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STRATEGY

Regional

MIBG Sustainability Research

Decarbonization theme is picking up in ASEAN

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Co.s with falling carbon intensity are outperforming

We analysed Sustainalytics' global universe of 15,803 exchange-listed companies to understand the rapidly developing decarbonisation theme using two parametres: a) carbon emissions (CO_2) intensity trend over the past three years; and b) renewable energy (RE) usage. Although the number of companies disclosing is still low (15-20%), we believe the early insights are positive and as disclosures improve and net-zero commitments proliferate, the theme would become more ubiquitous. Europe tops with better disclosures, declining CO_2 intensity and higher RE adoption. Of the ASEAN-6 markets' MCAP, 20% of companies showed improvement while only 6% reported deterioration in the past three years. Companies in Thailand (40% of MCAP) and Malaysia (30% of MCAP) were ahead. Within MIBG, 65%/73% of companies, which are showing stable/lower CO_2 intensity trends, outperformed the MSCI Index over 3-5 years.

Co.s in TH, MY, SG lead disclosure and improvement

Our analysis of Sustainalytics' 3-year CO_2 emission intensity trend of its global universe suggests that: a) out of the 22% of companies disclosing data, 18% of companies reported stable/decline in CO_2 intensity vs 4% reported an increase (>10%) over the 3-year period; b) Europe has the best disclosures at 34%, of which 28% reported a stable/declining trend; c) ASEAN-6 markets' overall disclosure was 17%, of which 12% reported a stable/declining trend. We also found that 2/3rd of companies reporting declining CO_2 intensity also reported declining Sustainalytics ESG risk score. In general, the disclosure levels were high in Thailand and Malaysia at 48% and 40% of the country's MCAP. A vast majority of companies in Thailand, Malaysia and Singapore reported stable/declining trend whereas the trend in Indonesia and the Philippines was mixed. Vietnam had no trend data available.

Low RE adoption in ASEAN, but huge opportunities

RE adoption is another important lever for decarbonisation. Our results showed that globally only 11% of companies have an RE programme. Europe leads with 19% companies having an RE programme, followed by North America and Canada at 10%, Asia Pacific at 9% and Africa & Middle East at 6%. ASEAN-6 markets have only 7% companies with an RE programme, led by the Philippines at 11% and the rest at 6-8%. Further, our analysis suggests that 10% of companies globally are disclosing RE usage. Unsurprisingly, Europe leads with 20% companies disclosing RE usage followed by the US & Canada at 10%. ASEAN-6 markets are at 7% with the Philippines the highest at 10%. As ASEAN significantly raises the RE proportion of its energy mix in the coming 5-10 years the decarbonization theme would strengthen, unleashing opportunities for RE utilities, capital goods and power transmission.

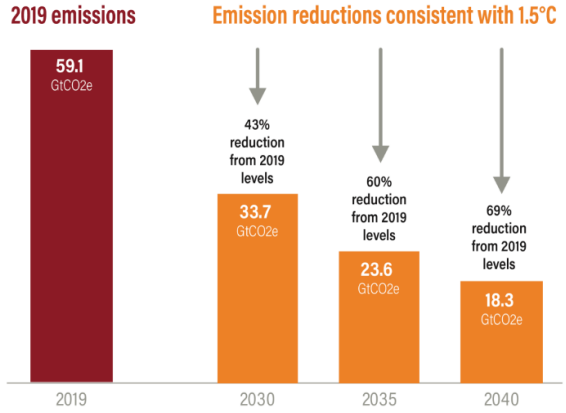
MIBG's universe - 24% reducing CO_2 intensity

Among the MIBG universe covered by Sustainalytics, of the 35% companies that reported data, 24% companies reported a decline in CO_2 intensity over the past three years vs 10% showing an increase of more than 10%. 65%/73% of stable/lower CO_2 intensity trend companies outperformed the MSCI Index over 3-5 year period. Oil & gas (15%), telecommunications (13%), industrials and consumer staples (11% each) and plantations and utilities (10% each) reported stable/declining trend. The utilities sector had the highest share (13%) of companies showing increase in CO_2 intensity. Of 21% companies that reported on RE, 17% are using some RE.

1. Decarbonisation – "necessary", "now or never"

Climate change is for real. The latest edition of the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report (AR6), released in March 2023, paints a grim picture of the vulnerabilities from climate change. We have already reached global temperature rise of 1.1°C vs the target to limit the temperature rise by the end of this century to 1.5°C. 2022 was the hottest year on record in recent history and 2023 is so far worse than that. The rising temperature, acidification of the ocean and unprecedented melting of snow suggest that global warming could intensify in the coming years. The target for greenhouse gas (GHG) emissions to peak out before 2025 at the latest and decline 43% by 2030 and 60% by 2035 is now more urgent than ever.

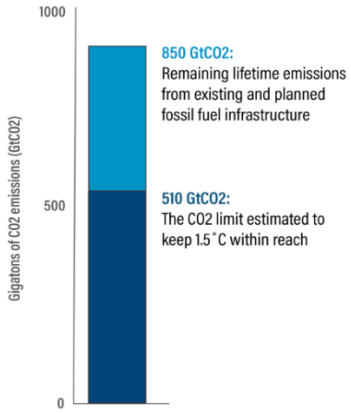
Fig 1: GHG emission reductions needed to keep 1.5°C temperature change within reach



Note: Analysis of pathways that limit warming to 1.5 degrees C with no or limited overshoot.

Source: IPCC AR6, World Resources Institute

Fig 2: CO_2 emissions from existing and planned fossil fuel infrastructure put 1.5°C temperature change out of reach



Note: Analysis of pathways that limit warming to 1.5 degrees C with no or limited overshoot.

Source: IPCC AR6, World Resources Institute

In this context, decarbonisation is "necessary" and needs to have started yesterday and not "now". Quoting from Lansdowne Partners' blog - any hope of achieving net zero by 2050 requires three simultaneous developments in the very near term:

- A carbon price of well over EUR100 per tonne is required very soon.
- To decarbonise, we must first electrify on a massive scale.
- Nature-based solutions like trees aren't viewed nearly as importantly as they should be.

Carbon price of EUR100/tonne would be a burden for developing/emerging nations (only 23% of the countries in the world are covered with a carbon price and the average price is USD23/tonne). Electrification on a massive scale will take time as the cost of battery raw materials remains high. Authenticity of Nature-based Solutions (NbS) in terms of monitoring and true value creation will also require time. To add to this, technologies for carbon capture and storage (CCS) and utilization (CCUS) are expensive, difficult to scale and are in the testing phase, while green hydrogen remains very expensive.

We believe the low-hanging fruits for decarbonisation in the short to near term are CO_2 emission reduction through operational efficiency and usage of RE. Also, per the International Renewable Energy Agency (IRENA), in 2010, the global weighted average levelised cost of energy (LCOE) of onshore wind was 95% higher than the lowest fossil fuel-fired cost; in 2022, the global weighted average LCOE of new onshore wind projects was 52% lower than the cheapest fossil fuel-fired solutions. Similarly, solar photovoltaic (PV) was 710% more expensive than the cheapest fossil fuel-fired solution in 2010 but cost 29% less than the cheapest fossil fuel-fired solution in 2022. Clearly, as the LCOE is lower, RE would become the default choice for industry and transport.

2. Study to understand decarbonisation progress of regions

We believe the two best ways to understand the decarbonisation progress of a region or a company is by analysing a) the CO_2 emissions intensity trend; and b) RE strategy/usage. Using data sourced from Sustainalytics, an ESG data and ratings provider, we try to understand where the ASEAN-6 markets, ie, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam, are on their decarbonisation journey and how they compare with other regions.

The caveat here is that most companies across regions except Europe are early in their decarbonisation journey. Hence, the data is patchy for the parameters that we are planning to capture. Sustainalytics' universe consists of 22,961 companies, of which 15,803 companies are listed on a stock exchange (global/local). The number of companies that are disclosing/allowing access to 3-year trend data of carbon dioxide (CO_2) intensity are low. In our study, 22% of companies are disclosing/allowing access to this data at a global level. Regionally, this data ranges from 15% to 34%, and ASEAN-6 markets at 17%. For RE usage and strategy it is still lower at 15-17% overall, and 8-9% for ASEAN-6 markets.

However, we nonetheless believe this data gives us early insights into the decarbonisation journey and progress.

CO^2 emission intensity stable-to-trending lower for 18% of universe and 12% for ASEAN – 6 markets

Out of Sustainalytics' universe of 15,803 companies listed on any stock exchange, 2,823 companies or 18% of listed universe has reported stable (+/-10% change) CO_2 emission intensity trend over the past three years. The encouraging thing to note here is that 11% of the universe has reported a decline in CO_2 emission intensity of more than 10%. Conversely, only 4% companies have reported an increase of more than 10% in CO_2 intensity trend.

Regionally, Europe has the best performance as 28% of companies reported stable/declining trend and 6% reported an increasing trend. US and Canada have 16% of companies showing stable/declining trend vs 2% increasing trend.

Asia Pacific has 16% of companies reporting stable/declining trend vs 4% showing an increasing trend. Within this, the ASEAN-6 markets has 12% of companies reporting stable/declining trend vs 5% reporting an increasing trend. Within the ASEAN-6 markets, Thailand appears to be the best performer with 17% of companies showing a declining trend vs 6% showing an increasing trend while Malaysia had 15% and 4% respectively. The Philippines had a peculiar position with 16% of companies showing stable/declining trend vs 15% showing an increasing trend. Vietnam was the worst in terms of disclosure with no data available. Singapore had 9% of companies reporting stable/decline in CO_2 emissions intensity vs 2% reporting an increase, and Indonesia had 8% of companies reported stable/decline vs 4% reporting decline.

Fig 3: Sustainalytics' universe regional data for CO_2 emission intensity trend for 3 years

Region	no. of cos.	Listed on exchange	Relatively stable (+/- 10% inclusive)	Decline of 25% or more	Decline of between 10% and 25%	Stable to declining trend	Increase of 25% or more	Increase of between 10% and 25%	Increasing trend	No data / access, insufficient data, under research
Overall	22,961	15,803	1,051	825	947	2,823	417	243	660	12,320
US & Canada	7,408	3,936	185	196	252	633	45	46	91	3,212
Europe	4,698	2,684	217	253	284	754	108	46	154	1,776
Asia Pacific	8,947	7,956	608	276	357	1,241	214	139	353	6,362
Africa & Middle East	946	795	19	59	28	106	13	3	16	673
Latam & Caribbean	962	432	22	41	26	89	37	9	46	297
ASEAN - 6 markets	1,116	962	50	36	32	118	31	17	48	796
% of total listed companies										
Overall			7%	5%	6%	18%	3%	2%	4%	78%
United States & Canada			5%	5%	6%	16%	1%	1%	2%	82%
Europe			8%	9%	11%	28%	4%	2%	6%	66%
Asia Pacific			8%	3%	4%	16%	3%	2%	4%	80%
Africa & Middle East			2%	7%	4%	13%	2%	0%	2%	85%
Latam & Caribbean			5%	9%	6%	21%	9%	2%	11%	69%
ASEAN - 6 markets			5%	4%	3%	12%	3%	2%	5%	83%

Source: Sustainalytics, Maybank IBG Research

Fig 4: ASEAN - 6 markets - Sustainalytics' universe regional data for CO_2 emission intensity trend for 3 years

Region	no. of cos.	Listed on exchange	Relatively stable (+/- 10% inclusive)	Decline of 25% or more	Decline of between 10% and 25%	Stable to declining trend	Increase of 25% or more	Increase of between 10% and 25%	Increasing trend	No data / access, insufficient data, under research
Malaysia	295	261	13	12	13	38	6	5	11	212
Singapore	246	173	8	2	5	15	3	0	3	155
Indonesia	224	206	6	7	4	17	9	0	9	180
Thailand	222	208	19	9	7	35	7	6	13	160
Philippines	91	82	4	6	3	13	6	6	12	57
Vietnam	38	32	0	0	0	0	0	0	0	32
Total	**1,116**	**962**	**50**	**36**	**32**	118	**31**	**17**	48	**796**
% of total listed companies										
Malaysia			5%	5%	5%	15%	2%	2%	4%	81%
Singapore			5%	1%	3%	9%	2%	0%	2%	90%
Indonesia			3%	3%	2%	8%	4%	0%	4%	87%
Thailand			9%	4%	3%	17%	3%	3%	6%	77%
Philippines			5%	7%	4%	16%	7%	7%	15%	70%
Vietnam			0%	0%	0%	0%	0%	0%	0%	100%
Total			**5%**	**4%**	**3%**	12%	**3%**	**2%**	5%	**83%**

Source: Sustainalytics, Maybank IBG Research

ASEAN: On MCAP basis coverage higher at 28%, Thailand at 48% and Malaysia at 40%

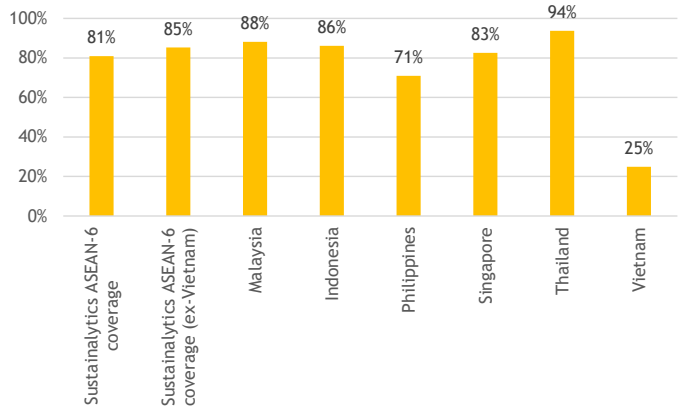
We also analysed the companies in terms of MCAP. Broadly, ASEAN-6 market capitalization of about USD2.5t forms 2.2% of the global market capitalization of USD112t. The 962 companies covered by Sustainalytics form 81% of the region's market capitalization. The companies that are disclosing/allowing access to CO_2 emissions intensity trends form 26% of the region's market capitalization. If one were to exclude Vietnam, which has no disclosures, the market capitalisation (ex-Vietnam) works out to 28%.

Amongst the ASEAN-6 markets, on MCAP basis, Thailand has 48% companies disclosing/allowing access to emissions intensity trends. Of this, 40% of companies are showing stable/declining trend vs 8% reporting an increase.

Malaysia is the second best with disclosure at 39% of companies, of which 30% are showing stable/declining trend vs 9% reporting an increase.

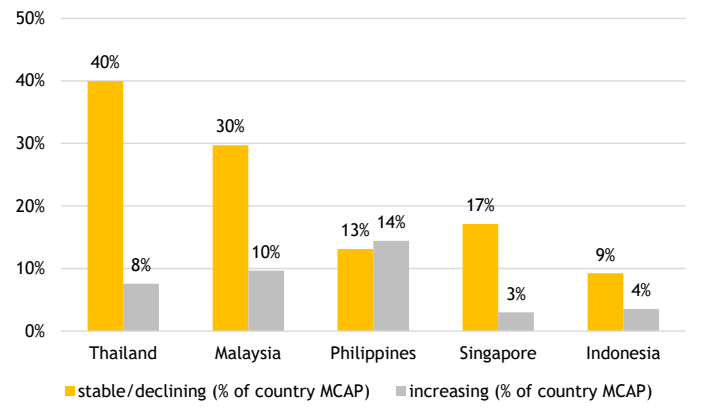
This analysis suggests that in most markets, large companies are either mandated by regulation or due to voluntary efforts are seriously working on decarbonization. Also, they have the necessary spending power, technology and understanding at the highest level to use decarbonization as a lever for business strategy and growth.

Fig 5: Sustainalytics' coverage of companies measured as % of market capitalisation



Source: Sustainalytics, Bloomberg, ASEAN Exchanges, Maybank IBG Research

Fig 6: Thailand best placed on CO_2 emissions intensity trends, followed by Malaysia; Indonesia least (% of country MCAP)



Source: Sustainalytics, Bloomberg, ASEAN Exchanges, Maybank IBG Research

MIBG universe: 24% of companies showing stable/declining trend vs 11% showing an increasing trend

We also analysed MIBG's research coverage that are in Sustainalytics' universe. Of the MIBG research coverage of 320 companies, 257 companies are on the Sustainalytics platform. Of these, 90 or 35% companies reported/allowed access to CO_2 emissions intensity 3-year trend data. Of the MIBG coverage, 24% of companies reported stable/declining trend vs 11% showing increasing trend.

Amongst the regions, Malaysia was best performing with 31% of companies reporting stable/declining trend vs 10% of companies reporting increasing trend. The worst performing was the Philippines with 20% of companies reporting stable/decline vs 29% reporting increase. For Thailand it was 30% vs 13%, Singapore was 19% vs 2% and Indonesia was 15% vs 5%. Vietnam had no disclosures.

Fig 7: Sustainalytics' universe - MIBG coverage regional data for CO_2 emission intensity trend for 3 years

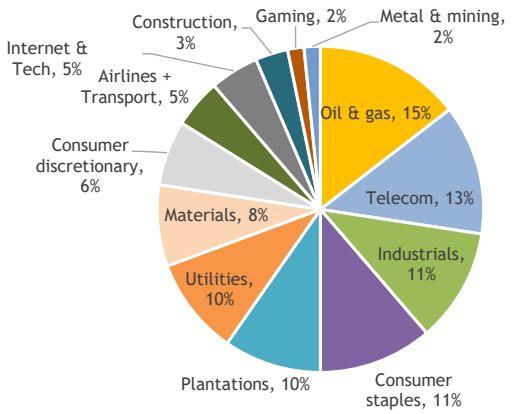
Region	MIBG coverage	Sustainaly-tics universe	Relatively stable (+/- 10% inclusive)	Decline of 25% or more	Decline of between 10% and 25%	Stable to declining trend	Increase of 25% or more	Increase of between 10% and 25%	Increasing trend	No data / access, insufficient data, under research
Malaysia	111	88	9	8	10	27	5	4	9	52
Singapore	52	42	5	1	2	8	1	0	1	33
Indonesia	39	39	2	3	1	6	2	0	2	31
Thailand	57	47	10	1	3	14	4	2	6	27
Philippines	38	35	1	5	1	7	4	6	10	18
Vietnam	23	6	0	0	0	0	0	0	0	6
Total	**320**	**257**	**27**	**18**	**17**	**62**	**16**	**12**	**28**	**167**
					% of total listed companies					
Malaysia			10%	9%	11%	31%	6%	5%	10%	59%
Singapore			12%	2%	5%	19%	2%	0%	2%	79%
Indonesia			5%	8%	3%	15%	5%	0%	5%	79%
Thailand			21%	2%	6%	30%	9%	4%	13%	57%
Philippines			3%	14%	3%	20%	11%	17%	29%	51%
Vietnam			0%	0%	0%	0%	0%	0%	0%	100%
Total			**11%**	**7%**	**7%**	**24%**	**6%**	**5%**	**11%**	**65%**

Source: Sustainalytics, Maybank IBG Research

Within our coverage, we also analysed which sectors reported stable/declining trend. The heartening thing to note is that high-emitting sectors such as oil & gas, industrials, plantation, utilities and materials formed 53% of the total 62 companies, which reported a stable/declining trend of emissions intensity.

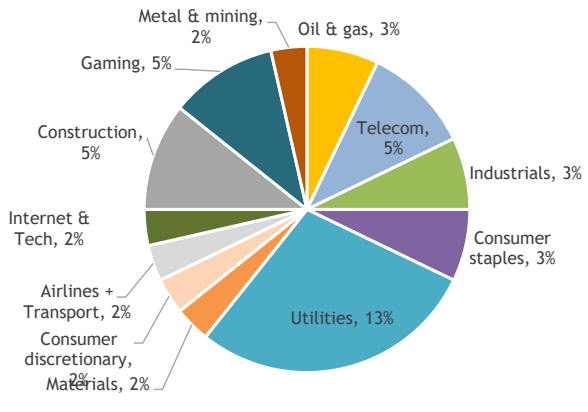
Conversely, of the 28 companies that reported an increase of more than 10% in CO_2 emissions intensity, 13% of companies were from the utilities sector, whereas it was about 2-5% for the other sectors.

Fig 8: Stable/declining (62 companies): oil & gas, industrials, plantation, utilities and materials form 53% of companies



Source: Sustainalytics, Maybank IBG Research

Fig 9: Increasing (28 companies): utilities at 13% whereas the rest of the other sectors fairly distributed

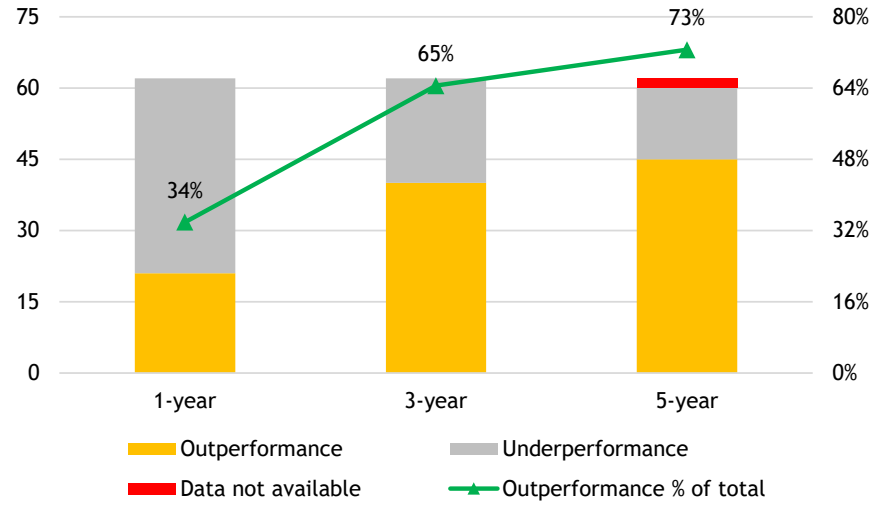


Source: Sustainalytics, Maybank IBG Research

Outperformance of country MSCI Index over 3-5 years by more than 65-73% companies showing stable/declining intensity trend

Within the MIBG coverage, we also compared the 1-3-5 year returns generated by companies, which reported stable/declining emissions intensity trends, to the country MSCI Index returns. We found that of the 62 companies that had stable/declining emissions intensity trends, 64% outperformed on 3-year returns and 73% outperformed on 5-year returns. However, on 1-year returns, only 34% outperformed the country MSCI Index. This indicates that the decarbonization theme is working on a longer term basis when adopted consistently by companies and not a one-off decline in CO_2 intensity.

Fig 10: 65-73% of companies showing stable/declining intensity trends outperformed country MSCI Index over 3-5 year period



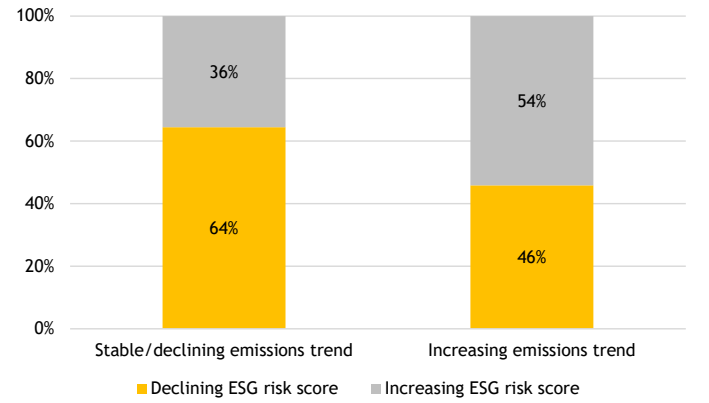
Source: Sustainalytics, Bloomberg, Maybank IBG Research

64% of stable/declining emissions intensity trend companies showing declining ESG risk score for ASEAN and MIBG coverage

We analysed the stable/declining emissions intensity trend of companies for movement in Sustainalytics' ESG risk scores. Out of the 118 companies, 76 companies (64% of companies) reported declining trend on Sustainalytics ESG risk score. Conversely, of the 48 companies that reported increasing emissions intensity trend, 26 companies (54% of companies) reported an increasing trend for ESG risk score.

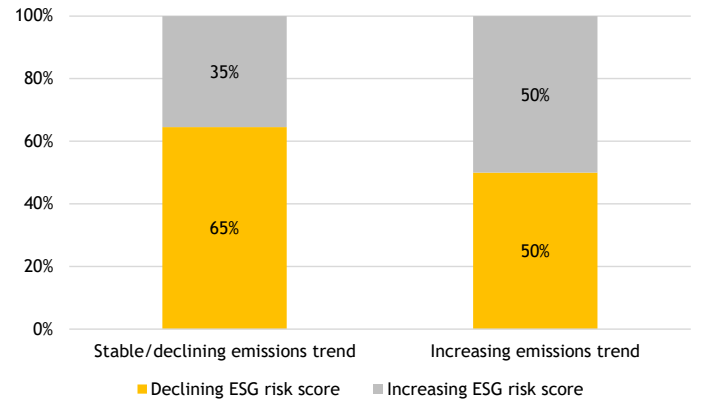
Within the MIBG coverage, of the 62 companies that reported stable/declining emissions intensity trend, 40 companies (65% of companies) reported declining trend on Sustainalytics ESG risk score. Conversely, of the 28 companies that reported increasing emissions intensity trend, 14 companies (50% of companies) reported an increasing trend for ESG risk score.

Fig 11: Sustainalytics: 64% companies show decline in ESG risk scores



Source: Sustainalytics, Maybank IBG Research

Fig 12: MIBG coverage: 65% companies show decline in ESG risk scores



Source: Sustainalytics, Maybank IBG Research

10% of companies reported RE usage overall, ASEAN-6 markets at 5% of Sustainalytics' universe

We analysed data on RE across Sustainalytics' universe to gauge how the various regions are placed in terms of RE usage. The disclosure levels were weak on this aspect with only 15% of companies disclosing/allowing access. About 1,642 companies, ie, 10% of the universe had some form of RE usage vs 5% of companies categorically mentioning no RE usage.

Fig 13: Sustainalytics' universe regional data for RE usage

Region	no. of cos.	listed on exchange	Between 10% and 24.99%	Between 25% and 49.99%	More than 50%	Between 5% and 9.9%	Some portion or less than 5%	RE usage	No RE usage	No data / access, insufficient data, under research
Overall	22,961	15,803	202	182	218	135	905	1,642	781	13,380
United States & Canada	7,408	3,936	62	44	52	44	206	408	187	3,341
Europe	4,698	2,684	86	91	120	**32**	196	525	90	2,069
Asia Pacific	8,947	7,956	45	41	31	**52**	467	636	457	6,863
Africa & Middle East	946	795	2	0	1	**4**	24	31	40	724
Latam & Caribbean	962	432	7	6	14	**3**	12	42	7	383
ASEAN - 6 markets	1,116	962	5	10	6	5	40	66	14	882
					% of total listed companies					
Overall			1%	1%	1%	1%	6%	10%	5%	85%
United States & Canada			2%	1%	1%	1%	5%	10%	5%	85%
Europe			3%	3%	5%	1%	8%	20%	3%	77%
Asia Pacific			1%	1%	0%	1%	6%	8%	6%	86%
Africa & Middle East			0%	0%	0%	1%	3%	4%	5%	91%
Latam & Caribbean			2%	1%	3%	1%	3%	10%	2%	89%
ASEAN - 6 markets			1%	1%	1%	1%	4%	7%	1%	92%

Source: Sustainalytics, Maybank IBG Research

Again, Europe was the best performing region with 20% of companies reporting RE usage vs 3% not using RE. The interesting part of this was that 11% of the European companies had RE at more than 5% of its electricity usage. The US and Canada were at 10%, Asia Pacific at 8% and Africa and Middle East at 4%.

ASEAN-6 markets had a small number, with 7% of companies having RE usage vs 1% specifically not using RE. ASEAN-6 markets being at the early state of their decarbonisation journey and disclosure regulations not being that stringent means that the data is patchy. But suffice to say that there is a positive momentum.

MIBG coverage: 17% of companies use RE

We also analysed MIBG's research coverage that are in Sustainalytics' universe. Of the MIBG research coverage of 320 companies, 257 companies are on the Sustainalytics platform. Of these, 53 companies or 21% of companies have some disclosure on RE usage. Of the MIBG coverage, 17% of companies have some RE usage vs 4% with no RE usage. Malaysia had the highest disclosure at 16 companies with 13 reporting some RE usage vs 3 with no usage.

The best performing in terms of share of total listed coverage companies was the Philippines at 20% vs 0%, followed by Singapore at 19% vs 0%. Indonesia was at 21% vs 13%, and Thailand at 17% vs 2%. Vietnam had no disclosures.

Fig 14: Sustainalytics universe - MIBG coverage regional data for RE usage

Region	MIBG coverage	Sustainaly-tics universe	Between 10% and 24.99%	Between 25% and 49.99%	More than 50%	Between 5% and 9.9%	Some portion or less than 5%	RE usage	No RE usage	No data / access, insufficient data, under research
Malaysia	111	88	1	2	1	0	9	13	3	72
Singapore	52	42	0	0	2	2	4	8	0	34
Indonesia	39	39	0	2	1	0	5	8	5	26
Thailand	57	47	1	2	0	1	4	8	1	38
Philippines	38	35	1	0	0	1	5	7	0	28
Vietnam	23	6	0	0	0	0	0	0	0	6
Total	**320**	**257**	**3**	**6**	**4**	**4**	**27**	**44**	**9**	**204**
				% of total listed companies						
Malaysia			1%	2%	1%	0%	10%	15%	3%	82%
Singapore			0%	0%	5%	5%	10%	19%	0%	81%
Indonesia			0%	5%	3%	0%	13%	21%	13%	67%
Thailand			2%	4%	0%	2%	9%	17%	2%	81%
Philippines			3%	0%	0%	3%	14%	20%	0%	80%
Vietnam			0%	0%	0%	0%	0%	0%	0%	100%
Total			**1%**	**2%**	**2%**	2%	**11%**	17%	4%	**79%**

Source: Sustainalytics, Maybank IBG Research

11% of companies have some RE programme and/or use RE overall, ASEAN-6 markets at 7%

On RE, Sustainalytics also captures data of whether a company has a RE programme, whether it is strong or adequate etc. Again, the disclosures are weak on this parameter with only 17% companies disclosing some data. Nonetheless, it gives some understanding about the RE journey of companies and the region.

Overall, 11% companies had some RE programme or were using RE vs 6% of companies that did not have an RE programme and also were not using RE. As usual, Europe was ahead of the pack with 19% of companies having a RE programme and/or usage vs 5% having no programme. Additionally, the

region had 12% companies with an adequate RE programme and 5% having a strong programme.

The US and Canada was at 10% vs 6%, Asia Pacific at 9% vs 7%. Within Asia Pacific, ASEAN-6 markets had 7% of companies having an RE programme and/or usage vs 2% with no RE programme.

Fig 15: Sustainalytics' universe data for RE programme

Region	no. of cos.	Listed on exchange	Strong programme	Adequate programme	Some programme	No plan but use RE	Programme and/or usage	No programme	No data / access, insufficient data
Overall	22,961	15,803	345	1,060	12	272	1,689	986	13,128
United States & Canada	7,408	3,936	82	247	0	79	408	242	3,284
Europe	4,698	2,684	132	326	2	61	521	121	2,037
Asia Pacific	8,947	7,956	109	437	10	122	678	575	6,699
Africa & Middle East	946	795	6	29	0	3	38	37	715
Latam & Caribbean	962	432	16	21	0	7	44	11	377
ASEAN - 6 markets	1,116	962	13	46	1	9	69	17	877
			% of total listed companies						
Overall			2%	7%	0%	2%	11%	6%	83%
United States & Canada			2%	6%	0%	2%	10%	6%	83%
Europe			5%	12%	0%	2%	19%	5%	76%
Asia Pacific			1%	5%	0%	2%	9%	7%	84%
Africa & Middle East			1%	4%	0%	0%	5%	5%	90%
Latam & Caribbean			4%	5%	0%	2%	10%	3%	87%
ASEAN - 6 markets			1%	5%	0%	1%	7%	2%	91%

Source: Sustainalytics, Maybank IBG Research

MIBG coverage: 18% companies have some RE programme

We also analysed MIBG's research coverage that are under Sustainalytics' universe . Of the MIBG research coverage of 320 companies, 257 companies are on the Sustainalytics platform. Of these, 54 companies or 21% of companies have some disclosure of their RE programme and/or usage. Of the MIBG coverage, 18% companies have some RE programme and/or usage vs 3% with no RE programme. Again, Malaysia had the highest disclosure at 17 companies with, as a percentage of total listed coverage companies, 16% reporting some RE programme and/or usage vs 3% with no programme.

The best performing was the Philippines at 20% vs 0%, followed by Singapore and Thailand at 19% vs 0%. Indonesia was at 21% vs 13% whereas Vietnam had no disclosures.

Fig 16: Sustainalytics' universe - MIBG coverage regional data for RE programme

Region	MIBG coverage	Sustainaly-tics universe	Strong programme	Adequate programme	Some programme	No plan but use RE	Programme and/or usage	No programme	No data / access, insufficient data
Malaysia	111	88	2	11	0	1	14	3	71
Singapore	52	42	3	3	0	2	8	0	34
Indonesia	39	39	1	5	0	2	8	5	26
Thailand	57	47	2	5	0	2	9	0	38
Philippines	38	35	0	6	0	1	7	0	28
Vietnam	23	6	0	0	0	0	0	0	6
Total	**320**	**257**	**8**	**30**	**0**	**8**	**46**	**8**	**203**
				% of total listed companies					
Malaysia			2%	13%	0%	1%	16%	3%	81%
Singapore			7%	7%	0%	5%	19%	0%	81%
Indonesia			3%	13%	0%	5%	21%	13%	67%
Thailand			4%	11%	0%	4%	19%	0%	81%
Philippines			0%	17%	0%	3%	20%	0%	80%
Vietnam			0%	0%	0%	0%	0%	0%	100%
Total			**3%**	**12%**	**0%**	**3%**	**18%**	**3%**	**79%**

Source: Sustainalytics, Maybank IBG Research

Note: To calculate CO_2 intensity trend over last three years, Sustainalytics has used FY2021 data, which is compared with the three-year trailing average for the fiscal years 2018-20.

Annexure I

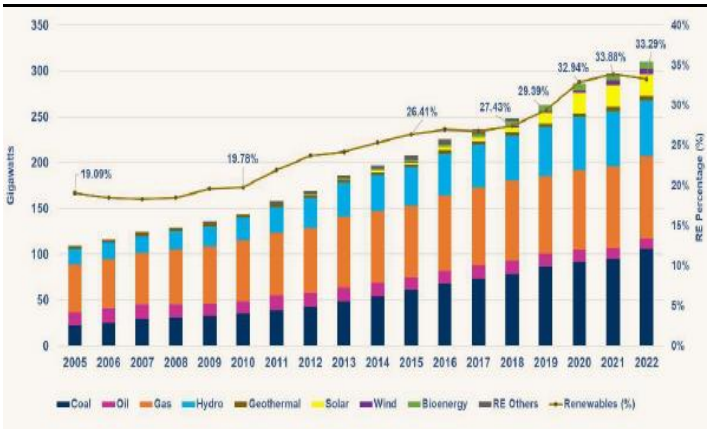
ASEAN region's power capacities, additions and projected capacities in 2025-30. RE capacity and usage, and ASEAN 6 markets Nationally Determined Contributions

ASEAN updated Nationally Determined Contributions

Country	Net Zero target year	Comments
Indonesia	2060	Submitted revised NDC in Sep'22. Targets: 1) Emission reduction of 31.89% (29% earlier) using domestic resources and 43.2% (41% earlier) using international support against 2030 business as usual scenario; b) peat lands restoration of 2m ha and rehabilitation of degraded land of 12m ha by 2030; c) Energy target: new and renewable energy at least 23% in 2025 and at least 31% in 2050, oil should be less than 25% in 2025 and less than 20% in 2050, coal should be minimum 30% in 2025 and minimum 25% in 2050, and gas should be minimum 22% in 2025 and minimum 24% in 2050
Malaysia	2050	Last submission in Jul'21. Targets to be achieved by 2030 vs base year 2005 are: 1) reduce carbon emission intensity 45% - using domestic resources; 2) develop a single platform for carbon credit transaction via Domestic Emissions Trading Scheme (DETS); and 3) retain at least 50% national forest coverage, encourage zero waste and recycling
Philippines	NA	Last submission in Apr'21. Target is reduction and avoidance of GHG emissions by 75% by 2030 from 2020 of which 2.71% is unconditional and 72.29% is conditional, ie, through international support
Singapore	2050	Submitted revised NDC in Nov'22. Targets: 1) to reduce emissions to around 60 $MtCO_2e$ in 2030 (vs 65 $MtCO_2e$ earlier) after peaking its emissions earlier; 2) aims to achieve at least 2 gigawatt-peak (GWp) by 2030 (unchanged), 3) carbon tax raised on progressive basis to SGD80/tCO_2e by 2030
Thailand	2065	Submitted revised NDC in Nov'22. Targets: 1) to reduce its emissions by 30% (vs 20% earlier) unconditionally and 40% (vs 25% earlier) conditionally ie through international resources vs business-as-usual by 2030, 2) to increase forest cover of the country to achieve 55% of the total country area by 2037
Vietnam	2050	Submitted revised NDC in Nov'22. Targets are: 1) reduce GHG emissions by 15.8% (vs 9% earlier) with domestic resources and 43.5% (vs 27% earlier) with international support by 2030 vs 2014; 2) stop deforestation by 2030 and increase forest cover to 42% by 2030 and maintain a stable level to 2050; 3) phase out coal-fuelled power generation by 2040; 4) 43% renewable by 2050 (excluding hydro); 5) 30% reduction in methane emissions by 2030 under the Global Methane Pledge (new)

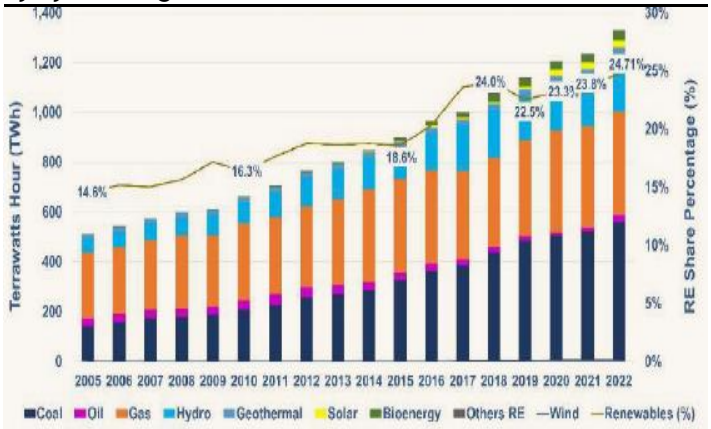
Source: UNFCCC, various sources, Maybank IBG Research

ASEAN: RE at 33.3% of installed power capacity in 2022 of which solar and wind at 9.8%



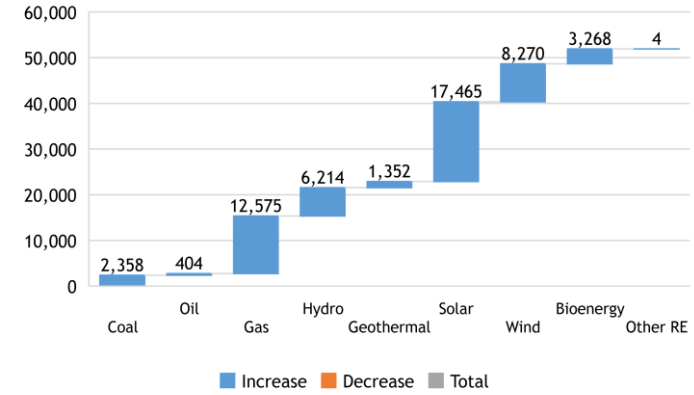
Source: ASEAN Power Updates Nov 2023

ASEAN: RE at 24.7% of power generation in 2022 mainly driven by hydro and geothermal



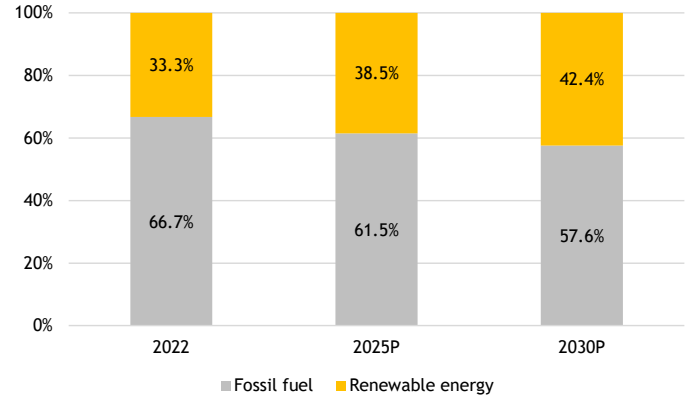
Source: ASEAN Power Updates Nov 2023

ASEAN: Projected additional installed capacity over 2023-2025P by source



Source: ASEAN Power Updates Nov 2023

ASEAN: Share of installed capacity in 2022-2030P, RE capacity at 38.5% in 2025P to surpass target of 35%



Source: ASEAN Power Updates Nov 2023

ASEAN member states RE targets

ASEAN member states	RE share of installed capacity	RE target
Indonesia	15.01%	23% of RE in Total Primary Energy Supply (TPES) by 2035, 31% by 2050.
Malaysia	24.45%	31% of RE share in installed capacity by 2025 and 40% by 2035
Philippines	28.76%	35% RE share in the total generation mix by 2030 and 50% share by 2040
Singapore	7.36%	Achieve the target of at least 1.5 GWp in 2025 and 2 GWp of installed solar capacity in 2030
Thailand	29.96%	30.18% of RE in Total Final Energy Consumption (TFEC) in 2037 and at least 50% of RE share in power mix by 2050
Vietnam	56.88%	11.9-13.4% of RE share in Total Primary Energy Supply (TPES) by 2030, 26.5-28.4% by 2045
ASEAN	**33.29%**	**35% of RE in installed power capacity by 2025**

Source: ASEAN Power updates Nov 2023

Energy plans of various ASEAN member states

Country	New policy	Main changes	
		Fossil fuels	RE
Indonesia	Indonesia Electricity Supply Business Plan (RUPTL) 2021-2030	No new coal-fired power plants to be built apart from those which have already reached financial close or are under construction (an approximate 13.8 GW of coal capacity addition until 2027). The capacity addition of new infrastructure to be minimised and gas/combined-cycle power plants are to be relocated to needy areas (an addition of only 5.8 GW gas capacity)	Renewable energy to account for half of the total power capacity addition between 2021 and 2030 with a total addition of around 40.57 GW. The plan is to utilise more biomass co-firing and to prioritise hydro and geothermal capacity (a total addition of 9.8 GW from both technologies in 2030).
Malaysia	Malaysia Renewable Energy Roadmap (2021 – 2035)	In Peninsular, the retirement of coal power plants with a total capacity of 7,044 MW is projected to be replaced by only 2,800 MW of coal capacity by 2039	New target 31% and 40% of RE share in installed capacity in 2025 and 2035 which make up to 13 GW renewable addition in 2025 and 5 GW more addition up to 2035. The plan is to utilise more solar and hydro
Philippines	Philippines Energy Plan 2020-2040	Share of coal capacity to be reduced from 41.69% in 2020 to 11.46% in 2040. Share of oil capacity to be reduced from 16.41% in 2020 to 3.89% in 2040. Hence, no new coal or oil capacity additions in the intervening years	Planning 7.2 GW and 18 GW of solar additional capacity in 2025 and 2030, respectively, and planning 640 MW of wind in 2030.
Singapore	Singapore Electricity Market Outlook; Singapore Energy Statistics 2022	Decrease the share of natural gas in the power mix. Imports of renewable-based electricity are to reach 4 GW by 2035. Trials for these imports are to be started and are expected to contribute to the electricity supply over the next four years	Aim to achieve 1.5 GW peak capacity by 2035 and 2 GW peak capacity in solar power by 2035. Deployed 285 MW-hours of Sembcorp energy storage systems in February 2023 to enhance grid resilience and support clean energy transitions.
Thailand	Power Development Plan (PDP) rev 1 (2018-2037) (received in 2021)	Decrease the share of coal in the power mix from 18% in July 2020 to 11% by 2037 and increase the share of natural gas in power mix from 53% to 57%	Aim to have RE capacity account for 18,696 MW in the total additional capacity of 56,431 MW by 2037. By that year, the goal is to have 20,766 MW domestic RE generation and 5,857 MW of imported electricity generated from RE sources
Vietnam	Vietnam's PDP 8 (draft received in 2022) (approved in May 2023)	No new coal-fired thermal power plants to be developed other than those already under construction or under investment, and promoted for operation between 2021 and 2025. The share of coal-fired installed capacity to be reduced from 34% in 2020 to 27% in 2030	Wind power to be significantly developed from 600 MW in 2020, to over 11-12 GW in 2025 and over 18-19 GW in 2030. Additional solar capacity to be 2-3 GW in 2030, and additional hydropower capacity is to be around 2.3 GW in 2030

Source: ASEAN Power updates Nov 2023

ASEAN installed power capacity (2022)

ASEAN member states	Coal	Oil	Gas	Hydro	Geo-thermal	Solar	Wind	Bio-energy	Other RE	Total capacity	% RE	% of Solar & Wind
Indonesia	46,044	4,352	20,831	6,689	2,360	272	154	3,099		83,801	15.0%	0.5%
Malaysia	13,168	141	11,718	6,100		1,930		72		33,129	24.5%	5.8%
Philippines	12,443	4,436	3,732	3,775	1,952	1,540	443	611		28,932	28.8%	6.9%
Singapore		764	10,671			516		393		12,344	7.4%	4.2%
Thailand	6,068	374	30,925	8,580		2,909	1,504	2,692	300	53,352	30.0%	8.3%
Vietnam	25,312	166	7,152	22,492		16,364	3,987	193		75,666	56.9%	26.9%
ASEAN	**106,329**	**11,071**	**89,604**	**61,270**	**4,313**	**24,211**	**6,088**	**7,131**	**300**	**310,317**	**33.3%**	**9.8%**

Source: ASEAN Power updates Nov 2023

Annexure II

List of companies reporting stable/declining emissions intensity.

CO_2 intensity 3-year trend: 10-25% decline

						Out/underperformance to country MSCI Index		
Company	Bbg code	Curr	CP (LC)	Rating	TP (LC)	1-yr	3-yr	5-yr
Cahya Mata Sarawak	CMS MK	MYR	1.04	Buy	1.30	(12.8)	(12.0)	(12.7)
Frontken Corp. Bhd	FRCB MK	MYR	3.10	Hold	3.50	(0.8)	15.5	50.0
Genting Plantations	GENP MK	MYR	5.49	Buy	6.00	(4.6)	(9.4)	(2.4)
Heineken Malaysia	HEIM MK	MYR	22.38	Buy	28.20	(15.4)	8.4	11.3
Inari Amertron	INRi MK	MYR	2.96	Hold	3.12	5.4	11.1	19.6
Malakoff Corporation	MLK MK	MYR	0.63	Sell	0.52	(3.9)	0.1	7.9
Sime Darby Bhd	SIME MK	MYR	2.37	Hold	2.53	7.6	11.4	11.0
Sunway Construction Group	SCGB MK	MYR	1.90	Hold	1.85	18.8	5.7	12.4
Telekom Malaysia	T MK	MYR	5.29	Buy	6.50	(3.1)	7.3	23.4
UMW Holdings	UMWH MK	MYR	4.95	Buy	6.22	47.9	22.3	4.8
ComfortDelGro	CD SP	SGD	1.39	Buy	1.55	12.5	(0.8)	0.1
Grab Holdings	GRAB US	USD	3.07	Buy	4.50	7.3	(35.1)	NA
United Tractors	UNTR IJ	IDR	21,850.00	Buy	28,000.00	(19.5)	(4.3)	(0.1)
JG Summit Holdings	JGS PM	PHP	38.45	Buy	58.00	(18.6)	(20.5)	(0.9)
Bangchak Corporation	BCP TB	THB	42.75	Buy	59.00	47.0	33.5	14.1
CP Axtra	CPAXT TB	THB	26.00	Hold	30.00	(21.6)	(13.0)	2.3
Home Product Center	HMPRO TB	THB	12.00	Buy	18.00	(8.1)	(5.9)	2.2

** Share prices as at 12 Dec closing*
Source: Maybank IBG Research, Sustainalytics, Bloomberg

CO_2 intensity 3-year trend: more than 25% decline

						Out/underperformance to country MSCI Index		
Company	Bbg code	Curr	CP (LC)	Rating	TP (LC)	1-yr	3-yr	5-yr
Capital A	CAPITALA MK	MYR	0.85	Buy	1.01	46.0	5.4	(8.7)
IOI Corporation	IOI MK	MYR	3.96	Hold	4.07	3.8	3.9	5.9
MISC Bhd	MISC MK	MYR	7.09	Buy	7.65	(1.4)	9.2	13.3
Petronas Chemicals	PCHEM MK	MYR	7.09	Sell	5.75	(18.7)	6.1	3.6
Press Metal Aluminium	PMAH MK	MYR	4.83	Hold	4.90	(0.1)	12.4	21.2
Sarawak Oil Palms	SOP MK	MYR	2.54	Buy	3.15	(1.7)	4.4	18.8
Sime Darby Plantation	SDPL MK	MYR	4.49	Hold	4.58	1.9	3.6	6.6
Yinson Holdings	YNS MK	MYR	2.48	Buy	5.05	1.5	5.1	12.4
First Resources	FR SP	SGD	1.39	Buy	1.82	(3.2)	8.5	6.7
Aneka Tambang	ANTM IJ	IDR	1,625.00	Buy	2,400.00	(10.8)	3.6	17.5
Bukit Asam	PTBA IJ	IDR	2,350.00	Hold	2,400.00	(31.2)	5.8	1.9
XL Axiata	EXCL IJ	IDR	1,930.00	Buy	3,200.00	(4.1)	(12.3)	(0.1)
Ayala Corp	AC PM	PHP	660.00	Buy	990.00	(8.5)	(9.6)	(2.3)
Converge ICT Solutions Inc.	CNVRG PM	PHP	7.80	Buy	14.30	(50.5)	(22.5)	NA
D&L Industries Inc	DNL PM	PHP	6.04	Buy	10.00	(14.5)	(4.0)	(3.0)
DMCI Holdings	DMC PM	PHP	9.30	Buy	11.25	1.3	30.2	7.9
Semirara Mining and Power	SCC PM	PHP	28.60	Buy	35.65	(0.1)	54.4	20.3
Global Power Synergy	GPSC TB	THB	46.00	Buy	57.75	(22.5)	(12.5)	5.6

** Share prices as at 12 Dec closing*
Source: Maybank IBG Research, Sustainalytics, Bloomberg

CO_2 intensity 3-year trend: Stable (+/-10%)

						Out/underperformance to country MSCI Index		
Company	Bbg code	Curr	CP (LC)	Rating	TP (LC)	1-yr	3-yr	5-yr
Axiata Group	AXIATA MK	MYR	2.31	Buy	3.00	(19.3)	(6.5)	(1.2)
Bumi Armada	BAB MK	MYR	0.50	Buy	0.71	1.9	15.2	29.9
Hibiscus Petroleum	HIBI MK	MYR	2.42	Buy	2.99	(9.6)	22.2	5.5
Maxis Bhd	MAXIS MK	MYR	3.83	Hold	4.00	0.6	0.8	2.9
Mega First Corporation	MFCB MK	MYR	3.57	Buy	4.30	6.4	6.4	24.2
Nestle (Malaysia)	NESZ MK	MYR	117.70	Hold	119.00	(13.8)	1.1	2.8
QL Resources	QLG MK	MYR	5.53	Hold	5.90	(1.0)	1.9	10.3
Sports Toto	SPTOTO MK	MYR	1.48	Buy	1.55	(11.0)	(2.5)	3.0
Tenaga Nasional	TNB MK	MYR	9.93	Hold	10.00	9.0	6.9	4.5
Sembcorp Industries	SCI SP	SGD	5.07	Buy	6.30	55.4	45.8	37.9
Singapore Telecommunications	ST SP	SGD	2.36	Buy	3.10	(9.4)	4.9	4.1
ST Engineering	STE SP	SGD	3.78	Buy	4.20	12.6	5.5	11.0
StarHub	STH SP	SGD	1.10	Hold	1.10	4.1	1.7	(0.2)
Wilmar International	WIL SP	SGD	3.46	Hold	3.99	(9.9)	0.5	11.2
Indocement	INTP IJ	IDR	9,400.00	Buy	12,800.00	(0.5)	(17.2)	(13.1)
Semen Indonesia	SMGR Ij	IDR	6,175.00	Buy	8,600.00	(6.9)	(23.9)	(12.3)
Wilcon Depot Inc	WLCON PM	PHP	20.50	Buy	31.00	(33.8)	3.3	15.0
Advanced Info Service	ADVANC TB	THB	220.00	Buy	251.00	27.7	9.4	13.4
B.Grimm Power PCL	BGRIM TB	THB	26.00	Hold	26.75	(19.9)	(19.5)	6.1
CP All	CPALL TB	THB	52.75	Buy	79.00	(8.0)	(4.5)	0.4
IRPC	IRPC TB	THB	1.95	Buy	2.40	(23.6)	(12.8)	(12.7)
PTT Exploration & Production	PTTEP TB	THB	144.50	Buy	194.00	(11.0)	15.7	10.5
PTT Global Chemical	PTTGC TB	THB	39.00	Sell	28.00	(5.5)	(11.2)	(5.2)
Siam Cement	SCC TB	THB	290.00	Hold	315.00	(1.2)	(6.7)	0.3
Star Petroleum Refining	SPRC TB	THB	7.90	Buy	12.40	(24.6)	1.4	(0.6)
Thai Oil	TOP TB	THB	51.75	Buy	56.00	3.3	2.5	1.0
Thai Union Group	TU TB	THB	15.10	Hold	14.30	(0.9)	3.8	6.3

** Share prices as at 12 Dec closing*
Source: Maybank IBG Research, Sustainalytics, Bloomberg

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