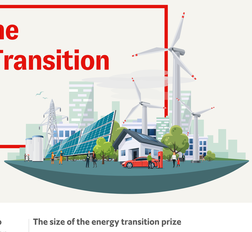
ECONOMIST IMPACT

Sizing the Energy Transition

Higher investment, more jobs, and economic growth in a 1.5C pathway



As world leaders gather in Glasgow to commit to urgent global climate action and build back better, the size of the economic opportunity from the clean energy transition is becoming clearer than ever.

The size of the energy transition prize

In four key sectors, increased investment levels to 2030 which are aligned with a 1.5°C trajectory and supported by government policy...

could support over **20 million jobs** worldwide[1]

add around **4%** in additional global GDP

...amount to **$16.7 trillion** across both emerging and advanced economies.

Clean power sector, the largest low-hanging fruit

The power sector accounts for about 40% of energy-related GHG emissions today, but net-zero sector pathways are already commercially feasible using existing technology.

Clean energy (non-fossil fuel) increases its **share in global power generation** from 39% in 2020 to 74% in 2030 under the International Energy Agency's (IEA) Net Zero Emissions (NZE) scenario.[2]

In our 1.5°C compatible pathway a cumulative amount of $15.4 trillion to 2030 would be invested in the power sector.

Additional GDP increase: **$5.6 trillion**

jobs supported: **13.8m** (direct and indirect)

Much of the investment in the power sector will be in electricity networks, with cumulative investments in enabling grid infrastructure technologies exceeding

$5 trillion by 2030.

Two thirds of network investments will take place in **developing economies.**

Energy efficiency leads to a **7% lower global energy demand by 2030,** and creates over 5.8 million jobs worldwide.[3]

Road transport electrification

Road transportation accounts for 18% of global GHG emissions today.[4]

In our 1.5°C compatible pathway, EVs[5] in 2030...

Represent nearly two thirds of new car sales and hold a 23% share of existing car stock.[6]

Reduce GHG emissions by more than two-thirds compared to an equivalent internal combustion engine (ICE) vehicle fleet.[7]

In our 1.5°C compatible pathway, a cumulative amount of $1.1 trillion to 2030 would be invested in EV production and supporting infrastructure like charging stations, translating into:

Additional GDP increase: **$460 billion**

jobs supported: **6.6m** (direct and indirect)

EV production would account for 78% of the total investment, or $855 billion.

As announced investments in electric and hybrid vehicles by major automakers to 2030 already exceed $500 billion,[8] as much as $350 billion more would be invested in the global automotive sector to advance electric mobility in a 1.5°C compatible pathway.

78%

Supporting infrastructure would account for 22% of total road transport electrification investment, or $238 billion, while contributing 39% of new jobs created or saved.

Share of total investment **22%**

$238 billion investment

2.6 million jobs

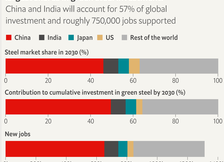
Share of job creation **39%**

Green steel

7%

The largest industrial coal consumer, steel production accounts for 7% of global GHG emissions.

There must be a reduction of 25%-30% in the steel industry's emissions intensity by 2030 to meet the 1.5°C target.[9]

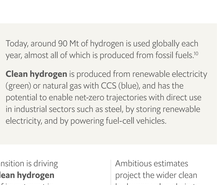


In a 1.5°C compatible pathway, a cumulative amount of $127 billion to 2030 would be invested in green steel production to replace blast furnaces and introduce low-emissions technology.

Additional GDP increase: **$51 billion**

jobs supported: **1.3m** (direct and indirect)

Leading steel producers would take on the largest shares in green steel investment.
China and India will account for 57% of global investment and roughly 750,000 jobs supported



Clean hydrogen, an enabler of the energy transition

Today, around 90 Mt of hydrogen is used globally each year, almost all of which is produced from fossil fuels.[10]

Clean hydrogen is produced from renewable electricity (green) or natural gas with CCS (blue), and has the potential to enable net-zero trajectories with direct use in industrial sectors such as steel, by storing renewable electricity, and by powering fuel-cell vehicles.

The potential of hydrogen as a key solution for the energy transition is driving governments to earmark hundreds of millions of dollars for **clean hydrogen development**, which can help to catalyse billions of dollars of investment in production and transport under a 1.5°C compatible pathway.

Ambitious estimates project the wider clean hydrogen value chain to receive more than **$300 billion** in investments through 2030.[11]

[1] Unless otherwise indicated, sector investments and impacts are estimated by Economist Impact, based on the IEA's Net Zero Emissions (NZE) scenario. Supported jobs are new jobs created or jobs saved

[2] IEA (2021a), "Net Zero by 2050: A Roadmap for the Global Energy Sector". Available at: https://www.iea.org/reports/net-zero-by-2050

[3] IEA (2021e)

[4] IEA (2021b), "Tracking Transport 2020" https://www.iea.org/reports/tracking-transport-2020

[5] EVs refer to battery electric, plug-in hybrid, and fuel cell electric light-duty vehicles, excluding two- or three-wheelers

[6] IEA (2021a), consistent with Economist Impact calculations

[7] IEA (2021c), "Global EV Outlook 2021". https://www.iea.org/reports/global-ev-outlook-2021?mode=overview

[8] https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/ev-impact-electric-vehicle-surge-resonates-across-global-economy-66318519?utm_campaign=Thought_Leadership_Research&utm_medium=Social&utm_source=Twitter

[9] Climate Action Tracker (2020), "Paris Agreement Compatible Sectoral Benchmarks". Available at: https://climateactiontracker.org/documents/753/CAT_2020-07-10_ParisAgreementBenchmarks_FullReport.pdf

[10] IEA (2019b), "The Future of Hydrogen". Available at: https://www.iea.org/reports/the-future-of-hydrogen

[11] Hydrogen Council, McKinsey & Company (2021), "Hydrogen Insights Report 2021". Available at: https://hydrogencouncil.com/wp-content/uploads/2021/02/Hydrogen-Insights-2021-Report.pdf

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