Menhaden Resource Efficiency

Menhaden Resource Efficiency PLC
Reporting Impact 2021

Environmental Impact Statement

Foreword

2021 was a landmark year for climate conscious investors. The latest IPCC assessment report demonstrated without a shadow of a doubt the connection between human activity and emerging climate chaos. At the COP26 climate conference world leaders made ambitious pledges to accelerate the transition to a net zero global economy by 2050. It is becoming increasingly obvious that climate and other environmental risks and opportunities are having a material effect on investment returns.

Menhaden Resource Efficiency PLC's (the "Company's") objective is to generate long-term returns for shareholders by investing in businesses and opportunities that demonstrably deliver, or benefit significantly from, the efficient use of energy and other resources.

The companies held in the portfolio are leading their respective fields in embedding resource efficiency into their operations, not least through the implementation of circular economy initiatives which emphasise reuse and recycling.

In this Impact Statement we report how the Company's holdings helped to reduce their environmental footprint, including their CO2e emissions, in 2021 through measures such as energy saving initiatives and use of resource efficient technologies. By way of illustration, renewable power giant **X-ELIO** delivered over 94,000 megawatt hours of clean electricity in 2021.

In 2021 we also received positive responses to our direct engagements with portfolio companies on these matters, encouraging several to step up their environmental reporting and targets. **Canadian Pacific** and **Safran** both improved their climate reporting scores on the CDP global disclosure system during the period, while others committed to science-based targets for emissions reductions.

Our investment performance has been good during the year. The Company's net asset value rose by 17.3% in 2021, signalling that there is financial opportunity in applying an environmental mindset to investment decision-making.

Ben Goldsmith
CEO, Menhaden Capital Management LLP

Impact Data[1]

[1] All impact data in this report refers to the Company's listed portfolio and the biggest private holding, **X-ELIO**, and is based on the proportion of each entity held at 31 December 2021. Analysis is calculated on best estimates using publicly disclosed data and full details of our methodology can be found in the Impact Report Appendix on our website.

Our approach and developments in 2021

Menhaden Capital Management LLP ("MCM") continued to apply its fundamental, research-oriented approach throughout 2021 aiming to find the innovation, products and services that show corporate best practice when it comes to energy and resource efficiency.

There was relatively little turnover in the portfolio during the year, but we made some changes to our investment themes, which included broadening technology to digitisation, opening up themes on 'environmental reporting' and 'industrial emissions reduction' and expanding our transport theme to encompass sustainable transport and infrastructure. The latter saw the Company complete a new co-investment with KKR in **John Laing Group**. The group is committed to responsible investment and decreased direct emissions by 48% and Scope 3 emissions by 89% in their last year reported. We also invested in **VINCI** who are transforming their business around achieving a 40% reduction in emissions by 2030 (compared to 2018).

Total tonnes of greenhouse gas ("GHG") emissions avoided by the Company's investments (*as a proportion based on the portfolio's ownership levels in each company*) almost doubled this year to over 58,000 tonnes. The amount of clean electricity generated by the portfolio almost tripled to over 94,000 MWh, with **X-ELIO** being the main generator.

We accept that high-emitting sectors like aviation and construction contribute greatly to climate change but rather than avoid the sector entirely we want to reward those players leading the way in efficient and environmentally-friendly practices. For example, **VINCI's** construction arm launched its Exegy low carbon concrete range in September 2020, which reduces C02 emissions by up to 70% compared with traditional concretes.

We take a similar future-focused approach to the transport sector, which is responsible for 24% of direct CO2 emissions. The transport industry has been slow to decarbonise, so we look to support companies such as **Safran** which launched a new project in partnership with GE Aviation in June 2021 called the CFM Rise (Revolutionary Innovation for Sustainable Engines), a low-carbon aircraft technology that targets a 20% reduction in fuel consumption and CO2 emissions in comparison to current jet engines. In 2021 we divested from Airbus, which despite offering a more energy efficient option than peers, was one of the most carbon-intensive stocks in the portfolio. We took an opportunity to sell following the significant recovery of its share price after the Covid-19 pandemic.

Railways represent the most energy efficient method of moving freight over land. Investee companies **Canadian Pacific** and **Canadian National** have both implemented robust climate actions plans to minimise emissions released from rail freight. **Canadian Pacific** has committed to reduce Scope 1, 2 and 3 GHG emissions intensity of its locomotives in excess of 38% by 2030. The company also installed solar capacity at its Calgary headquarters, and announced its Hydrogen Locomotive Programme to create north America's first line-haul hydrogen locomotive prototype.

Finally, perhaps one of our most impressive environmental performers in 2021 was **Waste Management**, a US waste and environmental services company. Services the company provides, such as turning gas from its landfills into energy, help it avoid three times the GHG emissions it generates from its operations, and it is aiming to increase this to four times by 2038.

Active ownership: Leveraging our voice on climate

As responsible stewards of shareholders' capital, we are committed to using our voice to foster best practice, both by engaging directly with companies in the portfolio and working in collaboration with other investors and initiatives.

In 2021 we began an organised programme of engagement to move the portfolio's holdings forward on environmental reporting and target setting. We believe that the setting of emissions reduction plans in line with what climate science says is required for a net zero economy and regular disclosure on performance against these targets is a vital first step to driving energy and resource efficiency.

Thus, it was encouraging to see **Safran** improve their CDP environmental reporting platform score from a 'C' to a 'B' last year, and for Canadian Pacific to improve from a 'B' to an 'A-' following our engagements on this issue. We are pleased to note that a third of the portfolio's equity holdings have established clearly-defined pathways to reduce their GHG emissions in line with the goals of the Paris Agreement, with targets that have been independently validated by the Science Based Targets initiative.

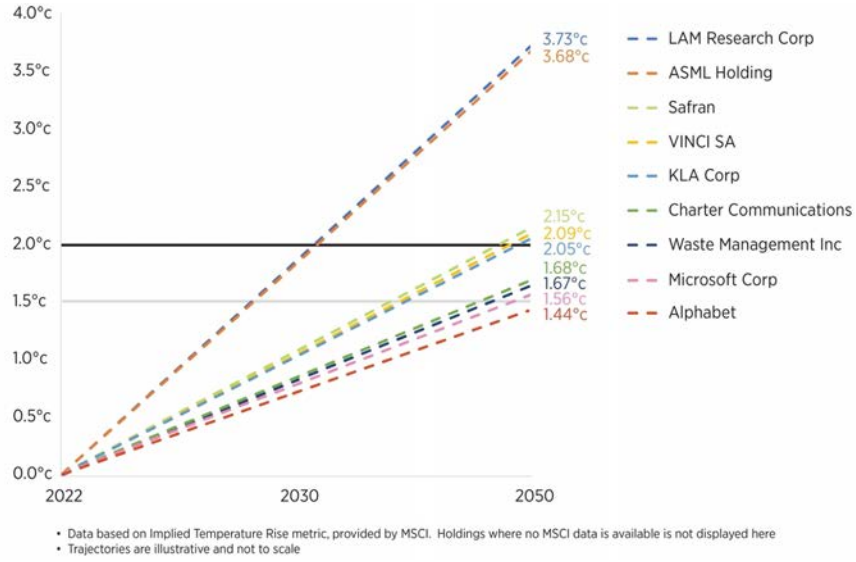
We will continue to engage with portfolio companies this year in our quest to raise standards of environmental disclosure and action.

As long-term investors, we also believe that mitigating environmental risks involves an active approach to the preservation of biodiversity and are proud to be signatories

of the Financial Sector Commitment Letter on Eliminating Commodity Driven Deforestation. We are cognisant that the sectors represented in the portfolio, including transport, infrastructure and waste management, intersect closely with natural environments, and keenly interested to see the companies we invest in actively reporting on the impacts of their activities upon local flora and fauna, soil quality and natural environments. Therefore, a focus for 2022 is to encourage more investee companies to take action on protecting nature and biodiversity.

Portfolio Company Alignment with Paris Agreement Goals

The figure below shows our assessment of the commitments of the portfolio's listed equity holdings against the Paris Agreement. It indicates that most are working towards the target 2°C limit by 2050, but we have concerns about **LAM Research** and **ASML**. We will increase our engagement with these in 2022 with a view to encouraging improvements in their future climate impact.



- Data based on Implied Temperature Rise metric, provided by MSCI. Holdings where no MSCI data is available is not displayed here
- Trajectories are illustrative and not to scale

INVESTING IN BIG TECH SOLUTIONS FOR NATURE

There is growing awareness about the interlinked crises of climate change and biodiversity and this is creating opportunity for several firms, including portfolio constituents **Microsoft** and **Alphabet**, to explore how they can help restore and preserve the natural environment.

Microsoft recently committed to building a Planetary Computer to help protect the earth's ecosystems. The platform will provide scientists, sustainability practitioners and conservation stakeholders with global environmental data to help them identify the impacts climate change is having on biodiversity, and enable them to work with the data to support environmental monitoring, forecasting, planning, and attribution.

At **Alphabet**, a new initiative using Google Earth technology has been designed to promote ecosystem restoration across the world. Restor, a science-based open data platform developed by Google Creative Lab, launched in November 2021 and shows data on local biodiversity, current and potential soil carbon and other variables like annual rainfall, soil PH and land cover.

Last year, Google also announced it would make AI-powered improvements to its Maps application to direct drivers along more environmentally friendly routes, focusing on reducing emissions by avoiding traffic and limiting fuel consumption.

Alignment with SDGs

MCM and the Company's Board support the UN Sustainable Development Goals ("SDGs") and many of the portfolio's holdings contribute to the challenge of achieving them. We mapped our investment themes against the SDGs and concluded that our contributions focus on six of the goals:

2021 saw record levels of extreme weather events and the IPCC warned temperature increases will likely impact the global water cycle. The state of California, home to **Alphabet**, headquarters, recorded a severe drought and the company has committed to replenish 20% more water than it uses by 2030 to help return regions with high or extremely high-water scarcity to a normal level.

Our portfolio companies have a significant role to play in both supply and creating demand for renewable energy. **X-ELIO** is a global leader in the development of photovoltaics while **Microsoft** has set a goal to be carbon negative by 2030 and to remove from the environment all the carbon the company emitted since its founding by 2050. Encouragingly semi-conductor company **ASML** has already reached its goal to use 100% renewable electricity across all of its operations.

We invest in companies helping build the infrastructure needed to transition to a low-carbon future. Electric Vehicles (EVs) will help reduce transport emissions by 31% compared to petrol cars and to support their roll out **VINCI** Autoroutes is aiming for all its service areas to have electric charging stations by 2023. **Charter Communications** is also investing in innovative technologies to support the transition, including 10G connectivity for the Internet of Things and smart cities.

Building a more circular economy is an important opportunity for sustainable investors and in the US more than 75 billion pounds of food is wasted each year. **Waste Management** has invested in technology to recycle food waste from residential, commercial and industrial sources and turn it into energy or compost. Semiconductor supplier **ASML** also has a range of waste management initiatives such as the Return4Reuse programme. From 2019 to 2020, the company's total waste generated per €1 million reduced from 417 kg to 360 kg.

This is a key theme across our portfolio. In the transport sector, for example, **Safran** is focusing its research on breakthrough aircraft, to reach low carbon aviation by 2030-35 and move towards carbon neutrality around 2050. **Canadian National** has set a target in line with achieving net zero carbon emissions by 2050. By doing so, it is the first North American railroad to formally commit to join the Business Ambition for 1.5°C and the United Nations' Race to Zero campaign.

Since 2002, **Oceans Wilson** maritime services company, Wilson Sons, has been donating deactivated tugboats to the award-winning Pernambuco Artificial Reefs Project, which works to help the recovery of damaged marine ecosystems and serves as a living laboratory for studies on marine biology.

APPENDIX

Introduction

Menhaden Resource Efficiency PLC (the "Company") is a UK-listed investment company that seeks to generate long-term shareholder returns, predominantly in the form of capital growth, by investing in businesses and opportunities, that are demonstrably delivering or benefiting significantly from, the efficient use of energy and resources.

Sustainability consultancy Avieco was commissioned to quantify the environmental benefits of each of the publicly listed organisations included in the Company's portfolio. 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 2021 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 2021 IEA grid average factors were applied and for all other resources the 2021 DEFRA carbon conversion factors were used, unless otherwise stated.

Note: Similar to last year's report, only energy savings and carbon avoided emissions have been calculated for the Company's portfolio as instructed by ESG Communications.

Share of avoided resource consumption and emissions production

The following table provides a breakdown of the Company's share of avoided resource consumption and emissions production for each organisation by theme. The share of benefits attributable to the Company 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_2e)
Clean energy	X-ELIO	4.73%	90,614,120	35,318.48
Sustainable transport	Canadian National Railway	0.0098%		8,408.04
	Canadian Pacific Railway	0.0262%		13,474.09
	VINCI	0.0147%		13.65
Resource and energy	Alphabet	0.0024%		120.13
	ASML	0.0005%	12.87	0.03
	Charter Communications	0.0255%		6.03
	John Laing	1.2300%		0.58
	KLA	0.0017%		0.18
	LAM Research	0.0011%	22.37	0.05
	Microsoft	0.0008%		20.27
	Ocean Wilsons	1.1099%		-7.06
	Safran	0.0199%		41.46
	TCI Real Estate	1.18%		
Water and Waste	Waste Management	0.0022%	3,844,454.24	1,134.26
	Total		**94,458,609**	**58,530**

= Indicator not applicable to theme

= Information not available

Statistics for the Company's 2021 portfolio savings

- 94,458 MWh of electricity was generated by clean energy companies in 2021. This is equivalent to powering roughly 31,400 houses for one year.
- 58,530 tonnes of CO2e were saved in 2021, which is the equivalent of taking just over 38,400 cars off the road.

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continued

Calculation approach and assumptions

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

Clean Energy

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 disclosed total clean energy generated (MWh) and GHG emissions avoided (tonnes of CO2e) for 2020.

Assumptions

Assumed the 2020 generation figure is the most up to date and accurate figure for X-ELIO's portfolio.

Sustainable Transport

Canadian National Railway

Calculation: flagship product

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

Approach

Canadian National Railway disclosed the fuel efficiency of their locomotives and the total gross tonne-km (the movement of one tonne of goods over a kilometre) for 2020. Using these figures, Avieco calculated GHG emissions associated with Canadian National in 2020 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 – Canadian National Railway primarily specialises in the freighting of goods.
- 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.
- The 2020 figures included in Canadian National Railway's annual report were the most up to date figures.

Canadian Pacific Railway

Calculation: flagship product

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

Approach

Canadian Pacific Railway disclosed the fuel efficiency of their locomotives and the total gross tonne-km (the movement of one tonne of goods over a kilometre) for 2020. Using these figures Avieco calculated GHG emissions associated with Canadian Pacific in 2020 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 – 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.
- The 2020 figures included in Canadian Pacific Railway's annual report were the most up to date figures.

VINCI

Calculation: internal savings

GHG emissions avoided through initiatives in the company to reduce environmental impact.

Approach

Avieco calculated annual GHG emissions savings through initiatives by taking into consideration the scope 1 and 2 emissions of VINCI Group in 2019 compared to 2020, as reported in the 2020 Universal Registration Document.

Assumptions

- Assumed that the VINCI Group report is representative of the whole business, and that energy savings initiatives are accurately reported through reductions in scope 1 and 2 emissions.
- The 2020 figures included in VINCI's report were the most up to date figures.

Resources and Energy

Alphabet

Calculation: internal savings

Procurement of renewable electricity and wider internal resource reduction initiatives.

Approach

Avieco calculated total GHG emissions avoided by taking into consideration the following data as reported by Alphabet in their 2021 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

Calculation: internal savings

GHG emissions saved through company-wide initiatives.

Approach

ASML disclosed data on GHG emissions in their 2020 annual report. Avieco compared Scope 1 and 2 GHG emissions for 2019 and 2020 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

Calculation: internal savings

GHG emissions saved through company-wide initiatives.

Approach

Charter Communications disclose annually through the Carbon Disclosure Project. Charter Communications report on the carbon savings in tCO2e of initiatives implemented at the company.

Assumptions

Assumed the figures reported by Charter Communications are representative of the whole business.

John Laing

Calculation: internal savings

GHG emissions avoided through initiatives in the company to reduce environmental impact.

Approach

Avieco calculated annual GHG emissions savings through initiatives by taking into consideration the scope 1 and 2 emissions of John Laing in 2019 compared to 2020, as reported in their climate report.

Assumptions

- Assumes that the climate report is representative of the whole business, and that energy savings initiatives are accurately reported through reductions in scope 1 and 2 emissions.

KLA

Calculation: internal savings

GHG emissions saved through company-wide initiatives.

Approach

KLA Corporation disclosed in their annual 2020 global impact report the amount of GHG emissions increased between 2019 and 2020 and therefore no savings were made.

Assumptions

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

APPENDIX
continued

LAM Research

Calculation: internal savings
GHG emissions saved through company-wide initiatives.

Approach
LAM Research disclose in their ESG Report 2020 the tonnes of CO2 and energy consumed in 2020. Avoided GHG emissions for the year were found by comparing these values with those from the previous year (2019). As of the most recent ESG report, LAM Research have begun disclosing on full Scope 3. As there is no comparable data for 2019, we are unable to draw conclusions on savings in Scope 3. However, as of 2021, such comparisons will be possible, potentially leading to future savings going forward.

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

Microsoft

Calculation: internal savings
GHG emissions 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 2020 report. Associated avoided emissions were calculated by assuming electricity would have otherwise been procured from the national grid.

Assumptions
- Assumed that a large majority of the electricity consumption occurs in data centres. GHG emissions avoided calculations were based on grid emission factors of the 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

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 56.88% 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 56.88% 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 2021. Avieco attributed ship efficiency gains to the volume of containers that entered and exited Wilson Sons' ports in 2021. To calculate efficiency gains, Avieco used CO2e efficiency figures for an average container ship in 2019 vs. 2020, 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 2021. Assumed average distance travelled for a container ship using main export/import markets (i.e. China, Germany, US) for Brazil.
- Applied 2019 and 2020 CO2 efficiency factor to the volume of container ships and calculated GHG emission savings.

Note: Ocean Wilsons Holdings did not achieve any carbon savings this year as their Scope 1 and 2 GHG emissions increased in 2020 compared to 2019. However, the company is continuing to work on adopting advanced technologies to lower their emissions.

Safran

Calculation: internal savings
GHG emissions saved through company-wide initiatives.

Approach
Safran disclose data on GHG emissions in their 2020 Integral Report. Avieco compared Scope 1 and 2 GHG emissions for 2019 and 2020 by Safran to calculate carbon savings.

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

Water and Waste

Waste Management

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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