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**Decarbonisation and Net-zero across Asia**

As home to over half of the global population, the Asia-Pacific region is of strategic importance for tackling global climate change. With many of the countries within this region still undergoing rapid yet nascent-stage industrial development, reducing emission at the current stage represents a tremendous challenge, both technically and financially. To obtain a more comprehensive understanding of the regulatory environment and more importantly to capture potential investment opportunities, we have taken a deeper look at decarbonisation commitments made countries and regions across Asia, with special emphasis on those our funds are exposed to.

	India	Philippines	Indonesia	Thailand	China	Taiwan	Korea
Net Zero Target Year	2070	NO	2060	2065-2070	2060	2050	2050
2030 CO2 Reduction Targets <sup>1</sup>	NO	-3% <sup>2</sup>	-29% <sup>3</sup>	-20% <sup>4</sup>	-65% <sup>5</sup>	-20% <sup>6</sup>	-40% <sup>7</sup>
Carbon Pricing	NO	NO	Carbon Tax- \$2/ton	NO	Emission Trading Scheme - \$7/ton	NO	Emission Trading Scheme - \$26/ton
Methane Reduction Target <sup>8</sup>	No	30% by 2030	30% by 2030	No	No	No	30% by 2030
New Energy Vehicle (NEV) Target	30% by 2030 <sup>9</sup>	21% by 2030	20% by 2025	100% by 2035	20% by 2025	NO	33% by 2030
Current NEV Penetration <sup>10</sup>				4%	16.4%	10%	24.7% <sup>11</sup>
Renewable Energy Capacity Target	50% by 2030	35% by 2030	51.6% by 2030	30% by 2036	50% by 2025	40% by 2030	30% by 2030
Current Renewable Energy Capacity	25%	21.2%	12.4%	10%	42.4%	5.4%	14%

Low 
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 GDP per Capita High

## India

Being the third-largest emitter after China and the U.S., India recently announced a target to achieve net-zero in 2070. Although this target has been criticised by many environmentalists as being unambitious, one has to keep in mind the fact that its high agriculture-related emissions

<sup>1</sup> Unconditional reduction not dependent on external support.

<sup>2</sup> Referenced against a projected business-as-usual scenario of 3,340.3 MtCO<sub>2</sub>e.

<sup>3</sup> Referenced against an unspecified 2030 business-as-usual scenario.

<sup>4</sup> Referenced against an unspecified 2030 business-as-usual scenario.

<sup>5</sup> Referenced against the 2005 carbon intensity (CO<sub>2</sub>/GDP).

<sup>6</sup> Referenced against the 2005 emission level.

<sup>7</sup> Referenced against the 2018 emission level.

<sup>8</sup> The Global Methane Pledge aims to limit methane emissions by 30% compared with 2020 levels. It was signed by over 100 countries at COP26.

<sup>9</sup> 30% of passenger vehicles, 70% for commercial vehicles and 80% for two- and three-wheelers.

<sup>10</sup> For all vehicles unless otherwise specified.

<sup>11</sup> Hydrogen, plug-in and pure-battery vehicles combined market share as of August 2021.

(16%) and extremely low emissions per capita make it much more difficult for India to reduce emissions. Despite India's pushback on completely phasing out coal, the country ambitiously aims to increase renewable energy in the overall mix to 175GW by 2022 and 500GW by 2030. According to our internal estimates, at least 75% of the incremental energy needs of India over the next decade are likely to be met by renewable energy. To reduce emissions from the transportation sector, the Indian government has also been aggressively pushing for the adoption of electric passenger vehicles with a target penetration rate of 30% by 2030.

### **Philippines**

As one of the world's most vulnerable countries to the impact of climate change, the Philippines is definitely not doing enough to defend itself from extreme climate events. Breaking down its revised 75% emission reduction target, 72.29% of the reduction is conditional upon the highly uncertain "support of climate finance, technologies and capacity development provided by developed countries", leaving less than 3% of reduction attributed to domestic efforts. After its moratorium on new coal-fired power plants in 2020, Philippines recently joined an Asian Development Bank-led initiative to retire 50% of its coal power plants over the next 10 to 15 years. As one of the few countries that is still without a Net-Zero target, the Philippines have to accelerate their target setting process and drive more investments towards the renewable energy space.

### **Indonesia**

As a fast-growing energy consumer and top exporter of coal, Indonesia surprisingly pledged to reduce methane emissions by 30% by 2030 and to end the unabated use of coal<sup>12</sup> at COP26. President Joko Widodo also announced a carbon tax to be applied at a minimum rate of 30 rupiah (\$0.002) per kilogram of CO<sub>2</sub> equivalent, becoming Asia's fourth country to introduce a carbon tax. To gradually exit from coal which currently make up 65% of its energy mix, the Indonesian government has also been aggressively pushing for renewable energy development, particularly in rooftop solar installations. However, quadrupling the capacity of renewable energy within such a short period of time is likely to be burdensome for the country's utility grid without adequate investments in smart grid and energy storage infrastructure. With all these encouraging steps toward Net-Zero, the island country is still badly in need of external financial support to help its forestation and boost its renewable energy sector.

### **Thailand**

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<sup>12</sup> "Unabated use of coal" refers to coal power generation that isn't mitigated with technologies to reduce CO<sub>2</sub> emissions.

Constantly facing extreme heat, droughts and flooding, Thailand is highly vulnerable to climate impacts. Targeting to achieve carbon neutrality by 2065-2070, the country's ambition is significantly weaker than the ambition of its Asian peers. The Thai government plans to decarbonise its economy by retiring inefficient coal-fired power plants, digitalising power plants, decentralising power supply and producing more electric vehicles despite very limited measures having been implemented so far. Thailand is the only country in Asia with a 100% NEV target, yet with very limited incentives provided to car makers and to car buyers. Due to natural gas' dominant role (57.5%) in its energy mix, Thailand's green transformation is expected to have a detrimental impact on the LNG sector as Thailand is one of the key growth markets for Asia's LNG. On the other hand, leveraging Thailand's largely untapped solar and bioenergy resources could potentially strengthen the country's climate ambitions.

### **China**

Being the world's largest emitter of CO<sub>2</sub>, China has been in the spotlight of every climate change talk. As of 2020, the country has halved its carbon intensity compared to its 2005 level by massively deploying renewable energy and closing highly polluting factories. Earlier this year, a nationwide emission trading scheme (ETS) (i.e. a carbon trading scheme) was launched to regulate emissions from its power generation industry. The scheme is expected to be extended shortly to more industries. Compared to other countries, target-setting is more much conservative in China as the country is already very close to its NEV penetration target and renewable installation target. However, China is still expected by the international community to play a more active role in phasing out fossil fuels and providing assistance to other countries.

### **Taiwan**

Though being excluded from most international bodies and treaties, Taiwan is keen to show that it is a responsible member of the international community by holding non-official events and meetings in Glasgow. Compared to other Asian peers, the push for green transition is largely coming from corporations. Due to the export-oriented nature of its technology manufacturing industry, leading companies have been taking an active role in pushing the island's green manufacturing to win over more environment-conscious clients. As more companies voluntarily committed to using 100% renewable energy, renewable installation on the island could potentially be higher than what had been initially anticipated by the government. However, as a developed region, Taiwan's climate efforts are lagging behind in areas such as carbon pricing and climate mitigation. The prolonged severe drought earlier this year which caused significant production disruption in its chip-making industry should act as a wake-up call for more aggressive climate adaptation measures across the island.

## Korea

Being the world's fifth-largest coal power generator in the world with a highly carbon-intensive economy, Korea confronted the climate challenge early enough to launch the first nationwide emission trading scheme (ETS) in Asia. It covers six sectors: heat and power, industry, buildings, transportation, waste sector, and the public sector, a total of 685 companies representing 73.5% of national greenhouse gas emissions. Unfortunately, this first-mover advantage did not result in more ambitious reduction targets as the country only aims to reduce emissions by 40% in 2030. Even with the increased output from nuclear and solar in recent years, fossil fuels still play a dominant role (67%) in its energy mix. So far the country remains reluctant to aggressively reduce its dependence on fossil fuels. For its automobile industry to keep up in the electric vehicle (EV) race, the Korean government plans to spend KRW4.3 trillion (\$3.6bn) on EV infrastructure. It already provides a subsidy of 19 million won (\$16,000) for EVs priced under 60 million won (\$50,000) and 37.5 million won (\$31,600) in the case of hydrogen vehicles. To make its domestically produced EVs even more attractive, the subsidy is cut to zero for electric vehicles priced at 90 million won (\$75,740) and above, while a 50% subsidy (\$8,000) is applied to electric vehicles priced between 60 (\$50,000) and 90 million won (\$75,700). Decarbonisation efforts exerted by Korea such as establishing a robust ETS and providing EV subsidies act as a role model for many other Asian countries. The effective utilisation of its largely untapped offshore wind resources could potentially bring the country's climate ambition to the next level.

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