



SYSTEMS
CHANGE
LAB

The State of Climate Action 2023



BEZOS
EARTH
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Climate
Action
Tracker



CLIMATE
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RACE TO
RESILIENCE



RACE TO ZERO



WORLD
RESOURCES
INSTITUTE

A Roadmap for Transformational Change



Power



Buildings



Industry



Transport



Forests & Land



Food & Agriculture



Technological Carbon
Removal



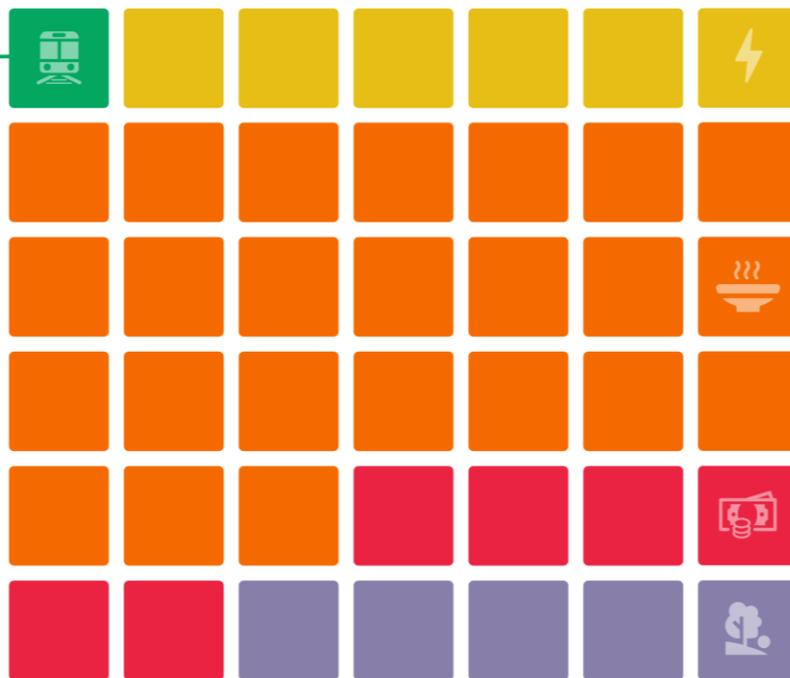
Finance

Global progress across sectors isn't happening at the pace and scale needed to limit warming to 1.5°C

Only one of 42 indicators is on track to reach its 2030 target

= 1 indicator
 ✔ On Track
 ! Off Track
 ✘ Well Off Track
 ⬇ Wrong Direction
 ? Insufficient Data

The **share of electric vehicles in passenger car sales** has more than tripled since 2020, and this exponential growth puts this indicator squarely on track for 2030.



WEBINAR

The State of Climate Action in 2023



Nov 15 | 10:00 AM EST (4:00 PM CET)



Ani Dasgupta

President and CEO,
World Resources Institute



Wawa Gatheru

Founder and Executive Director,
Black Girl Environmentalist



Helen Mountford

President and CEO,
ClimateWorks Foundation



Carlos Manuel Rodríguez

CEO and Chairperson,
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Kelly Levin

Chief of Science, Data and
Systems Change,
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Judit Hecke

NewClimate Institute



Sophie Boehm

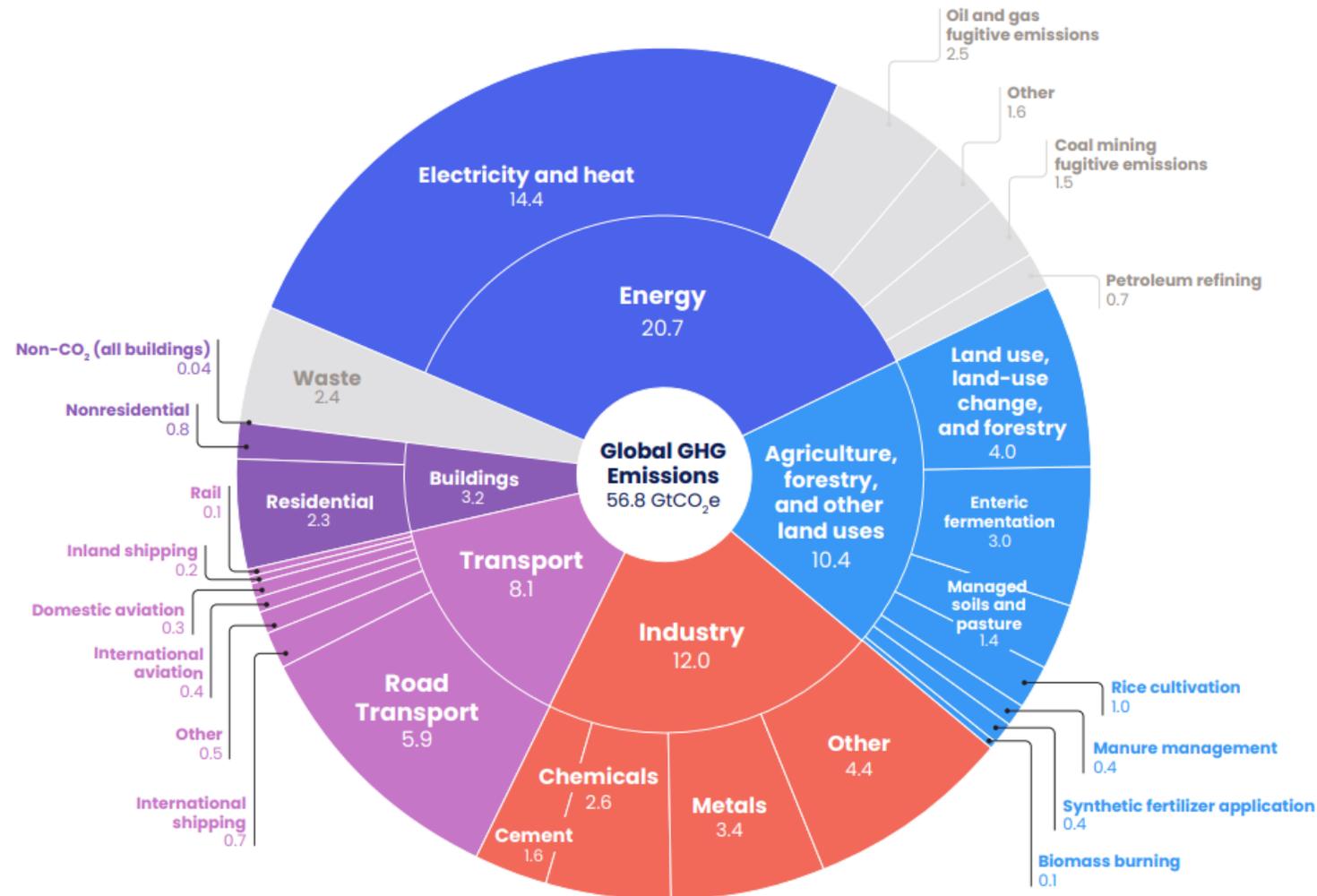
Research Associate II,
Systems Change Lab,
World Resources Institute



Claire Fyson

Co-Head of the Climate Policy Team,
Climate Analytics

Global GHG Emissions by Sector in 2021



✓ RIGHT DIRECTION, ON TRACK

Share of electric vehicles in light-duty vehicle sales (%)

! RIGHT DIRECTION, OFF TRACK

✘ Ruminant meat productivity (kg/ha)	→ 1.2x
✘ Reforestation (total Mha)	→ 1.5x
✘ Share of global GHG emissions under mandatory corporate climate risk disclosure (%)	→ 1.5x
✘ Share of zero-carbon sources in electricity generation (%)	Some acceleration required
✘ Share of electric vehicles in the light-duty vehicle fleet (%)	Some acceleration required
✘ Share of electric vehicles in two- and three-wheeler sales (%)	Some acceleration required

✘ RIGHT DIRECTION, WELL OFF TRACK

✘ Energy intensity of building operations (kWh/m ²)	→ 3x
✘ GHG emissions intensity of agricultural production (gCO ₂ e/1,000 kcal)	→ 3x
✘ Carbon intensity of building operations (kgCO ₂ /m ²)	→ 4x
✘ Share of electricity in the industry sector's final energy demand (%)	→ 4x
✘ Deforestation (Mha/yr)	→ 4x
✘ Number of kilometers of rapid transit per 1 million inhabitants (km/1M inhabitants)	→ 6x
✘ Share of coal in electricity generation (%)	→ 7x
✘ Ruminant meat consumption (kcal/capita/day)	→ 8x
✘ Global total climate finance (trillion \$/yr)*	→ 8x
✘ Global public climate finance (trillion \$/yr)*	→ 8x
✘ Carbon intensity of electricity generation (gCO ₂ /kWh)	→ 9x
✘ Share of unabated fossil gas in electricity generation (%)	→ >10x
✘ Carbon intensity of global cement production (kgCO ₂ /t cement)	→ >10x
✘ Number of kilometers of high-quality bike lanes per 1,000 inhabitants (km/1,000 inhabitants)	→ >10x
✘ Mangrove restoration (total ha)	→ >10x
✘ Crop yields (t/ha)	→ >10x

✘ RIGHT DIRECTION, WELL OFF TRACK

✘ Technological carbon removal (MtCO ₂ /yr)	→ >10x
✘ Global private climate finance (trillion \$/yr)*	→ >10x
✘ Ratio of investment in low-carbon to fossil fuel energy supply	→ >10x
✘ Weighted average carbon price in jurisdictions with emissions pricing systems (2015\$/tCO ₂ e)	→ >10x
✘ Green hydrogen production (Mt)	Significant acceleration required
✘ Share of battery electric vehicles and fuel cell electric vehicles in medium- and heavy-duty commercial vehicle sales (%)	Significant acceleration required
✘ Share of sustainable aviation fuels in global aviation fuel supply (%)	Significant acceleration required
✘ Share of zero-emissions fuels in maritime shipping fuel supply (%)	Significant acceleration required

↩ WRONG DIRECTION, U-TURN NEEDED

✘ Carbon intensity of global steel production (kgCO ₂ /t crude steel)	U-turn needed
✘ Share of kilometers traveled by passenger cars (% of passenger-km)	U-turn needed
✘ Share of battery electric vehicles and fuel cell electric vehicles in bus sales (%)	U-turn needed
✘ Mangrove loss (ha/yr)	U-turn needed
✘ Share of food production lost (%)	U-turn needed
✘ Total public financing for fossil fuels (billion \$/yr)	U-turn needed

? INSUFFICIENT DATA

✘ Retrofitting rate of buildings (%/yr)	Insufficient data
✘ Share of new buildings that are zero-carbon in operation (%)	Insufficient data
✘ Peatland degradation (Mha/yr)	Insufficient data
✘ Peatland restoration (total Mha)	Insufficient data
✘ Food waste (kg/capita)	Insufficient data



For indicators categorized as S-curve likely, acceleration factors calculated using a linear trendline are not presented, as they would not accurately reflect an S-curve trajectory. The category of progress was determined based on author judgment, using multiple lines of evidence.

* New data from Climate Policy Initiative shows increases in public and private climate finance for 2021 and 2022; however, such gains are not enough to put these indicators on track.

Source: Boehm et al. 2023.

Climate Action Must Accelerate Rapidly



Reduce the annual rate of deforestation
4 times faster



Expand public transport infrastructure
6 times faster



Phase out coal in electricity generation
7 times faster



Lower consumption of beef, lamb and goat in high-consuming regions
8 times faster



Decarbonize cement production more than
10 times faster



Raise the investment ratio of low-carbon to fossil fuel energy supply
10 times faster

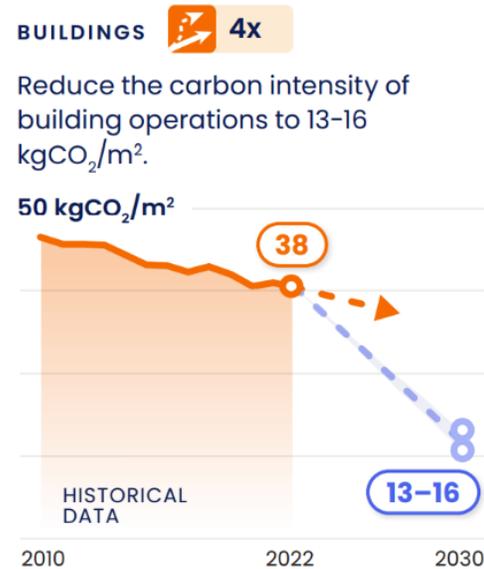
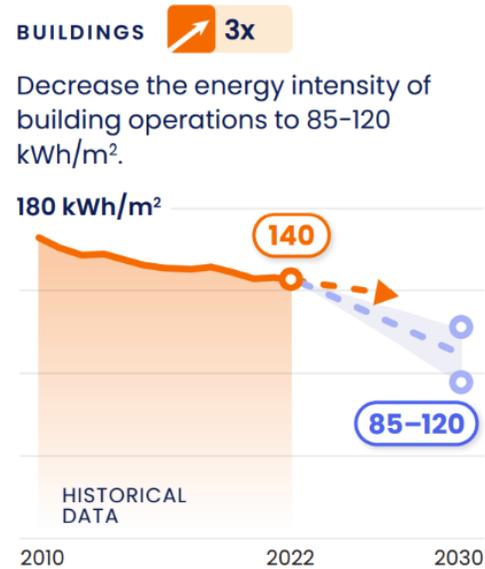


BUILDINGS

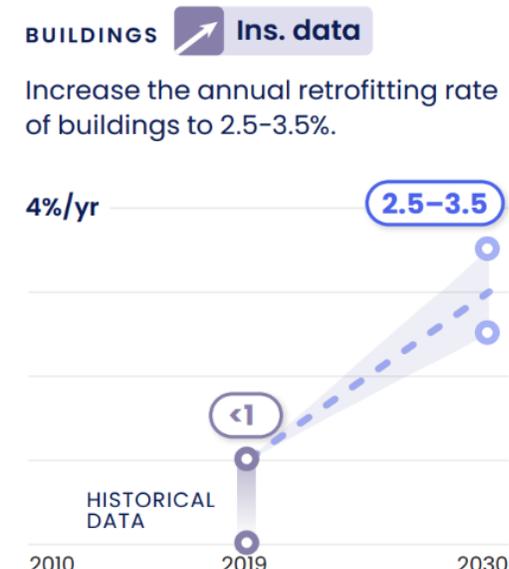


Summary of Progress in Buildings

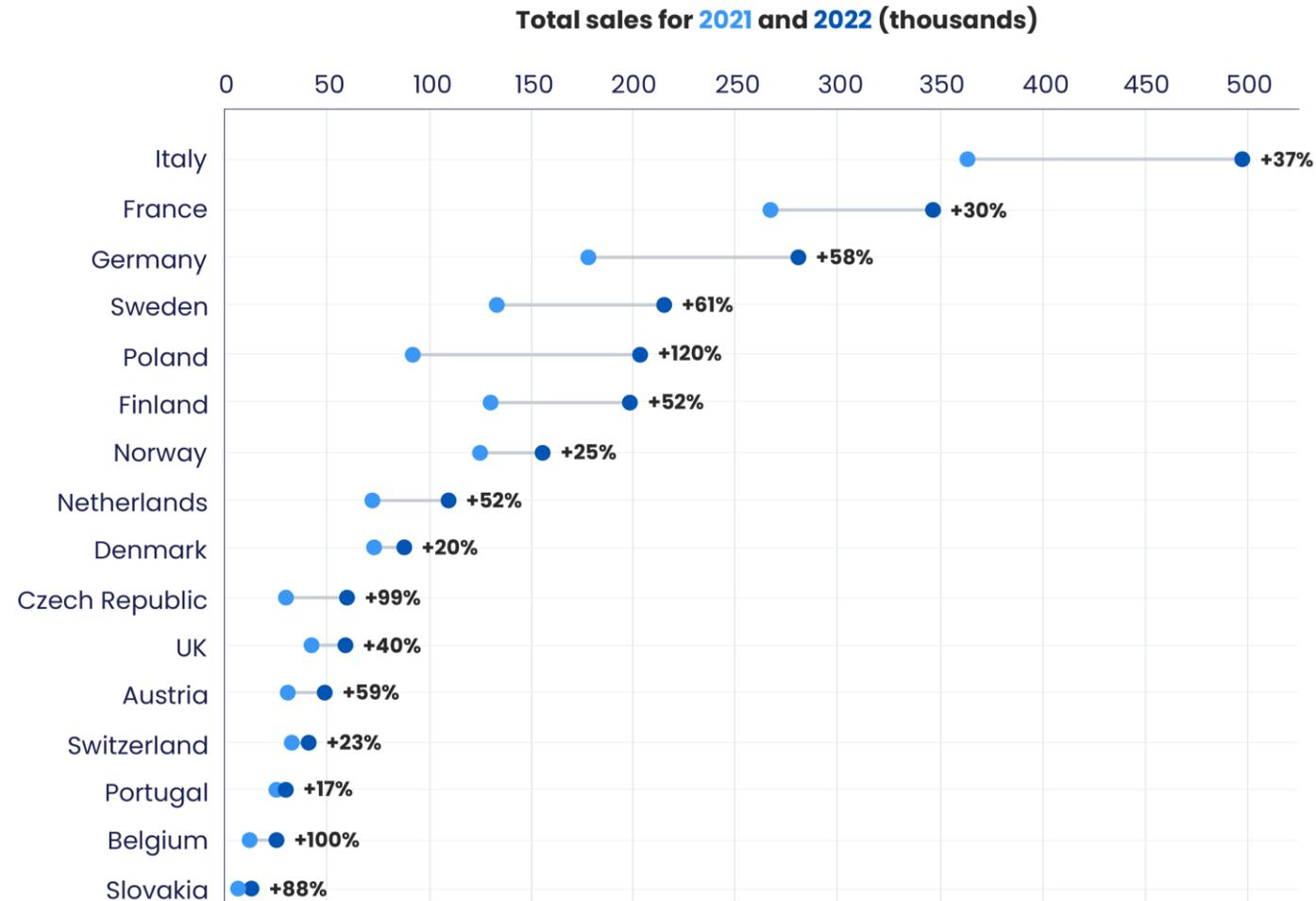
✗ RIGHT DIRECTION, WELL OFF TRACK



? INSUFFICIENT DATA



Rapid Uptake of Heat Pumps





INDUSTRY

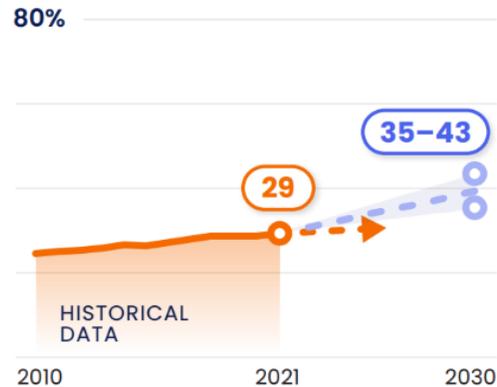


Summary of Progress in Industry

✗ RIGHT DIRECTION, WELL OFF TRACK

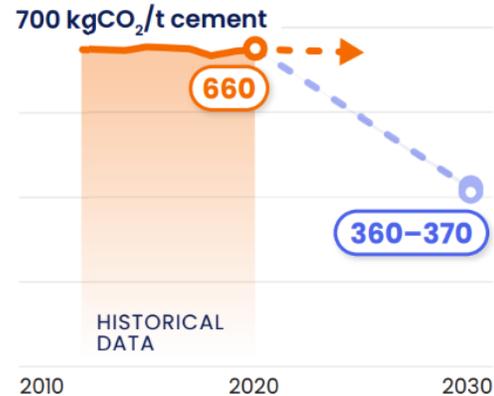
INDUSTRY  4x

Increase the share of electricity in the industry sector's final energy demand to 35-43%.



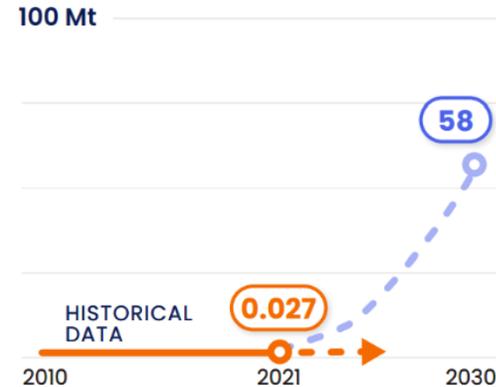
INDUSTRY  >10x

Lower the carbon intensity of global cement production to 360-70 kgCO₂/t cement by 2030.



INDUSTRY  N/A^b

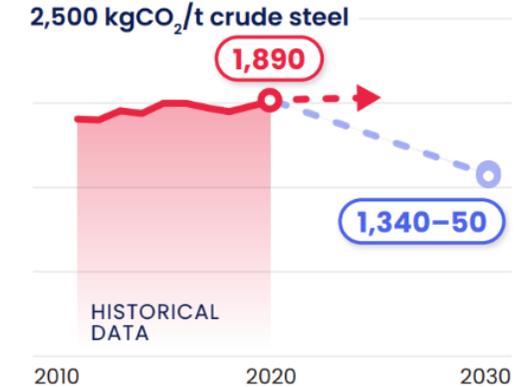
Increase green hydrogen production capacity to 58 Mt.



⬇️ WRONG DIRECTION, U-TURN NEEDED

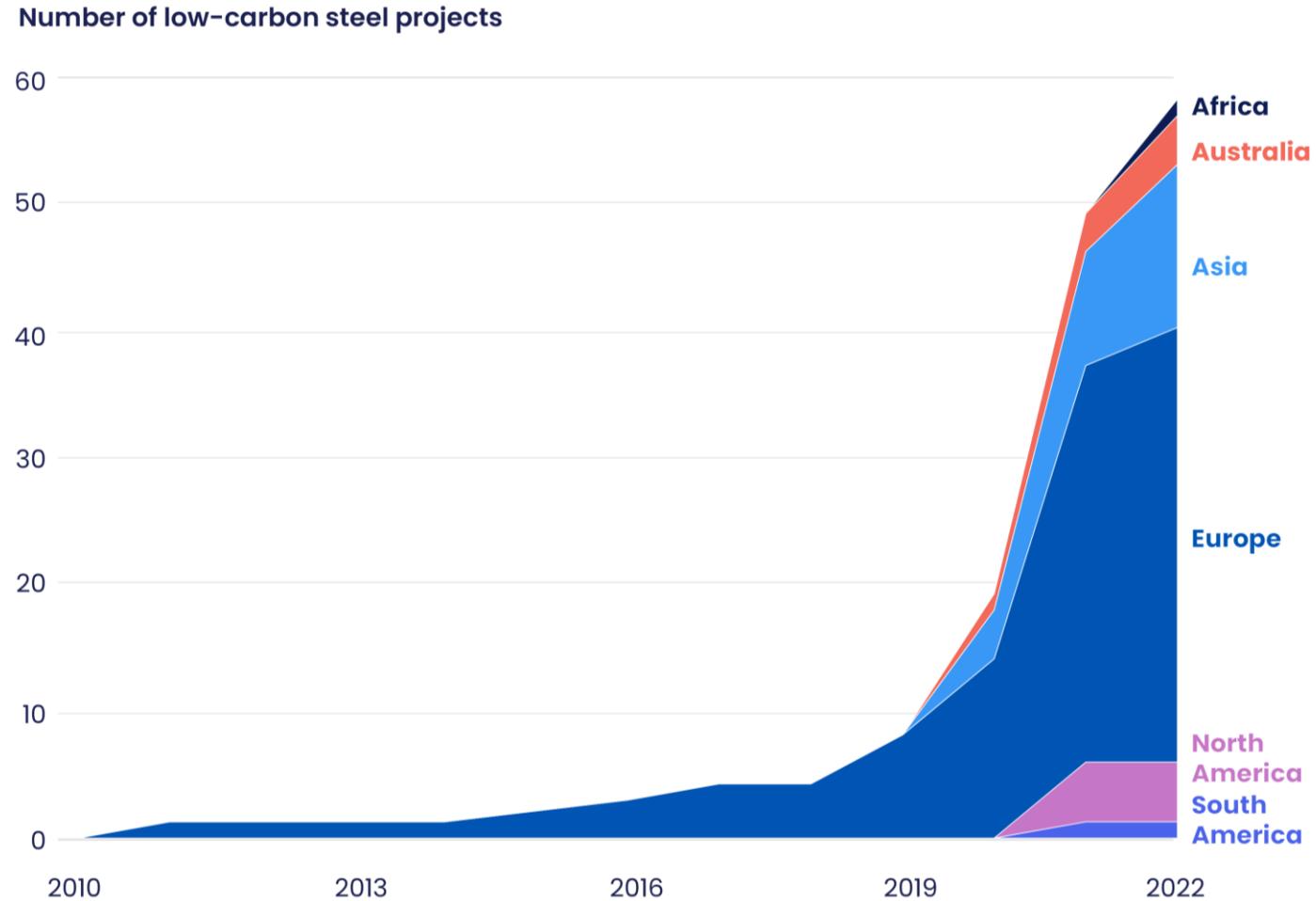
INDUSTRY  U-turn needed

Lower the carbon intensity of global steel production to 1,340-50 kgCO₂/t crude steel.





Increases in Low-Carbon Steel Projects

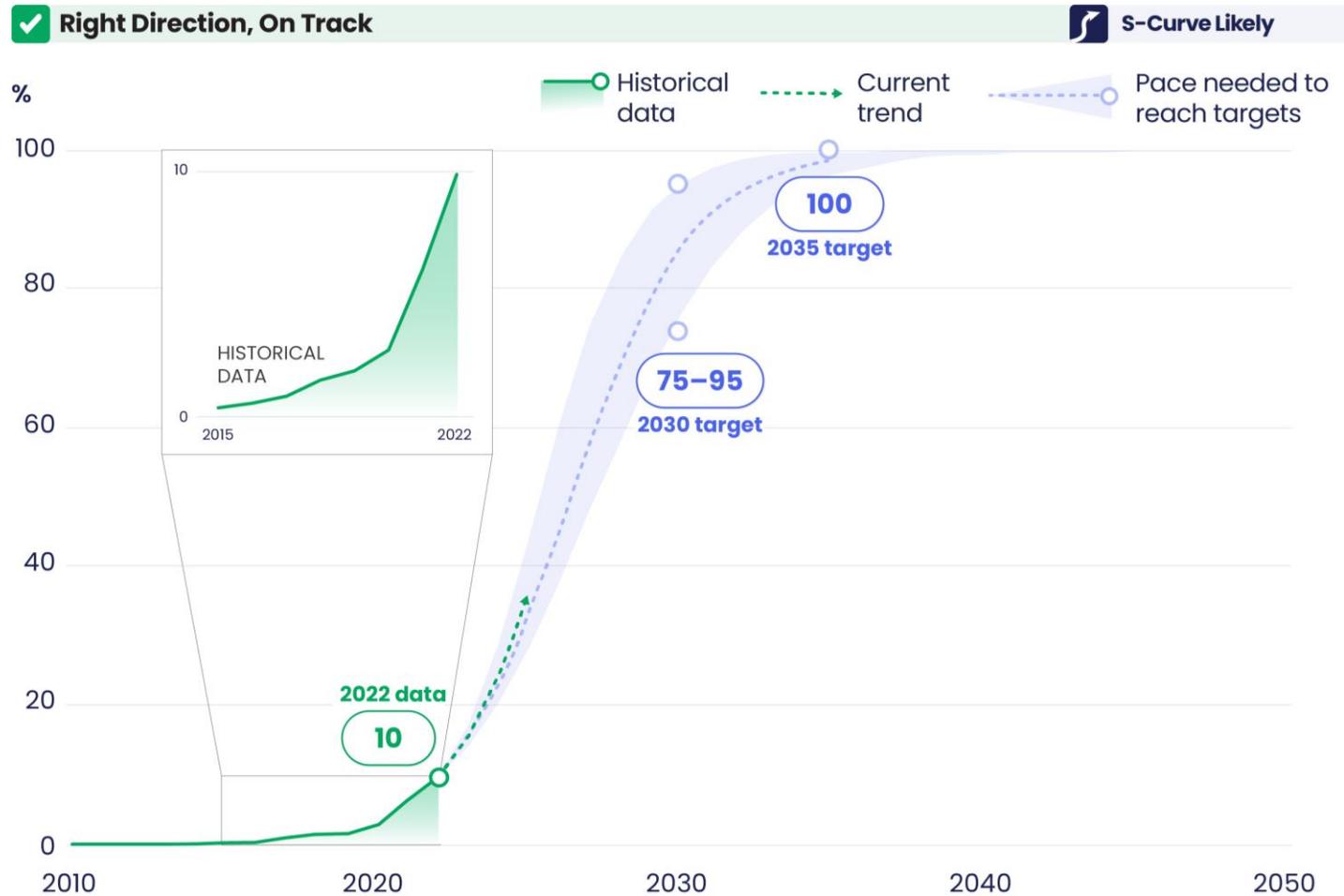


TRANSPORT

Photo by: Chris Gold/Flickr



EV Sales On Track for 2030





Summary of Progress in Transport

RIGHT DIRECTION, ON TRACK

TRANSPORT N/A^b

Increase the share of EVs to 75–95% of total annual LDV sales.



RIGHT DIRECTION, OFF TRACK

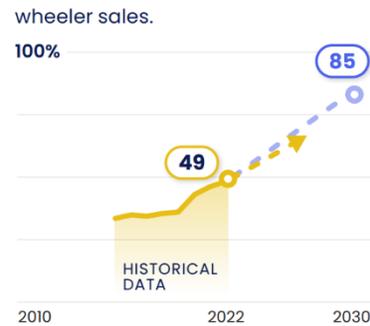
TRANSPORT N/A^b

Expand the share of EVs to account for 20–40% of total LDV fleet.



TRANSPORT N/A^b

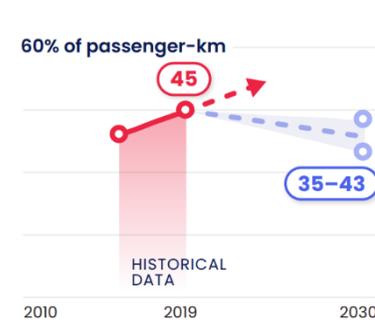
Increase the share of EVs to 85% of total annual two- and three-wheeler sales.



WRONG DIRECTION, U-TURN NEEDED

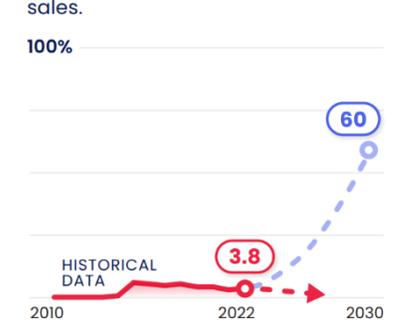
TRANSPORT U-turn needed

Reduce the percentage of trips made in passenger cars to 35–43%.



TRANSPORT U-turn needed^b

Increase the share of BEVs and FCEVs to 60% of total annual bus sales.



RIGHT DIRECTION, WELL OFF TRACK

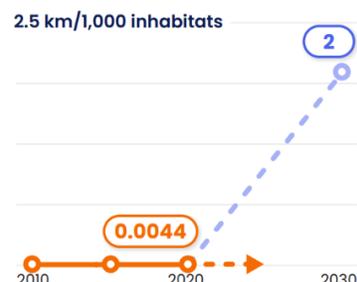
TRANSPORT 6x

Double the coverage of public transport infrastructure across urban areas, relative to 2020.



TRANSPORT >10x

Reach 2 km of high-quality bike lanes per 1,000 inhabitants across urban areas.



TRANSPORT N/A^b

Increase the share of BEVs and FCEVs to 30% of total annual MHDV sales.



TRANSPORT N/A^b

Increase the share of sustainable aviation fuels in global aviation fuel supply to 13%.



TRANSPORT N/A^b

Increase the share of zero-emissions fuel in maritime shipping fuel supply to 5%.



POWER

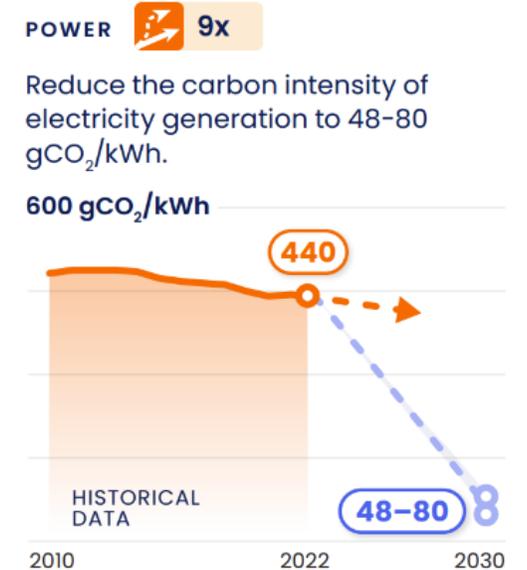
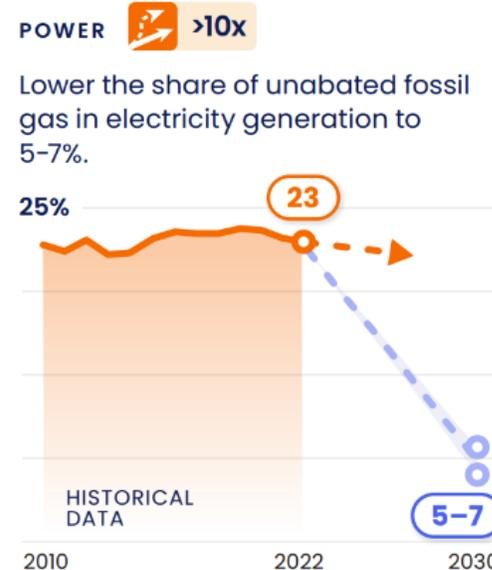
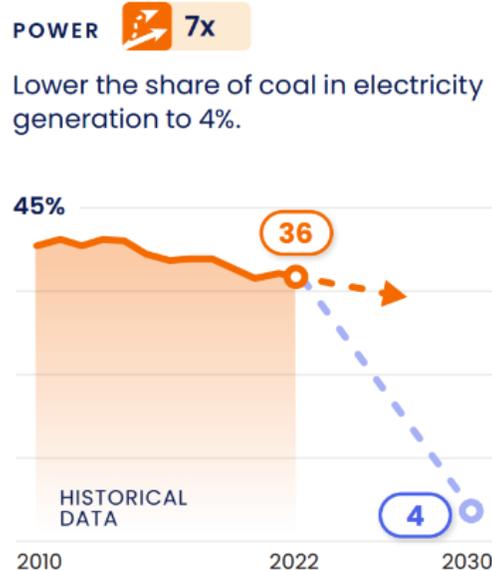
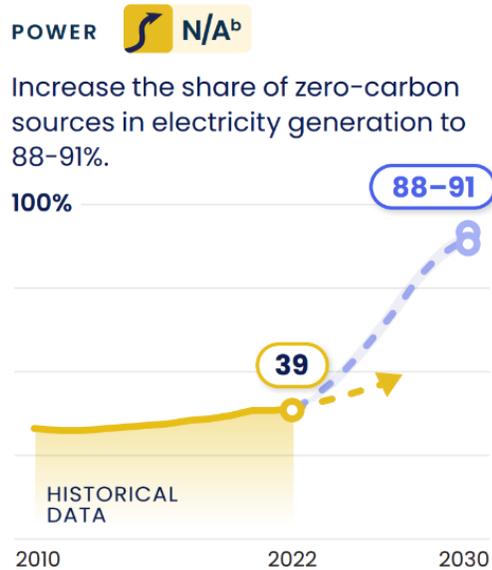
Photo by: Tim van der Kuip/Unsplash



Summary of Progress in Power

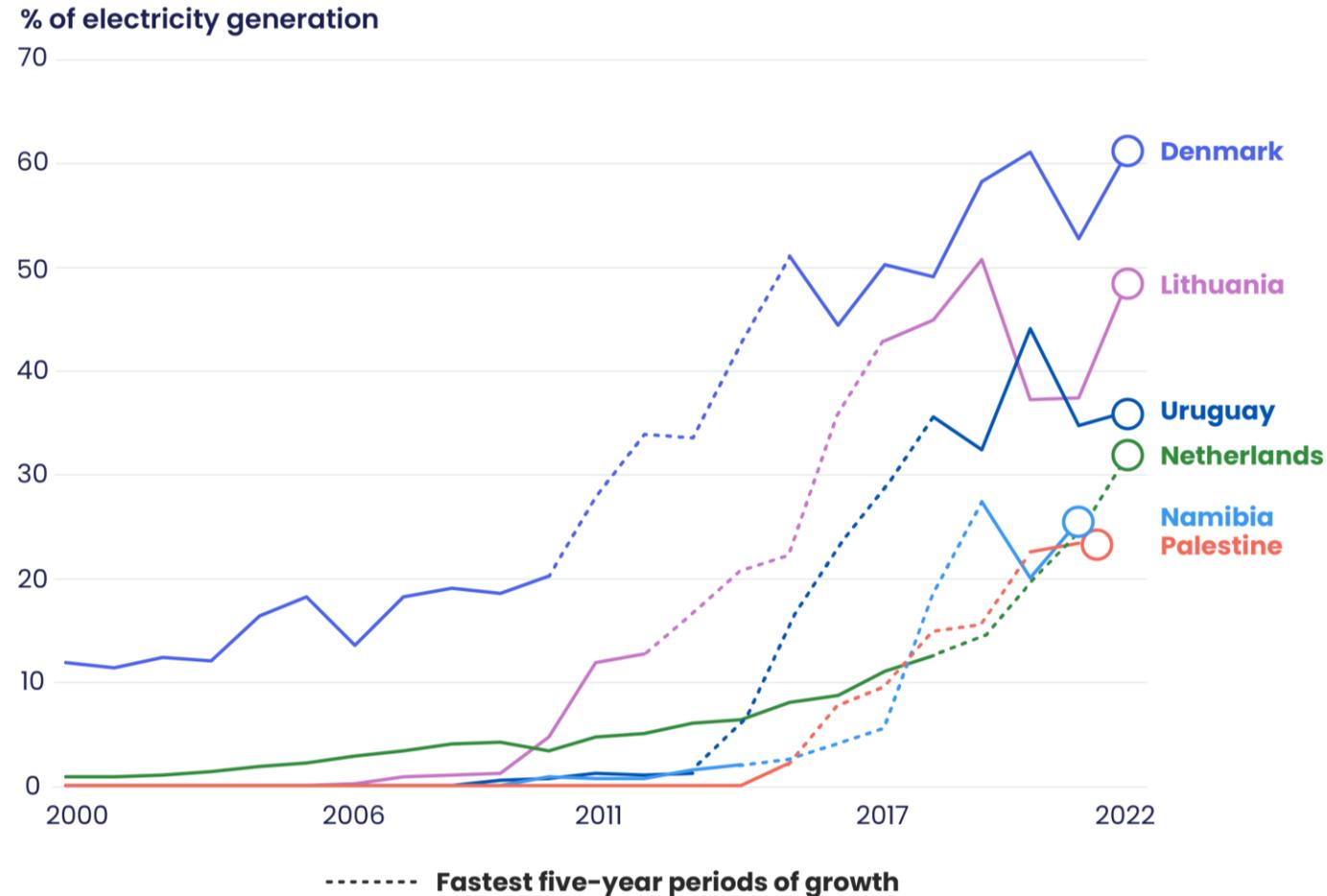
! RIGHT DIRECTION, OFF TRACK

✗ RIGHT DIRECTION, WELL OFF TRACK





Remarkable Growth in Wind and Solar

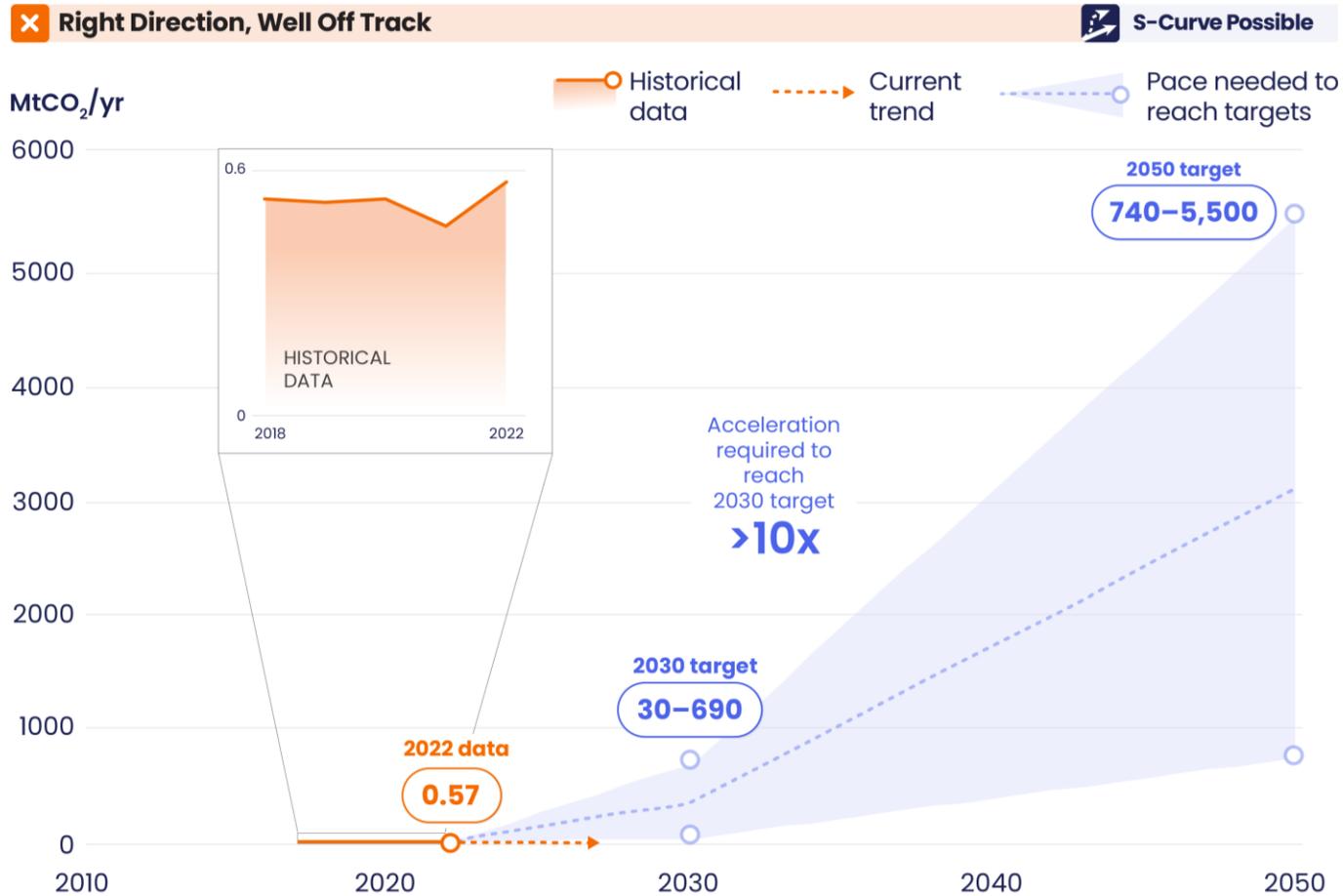




TECHNOLOGICAL CARBON REMOVAL

Photo by: ClimeWorks

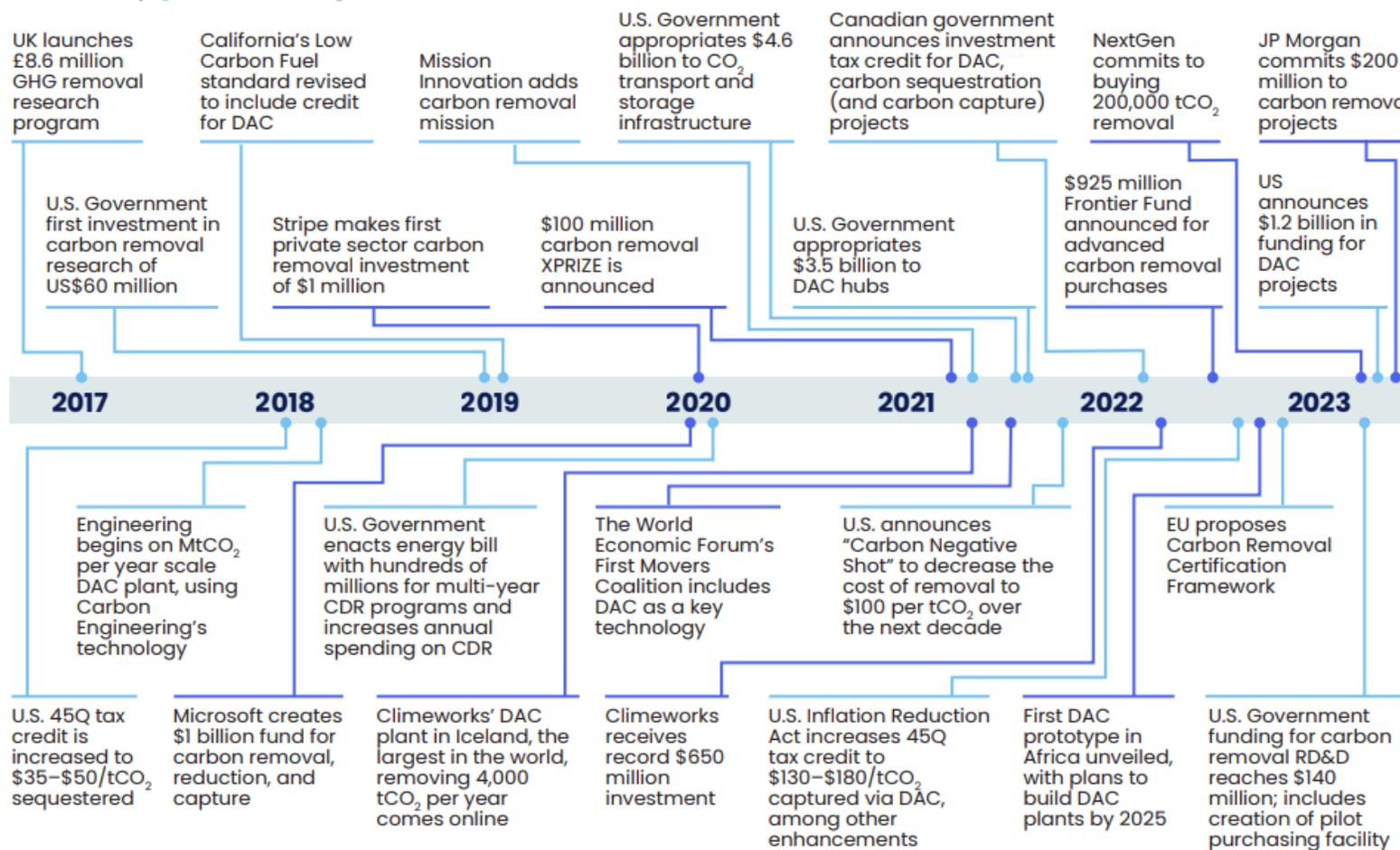
Summary of Progress in Technological Carbon Removal



Building Momentum on Technological Carbon Removal



Action by public and private entities



A man in a green uniform and hat stands in a dense mangrove forest. The ground is covered in a complex network of brown roots. The trees have green leaves and thin trunks. The man is looking upwards and to the right.

FORESTS & LAND

Photo by: Anthony Ochieng / Climate Visuals Countdown



Summary of Progress in Forests & Land

! RIGHT DIRECTION, OFF TRACK ✗ RIGHT DIRECTION, WELL OFF TRACK

FOREST AND LAND ↗ 1.5x

Reforest 100 Mha.

500 total Mha



FOREST AND LAND ↗ 4x

Reduce the annual rate of gross deforestation to 1.9 Mha/yr.

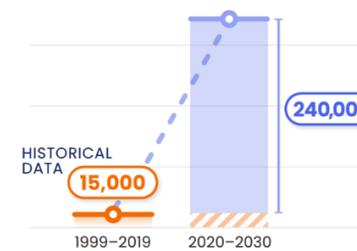
8 Mha/yr



FOREST AND LAND ↗ >10x

Restore 240,000 ha of mangroves.

300,000 Total ha



? INSUFFICIENT DATA

FOREST AND LAND ↗ Ins. data

Reduce the annual rate of peatland degradation to 0 Mha/yr.

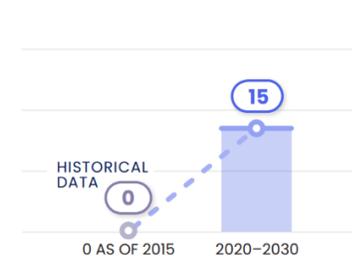
.07 Mha/yr



FOREST AND LAND ↗ Ins. data

Restore 15 Mha of degraded peatlands.

35 Total Mha



⬇️ WRONG DIRECTION, U-TURN NEEDED

FOREST AND LAND ↘ U-turn needed

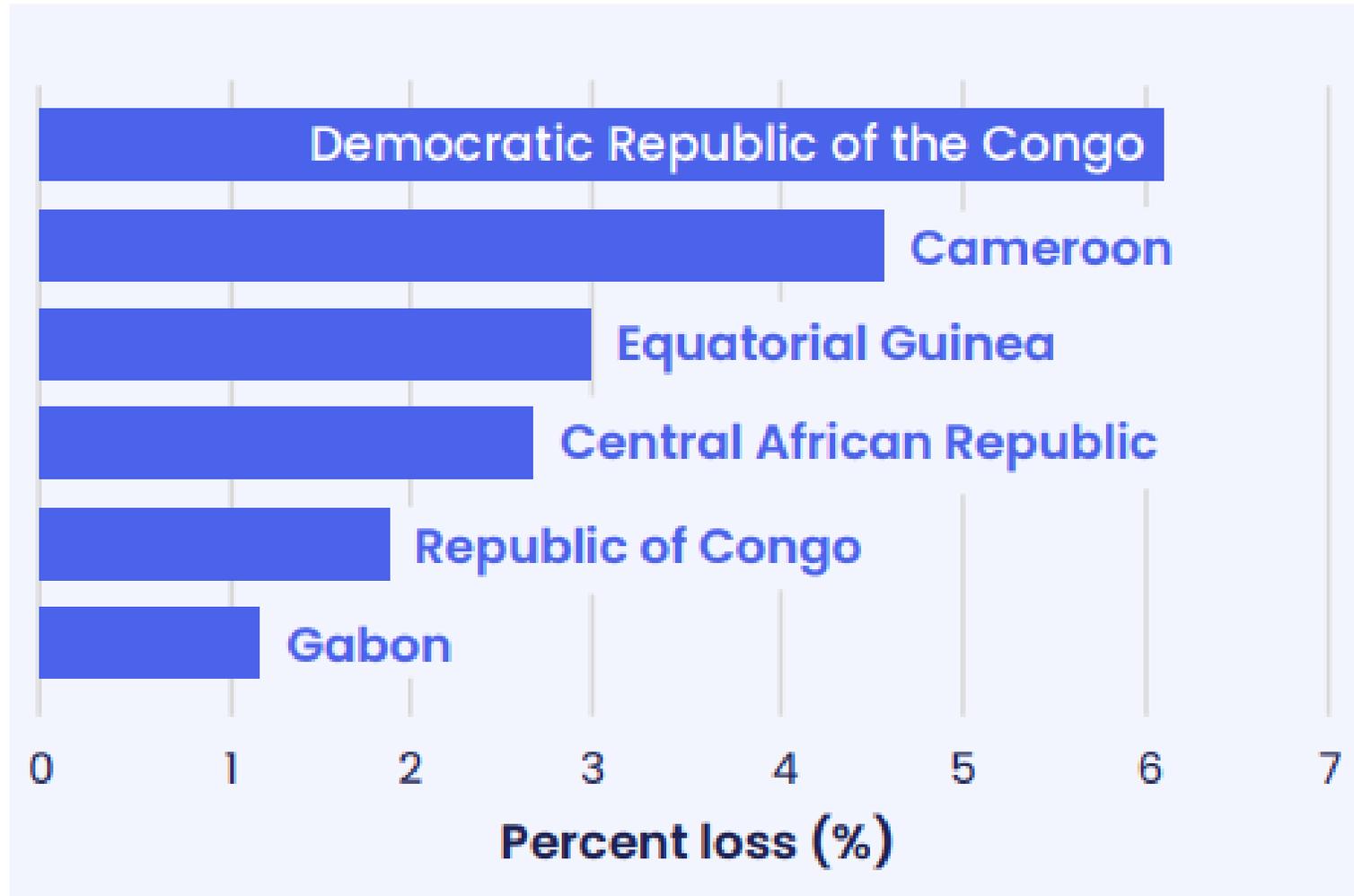
Reduce the annual rate of gross mangrove loss to 4,900 ha/yr.

45,500 ha/yr





Spotlight on Gabon's Forest Conservation Efforts



A woman in a patterned dress is bent over, working in a lush green field. She is wearing a light-colored, patterned dress and a blue and white patterned shawl draped over her shoulders. The field is filled with various green plants, and there are other people working in the background. The background is a dense forest of palm trees and other tropical vegetation under a bright sky.

FOOD & AGRICULTURE

Photo by: Annie Spratt/Unsplash

Summary of Progress in Food & Agriculture



! RIGHT DIRECTION, OFF TRACK

FOOD AND AGRICULTURE ↗ 1.2x

Increase ruminant meat productivity per hectare by 27%, relative to 2017.

45 kg/ha

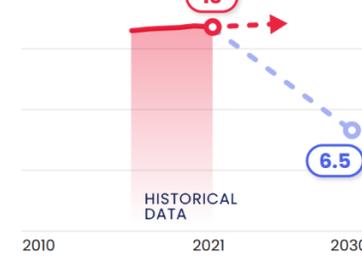


⬇️ WRONG DIRECTION, U-TURN NEEDED

FOOD AND AGRICULTURE ↗ U-turn needed

Reduce the share of food production lost by 50%, relative to 2016.

16%

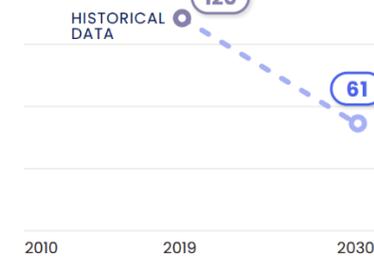


? INSUFFICIENT DATA

FOOD AND AGRICULTURE ↗ Ins. data

Reduce per capita food waste by 50%, relative to 2019.

140 kg/capita

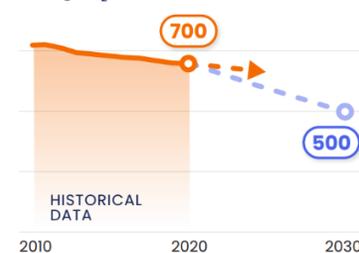


✗ RIGHT DIRECTION, WELL OFF TRACK

FOOD AND AGRICULTURE ↗ 3x

Reduce the GHG emissions intensity of agricultural production by 31%, relative to 2017.

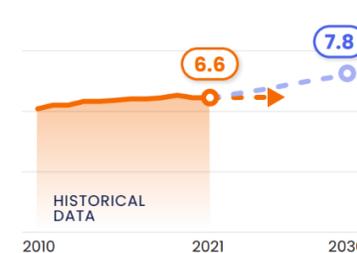
1000 gCO₂e/1,000 kcal



FOOD AND AGRICULTURE ↗ >10x

Increase crop yields by 18%, relative to 2017.

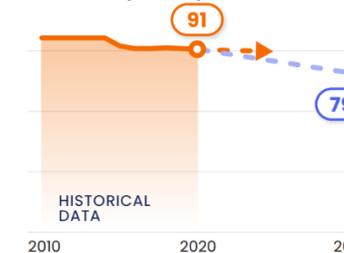
12 t/ha



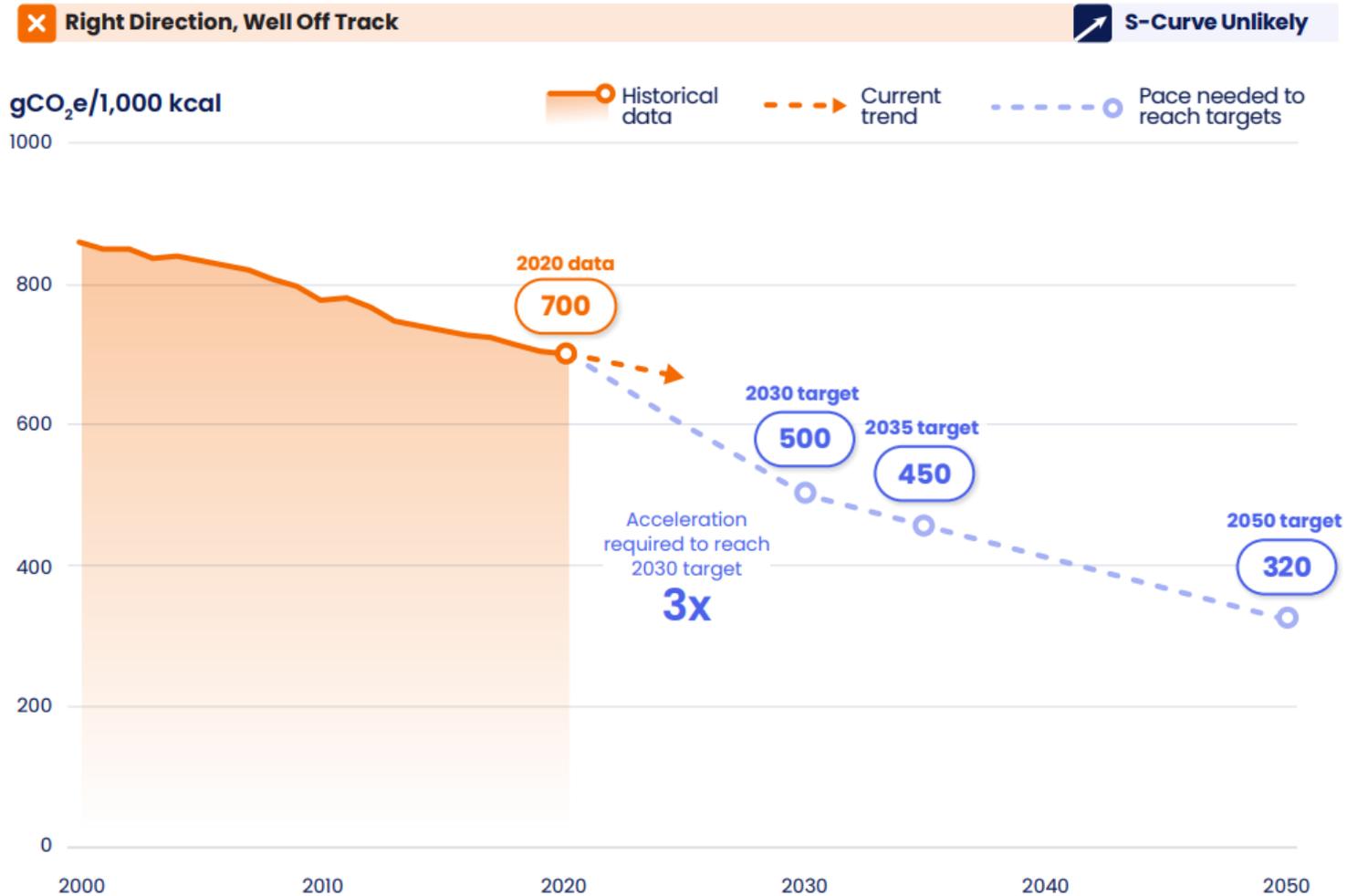
FOOD AND AGRICULTURE ↗ 8x

Reduce ruminant meat consumption in high-consuming regions to 79 kcal/capita/day.

120 kcal/capita/day



Steady Declines in GHG Emissions Intensity



FINANCE



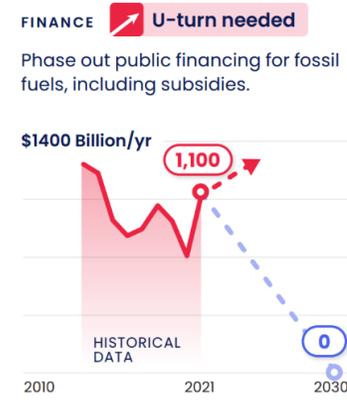


Summary of Progress in Finance

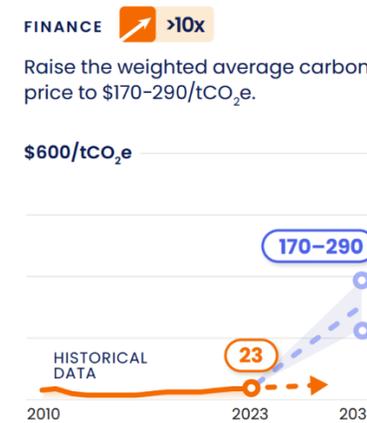
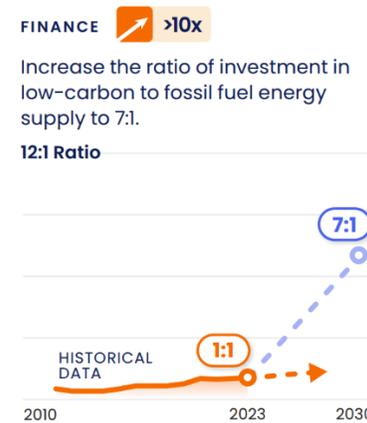
! RIGHT DIRECTION, OFF TRACK



⬇️ WRONG DIRECTION, U-TURN NEEDED

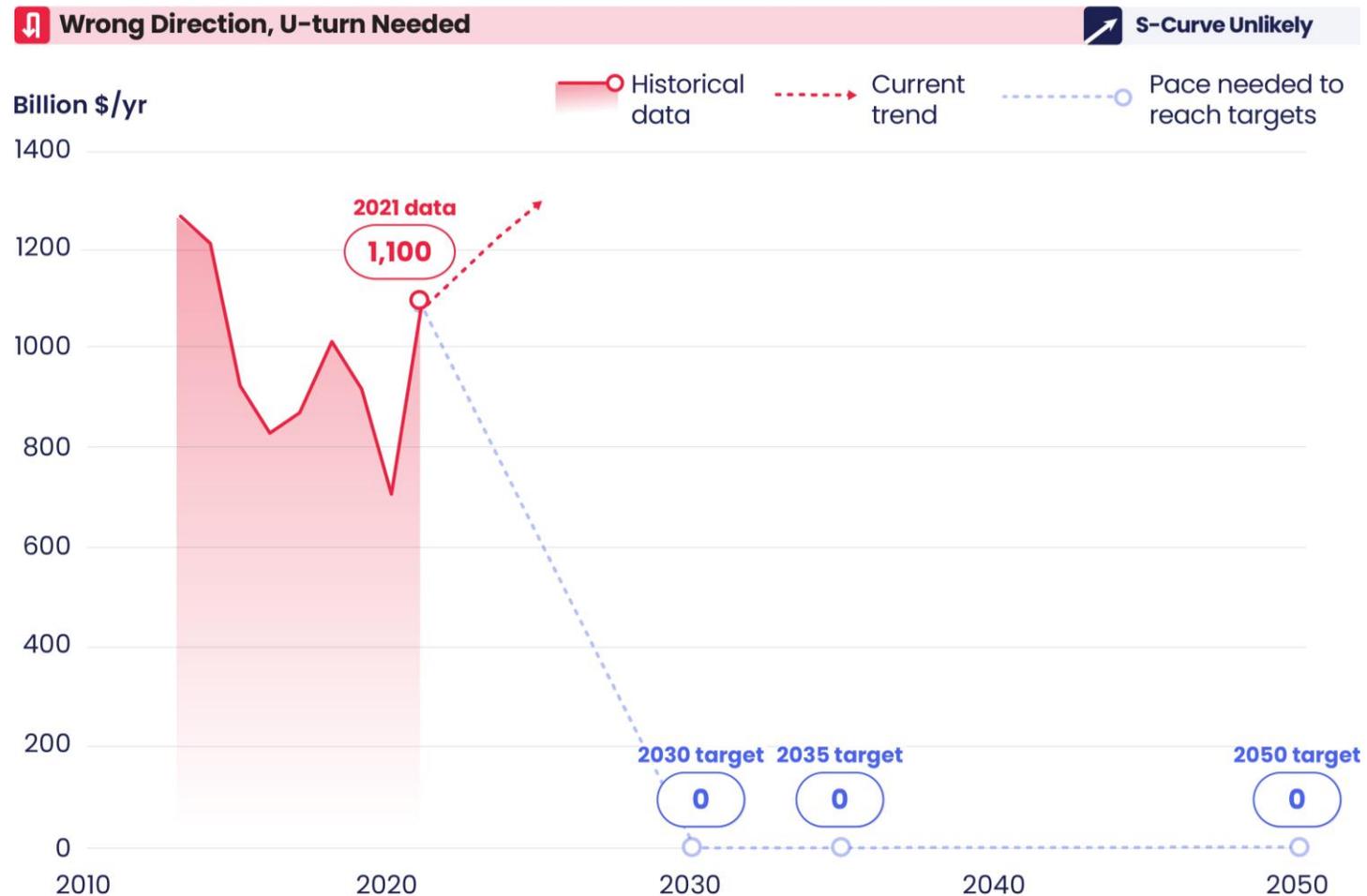


✗ RIGHT DIRECTION, WELL OFF TRACK





Public Finance for Fossil Fuels Now Rising





SYSTEMS
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Thank you

visit <https://www.wri.org/research/state-climate-action-2023> to read the full report