REGISTERED NUMBER: 00137114 (England and Wales)

Strategic Report, Report of the Directors and

Financial Statements for the Year Ended 31 December 2022

for

Vale Europe Limited

Contents of the Financial Statements for the Year Ended 31 December 2022

Vale Europe Limited

Company Information
for the Year Ended 31 December 2022

DIRECTORS:	B Tipping G Gilpin D Poland
SECRETARY:	Vistra Company Secretaries Limited
REGISTERED OFFICE:	Suite 1, 7th Floor 50 Broadway London SW1H 0BL
REGISTERED NUMBER:	00137114 (England and Wales)
INDEPENDENT AUDITORS:	PricewaterhouseCoopers LLP Chartered Accountants and Statutory Auditors One Kingsway Cardiff CF10 3PW

The directors present their strategic report for the year ended 31 December 2022.

Business review and future developments

Vale Europe Limited (the "Company") is a private company, limited by shares and is incorporated in the United Kingdom, and the operator of the Clydach Nickel Refinery. It is domiciled in England and Wales. The ultimate parent undertaking and 100% controlling party is Vale S.A.
Vale S.A. and its subsidiaries (which includes Vale Europe Limited) are an iron ore, nickel and copper producers, with worldwide operations. Vale S.A. is a public company headquartered in the city of Rio de Janeiro, Brazil with securities traded on the stock exchanges of São Paulo – B3 S.A. (VALE3), New York - NYSE (VALE) and Madrid – LATIBEX (XVALO).

The Clydach operation refines nickel oxide owned by Vale Canada Limited (a 100%-subsidiary of Vale SA) from ore sourced from Canada and Indonesia into high purity nickel products in different forms, including powder and pellets.

The Company refines the nickel oxide through a tolling arrangement with Vale Canada Limited. The tolling agreement uses 100% of the capacity of the refinery, approximately 40,000 metric tonnes of nickel products per year. Under the tolling agreement, the refined nickel produced in Clydach is owned by Vale Canada Limited.

Vale Europe Limited is also responsible for transporting the products to Vale Canada Limited's final customer in the UK and continental Europe by truck. Products for overseas customers are trucked to the ports of Southampton and Liverpool and shipped by ocean container.

This business model based on the tolling agreement that has been in place for more than 5 years and there is no expectation to change the model in the foreseeable future. This model is reflected in Vale's long term strategic plan, which was approved by Vale's leadership. Also, the 2023 budget for the Clydach operations was approved by Vale's Executive Committee.

In 2022, the Company recorded a turnover of £71 million related to the tolling agreement.

KEY PERFORMANCE INDICATORS (KPI'S)

The directors of the Company manage the business on a divisional platform, in line with strategic decisions that are made on a global basis by Vale S.A. The leadership team at Clydach refinery monitor 26 KPIs on a monthly basis during a refinery performance meeting. The KPIs cover 6 main areas of activity: Health and Safety, Environment, People, Production, Finance and Maintenance. Health and Safety indicators include the number of high potential incidents and injury frequency rate, Environment monitors our compliance with regulatory requirements, People focuses on overall headcount but also absenteeism and overtime costs, Production tracks the finished Nickel produced compared to budget, Finance KPIs include operational and capital budgets while Maintenance has a number of KPIs that look at the performance of maintenance jobs versus the plan. Based on Vale Production System (VPS) and the Internal Normative Standard 001 "Performance Meetings", the KPIs are presented in a monthly basis and must follow a hierarchical sequence, connecting all levels of leadership in Vale S.A. This is to ensure the correct exposure of problems, necessary alignments and decision making to achieve results so issues can be timely treated by the leadership. During 2022, the results of the KPIs did not bring relevant actions that would impact the business of the Company.

Profit before tax of £64m (2021: £25m) is an increase on 2021 result, which primarily relates to a decrease in provision of decommissioning costs reflected in other finance income of £49m. The turnover generated by the continuing operations in Clydach increased by 16% from 2021 to 2022. The underlying business remains stable due to the tolling arrangement in place and is reflected in the turnover.

PRINCIPAL RISKS AND UNCERTAINTIES

From the perspective of the company, the principal risks and uncertainties are largely integrated with the principal risks and uncertainties of the ultimate parent undertaking. However, from a UK perspective there are nevertheless certain risks that the company is exposed to as a result of its operations.

Liquidity risk
The liquidity risk arises from the possibility that the Company might not perform its obligations on due dates. The Company pools its cash reserves via an intercompany loan and Vale Canada Limited manages the Company's cash position.

Market risk
The Company operates as a tolling refinery and therefore the fluctuations in nickel price do not directly affect the revenues of Vale Europe Limited given all costs are reimbursed. Vale Canada Limited still require the tolling services to be executed at this time and in the foreseeable future. In addition, the worldwide impacts of the Ukraine crisis to the markets and the related sanctions, and specifically the impacts to the metals market, does not bring additional risks to the company considering the tolling agreement.

Climate change risk
Vale Europe Limited use KPI data monitoring fed in via GRI Reporting, SAP-IM (IRIS) event management platform to track and highlight levels of risk from Safety, Environmental, Social & Financial Events occurring across the organisation. Aspect & Impacts risk registers are maintained in line with Corporate procedures, ISO 14001 and Environmental Permit Requirements. There is a Corporate commitment to reduce absolute GHG Emissions by 33% by 2030.

There are the following climate change risks associated with the company:

- Flooding risk - loss of production, Damage to Infrastructure , Safety and Environmental Impact
- Policy Changes in Sustainable Energy Sources - Business Risk improved through sustainable electricity production
- Gas Supply - Loss of production due to lower carbon monoxide production
- Market changes - Potential loss of customers if our carbon intensity is too high. May limit the markets we can sell our products into (i.e. EV)
- Policy changes - Significant increases in operating costs making our unit cost uncompetitive.

We are not expecting any impacts on commitments into our financials for 2023.

Other risks
The Directors have assessed the actual and projected impact of Covid-19, and it did not significantly impact the delivery of the 2022 production and cost budgets. With the Company continuing to monitor the impact of COVID-19 on its business, and unless there is a significant change, the Directors expect a similar situation in 2023. Therefore, they don't believe there to be any long-term impact on our operations.

SECTION 172(1) STATEMENT
This section serves as our section 172 statement and should be read in conjunction with the Strategic report. Section 172 of the Companies Act 2006 requires Directors to take into consideration the interests of stakeholders in their decision making. The Directors continue to have regard to the interests of the Company's employees and other stakeholders, including the impact of its activities on the community, the environment and the Company's reputation, when making decisions. Acting in good faith and fairly between members, the Directors consider what is most likely to promote the success of the Company for its members in the long term. Whilst the importance of giving due consideration to our stakeholders is not new, we are explaining in more detail this year how the Board engages with our stakeholders, thus seeking to comply with the requirement to include a statement setting out how our Directors have discharged this duty.

- The Directors have established the Clydach Leadership Team (CLT). The CLT, comprises the senior functional management roles and together is comprised of those with responsibility for interacting with the Company's principal stakeholders. It is envisaged that this management structure will ensure due consideration of all stakeholder interests in decision making at both Board and management level.

- The CLT meet weekly to discuss current issues for each function and track progress towards strategic goals. On a monthly cadence a performance meeting is held to review key performance indicators and variance analysis.

- On an annual basis the CLT coordinates a strategy setting process utilising the Hoshin Kanri X matrix approach to align all levels of the organisation to the short and long term objectives of the company. The objectives are set by the board in collaboration with supervisors and managers of all departments taking into account the wider group goals, a SWOT analysis of the business and local needs.

- The Board continues to enhance its methods of engagement with the workforce. Within the CLT employee engagement is owned by the Corporate Affairs Specialist, she is responsible for designing and executing the engagement strategy. For 2022 this included monthly engagement council meetings with representatives from all departments attending, regular internal newsletters, bi-annual training days for all employees and regular union/management meetings.

- The Board is committed to maintaining its strong relationship with the local community that has been built during its more than 100 years of operation. Each year The Board approves donations to local organisations such as the Clydach Mens Shed.

- We aim to work responsibly with our suppliers with the relationship governed by a code of conduct signed by both parties to document the standards by which we operate and expect our suppliers to operate.

- The Board continues to strive for operational excellence in all areas of the business and has maintained a number of ISO standards over the past years including 9001 Quality and 14001 Environment. In 2019 we added to this list ISO 45001 Safety Management System which recognises the consistent high standards we have throughout our business.

ON BEHALF OF THE BOARD:

B Tipping - Director

Date: 24th April 2023

Report of the Directors
for the Year Ended 31 December 2022

The directors present their report with the audited financial statements of the company for the year ended 31 December 2022.

PRINCIPAL ACTIVITIES
The principal activities of Vale Europe Limited ("the company") during the year was the refining of nickel.

FINANCIAL RESULTS AND DIVIDEND
The financial profit for the year ended 31 December 2022 was £60 million (2021: £20 million). Turnover was £71 million (2021: £69 million). The retained profit for the year has been transferred retained earnings.

Dividends of £80m were distributed during the year ended 31 December 2022.

DIRECTORS
The directors shown below have held office during the whole of the period from 1 January 2022 to the date of this report.

B Tipping
G Gilpin
D Poland

EMPLOYEE PARTICIPATION
The company continued to consult employees, to provide them systematically with information and to achieve a common awareness of economic and financial factors, by a variety of means including regular meetings between senior management and all employees, a network of consultative committees and the regular publication of financial and other information. The company has in place profit-sharing or bonus arrangements related to financial performances, in which all employees participate.

DISABLED PERSONS
It is the company's policy to give full and fair consideration to applications for employment made by disabled persons, to continue whenever possible the employment of those who have become disabled and to provide equal opportunities for the training and career development of disabled employees. If members of staff become disabled the company continues employment, either in the same or an alternative position, with appropriate retraining being given if necessary.

GOING CONCERN
Vale Europe has a tolling agreement with Vale Canada and under this agreement the operational expenses are reimbursed by Vale Canada along with an additional tolling fee. The only situation in which Vale Canada would not make a payment is if it declares force majeure. Therefore, the main risk to Vale Europe continuing as a Going Concern is the ability of Vale Canada to continue fulfilling the tolling agreement.

The directors have updated their assessment of the business, including Vale Canada, in light of the current Covid - 19 pandemic and the Ukraine crisis in order to identify the key risks over the medium term and determined that the financial stability continues to be good despite the challenging business environment. The directors have a reasonable expectation that the company has adequate resources and pipeline from its wider group operations to continue in business for the foreseeable future. Thus, they continue to adopt the going concern basis of accounting in preparing these financial statements.

FINANCIAL RISK MANAGEMENT
The financial risk management requirements of the Report of the Directors are disclosed in the Strategic Report on Pages 2 and 3.

POST BALANCE SHEET EVENT
In Q1 2023 Vale Taiwan Limited (VTL) assets have been sold to a third party, funds proceeding from this sale will be sent back to Vale Europe limited as dividends and capital reduction. This is a non adjusting post balance sheet event.

STREAMLINED ENERGY AND CARBON REPORTING
UK Energy Use and GHG Emissions
The tables below detail the energy used by The Company in their business activities (excluding discontinued operations) involving the combustion of gas and fuels, the purchase of electricity and business mileage in both kWh and tCO2e. They also detail the total energy and emissions by scope and as a total.

2022:

Type of activity	***Energy Used***	***Energy Unit***	***GHG Emission***	***GHG Emission unit***
Natural Gas	197,488,041	kWh	36,049	t CO2e
Grid Electricity	37,306,239	kWh	7,214	t CO2e
Diesel	21,586	Litres	55	t CO2e
Travel - company car	4,184	Miles	1.1	t CO2e
Travel -fuel reimbursed	2,561	Miles	0.6	t CO2e

Scope	**Energy Used**	**Energy Unit**	**GHG Emission**	**GHG Emission unit**
Scope 1	197,717,000	kWh	36,105	t CO2e
Scope 2	37,305,239	kWh	7,214	t CO2e
Scope 3	2,836	KWh	0.6	t CO2e

2021:

Type of activity	**Energy Used**	**Energy Unit**	**GHG Emission**	**GHG Emission unit**
Natural Gas	221,783,516	kWh	40,622	t CO2e
Grid Electricity	39,716,766	kWh	8,433	t CO2e
Diesel	26,718	Litres	67	t CO2e
Travel - company car	2,538	Miles	0.7	t CO2e
Travel -fuel reimbursed	784	Miles	0.2	t CO2e

Scope	**Energy Used**	**Energy Unit**	**GHG Emission**	**GHG Emission unit**
Scope 1	222,069,753	kWh	40,689	t CO2e
Scope 2	39,716,766	kWh	8,433	t CO2e
Scope 3	784	kWh	0.2	t CO2e

Intensity Ratio
To convert absolute emissions to an emissions intensity metric, the Company has calculated emissions per a relevant unit of measure.

An intensity ratio is a way of defining the Company's emissions data in relation to an appropriate business metric, such as tonnes of CO2e per sales revenue, or tonnes of CO2e per unit of production. This allows comparison of energy efficiency performance over time and with other similar types of organisations.

SECR Intensity ratios are calculated by dividing the Company's emissions by its organisation-specific metric. In the case of the Company the metric chosen to normalise its emissions is based on tonnes of Nickel produced.

2022 Tonnes of Nickel produced is 30,900 (2021 – 36,063 tonnes)

Intensity ratio 2022 is therefore 1.4 t CO2e/t Ni (2021 – 1.36 t CO2e/t Ni)

Energy efficiency actions taken during the year
During this financial reporting period the company undertook a number of energy reduction projects including:
LED lighting - the Company continues to replace old style fluorescent tubes with LED lights when renovating offices and/or replacing broken units.

Variable Speed Drives – in 2022 variable speed drives were fitted onto the hydrogen blowers on both kiln lines. One outcome is the reduction of energy consumption in this area form the ability to turn the speed of the motor down at lower required flow rates. Initial monitoring by the installation contractor, after fitting the drives to one line, showed that energy saving performance met (or potentially exceeded) predicted levels. Assessments are now being made of the feasibility of applying the approach to make energy reductions for other blowers/fans.

Research and Development projects - the Company is working with Swansea University to demonstrate some new technologies in an industrial environment that will either provide uses for our waste CO2 or provide zero carbon methods for producing the hydrogen needed in our production process. The Company is also working with another company to demonstrate the use of a different method of growing algae which has the potential to be scaled up to allow all CO2 emissions from the site to be utilised

Methodology
The data used in this report is gathered directly from utility invoices for scope 1 and 2, for scope 3 a review of pool car usage and private mileage claims on expense reports was completed.
The relevant conversion multipliers were taken from the UK Government website to convert the KWh values into t CO_2e.

DIRECTORS' RESPONSIBILITIES STATEMENT
The directors are responsible for preparing the Strategic Report, the Directors' Report and the financial statements in accordance with applicable law and regulations.

Company law requires the directors to prepare financial statements for each financial year. Under that law they have elected to prepare the financial statements in accordance with UK accounting standards and applicable law (UK Generally Accepted Accounting Practice), including FRS 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland.

Under company law the directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the company and of the profit or loss of the company for that period. In preparing these financial statements, the directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- state whether applicable UK accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements;
- assess the company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern; and
- use the going concern basis of accounting unless they either intend to liquidate the company or to cease operations, or have no realistic alternative but to do so.

The directors are responsible for keeping adequate accounting records that are sufficient to show and explain the company's transactions and disclose with reasonable accuracy at any time the financial position of the company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error, and have general responsibility for taking such steps as are reasonably open to them to safeguard the assets of the company and to prevent and detect fraud and other irregularities.

STATEMENT AS TO DISCLOSURE OF INFORMATION TO AUDITORS
So far as the directors are aware, there is no relevant audit information (as defined by Section 418 of the Companies Act 2006) of which the company's auditors are unaware, and each director has taken all the steps that he ought to have taken as a director in order to make himself aware of any relevant audit information and to establish that the company's auditor is aware of that information.

INDEPENDENT AUDITORS
The auditors, PricewaterhouseCoopers LLP, Statutory Auditors, will be proposed for reappointment at the forthcoming Annual General Meeting.

ON BEHALF OF THE BOARD:

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B Tipping - Director

Date: 24th April 2023

Report on the audit of the financial statements

Opinion

In our opinion, Vale Europe Limited's financial statements:

- give a true and fair view of the state of the company's affairs as at 31 December 2022 and of its profit for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice (United Kingdom Accounting Standards, including FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland", and applicable law); and
- have been prepared in accordance with the requirements of the Companies Act 2006.

We have audited the financial statements, included within the Strategic Report, Report of the Directors and Financial Statements (the "Annual Report"), which comprise: the Balance Sheet as at 31 December 2022; the Income Statement, the Statement of Comprehensive income and the Statement of Changes in Equity for the year then ended; and the notes to the financial statements, which include a description of the significant accounting policies.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) ("ISAs (UK)") and applicable law. Our responsibilities under ISAs (UK) are further described in the Auditors' responsibilities for the audit of the financial statements section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We remained independent of the company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, which includes the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements

Conclusions relating to going concern

Based on the work we have performed, we have not identified any material uncertainties relating to events or conditions that, individually or collectively, may cast significant doubt on the company's ability to continue as a going concern for a period of at least twelve months from when the financial statements are authorised for issue.

In auditing the financial statements, we have concluded that the directors' use of the going concern basis of accounting in the preparation of the financial statements is appropriate.

However, because not all future events or conditions can be predicted, this conclusion is not a guarantee as to the company's ability to continue as a going concern.

Our responsibilities and the responsibilities of the directors with respect to going concern are described in the relevant sections of this report.

Reporting on other information

The other information comprises all of the information in the Annual Report other than the financial statements and our auditors' report thereon. The directors are responsible for the other information. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except to the extent otherwise explicitly stated in this report, any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If we identify an apparent material inconsistency or material misstatement, we are required to perform procedures to conclude whether there is a material misstatement of the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report based on these responsibilities.

With respect to the Strategic report and Report of the Directors, we also considered whether the disclosures required by the UK Companies Act 2006 have been included.

Based on our work undertaken in the course of the audit, the Companies Act 2006 requires us also to report certain opinions and matters as described below.

Strategic report and Report of the Directors
In our opinion, based on the work undertaken in the course of the audit, the information given in the Strategic report and Report of the Directors for the year ended 31 December 2022 is consistent with the financial statements and has been prepared in accordance with applicable legal requirements.

In light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we did not identify any material misstatements in the Strategic report and Report of the Directors.

Responsibilities for the financial statements and the audit

Responsibilities of the directors for the financial statements
As explained more fully in the Directors' Responsibilities Statement, the directors are responsible for the preparation of the financial statements in accordance with the applicable framework and for being satisfied that they give a true and fair view. The directors are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the directors are responsible for assessing the company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the company or to cease operations, or have no realistic alternative but to do so.

Auditors' responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below.

Based on our understanding of the company and industry, we identified that the principal risks of non-compliance with laws and regulations related to environmental regulations, health and safety and other employment matters, and we considered the extent to which non-compliance might have a material effect on the financial statements. We also considered those laws and regulations that have a direct impact on the financial statements such as the Companies Act 2006 and UK taxation law. We evaluated management's incentives and opportunities for fraudulent manipulation of the financial statements (including the risk of override of controls), and determined that the principal risks were related to fraudulent transactions designed to overstate profits in order to maintain or exceed the expectations of its parent company. Audit procedures performed by the engagement team included:

- Discussions with management, including consideration of known or suspected instances of non-compliance with laws and regulations and fraud;
- Identifying and testing journal entries, in particular those having unusual account combinations;
- Challenging management on key accounting estimates and auditing the assumptions to supporting third party documentation where applicable;
- Obtaining third party confirmations of all the Company's banking and financing arrangements.

There are inherent limitations in the audit procedures described above. We are less likely to become aware of instances of non-compliance with laws and regulations that are not closely related to events and transactions reflected in the financial statements. Also, the risk of not detecting a material misstatement due to fraud is higher than the risk of not detecting one resulting from error, as fraud may involve deliberate concealment by, for example, forgery or intentional misrepresentations, or through collusion.

A further description of our responsibilities for the audit of the financial statements is located on the FRC's website at: www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditors' report.

Use of this report
This report, including the opinions, has been prepared for and only for the company's members as a body in accordance with Chapter 3 of Part 16 of the Companies Act 2006 and for no other purpose. We do not, in giving these opinions, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

Other required reporting

Companies Act 2006 exception reporting
Under the Companies Act 2006 we are required to report to you if, in our opinion:

- we have not obtained all the information and explanations we require for our audit; or
- adequate accounting records have not been kept by the company, or returns adequate for our audit have not been received from branches not visited by us; or
- certain disclosures of directors' remuneration specified by law are not made; or
- the financial statements are not in agreement with the accounting records and returns.

We have no exceptions to report arising from this responsibility.

Stuart Couch

Stuart Couch (Senior Statutory Auditor)
for and on behalf of PricewaterhouseCoopers LLP
Chartered Accountants and Statutory Auditors
Cardiff

Date: 25 April 2023

Vale Europe Limited

Income Statement
for the Year Ended 31 December 2022

	Notes	2022 Continuing £'000	2022 Discontinued £'000	2022 Total £'000
TURNOVER	4	70,622	-	70,622
Cost of sales		(58,175)	-	(58,175)
GROSS PROFIT		12,447	-	12,447
Administrative expenses		(798)	468	(330)
OPERATING PROFIT		11,649	468	12,117
Interest receivable and similar income	6	3,962	-	3,962
Interest payable and similar expenses	7	(510)	-	(510)
Other finance income	16	48,646	-	48,646
PROFIT BEFORE TAXATION	8	63,747	468	64,215
Tax on profit	9	(3,726)	-	(3,726)
PROFIT FOR THE FINANCIAL YEAR		60,021	468	60,489

The notes form part of these financial statements

Vale Europe Limited

Income Statement
for the Year Ended 31 December 2022

	Notes	2021 Continuing £'000	2021 Discontinued £'000	2021 Total £'000
TURNOVER	4	60,693	8,415	69,108
Cost of sales		(47,077)	(136)	(47,213)
GROSS PROFIT		13,616	8,279	21,895
Administrative expenses		(1,090)	3,818	2,728
OPERATING PROFIT		12,526	12,097	24,623
Interest receivable and similar income	6	2,504	-	2,504
Interest payable and similar expenses	7	(512)	-	(512)
Other finance costs		(1,866)	-	(1,866)
PROFIT BEFORE TAXATION	8	12,652	12,097	24,749
Tax on profit	9	(2,148)	(2,298)	(4,446)
PROFIT FOR THE FINANCIAL YEAR		10,504	9,799	20,303

The notes form part of these financial statements

Statement of Comprehensive Income for the Year Ended 31 December 2022

	Notes	2022 £'000	2021 £'000
PROFIT FOR THE YEAR		60,489	20,303
OTHER COMPREHENSIVE INCOME/(EXPENSE)			
Actuarial gain on pension scheme	19	5,158	32,136
Irrecoverable surplus on pension scheme	19	(7,895)	(28,529)
Deferred tax movement relating to other comprehensive income /(expense)	9	1,586	(2,611)
OTHER COMPREHENSIVE (EXPENSE)/INCOME FOR THE YEAR, NET OF INCOME TAX		(1,151)	996
TOTAL COMPREHENSIVE INCOME FOR THE YEAR		59,338	21,299

B Tipping - Director

The notes form part of these financial statements

Vale Europe Limited (Registered number: 00137114)

Balance Sheet
31 December 2022

	Notes	2022 £'000	2022 £'000	2021 £'000	2021 £'000
FIXED ASSETS					
Tangible assets	10		56,375		50,797
Investments	11		5,183		5,183
			61,558		55,980
CURRENT ASSETS					
Stocks	12	4,623		4,136	
Debtors	13	163,139		239,277	
Cash at bank and in hand		7,137		3,925	
		174,899		247,338	
CREDITORS					
Amounts falling due within one year	14	(21,514)		(18,244)	
NET CURRENT ASSETS			153,385		229,094
TOTAL ASSETS LESS CURRENT LIABILITIES			214,943		285,074
PROVISIONS FOR LIABILITIES	16		(81,220)		(130,949)
ACCRUALS AND DEFERRED INCOME	17		(4,181)		(4,335)
PENSION LIABILITY	19		-		-
NET ASSETS			129,542		149,790
CAPITAL AND RESERVES					
Called up share capital	18		35,500		35,500
Share premium account			32,393		32,393
Retained earnings			61,649		81,897
TOTAL SHAREHOLDERS' FUNDS			129,542		149,790

The financial statements were approved by the Board of Directors and authorised for issue on 24th April 2023 and were signed on its behalf by:

B Tipping - Director

Vale Europe Limited

Statement of Changes in Equity for the Year Ended 31 December 2022

	Called up share capital £'000	Retained earnings £'000	Share premium £'000	Total equity £'000
Balance at 1 January 2021	35,500	60,598	32,393	128,491
Changes in equity				
Profit for the year	-	20,303	-	20,303
Other comprehensive income	-	996	-	996
Total comprehensive income	-	21,299	-	21,299
Balance at 31 December 2021	35,500	81,897	32,393	149,790
Changes in equity				
Profit for the year	-	60,489	-	60,489
Other comprehensive expense	-	(1,151)	-	(1,151)
Total comprehensive income	-	59,338	-	59,338
Dividends paid	-	(79,586)	-	(79,586)
Total transactions with owners, recognised in equity	-	(79,586)	-	(79,586)
Balance at 31 December 2022	35,500	61,649	32,393	129,542

The notes form part of these financial statements

1. STATUTORY INFORMATION

Vale Europe Limited is a private company, limited by shares and is incorporated in the United Kingdom. It is domiciled in England and Wales, registration number 00137114. The registered office is Suite 1, 7th Floor, 50 Broadway, London SW1H 0BL.

2. STATEMENT OF COMPLIANCE

These financial statements have been prepared in accordance with Financial Reporting Standard 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" and the Companies Act 2006.

3. ACCOUNTING POLICIES

Basis of preparing the financial statements
The financial statements have been prepared under the historical cost convention. These policies have been consisitently applied to all the years presented, unless otherwise stated.

The financial statements contain information about Vale Europe Limited as an individual company and do not contain consolidated financial information as the intermediate parent of a group. The company is exempt under the provisions of S401 of the Companies Act 2006 from the requirement to prepare consolidated financial statements as it and its subsidiary undertakings are included by full consolidation in the consolidated financial statements of its ultimate parent, Vale S.A., a company incorporated in Brazil.

Financial Reporting Standard 102 - reduced disclosure exemptions
The company has taken advantage of the following disclosure exemptions in preparing these financial statements, as permitted by FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland":

- the requirements of Section 4 Statement of Financial Position paragraph 4.12(a)(iv);
- the requirements of Section 7 Statement of Cash Flows;
- the requirements of Section 11 Financial Instruments paragraphs 11.39 to 11.48A;
- the requirements of Section 12 Other Financial Instruments paragraphs 12.26 to 12.29;
- the requirement of Section 33 Related Party Disclosures paragraph 33.7.

Revenue recognition
Turnover is measured at the fair value of the consideration received or receivable, excluding discounts, rebates, value added tax and other sales taxes.

Turnover comprises income from tolling arrangements relating to intergroup metal processing and is recognised on an agreed annual recharge plus reimbursement of costs.

Fixed assets
The cost of fixed assets is their purchase cost, together with any incidental cost of acquisition. Land and buildings cost includes capitalised elements of the decommissioning and closure provision which relate to the dismantling and removal of relevant assets. Changes in the estimate of these costs are recognised through fixed assets.

Depreciation is calculated so as to write off the cost of tangible fixed assets, less their estimated residual values, on a straight line basis over the expected useful economic lives of the assets concerned. The principal annual rates used for this purpose are:

Freehold property	- 2.5 - 10%
Plant and machinery	- 4 - 20%
Fixtures and fittings	- 4 - 14%

Freehold land is not depreciated.

Assets in the course of construction include costs incurred in the design and planning of assets prior to the commencement of their construction, where the construction of the asset can be anticipated with reasonable certainty.

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3. **ACCOUNTING POLICIES - continued**

Impairment of value
At each reporting date fixed assets and investments are reviewed to determine whether there is any indication that those assets/investments have suffered an impairment loss. If there is an indication of possible impairment, the recoverable amount, the higher of its value in use or fair value less costs to sell, of any affected asset/investment is estimated and compared with its carrying amount. If the estimated recoverable amount is lower, the carrying amount is reduced to its estimated amount, and an impairment loss is recognised immediately in the profit and loss account.

If an impairment loss subsequently reverses, the carrying amount of the asset/investment is increased to the revised estimate of its recoverable amount, but not in excess of the amount that would have been determined had no impairment loss been recognised for the asset/investment in prior years. A reversal of an impairment loss is recognised immediately in the profit and loss account.

Stocks
Stocks are valued at the lower of cost and estimated selling price less costs to sell. Cost includes an appropriate share of production overheads and are assigned to individual items of stock on the basis of weighted average costs method. At the end of the reporting period, net realisable value of stocks are assessed and a provision for losses on obsolete or slow-moving stock may be recognised.

Taxation
Taxation for the year comprises current and deferred tax. Tax is recognised in the Income Statement, except to the extent that it relates to items recognised in other comprehensive income or directly in equity.
Current or deferred taxation assets and liabilities are not discounted.

Current tax is recognised at the amount of tax payable using the tax rates and laws that have been enacted or substantively enacted by the balance sheet date.

Deferred taxation
Deferred tax is recognised in respect of all timing differences that have originated but not reversed at the balance sheet date.

Timing differences arise from the inclusion of income and expenses in tax assessments in periods different from those in which they are recognised in financial statements. Deferred tax is measured using tax rates and laws that have been enacted or substantively enacted by the year end and that are expected to apply to the reversal of the timing difference.

Unrelieved tax losses and other deferred tax assets are recognised only to the extent that it is probable that they will be recovered against the reversal of deferred tax liabilities or other future taxable profits.

Research and development
Research and development costs are charged to the profit and loss account as incurred.

Exchange rates
Transactions in foreign currencies are translated into sterling at the foreign exchange rate ruling at the date of the transaction. Assets and liabilities in foreign currencies are translated into sterling at rates ruling at the year end. Exchange differences are taken to the profit and loss account.

continued...

3. **ACCOUNTING POLICIES - continued**

Pension costs
The company operates a defined benefit scheme. Pension scheme assets are measured using market value. Pension scheme liabilities are measured using the projected unit actuarial method and are discounted at the current rate of return on a high quality corporate bond of equivalent terms and currency to the liability. The difference between the market value of the assets of the scheme and the present value of the accrued pension liabilities are shown as a liability on the balance sheet and is presented separately after other net assets on the face of the balance sheet.

The increase in the present value of the liabilities of the company's defined benefit pension scheme expected to arise from employee service in the period is charged to operating profit.

The expected return on the schemes' assets and the increase during the year in the present value of the schemes' liabilities arising from the passage of time are included in other finance income. Actuarial gains and losses are recognised in the other comprehensive income statement.

Pension schemes' deficits are recognised in full and presented on the face of the balance sheet, any scheme surpluses are not recognised on the face of the balance sheet and are taken to the other comprehensive income statement as irrecoverable surpluses.

The company operates a defined contribution plan. This is a post-employment benefit plan under which the company pays fixed contributions into a separate entity and will have no legal or constructive obligation to pay further amounts. Obligations for contributions to defined contribution pension plans are recognised as an expense in the profit and loss account in the periods during which services are rendered by employees.

Going concern
Vale Europe has a tolling agreement with Vale Canada and under this agreement the operational expenses are reimbursed by Vale Canada along with an additional tolling fee. The only situation in which Vale Canada would not make a payment is if it declares force majeure. Therefore, the main risk to Vale Europe continuing as a Going Concern is the ability of Vale Canada to continue fulfilling the tolling agreement.

The directors have updated their assessment of the business, including Vale Canada, in light of the current Covid - 19 pandemic and the Ukraine crisis in order to identify the key risks over the medium term and determined that the financial stability continues to be good despite the challenging business environment. The directors have a reasonable expectation that the company has adequate resources and pipeline from its wider group operations to continue in business for the foreseeable future. Thus, they continue to adopt the going concern basis of accounting in preparing these financial statements.

Government Grants
Government grants are recognised at fair value when there is reasonable assurance that the company will comply with the conditions attaching to them and the grants will be received. Grants related to the purchase of assets are treated as deferred income and allocated to the profit and loss account over the useful lives of the related assets while grants related to expenses are treated as other income in the profit and loss account.

Basic financial instruments
The company has chosen to adopt the Sections 11 and 12 of FRS 102 in respect of financial instruments

1. **Trade and other debtors / creditors**
   Trade and other debtors are recognised initially at transaction price less attributable transaction costs.
   Trade and other creditors are recognised initially at transaction price plus attributable transaction costs.
   Subsequent to initial recognition they are measured at amortized cost using the effective interest method, less any impairment losses in the case of trade debtors.

2. **Cash and cash equivalents**
   Cash and cash equivalents comprise cash balances and call deposits.

Investments
Investments are stated at cost less any provision for impairment.

continued...

3. ACCOUNTING POLICIES - continued

Provisions
Provisions are recognised only when there is a present obligation (legal or constructive) resulting from a past event, and it is probable that the settlement of this obligation will result in an outflow of resources, and the amount of the obligation can be reasonably estimated. Provisions are measured at the present value of the expenditure expected to be required to settle an obligation using a pre-tax rate which reflects current market assessments of the time value of money and risks specific to the obligation.

Provision obligations relating to the dismantling and removal of fixed assets that do not relate to production are included in the cost of the asset; other provision obligations are expensed.

Provisions are recognised for annual leave accrued by employees as a result of services rendered in the current period, and which employees are entitled to carry forward and use within the next 12 months. The provision is measured at the salary cost payable for the period of absence.

Discontinued operations
Discontinued operations are components of the company that have been closed down and are part of a single co-ordinated plan to dispose of a separate major line of business or geographical area of operation.

They are included in the profit and loss account in a separate column for the current period, and for the prior period so that the disclosure relates to all operations that have been discontinued by the end of the reporting period.

ACCOUNTING ESTIMATES AND JUDGEMENTS

In preparing these financial statements, the company has made judgements, estimates and assumptions that affect the application of the accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to estimates are recognised prospectively.

Key Estimates and assumptions have been made in the following areas:

Decommissioning and closure provision - this has been based on a decommissioning plan prepared by external experts every 5 years. In addition the timing of the cash flows and discount rates used to establish the net present value of the obligations require management's judgement, for more details see note 16.
Defined benefit pension obligation - this has been based on advice from a specialist third party actuary. Further sensitivity analysis is shown in Note 19.
Recoverability of Investment - this has been based on the recoverable amount being calculated with reference to its net assets and value in use. In the opinion of the directors, the investment in Vale Taiwan Limited is not worth less than it's carrying value in the financial statements.

4. TURNOVER

The turnover and profit before taxation are attributable to the one principal activity of the company.

An analysis of turnover by class of business is given below:

	2022	2021
	£'000	£'000
–Rendering of services	70,622	60,693
–Sale of goods	-	8,415
	70,622	69,108

An analysis of turnover by geographical market is given below:

	2022	2021
	£'000	£'000
Europe	-	8,415
Americas	70,622	60,693
	70,622	69,108

continued...

5. **EMPLOYEES AND DIRECTORS**

	2022	2021
	£'000	£'000
Wages and salaries	11,180	12,175
Social security costs	1,292	1,375
Other pension costs	2,857	3,437
	15,329	16,987

The monthly average number of employees during the year was as follows:

	2022	2021
Nickel, platinum group metals	198	205

	2022	2021
	£	£
Directors' remuneration	249,426	482,555
Directors' pension contributions to money purchase schemes	6,596	9,593

The number of directors to whom retirement benefits were accruing was as follows:	2022	2021
Money purchase schemes	1	2
Defined benefit schemes	1	1

Information regarding the highest paid director is as follows:

	2022	2021
	£	£
Emoluments	166,470	98,640
Termination payment	-	145,139
Pension contributions to money purchase schemes	-	3,515
Accrued pension at 31 December	69,755	-

6. **INTEREST RECEIVABLE AND SIMILAR INCOME**

	2022	2021
	£'000	£'000
Interest receivable from group undertakings	3,912	2,465
Interest receivable from third parties	50	39
	3,962	2,504

7. **INTEREST PAYABLE AND SIMILAR EXPENSES**

	2022	2021
	£'000	£'000
Interest on pension scheme liabilities	3,548	2,866
Expected return on pension scheme assets	(3,565)	(2,361)
Interest on effect of asset ceiling	528	-
Net interest expense on net defined benefit pension liability (note 19)	511	505
Other charges	(1)	7
	510	512

continued...

8. PROFIT BEFORE TAXATION

Profit before taxation is stated after charging/(crediting) the following amounts:

	2022 £'000	2021 £'000
Depreciation (owned assets)	2,799	2,654
Hire of plant and machinery - operating leases	520	487
Foreign exchange gain on operating activities	(117)	(2)
Grant Income	(154)	(154)
Profit on disposal of fixed assets: profit on sale of Acton	-	(3,000)
Costs associated with decommissioning - continuing	(48,646)	1,866
- discontinued	-	(726)
Research and development costs	488	595
Auditors' Remuneration:		
-audit services	100	88
-audit of associated pension scheme (Vale Europe Pension Plan)	22	20

9. TAX ON PROFIT

Analysis of the tax charge
The tax charge on the profit for the year was as follows:

	2022 £'000	2021 £'000
Current tax:		
UK corporation tax	78	1,166
Adjustment in respect of prior period	116	(40)
Total current tax	194	1,126
Deferred tax:		
Origination and reversal of timing differences	3,532	2,953
Impact of change in tax rate	-	367
Total deferred tax	3,532	3,320
Tax on profit	3,726	4,446

UK corporation tax has been charged at 19%.

Reconciliation of total tax charge included in profit and loss
The tax assessed for the year is lower than (2021: lower than) the standard rate of corporation tax in the UK. The difference is explained below:

	2022 £'000	2021 £'000
Profit before tax	64,215	24,749
Profit multiplied by the standard rate of corporation tax in the UK of 19% (2021 - 19%)	12,201	4,702
Effects of:		
Expenses not deductible for tax purposes	(12,123)	(3,536)
Adjustments to tax charge in respect of previous periods	116	(40)
Adjustment for deferred tax	3,532	3,320
Total tax charge	3,726	4,446

continued...

9. TAX ON PROFIT - continued

Tax effects relating to effects of other comprehensive income/(expense)

		2022	
	Gross	Tax	Net
	£'000	£'000	£'000
Actuarial gain on pension scheme	5,158	(388)	4,770
Irrecoverable surplus on pension scheme	(7,895)	1,974	(5,921)
	(2,737)	1,586	(1,151)

		2021	
	Gross	Tax	Net
	£'000	£'000	£'000
Actuarial gain on pension scheme	32,136	(9,743)	22,393
Irrecoverable surplus on pension scheme	(28,529)	7,132	(21,397)
	3,607	(2,611)	996

The current UK tax rate that has been used for the period is 19% (2021: 19%). In the Spring Budget 2021, the UK Government announced that from 1 April 2023 the corporation tax rate would increase to 25% (rather than remaining at 19%, as previously enacted). This new law was substantially enacted on 24 May 2021.
In the Autumn Statement in November 2022, the government confirmed the increase in corporation tax rate to 25% from April 2023.

10. TANGIBLE ASSETS

	Freehold property £'000	Plant and machinery £'000	Fixtures and fittings £'000	Assets in course of construction £'000	Totals £'000
COST					
At 1 January 2022	31,995	69,386	5,745	19,872	126,998
Additions	-	-	-	9,322	9,322
Disposals	-	-	-	-	-
Change in estimate of decommissioning obligation	(945)	-	-	-	(945)
Reclassification/transfer	760	26,072	(1,416)	(25,416)	-
At 31 December 2022	31,810	95,458	4,329	3,778	135,375
ACCUMULATED DEPRECIATION					
At 1 January 2022	21,933	50,651	3,617	-	76,201
Charge for year	711	1,766	322	-	2,799
Reclassification	-	1,159	(1,159)	-	-
At 31 December 2022	22,644	53,576	2,780	-	79,000
NET BOOK VALUE					
At 31 December 2022	9,166	41,882	1,549	3,778	56,375
At 31 December 2021	10,062	18,735	2,128	19,872	50,797

The opening balances of Freehold property for both cost and depreciation have been restated by a reduction of £5,560k to reflect a disposal of Acton ARO last year.

continued...

11. INVESTMENTS

Investment in subsidiary undertakings:

	Subsidiary undertaking £'000
Cost and net book value:	
At 1st January 2022	5,183
Addition in year	-
At 31 December 2022	5,183

At 31 December 2022 the company's investment in subsidiary undertakings comprised the following:

	Country of incorporation	Business activity	Ordinary Shares %	Net assets at 31 December 2022 £'000	Loss year to 31 December 2022 £'000
Vale Taiwan Limited	Taiwan	Nickel Refining	100	1,146	(696)

In the opinion of the directors, the investment in Vale Taiwan Limited is not worth less that its carrying value in the financial statements.
Address: No 40, Xingye Rd., Kaohsiung City, 83162, Taiwan

12. STOCKS

	2022 £'000	2021 £'000
Raw materials and consumables	4,623	4,136

In the opinion of the directors there is no material difference between the stated amount of stocks and their replacement value.

13. DEBTORS

	2022 £'000	2021 £'000
Amounts owed by group undertakings	161,527	237,436
Other debtors	196	1,078
Corporation Tax Debtor	1,416	763
	163,139	239,277

Amounts owed by group undertakings includes loans made to Vale Canada Limited of £149m (2021: £228m). The loans are considered short term, repayable on demand and accrue interest of 1% above Bank of England base rate annually.

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14. CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR

	2022	2021
	£'000	£'000
Trade creditors	2,945	3,779
Deferred Tax	8,405	6,459
VAT	1,130	864
Other creditors	8,214	6,815
Amounts owed to group undertakings	676	183
Deferred government grants	144	144
	21,514	18,244

The elements of deferred tax liability are as follows:

	2022	2021
	£'000	£'000
Difference between accumulated depreciation and amortisation and capital allowances	8,662	6,716
Other timing differences	(257)	(257)
Deferred tax liability	8,405	6,459

The movement on the deferred tax liability is set out below:

	Deferred tax liability
	£'000
At 1 January 2022	6,459
Charged to the profit and loss account during the year	3,532
Charged to the other comprehensive statement	(1,586)
At 31 December 2022	8,405

The net deferred tax liability expected to reverse in 2023 is £97k. This relates to the reversal of timing differences on capital allowances.

continued...

15. LEASING AGREEMENTS

At 31 December 2022 the company has non-cancellable, operating lease commitments payable as follows:

	2022 £'000	2021 £'000
Within one year	353	306
Within two to five years	632	605
After five years	-	23
	985	934

Further capital expenditure not provided in financial statements:

	2022 £'000	2021 £'000
Contracts placed	4,561	10,072

16. PROVISIONS FOR LIABILITIES

	Decommissioning and closure £'000	Holiday Pay £'000	Total £'000
At 1 January 2022	130,819	130	130,949
Additions during the year	-	-	-
Finance costs unwind	(49,590)	-	(49,590)
Utilised during the year	(139)	-	(139)
Remeasurements	-	-	-
At 31 December 2022	81,090	130	81,220

Decommissioning and closure

This provision relates to the environmental clean-up and decommissioning costs that the Company will incur upon closure of the Clydach Site, which is expected to close production in 2046 and is based on the Life of Mine plan created by Vale Canada Limited. The provision reflects the cost of returning the site to a condition so that it can be used for industrial usage. The plan includes demolishing most of the onsite buildings and remediating the land to a standard agreed with Natural Resources Wales with all significant cash flows outflows due in 2046. The 'real' discount rate used in discounting the Clydach provision to its present value is 2% (2021: 0%), reflecting a risk-free rate that matches the expected timing of the cash flows.

The Clydach provision is based on a decommissioning plan prepared with the assistance of third party engineers. The plan reflects the work required to remediate the site in its current state. The techniques used to remediate and the condition of the site may be significantly different in 2046. However, there are no anticipated significant changes in estimate anticipated within the next 12 months. If the discount rate used on the site were to change by +/- 0.5%, this would give rise to a change in the provision of - £9,291k /+£10,587k. During 2023 the Clydach provision is expected to reduce by £270k due to costs associated with decommissioning.

The credit in the profit and loss account relates to the current year finance costs unwind, above, of £49,590k less the disposal of fixed assets relating to Clydach site of £944k

Holiday Pay

The holiday pay provision represents holiday balances accrued as a result of services rendered in the current period and which employees are entitled to carry forward. The provision is measured as the salary cost payable for the period of absence. During 2023 the provision is expected to reduce by £130k due to holiday balances taken in 2023.

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17. ACCRUALS AND DEFERRED INCOME

	2022	2021
	£'000	£'000
Deferred government grants	4,181	4,335

18. CALLED UP SHARE CAPITAL

Allotted, issued and fully paid:

Number:	Class:	Nominal value:	2022 £'000	2021 £'000
71,000,000 (2021: 71,000,000)	Ordinary	50p	35,500	35,500

There is a single class of ordinary shares. There are no restrictions on the distribution of dividends and the repayment of capital.

During the year dividends of £79,586k was paid to the shareholders, no final dividends were proposed.

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19. EMPLOYEE BENEFIT OBLIGATIONS

Defined benefit scheme

The company sponsors a defined benefit pension scheme (the Vale Europe Pension Plan) for its employees in the UK. The Scheme is funded by payment of contributions from the company to a trustee administered fund. Benefits were built up in the Scheme during the year on a "final earnings" basis, whereby the associated pension benefits are calculated with reference to a member's Final Pensionable Earnings at retirement or on leaving the Scheme, if earlier.

On leaving the Scheme the benefits allow for revaluation to retirement in line with price inflation as measured by the Retail Prices Index, subject to a maximum of 5% per annum compound. In addition to the benefits under the Plan, the company pays discretionary pension increases directly to certain pensioners. The present values of these discretionary pensions are included in these disclosures, as are the payments and corresponding company contributions.
The last full actuarial valuation was for 31st December 2018, with the actuarial valuation as at 31 December 2021 currently underway.

The Company does not currently expect to receive a refund at the end of the Scheme. Furthermore, the Company estimates that the present value of FRS 102 service costs are offset by the committed future service contributions and therefore the Company is not able to recover the surplus through reduced contributions in the future. Overall, these two points indicate no surplus may be recognised.

	2022 £'000	2021 £'000
Present value of funded defined benefits obligations	115,532	193,923
Fair value of plan assets	(152,484)	(222,452)
Surplus in scheme	**36,952**	**28,529**
Effect of asset ceiling	(36,952)	(28,529)
Net defined benefit asset	-	-

The movement in surplus is as follows:

	£'000
Opening surplus in the scheme	28,529
Irrecoverable surplus on pension scheme	7,895
Interest on effect of asset ceiling – see note 7	528
	36,952

Movement in present value of defined benefit obligation	2022 £'000	2021 £'000
At 1 January	193,923	214,514
Service cost	2,601	3,034
Interest cost	3,548	2,866
Actuarial (gains)/losses	(77,657)	(19,007)
Curtailment Gain	-	-
Benefits paid	(6,883)	(7,484)
At 31 December	115,532	193,923

 continued...

19. EMPLOYEE BENEFIT OBLIGATIONS (Cont.)

Movement in fair value of plan assets	2022 £'000	2021 £'000
At 1 January	222,452	205,974
Expected return on plan assets	3,565	2,361
Actuarial (loss)/gain	(72,499)	13,129
Contributions by employer	5,849	8,472
Benefits paid	(6,883)	(7,484)
At 31 December	152,484	222,452

Expense recognised in the profit and loss account	2022 £'000	2021 £'000
Current service cost	2,601	3,034
Net interest on defined benefit liability	511	505
Curtailment Gain	-	-
Total	3,112	3,539

The total amount recognised in the other comprehensive income statement in respect of actuarial gains and losses is £5,686,000 gain (2021: £32,136,000 gain).

Cumulative actuarial losses reported in the other comprehensive income statement are £70,868,000 (2021 : £76,554,000).

The major categories of scheme assets as a percentage of total scheme assets are:

	2022	2021
Equities	31.3%	42.5%
Fixed interest gilts	11.3%	10.1%
Index-Linked gilts	24.0%	18.5%
Corporate bonds	33.4%	28.9%
	100%	100%
Actual return on scheme assets	(68,934)	15,490

Principal assumptions

The principal actuarial assumptions at the balance sheet date were:

	2022	2021
Discount Rate	4.95%	1.85%
Interest on assets	4.95%	1.85%
Inflation (RPI)	3.20%	3.50%
Inflation (CPI)	2.40%	2.70%
Rate of increase of salaries	3.95%	4.25%
Rate of increase of pensions in payment:		
Fixed	0.00%	0.00%
RPI (Max 5%)	3.05%	3.35%
RPI (Max 2.5%)	2.05%	2.30%

19. **EMPLOYEE BENEFIT OBLIGATIONS (Cont.)**

Pre-retirement mortality	S2 PA YOB, CMI 2021 Rate of improvement of 1.25% Pa for males and 1% pa for females	S2 PA YOB, CMI 2020 Rate of improvement of 1.25% Pa for males and 1% pa for females
Post retirement mortality	S2 PA YOB, CMI 2021 rate of improvement of 1.25% pa for males and 1% pa for females	S2 PA YOB, CMI 2020 rate of improvement of 1.25% pa for males and 1% pa for females
Withdrawals	Scheme scale	Scheme scale
Cash Commutation	Members are assumed to commute pension benefits at retirement for cash lump sums equal to 33% of the maximum permitted	Members are assumed to commute pension benefits at retirement for cash lump sums equal to 75% of the maximum permitted

Sensitivity Analysis

The following table shows the sensitivity of the defined benefit obligation in respect of the Scheme, as at 31 December 2022 to changes in the discount rate, inflation, salary increase and life expectancy assumptions. In each sensitivity scenario, only the specified assumptions have been changed and all other assumptions remain unchanged.

Sensitivity	2022 FRS 102	Decrease discount rate by 1.0% pa	Increase RPI and CPI inflation and all related assumptions by 0.5% pa	Increase rate of salary increase by 0.5% pa	Increase life expectancy by 1 year
Present value of funded obligations (£000)	115,532	17,634	4,363	1,647	4,459

Defined contribution scheme

The company operates a defined contribution pension scheme. The pension cost charge for the period represents contributions payable by the company to the scheme and amounted to £319,612 (2021: £299,589).

20. **IMMEDIATE AND ULTIMATE PARENT UNDERTAKING**

The immediate parent undertaking is Vale Inco Europe Holdings. The ultimate parent undertaking and controlling party is Vale S.A., a company incorporated in Brazil.

Vale S.A. is the parent undertaking of the largest group of undertakings to consolidate these financial statements at 31 December 2022. The consolidated financial statements of Vale S.A. can be obtained from Vale S.A. Praia De Botafogo 186 Offices 701 - 1901, Botafogo 22250-145, Rio de Janeiro, Brazil.

Vale Canada Limited is the parent undertaking of the smallest group of undertakings to consolidate these financial statements, these can be obtained from this address - 200 Bay Street, Royal Bank Plaza, Suite 1500, South Tower, P.O. Box 70 Toronto, Ontario M5J 2K2 Canada.

21. **POST BALANCE SHEET EVENT**

In Q1 2023 Vale Taiwan Limited (VTL) assets have been sold to a third party, funds proceeding from this sale will be sent back to Vale Europe limited as dividends and capital reduction. This is a non adjusting post balance sheet event.