Reaching Net Zero by 2050

Canada can—and must—accelerate its efforts

accenture



Based on current trends, most Canadian organizations will miss their net zero target

No Canadian companies in Accenture's research sample will be able to achieve net zero in their own operations at or before their own target year if they continue the pace of emissions reduction that they have achieved since 2010.

Canada can achieve net zero by 2050, but we have some work to do!



The Intergovernmental Panel on Climate Change (IPCC)* notes that, in order to keep rising temperatures below 1.5 degrees, we require clear signaling from governments, the international community, and stronger alignment of public sector finance and policy.

Executive summary

Net-zero targets are more common among Canadian companies than among peers globally.

Only 27% of Global 2000 (G2000) companies have committed to reaching net zero across all 3 scopes of emissions, but in Canada, it's 40% of G2000 companies that have committed to reaching such target.

On average, G2000 companies with a net zero target aim to reach this by 2048, but Canadian companies are little more optimistic, with an average target of 2046.

Additionally, two-thirds of G2000 companies with a netzero target have also set intermediate emissions reduction targets, recognizing that commitment to net-zero by 2050 requires immediate action.

6% of Canada's G2000 companies with a net-zero target are on track to reach net-zero operations in time.

Slightly more (7%) will reach net-zero emissions in operations by 2050 if the pace of emissions reduction these companies have achieved over the past decade remains the same.

Greenhouse gas (GHG) emissions are currently falling in only three industries globally—financial services, health & life sciences and utilities—and even then, not fast enough. Other industries will need to stabilize emissions in the next few years and then cut them rapidly.

All sectors need to significantly accelerate their pace of emissions reduction in order to achieve their own targets based on the current pace of emissions.

Net zero by 2050 is feasible for Canada with swift, decisive leadership.

Canadians expect their public service to lead by example, and Canadian industries are expected to deliver. To get on track to reach net zero by 2050, Canadian public services and companies must halve emissions by 2030 - even those that are still increasing emissions today.

Reinvention must become the norm. Execution at the speed required to meet that deadline demands a stepchange in technology development and innovation, as well as purposeful public-private partnership, collaboration across all levels of government, industries and value chains.

Call to action: Reaching Net Zero by 2050

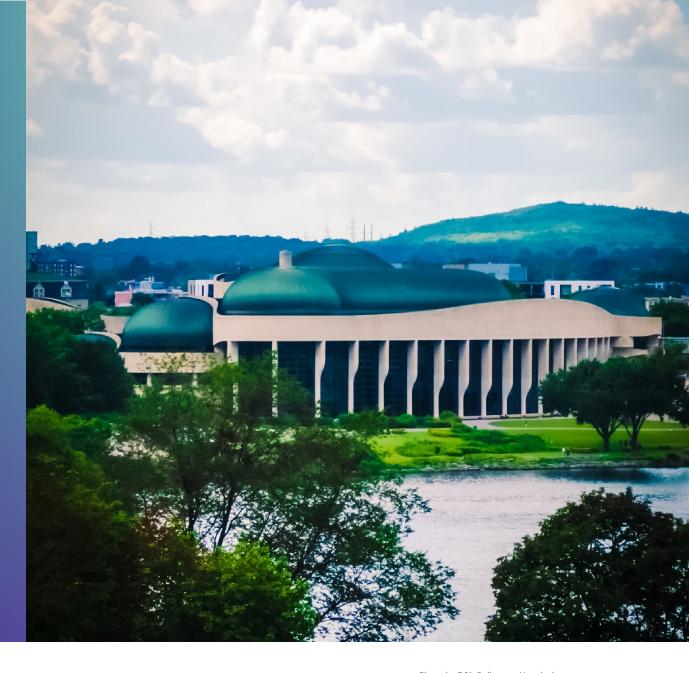
Let's get to work! Canada's Public Services and all organizations from coast to coast should do three things NOW:

- Publicly commit to a science-based target
- 2. Treat greenhouse gas emissions with the same rigor as your financial budget
- 3. Coordinate and align across all levels of government, all sectors and through public-private partnerships for greater visibility, synchronization and shared outcomes

Stepping up for net zero

COP26 confirmed that the business community has come to the table in the battle against climate change. In the 2030 Emissions Reduction Plan, Canada has confirmed its commitments to keep average global temperature rise to within 1.5 degree centigrade and net-zero emissions by 2050.

Building a carbon neutral economy means doing things differently like changing financial reporting, building net zero transportation, new supply-chains and investing in net zero energy.



Some carbon-intensive companies have set net zero targets

But, many still have a lot of transformative work to do to get there...

		% of NA	Av. net zero	Aver	Average years to net zero target by industry					
	Industry	companies with net zero target	target year (scope 1, 2, 3)	2030	2035	2040	204	45	2050	
	Health & Life science	9%	2045					23		
	Mobility	13%	2045					23		
	Retail & consumer services	21%	2045					23		
	Industrial, aerospace & defence	23%	2042				21			
	Natural resources & energy	27%	2050						28	
	Communication & media	30%	2035		14					
	Finance	42%	2049						27	
	Digital engineering & manufacturing	44%	2049						27	
	Chemicals	56%	2050						28	
	High tech & software	63%	2042				21			
	Travel	73%	2049						27	
	Utilities	78%	2049						27	
	Based on sample of 613 North-American compa G2000 list, with a total of 142 companies that ha				carbon- tensity	Medium carl intensity		High car		
	target.		Average net zero targe	t year 2	045	2044		2050)	

Most Canadian industries are falling behind

While some carbon-intensive companies have set targets, there is a lot more to be done:

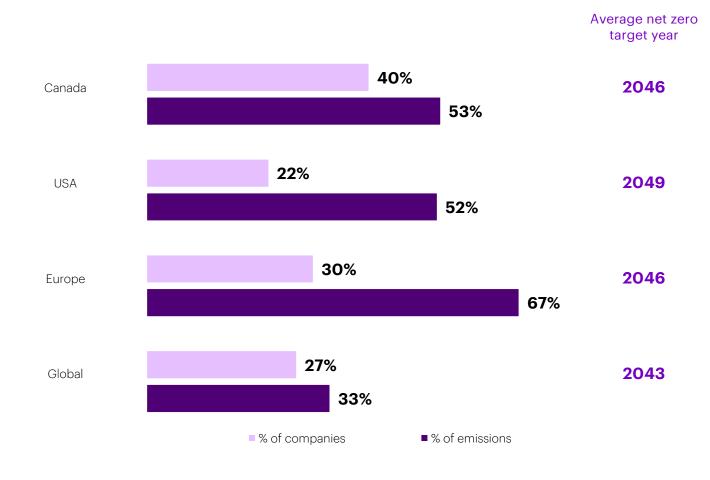
- Most industries have less than 50% of their companies even making commitments;
- Five industries have less than 30% of companies making commitments.

We must do better at reducing our emissions

As of 2022, the Canadian Government has stepped up requiring companies to change with regulations requiring ESG reporting for financial services and incentives to change. But more is needed.

Almost half (40%) of Canadian companies in our sample have committed to reaching net zero by 2050 at the latest

However, NONE will meet their target on time, and only 5% are on track to meet net zero targets by mid century, if they don't significantly accelerate their pace.

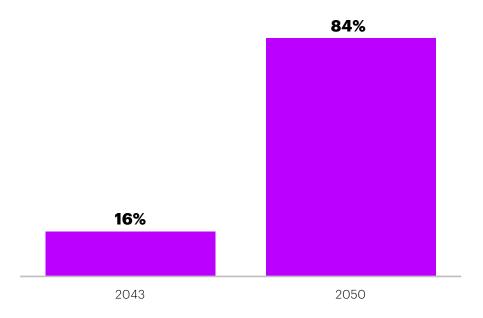


Based on sample of 48 Canadian companies within a sample of 613 North-American companies listed on the G2000 list. Of the 142 companies with a net zero target, 73 have reported emissions data for at least 5 years over the period 2010-2019. These companies were included in our analysis.

We define net zero to cover scope 1, 2 and 3 emissions. Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company. Scope 3 includes all other indirect emissions that occur in a company's value chain. Net zero operations refers to scope 1 and 2 only.

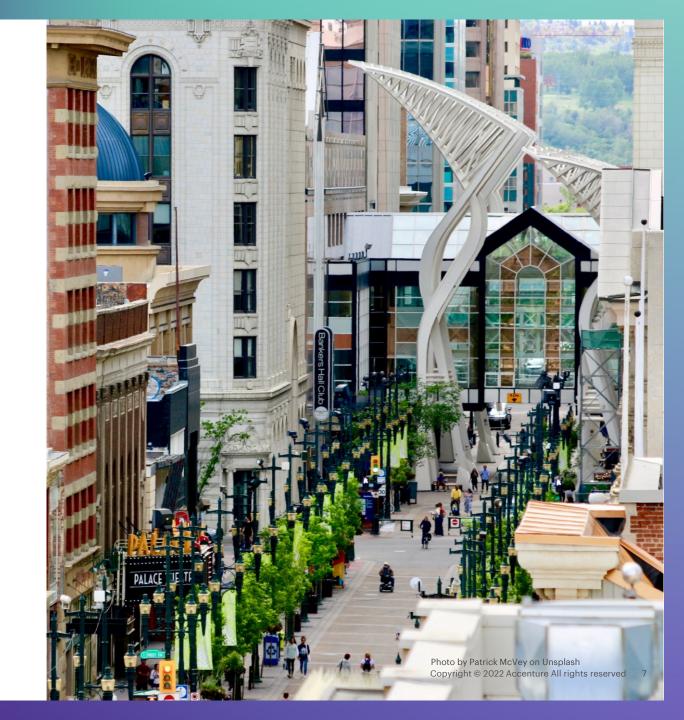
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16% of companies are aiming to achieve net zero by 2043. The remaining 84% are targeting 2050.



But, to get on track to reach net zero by 2050, Canadian companies must halve emissions by 2030 – even those that are still increasing emissions today.

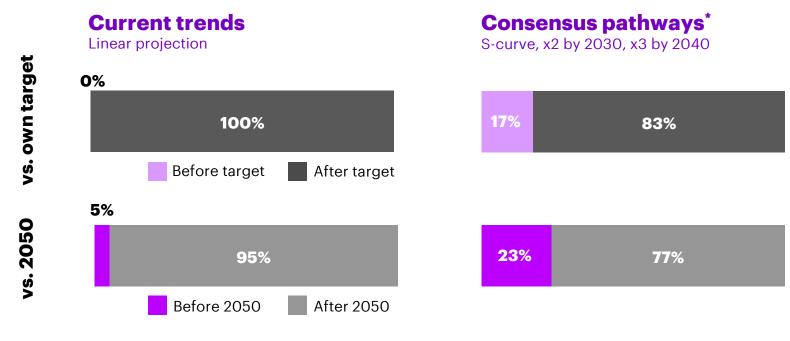
All Canadian organizations need to rapidly accelerate their emissions reduction to be able to meet their own targets.

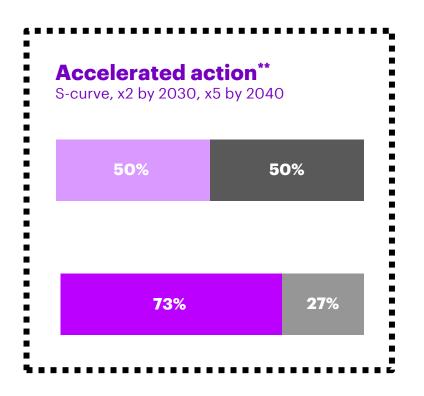


Canada needs accelerated action across all industries now

Canadian companies will need to double the pace of emissions reduction by 2030 and accelerate significantly beyond to reach net-zero operations before mid-century

Share of companies projected to reach net-zero operations





^{*}Consensus emissions reduction pathways, such as the ones developed by the <u>Transition Pathway Initiative</u>, set sector-specific emissions reduction trajectories that reflect consensus expert knowledge about the best available technology for reducing emissions and industry-specific challenges.

We considered that a company achieved the target once they reduced by at least 95% of the absolute emissions in 2019. This reflects the prescription of the Science-based Targets Initiative net-zero standard that carbon credits must only be used as an option for neutralizing residual emissions (5%-10% of emissions). Analysis based on Canadian sample of G2000 companies with net-zero target listed and at least 5 years of reported emissions data in the period 2010-2019. The projections cover scope 1 & 2 emissions, excluding scope 3 to avoid double counting. For more detail on the scenarios and modelling assumptions, please refer to About the Research on page 20.

^{**}The Accelerated Action scenario reflects the pace of emissions reduction of mitigation pathways compatible with 1.5°C, as developed by the IPPC.

All Canadian companies need to take accelerated action... the Canadian Government's role is to paint the path forward

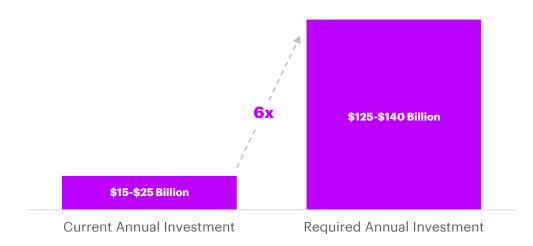
In its 2022 Federal Budget and 2030 Emissions Reduction Plan, the Canadian government is investing and creating the incentives for companies to take action – incentives to: build green infrastructure, electrify transportation, enhance the critical minerals circular supply chain, change behaviour and regulations for transparency and accountability – such as requiring enhanced ESG reporting and the creation of a new clean water agency.



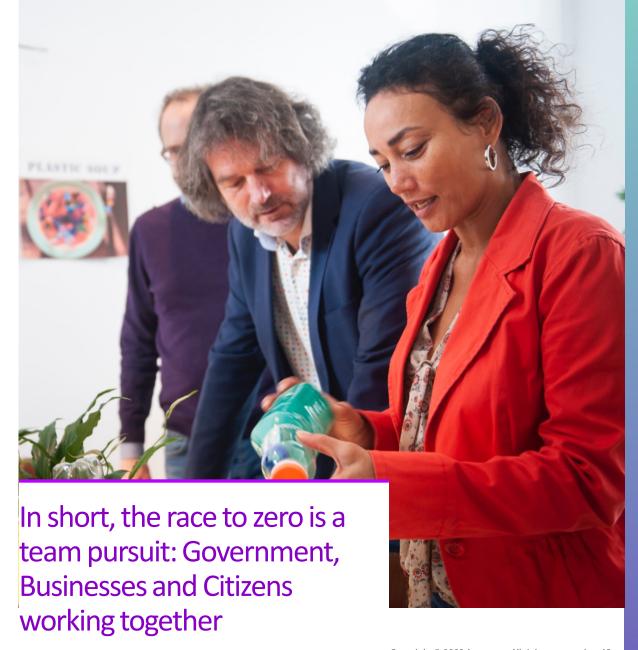
To achieve net zero operations before 2050, the majority of Canadian companies will need to double the pace of emissions reductions by 2030 and quintuple it by 2040.

Annual investment from both Private Sector and Government will need to increase nearly 6x to get everyone to the right side of 2050

Annual Investment Required to Reach Net- Zero Emissions Targets in Canada by 2050



Based on figures published in Chapter 3.4 of <u>Canada's 2022 Budget</u>, this information was originally sourced from: Global Financial Markets Association and Boston Consulting Group, Climate Finance Markets and the Real Economy (2020); United Nations Framework Convention on Climate Change (2018).



Reinvention must become the norm if Canada is to reach net zero by 2050

Execution at speed requires a step-change in technology development and innovation, supported by cross-industry collaboration, and supportive regulation and incentives.

Entire industries must urgently look at how they can reinvent their end-to-end value chains for a sustainable future.



Regulate and Incentivize

Government-established targets and incentives, governance and accountability, and supporting Canadians who need help in the transition



Decarbonize transport and travel

Zero-emission vehicles, sustainable fuels, green logistics, digital twins for accelerated outcomes, multi-modal solutions



Decarbonize buildings and infrastructure

Accelerated renovation and retrofits, zero-carbon new build, circularity, certified inputs



Decarbonize energy systems

Roll-out renewables, grid interconnection, digital twins for accelerated outcomes, demand-side participation



Capture carbon

Land-use management, nature-based solutions, carbon sequestration



Reinvent demands and change behaviors

Transparent information, product and services innovation, experience design, incentives to doing things differently

REACHING NET ZERO BY 2050

A step-change in technology and innovation, collaboration across all levels of government, industries and value chains and a rethink of regulation will be important common ingredients of successful strategies for reducing Canada's emissions



Read on to learn more about a few key Canadian sectors

Canadian Public Sector

Public Services must take action internally AND set the direction for Canadian industry as a whole. Technology and data, together with innovation and collaboration, will be critical to achieve the speed and scale required

Stepping stones to net zero

Commit to a science-based target across all levels of Public Services

Take action internally to reduce emissions of public sector organizations, fleets, buildings and assets

> Set regulations to stimulate accelerated investment in and achievement of emissions reduction

> > Incentivize investment in green infrastructure for zero-emissions solutions (e.g. EV charging, green hydrogen, CCS)

Create market demand for net-zero solutions through (green) public procurement

What will be needed

Technology, data, innovation and collaboration

- Public services collaboration across all 3 levels of government, governance and accountability
- Public-private and cross-jurisdiction collaboration and innovation to create new, net-zero solutions and markets
- Equitable participation from communities with a focus on Indigenous participation and leadership
- Digital twin technology to model and optimize public service owned fleets, real property and infrastructure
- Asset lifecycle management through improvements in Internet of Things (IoT), sensors, analytics, and Artificial Intelligence (AI)
- Improved stakeholder visibility through a Canadian commitment to a science-based target, transparent reporting through independent global standards for all federally regulated industries



CMHC

CMHC worked with Accenture to create a new digital strategy and undergo a complete business and technology transformation, which has not only simplified and made CMHC's business processes more efficient, established green cloud and made its workforce more collaborative and fully mobile.

Ottawa's Area X.O

Area X.O, founded and operated by Invest Ottawa, fuels the creation, commercialization and adoption of breakthrough sustainabilitycentric innovations in smart mobility, autonomy and connectivity. These applications span telecom, smart agriculture, defence, security, public safety, unmanned aerial vehicles and smart cities.

Canadian Financial Services



Technology and data, together with innovation and collaboration, will be critical to achieve the speed and scale required

Stepping stones to net zero

Commit to TCFD, CDP and/or GRI reporting for all **Canadian Financial Services**

> Quickly reduce emissions of operations to zero

> > Leverage institutions' ability to influence and engage actors

> > > Advise clients on viable pathways to get to net zero

Focus financing activities on decarbonization and climate solutions for a net zero economy

What will be needed

Technology, innovation and collaboration

- Standardize the Canadian financial sector's definition of net zero
- Develop innovative emissions databases to track companies' carbon emissions and leverage them to enable transitions of financial institutions and their clients
- Collaboration between financial sector institutions to agree and follow guidelines established to achieve net zero targets
- Commitment from the Canadian government to support financial institutions with both incentives and sanctions
- Invest in financial institutions' workforces. educating all areas of the organizations to support their clients through transition
- Provide the proper governance and technology infrastructure to ensure all relevant parties are using data insights to guide decision making

Export Development Canada

EDC released a Sustainable Bond Framework to support initiatives that create a more equitable and sustainable world. In addition to green bonds, EDC will issue sustainable, social and transition bonds. Funds raised by green bonds have financed nearly 30 transactions worth more than \$2 billion in a various sectors, each contributing to environmental protection or the mitigation of climate change.

BMO

BMO has partnered with Boralex to introduce a margin adjustment incentive mechanism which is in part tied to their commitment to increase avoidance of carbon emissions. The Sustainability-Linked 5-Year, \$525 million Revolving Credit Facility includes terms that reduce or increase the borrowing costs as targets on CO2 emissions avoidance levels are met or missed

Collaboration for Change

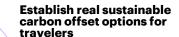
EDC and BMO have partnered to offer <u>sustainable</u> financing options for Canadian businesses, aiming to support them as they transition to a lower carbon economy while growing sustainably.

Canadian Transport & Travel

Technology and data, together with innovation and collaboration, will be critical to achieve the speed and scale required

Stepping stones to net zero

Electrify light / passenger transport and deployment of renewable technologies for decarbonising heavy transport (lowcarbon fuels, green hydrogen)



Invest in modernizing backoffice operations towards solutions that offer a net-zero impact

> Establish infrastructure for producing and distributing new low-carbon energy carriers (EV charging, lowcarbon fuels)

Stimulate shift to lower-emissions modes of transport

Invest in R&D for zeroemission aviation technology for the longer term

What will be needed

Technology, data, innovation and collaboration

- Collaboration with governments, cities, academia and suppliers to jointly create solutions to reduce emission of transportation
- Continued investment in developing green infrastructure to electrify transportation
- Data platforms to enhance the electric driving experience and ensure interoperability of charging
- Greater innovation and investment in establishing and enhancing the critical materials circular supply chain
- New business models for multi-modal mobility services
- Rapid scaling of green hydrogen production for heavier modes of transportation and longdistance freight



Accenture E - carbon-offsets

As a world-wide business with significant travel requirements Accenture was looking for ways to reduce it's GHG footprint. It has invested in sustainable farming operations that not only create carbon-offsets but establishes long-term economic benefits in targeted regions.

Air Canada - Shift to Cloud

In 2017 as part of Air Canada's commitment to reducing greenhouse gas emissions, the organization moved 85% of IT operations to cloud - based technology.

Net Zero Cities

Accenture and the World Economic Forum have co-created a digital toolkit and city sprint process to empower political and agency leadership to accelerate net zero efforts, including urban transportation and electrification solutions.

Canadian Natural Resources & Energy

Includes natural resources, energy, mining, oil and gas and utilities

Technology and data, together with innovation and collaboration, will be critical to achieve the speed and scale required

Stepping stones to net zero

Rapidly scale investment in renewable energy

> Accelerate commercial deployment of lowcarbon fuels, including green hydrogen

- Focus on supplying materials for low-carbon technology
 - Improve efficiency and resilience of required supply chains
 - Eliminate methane emissions from operations
 - Invest in carboncapture and storage for residual emissions

What will be needed

Technology, data, innovation and collaboration

- Further development and cost reduction of renewable energy sources
- Rapid growth of renewable electricity production to power the increased demand
- Ensuring collaborative Indigenous participation and leadership in any resources-based investments
- Digital twin technology to model and optimize natural resources products throughout the lifecycle, track and reduce GHG emissions
- Combine and amplify use of sensors and Al for continuous improvement in emissions reduction and efficiency
- Advanced supply chain operations to enable a circular economy for critical materials



Social License to Operate - Mining Company

With Accenture's help, a large mining company developed a sustainability strategy including targets, performance indicators, supported by new technology to support data-driven sustainability decision making, allowing it to better satisfy growing stakeholder and regulatory demands.

Infrastructure Management for Oil and Gas

Accenture supported the development and implementation of an aggressive strategy to carbon and emissions management including infrastructure management changes yielding a 20% energy and carbon consumption saving in some asset classes and a return on investment of \$5K per site per year.

Call to Action:

Achieve net zero with bold action, collaboration and no delays

Immediate action, guided by carbon intelligence and scaled through value chain collaboration, will enable Canada to realize net zero by 2050.

Commit to a science-based target.

Targets and visibility work: the 543 companies in our sample with a net zero target reduced their scope 1 & 2 emissions by 10% between 2010 and 2019, while the remaining 1457 companies without such targets increased emissions.

2 Embed carbon intelligence to manage your carbon budget.

Like any budget, this needs to be managed, in step and with the same rigor as financial budgets.

2 Leverage your influence to collaborate and mobilize your industry and value chain.

Canadian Public Services and private sector companies alike can drive greenhouse gas emissions reductions far greater than their own footprint:

- By motivating and supporting numerous stakeholders including Indigenous communities – to work together to comply with regulations
- Through concerted action on their scope 3 emissions engaging suppliers, making changes in procurement and adopting circular business models.

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About the research

Our analysis takes stock of Canadian, North American and global corporate net zero targets, which refers to a state in which the greenhouse gases going into the atmosphere are balanced by their removal out of the atmosphere. Getting to net zero refers to reducing greenhouse gas emissions and/or ensuring that any ongoing emissions are balanced by removals.

Our analysis shows how many of Canada's stock-listed companies have announced net zero targets, in which year these companies aim to achieve net zero, and how they are positioned to meet these targets considering their track record of reducing GHG emissions in the past 5-10 years.

We first collected data about the net zero targets of on the basis of the Accenture G2000 company list, working with TheSmartCube. We found 540 that had announced a net zero target covering scope 1, 2 and 3 emissions. We grouped these companies by region (Europe, North America, and Growth Markets) and by industry (for details see slide 20).

Secondly, we analyzed the emissions from 2010 to 2019 of companies in our sample. We focused on the absolute scope 1 & 2 emissions (excluding scope 3 to avoid double counting) and calculated the

compound annual reduction rate (CARR) of emissions over the 10-year interval, adjusting for missing data and excluding effects of structural changes to the business (e.g., divestments and acquisitions). We eliminated from the sample companies that did not report on emissions for a minimum of 5 years during the 2010-2019 period. This resulted in a dataset of 1324 companies. In total there were 448 companies that had both an all-scope net zero target and had reported at least 5 years during the last decade.

Thirdly, we built projections of potential emissions reduction pathways for each company in our dataset and estimated in which future 5-year time interval the company is likely to reach net zero. We chose the projections to take the shape of an "S-curve", in line with existing expert scenarios for emissions reduction by industry (for details see page 21).

We then aggregated the company-level projections to industry and region level to assess the time period over which companies in the industry and region are likely to achieve net zero.

Finally, we compared the net zero target years with the time interval resulting from the emissions pathway analysis and evaluated commonalities and differences across industries and regions.

For more information, access Accenture's <u>sustainability services</u> and read our <u>Reaching Net Zero by 2050, European Report</u>.

Region & Industry classification

We grouped the companies by region and industry, based on the Accenture G2000 company list (original sample, before exclusion criteria)

Region

Europe (N = 511)

Algeria, Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Kazakhstan, Luxembourg, Netherlands, Norway, Poland, Portugal, Russian Fed., Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom

North-America (N = 613)

Canada (N = 48), United States (N = 561), Bermuda (N = 4)

Growth Markets (N = 817)

Argentina, Australia, Azerbaijan, Brazil, Chile, China, Colombia, Ecuador, Hong Kong, India, Indonesia, Japan, Kuwait, Malaysia, Mexico, New Zealand, Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Singapore, South Africa, South Korea, Taiwan, Thailand, United Arab Emirates, Vietnam

Industry

Chemicals (N=80)

Chemicals (N=80)

Comms & Media (N=82)

Comms & Media (N=82)

Financial Services (N=318)

Banking (N=136), Capital Markets (N=41), Insurance (N=141)

Health & Life Sciences (N=109)

Health (N=55), Life Sciences (N=54)

Hi-Tech & Software (N=135)

Hi-Tech (N=110), Software & Platforms (SW&P) (N=25)

Industrial, Aerospace & defence (N=339)

Aerospace & defence (N=20), Industrial (Equipment, Freight & Logistics) (N=319)

Mobility (N=80)

Mobility (Automotive + Public Transport) (N=80)

Natural Resources & Energy (N=280)

Energy (N=127), Natural Resources (N=153)

Retail & Consumer goods (N=380)

CG&S (N=184), Retail (N=196)

Travel (N=54)

Travel (N=54)

Utilities (N=108)

Utilities (N=108)

Digital Engineering and Manufacturing (N=35)

Digital Engineering and Manufacturing (N=35)

Methodology for the projections to net zero

We built projections of potential emissions reduction pathways for each company in our data set and estimated in which future five-year time interval the company is likely to reach zero emissions. We chose the projections to take the shape of an "S-curve", in line with existing expert scenarios for emissions reduction by industry.

As a first step, we determined a company's starting point for the projection. This was informed by their absolute emissions in 2019 and its Compound Annual Reduction Rate (CARR) from 2010 to 2019.

- Companies that have already achieved fast emissions reduction in the past decade were placed further ahead on the S-curve to see a deceleration in their emissions reduction rate over time, as the remaining options for emissions reduction become harder to realize. For these companies, the projection used the historical CARR of the company.
- Companies that had achieved little or no emissions reduction in the past decade were placed further back on the S-curve, meaning that in the projection they first catch up with the typical emissions reduction rate that industry peers had achieved in the past, and then gradually accelerate the pace of emissions reduction. For these companies, we create the projection using the median CARR of the companies in the same industry that had reduced emissions between 2010-2019.*

Secondly, we created the S-shape of the curve by using a matrix of multipliers for each period, which define the speed of emissions reduction over time. These multiplier varied by scenario. The Consensus Pathways scenario reflects the emissions reduction trajectories of the Transition Pathway Initiative, which in turn reflect consensus expert knowledge about the best available technology for reducing emissions and industryspecific challenges. The Accelerated Action scenario reflects the pace of emissions reduction of mitigation pathways compatible with 1.5°C, as developed by the Intergovernmental Panel on Climate Change (IPPC).

As the projections are based on reduction rates and therefore approach zero asymptotically, we considered that a company achieved the target once they reduced by at least 95% of the absolute emissions in 2019.

CARR Multipliers Matrix

Consensus Pathways Scenario

Company CARR	Starting CARR used for projection	2020- 2024	2025- 2029	2030- 2034	2035- 2039	2040- 2044	2045- 2049
< -12.5%	Company CARR	1.8	2.1	1.2	1	1	1
-12.5% to -7.5%	Company CARR	1.8	1.8	2.1	1.2	1	1
-7.5% to -5%	Company CARR	1	2.1	3.2	3.2	3.3	3
-5% to -2.5%	Company CARR	1	2.1	3.2	3.2	3.3	3
-2.5% to 0%	Industry median	1	2.1	3.2	3.2	3.3	3
0% to 2.5%	Industry median	0	1.8	3	3.5	3.5	3.3
2.5% to 5%	Industry median	-0.2	1	2.1	3.2	3.5	3.5
>5%	Industry median	-0.5	0	1.8	2.1	3.2	3.5

Accelerated Action Scenario

Company CARR	Starting CARR used for projection	2020- 2024	2025- 2029	2030- 2034	2035- 2039	2040- 2044	2045- 2049
< -12.5%c	Company CARR	1.8	2.1	1.2	1	1	1
-12.5% to -7.5%	Company CARR	1.8	2.1	2.1	1.2	1	1
-7.5% to -5%	Company CARR	1.8	2.1	3.2	3.2	3.3	3
-5% to -2.5%	Company CARR	1.8	2.1	3.2	4	5	5
-2.5% to 0%	Industry median	1.8	2.1	3.2	4	5	5
0% to 2.5%	Industry median	1	2.1	3.2	4	5	5
2.5% to 5%	Industry median	1	2.1	3.2	4	5	5
>5%	Industry median	1	2.1	3.2	4	5	5

^{*}Industry median CARR was calculated based on the subset of companies in the industry that reduced emissions during the period

^{**}The Current Trends Scenario corresponding to the projection of the Starting CARR consists of having the same CARR across all periods or similar to a Matrix full 1's.