

Menhaden



Menhaden PLC
Reporting Impact 2020

Environmental Impact Statement

Foreword

This Impact Report comes at a unique and testing time for investors and firms across the economy. Society as a whole is reckoning with the need to address not just a global pandemic, but also the intersecting crises of a warming planet and widespread biodiversity loss. As we approach the UN's COP26 conference in November 2021, there has never been a more important time for investors to prioritise sustainability returns alongside financial ones.

That is why, at Menhaden Capital Management LLP (Menhaden), our main objective is to generate long-term profits for our shareholders by investing in high-quality businesses that have a positive impact on society and our natural environment. In particular, as highlighted in this report, the theme of resource and energy efficiency underpins our approach. An analysis of whether investees and potential investees are embedding energy efficiency into their business models, reducing reliance on natural resources and promoting reuse is at the heart of our investment process. We also consider our holdings' approach to environmental commitments and reporting.

We are proud to be making investments that contribute to the circular economy and the low-carbon transition, including new portfolio additions in innovative firms like ASML and LAM Research which are at the forefront of semiconductor manufacturing technology. Their contribution to more energy-efficient technology and devices is particularly timely in a year of increased and accelerated digitisation.

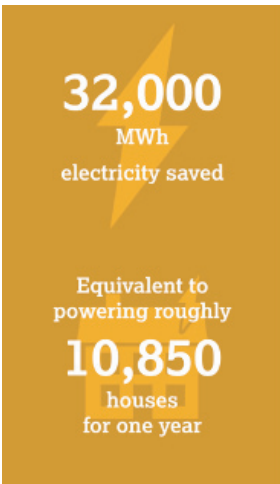
This Impact Statement shows Menhaden's holdings helped save 32,000 MWh of electricity in 2020, equivalent to powering roughly 10,850 houses for one year, and 30,000 tonnes of CO₂e emissions, equivalent to taking over 19,800 cars off the road.

This is an approach which has brought strong financial performance too. At our AGM in April 2020, we achieved a resounding vote in favour of continuation, a testament to our five-year track record of sustained and sustainable returns. Our portfolio has produced net investment performance of 9.6% annualised over the last 5 years, and 13.0% over the last year. Our share price has also now breached 100p.

Finally, in 2020, we were delighted to step up our active ownership activities. We engaged with several holdings in sectors from aviation to communications to encourage improved emissions disclosure, performance and target-setting. We look forward to continuing our dialogue with these companies into 2021 on how they can mitigate climate risks and reduce their carbon footprint in this all-important year for climate action. We encourage our investee companies to commit to the Net Zero Carbon Initiative.

Ben Goldsmith

Menhaden Capital Management LLP
Portfolio Manager



"By looking at environmental factors in its fundamental, research-oriented approach and by actively engaging with companies on climate risk, Menhaden is protecting value today and helping build the low carbon economy of tomorrow"

Environmental Impact Statement

continued

Our approach to impact

Our core mission, as a publicly-listed investment trust, is to generate long-term profits for shareholders by investing in opportunities that deliver, or benefit from, the efficient use of energy and resources.

Our hard-headed approach seeks to invest in those companies facilitating the transition to a more resource-efficient economy. Companies that help us do more with less, and protect our finite natural resources.

This includes investments such as X-ELIO, a global leader in renewable energy which currently has 25 solar plants in operation across 10 countries, and **Calisen Group** (formerly known as Calvin Capital), a provider of energy infrastructure that is playing a central role in helping the UK roll out smart metering across its energy network.

We see smart meters as crucial enablers of a more efficient future energy system. They empower end-users to manage their energy usage and are helping to unlock 'smart grid' predictive technology so energy companies can better build-in efficiency. Similarly, we invest in leading semiconductor firms (see case study below) that are supplying the tools to enable more efficiency in the way the world runs its devices, solar panels and data centres.

Driving efficiency in transportation

We take a similar future-focused approach to our analysis of the transport sector. We recognise that there will be continued demand for aviation, and therefore seek to support those companies facilitating the most low-carbon ways in which to meet that demand.

Our investee Airbus, for example, recently announced its ambition to develop the world's first zero-emission commercial aircraft by 2025 by exploring hydrogen propulsion, which they estimate has the potential to reduce the CO2 emissions of the aviation sector by up to 50%. The high energy density of hydrogen means it carries more energy per unit of weight than other fuels, such as kerosene, this innovation presents real energy-saving opportunities compared to electricity being stored in heavy batteries which produce less energy for their relative weight.

By investing in transport companies with best-in-class approaches to sustainability, we calculate that Menhaden's transport investments have helped save over 12,800 tCO2e of carbon emissions in 2020.

Powering sustainable digitisation with semiconductor technology

This year, remote working has increased our reliance on technology and accelerated the digitalisation of the global economy. This provokes an important question: How can we make the digital transition a sustainable one?

Remote data centres required to run our interconnected devices are thought to use more than 2% of the world's electricity and generate the same amount of carbon emissions as the global airline industry. One study suggested that if each person in the UK sent one fewer email a day it could cut carbon output by more than 16,000 tonnes a year. So improving the efficiency of the electronic devices at the heart of our ever more connected lives is therefore a crucial element of global attempts to reduce emissions.

Menhaden invests in three companies that are pre-eminent in the drive to increase energy efficiency using semiconductor chips. Semiconductors are used in the manufacturing of a wide range of devices from smartphones, to data centres to solar panels, to televisions and underpin artificial intelligence, 5G and connected internet technology.

Innovation in the semiconductor sector is already delivering reductions in the amount of energy needed to run these devices and process data. This has contributed to the trend known as Koomey's Law, that states that the energy efficiency of computers doubles roughly every 18 months.

ASML Corp is at the forefront of lithography printing for integrated circuits, **KLA Corp** is a leader in process control solutions for semiconductor manufacturing and **LAM Research Group** is a manufacturer of semiconductor chips that leverages advanced etching technology to make chips more energy efficient. These three new additions to our portfolio in 2020 are helping make the fundamental building blocks of digitisation and computing more efficient, and therefore greener too.

Active ownership: Leveraging our voice on climate

As a responsible steward of our shareholders' capital, Menhaden is committed to using its voice to influence more sustainable industry practices, both by engaging directly with companies in our portfolio and working in collaboration with other investors and initiatives.

In particular, we believe climate-change related risks, including a company's greenhouse gas emissions, will have an increasingly material effect on long-term profitability. Therefore, we are keen to see management teams proactively managing climate change risks like regulation, taxation, competitive advantage, brand impairment and physical asset impairment. In 2020, for the first time, the Company actively engaged with several holdings in our portfolio to help us understand their exposure to those risks, as well as try to influence more thorough climate risk management via disclosure and emissions reduction targets.

In 2020, Menhaden supported the Children's Investment Fund (TCI)'s 'Say on Climate' campaign, which filed resolutions at seven US-listed issuers: Moody's Corp, S&P Global, Union Pacific Railroad, Charter Communications, Alphabet, Canadian Pacific Railway and Canadian National. TCI outlined its expectation for companies to have a credible, publicly-disclosed plan to reduce greenhouse gas emissions, including science-based targets that align with the Paris Agreement. TCI also requested that its portfolio companies disclose their current greenhouse gas emissions in a manner consistent with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

Menhaden is an investor signatory to CDP, a public recognition of our commitment to engaging with companies on environmental issues and part of our efforts to promote industrial scale environmental disclosure aligned with the TCFD. Menhaden is also a member of the FAIRR investor network, which is helping promote greener practices in global animal agriculture, and has gained the London Stock Exchange Green Economy Mark.

Engaging Airbus on climate risks

In February 2020, Menhaden engaged with **Airbus** on its climate risk management, disclosure and target-setting. The Portfolio Manager recommended that Airbus upgrade their GHG emissions targets to measurable science-based targets that align with the Paris Agreement, disclose their Scope 3 emissions fully, make public its disclosure to CDP, engage in carbon offsetting to mitigate its footprint, and implement best practices for the sourcing and managing of energy across all its buildings.

These steps will help **Airbus** continue to play a leading role in establishing industry best practices and rapidly de-carbonize aviation given the industry estimates for air passenger traffic in the coming years.

Since our engagement started, **Airbus** has made its 2019 CDP disclosure public and followed the recommendation to define their emissions commitments against Science Based Targets methodology, in line with a pathway of well below 2°C. Airbus has committed to reassess these targets at least every five years to ensure it remains consistent with the most recent climate science.

SDG Impacts

The Menhaden Board and the Portfolio Manager support the UN Sustainable Development Goals (SDGs) and many of the Company's holdings contribute to the challenge of achieving them. The examples below offer a snapshot of how the Company's investments contribute to at least six SDGs:

About this report

All impact data in this report is based on the proportion that Menhaden holds of each entity as of 31 December 2020. Analysis refers to the Company's listed portfolio and the biggest private holding, X-ELIO. It is calculated on best estimates using publicly disclosed data and full details of our methodology can be found in the Impact Report Appendix.

Environmental Impact Statement

continued



Our global water crisis is an urgent one and increased water demand and rising temperatures could reduce water availability in cities by more than 66% in 2050. **Microsoft** has pledged to replenish water levels, by putting back more water into stressed basins than it consumes as a company. Freight train company **Canadian Pacific** has reported a decrease in water consumption by 59% since 2015, a significant contribution to reducing the water intensity of its transportation operations.



In 2020, Google, part of **Alphabet Inc**, announced its ambition to power its data centres with solely carbon-free electricity by 2030, building on its previous goal of matching its energy use with 100% renewable energy. **Waste Management Inc** turns waste at 124 of its active landfill sites into biogas which is then used as a renewable energy resource, creating economic and environmental value from waste. **X-Elio** has begun construction of its largest solar farm in Australia which, once complete, will generate 420 GWh of green energy every year.



Canadian National's network of 20,000 route miles of rail track is building long-haul freight infrastructure that is four times more fuel-efficient than trucks. **KLA Corp's** advanced semiconductor technologies are contributing to the Internet of Things megatrend that is expected to exceed \$500 billion by 2021, embedding connectivity into digital infrastructure to help achieve SDG 9.



Charter Communications, a connectivity company, coordinates recycling schemes for electronic equipment like batteries, network hardware and mobile equipment. To date, 77 million pounds of materials have been either responsibly recycled or sold through their Product Life Management initiative. **ASML** plans to cut its amount of waste relative to revenue by 50% by 2025 as part of their ambition to extract maximum value from the materials used and repurpose where possible.



Maritime services firm **Ocean Wilsons Holdings** is reducing its GHG emissions by using rubber-tyre gantry (RTG) electric cranes with lower environmental impact in container terminals. **Airbus** has announced an ambition to develop the world's first zero-emission commercial aircraft by 2035.



Waste Management Inc is working to reduce the quantity of plastics entering rivers, waterways and oceans by recycling materials with responsible end-markets and educating consumers on recycling best practices. **Alphabet** recently revealed Tidal, a team developing AI technologies to track and monitor marine life, with the aim of understanding the impact of fish farming on our oceans.

APPENDIX

Introduction

Menhaden Capital plc is a UK-listed investment company that seeks to generate long-term shareholder returns by investing in companies and opportunities, which deliver or benefit from, the efficient use of energy and resources.

Since 2017, Menhaden Capital's PR specialists, ESG Communications have been requested to produce an Environmental, Social, and Governance (ESG) Measurement Report, which details the environmental benefits of investing in the companies that Menhaden has in its portfolio.

To support this work, ESG Communications commissioned Avieco to quantify the environmental benefits of each of the publicly listed organisations included in Menhaden's portfolio. This is the fifth year Avieco are quantifying these benefits. The following report details the quantification of benefits for each company and documents the approach taken and key assumptions made.

Approach

Avieco reviewed each company in scope to calculate the electricity resource consumption and greenhouse gas (GHG) emissions avoided. All calculations have been based on publicly available information shared by the individual companies.

To arrive at an environment benefit calculation, Avieco followed one of the approaches listed below (in order of preference):

- 1. Product/services** – Resource savings and GHG emissions avoided due to the products and services the business offers (e.g. renewable energy)
- 2. Flagship product** – Resource savings and GHG emissions avoided from a flagship product (e.g. electric vehicles)

In cases where either:

- Insufficient information was publicly available to calculate the savings through the business' offerings or
- The products or services of the business did not have a specific environmental benefit, the following alternative approaches were applied:

3. Peer efficiency review – Resource savings and GHG emissions avoided in comparison to an industry peer (e.g. Airbus vs. Boeing)

4. Sector efficiency review – Resource savings and GHG emissions avoided based on efficiency gains across a sector/industry (e.g. maritime industry review)

5. Internal savings – Resource savings and GHG emissions avoided through internal, company-wide initiatives, helping the organisation to produce or deliver their products and services more efficiently

It is expected that the savings from product/services significantly outweigh the benefits of internal savings.

All environmental benefit figures have been calculated for the 2020 reporting year. Avieco followed the DEFRA Environmental Reporting Guidelines and the GHG reporting protocol to calculate the emissions saved. The most recent available GHG conversion factors were used to calculate the GHG emission savings: for international electricity generated the 2020 IEA grid average factors were applied and for all other resources the 2002 DEFRA carbon conversion factors were used, unless otherwise stated.


Note: this year water, waste and fuels savings were not calculated as instructed by ESG Communications. Only energy savings and carbon avoided emissions have been calculated for Menhaden's portfolio.


APPENDIX


continued

Menhaden share of avoided resource consumption and emissions production

The following table provides a breakdown of Menhaden's share of avoided resource consumption and emissions production for each organisation by theme. The share of benefits attributable to Menhaden is based on its % ownership (equity) in the company. Companies with private equity have not been included in this analysis.

Theme	Company	Ownership (%)	Electricity (kWh)	Carbon (tCO ₂ e)
Clean energy	X-Elio	4.30%	32,256,746	14,532
Sustainable transport	Airbus	0.007%		77
	Canadian National	0.009%		719
	Canadian Pacific	0.023%		12,016
	Union Pacific	0.001%		-
Resource and energy	Alphabet	0.002%		104
	ASML Holding	0.001%	0	0
	Calvin Capital			
	Charter Communications	0.021%		2
	KLA Corporation	0.002%		0
	LAM Research Corp	0.001%	29	0
	Microsoft Corp	0.0004%		13
	Ocean Wilsons Holdings	1.11%		(8)
	Safran	0.027%		(3)
Water and Waste	Waste Management Inc	0.005%	293,733	2,754
	Total		32,550,509	30,207

 = Indicator not applicable to theme

 = Energy savings and carbon avoided emissions for Calvin Capital could not be calculated as information was not publicly available. Calvin Capital is owned by the Calisen Group, however, the Group has not disclosed any GHG emissions this reporting year.

Calculation approach and assumptions

The following section details the calculations carried out, the approach taken, and the assumptions made for each company.

Clean Energy theme

X-Elio

Calculation: product/service

Annual clean energy generated and total GHG emissions avoided using renewable energy, rather than energy from a local grid.

Approach

X-Elio disclose total clean energy generated (MWh) and GHG emissions avoided (tonnes of CO₂e) for 2019.

Assumptions

Assumed 2019 generation figure is the most up to date and accurate figure for X-Elio's portfolio.

Sustainable Transport theme

Airbus

Calculation: peer comparison & internal savings

Annual fuel and GHG emissions avoided using Airbus compared to Boeing airplanes (peer comparison).

Approach

GHG emissions saved by using Airbus airplanes rather than Boeing airplanes flying for one year. These calculations have been based on all Airbus aircraft delivered in 2020.

Assumptions

- GHG emissions avoided calculations: Avieco took the difference in GHG emissions attributable to distance flown by Airbus aircraft and comparable Boeing aircraft (Avieco assumption).
- Flight distance: Weighted average annual distance flown in the US by aircraft of each type is a reasonable proxy for the average distance flown worldwide.
- Aircraft numbers: Delivered volume of aircraft for 2020.
- Comparable aircrafts: Avieco selected comparable aircrafts between Airbus and Boeing.

Note: Airbus carbon savings have decreased this year compared to last year due to the effect COVID-19 had on the airline industry. Airbus aircrafts flew less miles in 2020 and therefore the savings made were less compared to previous years.

Canadian National Railway

Calculation: flagship product

GHG emissions avoided by freighting goods by rail compared to by road in trucks.

Approach

Canadian National Railway discloses the avoided tonnes of GHG emissions by displacing the need to freight goods by truck. As the company does not disclose its total gross tonne-km, Avieco has used the company's own avoided emission calculations.

Assumptions

- Assumed all rail trips were for the freighting of goods – Canadian National Railway primarily specialises in the freighting of goods. The company runs a few passenger train services, but this is not a material part of the business.
- Assumed an average of medium and heavy-duty trucks as an alternative to rail transport.
- Used US Environmental Protection Agency data to estimate fuel savings and GHG emissions avoided, as Canadian-based figures were not available.

Canadian Pacific Railway

Calculation: flagship product

GHG emissions avoided by freighting goods by rail compared to by road in trucks.

Approach

Canadian Pacific Railway disclose the fuel efficiency of their locomotives and the total gross tonne-km (the movement of one tonne of goods over a kilometre) for 2019. Using these figures Avieco calculated GHG emissions associated with Canadian Pacific in 2019 and compared these figures to fuel use and GHG emissions associated with transporting the same weight of goods across the same distance by truck.

APPENDIX

continued

Assumptions

- Assumed all rail trips were for the freighting of goods - Canadian Pacific Railway primarily specialises in the freighting of goods. The company runs a few passenger train services, but this is not a material part of the business.
- Assumed an average of medium- and heavy-duty trucks as an alternative to rail transport.
- Used US Environmental Protection Agency data to estimate fuel savings and GHG emissions avoided, as Canadian-based figures were not available.

Union Pacific

Calculation: *flagship product*

GHG emissions avoided by freighting goods by rail compared to by road in trucks.

Approach

Union Pacific disclose the fuel efficiency of their locomotives and the total gross tonne-km (the movement of one tonne of goods over a kilometre) for 2019. Using these figures Avieco calculated GHG emissions associated with Union Pacific in 2019 and compared these figures to fuel use and GHG emissions associated with transporting the same weight of goods across the same distance by truck.

Assumptions

- Assumed all rail trips were for the freighting of goods – Union Pacific primarily specialises in the freighting of goods. The company runs a few passenger train services, but this is not a material part of the business.
- Assumed an average of medium- and heavy-duty trucks as an alternative to rail transport.
- Used US Environmental Protection Agency data to estimate fuel savings and GHG emissions avoided, as Canadian-based figures were not available.

Resources and Energy Theme

Alphabet

Calculation: *internal savings*

Procurement of renewable electricity and wider internal resource reduction initiatives

Approach

Avieco has calculated total GHG emissions avoided by taking into consideration the following data as reported by Alphabet in their 2020 Climate Change CDP Report:

- Total GHG emissions avoided from staff commuting in electric vehicles and shuttle buses.
- Total renewable electricity purchased.

Assumptions

- Assumed Google is a suitable proxy for Alphabet – Google is the only Alphabet subsidiary that appears to report on resource use and GHG emissions in detail (e.g. DeepMind and Waymo have limited information available in the public domain).

ASML Holding

Calculation: *internal savings*

GHG emission saved through company-wide initiatives.

Approach

ASML disclose data on GHG emissions in their 2019 annual report. Avieco compared Scope 1 and 2 GHG emissions for 2018 and 2019 by ASML Holding to calculate carbon savings. Energy savings were disclosed in the report as well.

Assumptions

Assumed the figures reported by ASML Holding are representative of the whole business.

Charter Communications (Spectrum)

Calculation: *internal savings*

GHG emission saved through company-wide initiatives.

Approach

Charter Communications (known as Spectrum in the public domain) disclose data on their annual Scope 1 and 2 GHG emissions. Avieco has included this data and calculated avoided GHG emissions by also accounting for waste diversion. Waste diversion figures are also reported on in their Corporate Citizenship Report.

Assumptions

Assumed the figures reported by Spectrum are representative of the whole business (i.e. Charter Communications).

KLA Corporation

Calculation: internal savings

GHG emission saved through company-wide initiatives.

Approach

KLA Corporation disclose in their 2018 annual report the amount of GHG carbon emissions saved during the year. The 2018 annual report was the most recent one and did not include any energy savings values.

Assumptions

Assumed the figures that KLA Corporation report on are representative of the whole business.

LAM Research

Calculation: internal savings

GHG emission saved through company-wide initiatives.

Approach

LAM Research disclose in their 2019 annual report the amount of energy saved during the year. Avoided GHG emissions for the year were achieved by carbon offsetting and associated values are disclosed in this year's report.

Assumptions

Assumed the LAM Research report figures are representative of the whole business.

Microsoft Corporation

Calculation: internal savings

GHG emission saved through company-wide initiatives.

Approach

Avoided GHG emissions were calculated by considering Microsoft's total renewable electricity consumption by region, as reported in their 2019 report. Associated avoided emissions were calculated by assuming electricity would have otherwise been procured from the national grid.

Assumptions

- Assumed that large majority of electricity consumption occurs in data centres. GHG emissions avoided calculations were based on grid emission factors of country/region where data centres are based (e.g. Singapore, Ireland, Dubai, South Africa, USA, Brazil).
- Assumed the data reported by Microsoft covers all of Microsoft's business activities.

Ocean Wilsons Holdings

Calculation: sector efficiency review & internal savings

Annual GHG emissions savings from efficiency gains in sea freighting industry, attributable to Ocean Wilsons due to the company's role in facilitating sea freighting.

Approach

Ocean Wilsons has two subsidiaries: Wilson Sons Limited and Ocean Wilsons Investments Limited.

Ocean Wilsons holds a 57.7% interest in Wilson Sons - one of the largest providers of maritime services and operator of two ports in Brazil. Ocean Wilsons Investments Limited is a wholly owned Bermuda investment company and has no published information that can be used to claim benefits. As such, benefit calculations are solely based on Wilson Sons business activities; only 57.7% of the benefits calculated from Wilson Sons activities have been included.

Wilson Sons reports on total container ships that have entered and exited its Brazilian ports in 2019. Avieco attributed ship efficiency gains to the volume of containers that entered and exited Wilson Sons' ports in 2019. To calculate efficiency gains, Avieco used CO₂e efficiency figures for an average container ship in 2018 vs. 2019, as reported by Business for Social Responsibility (BSR).

Note: Avieco did not pursue a comparison of emissions avoided from sea freight in comparison to road freighting, as Brazil's main export/import markets are in Asia, Europe and USA. Therefore, a road transport comparison is not suitable. A comparison to air freight was not deemed appropriate as the contents of the shipping containers is unknown. As such, it is impossible to say whether air freighting is a realistic alternative.

Assumptions

- BSR report is the most robust and recent database on shipping fleet efficiencies
- Emissions avoided calculations: Accounted for total volume of container ships that were exported and imported from Wilson Sons ports in 2019. Assumed average distance travelled for a container ship using main export/import markets (i.e. China, Germany, US) for Brazil. Applied 2018 and 2019 CO₂ efficiency factor to the volume of container ships and calculated GHG emission savings.

APPENDIX

continued

Note: Ocean Wilsons Holdings did not achieve any carbon savings this year as their Scope 1 and 2 GHG emissions increased in 2019 compared to 2018. However, the company is continuing to work on adopting advanced technologies to lower their emissions.

Safran

Calculation: internal savings

GHG emission saved through company-wide initiatives.

Approach

Safran disclose data on GHG emissions in their 2019 annual report. Avieco compared Scope 1 and 2 GHG emissions for 2018 and 2019 by Safran to calculate carbon savings.

Assumptions

Assumed the figures that Safran report on are representative of the whole business.

Note: Safran did not achieve any carbon savings this year as the company's Scope 1 and 2 GHG emissions increased compared to last year. However, the Group has committed to reduce their Scope 1 and 2 emissions by 8% and 18% by 2025, respectively.

Water and Waste Theme

Waste Management Inc

Calculation: product/service

Annual waste diverted from landfill, energy generated through waste products and GHG emissions avoided.

Approach

Waste Management Inc. discloses total GHG emissions avoided through energy generation, reuse / recycling of materials and carbon sequestration. Avieco used reported GHG emissions avoided figures to estimate total energy generation figures (kWh).

Assumptions

Assumed the total GHG emissions saved and renewable energy generated figures in the company's report are representative of the whole business.

If you have any queries or would like further information please contact:

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