

ON INDUSTRIES: AUTOMOTIVE



**Industry insight
with impact**

ON Industries is a five-part series analyzing key industries through the lens of our ON Climate solution, providing commercial bankers with a detailed and powerful forward-looking view of the industry's drivers and performance.

Climate change **WILL**
impact your loan book.

Are you prepared?

Can you...

- Identify climate risk in your portfolio early?
- Calculate and report on emissions?
- Discover green lending opportunities?

It's a
 **\$145B**
RISK¹

And a
 **\$9.2T**
OPPORTUNITY²

¹In 2021 alone, extreme weather events cost the US economy \$145 billion. National Centers for Environmental Information.

²McKinsey estimates that the investment in new infrastructure and systems needed to meet international climate goals could be as much as \$9.2 trillion, annually. The net-zero transition: What it would cost, what it could bring.

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QUICK ON-BOARDING AND NEXT STEPS

You need to be looking at your loan book in a completely different way

The effects of climate change are being felt in almost every sector as business and government work to reduce carbon emissions and mitigate the environmental consequences that we are already experiencing.

The SEC and OCC have both raised the prospect of regulations that will compel lenders to account for the likely material impact of climate-related risk on their portfolio, as well as the related greenhouse gas emissions associated with lending.

How equipped is your bank to evaluate the risks to your borrowers and identify new lending opportunities?

The traditional approach to analysis is based on a historical view that can't possibly predict the potential impact of climate change. The lack of a standardized framework makes it almost impossible to comply with climate policy, report the carbon emissions in your loan book, increase green lending, and identify decarbonizing ventures to lower the emissions you finance.

There is also lack of relevant borrower data to evaluate such impacts. And even if you have the necessary information within your current systems, it's likely that they are outdated and held in multiple data sets that are impossible to turn into actionable intelligence.

It's time for a new approach.

A solution for future lending

ON Climate gives you a real-time view of climate transition risk applicable to your loan book so you can act to either de-risk or grow. It allows you to understand the impact that climate risk might have on each borrower. This empowers relationship managers, credit officers, and risk managers to make better, faster, and more informed decisions on which borrowers or industries in their portfolio are most likely to be vulnerable, or to benefit, from climate change.

It shows you:

- An overview of your climate risk and distributed exposure across top sectors and borrowers.
- Total financed emissions by sector and borrower level (Scope 1 and Scope 2).
- A list of borrowers that should be prioritized for climate reviews.
- Borrowers with high climate risk that you might be able to coach to help avoid future risk.
- Borrowers with lower projected climate risk, even though they are in sectors that are rated to have inherently high climate risk.
- Lending opportunities in sectors that are projected to have lower climate risk in the future.



ON Climate uses agreed, recognized industry and accounting standards (including PCAF, CFRF and NGFS Climate Scenarios) and a reliable, extensive data set to build and run climate scenario and financed emissions modeling.

The smaller the detail, the greater the value

At the moment most climate analyses work at a broad sector level, looking no deeper than the sub-sector level. This provides some indication of your exposure, but such a broad view lacks the insight needed to really understand the impact and trends at the individual borrower level.

Take, for example, the automotive business: an industry undergoing dramatic transformation as we move to electric vehicles. Other solutions miss crucial detail buried within your data, which can lead to the under or over-stating of risk.

ON Climate solution goes into much greater detail. We dig down five levels, to NAICS 6-digit industry code to uncover crucial details buried within your data, providing you with the information needed to report, recommend, and react with confidence.

This sample analysis of the potential impact of climate across the auto value chain reveals areas of risk and opportunity, and how they may change over time.

Granular analysis across the supply chain

THE AUTO SUPPLY CHAIN



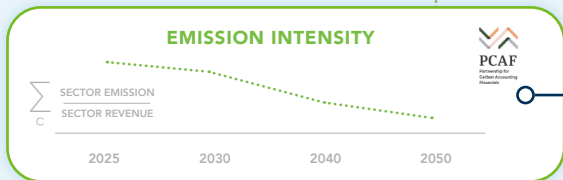
- PARTS MANUFACTURERS
- OEMs
- NEW CAR DEALERS
- USED CAR DEALERS
- MAINTENANCE SHOPS/SMOG
- SCRAPYARDS



HIGH LEVEL



We dig down five levels, to NAICS 6-digit industry code to uncover crucial details buried within your data, providing you with the information needed to report, recommend, and react with confidence.



Emission intensity for the industry is calculated by dividing the aggregated amount of carbon emissions for the industry with the total industry revenue. The data used are from: US census data | EPA/market data | USGS | CDP | Census inventory | Borrower sustainability reports and other disclosures.



Emission intensity along with NGFS intensity reduction target are used to identify the financial impact drivers needed to reach the target and weightage of each driver. Some drivers (such as policy action) are derived from NGFS, while others are discovered through extensive sector research by ON.



The impact drivers and the climate scenarios are overlaid on borrower data points to identify borrower level impact metrics including revenue, debt service coverage, leverage and profitability, and provides forecast financials and credit metrics for the borrowers, thus assigning them a transition risk score.



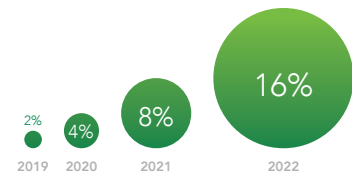
ON transition risk score can be compared with bank's existing risk rating models to derive a climate adjusted risk rating.



The emission intensity is also used to calculate carbon emissions for borrowers following PCAF's score 3 and score 4 methodology.

Sector trend

The automotive sector is a vital part of our economy. But this sector is witnessing a disruption with evolving battery and fuel cell technology. Electric vehicles (EVs) are increasing in demand – the pace of this technological disruption is astounding. Three years ago, EVs represented just 2% of all new car sales in the US. A year later, it doubled to 4%. Last year, it doubled again to 8%, and this year, it's forecast to double yet again to 16%. Within 10 years, most new car sales will be electric. (source: iea.org)



Sales of EVs are doubling every year

This will impact the entire auto value chain affecting both upstream and

downstream sectors/activities. Banks therefore need a loan-level understanding of how risk cascades down the value chain and the ripple effects that a carbon mitigation lever (such as technological disruption) could have throughout the entire sector.

FORD F-150 - AMERICA'S NUMBER ONE SELLING CAR



2000

MOVING PARTS IN THE
POWERTRAIN OF AN
INTERNAL COMBUSTION
ENGINE VEHICLE

VS

20

MOVING PARTS IN THE
POWERTRAIN OF AN
ELECTRIC VEHICLE

If consumer demand for EVs keeps growing and the country's number one selling car becomes an electric one, **consider the knock-on effect that will have across the supply chain** and how banks would address this from a risk management perspective.

18,000

NEW CAR DEALERSHIPS
IN THE US
SELLING INTERNAL
COMBUSTION ENGINES

140,000

USED CAR
DEALERSHIPS

234,700

AUTO REPAIR &
SERVICE CENTERS,
AND SMOG CENTERS

How will these hundreds of thousands of businesses be impacted if most new car sales evolve to electric? EVs require a fraction of the servicing and maintenance of an internal combustion engine vehicle.

Identifying carbon mitigation levers for the industry

Carbon emission intensity is a key metric when determining the carbon mitigation levers that would need to be applied to reduce emissions for that industry. Emission intensity is calculated as a ratio of the aggregated amount of carbon emissions at the industry level and the total revenue for that industry. We follow PCAF Score 3 and Score 4 methodologies for this calculation.

This calculated emission intensity, along with the NGFS intensity reduction target, is used to identify the emission reduction levers needed to reach the target and weightage of each lever. We also identify the limit to which a certain technology can reduce emissions in a particular industry. For example, process efficiencies/improvements or recycling processes can only reduce emissions to a certain extent. The levers are identified through NGFS (e.g. most policy actions such as carbon tax, change in electricity prices, change in fossil fuel prices, etc.) and our ON sector research team. These also consist of supply chain impacts such as raw material pass-on, and emissions reduction technologies like green hydrogen, transition to EVs, etc.

Continuously updated

These levers are constantly changing and updated in our climate models to reflect the latest market trends and technological developments. ON Climate solution then aggregates the mitigation levers into eight categories which customers can easily use to view and evaluate carbon emissions for certain scenarios such as carbon tax and carbon reduction efforts.

Data sources

The data used in these calculations are from public sources, such as US Census Bureau, EPA/market data, USGS, CDP, census inventory, company sustainability reports and other disclosures. For new technologies we refer to research reports, technical documents, journals, and publications from various sources like MDPI, ResearchGate, ScienceDirect, CarbonBrief, etc. to validate their operational feasibility. We also check for government subsidies currently in process for the available carbon reduction technologies, such as 45Q tax credit for CCS.

Carbon mitigation levers

In the above illustration (on pg. 6), we can see that for a 6-digit NAICS industry (Truck Trailer Manufacturing) we have identified several levers needed to reach the emissions target:

- Supply chain constraints from higher raw material prices, which resulted from upstream industries moving towards a low carbon economy. Companies in the industry are likely to pass on a significant portion of the incremental climate-related costs to end users, given the industry's high importance for the economy.
- Carbon mitigation efforts required at the industry level, such as replacing fossil fuel with green hydrogen and transitioning the entire fleet of vehicles to EV, requires significant capex investment.
- There are also government policy actions which will have major repercussions to business financials. For example, carbon tax which is a government imposed fine (\$ per tonne of CO₂e) will likely go up as borrowers try to reduce their carbon emissions – with an aim to reach net zero by 2050 (if not sooner).

These levers will affect margins which are likely to face contraction in the near-medium term due to a fall in volumes and an increase in raw material, carbon and energy costs, before gradually moving towards normalcy in the longer term. Revenue decline reflects the 100% pass through of the additional emissions cost and a drop in sales volume.

ON CLIMATE IS BUILT ON A RICH REPOSITORY OF CLIMATE DATA

CLIMATE & WEATHER DATA



BORROWER & SECTOR DATA



GLOBAL TRADE, ECONOMIC & REGULATORY DATA



Projection of borrower financial performance and generation of climate risk score

Our transition risk climate model ingests ~15 borrower data points which can be readily extracted from spreading and core banking systems, and then applies the NGFS climate scenarios to each borrower's data to determine the impact climate might have on their future financial performance, across:

- Operating costs, which can be impacted by changes in policy and supply chain
- Potential capex for clean technology
- Revenue changes driven by shifts in demand or disrupted operations
- Debt service coverage, leverage, and profitability to arrive at a final transition risk rating.



Climate risk score

Borrower-level financial projections are used to provide a climate risk score from low priority (least vulnerable) to high (most vulnerable) for each individual borrower. The score helps banks in identifying:

- Borrowers with lower projected climate risk in sectors that are rated to have inherently high climate risk
- Borrowers with high climate risk that can be supported with capital and advice to help them avoid future risk

Financed carbon emissions reporting

ON Climate helps banks calculate and report on Scope 3 financed emissions across their commercial loan portfolio. This allows banks to view the total financed emissions in their loan book at the portfolio and individual borrower levels.

Taking a holistic view of financed emissions – together with carbon pathways under the various NGFS scenarios – enables banks to evaluate and set overall emission goals (e.g. net zero by 2050), and understand the levers available to manage a transition of their commercial portfolio.

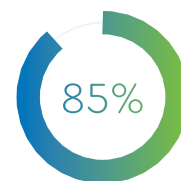


“We’re trying to look forward and think about what the implications might be on a borrower-by-borrower basis because each obligor will have very different adaptive capability.”

ON CLIMATE CONSORTIUM MEMBER

Coverage

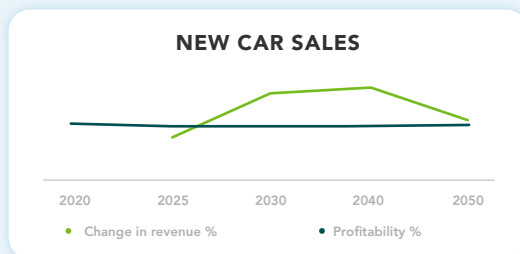
We have identified 303 direct and indirect impact industries (when categorized at the 6-digit NAICS level) that collectively account for 85% of the gross scope 1 emissions for C&I industries in the US. EU Emissions Trading System, US EPA TSCA Inventory, and IPCC research documents have been used to identify these industries.



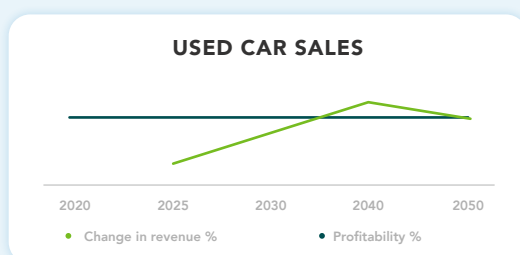
ON Climate covers 85% of the gross Scope 1 emissions for C&I industries in the US

Auto sales and services sector outlook

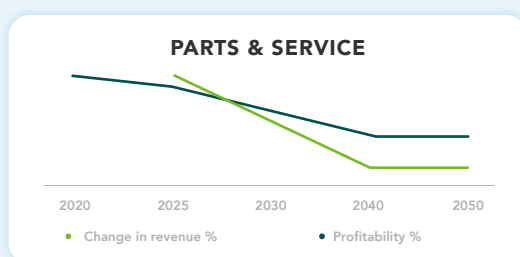
Let's look at the trends we anticipate for borrowers in the auto sales and services sector. The below graphic shows climate risk impact to the sector and the resultant change in the revenue and margins of borrowers in this sector.



- The sales volume mix is expected to change towards electric vehicles (EVs) with over 50% of the new vehicles sales moving towards EVs over the next decade.
- Higher value of EVs will lead to ~10% growth in revenue from new cars by 2030. The growth normalizes in later years due to reduction in EV prices led by a decline in lithium battery costs.
- The dealer margins will be lower in initial years due to higher consumer incentives for EVs.



- With an increasing number of EVs on the road, there will be steady demand for used cars in the foreseeable future. The players currently selling used fossil fuel cars will gradually shift to sale of used EVs.
- EVs will rapidly gain the new car market share, but it will take a few years to hit the used car market. A prospective buyer might defer the purchase until the EVs hit the resale markets—impacting the sales of used car dealers by ~10%.



- The maintenance costs of EVs are ~30% lower than ICE vehicles resulting in a major impact on the industry with over 20% hit on the top-line in next 10 years.
- The rapid transition to EV will result in lack of skilled technicians resulting in higher labor and related costs, pressurizing the margins.

A proven model with a massive data set

ON Climate was developed by our team of credit scientists and engineers, in close collaboration with 10 US banks and 27 climate experts. We have one of the largest commercial lending data sets in the USA, representing \$420B of lending across automotive, agriculture, energy, industrial, manufacturing, and buildings and construction. We also draw information from industry experts, media sources, research and multiple third parties to create a comprehensive and continuously evolving rich data source. The data is proprietary data which we've collected as a function of providing software to our customers. Additionally, we pipe in over 400M external third party and alternative data sources which help provide an overall perspective of what the "now" looks like.



Quick ON-boarding and next steps

You could Implement ON Climate in just a few weeks time, moving rapidly from initial briefing through exploratory workshops, an executive readout, and then go live. To discover what it could deliver for your bank, we offer a rapid onboarding that is completely customizable to your needs.

Schedule a demo to learn how the ON Climate can help your institution better evaluate and manage climate-related risks in your portfolios.

[Request a demo](#)