

Clean Energy Transition: Construction

Building a sustainable future

Asia's construction industry is facing a period of growth. This is partly driven by the need for housing (especially in emerging economies where there is trend towards increased urbanisation) and partly by infrastructure projects for strategic sectors such as renewables and electric vehicles.

The region currently constructs more than half of the world's new buildings every year, and the industry accounts for about a quarter of Asia's overall energy consumption. This is through the heating and cooling of buildings and operation of appliances, as well as construction processes.

In a continent that accounts for 60% of the world's population, increasing urbanisation presents significant opportunities for the industry. However, it also brings major challenges, especially concerning sustainability and its ability to achieve Net Zero targets by 2050.

Last year China's Ministry of Housing and Urban-Rural Development implemented the General Code for Building Energy Efficiency and Renewable Energy Utilisation. This requires all new, expanded, or renovated buildings to be designed for energy efficiency. In the same year, Japan revised its building regulations, requiring Net Zero for new builds by 2030 and for all buildings by 2050.

Although other governments in Asia have also passed similar legislation, this regulatory approach is not consistent across the region. It is absent in some of the emerging economies, or at least lags behind their more developed neighbours.

What are the CO_2 emissions of the construction industry in 2023?



Source: www.iea.org/energy-system/buildings

What do Atradius Asia underwriters see as the primary issues for the sector in the region?

We gathered construction industry insights from Atradius underwriters in: China, Hong Kong, India, Japan, South Korea, Taiwan, Thailand and Vietnam. Our underwriter in Hong Kong noted the difficulty of improving energy efficiency in the current building stock and said: "Retrofitting existing buildings to incorporate clean energy technology is a big area of work, as between 60% and 80% of the buildings that will be in existence in 2050 have already been built."

Our underwriters in Japan, Taiwan, Vietnam and South Korea also mentioned challenging cost pressures. They pointed to the high prices of green materials and clean energy transition. However, as our underwriter in Thailand said, projects with strong environmental credentials can enjoy greater opportunities for financing. Our underwriter in Taiwan said: "Investors increasingly consider ESG factors when making investment decisions, so access to capital may improve for the construction sector."

Green construction presents opportunities for the industry, especially in countries with government support or incentives. Our underwriter in China said: "With growing government backing, green building is set to grow significantly, presenting opportunities for architecture, construction, and engineering service firms."
Our underwriter in India explained that although there was not yet any clear guidance on green construction from central government, growth in the sector is being driven by demand, especially from young people.



Top three materials

Here are the top three materials used in the construction industry that cause the most CO_2 emissions:

Cement

The production of cement alone is responsible for 8% of global emissions. This is due to the high energy requirements and the release of CO_2 during the chemical reactions in cement production.

Steel

The production of steel is another major contributor to CO_2 emissions. This is because the process of making steel from iron ore involves the use of large amounts of energy, often derived from burning coal. Every ton of steel produced in 2018 emitted on average 1.85 tons of carbon dioxide, equating to about 8% of global carbon dioxide emissions.

Bricks

Making bricks also creates a significant amount of CO_2. This is due to the high temperatures required to fire the bricks, which are often achieved by burning fossil fuels. While it's challenging to find a specific percentage for bricks alone, the production of materials for the building sector (including concrete, brick, and steel) accounted for 11% of global energy and process-related emissions in 2018. Some estimates suggest the production of cement and bricks could be responsible for 7-8% of global CO_2 emissions. These materials are widely used in the construction industry and their production processes are energy-intensive, leading to high CO_2 emissions. Efforts are being made to reduce the carbon footprint of these materials, such as using more recycled material and machinery powered by clean fuels.



Challenges: What are the most urgent challenges for the sector in Asia over the next three years?

1. Lack of government support
Some markets struggle with a lack of incentives or government direction. This could potentially put them at a disadvantage with competitors that may benefit from government support or investment.

2. Cost of transition
The cost of implementing clean energy technologies is a barrier for smaller businesses and those with lower margins.

3. Materials and skills gap
A shortage of materials and skilled labour with expertise in clean energy construction is a slowing transition in some areas.

Opportunities: What are the greatest opportunities for the sector in Asia over the next three years?

1. Growing demand for green buildings
Increased demand for energy-efficient building designs and retrofitting of existing structures with sustainable technologies are creating opportunities for the industry.

2. Government incentives
Net Zero commitments, tax and other incentives combined with legislation, such as the Chinese regulations that require all commercial buildings in major cities to meet green targets, are helping to drive growth in green construction.

3. Renewables potential
Civil engineering projects associated with renewable energy are creating opportunities for the construction industry, including hydropower projects in China, Thailand and Vietnam.

Where next?
Buildings represent major investments and have a long lifespan. Decisions made today concerning energy efficiency, insulation and sustainability of materials will have an impact on the world's energy use for many years to come. What this may look is likely to vary across markets. For example, our underwriter in South Korea expects differing regulations across countries or even continents are likely to disrupt the competitive power of the sector. Whereas our underwriter in Hong Kong does not anticipate so much disruption.

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