Market Commentary OCT || 2022

OUTLOOK FOR ASIAN ENERGY INFRASTRUCTURE REMAINS POSITIVE AS ECONOMIES DECOUPLE FROM G7

ThomasLloyd

Executive summary

- More than USD44 trillion in market capitalisation has been lost in global equity and bond markets since their Q4 2021 peak; a decline of more than 20% in just under 12 months. Most of these declines have come in Developed Markets. Portfolio diversification should boost the demand for real assets in Emerging Markets.

- Selling pressure across asset classes has become more widespread and correlations have increased as interest rates rise globally. This presents significant opportunities for investors in cases where the fundamental outlook for asset valuations, cash flow and profitability have not changed.

- There are no major signs of market stress in our target markets in Asia. 10-year bond yields have risen by far less than in Developed Markets and spreads versus the United States have even been narrowing over recent quarters.

- Increases in interest rates – and therefore the discount rates used to calculate the present values of future cash flows – are significantly lower in our target markets than elsewhere. This will likely lead to NAV challenges in Developed Markets which Emerging Markets do not face.

- Emerging Market currencies' performance versus the US Dollar has generally been much better than their Developed Market counterparts. Over the past 12 months, the USD has risen 9% vs the Vietnamese Dong, 10% versus the Indian Rupee and 16% against the Philippine Peso. Against the Euro and British Pound, it has gained 18 and 22% respectively.

- The economic challenges in Europe and North America are very different to those in our target markets, which are becoming increasingly resilient and better able to withstand external shock.

- Demand for electricity in Emerging & Developing Asia is set to rise substantially as a result of rapid population growth, continued urbanisation and higher household incomes.

- Not only can our target markets withstand a much lower pace of growth in China than was seen in the two decades prior to the COVID pandemic, but the IMF's latest forecasts show they are resilient in the face of a sharp slowdown – and likely recession – in the world's major advanced economies. Emerging & Developing Asia is increasingly decoupled from Europe and North America. External trade is no longer the major economic driver. Instead, domestic demand driven by population growth, innovation and rising household incomes will help these countries on a path to self-sustaining economic development.

- Regulatory certainty helps mitigate development risk. An enabling policy framework and a welcoming environment for foreign inward investment underpin the attractiveness of long-term electricity supply contracts.

- The investment case for sustainable energy infrastructure in the fast growing markets of Emerging & Developing Asia remains as compelling as ever, providing attractive yields and returns which are uncorrelated with Developed Markets.

Current market environment

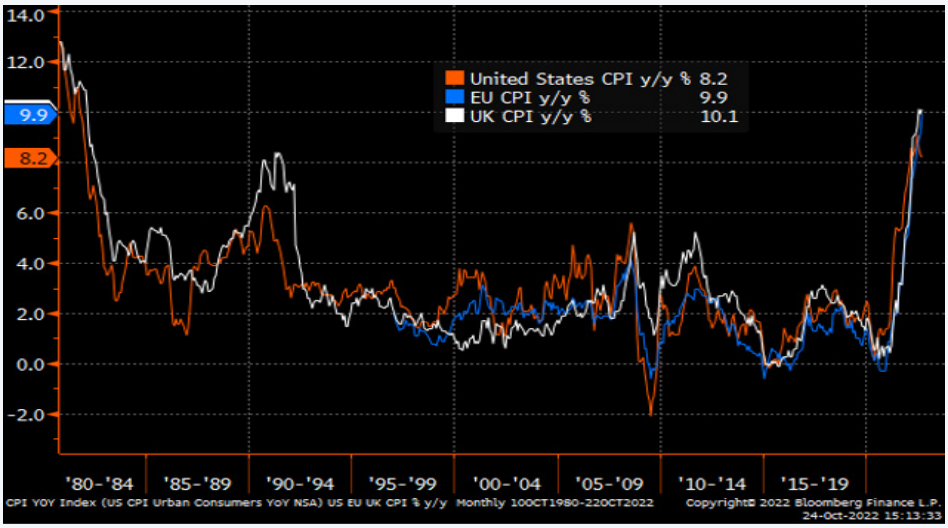
The current period of high inflation, low growth and rising interest rates has been especially painful for investors. In H1 2022 and for the first time in over 50 years, a more than 20% decline in equity markets worldwide was accompanied by a near double-digit percentage loss in bonds. The scale of value destruction is quite staggering. Total world stock market capitalisation tumbled by USD23.6 trillion whilst the value of global outstanding investment grade debt value fell by USD8.2 trillion.

These trends largely continued into Q3. Another USD8.5 trillion was wiped off global equity values whilst debt fell another USD3.8 trillion. From their respective peak values in Q4 2021, the total value of these two assets combined fell by more than 20%.

Chart 1: Total market value of world equity and bond markets (USDtn)

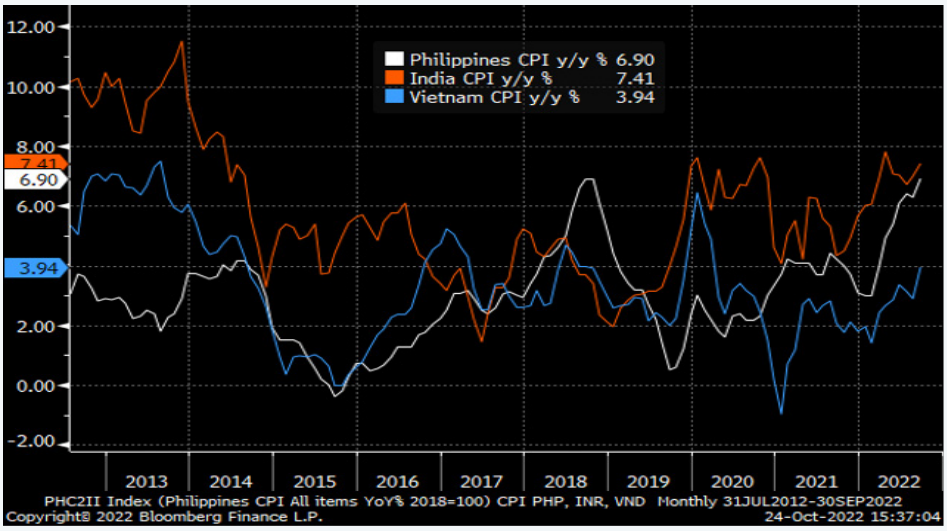
With the post-pandemic recovery in demand accompanied by continued supply-chain bottlenecks, but Central Banks globally still claiming that price pressures were 'transitory' and refusing to raise interest rates even as energy prices soared after the Russian invasion of Ukraine, inflation has returned around the world. It is particularly pronounced in the European Union, the United Kingdom and the United States with rates of 9.9%, 10.1% and 8.2% respectively. Indeed, these rates of inflation are the highest in almost 40 years.

Chart 2: CPI Inflation in the European Union, United Kingdom and United States



Whilst the scale and speed of this increase in inflation is unprecedented in more than a generation, the opposite applies to our target markets in Asia. Yes, inflation has risen in the Philippines, India and Vietnam, but in all three countries, it is no higher than in the recent past. In 2018 or 2019, inflation in all these markets was higher than it is today. A relatively lower weighting for fuel prices in the CPI basket along with government subsidies for basic food and other essential items help explain this different inflation behaviour.

Chart 3: CPI Inflation in the Philippines, India and Vietnam



The rise in inflation in Europe and North America has finally triggered an interest rate response from monetary policy makers, but this has also sent the cost of servicing government debt soaring. A cumulative 300bp of rate rises from the US Federal Reserve – and at least 75bp more to come imminently – has pushed 10-year bond yields to levels not seen since the Global Financial Crisis (GFC) of 2008-09 or the European Sovereign Debt Crisis in 2011.

Further volatility in government bond markets has been seen recently, most notably since the the former UK Chancellor of the Exchequer's disastrous mini-budget on September 23rd. The announcement of unfunded tax cuts and a significant increase in government debt sent UK bond yields soaring and sharply raised the discount rate used to value future assets, liabilities and income streams of all UK investments. The 10-year UK government bond yield rose 112bp in just 3 days and went on to hit an intraday high of 4.63% on October 12th; an increase which was unprecedented in modern history.

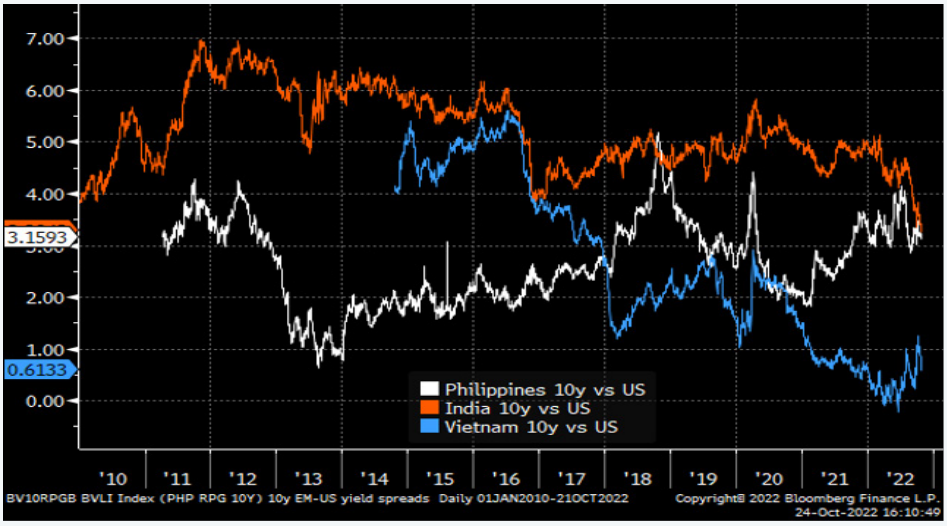
Chart 4: 10-year bond yields in in the European Union, United Kingdom and United States

Yields have also risen in our three main target markets in Asia but, as with inflation, the increases have been much less pronounced and current levels in all cases remain below those seen as recently as 2018. The rise in the cost of borrowing is notable, but by no means alarming and much less than seen in US or Europe.

Chart 5: 10-year bond yields in the Philippines, India and Vietnam

A different way of making this point is to look at the yield spread between 10-year bonds in our target markets and those of a similar maturity in the United States. If there was any real concern about the ability or willingness of governments in Emerging & Developing Asia to repay their debt obligations, then we would expect to see a widening of these differentials. Instead, as we see in Chart 6, in India and Vietnam these spreads have been narrowing in recent quarters. And in the Philippines, where spreads to the US have widened, they still remain below levels seen in 2018 and 2020.

Chart 6: Spread of 10-year bond yields in the Philippines, India and Vietnam, versus United States

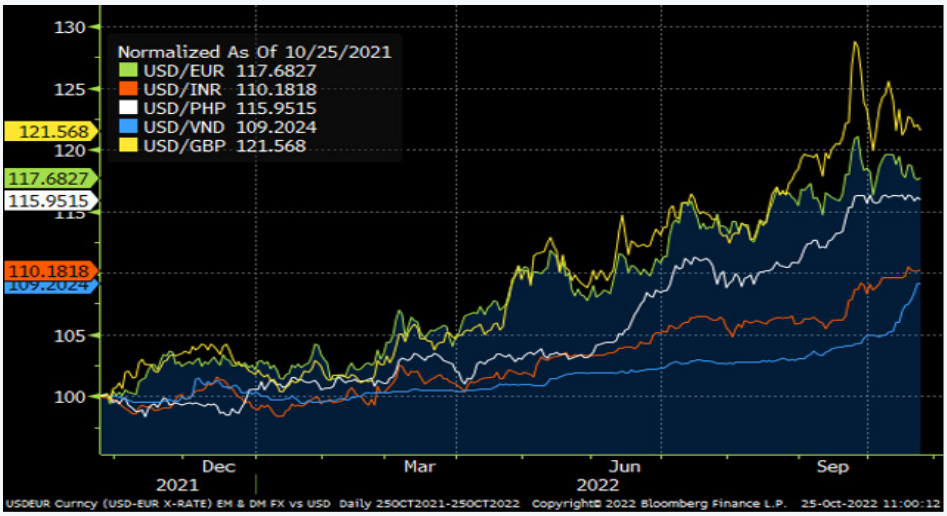


It is clear from the above analysis, that the rise in inflation and bond yields is largely a European and North American phenomenon. The mini-budget on September 23rd was a UK-specific event which had a major impact on UK markets and on sentiment towards UK assets. It is understandable that Renewable Energy Trusts ("RE Trust") with UK assets were hit by rapidly changing assumptions on the levels of corporation tax, the likelihood of windfall taxes on energy companies, price caps and discount rates. The fundamentals for an RE Trust such as

TLEI, focused entirely in the fast growing markets of Emerging & Developing Asia, have not changed. Increases in bond yields across the region have been much more contained and well within the bounds of recent experience. There is no sense of crisis here.

Looking at foreign exchange markets, the US Dollar has risen on a trade-weighted basis by more than 20% over the past 12 months. This strength has certainly pressured Emerging Market currencies around the world but their depreciation versus the US Dollar has generally been in line with or less than their Developed Markets counterparts. Over the past 12 months, the USD has risen 9% vs the Vietnamese Dong, 10% versus the Indian Rupee and 16% against the Philippine Peso. Against the Euro and British Pound, it has gained 18 and 22% respectively. This is a USD issue, not an EM problem.

Chart 7: US Dollar performance against EUR, GBP and our target market currencies

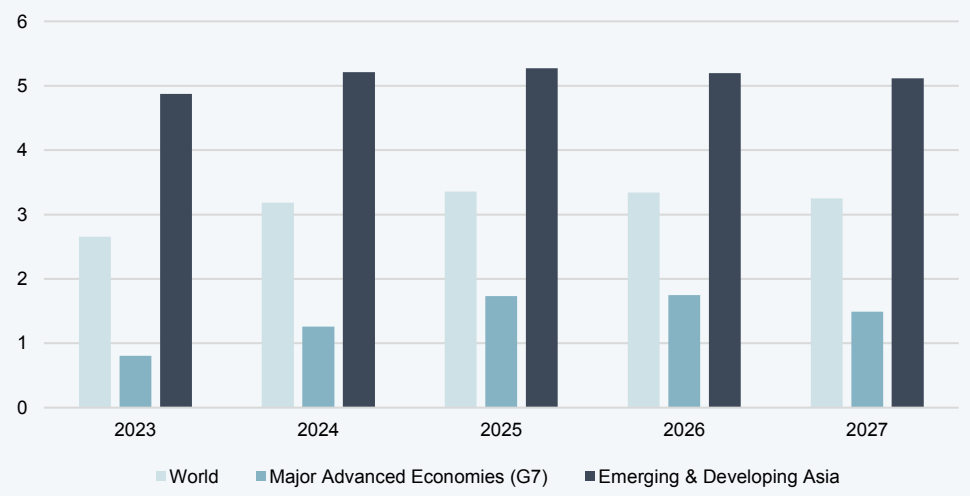


The economic outlook

The striking feature of the IMF's new projections in its October 2022 World Economic Outlook is the extent to which 'Emerging & Developing Asia' is set to outperform the rest of the world. Indeed, the 30-countries together are forecast to grow by 4.9% in 2023; almost twice as fast as the world aggregate, more than five times greater than G7 and ten times the pace of the Euro area.

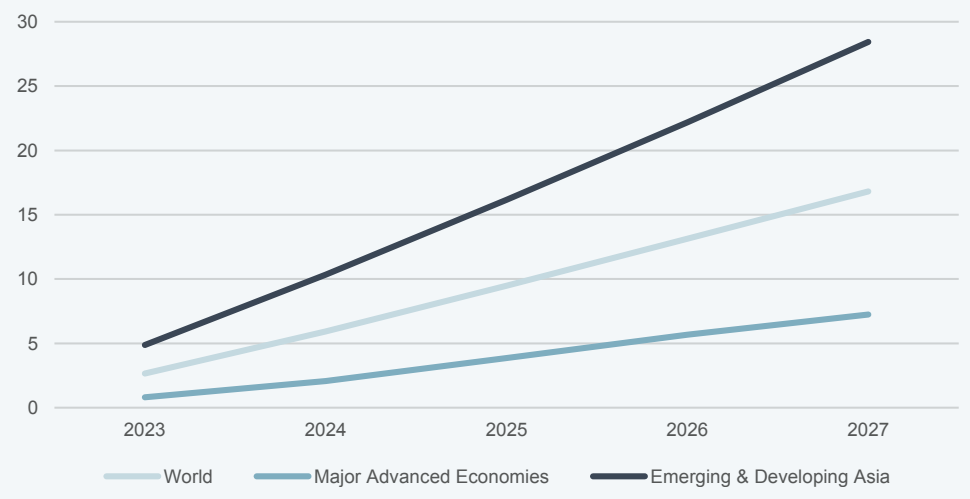
Equally as impressive as the 2023 growth projections are the IMF's forecasts for over the full five year period from 2023 to 2027. With an average growth rate of 5.1% per annum over the next five years, the 'Emerging & Developing Asia' region is once again at the top of the IMF's forecast table.

Chart 8: IMF country group forecasts 2023 – 2027



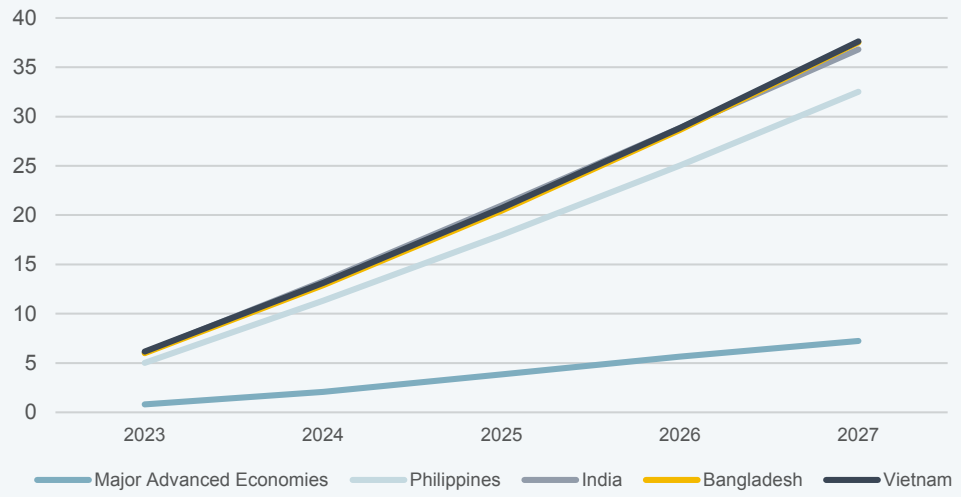
The average annual forecast growth rate of 5.1% means that at the end of 2027, the annual GDP of the 'Emerging & Developing Asia' region will have risen by more than 28% from the end of 2022. This compares to almost 17% for the World aggregate and just 7% for the Major Advanced Economies (G7).

Chart 9: Cumulative economic growth over the next five years



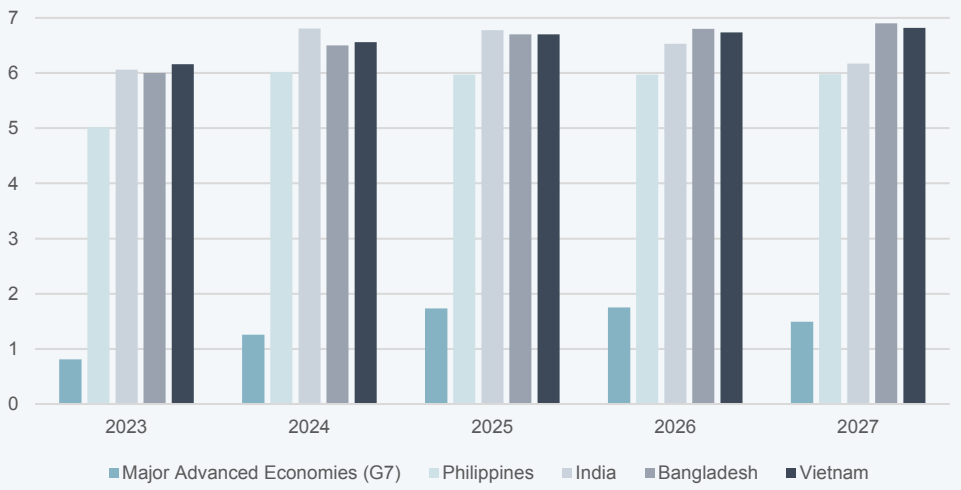
The result of this steady and solid growth is that in 2027 the Philippines' economy is expected to be 32% larger than current levels and India will have grown by 37%. In just five years, both Bangladesh and Vietnam are forecast to have GDP 38% higher than today; a dramatically different picture to the mere 7 % growth which is pencilled in for the Major Advanced Economies (G7) over the same period.

Chart 10: Cumulative economic growth in our target markets over the next five years



Drilling down into individual country forecasts, we see the fastest growth in Vietnam and Bangladesh, both of which are expected to grow by an average 6.6 % per annum over the next five years. India is set to grow by 6.5% per annum over the period, with the Philippines seeing 5.8% average annual growth. These figures are all the more impressive when we see that growth in China – by far the biggest country in the region – is expected to average just 4.5 % per year; a substantially slower pace than in any year from 2000 to 2019 before the outbreak of the COVID pandemic.

Chart 11: Growth in our target markets over next 5 years to significantly outpace G7 nations



Not only can our target markets withstand a much lower pace of growth in China than was seen in the two decades prior to the COVID pandemic, but the IMF's numbers show they are resilient in the face of a sharp slowdown – and likely recession – in the world's major advanced economies. Emerging & Developing Asia is increasingly decoupled from Europe and North America. External trade is no longer the major economic driver. Instead, domestic demand driven by population growth, innovation and rising household incomes will help these countries on a path to self-sustaining economic development.

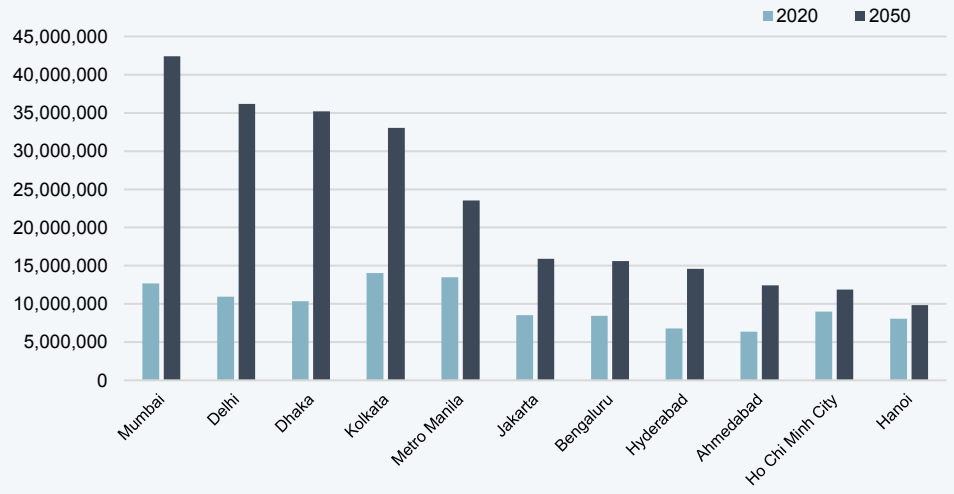
Table 1: Summary of major economic and financial metrics

	Average annual GDP growth forecast 2023 – 27 (%)	CPI Inflation (y/y %)	Change in CPI since end-2020 (%)	10-year government bond yield (%)	Change in 10-y yield since end-2021 (%)	Government debt to GDP ratio (%)
United States	1.6	8.2	+6.8	4.22	2.71	128.1
European Union	1.7	9.9	+10.2	2.40	2.58	87.9
United Kingdom	1.4	10.1	+9.5	3.91	3.00	95.3
Philippines	5.8	6.9	+3.6	7.48	2.66	57.0
India	6.5	7.4	+2.8	7.44	0.99	84.2
Vietnam	6.6	3.9	+3.7	4.92	2.83	39.7

Population growth

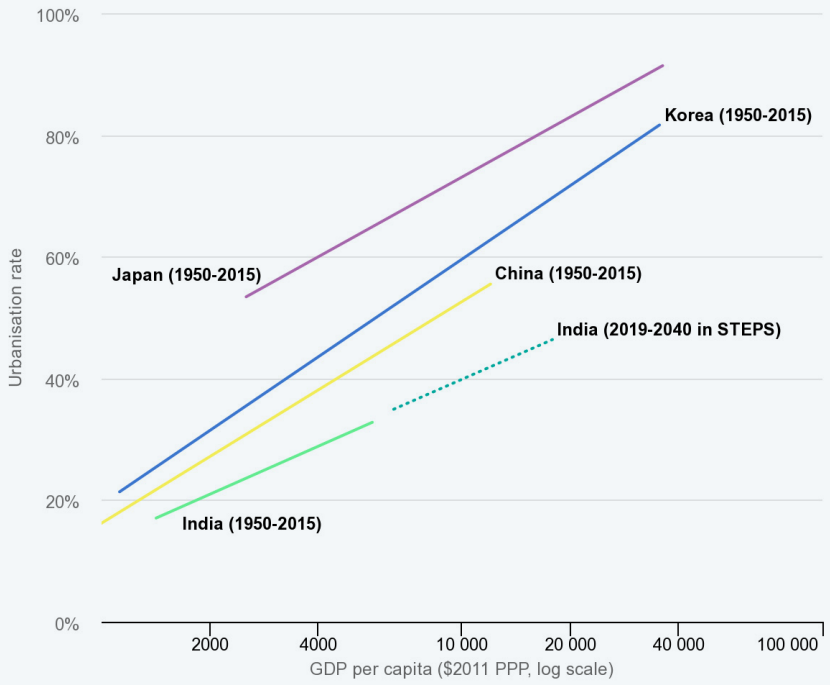
Over the next 25 years, Asia's population will grow by more than 650 million and will reach 5.3 billion by 2050. In India, Mumbai alone will have 42 million people – more than the entire population of Poland today. Add Kolkata, and these two cities combined will have a population greater than either France or the United Kingdom. Demand for electricity is certain to increase substantially.

Chart 12: Population growth in major Asian cities (ex-China)



Research from the International Energy Agency (IEA) looks at the relationship between urbanisation and per capita income across a variety of Asian countries. It includes forecasts for India out to 2040 and makes a strong point about future potential incomes. STEPS refers to Stated Policies Scenario (STEPS), which incorporates current known assumptions about the economic, political and regulatory frameworks. In all the countries reviewed, greater urbanisation correlates very strongly with greater per capita incomes.

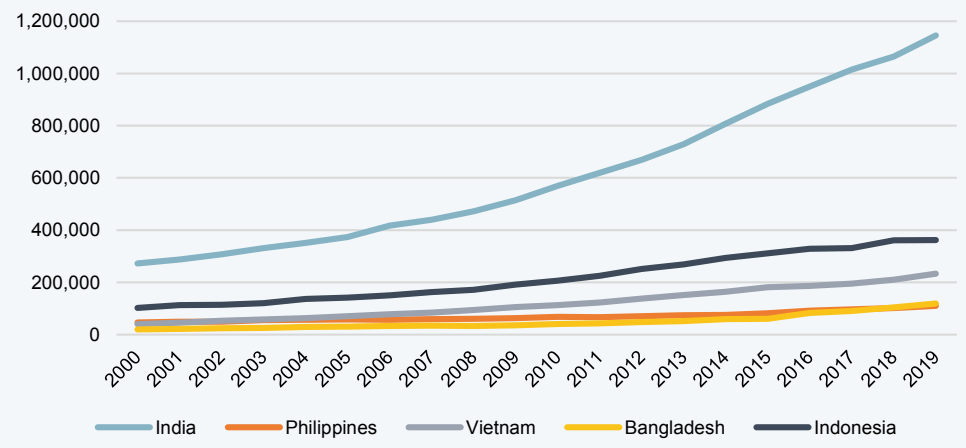
Chart 13: Urbanisation and per capita GDP in selected Asia countries over time



Demand for energy

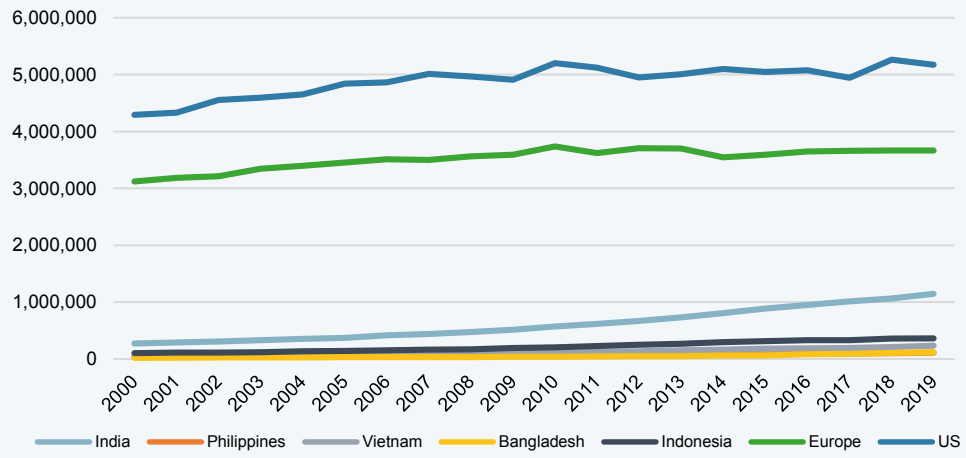
Population growth along with greater urbanisation and rising incomes have already led to rising electricity consumption in our target markets. Over the last two decades, household electricity consumption has more than doubled in the Philippines, whilst in Indonesia, Bangladesh, Vietnam and India the percentage increases extend from 250% to more than 500%; a truly remarkable transformation in just 20 years.

Chart 14: Selected Asian countries' household electricity consumption (terrajoules)



Impressive as the growth in electricity consumption has been, comparisons with Europe and the United States highlight the potential for substantial further increases to come. Even after a 320% increase between 2000 and 2019, India's household electricity consumption is more than three times smaller than Europe and almost five times smaller than the United States. The population of the United States is only twice that of Bangladesh, yet its household electricity consumption is more than 40 times greater. There is scope for significant growth across our target markets.

Chart 15: US, Europe and Asia household electricity consumption (terrajoules)



Europe's total electricity consumption has risen just 3.1% over the last 20 years and in the last decade it has actually fallen by 7.1%. The United States' consumption has risen 5.1% since 2000 but even there, it has fallen by 2.1% over the past decade. In the Asia-Pacific region, by contrast, consumption has more than tripled over the last 20 years and is set to grow substantially more as the result of population growth, urbanisation and greater per capita incomes.

After the Russian invasion of Ukraine, Europe is actively trying to reduce energy consumption even further. As well as affordability constraints due to higher prices, governments are passing legislation to reduce electricity use in public buildings and households are shifting their own behaviour accordingly. The future may be characterised by a switch from automotive fossil fuels to more battery powered vehicles in wealthier European nations, but this will be neither quick nor widespread given cost considerations. Overall, the growth opportunities seem limited and may only come from the replacement of existing fossil-fuel generation capacity rather than an expansion of the entire electricity supply system.

The contrast with Asia is stark. More people with more disposable income want to use more electricity. Continued migration to urban areas and the rise of mega-cities across the region are helping drive this demand. Over the next 25 years, the increase in population across the region – even with little or no change in China – will be equivalent to adding almost 1.5 times the population of the 28 nations of the European Union. New electricity generation capacity across the Emerging & Developing Asia region will be required to meet this new demand. Unlike Europe, this is not a 'nice to have' whose timing can be delayed, but an imminent 'must have'.

Regulatory certainty

The energy policy environment in Asia is arguably a lot more stable than most 'developed' economies. While Europe is no doubt the world leader in sustainable finance, with a strong and decisive lead from the European Commission, many western countries have been less stable or decisive on energy policy. The experience of solar investors in Spain around the time of the European Sovereign Debt Crisis in 2011 was both painful and costly, with many developers driven to bankruptcy by the abrupt and retrospective withdrawal of government subsidies. Progress is certainly being made now, but Asia has been clearer on its intentions to move towards alternative sources of energy and has a much more enabling long-term policy framework.

Asia's regulatory environment around renewable energy provides a stable platform for foreign investors – countries across Asia have made it very clear they need more foreign capital and are creating the policy environment to facilitate this. For investors and developers, long-term income streams averaging around 25 years come from contracts with government or quasi-government entities. There have been no defaults in our target markets.

The levelised cost of electricity (LCOE) is the most commonly used metric to assess cost competitiveness of power generation technologies. The main strength of the LCOE is that it compresses all the direct technology costs into a single metric, including those related to construction, fuel, carbon prices, operations and maintenance, and can be applied equally well to technologies with a wide range of technical lifetimes.

The IEA Report 'Projected Costs of Electricity 2020' showed the LCOE of low carbon generation technologies were increasingly below the costs of conventional fossil fuel generation. Onshore wind was expected to have the lowest levelised costs of electricity generation in 2025 whilst solar PV, if deployed at large scale and under favourable climatic conditions, can be very cost competitive.

Long-term contractual obligations for electricity offtake are more certain in an environment which requires no government subsidies.

Energy security and economic resilience

Across our target markets, where sunshine is abundant and reliable, the wind blows regularly and biomass is available in significant quantity, there is huge potential to develop locally-produced electricity and sustainable energy infrastructure to meet the demands of growing and more prosperous populations. Increasingly, however, the key drivers of government policy are not just availability or price, but energy security and economic resilience.

As we have seen in Western Europe, energy security is now one of the highest priorities for policymakers. The negative long-term consequences of relying on external energy suppliers, and with no control over quantities delivered or prices paid, are being finally understood. In Asia, however, it has been clear for some time that reduced reliance on imported fossil fuel helps reduce strains on the balance of payments and improves economic resilience; the ability to withstand external shock. In India and the Philippines, this realisation has been one of the drivers of renewable energy policy.

Rising prices for fossil fuels – crude oil and natural gas – can only increase the relative attractiveness of renewable energy, and we expect demand for this to continue to grow strongly, especially in those countries that are still experiencing high rates of both economic and demographic growth, which ultimately drives the demand for electricity.

Amidst the current economic and political uncertainty, one clear bright spot is the ongoing and reinforced commitment to decarbonise the global economy and to mitigate the effects of man-made climate change. Renewable and sustainable energy is at the heart of the transition to a growth path with lower CO_2 emissions per unit of GDP, and there are significant positive spill-overs from lower imported fossil fuel costs.

The new jobs created from clean, sustainable, locally produced energy will help offset the social tensions created by falling real incomes and higher food prices for many of the world's poorest people. The biggest challenge in these unsettling times of war and a cost of living crisis is not to close borders and retreat into petty nationalism, but to place resilience, energy security and environmental protection at the heart of every economic plan.

Renewable energy infrastructure has a major role to play in future energy security and economic resilience.

Disclaimer