



# Show me the data

Renewed US climate ambition intensifies need for global emissions data

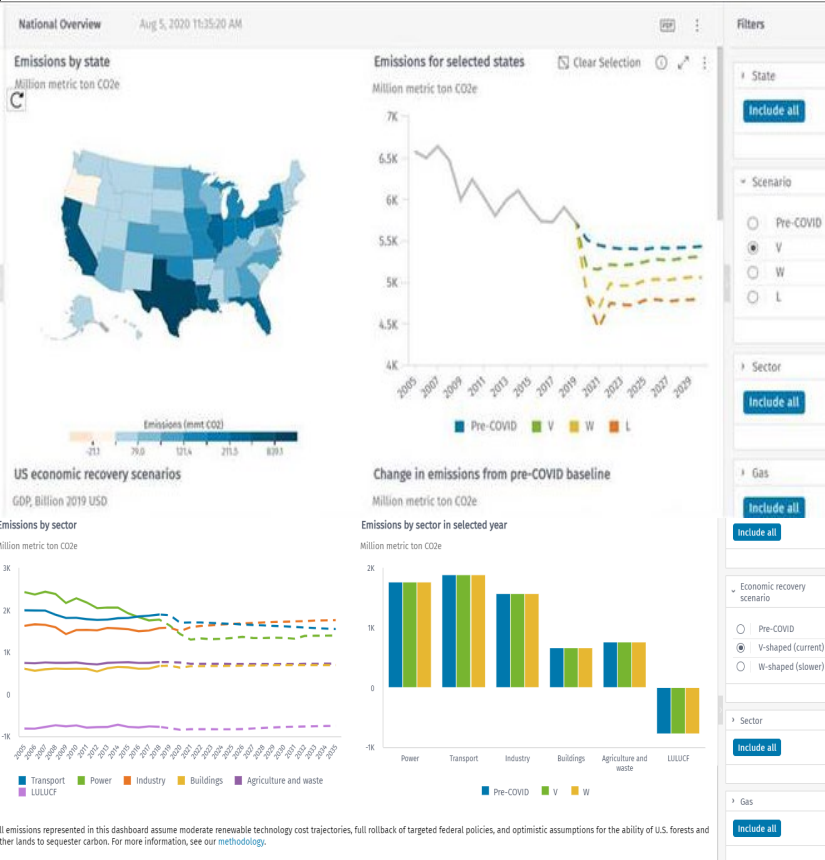
NASA CARBON MONITORING SYSTEM POLICY SPEAKER SERIES | MAY 11, 2021

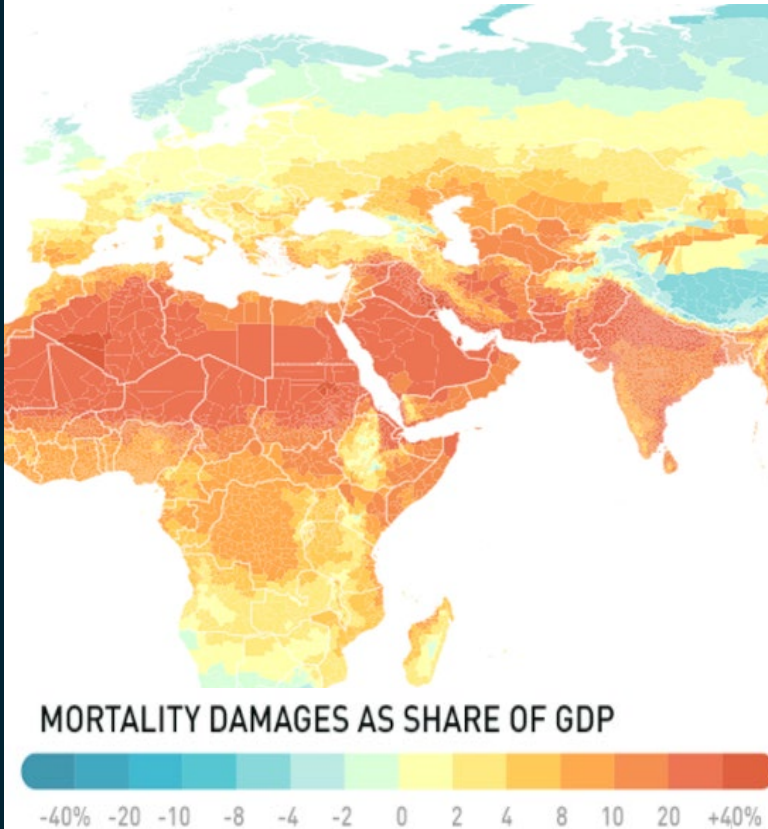
**Kate Larsen**

Director

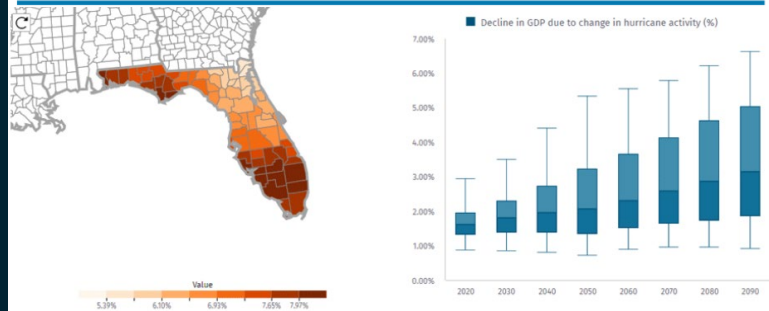
[kmlarsen@rhg.com](mailto:kmlarsen@rhg.com)

# ClimateDeck






<b>US Public Assets</b>	<ul style="list-style-type: none"> <li>Municipal Bonds</li> <li>Residential and Commercial Mortgage-Backed Securities (RMBS, CMBS)</li> <li>Real Estate Investment Trusts (REITs)</li> <li>Credit Risk Transfer Securities (CRT)</li> <li>Commercial Mortgage Loans (CML)</li> <li>Corporate</li> </ul>
<b>US Private Assets</b>	<ul style="list-style-type: none"> <li>Real Estate</li> <li>Infrastructure</li> </ul>
<b>Global Public Assets</b>	<ul style="list-style-type: none"> <li>Sovereign and Municipal (Equivalent) Bonds</li> <li>Commercial Mortgage-Backed Securities (CMBS)</li> <li>Real Estate Investment Trusts (REITs)</li> <li>Corporate</li> </ul>
<b>Global Private Assets</b>	<ul style="list-style-type: none"> <li>Real Estate</li> <li>Infrastructure</li> </ul>



# Overview

1. Update on where US and global climate action stands
2. Implications for climate data
3. Discussion

# Biden-Harris climate goals put US on path to net-zero

But will require Congressional action, and divided Senate limits opportunities for big wins



## Biden-Harris Climate Plan

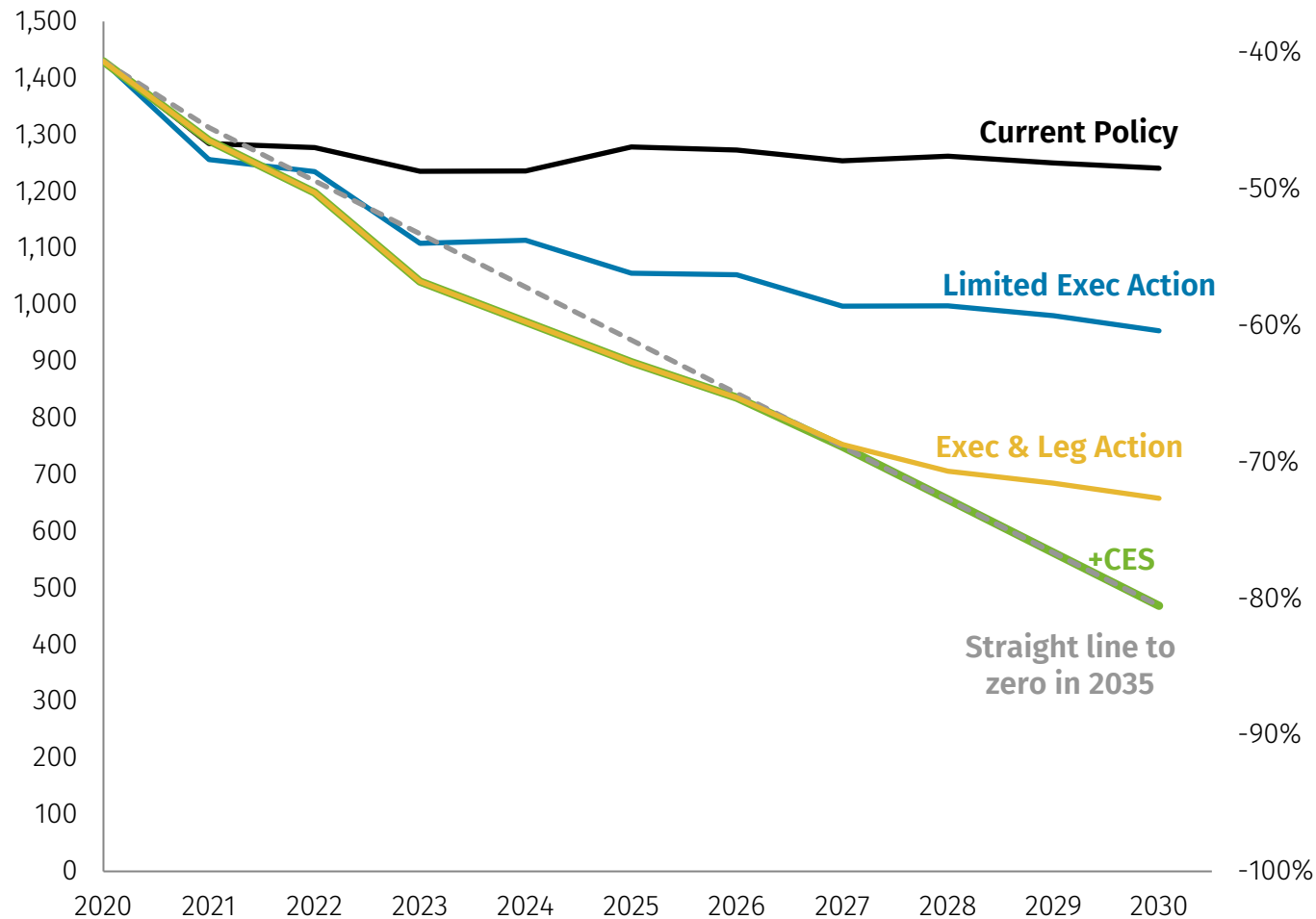
- Ensure the U.S. achieves **100% clean energy** by 2035 and reaches **net-zero emissions no later than 2050**.
- Accelerate **EV deployment** (to 100%), expand charging stations by 500,000 by 2030, advance fuel economy/GHG standards.
- Energy efficiency and electrification investments that reduce the carbon footprint of the U.S. **building stock 50% by 2035**.
- Advanced Research Projects Agency (ARPA-C) focused on climate innovation, including energy storage, green hydrogen, alt fuels.
- Accelerate the development and deployment of **carbon capture sequestration technology**.
- Biden's climate and environmental justice proposal will make a **federal investment of \$2 trillion** over the next ten years, leveraging additional private sector and state and local investments to total to more than \$5 trillion.
- Conserve 30% of US federal lands and waters.



# To meet 50-52%, get on track for net-zero electric emissions by 2035

## US electric power CO<sub>2</sub> emissions, 2020-2030

Million metric tons, % reduction from 2005



Source: Rhodium Group analysis: Pathways to Build Back Better

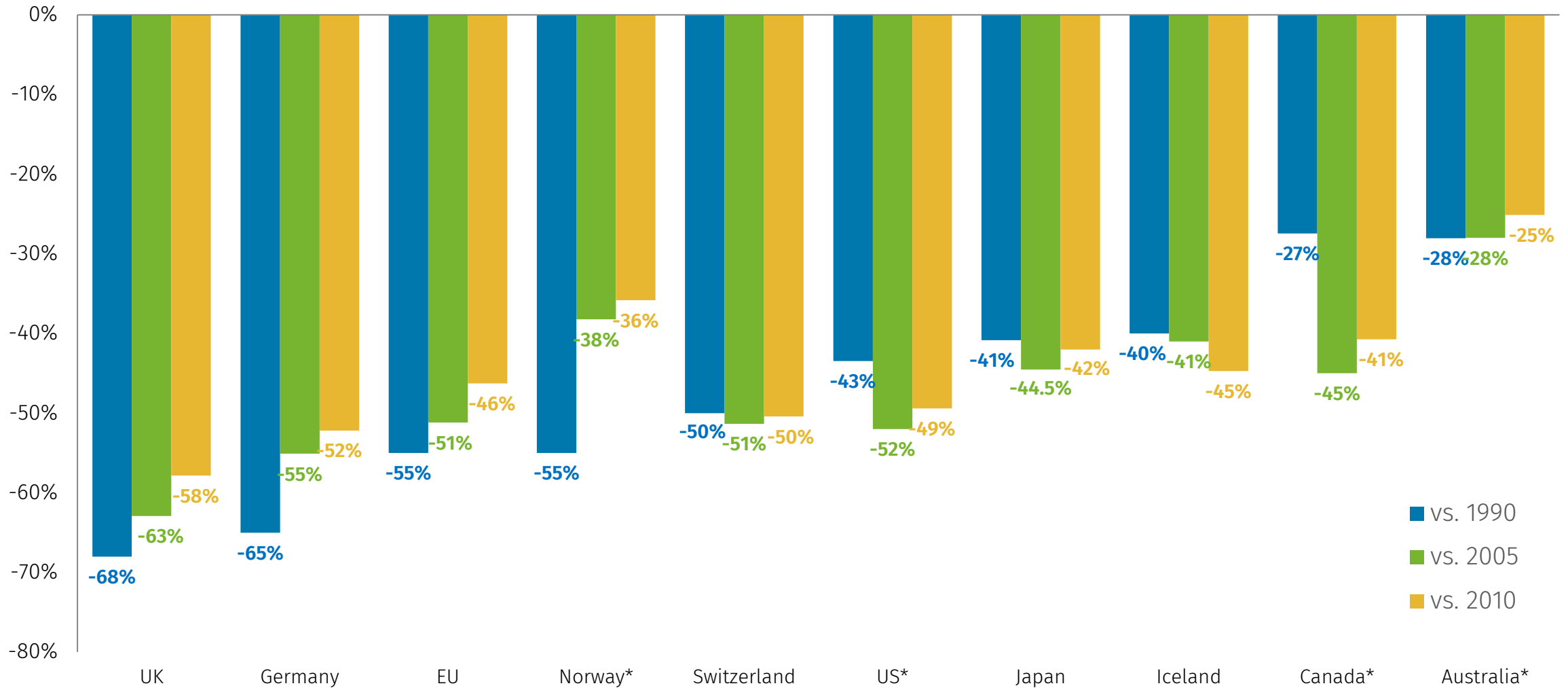
### Rhodium's [Pathways to Build Back Better](#)

- Under **Current Policy**, electric power emissions are flat over the next decade with no further decarbonization progress. Renewables added to the grid are offset by nuclear retirements.
- Limited Executive Action** tackling CO<sub>2</sub> and conventional pollutants from coal and CCS for new coal and gas is not sufficient to put the sector on a straight-line path to zero in 2035.
- Limited Executive and Legislative Action** (10yr RE credit extension, nuclear incentives, debt relief for coal retirements from coops) put emissions on track through 2027, by retaining nuclear and driving renewable energy capacity builds of 57 GWs per year on average. Nearly double 2020's record. Emissions decline by 73% compared to 2005 levels by 2030.
- The **CES** in **American Jobs Plan** achieves an 81% reduction in emissions relative to 2005 in 2030.

# Earth Day US Leaders Summit raised the bar for 2030 ambition

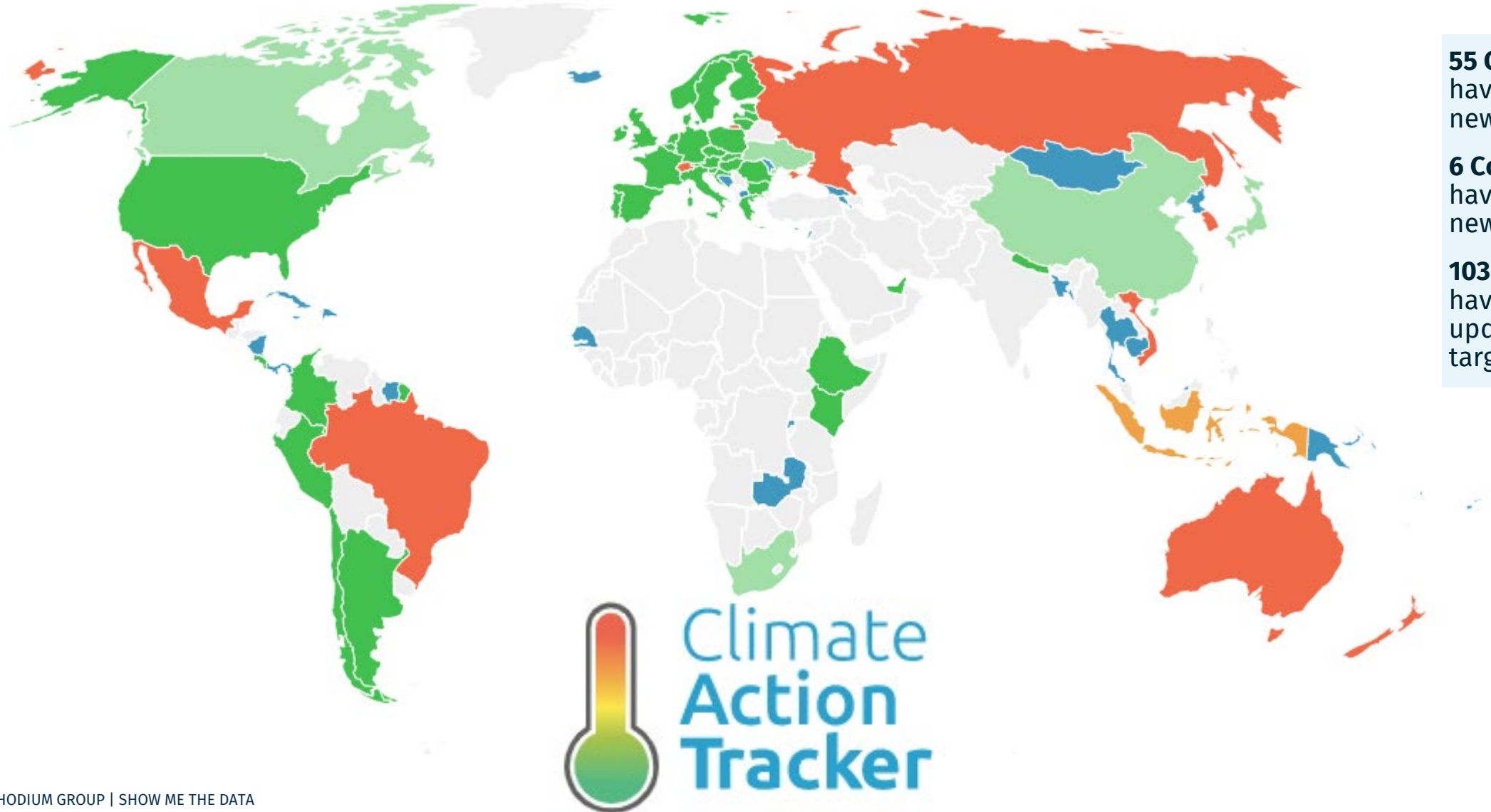
## Selected developed country NDC reductions by 2030

Below selected base year



# This is the year for setting mid-term 2030 ambition

Most important metric – on path to net zero by mid-century?



**55 Countries**  
have submitted  
new NDC targets

**6 Countries**  
have proposed  
new NDC targets

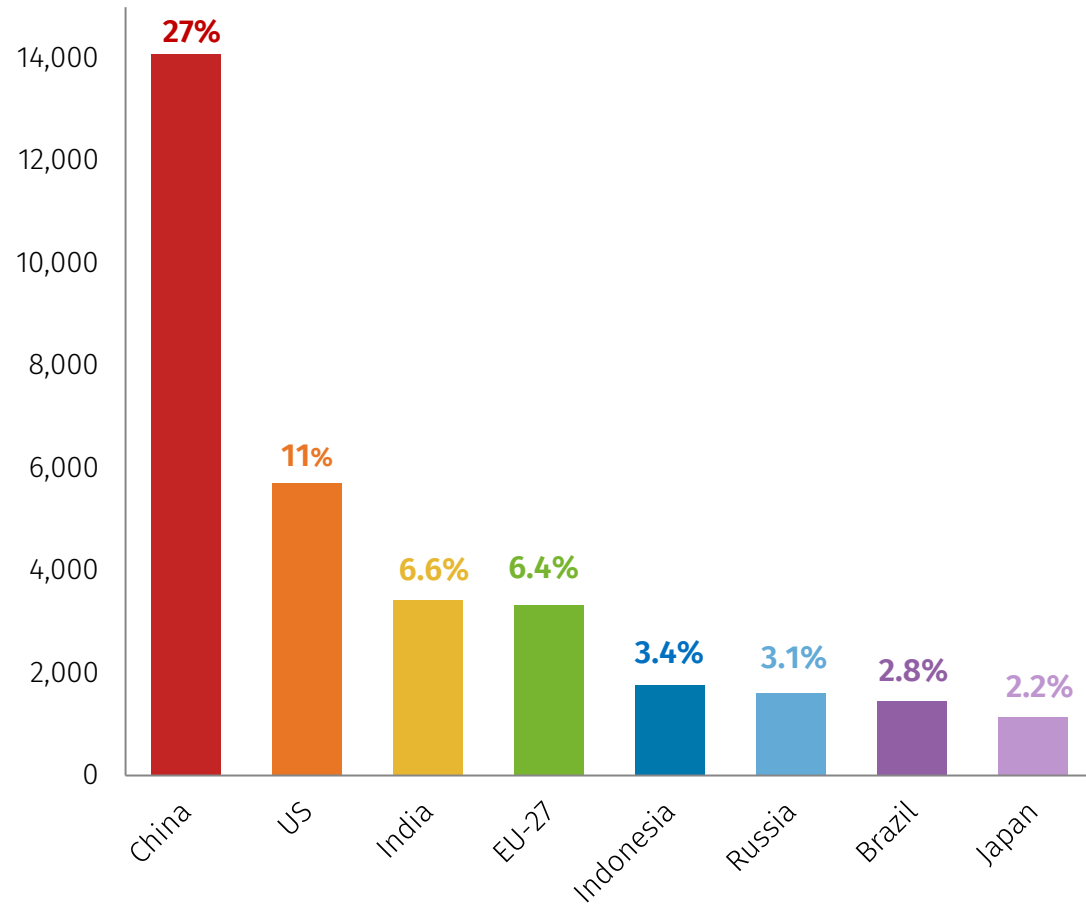
**103 Countries**  
have not  
updated their  
targets

# Focus on world's largest emitters

Emissions dynamics shift quickly, requiring up-to-date emissions data to track

## Share of global emissions in 2019

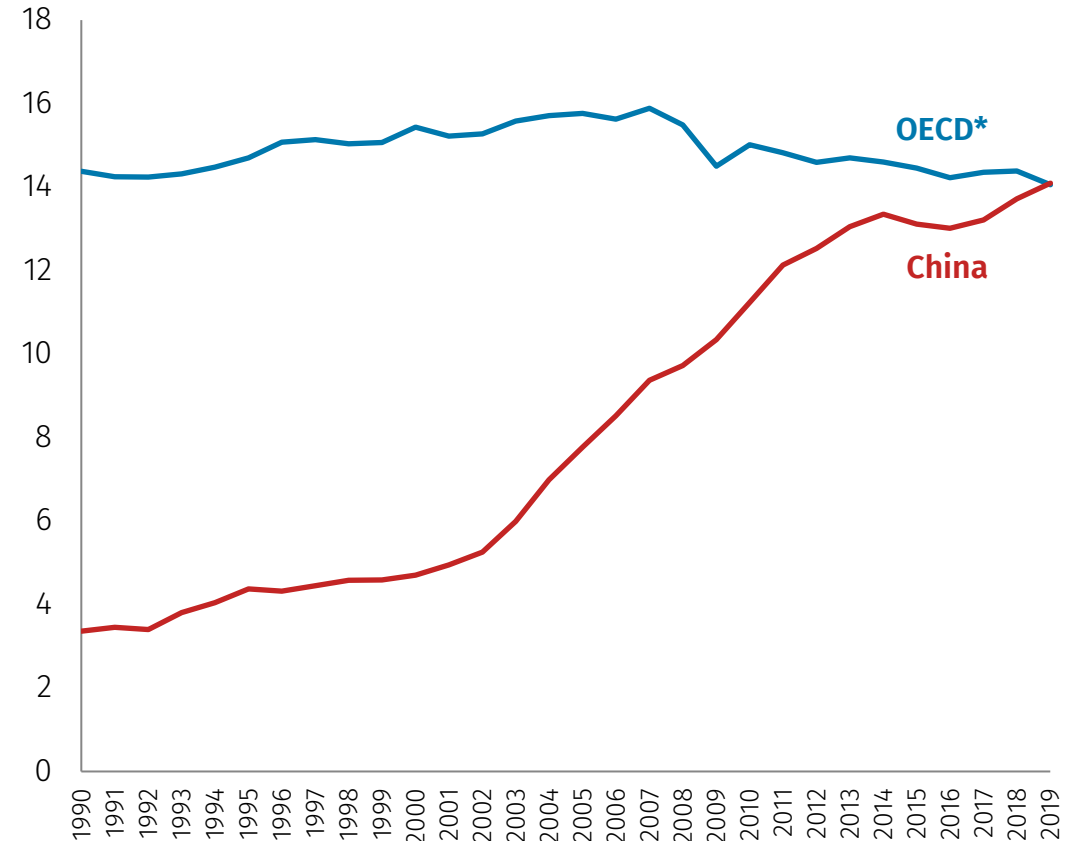
Million metric tons of CO<sub>2</sub>e (Net)



Source: Rhodium Group ClimateDeck, UNFCCC

## China surpasses developed world for first time in 2019

Annual GHG emissions (gigatons of CO<sub>2</sub>e)

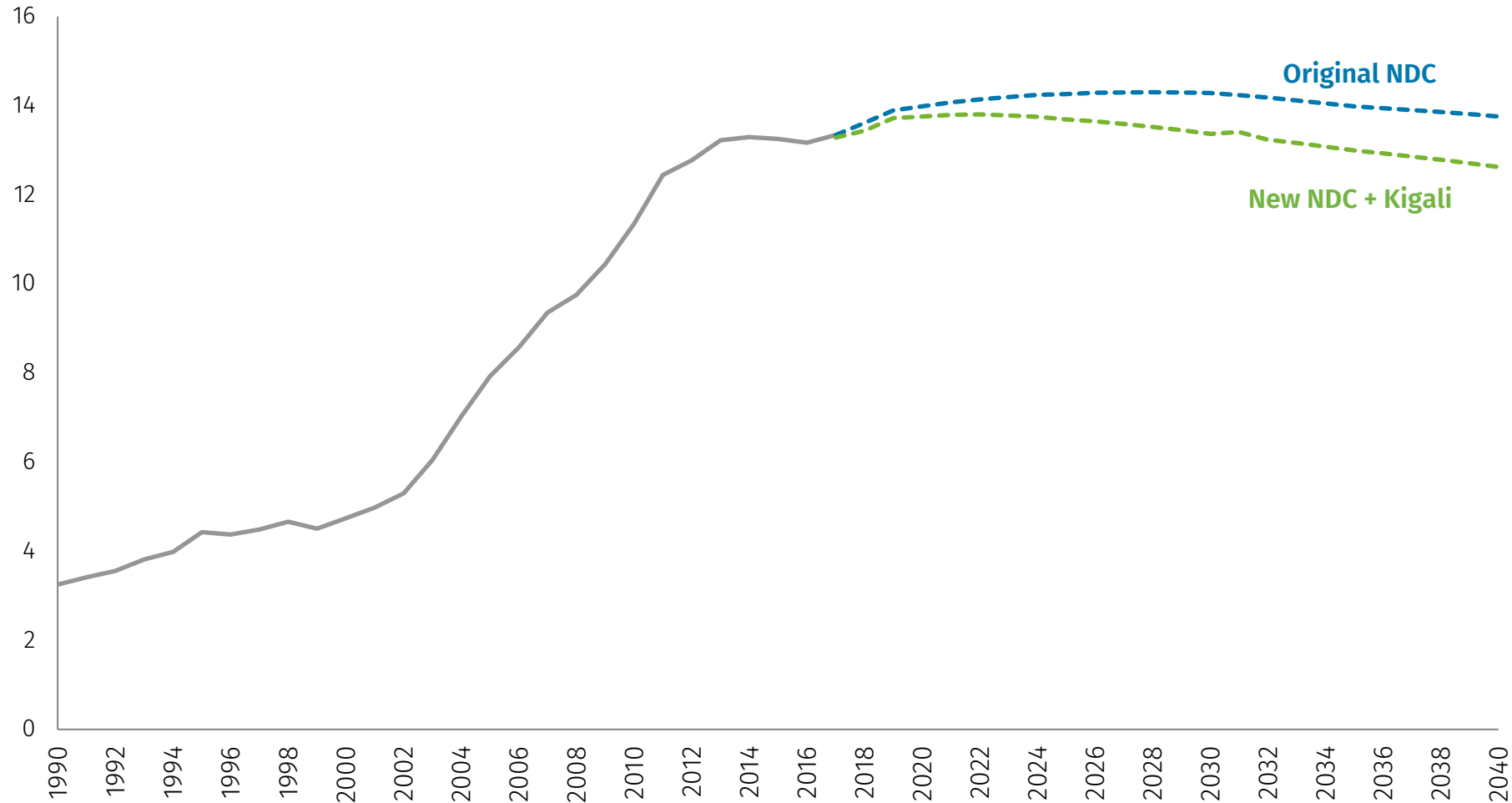




# China recently updated the three core elements of its NDC

## New China GHG projections

Billion tons CO<sub>2</sub>e



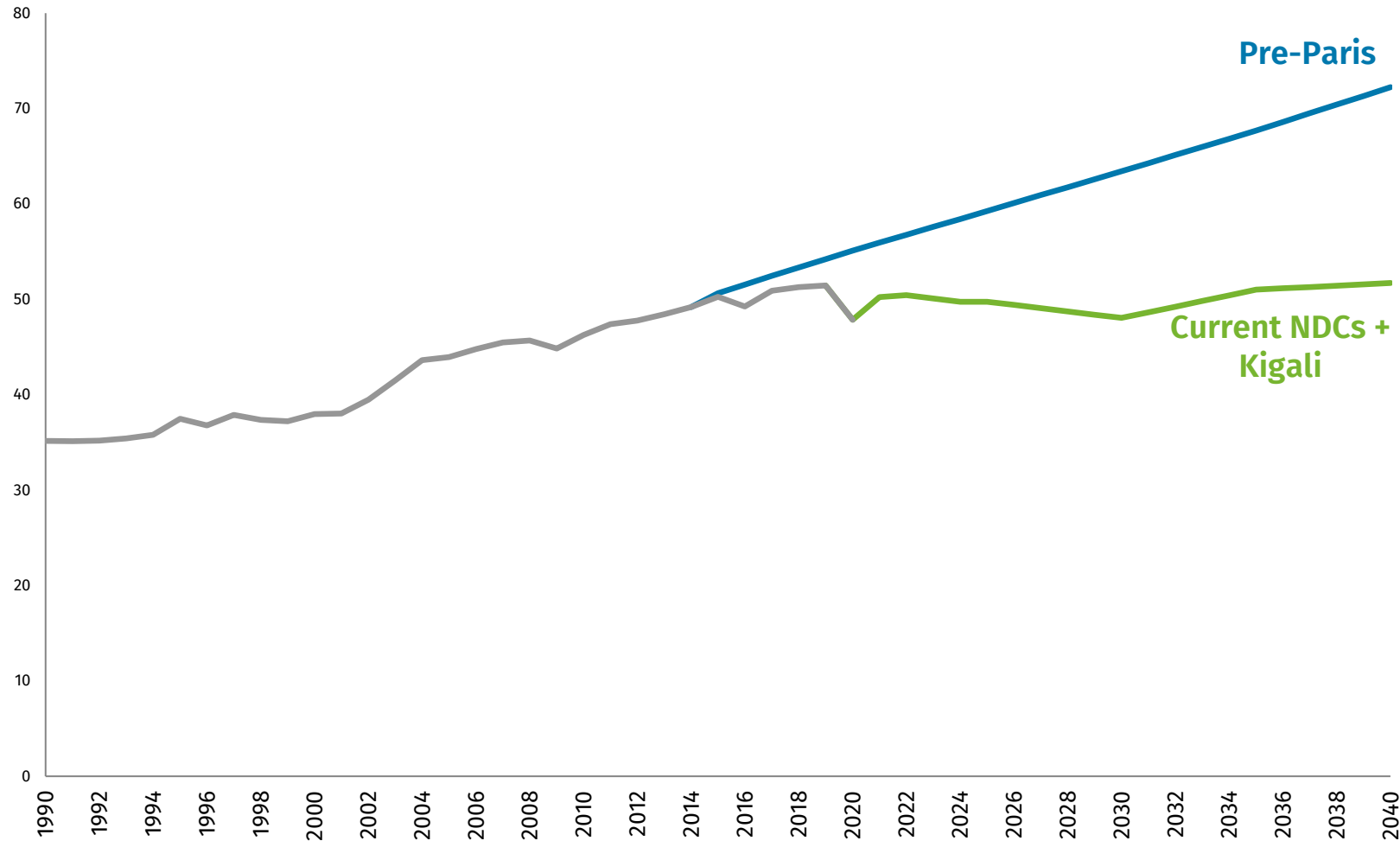
- Xi Jinping recently announced that China will increase its carbon-intensity target from 60-65% below 2005 levels by 2030 to “more than 65%”, raise its non-fossil target from 20% to 25% in 2030 and increase its forestry target from 4.5 to 6 billion cubic meters.
- China also committed to implement the Kigali Amendment to the Montreal Protocol.
- With these additional steps, we would expect China’s net GHG emissions to peak within the next few years then begin a very gradual decline.

Source: Rhodium Group analysis.

# The world has already made considerable climate progress

## Global GHG emissions

Billion metric tons CO<sub>2</sub>e on an inventory basis



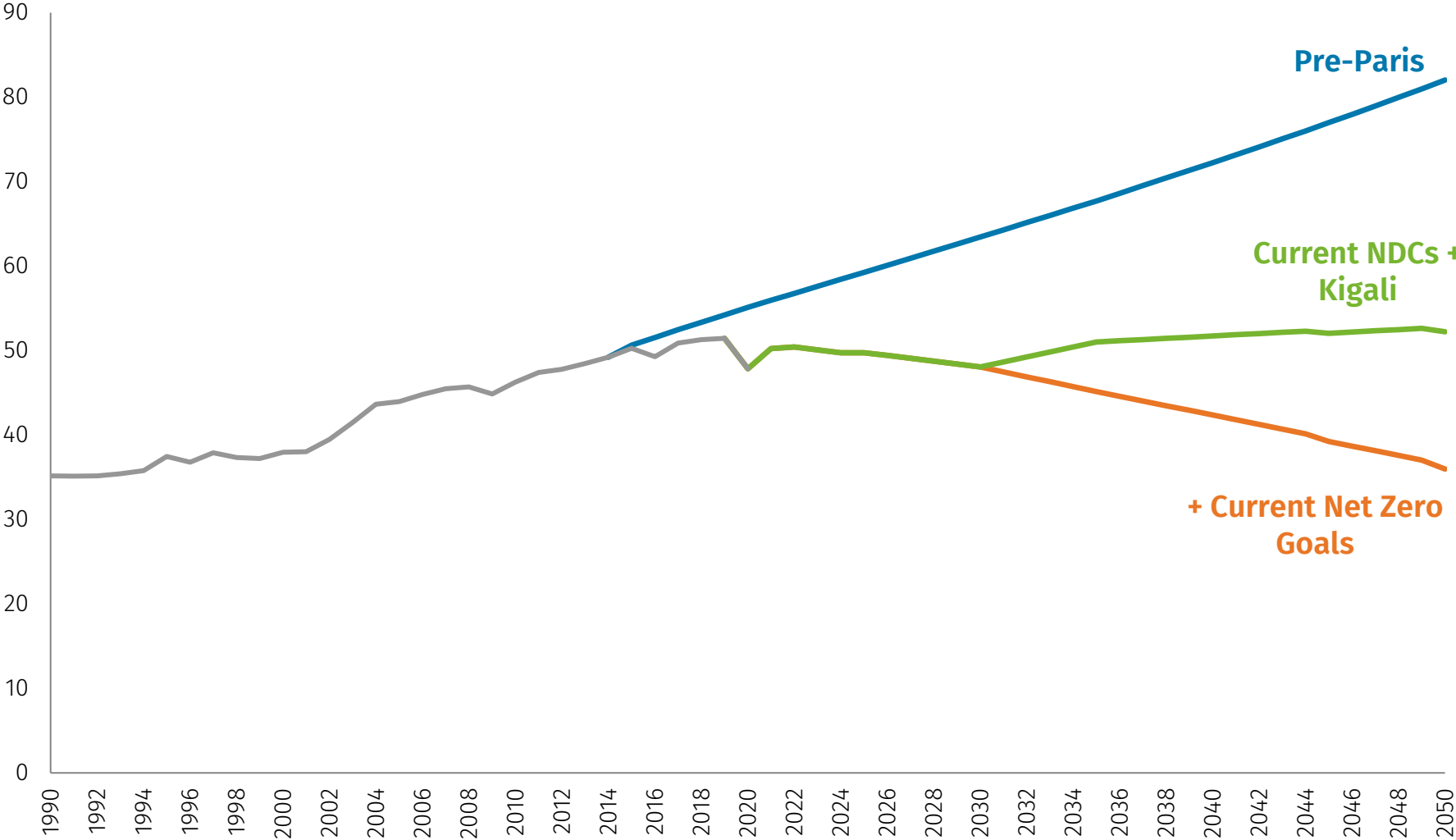
Source: Rhodium Group analysis.

- **Pre-Paris**, global emissions were projected to grow by 1.6% per year on average between 2014 and 2030, reaching 63.4 gigatons CO<sub>2</sub>e that year. By 2040, emissions were projected to reach 72.2 gigatons.
- In our **Current NDCs + Kigali** scenario, global emissions are essentially flat through 2040, resulting in a 20% reduction from Pre-Paris levels in 2030 and a 29% reduction in 2040.
- Part of this reduction comes from slower than expected economic growth. But climate policy and accelerated clean energy deployment played a major role. The carbon-intensity of global energy supply, for example, is now projected to be 11% lower in 2030 than was expected Pre-Paris.

# Adding in current net-zero targets further improves the picture...

## Global GHG emissions

Billion metric tons CO2e on an inventory basis

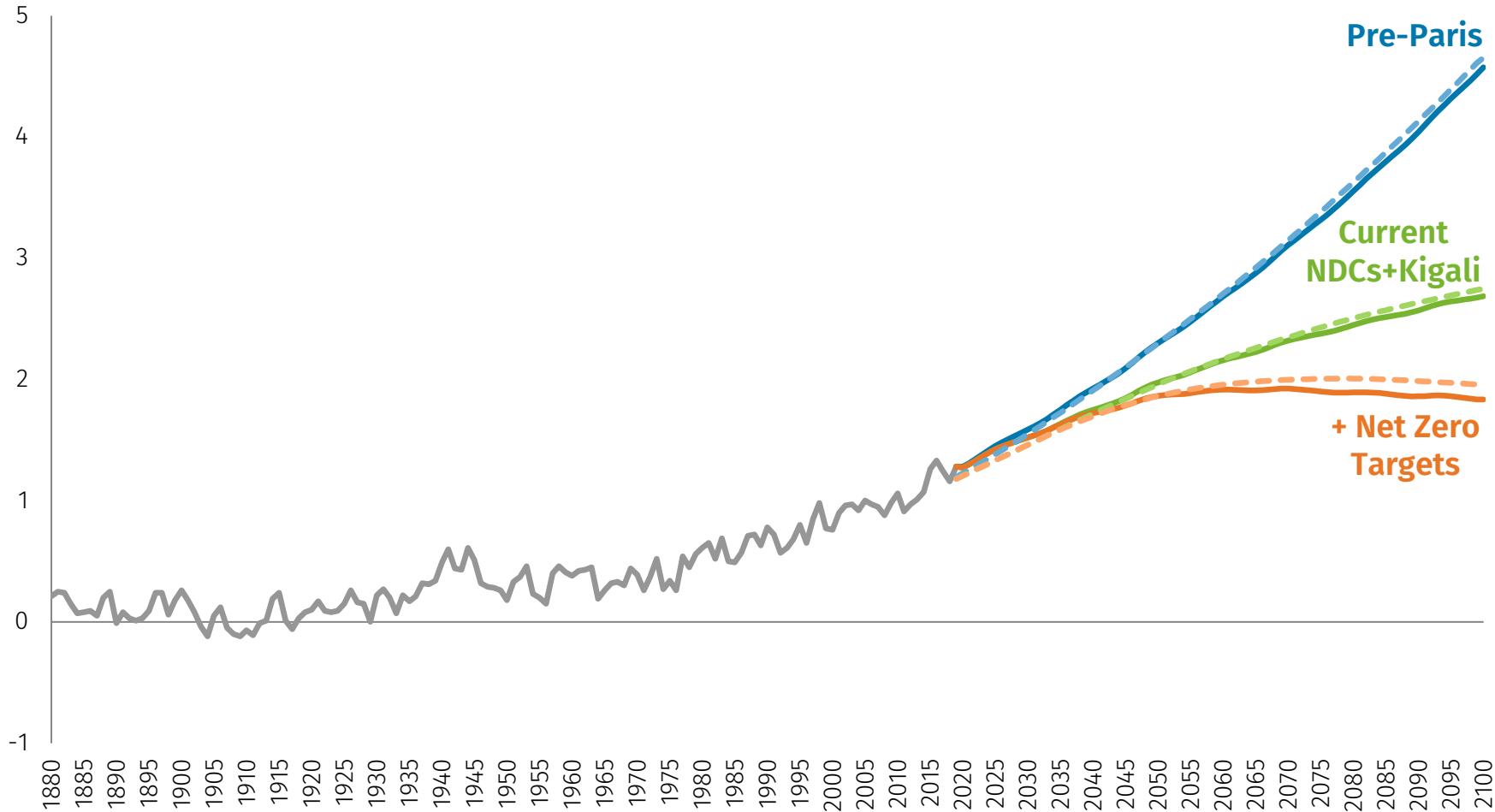


- A number of countries have announced mid-century net-zero targets, including the EU, the UK, Japan, Korea, Norway, Canada and China. Biden campaign also announced a net-zero goal.
- If implemented, these targets would reduce 2050 emissions from the roughly 50 gigatons projected under Current NDCs+Kigali, to around 36 gigatons.

# ...and if implemented puts the world within striking distance of 2°C

## Change in global mean surface temperature (degrees C)

Median model estimates relative to pre-industrial levels. Solid lines are from the FaIR model and dashed lines are from the MAGICC model.



Source: Rhodium Group analysis.

- If implemented on top of existing NDCs and the Kigali amendment, current net zero targets would provide a **50% chance** of limiting increases in global temperatures to 2°C.
- Implementation will be challenging, and countries will need to be held accountable through mid-century strategies and other reporting mechanisms for their progress.
- These targets do not cover international aviation and maritime emissions (1.2 gigatons today, projected to grow to 1.5 gigatons by 2030). Sectoral agreements in these areas would deliver additional tons and further increase the probability of staying below 2°C.

# Climate and emissions data are critical inputs for Biden climate plan

## Global Temperature Goals and Progress

- IPCC Assessment Reports
- 2023 Global Stock-take
  - Global/country historical emissions data
  - Global/country projections
- Paris Enhanced Transparency Framework

## National 2030 and 2050 targets

- Relative US contributions to historic/future emissions
- Historic/future contribution of sinks + uncertainty
- Tracking progress (annual GHG inventories + projections)

## Domestic Policy Planning

- Detailed sectoral emissions breakdowns, annual historic/future trends
- Ancillary impacts (e.g., criteria pollutants)
- Integrated forest assessment

## Implementation and Tracking

- Regular emissions reporting and monitoring (annual)
- Troubleshooting - are regs effective at reducing emissions? Any super-emitters? (more frequent monitoring + alerts)
- Unintended consequences?
- Forests and land use

## International Cooperation

- Pressure campaign (G20, MEF) – historical/projected GHG by country
- Sectoral agreements (bunkers, Kigali, agriculture, forests) – historical/projected by sector
- Trade measures – embedded GHGs, 3<sup>rd</sup> party verification

## What have we missed?

- New research to highlight what else matters that we need to monitor/estimate/track
  - Forests
  - Agriculture/lands
  - Oceans/water
  - Underground carbon sequestration



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NEW YORK | CALIFORNIA | HONG KONG | PARIS

TEL: +1 212-532-1157 | FAX: +1 212-532-1162

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