Iceland energy storage investment trends

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Global energy investment is set to exceed USD3trillion for the first time in 2024, with USD2trillion going to clean energy technologies and infrastructure. Investment in clean energy has accelerated since 2020, and spending on renewable power, grids and storage is now higher than total spending on oil, gas, and coal.

As the era of cheap borrowing comes to an end, certain kinds of investment are being held back by higher financing costs. However, the impact on project economics has been partially offset by easing supply chain pressures and falling prices. Solar panel costs have decreased by 30% over the last two years, and prices for minerals and metals crucial for energy transitions have also sharply dropped, especially the metals required for batteries.

Yet much more needs to be done. In most cases, this growth comes from a very low base and many of the least-developed economies are being left behind (several face acute problems servicing high levels of debt). In 2024, the share of global clean energy investment in EMDE outside China is expected to remain around 15% of the total. Both in terms of volume and share, this is far below the amounts that are required to ensure full access to modern energy and to meet rising energy demand in a sustainable way.

Power sector investment in solar photovoltaic (PV) technology is projected to exceed USD500billion in 2024, surpassing all other generation sources combined. Though growth may moderate slightly in 2024 due to falling PV module prices, solar remains central to the power sector"s transformation. In 2023, each dollar invested in wind and solar PV yielded 2.5 times more energy output than a dollar spent on the same technologies a decade prior.

In 2015, the ratio of clean power to unabated fossil fuel power investments was roughly 2:1. In 2024, this ratio is set to reach 10:1. The rise in solar and wind deployment has driven wholesale prices down in some countries, occasionally below zero, particularly during peak periods of wind and solar generation. This lowers the potential for spot market earnings for producers and highlights the need for complementary investments in flexibility and storage capacity.

Investments in nuclear power are expected to pick up in 2024, with its share (9%) in clean power investments rising after two consecutive years of decline. Total investment in nuclear is projected to reach USD80billion in 2024, nearly double the 2018 level, which was the lowest point in a decade.

Grids have become a bottleneck for energy transitions, but investment is rising. After stagnating around USD300billion per year since 2015, spending is expected to hit USD400billion in 2024, driven by new policies and funding in Europe, the United States, China, and parts of Latin America. Advanced economies and China account for 80% of global grid spending. Investment in Latin America has almost doubled since 2021, notably in Colombia, Chile, and Brazil, where spending doubled in 2023 alone. However, investment

remains worryingly low elsewhere.

Investments in battery storage are ramping up and are set to exceed USD50billion in 2024. But spending is highly concentrated. In 2023, for every dollar invested in battery storage in advanced economies and China, only one cent was invested in other EMDE.

Investment in energy efficiency and electrification in buildings and industry has been quite resilient, despite the economic headwinds. But most of the dynamism in the end-use sectors is coming from transport, where investment is set to reach new highs in 2024 (+8% compared to 2023), driven by strong electric vehicle (EV) sales.

The rise in clean energy spending is underpinned by emissions reduction goals, technological gains, energy security imperatives (particularly in the European Union), and an additional strategic element: major economies are deploying new industrial strategies to spur clean energy manufacturing and establish stronger market positions. Such policies can bring local benefits, although gaining a cost-competitive foothold in sectors with ample global capacity like solar PV can be challenging. Policy makers need to balance the costs and benefits of these programmes so that they increase the resilience of clean energy supply chains while maintaining gains from trade.

In the United States, investment in clean energy increases to an estimated more than USD300billion in 2024, 1.6 times the 2020 level and well ahead of the amount invested in fossil fuels. The European Union spends USD370billion on clean energy today, while China is set to spend almost USD680billion in 2024, supported by its large domestic market and rapid growth in the so-called "new three" industries: solar cells, lithium battery production and EV manufacturing.

Upstream oil and gas investment is expected to increase by 7% in 2024 to reach USD570billion, following a 9% rise in 2023. This is being led by Middle East and Asian NOCs, which have increased their investments in oil and gas by over 50% since 2017, and which account for almost the entire rise in spending for 2023-2024.

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