

CO₂eMission

Net-zero alignment and target-setting methodology

**July 2023
Supplement**

Any reference to “Wells Fargo,” “the Company,” “we,” “our,” or “us” in this document means Wells Fargo & Company and subsidiaries (consolidated). See Section 5, Abbreviations, for the definitions of abbreviated terms used throughout this document.

This document contains forward-looking statements, which may include future plans, financing, objectives, targets, and climate-related strategies, including expectations, assumptions, and projections regarding implementation of those strategies. Please see Section 7, Forward-looking statements and disclaimers, for more information, including factors that could cause our actual implementation to differ materially from our forward-looking statements, and for other disclaimers regarding the nature of the content contained in this document.

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Introduction¹

In March 2021, Wells Fargo announced a goal of net-zero greenhouse gas emissions by 2050, including our Scope 1 and Scope 2 emissions, as well as our Scope 3, category 15 emissions, which are the emissions of our clients attributable to our financing activity (our "financed emissions"). To support this goal, we reviewed industry target-setting frameworks and guidance and evaluated carbon-intensive sectors in our financial portfolios. In May 2022, we published [CO2eMissionSM](#), our methodology for aligning our financial portfolios with pathways to net zero by 2050 and for setting interim emissions-based targets to track that alignment, that included our 2030 targets for the Oil & Gas and Power sectors. We are now supplementing this with our 2030 targets for the Automotive, Steel, and Aviation sectors.

As described in [CO2eMission](#), our methodology endeavors to apply certain design choices universally across all sectors. For example, the decision to include in our targets

both the financing we provide clients through lending activities and the financing we facilitate through debt and equity capital markets activities continues to apply to all currently covered sectors. Likewise, our decision to use committed exposure (credit available to a client) rather than outstanding exposure (funds drawn from that available credit by a client) in attributing client emissions to our financing activities applies to all currently covered sectors. (See Section 2.2 of [CO2eMission](#) for a detailed description of our universal design choices.) Other design choices are made on a sector-specific basis, such as what activities and emissions scopes the targets will cover and which metric and climate scenario to use to establish a target.

Though setting targets for five sectors is helpful, we are mindful of the challenges and limitations of bank target setting for financed emissions. Our ability to achieve our targets individually and a net-zero

1. References to publicly available websites are provided herein for your convenience. Unless otherwise noted, Wells Fargo does not control the websites and does not endorse and is not responsible for the content, links, privacy policies, or the security policies of such websites. Please see Section 7, Forward-looking statements and disclaimers, for other disclaimers regarding the nature of the content contained in this document.



goal cumulatively depends largely upon events beyond our control, such as the development and commercialization of decarbonizing technologies, shifts in business models and practices, the implementation of supportive government policies, changes in societal and consumer behavior, and significant public investments globally. These dependencies represent critical decarbonization levers that need to be pulled at the same time, in the same direction, by a wide range of stakeholders, including our clients, governments, and consumers, among others. With such collective action, we believe our targets are achievable; without such action, they may remain aspirational.

Moreover, even if we meet our targets, that achievement does not guarantee a corresponding reduction of greenhouse gas emissions in the real economy. Finance plays an important but indirect role in shaping emissions trends. Given the challenges of drawing causality between bank financing and real economy emission outcomes,² our targets should not be interpreted as a claim to realize a specific climate effect.

We can make a positive climate impact by supporting our clients in their transition efforts.

Rather, we set targets to help us address climate change through portfolio alignment and to inform our approach to engagement.

Though we recognize the challenges and limitations of bank target setting for financed emissions, we believe financial institutions like Wells Fargo still have an important role to play in building a more sustainable future. We can make a positive climate impact by supporting our clients in their transition efforts and providing the financing they need to adapt their business models for success in a lower-carbon economy.

The following table sets forth the targets we have set to date.

2. See, e.g., the work of the Evidence for Impact research collaborative's efforts to typologize and empirically track the impact financial institution climate measures have on the real economy. "A Climate Impact Management System for Financial Institutions," S. Ralite, K. Hagedorn, and T. Ghirardi, <https://2degrees-investing.org/wp-content/uploads/2021/10/Climate-Impact-Mgmt-System-final.pdf>, accessed August 9, 2022.

Wells Fargo's 2030 Targets

Sector	Metric	Baseline	2030 Target
Oil & Gas • Exploration and Production (Scopes 1, 2, and 3, category 11 (use of sold products)) • Refining (Scopes 1 and 2)	Absolute emissions	97.7 Mt CO ₂ e ¹ (as of December 31, 2019)	72.3 Mt CO ₂ e
Power • Power generation (Scope 1)	Emissions intensity	273 kg CO ₂ e/MWh ^{2,3} (as of December 31, 2019)	102 kg CO ₂ e/MWh
Automotive • Tank-to-wheel (tailpipe) emissions (Scope 3, category 11 (use of sold products))	Emissions intensity	220 g CO ₂ e/vkm ⁴ (as of December 31, 2021) ⁵	103 g CO ₂ e/vkm
Steel • Steel manufacturing (Scopes 1 and 2)	Emissions intensity	1.01 t CO ₂ /t steel ⁶ (as of December 31, 2021) ⁵	1.01 ⁷ t CO ₂ /t steel
Aviation • Tank-to-wake emissions (Scope 1)	Emissions intensity	969 g CO ₂ e/RTK ⁸ (as of December 31, 2019) ⁵	775 g CO ₂ e/RTK

1. Million metric tons (Mt) carbon dioxide equivalents (CO₂e)

2. Kilograms (kg) CO₂e per megawatt-hour (MWh)

3. To develop our 2019 baseline emissions intensity, we initially relied upon 2020 power generation data as a proxy for 2019 data because 2019 power generation data was not available from our data provider (as noted in Section 4.4 of [CO₂eMission](#)). We subsequently received 2019 power generation data and recalculated our 2019 baseline. Using the 2019 data, the baseline emissions intensity changed from 253 kg CO₂e/MWh to 273 kg CO₂e/MWh and the percent reduction from the 2019 baseline to the 2030 target changed from a 60% reduction to a 63% reduction.

4. Grams of CO₂e per vehicle kilometer (vkm)

5. The Automotive and Steel targets use a 2021 baseline as this is the most recent full year of available data. The Oil & Gas, Power, and Aviation targets use a 2019 baseline due to the impact of COVID-19 on sector activity in both 2020 and 2021.

6. Metric tons of CO₂ per metric ton of steel

7. We set our target using the International Energy Agency Net-Zero Emissions by 2050 scenario. The scenario's benchmark for 2030 is 1.09 t CO₂/t steel. The 2021 baseline emissions intensity of the clients comprising our Steel portfolio is 1.01 t CO₂/t steel. Because our portfolio's emissions intensity is below the scenario benchmark, we set the target equal to the baseline. We intend to continue working with our Steel clients to decarbonize their businesses which may push the portfolio's emissions intensity further below the baseline and benchmark. We plan to measure and report ongoing progress.

8. Grams of CO₂e per revenue ton kilometer (RTK); ton refers to metric ton

The sections following this Introduction describe the targets we have set for the Automotive, Steel, and Aviation sectors, respectively, including the activities and emissions the targets cover, the metrics and data sources used, and the scenarios relied upon.

Automotive

2.1 Overview

Target Overview. For our Automotive portfolio, we set a target for emissions attributed to the financing we provide to manufacturers of passenger cars and light-duty trucks (e.g., pick-up trucks, sport utility vehicles, and minivans). The target is an emissions intensity target,³ covering Scope 3, category 11 (use of sold products), tank-to-wheel emissions from automotive manufacturers' **new vehicle sales**. Our methodology does not address emissions from manufacturers' legacy stock still in circulation. The following two figures outline our 2030 Automotive portfolio target and the key methodological design choices underpinning it. Offsets, including those procured by our clients, are excluded from this target but may be considered in future targets. As noted in [CO2eMission](#), offsets may be needed to address unavoidable emissions in certain sectors over specific time horizons consistent with climate scenarios.

2030 Automotive Portfolio Target

Baseline emissions intensity as of 12/31/2021	2030 Target
220 g CO ₂ e/vkm	103 g CO ₂ e/vkm 53% reduction in emissions intensity from new vehicle sales

3. An intensity metric is expressed as a ratio of absolute emissions over a unit of output (e.g., grams of carbon dioxide equivalents (CO₂e) per vehicle kilometer).

Key Design Choices	
Activities	<ul style="list-style-type: none"> Manufacturers of passenger cars and light-duty trucks
Emission Scopes	<ul style="list-style-type: none"> Tank-to-wheel (tailpipe) emissions from manufacturers' new vehicle sales (Scope 3, category 11 (use of sold products))
Metric	<ul style="list-style-type: none"> Emissions intensity (grams of carbon dioxide equivalents per vehicle kilometer or g CO₂e/vkm)
Financing Activities	<ul style="list-style-type: none"> Corporate lending commitments (drawn plus undrawn amounts) Capital markets facilitation: 100% of pro-rata share of notional using a five-year, straight-line amortization approach
Attribution Approach	<ul style="list-style-type: none"> Portfolio-weighted approach (measures Wells Fargo financing to the client relative to the total Wells Fargo financing to the sector)
Key External Data Sources	<ul style="list-style-type: none"> Auto Forecast Solutions U.S. Environmental Protection Agency
Scenario	<ul style="list-style-type: none"> International Energy Agency Net-Zero Emissions by 2050 (October 2021)

Sector overview. According to the U.S. Environmental Protection Agency (EPA), transportation contributes approximately 27% of greenhouse gas emissions in the U.S.⁴ The majority of transportation emissions are from road transport, specifically passenger cars and light-duty trucks.⁵

For road transport, the primary decarbonization pathway is a shift to electric vehicles and a transition away from internal combustion engine vehicles.⁶ By using electricity as fuel, electric vehicles can produce far fewer emissions than their conventional counterparts that rely upon gasoline and diesel fuels. But, the climate

impact of the shift to electric vehicles is contingent on the emissions intensity of the electricity that powers them. Thus, decarbonizing the Automotive sector also depends upon decarbonizing the power grid. As electricity generation moves to lower-carbon sources, the emissions impact of operating electric vehicles will also decrease.

4. "Fast Facts U.S. Transportation Sector Greenhouse Gas Emissions 1990-2020," p.1, U.S. EPA, May 2022, citing Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020, <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P10153PC.pdf>, accessed August 2, 2022.

5. Ibid.

6. "Net Zero by 2050: A Roadmap for the Global Energy Sector," p.138, International Energy Agency (IEA), October 2021, https://iea.blob.core.windows.net/assets/deebef5d-0c34-4539-9d0c-10b13d840027/NetZeroBy2050-ARoadmapfortheGlobalEnergySector_CORR.pdf?adlt=strict, accessed August 2, 2022.



Though technologies to electrify road vehicles are available, electrification will be challenging. Widespread adoption of electric vehicles requires policymaking that promotes the use of electric vehicles and discourages the use of internal combustion engine vehicles.⁷ A shift to electric vehicles also depends upon improving electric vehicle charging infrastructure and battery ranges.⁸ Additionally, if consumer demand for electric vehicles grows, meeting

this demand will require scaling up battery manufacturing and increasing investments in electricity grids.⁹

In addition to the shift to electric vehicles, the transition pathway outlined in climate scenarios implies a number of changes needed to decarbonize the Automotive sector, such as improving fuel efficiency through advanced technologies, design, and materials and changing

land use patterns and consumer behaviors to reduce driving speeds, limit urban car use, and increase use of public transit and shared vehicles.¹⁰ These changes are largely outside our control but are nonetheless assumed to occur in parallel with adoption of electric vehicles as core components of achieving the outcomes of a net-zero transition pathway for the Automotive sector.

7. See “Vehicle Fuel Economy in Major Markets 2005-2019,” IEA Global Fuel Efficiency Initiative, 2021, <https://iea.blob.core.windows.net/assets/79a0ee25-9122-4048-84fe-c6b8823f77f8/GlobalFuelEconomyInitiative2021.pdf>, accessed August 2, 2022.

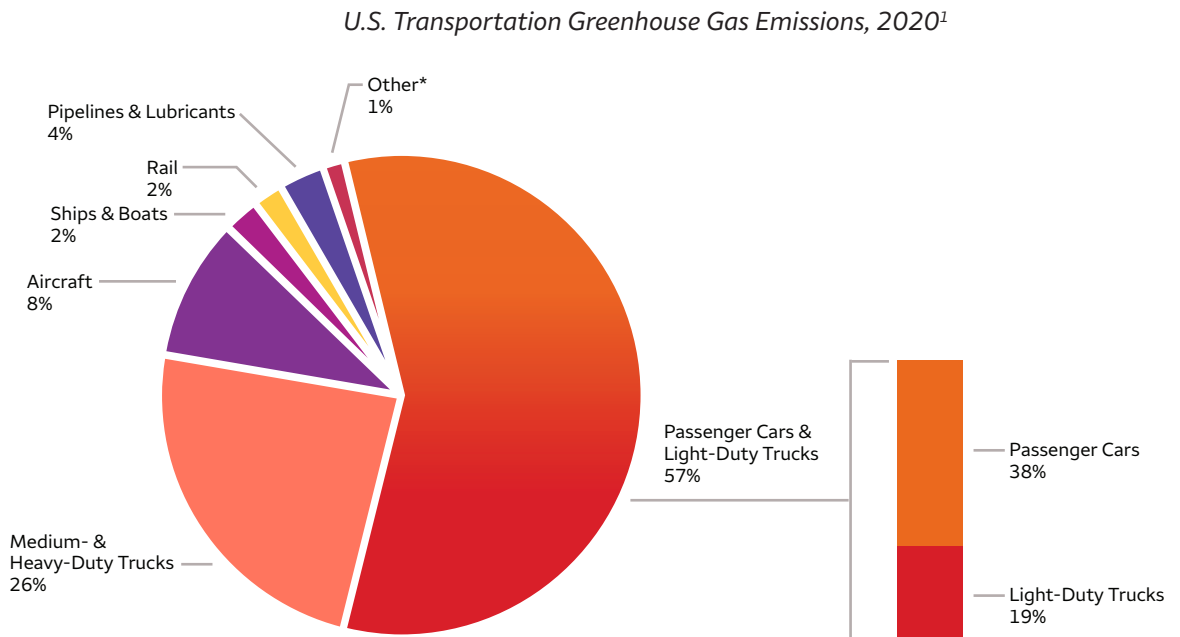
8. “Building the Electric-Vehicle Charging Infrastructure America Needs,” McKinsey & Company, P. Kampshoff, A. Kumar, S. Peloquin, and S. Sahdev, April 2022, <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/building-the-electric-vehicle-charging-infrastructure-america-needs?adlt=strict>, accessed August 25, 2022.

9. See “Net Zero by 2050: A Roadmap for the Global Energy Sector,” IEA, October 2021, https://iea.blob.core.windows.net/assets/deebef5d-0c34-4539-9d0c-10b13d840027/NetZeroBy2050-ARoadmapfortheGlobalEnergySector_CORR.pdf?adlt=strict, accessed August 2, 2022; “Vehicle Fuel Economy in Major Markets 2005-2019,” IEA Global Fuel Efficiency Initiative, 2021, <https://iea.blob.core.windows.net/assets/79a0ee25-9122-4048-84fe-c6b8823f77f8/GlobalFuelEconomyInitiative2021.pdf>, accessed August 2, 2022.

10. See, e.g., the Network for Greening the Financial System Orderly Net-Zero scenario and the International Energy Agency Net-Zero Emissions by 2050 scenario.

2.2 Activities and emissions in scope

Our methodology focuses on automotive manufacturers because they can have the greatest impact in transforming the sector by shifting production to electric vehicles and improving fuel efficiency.¹¹ We identify automotive manufacturers in our financial portfolios by mapping sector-specific North American Industry Classification System (NAICS) codes to this segment of the Automotive value chain. (For a list of NAICS codes in scope, see Section 6, Appendix - NAICS codes in scope.) Our methodology includes manufacturers of passenger cars and light-duty trucks, which are responsible for more than half of the greenhouse gas emissions from transportation in the U.S. as shown in the following figure.



*Other sources include buses and motorcycles

1. Source: Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990–2020, table 2-13, pp. 2-36, 2-37 (EPA 2022), <https://www.epa.gov/system/files/documents/2022-04/us-ghg-inventory-2022-main-text.pdf>, accessed August 9, 2022.

11. Our approach aligns with the logic of third-party frameworks such as the Paris Agreement Capital Transition Assessment (PACTA), which focuses on segments of sectoral value chains that: “(i) [control] the bulk of the impact on the climate system, and (ii) on which decarbonization efforts must be concentrated in order to spur the entire sector to fall into alignment.” “PACTA for Banks Methodology Document,” version 1.1.0, p.23, Paris Agreement Capital Transition Assessment and 2^o Investing Initiative, September 18, 2020.

Our methodology includes the tank-to-wheel emissions from manufacturers' new vehicle sales for passenger cars and light-duty trucks because the tank-to-wheel emissions make up the majority of the Automotive sector's emissions.

More specifically, our methodology includes the tank-to-wheel emissions from manufacturers' new vehicle sales for passenger cars and light-duty trucks because the tank-to-wheel emissions make up the majority of the Automotive sector's emissions.¹⁴ Tank-to-wheel emissions are tailpipe emissions generated from fuel combustion while operating a vehicle. The emissions from producing the fuel consumed by internal combustion engine vehicles and the electric power consumed by electric vehicles (well-to-tank emissions) are not addressed in our Automotive methodology but are addressed in our Oil & Gas and Power methodologies. (See Sections 3.2 and 4.2 in [CO2eMission](#) for additional information about activities and emissions in scope for our Oil & Gas and Power methodologies, respectively).

With respect to the passenger car and light-duty truck manufacturers included, we focus on the emissions that occur from operating the vehicles (Scope 3, category 11 (use of sold products)) rather than the emissions from the manufacturing process itself (Scopes 1 and 2 and supply chain-related categories of Scope 3 emissions).¹² By focusing on Scope 3, category 11 emissions, we believe our methodology captures the activities most responsible for decarbonizing the sector, including the shift to electric vehicles and improved fuel efficiency.¹³

12. Importantly, the emissions associated with the manufacture of a given internal combustion engine vehicle are roughly analogous to the emissions associated with the manufacture of an electric vehicle with some variation depending on battery chemistry (and before accounting for emissions benefits resulting from battery recycling). We have not included these emissions in this analysis because they are modest relative to the emissions associated with a produced vehicle's end use and the methods for tracking these emissions through the supply chain are limited. For a comparative analysis of the lifecycle emissions associated with different vehicle types, see "A Global Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars," G. Bieker, July 2021, https://theicct.org/sites/default/files/publications/Global-LCA-passenger-cars-jul2021_0.pdf, accessed October 31, 2022.

13. The varying approaches automotive manufacturers take to sourcing components limit the availability of emissions data. Where such data does exist, differences in approaches to sourcing components limits the comparability of Scope 1, 2, and supply chain-related categories of Scope 3 emissions among automotive manufacturers. As data, tools, and approaches are developed to account for the variability among manufacturers' corporate structures and supply chains, we expect to evaluate our methodology and consider including the emissions associated with these activities.

14. See "TPI Sectoral Decarbonization Pathways," at p.9, S. Dietz et al., February 2022, <https://www.transitionpathwayinitiative.org/publications/99.pdf?type=Publication>, accessed November 3, 2022; "Carbon Performance Assessment of Automobile Manufacturers: Note on Methodology," at p.7, Transition Pathway Initiative, December 2020, <https://www.transitionpathwayinitiative.org/publications/70.pdf?type=Publication&adlt=strict>, accessed July 11, 2022.

2.3 Metrics and data

To measure our Automotive portfolio's alignment with the net-zero scenario, we use a portfolio-weighted emissions intensity metric. An emissions intensity metric allows us to track a manufacturer's emissions relative to new vehicle production over time and captures the pace at which a manufacturer shifts its new car sales mix from internal combustion engine vehicles to electric vehicles. An emissions intensity metric also provides for consistent tracking and comparability among manufacturers regardless of the number of vehicles produced.

Calculation Approach: Automotive Portfolio Emissions Intensity

$$\begin{array}{c}
 \boxed{\text{Wells Fargo portfolio Scope 3 tank-to-wheel emissions intensity}} \\
 = \sum \left(\boxed{\text{Client Scope 3 tank-to-wheel emissions intensity}} \times \boxed{\text{Portfolio weight}} \right) \\
 \begin{array}{cc}
 \downarrow & \downarrow \\
 \frac{\text{Scope 3 tank-to-wheel emissions}^{\text{Client}}}{\text{Production}^{\text{Client}}} & \frac{\text{Wells Fargo financing}^{\text{Client}}}{\text{Total in-scope portfolio}}
 \end{array}
 \end{array}$$

As shown in the previous figure, we compute a portfolio-weighted emissions intensity for Scope 3 tank-to-wheel emissions by multiplying a client's tank-to-wheel emissions intensity by a portfolio weight and then summing these individual weighted intensities. To calculate a client's emissions intensity, we divide the client's Scope 3 tank-to-wheel emissions by its production activity for the year. To calculate the portfolio weight, we divide the financing we provide to the client by our total financing to the sector. Our methodology includes the financing we provide clients through lending activities and the financing we facilitate through debt and equity capital markets.

To estimate our clients' emissions, we rely upon production data from Auto Forecast Solutions and emission factors from the Environmental Protection Agency (U.S.) at the brand, model, segment, technology, and fuel-type level.

2.4 Climate scenario and target

To set our target, we selected the International Energy Agency's Net-Zero Emissions by 2050 (IEA NZE 2050) scenario. Published in 2021, the IEA NZE 2050 scenario is a science-based decarbonization scenario that aligns with the temperature goals of the Paris Agreement and provides sector-specific, net-zero aligned transition pathways. Though we considered the Network for Greening the Financial System (NGFS) Orderly Net Zero 2050 scenario used to set our Oil & Gas and Power portfolio targets, we did not select it to set our Automotive portfolio target because it focuses on the Transport sector as a whole and does not provide an automotive-specific transition pathway from which we can measure our portfolio's performance. The IEA NZE 2050 scenario, by contrast, not only provides an automotive-specific pathway, but also provides additional granularity to support target setting for passenger cars and light-duty trucks.

The IEA NZE 2050 scenario, however, does not provide an automotive-specific pathway limited to manufacturers' new vehicle sales. Rather, the scenario outlines a sectoral transition pathway that aggregates

manufacturers' new vehicle sales with manufacturers' legacy stock still in circulation. Despite the discrepancy with the scenario, we focused our target on the emissions intensity associated with manufacturers' new vehicle sales only. By limiting our target to new vehicle sales, we can focus attention and financing activities as manufacturers evolve their production and sales to reflect the anticipated growth in the electric vehicle market and avoid penalizing them for existing vehicle stock for which vehicle retirement is beyond their control.

The IEA NZE 2050 scenario assumes a rapid shift from internal combustion engine vehicles to electric vehicles. Under the scenario, a majority of total passenger car and light-duty truck sales globally are electric vehicles by 2030 and almost all sales in those same categories are electric vehicles by 2050. To align with the IEA NZE 2050 pathway, we set a 2030 target for passenger cars and light-duty trucks of 103 g CO₂e/vkm, a 53% reduction from a 2021 baseline of 220 g CO₂e/vkm. Our ability to achieve this target is largely dependent on our clients achieving the emissions goals and targets they have set. We plan to advise and finance clients as they strive to meet their goals and targets.

Steel

3.1 Overview

Target overview. The 2030 target for our Steel portfolio is an emissions intensity target covering carbon dioxide (CO₂) emissions from steel manufacturing. To set the target, we relied upon the IEA NZE 2050 scenario, which establishes a 2030 benchmark of 1.09 t CO₂/ t steel. The 2021 baseline emissions intensity of the clients comprising our Steel portfolio is currently below the IEA NZE 2050 scenario benchmark due to our portfolio's skew toward secondary steel production.¹⁵ We therefore set a target below the scenario benchmark and equal to the 2021 baseline.¹⁶ We anticipate the emissions intensity of our Steel portfolio will push further below the benchmark and the 2021 baseline as our clients deliver on their stated climate goals and potentially

commit to new emissions-based targets. Consistent with our climate ambition and net-zero goal, we plan to continue to work with our clients to support their efforts to meet their respective commitments. Additionally, we plan to measure and report our progress against the lower 2021 baseline emissions intensity as well as the scenario benchmark.

The following two figures outline our 2030 Steel portfolio target and the key design choices underpinning it. Offsets, including those procured by our clients, are excluded from this target but may be considered in future targets. As noted in [CO₂eMission](#), offsets may be needed to address unavoidable emissions in certain sectors over specific time horizons consistent with climate scenarios.

2030 Steel Portfolio Target

Baseline emissions intensity as of 12/31/2021	2030 Target
1.01 t CO ₂ / t steel	1.01 t CO ₂ / t steel

15. As explained in the Sector overview, secondary steel production has a lower emissions intensity than primary steel production.

16. Before setting our target, we considered several different target-setting approaches. See Section 3.4, Climate scenario and target, for additional discussion on this point.

Key Design Choices	
Activities	<ul style="list-style-type: none"> • Steel manufacturing
Emission Scopes	<ul style="list-style-type: none"> • Scopes 1 and 2
Metric	<ul style="list-style-type: none"> • Emissions intensity (metric tons of CO₂/metric ton of steel) • Target focuses on CO₂ emissions and does not include CO₂ equivalents because the emissions of greenhouse gases other than CO₂ are negligible, and the emissions factors used by Global Efficiency Intelligence and IEA reference CO₂ and not CO₂ equivalents.
Financing Activities	<ul style="list-style-type: none"> • Corporate lending commitments (drawn plus undrawn amounts) • Capital markets facilitation: 100% of pro-rata share of notional using a five-year, straight-line amortization approach
Attribution Approach	<ul style="list-style-type: none"> • Portfolio-weighted approach (measures Wells Fargo financing to the client relative to the total Wells Fargo financing to the sector)
Key External Data Sources	<ul style="list-style-type: none"> • Global Energy Monitor • Global Efficiency Intelligence • International Energy Agency Iron & Steel Technology Roadmap
Scenario	<ul style="list-style-type: none"> • International Energy Agency Net-Zero Emissions by 2050 (October 2021)

Sector overview. In 2020, steel production accounted for approximately 7% of global greenhouse gas emissions.¹⁷ Addressing these emissions is important because the global demand for steel is expected to increase through 2050 as the world continues to rely on steel to construct buildings and bridges, produce new

vehicles, and expand railroad tracks, all of which are integral to the transition to a low-carbon future.¹⁸

The amount of CO₂ emitted and the energy consumed during the steel manufacturing process varies based on the production pathway followed (primary versus secondary) and the

technology used (blast furnace-basic oxygen furnace versus electric arc furnace). Primary steel production refers to operations where the main metallic input is iron ore¹⁹ and the iron ore is converted to steel using either blast furnace-basic oxygen furnace technology or direct reduced iron-electric arc furnace technology.²⁰

17. "Making Net-Zero Steel Possible," p.27, Mission Possible Partnership, September 2022, <https://missionpossiblepartnership.org/wp-content/uploads/2022/09/Making-Net-Zero-Steel-possible.pdf>, accessed December 13, 2022.

18. See "Iron and Steel Technology Roadmap," p.11, IEA, October 2020, https://iea.blob.core.windows.net/assets/eb0c8ec1-3665-4959-97d0-187ceca189a8/Iron_and_Steel_Technology_Roadmap.pdf, accessed September 1, 2022.

19. *Id.* at p.25.

20. Scrap metal is also an input to primary steelmaking and can help reduce the emissions intensity of production.

Primary steel production using blast furnace-basic oxygen furnace technology accounts for most of the world's steel production²¹ and is largely fueled by coal, the predominant energy source that can generate the high temperatures needed to melt the iron ore.

Secondary steel production refers to operations where the main metallic input is scrap metal and the scrap metal is converted to steel using electric arc furnace technology. This technology can use electricity procured or produced on site to melt scrap metal. The flexibility of electricity, which can be generated from low- and zero-carbon resources, enables a metric ton of steel to be produced in an electric arc furnace at a lower emissions intensity than a metric ton of steel produced in a blast furnace-basic oxygen furnace fueled by coal without carbon capture.

Because secondary steelmaking has a lower emissions intensity and uses less energy than primary steelmaking, increasing the share of secondary steelmaking can be a key

decarbonization lever for the Steel sector. The success of this shift, however, depends upon a sufficient supply of scrap metal, which is limited by the rate steel products reach the end of their life and whether they are being properly recycled and varies globally by region.²²

In addition to increasing the share of secondary steelmaking, other decarbonization levers for the Steel sector include improving the efficiency of the blast furnace-basic oxygen furnace technology, for example, by maximizing the iron content in raw materials to reduce the amount of coal needed to reduce the iron ore²³ and capturing and storing CO₂ by retrofitting blast furnace-basic oxygen furnace infrastructure with carbon capture and storage technologies. The Steel sector will also benefit from scaling and deploying new technologies, such as molten oxide electrolysis, that consume less energy and can be powered by hydrogen, which can be developed using different methods, including low- and zero-emissions forms.

21. "Iron and Steel Technology Roadmap," p.29, IEA, October 2020, https://iea.blob.core.windows.net/assets/eb0c8ec1-3665-4959-97d0-187ceca189a8/Iron_and_Steel_Technology_Roadmap.pdf, accessed September 1, 2022.

22. *Id.* at p.28.

23. *Id.* at p.77.

3.2 Activities and emissions in scope

We focused our target on the manufacturing segment of the Steel value chain because this segment captures the majority of the Sector's emissions²⁴ and is the primary driver of the sector's decarbonization.²⁵ We identify steel manufacturers in our portfolio by mapping the sector-specific NAICS codes to the manufacturing segment of the Steel value chain. (For a list of NAICS codes in scope, see Section 6, Appendix - NAICS codes in scope.)

Our target includes steel manufacturers' Scope 1 and Scope 2 CO₂ emissions. Recent studies show non-CO₂ greenhouse gas emissions from steel production have a comparatively incidental climate impact when

converted into CO₂ equivalents;²⁶ we therefore excluded these emissions from our target boundary. The CO₂ emissions within the target boundary include the emissions from burning coal to fuel the energy-intensive process of transforming iron ore into steel; the emissions associated with preparing the metallic input, such as sintering and pelletizing the iron ore and coking of metallurgical coal; and the emissions from producing direct reduced iron. Our target also covers the CO₂ emissions from the on-site generation of electricity from blast furnace gases²⁷ and from the off-site generation of energy purchased by our in-scope clients. By including these Scope 1 and Scope 2 emissions, the target covers the majority of emissions from both primary and secondary steel production activities.²⁸

24. "Iron and Steel Technology Roadmap," IEA, October 2020, https://iea.blob.core.windows.net/assets/eb0c8ec1-3665-4959-97d0-187ceca189a8/Iron_and_Steel_Technology_Roadmap.pdf, accessed September 1, 2022; Net-Zero Steel Sector Transition Strategy, Mission Possible Partnership, October 2021, https://www.energy-transitions.org/wp-content/uploads/2021/12/MPP-Steel_Transition-Strategy.pdf, accessed January 8, 2023..

25. See "PACTA for Banks Methodology Document," version 1.1.0, at p.23, Paris Agreement Capital Transition Assessment and Investing Initiative, September 18, 2020, <https://www.transitionmonitor.com/wp-content/uploads/2020/09/PACTA-for-Banks-Methodology-Document.pdf>, accessed November 9, 2022.

26. "Carbon Performance Assessment of Steel Makers: Note on Methodology," p.12, Transition Pathway Initiative, S. Dietz, D. Gardiner, and A. Scheer, Updated Version, January 2021, <https://www.transitionpathwayinitiative.org/publications/77.pdf?type=Publication&adlt=strict>, accessed January 8, 2023.

27. Blast furnace gas is gas produced when iron ore is reduced to molten iron in the blast furnace. The gas, often enriched with natural gas or coke oven gas, can then be used in steel plants to generate electricity.

28. "Iron and Steel Technology Roadmap," IEA, October 2020, https://iea.blob.core.windows.net/assets/eb0c8ec1-3665-4959-97d0-187ceca189a8/Iron_and_Steel_Technology_Roadmap.pdf, accessed September 1, 2022.

3.3 Metrics and data

We use an emissions intensity metric to measure our portfolio's performance and apply a portfolio-weighted attribution approach to calculate a portfolio-level emissions intensity as we have for all sectors (Power, Automotive, Aviation) for which we selected an emissions intensity metric. Decarbonizing the Steel sector will require significant investment;²⁹ linking emissions to production in an intensity metric enables tracking of the sector's low-carbon transition and permits comparisons to be made across manufacturers of different sizes. The following figure illustrates our calculation approach.

Calculation Approach: Steel Portfolio Emissions Intensity



We compute our portfolio-weighted emissions intensity by multiplying a client's Scope 1 and Scope 2 emissions intensity by a portfolio weight and then summing these individual weighted intensities. To calculate a client's emissions intensity, we divide the client's Scope 1 and Scope 2 CO₂ emissions by the amount of crude steel produced for the year (metric tons of CO₂ divided by metric tons of steel produced). To calculate the portfolio weight, we divide the financing we provide to the client by our total financing to the sector. Consistent with the approach used in our other sector methodologies, our Steel methodology includes the financing we provide clients through lending activities and the financing we facilitate through debt and equity capital markets.

To calculate a client's Scope 1 and 2 emissions, we rely upon asset-level production data (i.e., production data from steel manufacturing plants) collated by a third-party data provider (Global Energy Monitor) and apply appropriate emissions factors derived from the IEA and Global Efficiency Intelligence. The emissions factor we apply is based on the technology type used and the location of the respective manufacturing plant.

29. "Net-Zero Steel Sector Transition Strategy," p.32, Mission Possible Partnership, October 2021, <https://missionpossiblepartnership.org/wp-content/uploads/2021/10/MPP-Steel-Transition-Strategy-2021.pdf>, accessed January 27, 2023.



We decided to use asset-level production data over company-reported data because it provides more granular insight into each manufacturing plant's production processes. In making this decision, we recognized that we would need to estimate our clients' electricity consumption and would not be able to track specific client efforts to procure cleaner electricity. We concluded, however, that the ability to capture reductions in a company's emissions intensity due to changes in production assets, including a shift from blast furnaces to electric arc furnaces, outweighed this limitation.

3.4 Climate scenario and target

We selected the IEA NZE 2050 scenario for our Steel target for the same reasons we selected it for our Automotive target (see Section 2.4, Climate scenario and target, for the rationale for our selection). Though we considered the Network for Greening the Financial System (NGFS) Orderly Net Zero 2050 scenario, we did not select it because it does not provide the level of granularity needed.

As published in October 2021, the IEA NZE 2050 scenario assumes the global CO₂ emissions from steel manufacturing decrease during the 2020's due to material and energy efficiency measures, an increase

in production from scrap-based electric arc furnace and direct reduced iron-electric arc furnace technologies, and a shift from coal to electricity as the primary energy source.³⁰ After 2030, most of the improvements in emissions intensity result from technologies that are in the developmental stage, such as iron ore electrolysis and hydrogen-based direct reduced iron, and technologies that rely upon carbon capture utilization and storage technologies.³¹

We note that the IEA NZE 2050 scenario benchmark only accounts for Scope 1 emissions while our Steel methodology includes both Scope 1 and Scope 2 emissions. To augment the scenario to include Scope 2 emissions, we relied upon energy demand data from the IEA NZE by 2050 scenario to estimate Scope 2 emissions. Specifically, we used the energy demand data to estimate the amount of energy demand (in exajoules) attributed to electricity in the Steel sector and then multiplied the demand by the IEA NZE 2050 CO₂ intensity for electricity generation to convert the demand to emissions. Adding Scope 2 emissions to the IEA NZE 2050 scenario increases the 2021 scenario baseline emissions intensity by 23% from 1.27 to 1.56 t CO₂/t steel and increases the scenario 2030 benchmark emissions intensity by 18% from .92 to 1.09 t CO₂/t steel.

30. "Net Zero by 2050: A Roadmap for the Global Energy Sector," pp.122, 126, IEA, October 2021.

31. *Id.* at 127.

Our Steel portfolio's 2021 baseline emissions intensity currently outperforms the 1.09 t CO₂/t steel scenario benchmark largely due to our higher exposure to secondary steelmaking from our predominantly U.S.-based business activities.³² Accordingly, we set a target equal to the 2021 baseline (1.01 t CO₂/t steel) rather than the scenario benchmark. We expect the emissions intensity of our Steel portfolio will decrease below the 2021 baseline consistent with our current clients' public commitments to reduce absolute emissions or emissions intensity by 2030. We intend to engage with our clients to understand how we can best support their efforts to realize any commitments they may have set and accelerate their transitions to a low-carbon future. Additionally, we plan to measure our progress not only against the scenario benchmark (1.09 t CO₂/t steel) but also against the lower 2021 portfolio baseline (1.01 t CO₂/t steel).

Before selecting the IEA NZE 2050 scenario benchmark to inform our target, we considered other target-setting approaches. For instance, we looked at setting two targets, one for primary steel production exposure and one for secondary steel production exposure, and tracking progress against two different benchmarks. We also considered setting a target based on a defined convergence path to net zero by 2050. Wells Fargo's low 2021 baseline portfolio emissions intensity introduced complications and biases to all the evaluated options. We ultimately decided that our approach in CO₂eMission — to set a single 2030 target in line with a credible, science-based climate scenario and track continued progress beneath the benchmark — was the best approach at this time. We plan to continue to evaluate our approach and review our target as stakeholder guidelines emerge, other approaches evolve, and new scenarios are produced.

32. Steelmaking emissions intensities vary by regions around the world. Countries in Asia, such as India and China, have a higher steelmaking emissions intensity than countries in North America, such as the U.S. and Canada. The reasons for the differences include the share of secondary steel produced with electric arc furnace technology versus primary steel produced with blast furnace-basic oxygen furnace technology, the type of fuels used in the blast furnace production process, and the fuel mix for power generation, among other factors. Consequently, the emissions intensity of a portfolio concentrated in the U.S., like Wells Fargo's, may be lower than the global average while the emissions intensity of a portfolio concentrated in China may be higher.

Aviation

4.1 Overview

Target overview. Decarbonizing the Aviation sector is difficult because it requires a fuel with a high energy density capable of reliably powering an aircraft for hundreds or even thousands of miles at high speed carrying the weight of passengers, cargo, and fuel, as well as the aircraft itself. To reduce its greenhouse gas emissions intensity, the Aviation sector is relying upon a combination of operational and fuel efficiency improvements, new aircraft technology, and alternative aviation fuels (“sustainable aviation fuels”). Of these strategies, climate scenarios rely heavily upon widespread adoption of sustainable aviation fuels to bring the sector into alignment

with net-zero pathways. We believe the development and deployment at scale of sustainable aviation fuels is meaningfully behind the pace needed to align our Aviation portfolio with a net-zero emissions pathway.³³ For this reason, we departed, in part, from our approach for other sectors and set a target that is not based on a climate scenario aligned to net zero by 2050. Rather, our target — to reduce by 20% the emissions intensity of our Aviation portfolio by 2030 — is based on improvements we believe our clients can achieve through operational and fuel efficiency improvements. To develop this target, we looked to the International Civil Aviation Organization’s (ICAO) current goal of achieving a minimum 2% fuel efficiency improvement annually.³⁴

33. For examples of the market-development interventions necessary to scale sustainable aviation fuel, see the roadmap outlined by U.S. government agencies to address barriers to realizing 2030 sustainable aviation fuel goals. The actions outlined in this “grand challenge,” however, roll up to a targeted volume and specification of sustainable aviation fuel production that remains well below the 2030 benchmarks derived from net-zero climate scenarios. See “SAF Grand Challenge Roadmap: Flight Plan for Sustainable Aviation Fuel,” at p.8, U.S. Department of Energy, U.S. Department of Transportation, and U.S. Department of Agriculture in collaboration with the U.S. Environmental Protection Agency; <https://www.energy.gov/sites/default/files/2022-09/beto-saf-gc-roadmap-report-sept-2022.pdf>, accessed January 9, 2023.

34. The International Civil Aviation Organization is a specialized aviation agency sitting under the United Nations. It plays a fundamental role addressing aviation sector emissions through its Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). See Resolution A40-18, https://www.icao.int/environmental-protection/Documents/Assembly/Resolution_A40-18_Climate_Change.pdf, describing 2% fuel efficiency improvement goals.

We are setting this target to support our clients as they seek to reduce emissions from their operations. We plan to regularly monitor market development for sustainable aviation fuels as well as climate scenarios and decarbonization pathways to inform the evolution of our target, including potentially expanding it to align with a net-zero benchmark.

We recognize that offsets are an important measure for airlines to reach net-zero emissions by 2050 and can play a targeted, complementary role to the sector’s decarbonization (see our discussion of offsets in Section 2 of [CO2eMission](#)). We decided, however, not to include offsets (including client-procured offsets) in this target because of the significant role they would play in bridging projected shortfalls in sustainable aviation fuels. More specifically, we felt that the gap between industry measures to reduce emissions intensity and net-zero benchmarks in this instance is so large that rather than look to remediation through offsets from other parts

Our target is based on emissions reductions we believe our clients can achieve through operational and fuel efficiency improvements.

of the economy, concerted attention was better focused on catalyzing the market for sustainable aviation fuels and the transformation of the sector. We therefore did not set a net-zero target that includes offsets but instead set a narrower target that excludes them.

The following two figures outline our Aviation portfolio target and the key methodological design choices underpinning it.

2030 Aviation Portfolio Target

Baseline emissions intensity as of 12/31/2019	2030 Target
969 g CO2e/RTK	775 g CO2e/RTK 20% reduction from 2019 baseline

Key Design Choices	
Activities	<ul style="list-style-type: none"> • Passenger and cargo airlines' transport activities
Emission Scopes	<ul style="list-style-type: none"> • Scope 1 (tank-to-wake) emissions
Metric	<ul style="list-style-type: none"> • Emissions intensity (grams of carbon dioxide equivalents per revenue ton-kilometer or g CO₂e/RTK)
Financing Activities	<ul style="list-style-type: none"> • Corporate lending commitments (drawn plus undrawn amounts) • Capital markets facilitation: 100% of pro-rata share of notional using a five-year, straight-line amortization approach
Attribution Approach	<ul style="list-style-type: none"> • Portfolio-weighted approach (measures Wells Fargo financing to the client relative to the total Wells Fargo financing to the sector)
Key External Data Sources	<ul style="list-style-type: none"> • Client-produced company sustainability reports
Scenario	<ul style="list-style-type: none"> • We considered but did not use the International Energy Agency Net-Zero Emissions by 2050 (October 2021) scenario benchmark (as augmented by the Transition Pathway Initiative 1.5° scenario). • Instead, we set a target that aligns with the fuel efficiency goals set by ICAO through its Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) for 2021-2050.

Sector overview. Reaching net zero emissions is particularly challenging for the Aviation sector given the lack of scalable and commercially viable low- and zero-carbon technologies, the length of time required to develop,

test, and implement new technologies, and the projected growth in passenger demand. Though the COVID-19 pandemic resulted in a steep decline in air travel, according to an IEA report, passenger numbers are expected

to return to pre-pandemic levels in 2023 and could continue to grow over the next decades in the absence of behavioral changes.³⁵ This growth could materially increase the Aviation sector's greenhouse gas emissions by 2050.³⁶

35. "Aviation," IEA, Paris, September 2022, <https://www.iea.org/reports/aviation?adlt=strict>, accessed January 19, 2023. We note that IEA NZE 2050 scenario assumes that modal shifts and changes in consumer behavior will limit growth in passenger demand. See "Net Zero by 2050: A Roadmap for the Global Energy Sector," p.84, IEA, October 2021 ("Demand [for passenger aviation] would grow more than threefold globally between 2020 and 2050 in the absence of assumed changes in the NZE [Net-Zero Emissions by 2050 scenario].")

36. See "Clean Skies for Tomorrow: Sustainable Aviation Fuels as a Pathway to Net-Zero Aviation," at p.5, World Economic Forum in collaboration with McKinsey & Company, November 2020, <https://www.weforum.org/reports/clean-skies-for-tomorrow-sustainable-aviation-fuels-as-a-pathway-to-net-zero-aviation?adlt=strict>, accessed September 19, 2022 ("According to the European Commission, by the middle of the 21st century demand for flying could increase aviation's GHG [greenhouse gas] emissions by more than 300% over 2005 levels").

Climate scenarios and studies analyzing pathways to decarbonize the Aviation sector identify sustainable aviation fuels as a critical decarbonization lever. Sustainable aviation fuels are fuels, such as biofuels and synthetic jet kerosene, that can be produced from a variety of sustainable resources or feedstocks (including wastes and residues) and used without needing to make disruptive changes to the aircraft or fueling infrastructure.³⁷ When burned sustainable aviation fuel creates analogous amounts of CO₂ emissions as fossil-based jet fuel; however, its production process absorbs CO₂,³⁸ thereby reducing CO₂ emissions on a full lifecycle basis.

Though promising, widespread adoption of sustainable aviation fuels is not likely to occur until production ramps up and costs decrease. Scaling up sustainable aviation fuel production

faces numerous barriers, such as those related to collecting feedstocks in sufficient quantities and scaling early-stage technologies for certain production pathways.³⁹ As a result, market costs for sustainable aviation fuels at scale are predicted to remain higher than fossil-based jet fuel for the foreseeable future,⁴⁰ making widespread adoption of sustainable aviation fuels before 2030 less likely. Even with existing public policy intervention — from measures to catalyze the market for sustainable aviation fuel such as the tax credits and grants included in the U.S. Inflation Reduction Act to programs that price the emissions impact of kerosene use such as the European Union's Emissions Trading Scheme — sustainable aviation fuels are still far from approaching price parity with conventional jet fuel at the volumes necessary to meet net-zero expectations.⁴¹

37. Today's "drop in" sustainable aviation fuels can be blended with fossil-based jet fuel at rates up to 50% and make use of current aircraft engines and airport fueling infrastructure.

38. Emissions reductions relative to kerosene vary depending on the feedstock and technology used to produce sustainable aviation fuel.

39. "Clean Skies for Tomorrow: Sustainable Aviation Fuels as a Pathway to Net-Zero Aviation," at p.29, World Economic Forum in collaboration with McKinsey & Company, November 2020, <https://www.weforum.org/reports/clean-skies-for-tomorrow-sustainable-aviation-fuels-as-a-pathway-to-net-zero-aviation?adlt=strict>, accessed September 19, 2022.

40. See "Sustainable Aviation Fuels: The Key to Decarbonizing Aviation," pp.6-8, Rhodium Group, December 7, 2022, https://rhg.com/wp-content/uploads/2022/12/Sustainable-Aviation-Fuels_Decarbonizing-Aviation.pdf, accessed January 11, 2023.

41. *Id.* at pp.8-10.

In addition to sustainable aviation fuels, climate scenarios and studies also identify new aircraft technologies, such as electric aircraft, as key decarbonization levers for the Aviation sector. These technologies may be specifically suited for certain applications; for example, electric aircraft would likely be smaller and limited to short-haul, domestic travel due to the low energy density of batteries compared to fossil fuels. Though they have the promise of emitting far less CO₂ than conventional jet-fueled aircraft, new aircraft technologies are still in the experimental stage and their deployment at scale remains subject to factors beyond the control of a financial institution or an airline, including development of

manufacturing capabilities, testing and regulatory approval processes to ensure safety standards are met, among other factors. Consequently, specifying an adoption horizon for these technologies remains highly speculative.⁴²

While these new aircraft technologies develop, airlines are procuring sustainable aviation fuel to partially power their flights and setting procurement targets. The success of sustainable aviation fuel as a decarbonization lever, however, requires work beyond the airlines' control, including investments to increase production capacity and policies that support its commercial viability. (See insert **Scaling the Market for Sustainable Aviation Fuel.**)

Scaling the Market for Sustainable Aviation Fuel. Accelerating the market for sustainable aviation fuels will require a collaborative effort from both public and private sectors. For example, government policies setting low-carbon fuel standards and fuel blending mandates may catalyze increased sustainable aviation fuel consumption. Additional government policies designed to incentivize development and adoption of sustainable aviation fuel are key to spurring growth and raising production levels to achieve economies of scale. Moreover, private sector investment is needed to build commercial-scale production facilities as well as to support innovative production processes from sustainable feedstocks. Though airlines today have started to set sustainable aviation fuel procurement targets to demonstrate the potential of these fuels and begin to voluntarily reduce their emissions, their consumption remains modest and is constrained by supply limitations and considerable price premiums to kerosene. Policy support and investment have an important role to play in building a viable scaled market for sustainable aviation fuels. Financial institutions, like Wells Fargo, can support market development for sustainable aviation fuels by investing in projects that accelerate their deployment and partnering with clients to support them in scaling their procurement of these fuels.

42. See "Clean Skies for Tomorrow: Sustainable Aviation Fuels as a Pathway to Net-Zero Aviation," at p.6, World Economic Forum in collaboration with McKinsey & Company, November 2020, <https://www.weforum.org/reports/clean-skies-for-tomorrow-sustainable-aviation-fuels-as-a-pathway-to-net-zero-aviation?adlt=strict>, accessed September 19, 2022.

For now, the primary decarbonization lever within the airlines' control is to continue making operational and fuel efficiency improvements, for example, by enhancing air traffic management during landing and takeoff and enhancing engines and airframes. Due to continuous engine and airframe improvements, the latest generation of aircraft is significantly more fuel efficient than the models they are replacing.⁴³ To benefit from the new, more fuel-efficient models, airlines will need to increase retirements of older models.

4.2 Activities and emissions in scope

The activities within the scope of our target include passenger and cargo airline companies' transport activities. Specifically, we cover passenger airlines' flights dedicated to transporting passengers, including freight carried on these dedicated passenger flights, passenger airlines' flights dedicated to transporting freight, and cargo airlines' flights.⁴⁴ We focus on these activities because the most material

source of emissions along the Aviation value chain is from the combustion of jet fuel during flights. We identify the passenger and cargo airline companies in our financial portfolios by mapping sector-specific NAICS codes to the airline segment of the Aviation value chain. (For a list of NAICS codes in scope, see Section 6, Appendix - NAICS codes in scope.)

With respect to the emissions from these activities, the target covers the greenhouse gas emissions resulting from jet fuel combustion. These Scope 1 "tank-to-wake" emissions represent the majority of the Sector's emissions.⁴⁵ We recognize the Aviation sector's climate impacts extend beyond its greenhouse gas emissions and include aircraft aerosols that combine at high altitudes to create contrails that contribute to climate change.⁴⁶ Though our Aviation methodology currently does not account for these impacts, we plan to monitor developments in this area for future enhancements to our methodology.

43. "Aviation," IEA, Paris, September 2022, <https://www.iea.org/reports/aviation?adlt=strict>, accessed January 19, 2023.

44. We do not include companies that transport goods using multiple modes of transportation (e.g., road and air transport) because of data and methodological limitations.

45. "Carbon Performance Assessment of Airlines: Note on Methodology," at p.12, Transition Pathway Initiative, November 2021, <https://www.transitionpathwayinitiative.org/publications/101.pdf?type=Publication&adlt=strict>, accessed September 6, 2022.

46. "The Contribution of Global Aviation to Anthropogenic Climate Forcing for 2000 to 2018," Atmospheric Environment, volume 244, January 2021, <https://www.sciencedirect.com/science/article/pii/S1352231020305689>, accessed January 17, 2023.

The target does not include emissions associated with electricity the airlines purchase (Scope 2) because these emissions comprise a very small percentage of value chain emissions.⁴⁷ At this time, the target also does not include the emissions generated from producing and distributing fuel to the airlines (Scope 3, category 3 (fuel- and energy-related activities not included in Scope 1 or Scope 2)). For fossil-based jet fuel, these emissions result from drilling wells and extracting oil and gas deposits, transporting oil and gas, and refining crude oil and natural gas into jet fuel. We addressed these emissions in our Oil & Gas methodology. See Section 3.2 in [CO2eMission](#) for additional information about activities and emissions in scope for our Oil & Gas target.

For sustainable aviation fuels, the production process is key to the improvements in emissions intensity resulting from their use. In the future, we may explore adjusting our methodology to account for the

production of sustainable aviation fuels our clients use to the extent not captured in our underlying emissions data sources. Although production volumes are immaterial today, sustainable aviation fuels will be a critical lever for future emissions intensity improvements; we believe transparent accounting and supporting clients that are driving demand for sustainable aviation fuels with their own procurement targets will be important to encourage their industry-wide adoption.

4.3 Metrics and data

To calculate our 2019 baseline and measure our Aviation portfolio's progress, we use a portfolio-weighted emissions intensity metric. An intensity metric allows us to compare the performance of companies of different sizes with different levels of air transport activity. In other words, an intensity metric helps gauge whether client passenger airlines' emissions are decreasing for the same level of activity.

47. "Carbon Performance Assessment of Airlines: Note on Methodology," at p.12, Transition Pathway Initiative, November 2021, <https://www.transitionpathwayinitiative.org/publications/101.pdf?type=Publication&adt=strict>, accessed February 1, 2023.

Calculation Approach: Aviation Portfolio Emissions Intensity

$$\begin{array}{c}
 \boxed{\text{Wells Fargo portfolio}} \\
 \boxed{\text{Scope 1 tank-to-wake}} \\
 \boxed{\text{emissions intensity}}
 \end{array}
 = \sum \left(\begin{array}{c} \boxed{\text{Client Scope 1 tank-to-wake}} \\ \boxed{\text{emissions intensity}} \end{array} \times \begin{array}{c} \boxed{\text{Portfolio weight}} \end{array} \right)$$

$$\begin{array}{c}
 \frac{\text{Scope 1 tank-to-wake emissions}^{\text{Client}}}{\text{Air transport activity}^{\text{Client}}} \\
 \frac{\text{Wells Fargo financing}^{\text{Client}}}{\text{Total in-scope portfolio}}
 \end{array}$$

As shown in the previous figure, we compute a portfolio-weighted emissions intensity by multiplying a client's Scope 1 tank-to-wake emissions intensity by a portfolio weight and then summing these individual weighted intensities. To calculate a client's emissions intensity, we divide the client's Scope 1 tank-to-wake emissions by its air transport activity for the year. To calculate the portfolio weight, we divide the financing we provide to the client by our total financing to the sector. Our methodology includes the financing we provide clients through lending activities and the financing we facilitate through debt and equity capital markets.

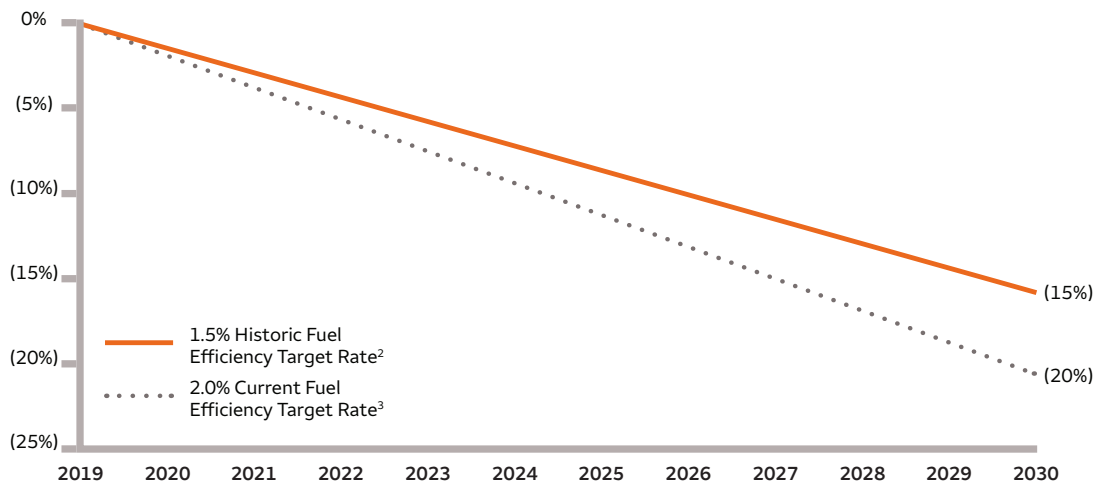
We rely upon client-produced company sustainability reports and other corporate reporting to provide the necessary data on our clients' greenhouse gas emissions as well as their passenger and freight transport activity. To measure passenger and freight transport activity, we use a revenue ton-kilometer (RTK) metric (where ton refers to metric ton). This metric measures the transport of one ton of revenue-generating activity over one kilometer and is computed by multiplying the number of revenue tons of freight and passengers carried by the distance flown.⁴⁸

48. Activity in revenue tons covers the weight in tons of paying passengers and revenue-generating freight and does not include the transport of nonpaying passengers (e.g., crew) and nonrevenue-generating freight.

4.4 Climate scenario and target

In setting our target, we considered but did not use the IEA NZE 2050 scenario benchmark (as augmented by the Transition Pathway Initiative 1.5° scenario⁴⁹), given its heavy reliance on sustainable aviation fuels as a key decarbonization lever to reach net zero. (See Section 4.1, Overview, for a discussion of barriers constraining the market development of sustainable aviation fuels at the scale necessary to meet net-zero expectations.) Instead, we set a target based on operational and fuel efficiency improvements that our clients can actively work toward and that are within their control. As shown in the following figure, airlines have historically improved and are committed to continuing improvements in fuel efficiency.

CORSIA¹ Fuel Efficiency Targets: Historic versus Current Ambitions



1. CORSIA is a framework for lowering the CO₂ emissions of international flights. Airlines that have pledged to improve fuel efficiency by 2% annually are in line with CORSIA recommendations.
2. 1.5% annual reduction based on CORSIA 2009-2020 target fuel efficiency. Source: International Air Transport Association.
3. 2% annual reduction based on CORSIA 2021-2050 target fuel efficiency. Source: ICAO

49. The IEA NZE 2050 scenario calculates the emissions intensity benchmark for airlines using “revenue-passenger kilometers,” a metric that includes passenger transport activity. To include freight in the metric, the Transition Pathway Initiative converted the IEA’s revenue-passenger kilometers to equivalent revenue ton-kilometers and used data from the ICAO to derive freight activity in revenue ton-kilometers. It then summed the passenger revenue ton-kilometers with the freight revenue ton-kilometers to establish an activity metric of equivalent revenue ton-kilometers.



Our target — to reduce the emissions intensity of our portfolio from a 2019 baseline⁵⁰ of 969g CO₂e/RTK to 775 g CO₂e/RTK by 2030 (20% reduction) — aligns with commitments the Aviation industry has largely agreed to via CORSIA.

We are mindful that a reduction in our portfolio's emissions intensity does not necessarily reflect a reduction in our clients' or that of the Aviation sector's absolute emissions. Moreover, given the projected growth in air travel, we recognize that any emissions reductions our clients achieve through operational and fuel efficiency improvements could be negated by an increase in flight activity globally.

Though our target is not derived from a net-zero climate scenario benchmark, we believe it is an appropriate interim goal until scaled sustainable aviation fuel production and new aircraft technologies mature. Moving forward, we plan to work with our clients to finance the renewal of their fleets as they seek to use more fuel-efficient aircraft and retire older models, facilitate their adoption of sustainable aviation fuels as production ramps up, and help devise financing solutions to enable our clients to reach their climate objectives. Additionally, we plan to actively monitor market development for sustainable aviation fuels and review our target with an end goal of aligning it to a net-zero scenario pathway.

50. We selected 2019 as the baseline year due to the impacts of the COVID-19 pandemic on the Aviation sector. As countries closed their borders and issued travel advisories, aviation activity decreased, resulting in an increase in airlines' emissions intensities and a decrease in their absolute emissions. We believe a 2019 baseline more accurately reflects airline emissions and activity than a 2020 or 2021 baseline year.

Abbreviations

Abbreviation	Definition
g	gram
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalents
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
EPA	Environmental Protection Agency
ICAO	International Civil Aviation Organization
IEA	International Energy Agency
IEA NZE 2050 scenario	International Energy Agency Net-Zero Emissions by 2050 scenario
kg	kilograms
Mt	million metric tons
MWh	megawatt-hour
NAICS	North American Industry Classification System
NGFS	Network for Greening the Financial System
PACTA	Paris Agreement Capital Transition Assessment
RTK	Revenue ton-kilometer (ton refers to metric ton)
t	metric ton
vkm	vehicle kilometer
Wells Fargo	“Wells Fargo,” “the Company,” “we,” “our,” or “us” means Wells Fargo & Company and Subsidiaries (consolidated)

Appendix - NAICS codes in scope⁵¹

Automotive Sector - NAICS Codes in Scope¹	Descriptor
336111	Automobile manufacturing
336112	Light truck and utility vehicle manufacturing
Steel Sector - NAICS Codes in Scope	Descriptor
331110	Iron and Steel Mills and Ferroalloy Manufacturing
Aviation Sector - NAICS Codes in Scope	Descriptor
481111	Scheduled Passenger Air Transportation
481112	Scheduled Freight Air Transportation
481211	Nonscheduled Chartered Passenger Air Transportation
481212	Nonscheduled Chartered Freight Air Transportation
481219	Other Nonscheduled Air Transportation

1. The two NAICS codes listed in the table for the Automotive sector reflect the NAICS Codes in effect at the time we identified clients within the scope of our Automotive target. These NAICS Codes were subsequently merged into one NAICS code — 336110, Automobile and light duty motor vehicle manufacturing. Going forward, we will rely on the new NAICS code (336110).

51. Wells Fargo may include a client that falls outside the NAICS codes listed if our review determines that the clients' activities align with the activities within the target's scope.

Forward-looking statements and disclaimers

The information provided in this supplement and the original CO2eMission publication (collectively, “document”) reflects Wells Fargo & Company’s (the “Company”) approach to the topics herein as of the date of this document and is subject to change in the Company’s sole discretion without notice. The Company does not undertake to update this document, or any other information contained in this document, to reflect changes or events that occur after that date. This information is not a guarantee of future results, occurrences, performance, or conditions.

This document contains forward-looking statements about our future financial performance and business, including discussion of the Company’s climate-related goals, targets, strategies, initiatives, policies, aspirations, or objectives, as well as the Company’s expectations, assumptions, or projections regarding achievement or implementation thereof. Because forward-looking statements are based on our current expectations

and assumptions regarding future results, events, or conditions, many of which are inherently uncertain and outside our control, they are subject to inherent risks and uncertainties. Do not unduly rely on forward-looking statements as actual results could differ materially from expectations. Forward-looking statements speak only as of the date made, and we do not undertake to update them to reflect changes or events that occur after that date. Factors that could cause actual results to differ materially from those described in this document include the necessity of technological advancements, the evolution of consumer behavior, the need for thoughtful climate policies, the potential impact of legal and regulatory obligations, and changes in management’s strategy for balancing our aspirational short-term targets with the need to facilitate an orderly and just transition that considers energy security, among other factors. For information about factors that could cause actual results to differ

materially from our expectations, refer to our reports filed with the Securities and Exchange Commission, including the discussion under “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2022, as filed with the Securities and Exchange Commission and available on its website at www.sec.gov.

While this document describes events, including potential future events, that may be generally significant in the context of our climate-related goals, targets, strategies, initiatives, policies, aspirations, or objectives, any such significance does not necessarily equate to the level of materiality of disclosures required under U.S. federal securities laws. Statements relating to the Company's climate-related goals, targets, strategies, initiatives, policies, aspirations, or objectives are aspirational and not guarantees or promises that they will be met or will continue to be pursued.

Climate-related disclosures as a whole and related expectations, assumptions, target-setting, and projections regarding the attainability, implementation, and effectiveness of the Company's approach are based on scenarios, assumptions, third-party data, and other material that we take

at face value and may be outside the control of the Company. This document and the data contained herein has not been verified or otherwise assured by an independent third party, nor does the Company itself independently verify third-party data or material. While information contained herein is gathered from sources believed to be reliable, the Company makes no representations or warranties as to the quality, completeness, accuracy, fitness for a particular purpose, or non-infringement of such information. In no event shall the Company be liable for any use by any party of, for any decision made or action taken by any party in reliance upon, or for any inaccuracies or errors in, or omissions from, the information contained herein.

Uncertainties and inaccuracies in any of these elements potentially have compounding effects on the accuracy of resulting emissions figures. While the Company set sector-specific targets to enable it to track the alignment of its financing activities to its net-zero goal, these targets, even if met, do not guarantee reductions of absolute greenhouse gas emissions in the real economy. The companies that emit the greenhouse gases ultimately control that outcome. Relatedly, given the indirect nature of financial institution

target setting and the challenges of drawing causality between bank financing and real economy emission outcomes, these targets should be interpreted as efforts in financial portfolio alignment and should not be construed as a commitment to achieve a particular outcome or a claim to realize a specific climate effect.

The emission data in this document may not be comparable to the emissions data disclosed by the Company's clients, or to the emissions data of other financial institutions, which may have different business models and lending practices and may use different assumptions, methodologies, and data sources. The emissions data included in this document was not prepared in accordance with, and not meant to comply with, any current, proposed, or future regulatory disclosure requirement.

In following the Greenhouse Gas Protocol, our methodology segments greenhouse gases into "Scopes" that, when aggregated across sectors or even within different value chains of a single sector, significantly overstate overall portfolio emissions due to the inherent overlap of emissions across

intra- and inter-sector scopes. While this document makes limited attempts to reduce and minimize the impact of overstatement within a given sector, no attempt is currently made to do so across sectors and it is important to analyze our sectoral disclosures independent of each other.

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