

# Energy transition, present and future

EnerCom Dallas

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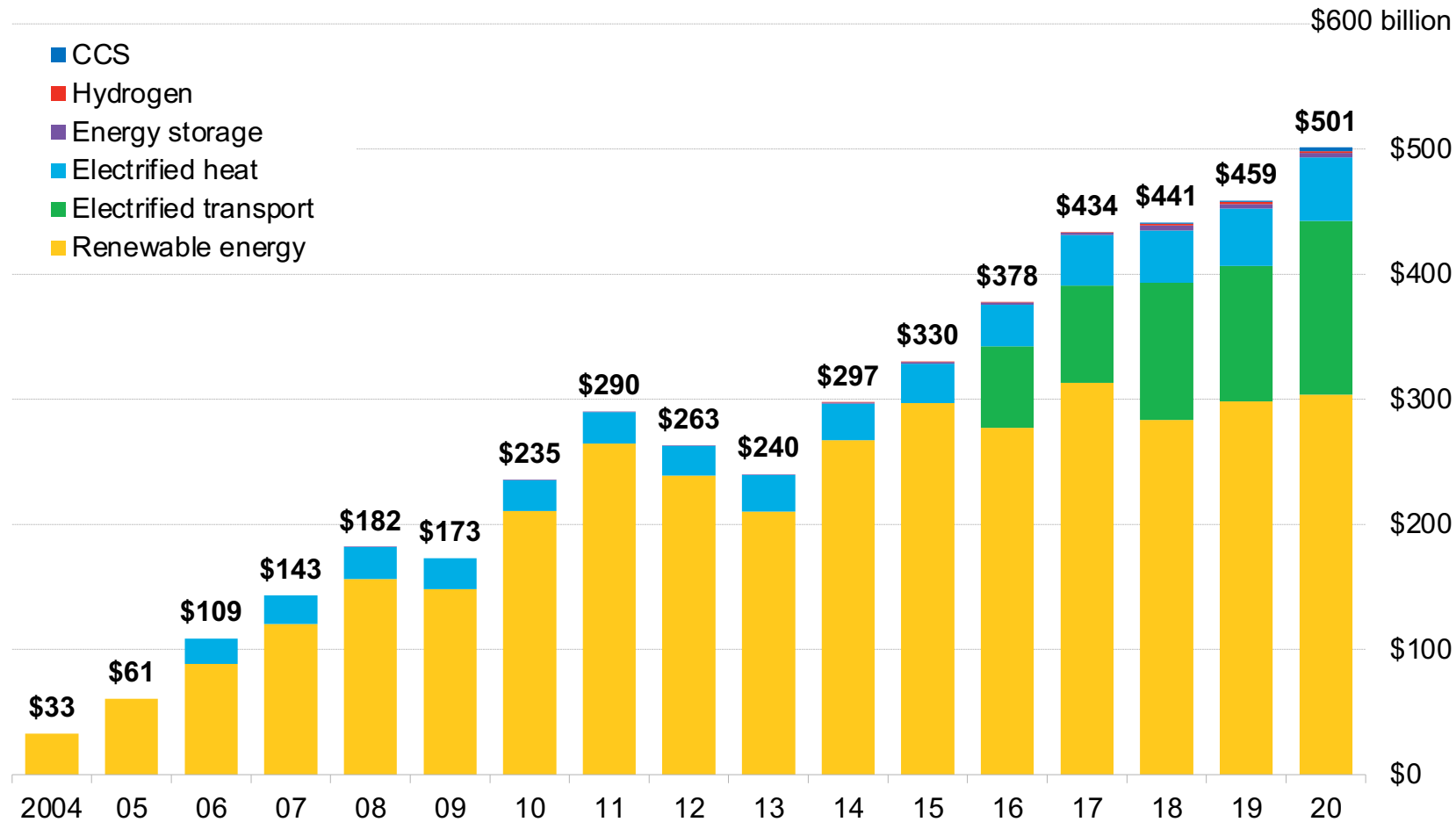
April 7, 2021

**BloombergNEF**

# Energy transition investment reached a half a trillion dollars in 2020



## Global energy transition investment



Global investment in the energy transition reached half a trillion dollars in 2020

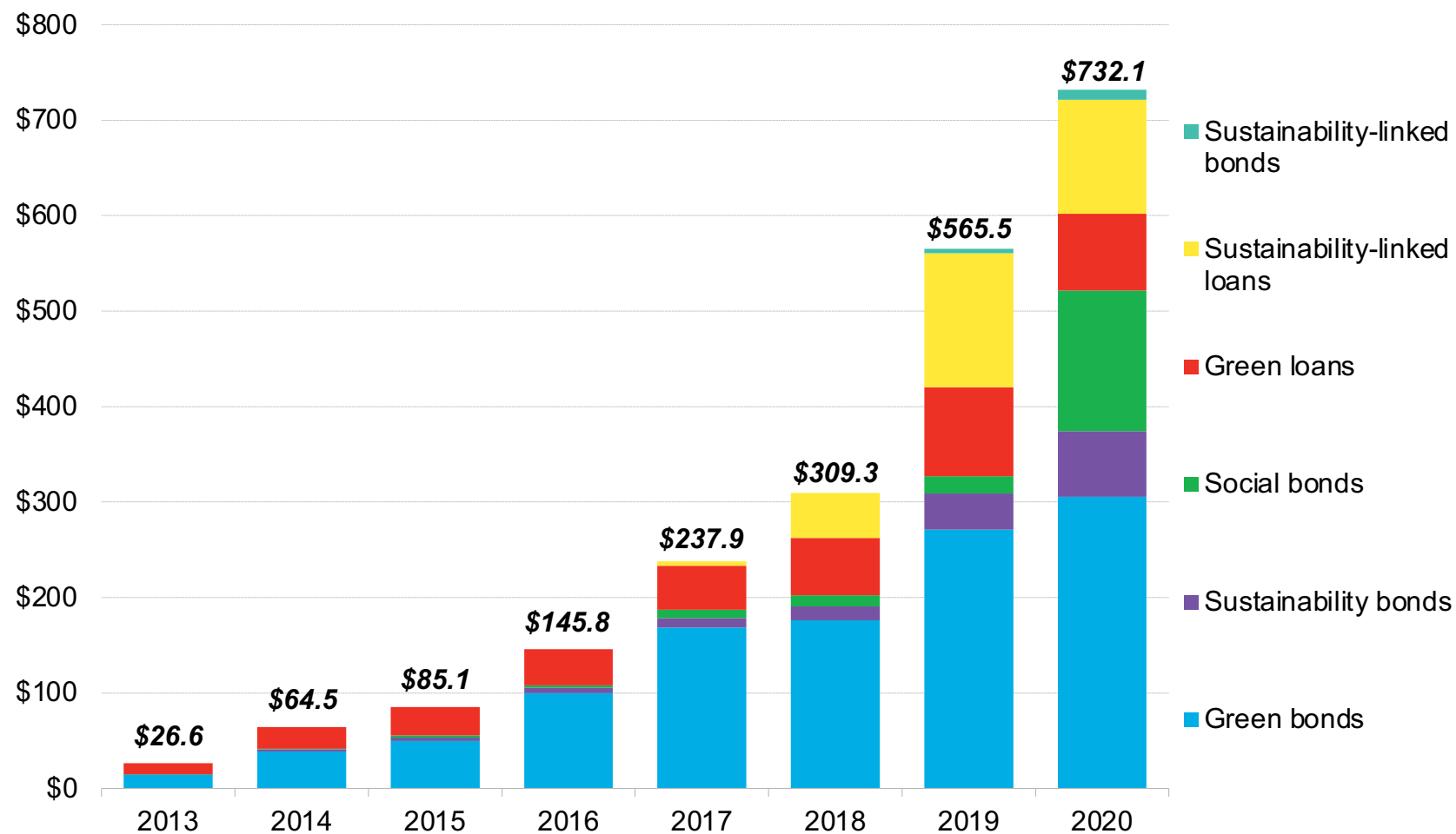
Energy transition investment includes renewable energy, electrified transport, electrified heat, energy storage, hydrogen, and carbon capture and storage.

Source: BloombergNEF

# Companies and institutions raised \$732 billion of sustainable debt in 2020



Sustainable debt issued by instrument type (\$ billion nominal)



Companies and governments raised \$732 billion in sustainable debt in 2020

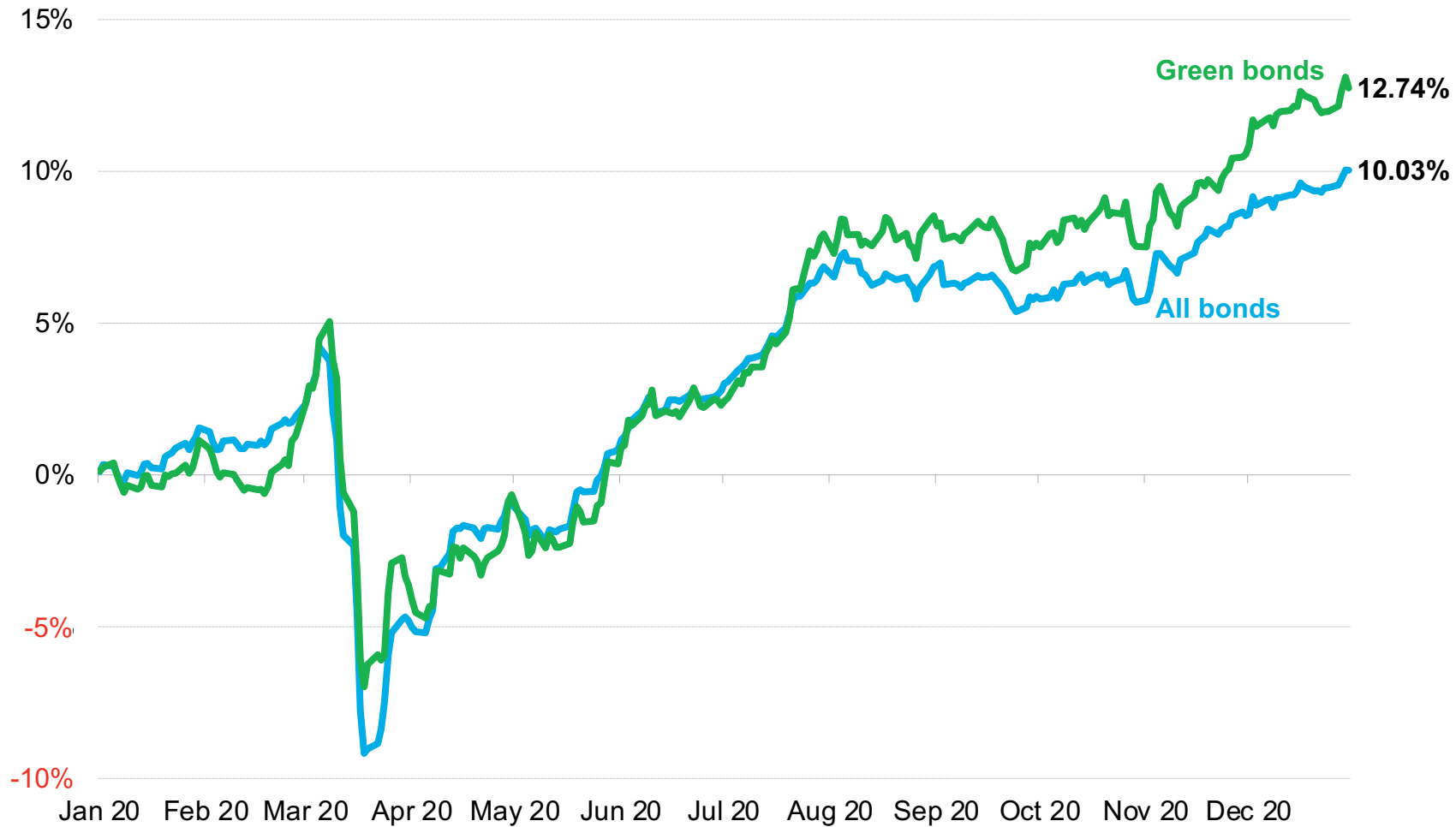
That is more than \$160 billion above 2019's issuance, an increase of 29% year on year.

Source: BloombergNEF

# Green bonds outperformed global bonds in 2020



## Global green bond and all bond performance, 2020



### Green bonds outperformed the broader global bond market in 2020

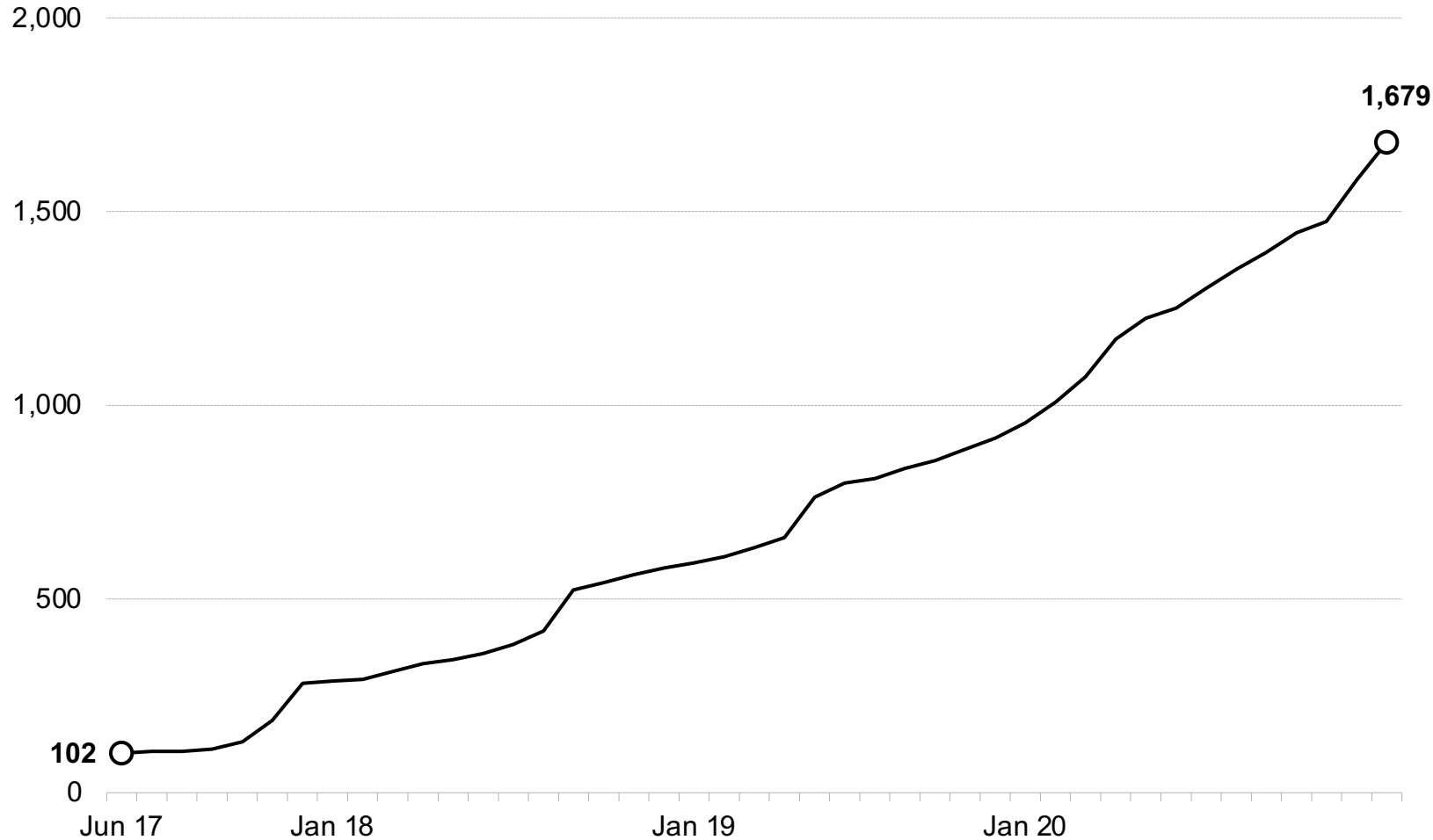
The Bloomberg Barclays MSCI Global Green Bond Index ended the year up 12.74%, while the Bloomberg Barclays Global Aggregate Credit Total Return Index ended the year up 10.03%.

Source: Bloomberg

# Financial markets are making significant climate- and carbon-related commitments



## Supporting companies



**\$12.6 trillion**

TCFD supporting company market cap

**\$150 trillion**

TCFD supporting financial institution assets under management



HM Treasury

The UK will become the first country in the world to make Task Force on Climate-related Financial Disclosures (TCFD) aligned disclosures fully mandatory across the economy by 2025, going beyond the 'comply or explain' approach.

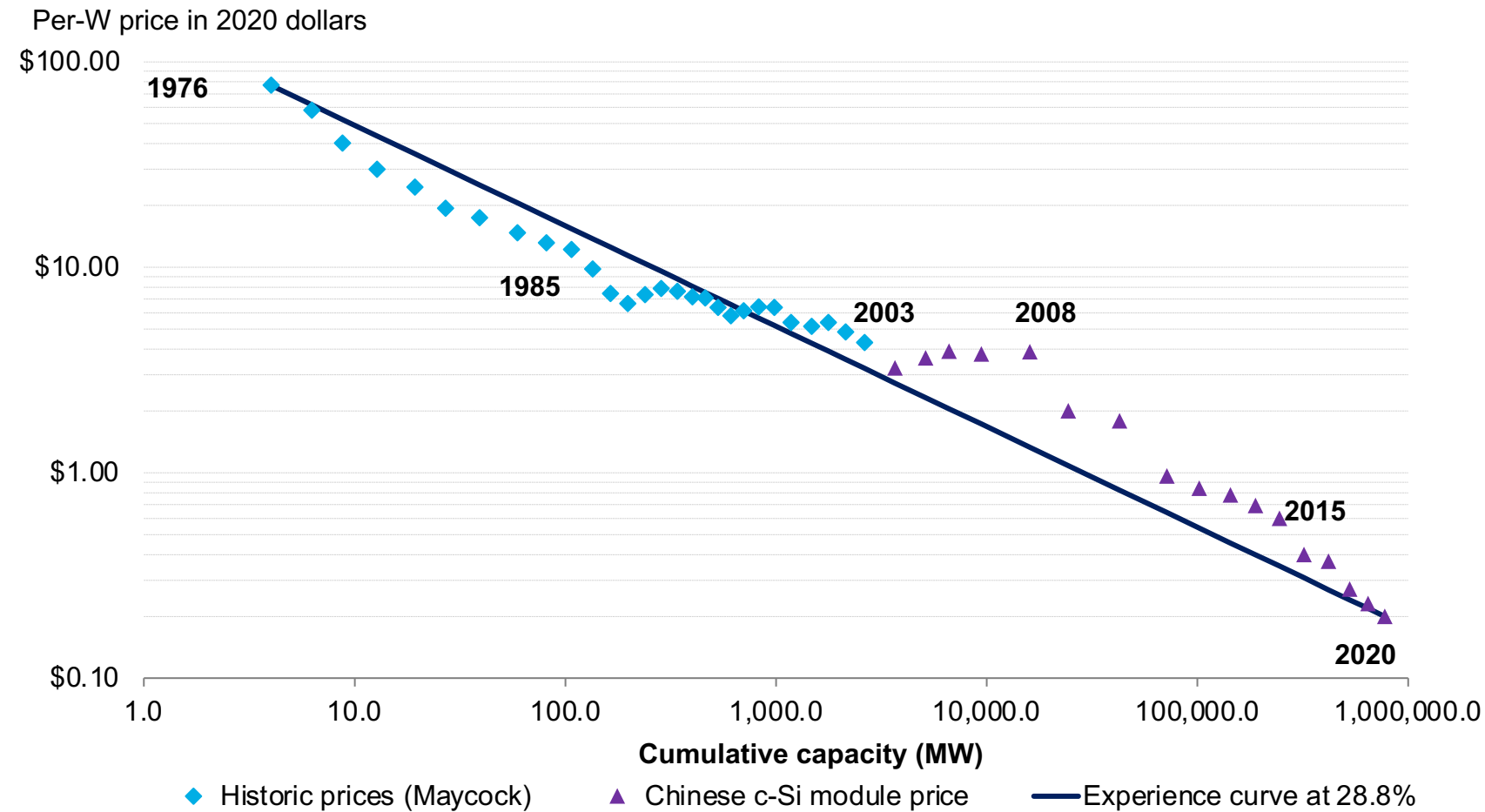
November 9, 2020

Source: TCFD

# The photovoltaic experience curve is 28.8%



## PV module experience curve (2020\$/W, MW)



Photovoltaic modules have a 28% learning rate

For every doubling of cumulative manufactured capacity, the cost of PV modules declines by 28%.

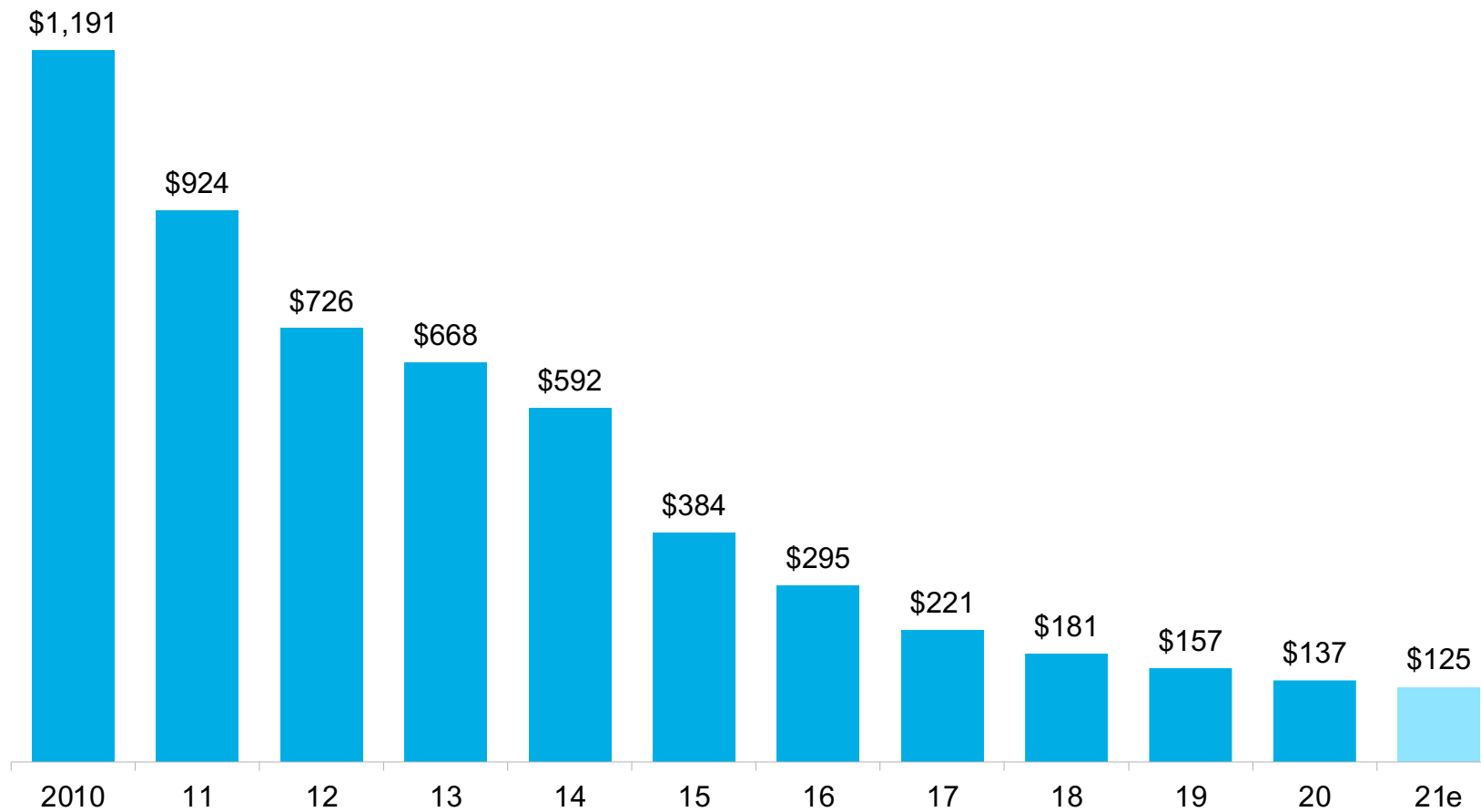
Source: Paul Maycock, BloombergNEF

# Lithium-ion battery costs fell 89% from 2010 to 2020



## Lithium-ion battery price survey results (volume-weighted average)

Battery pack price (real 2020 \$/kWh)



Lithium-ion battery pack prices fell 89% from 2010 to 2020

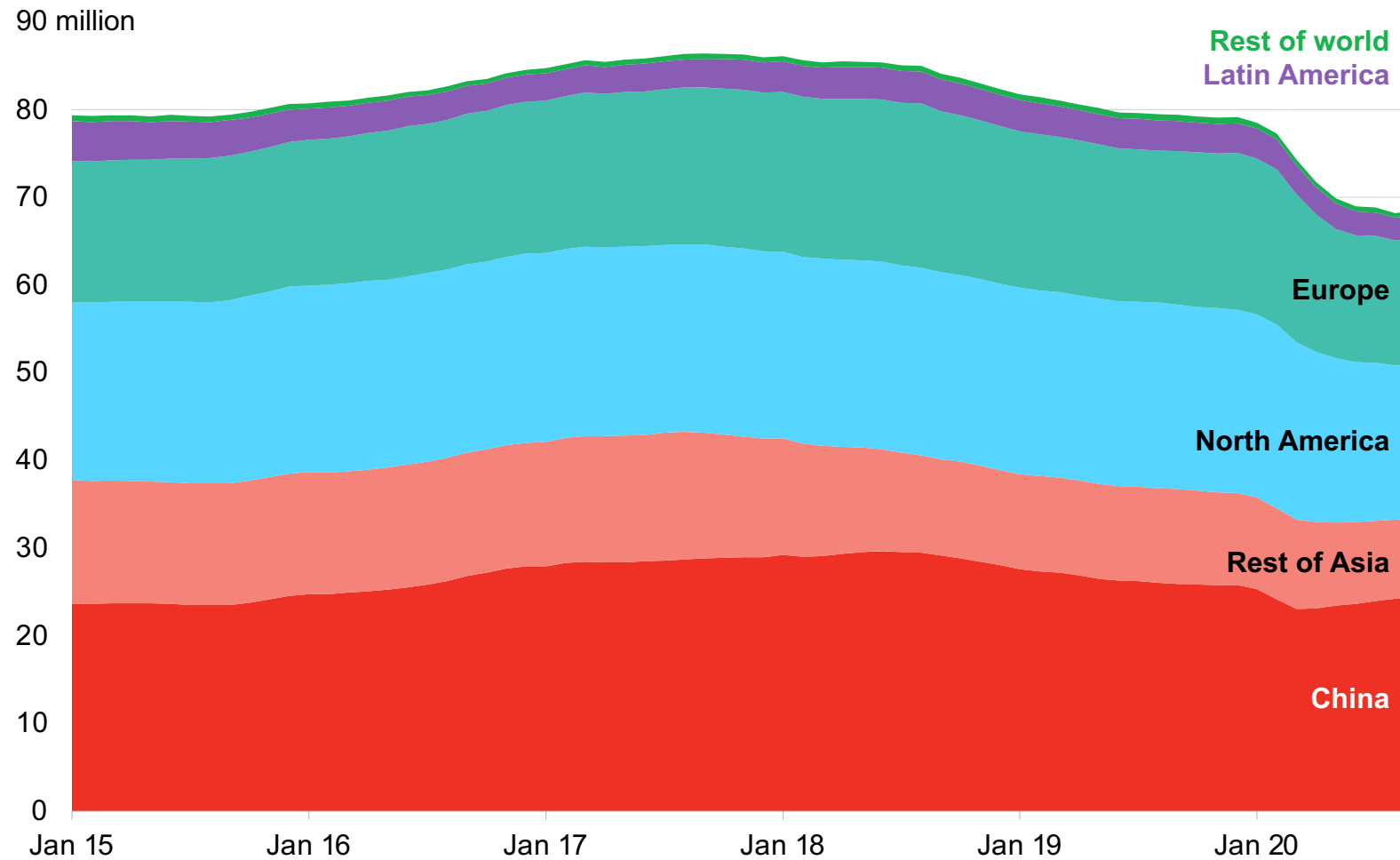
BloombergNEF surveys battery buyers and sellers to determine the volume-weighted average price for lithium-ion battery packs, modules, and cells.

Source: BloombergNEF

# Passenger vehicle sales peaked in 2017, and have since declined by almost 14%



Global passenger vehicle sales, trailing 12 months



Global passenger vehicle sales fell dramatically in 2020  
 Covid-19 impacted buying behavior in almost every major auto market.

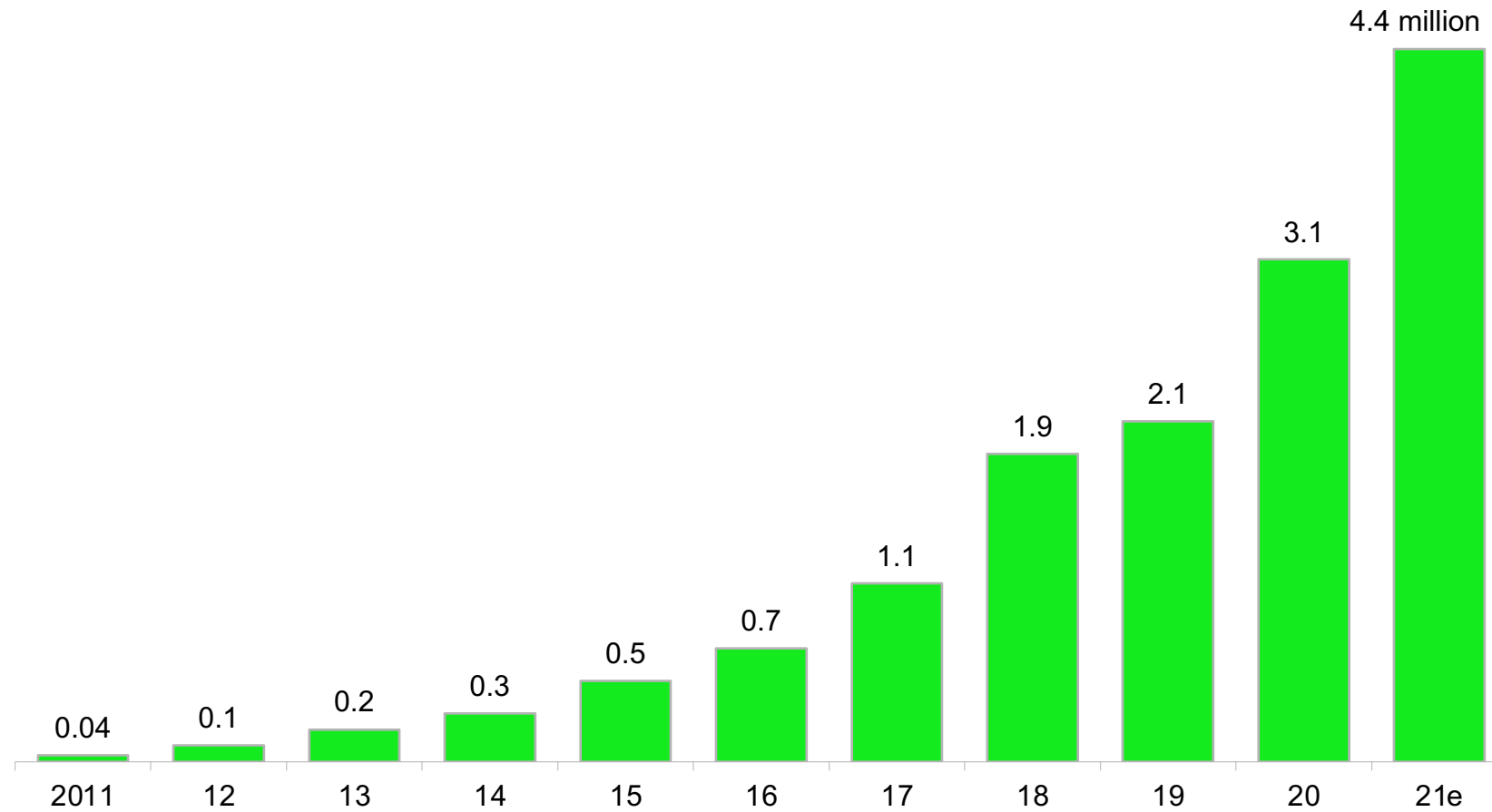
Source: Bloomberg Intelligence



# Passenger electric vehicle sales increased almost 50% in 2020



## Global passenger electric vehicle sales



Global passenger electric vehicle sales defied Covid-19, and auto industry trend, in 2020

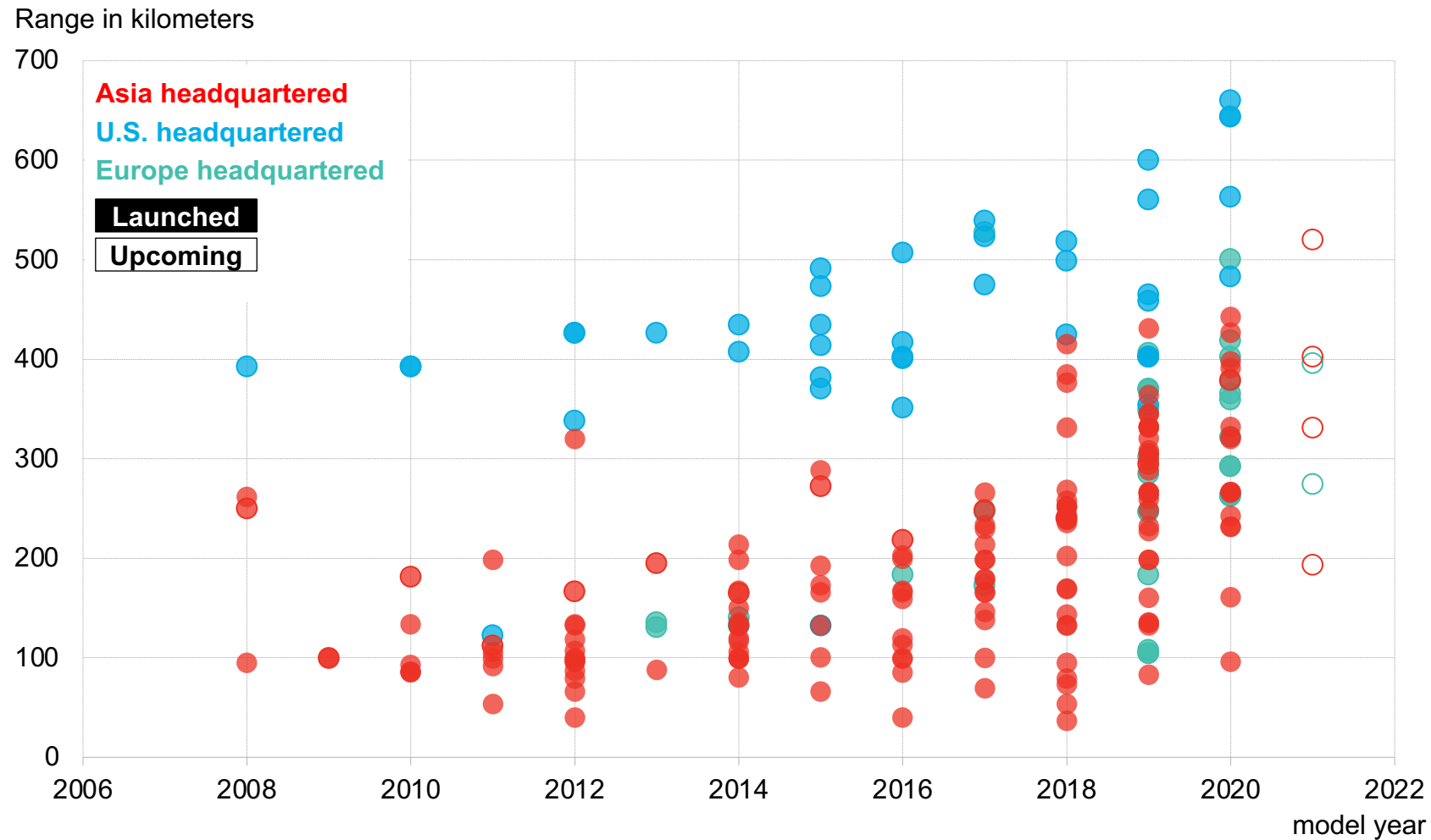
Sales increased almost 50%, even as global auto sales had a dismal year.

Source: BloombergNEF. Includes plug-in hybrids.

# Electric vehicle ranges continue to increase



## Range of launched and upcoming BEV models by launch year



Electric vehicle ranges have increased markedly in a decade

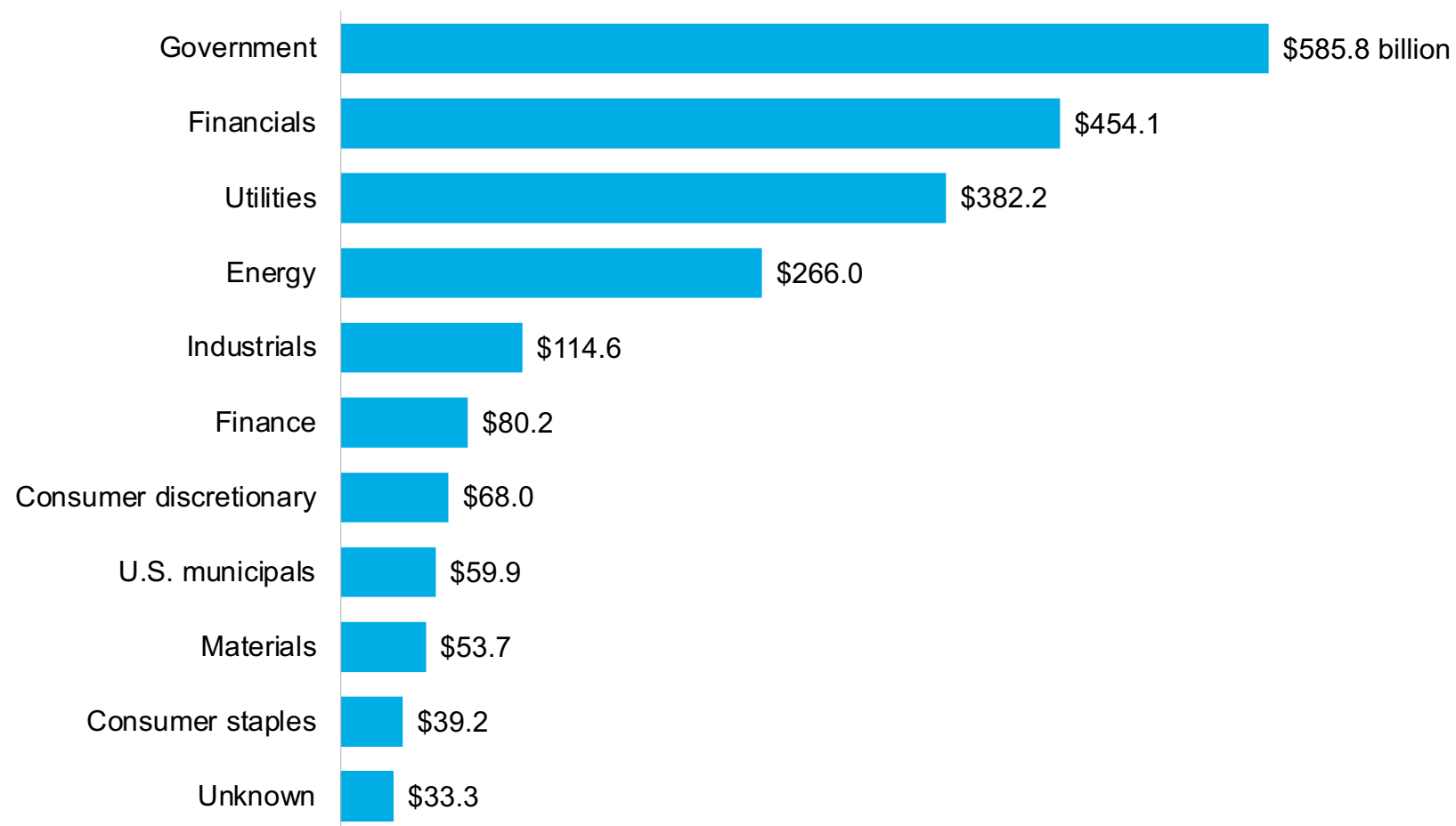
Prior to 2010, Tesla models had by far the longest vehicle range, with Asian models a small fraction of Tesla range.

Source: BloombergNEF

# Government agencies, financials, and utilities have issued the bulk of sustainable debt to date



Sustainable debt issued by issuer industry, global, 2012 to 2020



Government agencies, financial institutions, utilities, and energy companies are the largest issuers of sustainable debt

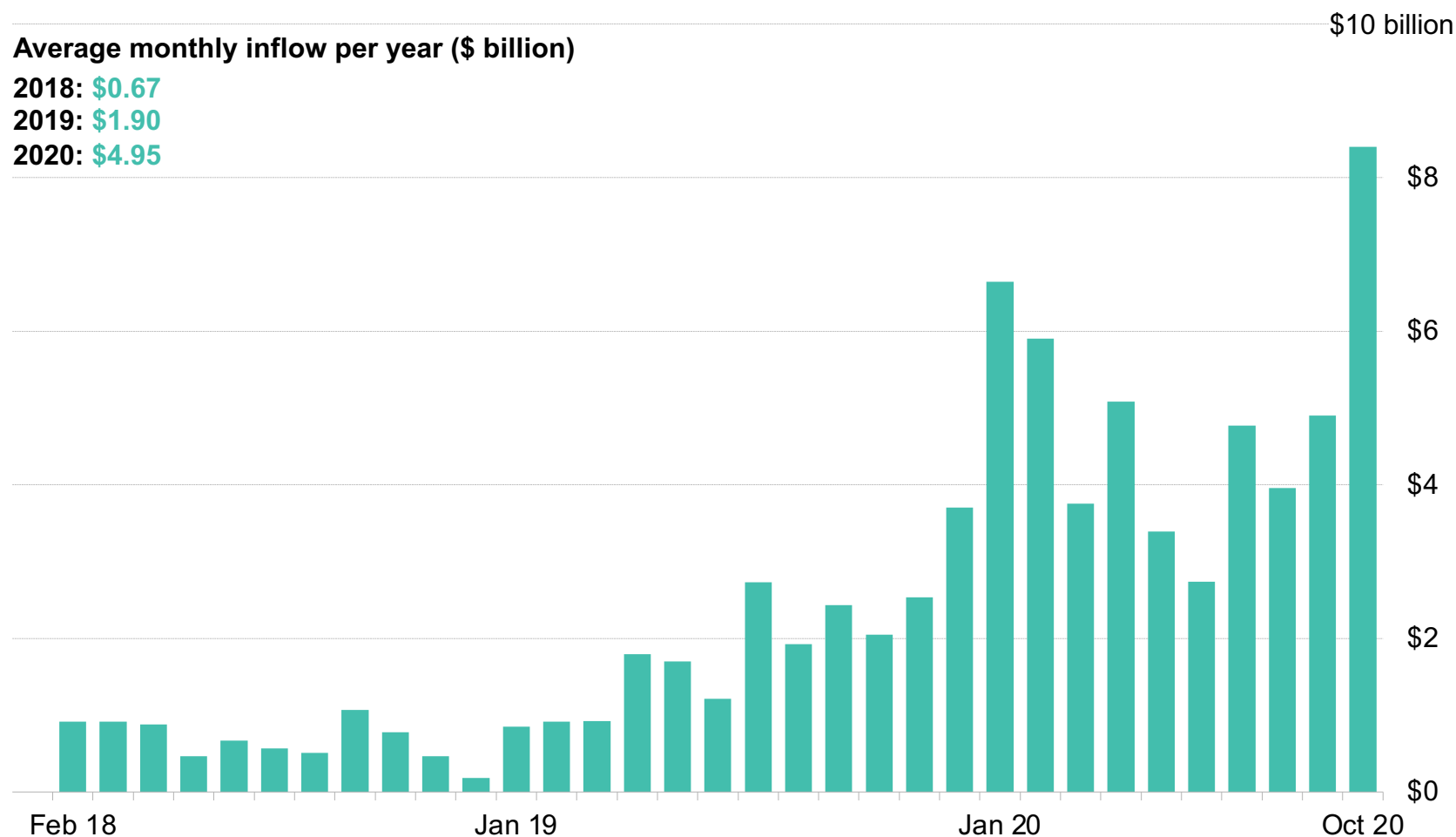
These four sectors have issued more than \$1.6 trillion in sustainable debt since 2012, with government the first sector to issue a half-trillion dollars cumulatively.

Source: [BloombergNEF Sustainable Debt Data Hub link](#)

# Inflows to ESG exchange-traded funds hit record levels in 2020



## Exchanged-traded ESG fund net inflows per month



Inflows to exchange-traded funds focused on sustainability and environmental, social, and governance-related investment hit record levels in 2020

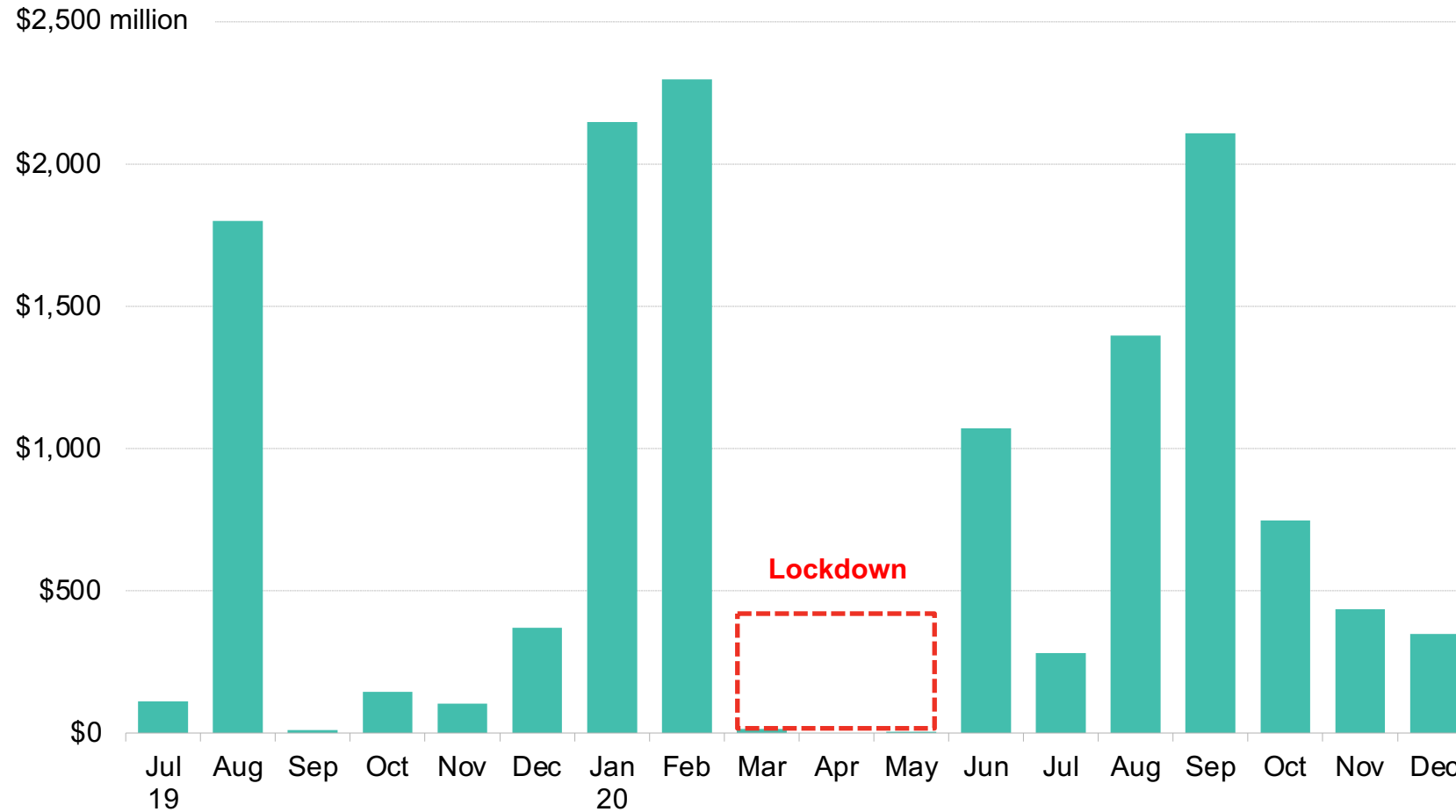
October 2020 inflows were more than \$8 billion, a record. ESG and sustainability-themed equity ETFs hold more than \$230 billion in assets.

Source: BloombergNEF, Bloomberg Intelligence

# Covid-19 paused circular economy investment – but it did not kill it



## Announced public investment in the circular economy



Companies were still getting to grips with their circular economy targets as the U.S. and Europe entered Covid-19 lockdowns, but investment returned quickly

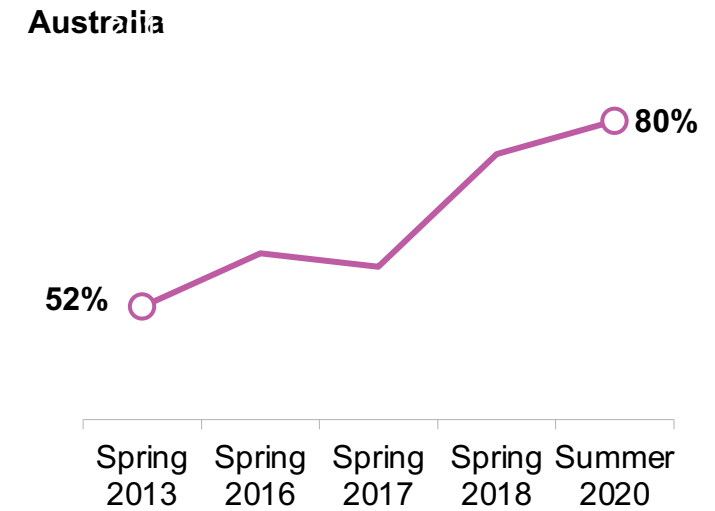
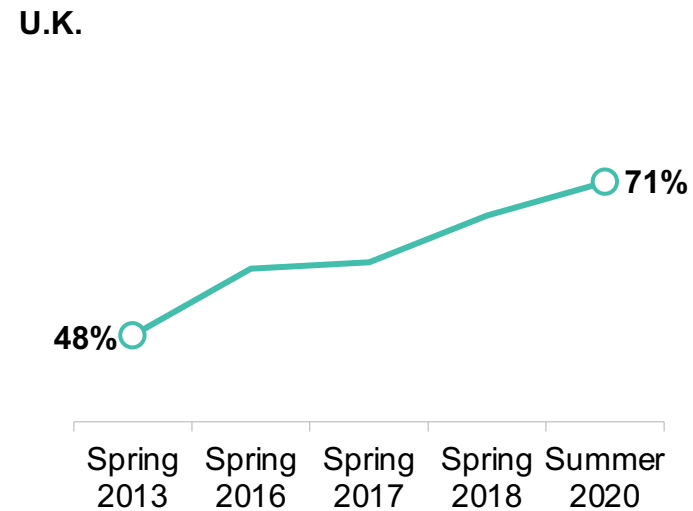
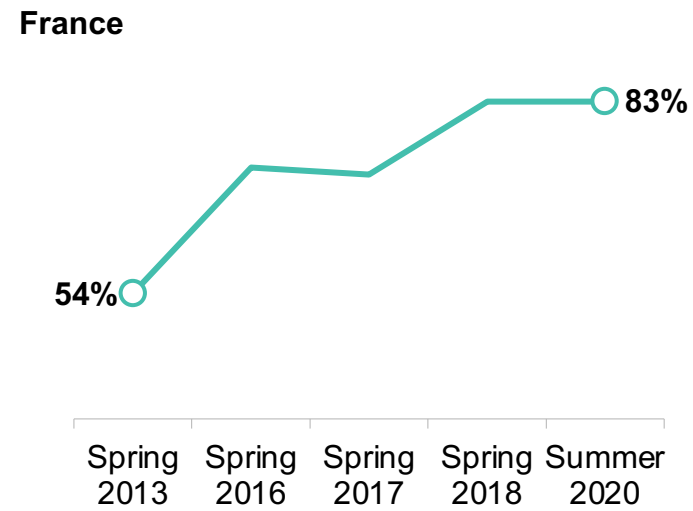
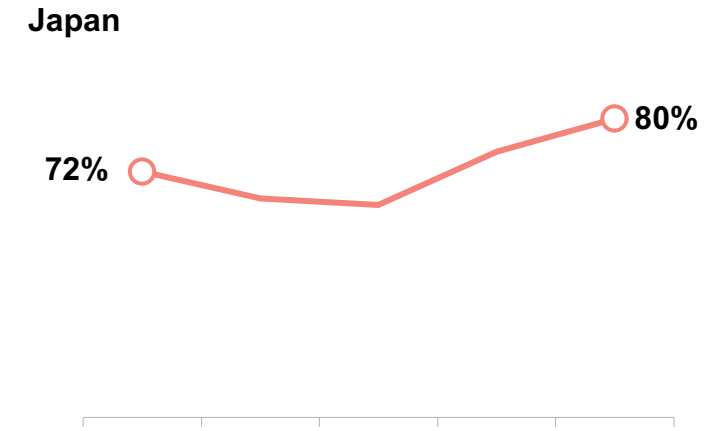
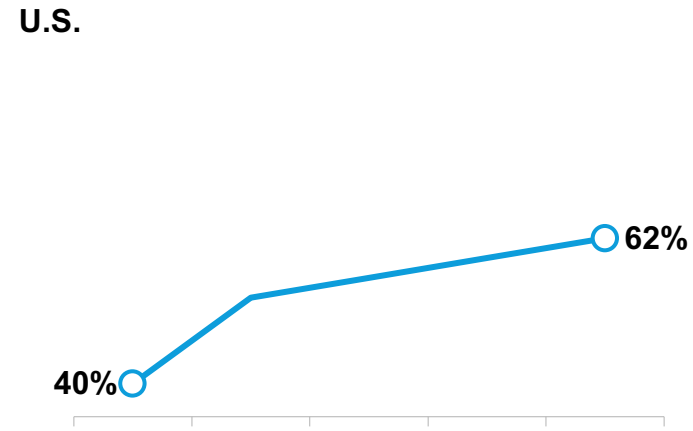
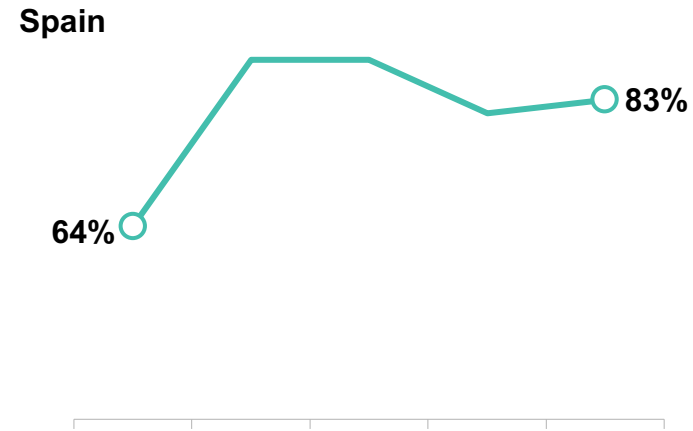
Uncertainty about demand for sustainable products, and about oil prices, halted most public investment in recycling, sustainable materials, and circular technologies. As uncertainty passed, companies announced ambitious new circular economy targets, with funding to match.

Source: BloombergNEF

# The majority of many national populations thinks global climate change is a major threat



“Do you think that global climate change is a major threat?”



Source: [Pew Research Center link](#)

# More than half of all global emissions are now covered by a form of net-zero target

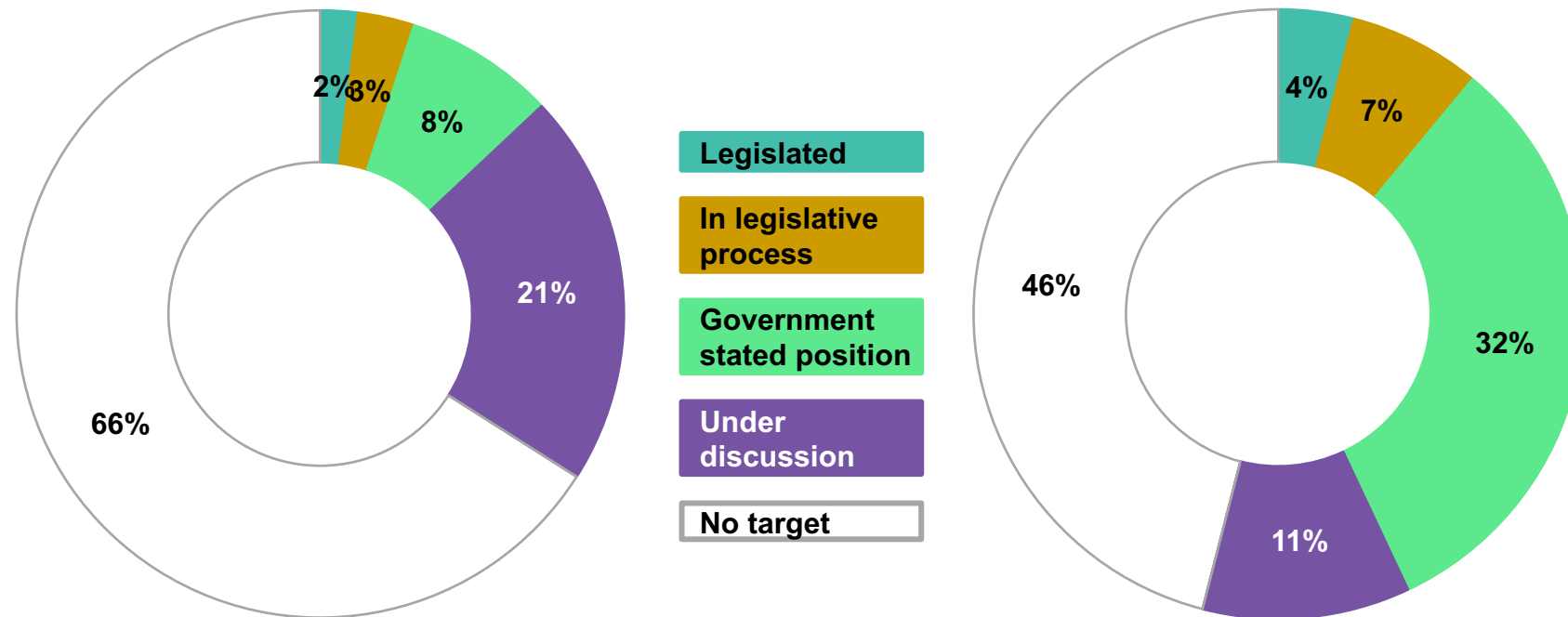


January 2020

34% with at least a net-zero discussion

December 2020

54% with at least a net-zero discussion



At the beginning of 2020, one-third of global emissions were covered by some form of net-zero target

Most of that total was only 'under discussion' – having been raised by governments as a policy target.

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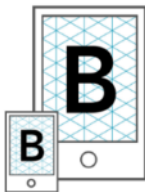
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