



By Dilek Aykut

Global demand for technologies that increase energy efficiency, reduce pollution, and respond to shifting weather patterns may ease a broad-based decline in foreign direct investment flows to developing countries.

Push for Efficiency and Tech Upgrades May Counter Falling Foreign Direct Investment in Developing Economies

Increased investment in environmental technologies in sectors such as renewable energy, electrical components, and metals are luring private capital, according to IFC research.

These sectors, increasingly favored in emerging markets because of abundant critical minerals and renewable resources, growing energy demand and relatively low operational costs, account for around \$700 billion in announced foreign direct investment (FDI) since 2021, according to an IFC analysis.¹ These projects, if they come to fruition, may generate an estimated 650,000 jobs in developing economies, 100,000 of which will be in Africa.

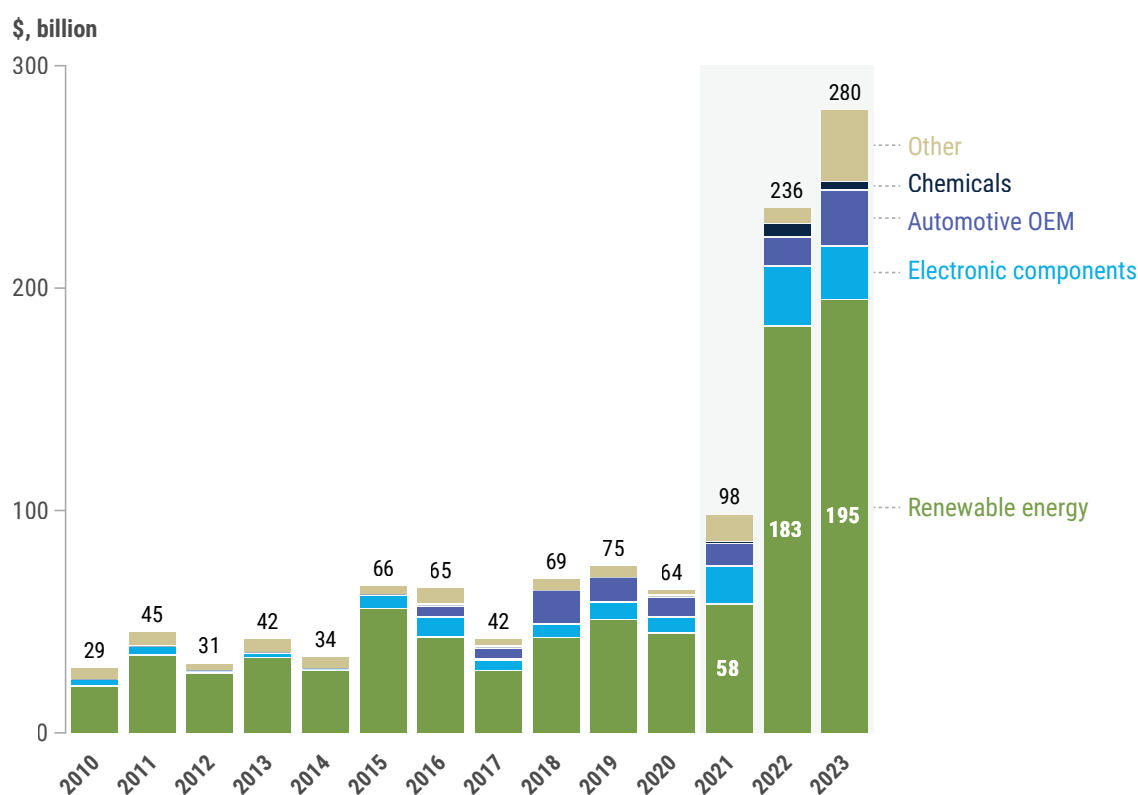
This bucks a broader trend of stagnating FDI in developing countries as geopolitical tensions, the COVID-19 pandemic, high financing costs and prolonged weakness in growth soured investor sentiment. Flows of foreign direct investment to emerging markets outside China have remained stagnant since 2015, at around 2.2 percent of economic output, according to IFC estimates. During the previous decade, the share was around 2.8 percent. Meanwhile, the decline in Africa (excluding South Africa and Mauritius) was even more pronounced, to 2 percent of GDP from 2.8 percent previously. For low-income countries especially dependent on foreign investment because of inadequate local resources and capital markets, the retreat was to 3.4 percent from 3.9 percent.

A surge in announced FDI projects arising from businesses investing in energy efficiency, sustainable resource use, or environmental protection activities across various sectors, is a promising development.² These announcements, which include the establishment of new production facilities and the creation of numerous jobs, have been predominantly fueled by projects aimed at achieving greater energy efficiency, bolstering supply chains, or reducing the environmental impact of economic activity. The proportion of sectors adopting new technologies and practices in areas such as renewable energy, or in parts, components or raw materials that are inputs into sustainable technologies, has more than doubled since 2021, now accounting for a third of all deals announced in emerging economies.

Renewable energy such as wind and solar—key alternatives to fossil fuels, was the leading sector for FDI in emerging markets, accounting for over \$400 billion from 2021 to 2023, or 70 percent of the total, according to IFC estimates (**Figure 1**).

FIGURE 1

FDI Announcements in Sustainable Technologies in Emerging Markets



Source: IFC based on FDI Markets Data • Note: Sustainable technologies are defined by fDi Markets adjusted by IFC.

Meanwhile, the last decade has also seen significant transformation in the scale of FDI-backed projects in renewable energy and other sectors, with a steady rise in the average transaction size. This reflects not only increasing investor appetite for these new technologies, but also the expanding scope and ambition of the underlying projects.

At the top end were nine megaprojects worth \$10 billion or more which helped lift the average deal size globally.³ Notably, seven of these were in renewable energy, including a green hydrogen investment in Mauritania, wind and solar power initiatives in Egypt and Morocco, and a wind power program in Viet Nam.

In other sectors, the largest transactions announced in emerging markets since 2021 also included a \$15 billion project to build an energy-efficient petrochemical refinery and carbon capture storage facility in Indonesia, as well as a \$10 billion investment in a Malaysian solar panel production project.

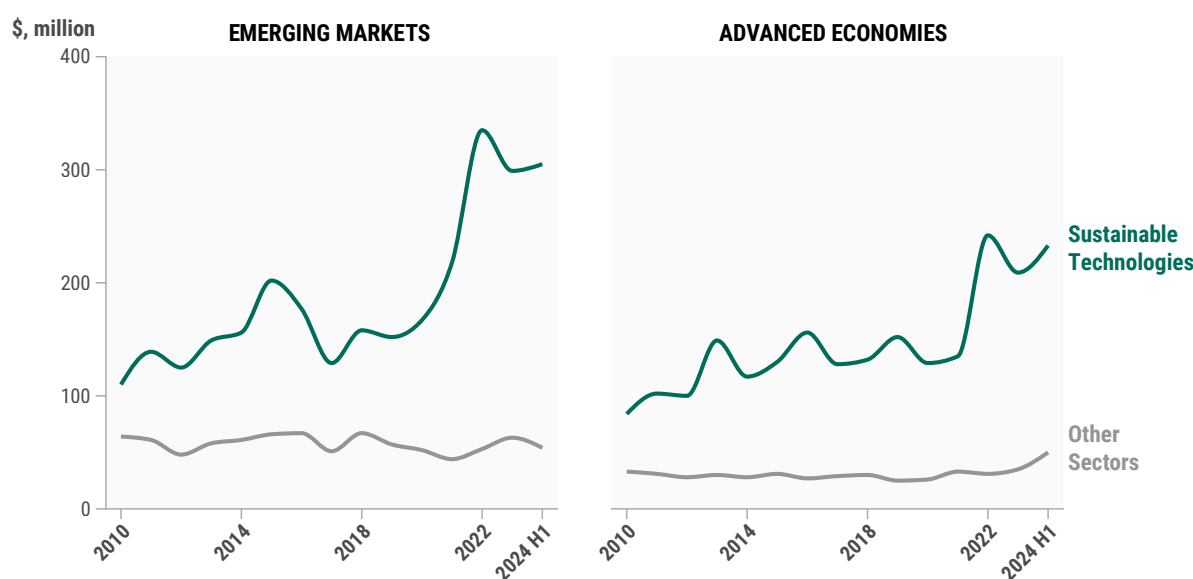
In contrast, the average size of projects in more conventional sectors with less focus on sustainable technologies and methods has remained almost unchanged (**Figure 2**).

Currently, a sustainable technology project is typically worth around \$300 million, effectively double the levels seen a decade ago. This scaling up of FDI projects is not limited to renewable energy. Project sizes have increased across various other sectors as well (**Figure 3**).⁴ Renewable energy projects tend to be larger and require more substantial initial investments due to their front-loaded investment profiles.

FIGURE 2

Average Size of All FDI Announcements

Excluding mega deals

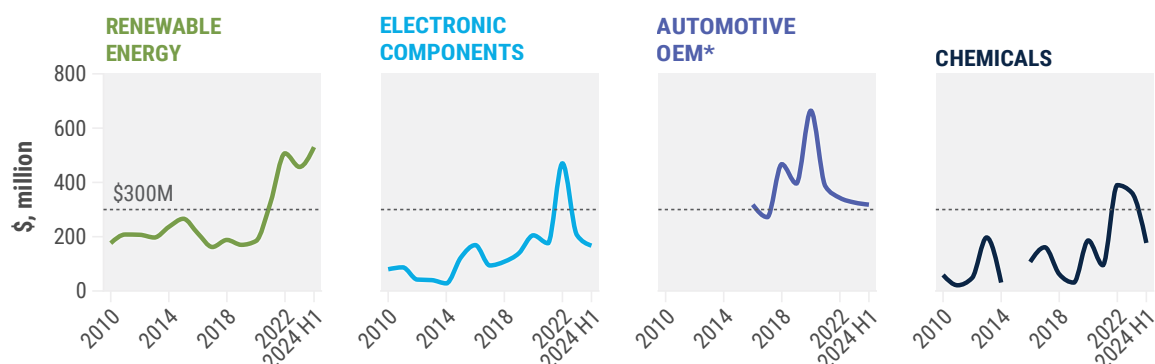


Source: IFC based on FDI Markets Data • Note: Sustainable Technologies are defined by fDi Markets adjusted by IFC.

FIGURE 3

Average Size of FDI Announcements in Sustainable Technologies in Emerging Markets

Excluding mega deals



*OEM stands for Original Equipment Manufacturer.

Source: IFC based on fDi Markets Data • Note: Sustainable Technologies are defined by fDi Markets adjusted by IFC.

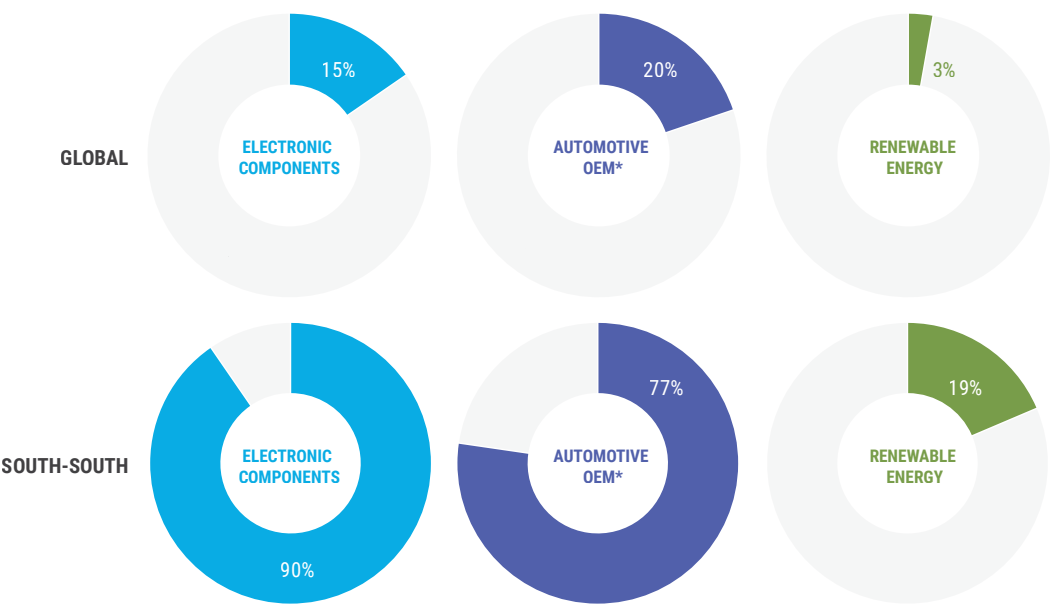
FDI is generally assumed to benefit recipient countries by bringing in capital, creating jobs, transferring technology, and establishing connections to supply chains. It can offer a unique opportunity for substantial economic development. Furthermore, the large scale of recent investments in sustainable technology projects could help make the countries where they are allocated more appealing to other investors.⁵

Another promising feature is the leading role that investors from developing economies are playing in renewable energy, electric vehicles, and the manufacture of components that are used in sustainable technologies. Remarkably, 38 percent of investment announcements related to these sectors in emerging markets are categorized as South-South flows.⁶

Unsurprisingly, China features prominently as the country is already a key global player in electric vehicles and electronic components. But Viet Nam and Egypt also emerge as key contributors to South-South investments in these sectors (**Figures 4 and 5**). In the renewable energy sector, beyond the traditional energy-exporting emerging markets, companies from the United Arab Emirates and Saudi Arabia, and from developing nations such as India, China, and Malaysia have become major investors in other emerging economies. There are notable South-South deals, albeit on a smaller scale, highlighting the emergence of regional players in the sector. For example, Kenyan firms are actively investing in solar electric power projects in Malawi, Senegal, and Sierra Leone. Similarly, companies from Viet Nam have announced electronic components and electric vehicle projects in India and Indonesia, while Turkish companies are expanding their efforts across regions, including countries such as Egypt, Albania, Serbia and Zambia.

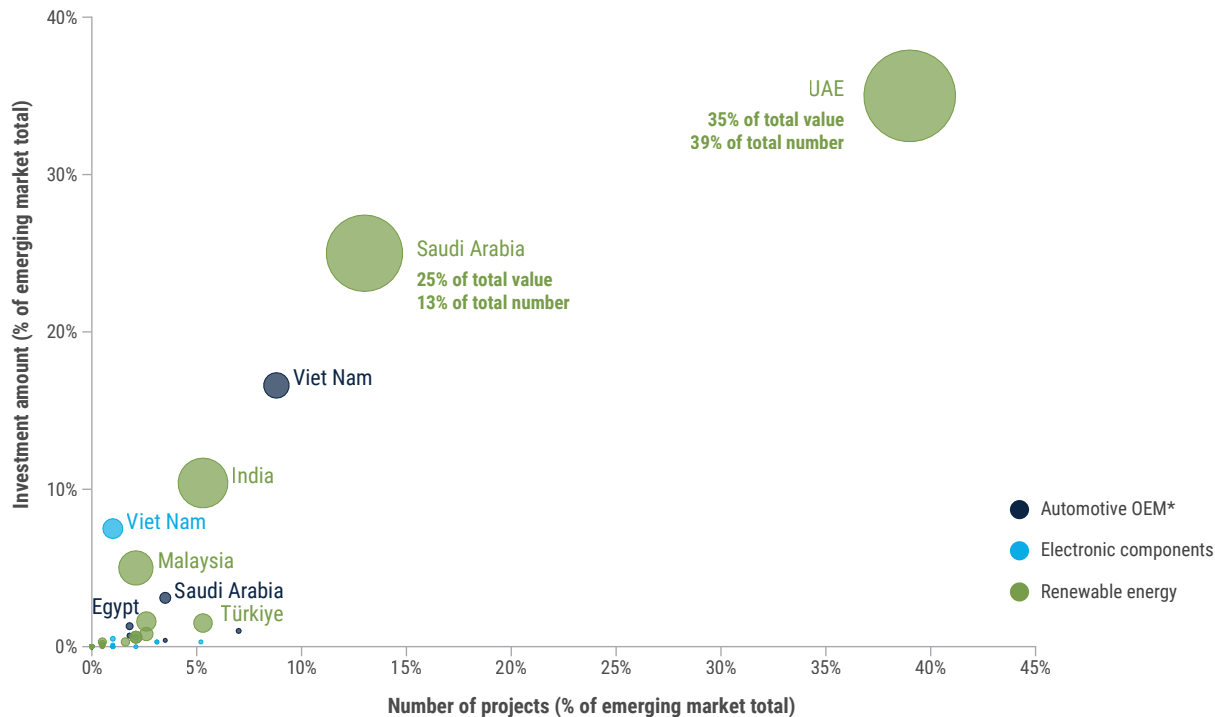
The increasing prevalence around the world of policies focused on climate adaptation and mitigation has contributed to spurring investment flows into renewable energy and electric vehicles (**Figure 6**).⁷ An econometric study by the IMF found that the climate actions taken by advanced economies, such as the introduction of emission standards or subsidies to attract production, have been instrumental for cross-border investments in the electric vehicles sector.⁸ Hungary, Mexico, and Thailand have achieved considerable success at attracting investment into electric vehicles over the past decade while Brazil, Indonesia, and Türkiye have seen similar results since 2021.

FIGURE 4
China's Share of Global and South-South Investments
Select sectors, 2021–2024 H1



*OEM stands for Original Equipment Manufacturer.
Source: IFC based on fDi Markets Data

FIGURE 5
South-South FDI in the Top Three Sectors
2021–2024 H1, excluding China



*OEM stands for Original Equipment Manufacturer. The bubble size represents the total investment amount.
Source: IFC based on fDi Markets Data

For renewable energy investments, domestic climate policies were found to be a primary catalyst, especially in countries with significant solar power potential and minimal dependence on fossil fuels.⁹ Over the last decade, the top emerging market recipients for investment in the sector were Egypt, India, Brazil, and Chile. However, retaining the funds depends on how long the relevant policies are sustained and shifts in political priorities can lead to inflows stagnating as occurred in Mexico after 2020.¹⁰ Also, the experiences of some countries indicate that merely having a large number of policies may not be enough to overcome structural weaknesses.¹¹

Countries with higher growth prospects, trade openness, financial development and a better investment climate are often associated with larger FDI inflows.¹² But the effectiveness of a government's efforts to open an economy and bolster institutions in attracting international capital can be undermined by geopolitical volatility and global risk appetite.

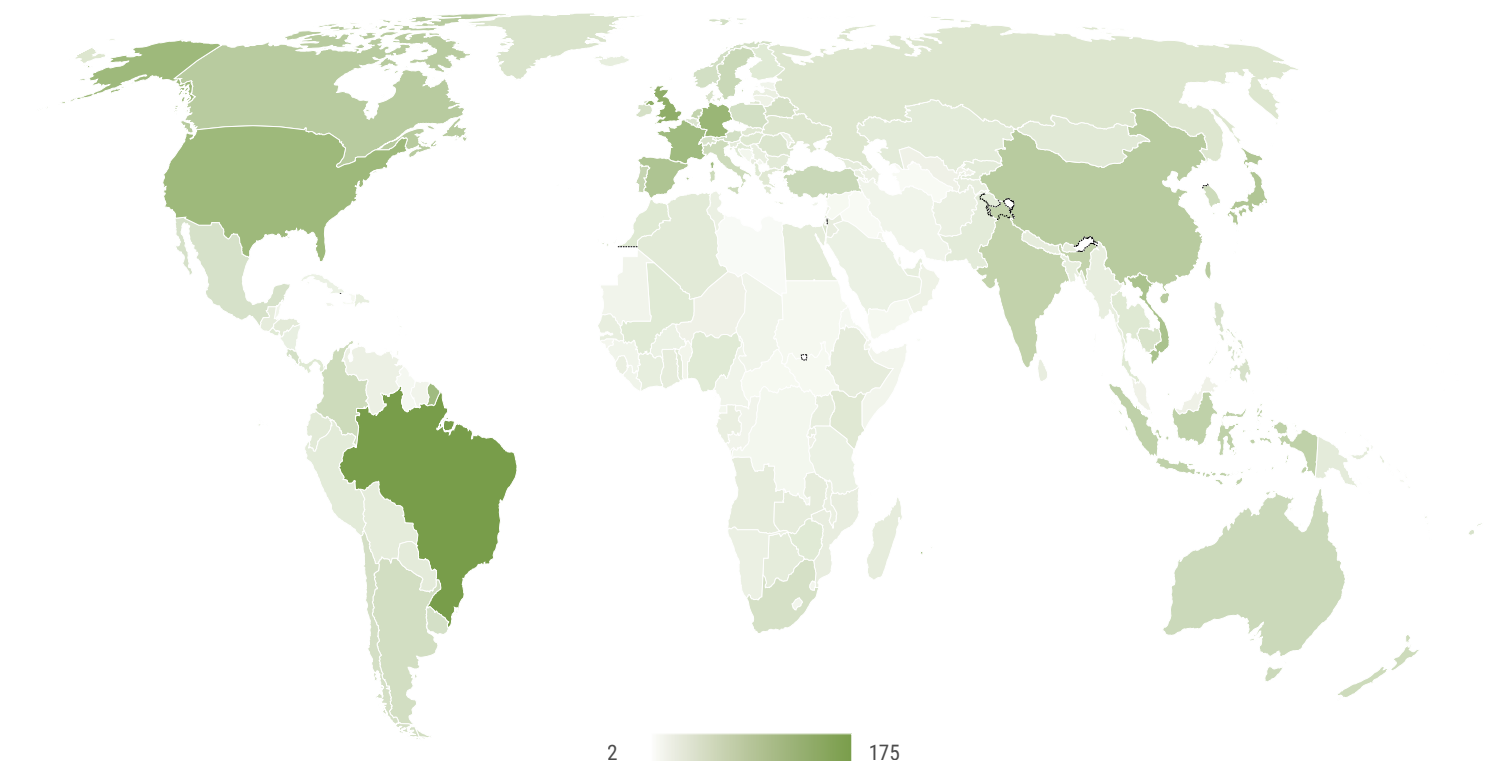
Higher risk aversion on account of global instability can be partially mitigated by support from development finance institutions that can reduce financing costs and make a market more palatable to private capital.

The benefits of FDI to economic development are well documented. Increased capital inflows stimulate growth, generate job creation, and nurture innovation. Emerging economies are often characterized by limited fiscal space, financing costs that are higher than in developed countries,¹³ as well as limited pools of local investment. Attracting international private capital can help developing economies fund industrial and energy transitions.

FIGURE 6

The Number of Climate Laws and Policies

As of 2023, by country



Endnotes

1. fDi Markets defines environment technology projects as any process, product, or service that reduces negative environmental impacts through significant energy efficiency improvements, the sustainable use of resources, or environmental protection activities across any sector. These include projects that are serving the environmental tech industry or projects with the green tags per the definition of fDi Markets including Agri Tech, Alternative Proteins, Carbon Capture, Clean Tech, Cultured Meat, Edible Insects, Electric Vehicles, Hydrogen, Photovoltaic Technologies, Plant-based Foods, Waste to Energy, Wind Power Technologies.
2. Cross-border investment announcements captured by fDi Markets database.
3. As of February 2025, these mega renewable and refinery projects are at different stages of feasibility and development. Among the renewable sector announcements, the projects in Egypt appear to be the most advanced. The electronic component project in Malaysia is operational, while the exact scale of the actualized investment remains undisclosed.
4. The data includes only the green component of the sectors.
5. [Towes and Vezina \(2022\)](#) find that giant and unpredictable oil and gas discoveries trigger an influx of FDI projects within two years in non-oil and gas sectors such as manufacturing, retail, services, and construction in the largest cities and several regions.
6. South-South FDI is when developing countries invest in other developing countries. It has grown in importance in recent years, and some say it offers development opportunities for client countries. See [Aykut and Ratha \(2004\)](#) and [Aykut and Goldstein \(2006\)](#).
7. [Just Energy Transition Partnerships \(JETPs\)](#), which were launched in late 2021, are multilateral funding agreements supported by the International Partners Group (IPG), comprising the European Union, the United Kingdom, the United States, Japan, Germany, France, Italy, Canada, Denmark, and Norway.
8. IMF 2024 ["Climate Notes: Policies to Foster Green FDI: Best Practices for Emerging Market and Developing Economies."](#)
9. Ibid.
10. Ibid.
11. According to the IMF report (2024) ["Harnessing Renewables in sub-Saharan Africa: Barriers, Reforms, and Economic Prospects,"](#) despite Nigeria's active climate policies since 2007, the country has struggled to attract sufficient FDI due to policy uncertainty, weak financing mechanisms, and structural issues like a parallel exchange rate market.
12. [Koepke \(2019\); Ahmed and Zlate \(2014\), Cerutti et al \(2016\), Hannan \(2017\), and Nier et al. \(2014\).](#)
13. According to [IEA \(2024\)](#), one of the most significant obstacles to investing in clean energy projects and infrastructure in many emerging economies is the high cost of capital, which is at least double that of advanced economies and China. This elevated cost is driven by a combination of macroeconomic and country-specific factors, as well as risks unique to the energy sector.



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Photo: Manufacturing of airbag cushions at the Key Safety Systems facility in Macedonia. Photo © Robert Spasovski/IFC