Rhodium Group

2020 Green Stimulus Spending in the World's Major Economies

FEBRUARY 4, 2021

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January 30, 2021 marks one year since the Director-General of the World Health Organization (WHO) declared the novel coronavirus outbreak a public health emergency of international concern. Since that declaration, Rhodium Group has been tracking how the pandemic has impacted economic activity in the highest greenhouse gas (GHG) emitting sectors of the world's four largest emitters—the United States, the European Union, China, and India—and the degree to which their stimulus spending has been directed toward green measures that can reduce the GHG intensity of the recovery. In our September 2020 report, It's Not Easy Being Green: Stimulus Spending in the World's Major Economies, we provided a snapshot of the scale of green stimulus spending across these four major economies. In this report, we provide an update on green stimulus spending at the one-year milestone of the COVID-19 pandemic.

In our updated assessment, we find that only the EU has committed to green a meaningful share of its stimulus—15%. The US, India, and China have allocated a negligible share (around 1% or less) of COVID-specific spending toward green measures. Experience in the first full year of the pandemic reveals that relying on emergency measures alone is likely insufficient to adequately prioritize a green recovery. As in the EU, long-term climate policy frameworks and clean energy investment and innovation plans are critical to chart the course in times of crisis.

An unprecedented global economic crisis

2020 has proven to be the worst global recession in the post-World War II period, with estimates of global GDP contraction of 3.5% (Figure 1). Unlike the Global Financial Crisis of 2008-2009—when global GDP dropped only 0.1%—every region of the world was hit by the pandemic and the resulting economic downturn.

The economic hit to the US in 2020 was on par with the global economy, contracting 3.5% according to the most recent Bloomberg estimate. While significantly less drastic than the IMF's April forecast of an 8% contraction, it goes well beyond the 2.5% contraction the US experienced during the Global Financial Crisis of 2009. With earlier and more extensive lockdowns, the EU experienced a 7.4% contraction in 2020, far surpassing the 2009 hit of 4.2%.

China and India weathered the Global Financial Crisis in 2009 largely unscathed, with GDP growth of 9.4% and 8.5%, respectively. But that luck did not hold in 2020. China managed to cling to positive territory, growing 2.1% according to the most recent estimates. India, as a result of one of the severest lockdowns among major economies, contracted by around 8%.

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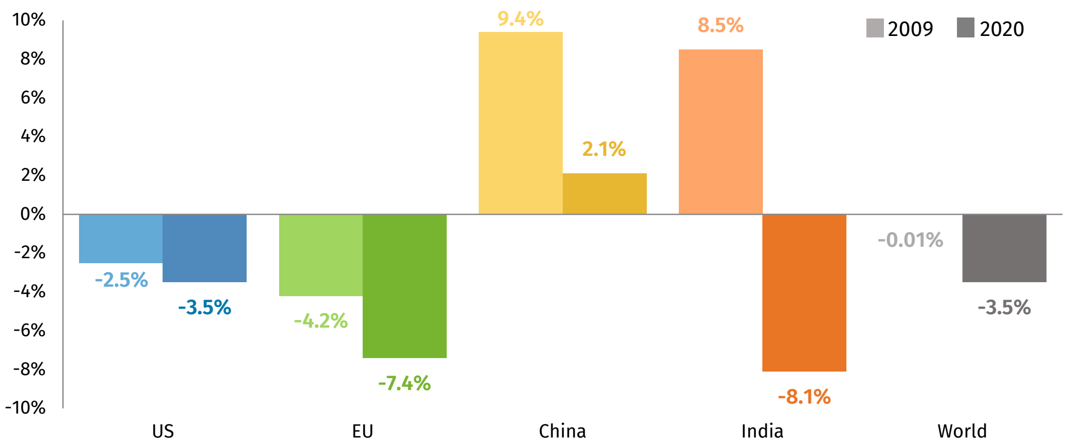
FIGURE 1

COVID-19's GDP impact far surpasses the Global Financial Crisis

% year-on-year change, 2009 vs. 2020



Source: IMF, Bloomberg Consensus

In response, countries invested heavily in government spending to jump-start growth. According to the IMF, global fiscal support reached nearly $14 trillion, with $7.8 trillion in additional spending and $6 trillion in equity injections, loans and guarantees. The approach to stimulus—both the form and scale—has varied significantly across economies. In advanced economies, higher deficits were driven both by increased spending and a drop in revenues, whereas emerging economies have spent less on average, with deficits stemming largely from a slump in revenues as economic activity declined.

In the following sections, we provide an overview of the discretionary stimulus measures taken by the world's four largest emitters—which together make up two-thirds of global GDP and over 50% of global greenhouse gas (GHG) emissions. We also assess the extent to which these economies prioritized green, climate-related spending, which we define as any measure that supports energy efficiency, zero-emission energy generation or equipment (e.g., renewable energy investments, subsidies for electric or zero-emission vehicles) as well as infrastructure necessary for reaching long-term net-zero targets (e.g., transit and rail investments, EV charging infrastructure, and forest restoration).

United States

The primary US stimulus package adopted at the height of the first wave of the virus in March—the CARES Act—was an emergency measure aimed at providing short-term support for those directly impacted by the pandemic and its immediate effects on businesses and workers. At the time, stay-at-home orders affected a wide range of industries, so few were singled out for targeted support. Clean energy and other "green" industries were not disproportionately harmed, so there was little effort to earmark funding specifically for green priorities. From the $2.3 trillion package, we count only $26 billion as green stimulus spending: $25 billion to support public transit in urban and rural areas, and $1 billion for the National Railroad Passenger Corporation (Amtrak). Although the CARES Act provided $900 million for energy bill assistance for low-income households, those benefits support utilities regardless of their energy mix, so we do not count that toward the green total.

After the passage of the CARES Act in March and a modest increase in April, tumultuous US politics led to over six months of stalemate with no agreement to extend support to critical benefits for small businesses and the unemployed, which expired at the end of July. In the last days of December, however, Democrats and Republicans agreed on a $877 billion compromise measure that extends unemployment benefits through March 2021, provides direct payments to most Americans, refreshes funding for the Paycheck Protection Program, directs assistance to schools, health care facilities and transportation programs, and funds vaccine distribution and testing.

Less than 2% of the $877 billion stimulus package went toward green measures, with $14 billion allocated to shore up transit and rail. When added to the $26 billion in transit and rail measures from March, total US green stimulus spending in 2020 comes out to $40 billion, only 1.0% of total stimulus spending.

Prospects for 2021 are looking up, however. Within weeks of passage of the end-of-year stimulus deal, then President-elect Biden proposed a new $1.9 trillion relief package would extend many of the same COVID relief programs through September and provide support to state and local governments. Senior administration officials have cited stagnant job creation and the roughly 10 million jobs lost so far in the COVID recession as key reasons for additional support. With Democrats now in charge in both the House and Senate, the chances of another package passing quickly is high, though timing is still unclear.

As the pandemic has progressed, the impacts on clean industries and the need for more stimulus have become clearer. In December, clean energy jobs were 12% lower than a year earlier, totaling roughly 450,000 jobs lost. The vast majority of jobs lost were in the energy efficiency sector. Despite record solar and wind capacity additions in 2020, the sector lost nearly 70,000 jobs last year. In response to the economic situation and to follow through on campaign promises to tackle climate change, the Biden administration is expected to put forward a clean energy and infrastructure bill in February intended to kickstart recovery. The contours of the package are not clear yet but based on campaign pledges, the total spending could represent $2 trillion or more on top of the $1.9 trillion COVID relief proposal. The package will most likely focus on clean energy deployment across the economy including electric vehicle incentives and infrastructure, clean electricity, clean manufacturing and building efficiency.

The prospects and timing of a green recovery/infrastructure/clean energy package are unclear. With close margins in both the House and Senate, Democrats may use fast-track procedures to move a package requiring a simple majority in each chamber. This process limits policy action to only fiscal measures such as tax credits and direct spending. Depending on moderate members' appetite for further spending after passage of the COVID relief package and a willingness to pursue a package without bipartisan support, a bill could move in a matter of weeks or several months, or it may not pass at all. Regardless of prospects, the fact that President Biden and congressional Democrats are making this their first priority after COVID relief is remarkable. Depending on what passes, the package could represent the most significant climate action by the US in over a decade.

European Union and member states

In 2020, EU member states responded with fiscal force to the pandemic with an overall increase in general government primary expenditure (excluding interest payments) almost comparable to the spending increase seen in the United States. Crucially, however, the majority of this increase came as automatic stabilizers were triggered, with only a minority of additional discretionary spending. This is in stark contrast to the US, where discretionary spending represented almost two-thirds of the total spending increase. The vast majority of EU-27 spending increases have gone towards direct income support to households and direct financial assistance to private companies affected by the economic lockdown.

The main EU institutional innovation during the pandemic was the Next Generation EU recovery package, including the Recovery and Resilience Fund (RRF), which will fund member states' investments and reforms. The European Commission will not disburse material funds in 2021, however, due to political delays in deciding its detailed structure. Only in 2022 and 2023 is the RRF scheduled to provide a material boost to EU-27 infrastructure and green investment levels. Historical experience in the EU highlights the risk that many governments will hold off on new nationally funded climate-related investments in 2021, in the anticipation of receiving common EU RRF financing in the following years.

In addition to EU-wide commitments, an additional $1.15 billion in discretionary funding comes from individual member state allocations and announcements, the bulk of which comes from Germany ($411 billion), France ($195 billion) and Italy ($125 billion). When combined with the RRF and other EU-wide funding, this brings the EU total commitment to $1.57 trillion.

Of that total, we estimate that $238 billion is earmarked for green measures. The EU committed to ensure 30% of its RRF funding ($130 billion) goes toward green investments. When member state stimulus spending is added to the EU-wide vehicles however, the 30% average drops to only half that rate—15%—as few members states have dedicated more than a few percentage points of their discretionary stimulus funding toward green measures.

There are notable exceptions, however. France has committed to dedicate nearly 20% of its overall stimulus spending announced to date toward green priorities ($38 billion), including $34 billion for green transition investments in building efficiency, rail, and clean energy technologies announced on September 3, 2020. Germany has also announced nearly $40 billion in funds (11% of total stimulus) for buying down the cost of renewable electricity, expanding EV charging infrastructure, incentives for EV purchases and fleet turnover, support for public transit, investments in building efficiency renovations, accelerated conversion and modernization of the nation's shipping infrastructure and aircraft, and new investments in green hydrogen. Several other countries, including Denmark, the Netherlands, Sweden, Ireland, Italy, Finland, and Spain have announced green stimulus measures totaling $10 billion. Many member states have, however adopted climate-focused policies and budgets outside of their COVID-specific stimulus packages, so we did not count those toward our totals.

China

China has made headlines in recent days as the only major economy to avoid an economic contraction in 2020. As was the case during the Global Financial Crisis of 2009, China's investment-led approach allowed it to weather the immediate crisis, with a focus on heavy industry and property construction. China's recovery late in 2020 is largely credited to strong overseas demand for its exports, however, as domestic demand and household consumption have continued to lag production.

As we note in our September report, COVID-related fiscal stimulus in 2020 came largely in the form of quotas for local government special revenue bonds and special treasury bonds, the bulk of which are ultimately channeled to State Owned Enterprises (SOEs) and local government financing vehicles. Additional stimulus was delivered in the form of banks' forbearance for all types of enterprises, extending loan terms and providing new credit even in the event of non-payment on significant volumes of loans. As a result, it is difficult to disentangle spending directly channeled for COVID-19 recovery from existing channels of fiscal and quasi-fiscal policy support. The IMF estimates China's fiscal support at around $690 billion in 2020 (or 4.9% of 2019 GDP). Because many of those measures would have been included absent the pandemic, we estimate direct COVID-related discretionary spending at around $521 billion, or 3.7% of 2019 GDP.

The challenge in separating China's baseline levels of state support from COVID-related stimulus also complicates efforts to determine how much of that additional support is green. Here we do not count announced measures that were in place or planned pre-COVID. This applies to the National Green Development Fund (announced in 2019), rail investments (announced each year since 2011), funding for housing renovation (ongoing from 2014 and sunsetting this year), and investments in ultra-high voltage transmission lines (with the bulk of new lines already slated for completion this year). We also exclude two measures to support sales of new energy vehicles (NEV), including subsidies and tax exemptions which were set to expire in 2020 and were renewed as part of an effort begun in 2019 to support a struggling automotive sector. What remains after removing pre-COVID measures is a planned investment of $1.42 billion to expand China's electric vehicle charging network, which is expected to add 600,000 chargers, increasing the existing network by 50%.

Looking ahead to 2021, headwinds on fiscal and credit policy point to a slowdown in industrial production and consumption growth based on trends in domestic demand alone. Ultimately, a recovery in consumer spending will depend on income and employment growth, which were slowing even before the virus outbreak. Domestic consumer-focused stimulus has been the missing link when it comes to revving up the domestic economy. In December 2020, the Politburo of the Chinese Communist Party suggested policymakers will focus on boosting household consumption in 2021. Beijing's tried and true consumer stimulus measures have focused on subsidies for purchases of major consumer durables. In November the State Council laid out new measures to jump start consumption, including incentives to boost sales of cars and trucks, construction of parking and charging facilities for new energy vehicle (NEV), and subsidies for home appliances. Specific details on these initiatives are expected to come in March or April of this year.

India

Throughout 2020, Prime Minister Narendra Modi's government avoided large fiscal stimulus spending. As we discuss in our June 3rd note (India's COVID-19 Response: Reform Road to Recovery), the Modi government determined that it lacked the fiscal capacity, betting instead on Modi's political capital to weather a year of recession and a more gradual return to growth. For the calendar year through January 31, 2021, India's discretionary fiscal stimulus spending totaled $85 billion. Of the limited stimulus announced to date, only one measure—$850 million for afforestation and forest management to provide rural jobs—can reasonably be categorized as green.

As the 2020-2021 fiscal year in India wraps up in March, Modi remains convinced his fiscal caution during the height of the pandemic was not as damaging as many had predicted. With COVID-19 cases and fatalities dropping sharply across India and world's largest vaccine program starting in mid-January, India is much more confident the worst of the pandemic is over. The government's economic policies are now increasingly about reviving the economy.

Noting Indian growth was slowing down even before COVID-19 struck, Modi's economic advisors believe priority must be given to factor reforms and reviving investment. While some additional welfare payments will be needed, advisors have determined that the best means to compensate for the economic hardship experienced by individuals is to use large-scale infrastructure development to generate jobs and improve demand for medium-sized industries.

The coming budget, to be presented in February, will lay out the government's economic blueprint for the next few years. It seems likely the budget will lift legal limits on the size of the fiscal deficit, which is expected to increase 2 or 3 percentage points beyond original targets over the next few years. Most of this will be ploughed into the national infrastructure pipeline which includes 7,500 existing or planned projects worth $1.8 trillion.

So what does this all mean for prospects to advance green priorities including clean energy investment? The government continues to believe attracting private capital, mostly foreign, into the wind and solar space is the best means to achieve its enhanced renewable energy targets. Direct subsidies included in the February budget for renewable power will likely be channeled to off-grid solar or aimed at electric vehicle and battery manufacturing.

As we highlight in our August 5th note, India's Energy Sector Reforms, Prime Minister Modi has used the political opportunity created by the pandemic to push through stalled reforms of the energy sector. The February budget—including a $40 billion package of funds and policy reforms for distribution companies—will aim to stem the debts caused by state governments forcing power distribution companies to charge below-market prices. These debts are seen as the primary constraint to large-scale private investment in renewables and gas infrastructure.

A comparative look at stimulus spending

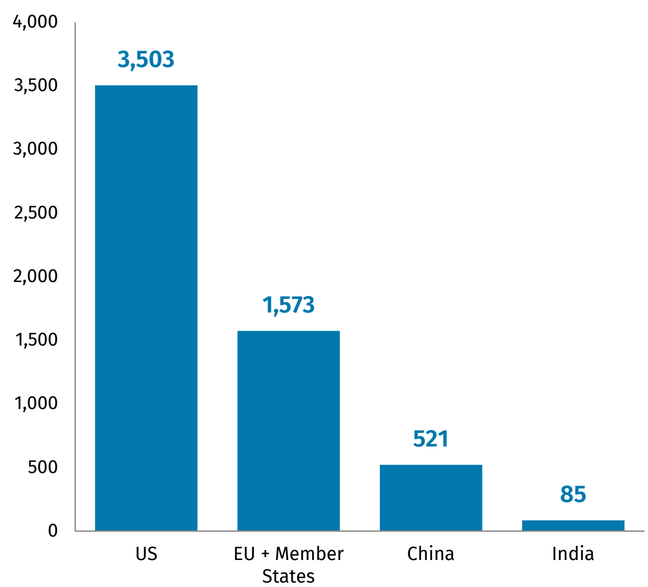
Applying the same approach as in our September report, we assess the comparative scale of total COVID-19 related stimulus spending from February 2020 through January 2021, to provide a basis for comparing green stimulus measures in the first full year of the global pandemic. Using government data and IMF estimates from its January Fiscal Monitor Database, we estimate the level of discretionary fiscal stimulus measures (including direct government budgetary measures but excluding loans, equity, and guarantees as well as any automatic stabilizers) made through December 31, 2020 in direct response to the COVID-19 pandemic. We try to exclude fiscal support measures that would have occurred absent the pandemic.

In line with our conclusions from September, we continue to see a divergence in approaches (Figures 2 and 3). The US outspent all other economies, both in terms of the absolute value of discretionary stimulus spending, at $3.5 trillion, and as a share of 2019 GDP, at 16%.[1] Without automatic stabilizers in place to support households through unemployment insurance and food aid, the US largely must rely on Congress to provide additional discretionary spending in times of economic downturn.

FIGURE 2

Total discretionary fiscal stimulus approved in 2020

Billion, 2020 USD



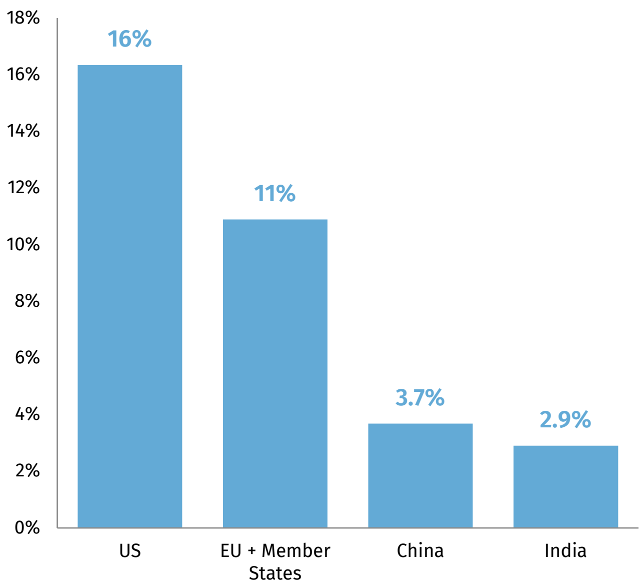
Source: IMF Fiscal Tracker, national data, Rhodium Group China Practice

[1] We use 2019 GDP for consistency given 2020 GDP uncertainty.

FIGURE 3

2020 discretionary stimulus as a share of 2019 GDP

Percent



Source: IMF, Rhodium Group

The EU and its member states have adopted or announced stimulus spending—including RRF—of $1.57 trillion, which is 11% of EU-wide GDP in 2019. Stimulus spending tends to be lower across the EU, as on average 35% of household income loss and 70% of consumption loss is absorbed by member states' automatic tax and benefits systems. China's and India's total stimulus spending is significantly lower—China's stimulus measures total$521 billion, which is 3.7% of GDP in 2019, and India's stimulus measures total $85 billion, which is 2.9% of GDP in 2019.

It's still not easy being green

2020 has been a painful experiment in how difficult it is to make meaningful emission reductions without significant structural changes in the emissions intensity of the global economy. Despite the record hit to economic activity, global carbon emissions dropped an estimated 7% last year. Although emissions plunged 17% at the peak of the lockdowns last spring, they rebounded astonishingly quickly as economic activity ramped back up over the course of the summer.

In the US for example, we estimate that total GHG emissions dropped 10.3% in 2020 from 2019 levels. These reductions resulted largely from reductions in overall economic activity. With the economy expected to rebound in 2021, we expect emissions to bounce back absent meaningful structural changes in US carbon intensity.

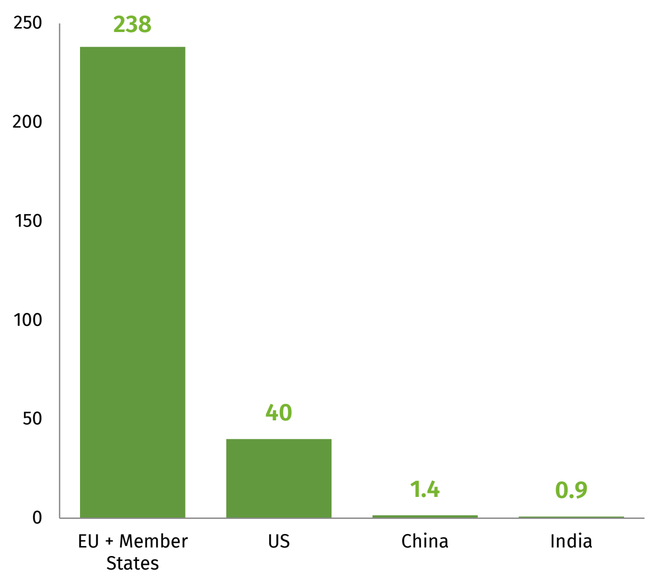
As the pandemic continues to rage on, most governments have justifiably targeted stimulus measures on the most pressing priorities: supporting the public health response, manufacturing and distributing vaccines, and providing direct help to households and small businesses. In the first full year of the COVID-19 pandemic, these measures received the vast majority of stimulus spending in most major economies.

Based on our final estimates of spending announced through January 30, 2021, we find that the EU far surpassed all other economies in green spending, with an estimated $238 billion in total green spending, which is 15% of total EU and member state stimulus (Figures 4 and 5). The US comes in at a distant second in terms of scale with $40 billion, but that represents only 1.1% of overall US stimulus funds to date. India and China's green shares come in even lower at 1.0% and 0.3%, respectively.

FIGURE 4

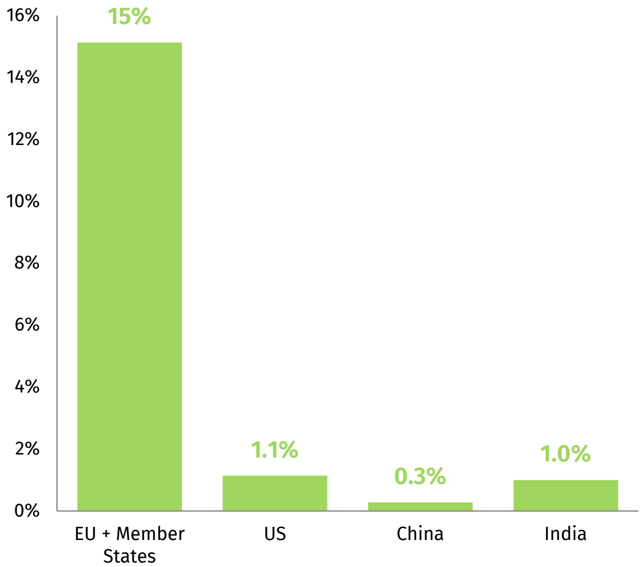
2020 green stimulus spending commitments

Billion 2020 USD



Source: IMF Fiscal Tracker, official government announcements, Rhodium Group

FIGURE 5
2020 green share of total stimulus
Percent



Source: IMF, official government estimates, Rhodium Group

Lessons from 2020 on accelerating green stimulus

While all countries have taken a slightly different approach to the COVID-19 crisis and handling its economic aftermath, the EU stands alone as the only major economy to commit a meaningful share of its 2020 stimulus resources to green priorities. Other countries may catch up as the pandemic evolves over the course of 2021 and governments turn from emergency measures toward longer-term recovery. Indeed, we expect to see greater activity this spring as India puts forward its budget, China releases the details of its next Five-Year Plan, and the US considers a raft of new legislation, including additional stimulus and possible infrastructure and clean energy deals.

There are a couple of important lessons, however, from how quickly the EU was able to respond in the first year of crisis to push forward its green agenda.

1. Automatic stabilizers free up governments to focus on green recovery.

The vast majority of overall spending across the EU came in the form of automatic stabilizers which covered direct income support to households and direct financial assistance to private companies affected by the lockdowns. This freed up the European Commission to focus squarely on economic recovery across the bloc, earmarking measures that would achieve a "greener, more digital and more resilient Europe." In contrast, as the US Congress debated emergency spending measures in the spring and fall of 2020, efforts to minimize the overall price tag meant that green measures were pushed off the table as they were unable to compete with more immediate needs like unemployment insurance and cash for households and small businesses.

2. A clear policy agenda and aligned investment strategy chart the course for green stimulus.

The EU had another advantage over the other major economies: the work to set the course for Europe's long-term climate policy and innovation agenda was largely completed by 2020. Early in 2020, incoming European Commission President Van der Leyen made the EU's net-zero goal and a 55% 2030 target a core priority. The EU also had just completed a 7-year research and innovation initiative to drive sustainable economic growth across the bloc—Horizon 2020—and in 2020 kickstarted the next phase—Horizon Europe. With both a climate policy framework and an innovation investment strategy in place, the EU has clear vehicles to drive and help prioritize large volumes of green stimulus spending in the years to come.

As the US, China, and India plan their next steps toward recovery—as well as their updated Paris Agreement climate commitments for 2030 and the policies to support them—these lessons may prove useful in the decades ahead. In our increasingly interconnected world, there is no shortage of potential crises that may impact the global economy in the way the 2008-2009 Global Financial Crisis and the 2020 COVID-19 pandemic have. Relying on emergency measures alone in the face of an economic crisis may not be sufficient. To adequately prioritize a green, sustainable and resilient economy, long-term policy frameworks and plans are critical to chart the course in times of crisis.

Disclosure Appendix

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