

Executive Briefings: Climate and Cleantech

A Bridge to the Future: Pathways to net zero

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IHS Markit Climate & Sustainability

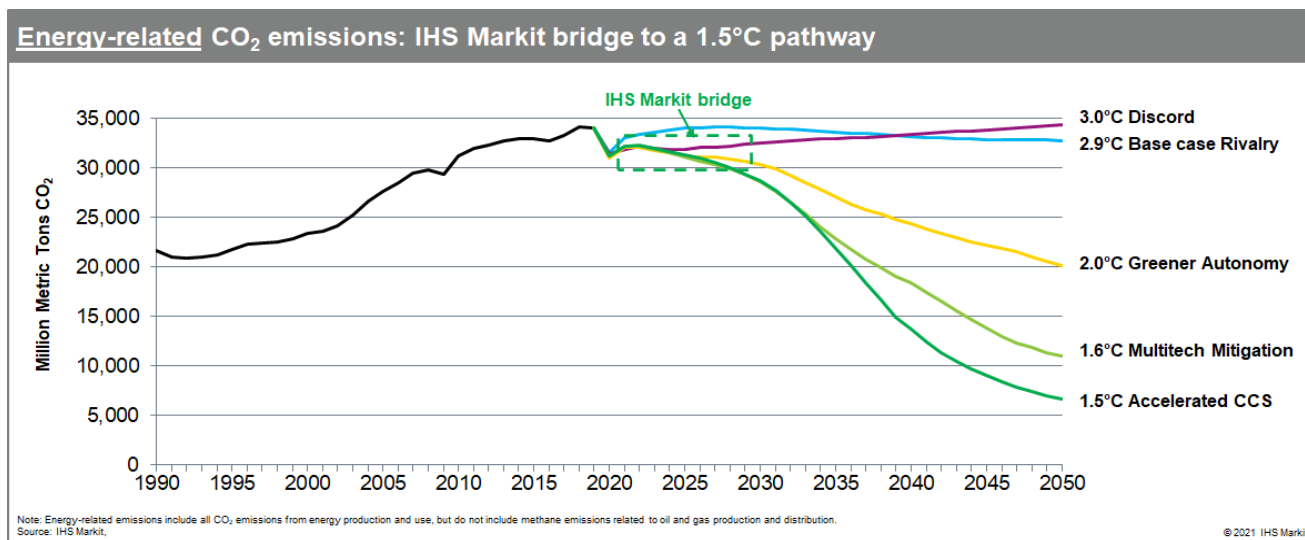
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Key implications

Throughout 2020, countries continued to announce targets to achieve net-zero emissions in spite of an accelerating pandemic and a historic recession. With the inclusion of China and now the US, some 67% of global greenhouse gas (GHG) emissions are covered by national statements of intent. Meanwhile, company net-zero goals flowed throughout the year, and financial institutions outlined stricter guidance for investing.

Although momentum for climate-related accountability, measurement, and strategic portfolio testing is accelerating, what timeframe should investment plans be tested against? Hydrocarbons still make up 80% of primary energy demand; although the installation of renewable capacity is rising dramatically, the massive existing energy infrastructure does not turn over quickly. What scenarios should be used to assess future investments and divestments in order to achieve a smooth but rapid transition? How can a transition serve shareholder interests, as well as social and environmental goals?

- The Task Force on Climate-related Financial Disclosures (TCFD) recommends the use of scenario analysis, including those that achieve the goal of keeping global temperature rise to well below 2° C by 2100. In the past two years, a sense of urgency has moved the goal closer to achieving a 1.5°C pathway and net-zero global emissions by 2050.
- The IHS Markit low emissions cases provide for a short but realistic “bridge” from today’s energy systems toward a 1.5°C path, reflecting the time needed to see the results of stricter policies and actions expected to be taken over the next several years. In these cases, emissions rise from the 2020 recession decline, and then plateau before declining. We believe the IHS Markit outlooks provide more likely future trajectories than other projections, which tend to follow a relatively straight line downward for global emissions.



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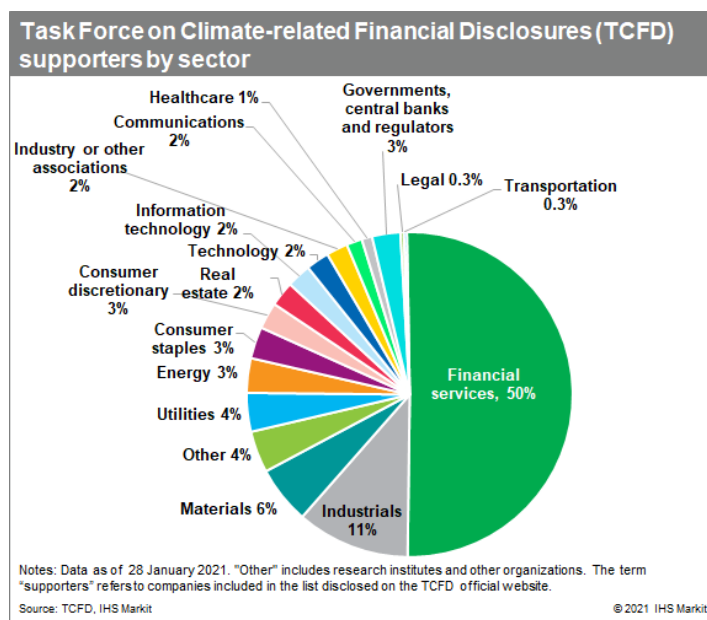
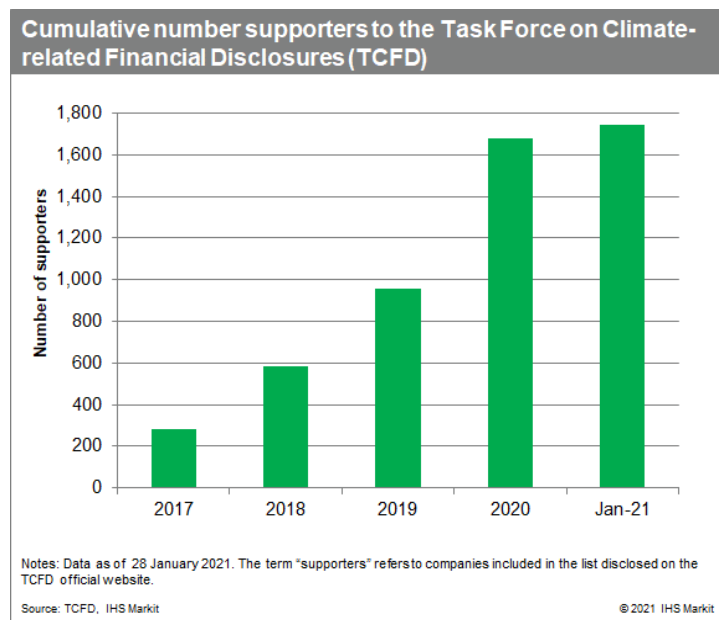
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Scenarios are used to assess climate-related risk and opportunities

In 2017, the Financial Stability Board (FSB) “Task Force on Climate-related Financial Disclosures” (TCFD) issued recommendations that companies should assess and discuss transition risk and physical risk in a way that allows investors to understand the resiliency of future business models in the face of progressively more restrictive carbon emissions policies. They also stressed that investors should be aware of, among other things, the potential for asset impairment, changes in the useful life and valuation of assets, recognition of provisions and contingent liabilities, and changes in expected credit losses for loans and other financial assets.

The TCFD recommends that companies review their financial robustness against different future scenarios, including those that reflect the Paris Climate Agreement of putting world emissions on a downward pathway that keeps the global temperature rise to 2°C or lower by 2100. In the past year, emphasis has increasingly moved to testing against scenarios that achieve the lower 1.5 °C pathway and encompass the goals of countries targeting net-zero emissions by 2050 or soon thereafter. At the same time, the TCFD recognized that transition risk would provide new investment opportunities, a theme reinforced in the BlackRock letter where its CEO Larry Fink states “we also believe the climate transition presents a historic investment opportunity.”

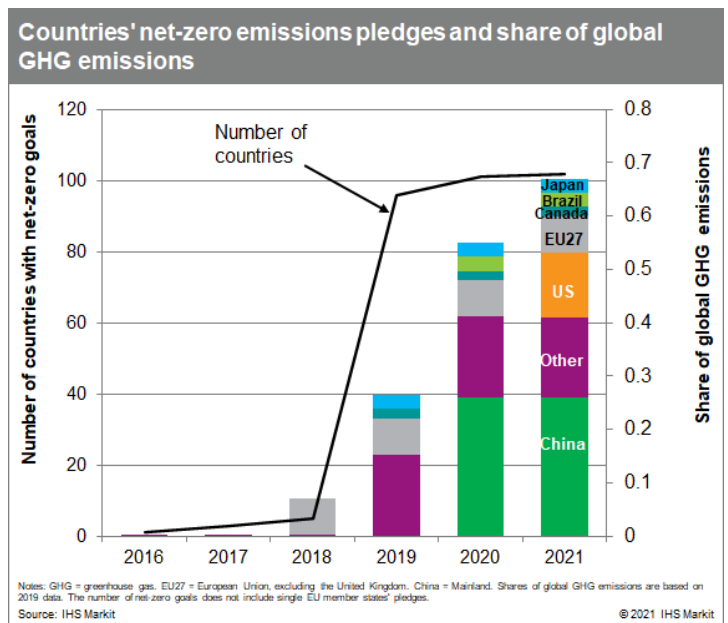
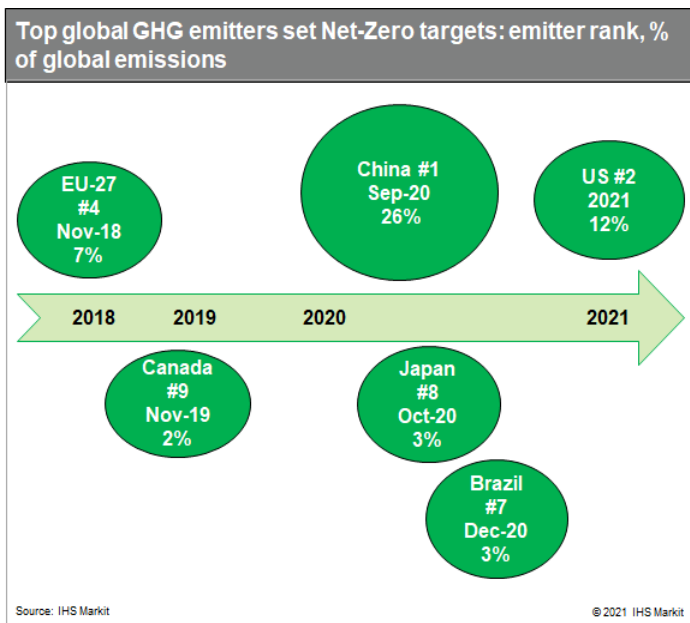
As of January 2021, the total number of TCFD supporters reached a record number of 1,743 companies (73% increase compared to Jan 2020). Supporters come from over 65 countries.



Net-zero emissions targets increase for countries and companies

Governments’ net-zero emissions targets over the past year marked a turning point in the world’s commitment to addressing climate risk. In 2020, China and South Korea announced, and Japan strengthened, net-zero targets, joining a list of more than another 100 countries, including the EU, the UK, and Canada.

US President Joseph Biden signaled a strong return to the global climate scene with the immediate issuance of an executive order directing the US to re-enter the Paris climate accord, which will officially take place later in February. In another executive order, he emphasized the need to take immediate action to put the US on a path to achieve net-zero emissions by no later than 2050. As of January 2021, 67% percent of global GHG emissions are covered by net-zero targets. The appointment of a seasoned and passionate climate envoy, John Kerry, ensures that the US will be firmly engaged in negotiations to finalize the rules required in Article 6 of the Paris Agreement. Rules agreement needs to be ready for COP26 in November 2021, to be held in Glasgow, Scotland, with the UK currently holding the presidency.



Although there are many difficulties associated with achieving the very ambitious country climate goals, the public statements of intent alone will result in new actions and regulations that should not be underestimated.

Coinciding with national statements of commitment, energy companies continued to announce new emissions reduction goals throughout 2020. In many instances, companies tightened targets multiple times over the year as shareholders demanded more clarity on plans and the setting of interim milestones. Remarkably, the new target-setting took place against a backdrop of a sharp decline in demand and prices for energy commodities caused by the pandemic lockdowns, underscoring the emphasis that firms are putting on outlining a sustainable future that will contribute to the energy transition.

IHS Markit scenarios construct a bridge to a new future

Momentum in climate-related accountability, measurement, and strategic portfolio testing is accelerating rapidly, but against what timelines should actions reasonably be planned? Hydrocarbons (oil, gas, and coal) currently make up 80% of primary energy demand. Renewables such as wind and solar are the fastest-rising sources of new energy supply, and electric vehicle sales are rising far more quickly than sales of conventional gasoline and diesel-powered vehicles. Nonetheless, the massive fleet of cars and trucks already on the road, plus the vast extent of existing energy infrastructure and equipment, do not turn over quickly. For this reason, it will take years to see meaningful change.

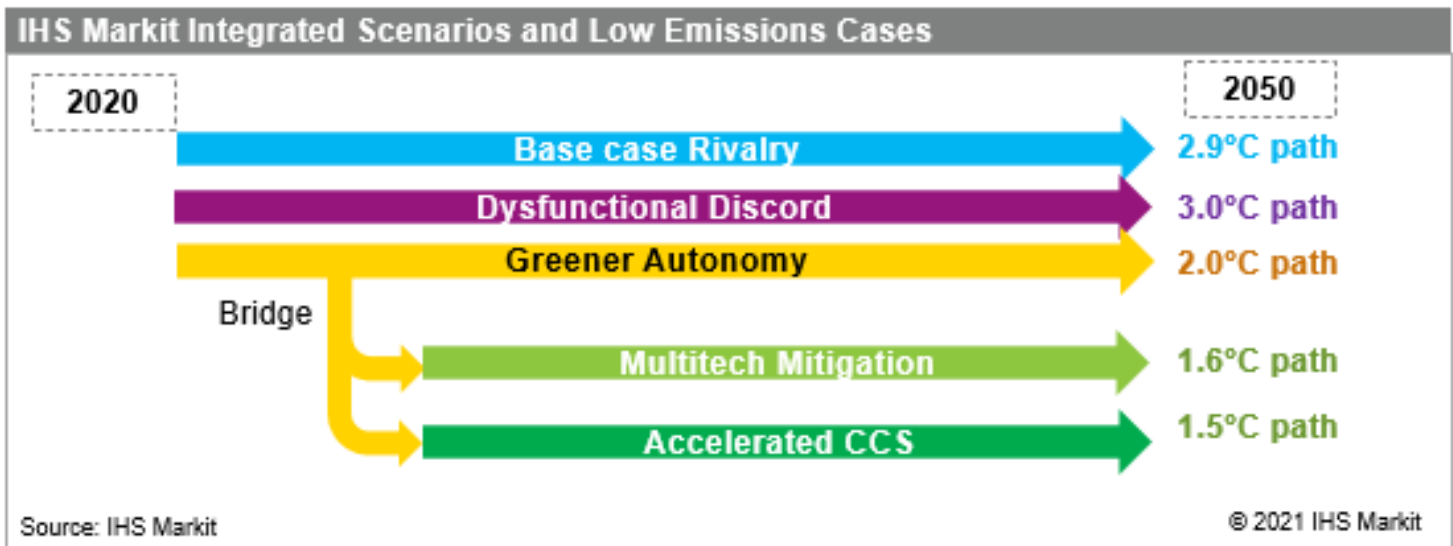
Executives are debating how to plan investments and divestments at a pace that maximizes benefits to a wide set of stakeholders as pressure mounts on the role of the private sector. Evaluating business strategies in a changing environment, and testing against the very significant fuel type changes in the future under low emissions cases, is fast becoming a requirement of shareholders and investors. The use of reasonable future scenarios is therefore a critical component of the process.

IHS Markit has over a decade of experience in the development and use of integrated, long-term scenarios that project energy use and emissions by fuel type, country and sector. Our Energy and Climate Scenarios include three bottom-up forecasts to 2050 and two low emissions cases that are “back-cast” from a pre-determined goal of a 1.5°C pathway. Each of the five long-term outlooks encompasses different assumptions and drivers and can be used to test future business strategies.

- Three forward looking scenarios (IHS Markit base case “Rivalry”; dysfunctional world “Discord”; and more climate-aggressive, greener outlook “Autonomy”) start from today and project outlooks for energy markets and emissions at a country and sector level under a set of articulated assumptions around the evolution of policies, consumer behavior,

costs, technologies, geopolitics and economics. All three are considered plausible outcomes by our experts and our clients, with much debate within and across companies as to which is the most likely based on different perspectives.

- Two low emissions cases start with the pre-determined outcome of being on a pathway to prevent the average global temperature from rising more than 1.5°C/1.6°C by 2100 compared with pre-industrial times. They are hence “back-cast” to 2020 and would require radical change to be achieved compared with history. IHS Markit clients had several requests when we constructed the low emissions outlooks:
 - Allow for a GHG emissions “overshoot” period, to reflect a period of market adjustment given the significant role that hydrocarbons continue to play in the global economy and the size of existing energy infrastructure. Global emissions will head down, but not on a straight downward line. For this reason, IHS Markit created a “bridge” from our most aggressive forward-looking scenario, Autonomy, to the low emissions cases that allows for a more plausible policy and demand adjustment.
 - Provide a scenario with a high use of carbon capture and storage (CCS) applied to large stationary emitters in the power and industrial sectors. This would assume that all new gas and coal-fired power generation in emerging and mature markets would require CCS units, with some existing facilities being retrofit. Robust carbon pricing and policy mechanisms would be required to underpin such an outlook.
 - Create a scenario with very limited employment of CCS—as a contrast to most of the other low emissions outlooks that are available. Such an outlook would assume that societies around the world do not wish to enable new hydrocarbon developments through the use of carbon capture, and would instead be based on a massive buildout of low-cost renewables, significant advances in energy efficiencies, changes in consumer behavior, and comprehensive fuel switching across all end use sectors.



Implications for testing business model resiliency over the next decade

The TCFD calls for testing business strategies against scenarios that include those that meet the Paris climate agreement targets, such as the IHS Markit Multitech Mitigation and Accelerated CCS. The IHS Markit scenarios expect a period of market and infrastructure adjustment as stricter policies, regulations, and carbon pricing mechanisms are implemented across the world. To meet Paris-aligned 2050 temperature targets, the emissions outlooks in our scenarios, and the demand for hydrocarbons, declines more sharply after the late 2020s. The 2020-2030 “bridge” in our view reflects the reality of shifting a massive energy ecosystem even when new goals are set in place today.

Meeting net-zero targets, which are based on total GHG emissions, cannot be achieved by the energy-related sectors alone. It will require actions by heavy industry and agriculture, as well as the use of nature-based solutions and other methods of carbon capture.

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