction, especially the call for stronger NDCs, deep reductions by 2030 and 2035, and transition toward peaking and decline. Many ASEAN countries show similar emission trends in their unconditional and conditional NDCs, which have the similar alignment with GST 1 benchmarks on both mitigation and emission peaking. For simplicity, the alignment to GST 1 benchmarks is mainly assessed using unconditional NDCs, except where a country's conditional NDC yields a significantly different result.

3.1. Data source

The analysis uses three main sources, which were mainly extracted from government official data and reports submitted to the UNFCCC. First, the IGES ASEAN NDC database in an Excel format developed for the ASEAN Climate Change Strategic Action Plan (ACCSAP) project, which provides country-level baselines and emission targets for 2030 and 2035 (Murun, 2026). Second, the first Biennial Transparency Reports (BTRs) including GHG inventories, and NDCs 3.0 of AMS (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Philippines, Singapore and Thailand) from UNFCCC websites which estimate total and sectoral emissions in 2019, 2030 and 2035 (UNFCCC, 2026a and 2026b). For countries that have not shown sectoral emissions for 2030 and/or 2035, the

newest available sectoral data after 2019 were used to prorate their total emissions into sectoral. The 2030 emissions of Lao PDR were estimated on the basis of historical population growth, while emissions from Malaysia considered historical GDP growth. The third, the GST 1 outcome document, especially the mitigation section that states the global benchmarks (UNFCCC, 2024). Lastly, if there were no first BTRs or GHG inventory reports from governments (e.g. Myanmar and Viet Nam) for the Forestry and Other Land Use (FOLU) sector, then Food and Agriculture Organization (FAO) data (“Land Use Change”: Code 3050) have been used (FAO, 2026).

3.2.ASEAN emission dataset

AMS’s NDCs vary significantly in target design, reference year, sector coverage and use of conditionality. Some countries provide clearer economy-wide emissions pathways, while others rely on BAU- or sector-based targets. The dataset compiled for this study converts these differences into comparable emissions estimates for 2019, 2030 and 2035. Table 3 shows the diversity of ASEAN countries’ NDCs targets and mitigation types (UNFCCC, 2026b; Murun 2026). Some countries such as Lao PDR, Myanmar, the Philippines, and Viet Nam have not yet submitted their NDC 3.0. Indonesia in its NDC 3.0 did not state conditional and unconditional targets; therefore, we assumed the lower emission is as a conditional target and the higher emission represents an unconditional target.

Table 3. ASEAN countries’ NDC data

Country	Target year	Mitigation Type	Mitigation Target	Base Year
Brunei Darussalam	2030	Baseline scenario emission reduction	20% (unconditional)	BAU (reference year 2015)
	2035	Baseline scenario emission reduction	20% (conditional)	BAU (reference year 2015)
Cambodia	2030	Baseline scenario emission reduction	41.70% (unconditional)	BAU (reference year 2016)
	2035	Baseline scenario emission reduction	16% (unconditional) 55% (conditional)	BAU (reference year 2020)
Indonesia	2030	Baseline scenario emission reduction	31.89% (unconditional) 43.20% (conditional)	BAU (reference year 2010)
	2035	Absolute emission reduction	1488 MtCO ₂ eq. 1257 MtCO ₂ eq.	2019
Lao PDR	2030	Baseline scenario emission reduction	60% (unconditional)	BAU (reference year 2000)
Malaysia	2030	Carbon intensity reduction	45% (unconditional)	2005
	2035	Absolute emission reduction	20 MtCO ₂ eq. (unconditional) 30 MtCO ₂ eq. (conditional)	Not Applicable (N/A)
Myanmar	2030	Absolute emission reduction	244.5 MtCO ₂ eq. (unconditional) 414.7 MtCO ₂ eq. (conditional)	N/A
Philippines	2030	Baseline scenario emission reduction	2.71% (unconditional) 72.29% (conditional)	BAU
Singapore	2030	Peak emission reduction	60 MtCO ₂ eq. (unconditional)	N/A
	2035	Absolute emission reduction	40-50 MtCO ₂ eq.(unconditional)	N/A
Thailand	2030	Baseline scenario emission reduction	30% (unconditional) 40% (conditional)	BAU (reference year 2005)
	2035	Absolute emission reduction	47% (unconditional)	2019
Viet Nam	2030	Baseline scenario emission reduction	15.8% (unconditional) 43.5% (conditional)	BAU (reference year 2014)

4. Analysis result

Across the AMS, projected total emissions for 2030 largely illustrate an upward trend. Based on unconditional targets, the majority of countries including Brunei Darussalam, Indonesia, Lao PDR, Malaysia, the Philippines, Singapore, Thailand and Viet Nam will have higher overall emissions in 2030 compared to 2019 (Table 4). While conditional NDC targets in 2030 result in lower emissions totals than their unconditional targets, only a few countries such as Myanmar and the Philippines foresee total emissions dropping significantly under conditional commitments (Annex Table A1 and Figure 1). This implies these countries will heavily depend on international support to reduce their emissions. The projected 2030 emissions for Lao PDR, Malaysia and Thailand do not show massive differences between their conditional and unconditional NDC targets (Figure 1).

Table 4. Total and sectoral GHG emissions in 2019 and projected emissions in 2030 and 2035 unconditional NDC targets

		Energy	IPPU	Agriculture	FOLU	Waste	Total
		MtCO ₂ e	MtCO ₂ e	MtCO ₂ e	MtCO ₂ e	MtCO ₂ e	MtCO ₂ e
Brunei Darussalam	2019	9.77	0.36	0.03	-3.80	0.19	6.51
	2030	27.28	0.26	0.07	-4.46	0.43	23.60
	2035						
Cambodia	2019	14.13	2.34	37.77	76.30	2.32	132.86
	2030	20.70	8.00	20.90	38.20	2.70	90.50
	2035	36.50	7.60	42.40	19.00	6.50	112.10
Indonesia	2019	655.56	63.72	79.99	221.38	124.36	1145.04
	2030	1020.62	55.83	203.36	562.80	194.37	2037.00
	2035	851.92	82.81	103.95	287.69	161.60	1488.00
Lao PDR	2019	17.60	2.00	10.40	-123.64	0.60	-93.04
	2030	62.75	15.12	30.32	-60.29	4.19	52.09
	2035						
Malaysia	2019	261.39	32.54	7.80	-209.29	25.62	118.07
	2030	553.82	78.97	15.59	-212.28	50.47	486.58
	2035	537.97	76.71	15.14	-212.28	49.03	466.58
Myanmar	2019	22.80	3.27	28.80	111.00	5.97	171.84
	2030	58.51	No data	-1.89	25.66	No data	82.28
	2035						
Philippines	2019	139.00	19.10	51.20	27.86	25.90	263.06
	2030	196.40	25.47	82.15	39.36	45.75	389.16
	2035						
Singapore	2019	49.69	6.57	0.01	0.01	0.30	56.58
	2030	54.44	10.08	0.01	0.04	0.42	65.00
	2035	37.69	6.98	0.06	0.03	0.29	45.00
Thailand	2019	262.08	37.96	60.48	-91.98	18.69	287.23

	2030	363.66	57.95	98.57	-107.90	31.71	444.00
	2035	171.25	27.29	46.42	-107.90	14.93	152.00
Viet Nam	2019	298.00	73.30	75.90	1.90	20.80	469.90
	2030	518.31	72.46	68.43	93.59	91.58	844.38
	2035						

Note: The grey shaded cells mean that the country does not have an emission target for the year.

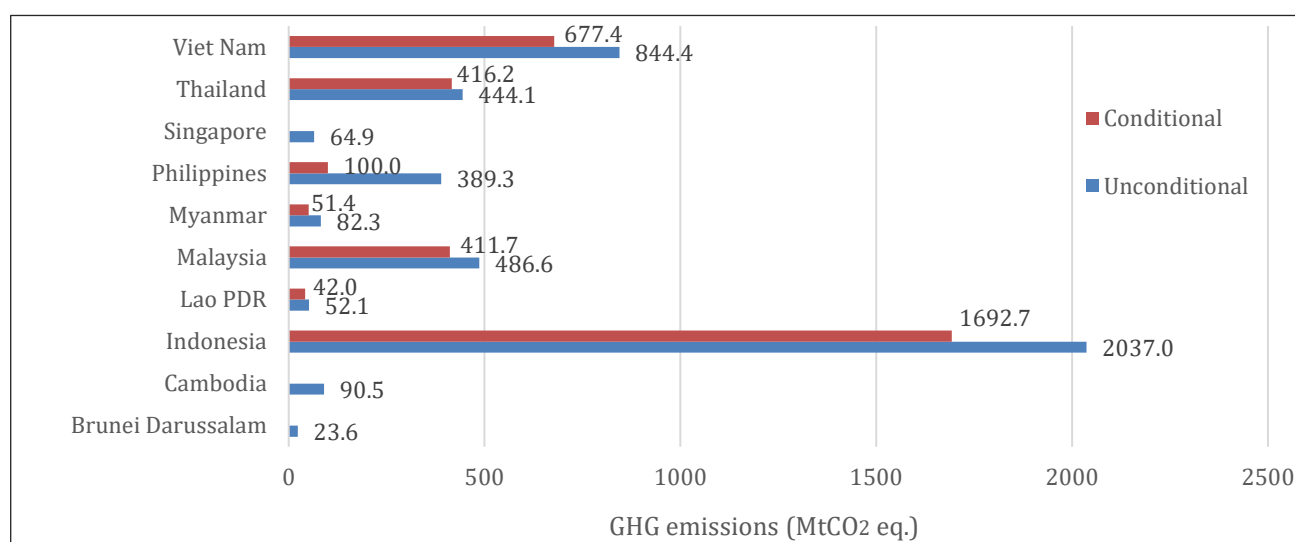


Figure 1. Total emissions in 2030 under conditional and unconditional targets

The increase in emissions in the ASEAN region by 2030 is predominantly driven by the energy sector (Table 4). For instance, unconditional targets indicate that Indonesia's energy emissions will surge from 655.56 MtCO₂e in 2019 to 1020.62 MtCO₂e by 2030, and emissions in Viet Nam will increase from 298.00 MtCO₂e to 518.31 MtCO₂e. The FOLU sector also heavily dictates an increase in emissions; Lao PDR's significant carbon sink is expected to shrink by more than half by 2030 (from -123.64 MtCO₂e to -60.29 MtCO₂e), while Indonesia anticipates its FOLU sector emissions will more than double to 562.80 MtCO₂e under its unconditional target in 2030. Under both unconditional and conditional NDC targets for 2030, the energy sector accounts for the highest emissions across all ASEAN countries, with agriculture as the second-highest emitting sector (Figure 2). The FOLU sector acts as a carbon sink in Lao PDR, Malaysia, and Thailand; however, it generates significant emissions, particularly in Indonesia.

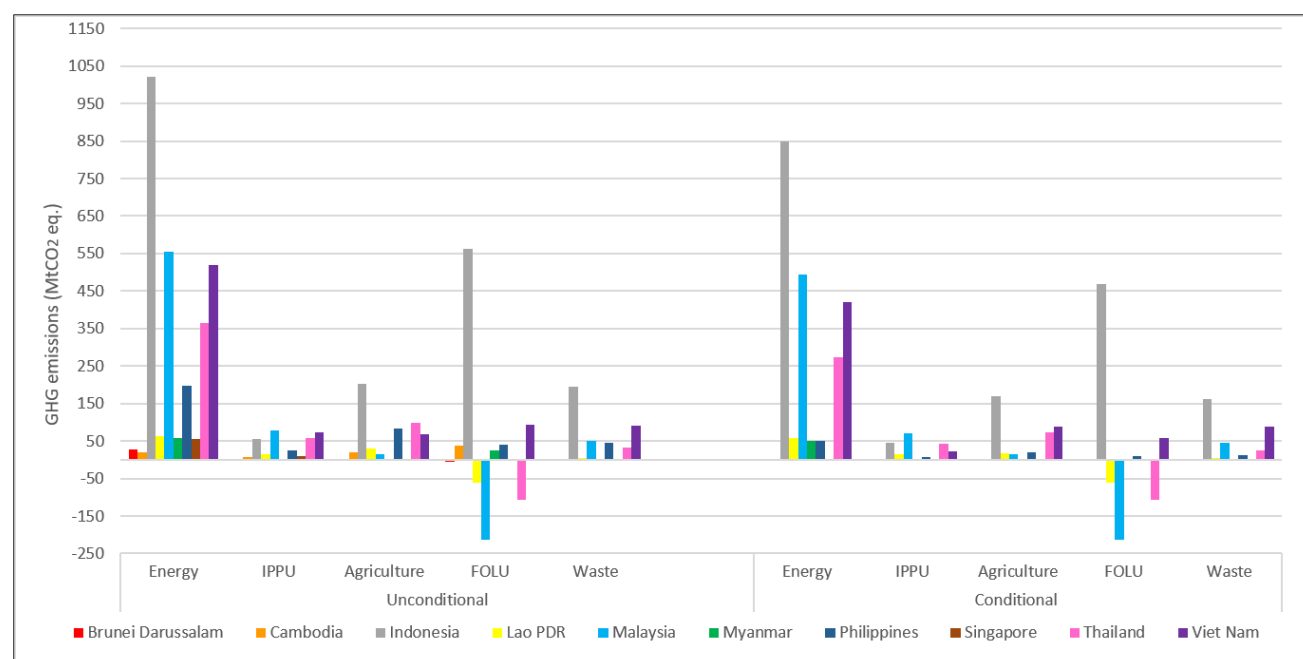


Figure 2. Sectoral emissions in 2030 conditional and unconditional targets

Only six countries (Brunei Darussalam, Cambodia, Indonesia, Malaysia, Singapore, and Thailand) that have submitted their NDC 3.0 with emission reduction targets by 2035 are compared with their previous NDC 2030 targets (Figure 3). Countries without emissions data shown in Figure 3 have not submitted either conditional or unconditional NDC targets. Thailand aims to significantly reduce its emission from 2030 and 2035 under its unconditional NDC; while Malaysia does not appear to show a drastic reduction in either its conditional or unconditional NDC.

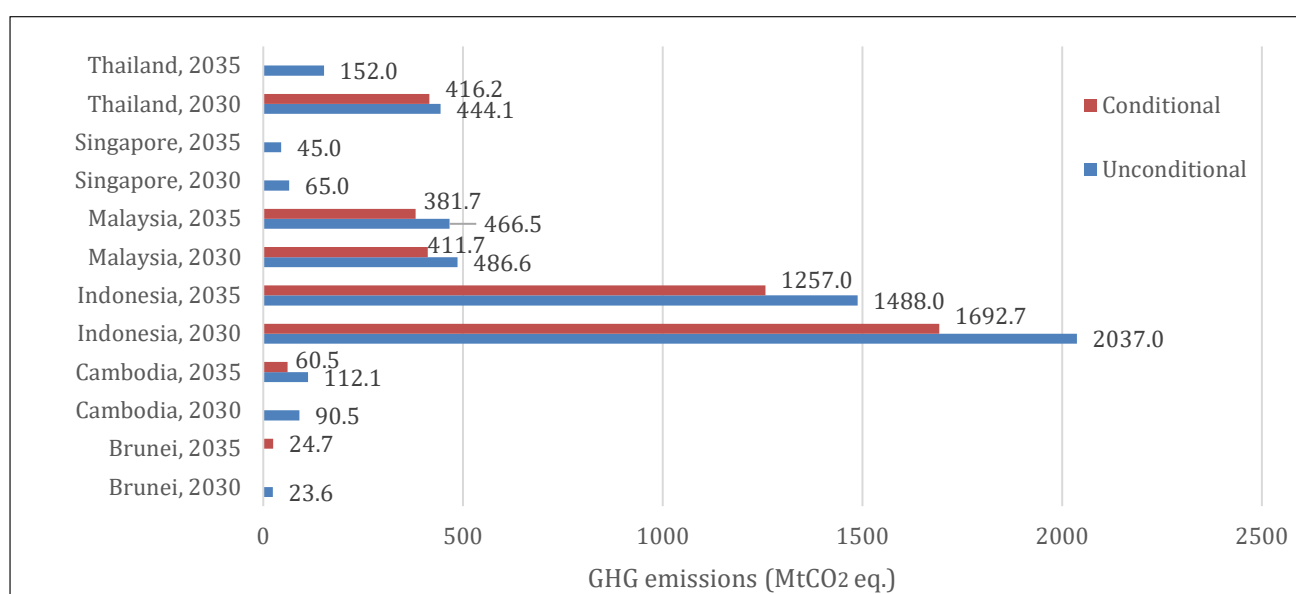


Figure 3. Total emissions in 2030 and 2035 unconditional and conditional targets

In contrast to emission increase seen by 2030, the 2035 targets for most of these six countries signify a downward trajectory from their projected 2030 peaks. Indonesia's total unconditional emissions are projected to drop from 2037.00 MtCO₂e in 2030 to 1488.00 MtCO₂e in 2035. Thailand projects a dramatic reduction from 444.00 MtCO₂e to 152.00 MtCO₂e, and Singapore anticipates its emissions reducing from 65.00 to 45.00 MtCO₂e unconditionally. Conversely, Cambodia's

unconditional total emissions are projected to rise from 90.50 MtCO₂e to 112.10 MtCO₂e in 2035.

The notable declines between 2030 and 2035 are heavily supported by projected reductions in energy sector and FOLU sector. Between 2030 and 2035, Indonesia's emission reduction will be largest in the FOLU sector (by 275.11 MtCO₂e), followed by the energy sector (by 168.70 MtCO₂e) under its unconditional NDC, and Thailand expects its energy emissions to drop from 363.66 to 171.25 MtCO₂e unconditionally (Figure 4). A similar trend can be seen between 2030 and 2035 under conditional targets (Figure 5).

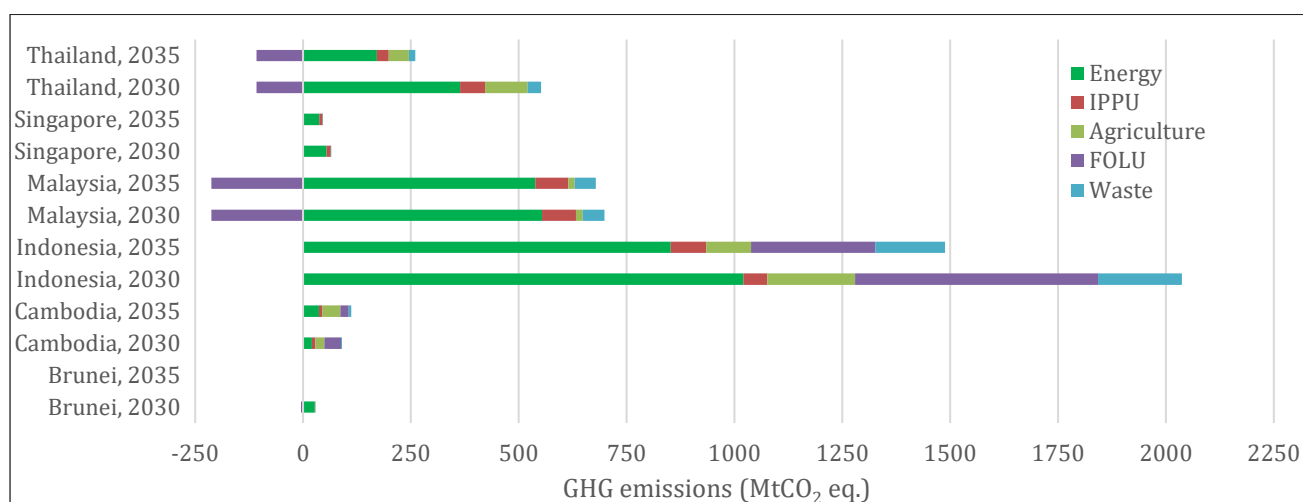


Figure 4. Sectoral emissions in 2030 and 2035 unconditional targets

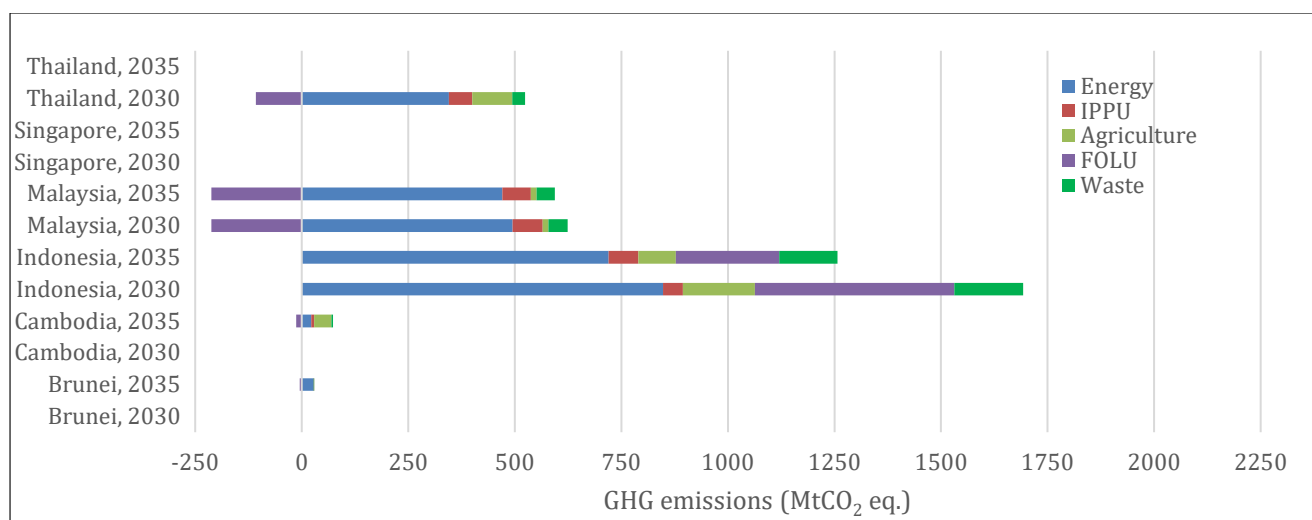


Figure 5. Sectoral emissions in 2030 and 2035 conditional targets

Table 5 shows the increase or decrease in projected emissions of ASEAN countries in 2030 and 2035 against 2019 base year referenced in the GST 1 outcome. Positive values indicate a percentage increase in emissions, while negative values represent a percentage reduction in emissions. Black cells indicate no data, either because the value is unavailable or because the country has not submitted an NDC 3.0. The assessments of alignment to the GST 1 benchmarks for both mitigation and emission peaking are shown primarily for unconditional targets in Table 6 and 7, since emission trends move in similar directions in unconditional and conditional targets across all ASEAN countries, except for Cambodia and the Philippines, which show significantly different trends under conditional

NDC targets. The trends showing different GST 1 alignment than its in unconditional targets are shown in parenthesis in Table 6 and 7.

By 2030, most countries will see steep percentage increases in their emissions compared to the 2019 base year (e.g. Brunei's total emissions are projected to increase by 262% (unconditional), Malaysia projects a more than 300% increase (unconditional), and Indonesia is expected to see an approximate 78% increase (unconditional) (Table 5). However, Myanmar projects impressive reductions of 52% (unconditional) and 70% (conditional), while the Philippines projects a 62% reduction under its conditional target. Among unconditional targets, Myanmar is the only country positioned to meet or exceed the GST 1 benchmark of a 43% reduction by 2030 (Table 6). Under its conditional target, the Philippines meets the indicative GST 1 benchmark for short-term mitigation ambition. Cambodia also expects a reduction roughly 32% by 2030 in its unconditional target, but this does not meet the GST1 mitigation benchmark.

By 2035, reductions fall short of the 60% mitigation GST 1 benchmark across all countries (Table 5). Most countries (Brunei, Indonesia, Lao, Malaysia, Philippines, and Viet Nam) project net percentage increases against their 2019 base year, meaning these countries have "No alignment to indicative benchmark for medium-term mitigation ambition" of the GST 1 outcome (Table 6). However, under its conditional targets, Cambodia will reduce emissions by 55% in 2035, which makes the country closest alignment with the medium-term mitigation GST 1 benchmark of a 60% reduction (Table 6). Thailand projects a significant reduction of about 47% (unconditional) by 2035 compared to 2019, and Singapore projects an approximate 20% drop (unconditional); however, neither country meets the GST 1 mitigation benchmarks.

The GST 1 outcome dictates that pathways consistent with the 1.5°C goal must peak global emissions between 2020 and at the latest 2025. Because this is a global benchmark, this analysis adapts it into a graded framework (moderate, weak, and no alignment) between 2030 and 2035 to measure emissions peaking in the AMS. Most countries of the region - Brunei Darussalam, Cambodia, Lao PDR, Malaysia, the Philippines, and Viet Nam - demonstrates "No clear peak around 2030 and/or 2035" across their projected sectoral and total emissions pathways under unconditional targets (Table 7). Consequently, their emissions pathway outcomes show "No alignment" with the emission peaking benchmarks of the GST 1 outcome. Indonesia, Singapore, and Thailand under both unconditional and conditional targets are projected to peak their emissions in 2030 - 2035. While they display a peaking trajectory, it occurs too late against the GST 1 outcome, resulting in a "Weak alignment". Thailand is specifically noted to have a "Weak alignment" because of its drastic overall emission reduction (47% in total) by 2035. Although Malaysia states in its NDC 3.0 that it will peak emissions between 2029 and 2034, no significant reduction in line with the GST1 peaking benchmark is observed; therefore, it is assessed as "No alignment". Under its unconditional target, Myanmar is the only AMS categorized as "Moderate alignment" to the GST 1 benchmarks, as it is projected to reach an emissions peak before 2030. However, the country has not submitted its NDC 3.0, and some sectors have no data in the existing NDC. Under conditional targets, similar trends - "No alignment" to GST 1 emissions peaking benchmarks - are observed in most countries, except for Cambodia and the Philippines, which project emissions peaking in 2030 - 2035, and before 2030, respectively. Therefore; Cambodia is assessed as "Weak alignment" and the Philippines is evaluated as "Moderate alignment" with the GST 1 benchmarks (Table 7).

Table 5. Emission increase/reduction percentage in 2030 and 2035 compared to 2019

Country		Brunei Darussalam		Cambodia		Indonesia		Lao PDR		Malaysia		Myanmar		Philippines		Singapore		Thailand		Viet Nam	
Year		2030	2035	2030	2035	2030	2035	2030	2035	2030	2035	2030	2035	2030	2035	2030	2035	2030	2035	2030	2035
Unconditional NDC targets	Total	262%		-32%	-16%	78%	30%	156%		312%	295%	-52%		48%		15%	-20%	55%	-47%	80%	
	Energy	179%		46%	158%	56%	30%	257%		112%	106%	157%		41%		10%	-24%	39%	-35%	74%	
	IPPU	-25%		241%	224%	-12%	30%	656%		143%	136%			33%		53%	6%	53%	-28%	-1%	
	Agriculture	125%		-45%	12%	154%	30%	192%		100%	94%	-107%		60%		-11%	-38%	63%	-23%	-10%	
	FOLU	-16%		-50%	-75%	154%	30%	51%		-1%	-1%	-77%		41%		323%	193%	-17%	-17%	4826%	
	Waste	128%		16%	180%	56%	30%	598%		97%	91%			77%		42%	-2%	70%	-20%	340%	
Conditional NDC targets	Total		278%		-55%	48%	10%	145%		249%	223%	-70%		-62%				45%		44%	
	Energy		190%		57%	29%	10%	225%		89%	80%	121%		-64%				32%		41%	
	IPPU		-23%		207%	-27%	10%	588%		117%	106%			-66%				45%		-71%	
	Agriculture		134%		6%	111%	10%	165%		78%	70%	-107%		-59%				55%		16%	
	FOLU		-16%		-117%	111%	10%	51%		-1%	-1%	-97%		-64%				-17%		2915%	
	Waste		137%		68%	30%	10%	536%		76%	67%			-55%				61%		330%	

Table 6. Alignment of NDC targets to GST 1 mitigation benchmark

Country	Emission trend	Alignment to GST 1 mitigation benchmark
Brunei Darussalam	Keep increasing until 2030 and 2035	No alignment to indicative benchmark for short-term and medium-term mitigation ambitions
Cambodia	Keep decreasing until 2030 and increase in 2035 (Significant reduction in FOLU in 2035)	No alignment to indicative benchmark for short-term and medium-term mitigation ambitions (No alignment to indicative benchmark for medium-term mitigation ambition)
Indonesia	Keep increasing but decrease during 2030-2035	No alignment to indicative benchmark for short-term and medium-term mitigation ambitions
Lao PDR	Increasing until 2030	No alignment to indicative benchmark for short-term mitigation ambition
Malaysia	Keep increasing until 2030 and slight reduction in 2035	No alignment to indicative benchmark for short-term and medium-term mitigation ambition
Myanmar	Significant reduction by 2030	Alignment to the indicative benchmark for short-term mitigation ambition
Philippines	Increasing until 2030 (Significant reduction in all sectors in 2030)	No alignment to indicative benchmark for short-term mitigation ambition (Alignment to indicative benchmark for short-term mitigation ambition)
Singapore	Increase until 2030 but sharp reduction in 2035	No alignment to indicative benchmark for short-term and medium-term mitigation ambitions
Thailand	Increase until 2030 but significant reduction in 2035	No alignment to indicative benchmark for short-term and medium-term mitigation ambitions
Viet Nam	Increasing until 2030	No alignment to indicative benchmark for short-term mitigation ambition

Note: Contents in parenthesis indicate the trend under conditional targets that are significantly different than the trends in unconditional targets.

Table 7. Alignment of NDC targets to GST 1 emission peaking benchmark

Country	Emission pathway outcome (total)	GST 1 alignment	Emission pathway outcome (sectoral)				
			Energy	IPPU	Agriculture	FOLU	Waste
Brunei Darussalam	No clear peak around 2035	No alignment	No clear peak around 2035	Peaking by 2035	No clear peak around 2035	Carbon sink	No clear peak around 2035
Cambodia	No clear peak around 2035 (Peaking 2030 - 2035)	No alignment (Weak alignment)	No clear peak around 2035	No clear peak around 2035 (Peaking 2030 - 2035)	No clear peak around 2035	Carbon sink	No clear peak around 2035
Indonesia	Peaking 2030 - 2035	Weak alignment	Peaking 2030 - 2035	No clear peak around 2035	Peaking 2030 - 2035	Emission increase	Peaking 2030 - 2035
Lao PDR	No clear peak around 2030	No alignment	No clear peak around 2030	No clear peak around 2030	No clear peak around 2030	Emission increase	No clear peak around 2030
Malaysia	No clear peak around 2035	No alignment	No clear peak around 2035	No clear peak around 2035	No clear peak around 2035	Carbon sink	No clear peak around 2035
Myanmar	Peaking before 2030	Moderate alignment	No clear peak around 2030	No data	Peaking before 2030	Carbon sink	No data
Philippines	No clear peak around 2030 (Peaking before 2030)	No alignment (Moderate alignment)	No clear peak around 2030 (Peaking before 2030)	No clear peak around 2030 (Peaking before 2030)	No clear peak around 2030 (Peaking before 2030)	Emission increase (Carbon sink)	No clear peak around 2030 (Peaking before 2030)
Singapore	Peaking 2030 - 2035	Weak alignment	Peaking 2030 - 2035	Peaking 2030 - 2035	Peaking 2030 - 2035	Emission increase	Peaking 2030 - 2035
Thailand	Peaking 2030 - 2035	Weak alignment	Peaking 2030 - 2035	Peaking 2030 - 2035	Peaking 2030 - 2035	Carbon sink	Peaking 2030 - 2035
Viet Nam	No clear peak around 2030	No alignment	No clear peak around 2030	No clear peak around 2030 (Peaking around 2030)	No clear peak around 2030	Emission increase	No clear peak around 2030

Note: Contents in parenthesis indicate the emission pathway under conditional targets that are significantly different than the trends in unconditional targets.

5. Conclusion

This paper evaluated the mitigation ambition of AMS by converting their diverse NDCs, which vary in terms of their targets and baselines under conditional and unconditional commitments, into comparable emission trajectories. These projected emissions were then assessed against the mitigation benchmarks and emissions peaking benchmarks established by the GST 1 outcome. To remain consistent with the goal of limiting global warming to 1.5°C, the GST 1 outcome indicates that global emissions must drop by 43% by 2030 and 60% by 2035 relative to 2019 levels, with emissions peaking between 2020 and the latest before 2025.

The analysis reveals that current NDC trajectories across the ASEAN region predominantly illustrate an upward emissions trend through 2030. This increase is driven heavily by the energy sector and fluctuating carbon sinks in the FOLU sector. While conditional targets offer greater mitigation potential than unconditional targets, the ambition gap varies widely by country. For example, in 2030, Thailand's conditional target represents a modest reduction of 27.75 MtCO₂e compared to its unconditional target, whereas Indonesia, the Philippines and Viet Nam require a larger reduction in their conditional targets relative to their unconditional commitments. In particular, the Philippines shows a significant reduction under its conditional target, indicating that the country needs significant international support to reduce GHG emissions and meet its NDC target in 2030. The projected emission data for 2035 is currently limited to the six countries that have submitted 2035 targets. Among this group, Indonesia and Thailand project a notable downward trajectory in total emissions between 2030 and 2035, heavily supported by decarbonization in their energy sectors and carbon sinks in the FOLU sector. On the other hand, Cambodia projects an increase in emissions in 2035 relative to 2030 in its unconditional target, mainly in its energy and agriculture sectors.

Despite some projected mid-term reductions, the collective ambition of ASEAN countries' NDCs reveals an ambition gap and falls critically short of the global 1.5°C mitigation pathways signaled by the GST 1 outcome. Most countries in the ASEAN region have "No alignment" with the emissions reduction of 43% by 2030 and 60% by 2035, relative to 2019 levels. Myanmar projects a 52% reduction (unconditional) by 2030, meeting the GST 1 benchmark for short-term mitigation ambition. Under its conditional targets, the Philippines aligns with the short-term mitigation ambition, by 62% reduction in 2030. Thailand shows also a significant projected emissions reduction by 2035 (unconditional), at 47% reduction compared to 2019 base year. For the emission peaking of the GST 1 outcome, under unconditional targets a few countries (Indonesia, Singapore, and Thailand) are assessed as "Weak alignment", with emissions peaking projected between 2030 and 2035. Under the conditional targets, Cambodia shows emissions peaking between 2030 and 2035, while the Philippines projects peaking before 2030, assessed as "Weak alignment" and "Moderate alignment" with the GST 1 emission peaking benchmarks, respectively. Myanmar also shows "Moderate alignment" with the emission peaking benchmark under its unconditional target.

ASEAN countries operate at a critical intersection of rapid economic growth, rising energy demand, and high climate vulnerability. To meet the urgency of the GST 1 outcome, AMS need to fundamentally strengthen their short-term commitments in 2030 to ensure emissions peak and decline much earlier. Furthermore, the countries that have not submitted their NDC 3.0 need to set targets aligned with the reduction percentage signaled in the GST 1 outcome. Closing this persistent ambition gap will require a whole-of-community response, necessitating far deeper, systemic GHG reductions across all sectors, particularly energy, industry and land use, to secure a credible transition toward long-term net-zero goals.

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8. Annex

Table A1. Total and sectoral GHG emissions in 2019 and projected emissions in 2030 and 2035 conditional NDC targets

		Energy	IPPU	Agriculture	FOLU	Waste	Total
		MtCO ₂ e	MtCO ₂ e	MtCO ₂ e	MtCO ₂ e	MtCO ₂ e	MtCO ₂ e
Brunei Darussalam	2019	9.77	0.36	0.03	-3.84	0.19	6.51
	2030	27.28	0.26	0.07	-4.46	0.43	23.60
	2035	23.29	0.27	0.07	-4.46	0.45	24.64
Cambodia	2019	14.13	2.34	37.77	76.30	2.32	132.86
	2030						
	2035	22.20	7.20	40.20	-13.00	3.90	60.40
Indonesia	2019	655.56	63.73	79.99	221.38	124.36	1145.04
	2030	848.11	46.39	168.99	467.67	161.52	1692.70
	2035	719.67	69.96	87.81	243.03	136.52	1257
Lao PDR	2019	17.60	2.00	10.40	-123.60	0.60	-93.04
	2030	57.11	13.76	27.59	-60.29	3.81	42.00
	2035						
Malaysia	2019	261.39	32.54	7.80	-209.29	25.62	118.07

	2030	494.49	70.50	13.92	-212.28	45.07	411.72
	2035	470.72	67.12	13.25	-212.28	42.90	381.72
Myanmar	2019	22.80	3.27	28.80	111.00	5.97	171.84
	2030	50.43	No data	-1.89	2.90	No data	51.43
	2035						
Philippines	2019	139.00	19.10	51.20	27.86	25.90	263.06
	2030	50.46	6.54	21.11	10.11	11.76	100.00
	2035						
Singapore	2019	49.69	6.57	0.01	0.01	0.30	56.58
	2030						
	2035						
Thailand	2019	262.08	37.96	60.48	-91.98	18.69	287.23
	2030	345.37	55.04	93.61	-107.90	30.11	416.25
	2035						
Viet Nam	2019	298.00	73.30	75.90	1.90	20.80	469.9
	2030	420.95	21.61	88.08	57.28	89.43	677.36
	2035						

Note: The cell colored in grey means that the country does not have a target for the year.

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