

Annual Report and Financial Statements

For the year ended 31 December 2023

Company Registration No: 02937881 (England and Wales)





National Physical Laboratory (NPL)
Annual Report and Financial Statements
For the year ended 31 December 2023

Contents

Company Information.....	3
Introduction from the Chair	4
Chief Executive's Summary	6
Directors Report	9
Governance Statement.....	12
Strategic Report.....	26
Sustainability Report.....	43
Directors' Responsibilities Statement.....	54
Independent auditor's report to the members of NPL Management Limited.....	55
Profit and Loss Account	61
Statement of Comprehensive Income	62
Statement of Changes in Equity	63
Balance Sheet.....	64
Notes to the Financial Statements	66

Company Information

Directors

Professor G Reid (Chair)

Dr P Thompson

Professor Sir J McDonald (Non-Executive)

Professor G Q Max Lu (Non-Executive)

Ms P Holt

Dr R Hart (passed away 14 February 2023)

Ms C Quinn (Non- Executive)

Ms H Wallace (Non- Executive) (resigned 9 January 2023)

Dr R Sorrell (Non- Executive)

Dr C Bell (Senior Independent Non-Executive)

Mr A Chang (Non- Executive)

Ms C Schmolke (Non- Executive)

Mr D Sandford (Non- Executive) (appointed 9 January 2023, resigned 4 September 2023)

Mr D McSweeney (appointed 14 June 2023, resigned 19 February 2024)

Ms L Jamieson (Non-Executive) (appointed 4 September 2023)

Dr V Saward (appointed 2 October 2023)

Company Secretary

Rebecca Hunter

Address

National Physical Laboratory

Hampton Road

Teddington

Middlesex TW11 0LW

Banker

Barclays Bank plc

1 Churchill Place

Canary Wharf

London E14 5HP

Auditor

RSM UK Audit LLP

One London Square

Cross Lanes

Guildford

Introduction from the Chair

Climate change was once something to worry about in future. It is now staring us in the face. Extreme weather events are no longer unusual. The consumption of natural resources has moved from an abstract topic of discussion to a mainstream agenda for businesses and public bodies.

Governments around the world have appropriately set out policies and ambitions to reduce greenhouse gas emissions, increase recycling and otherwise improve environmental sustainability. Effective policies can only be designed and delivered if there are robust, widely respected and standardised methods of measuring progress.

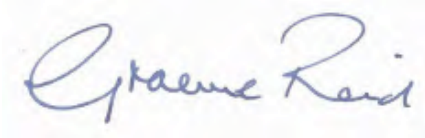
As the UK's National Metrology Institute, NPL has a central role in developing and improving measurements of many aspects of sustainability, such as heavy metal contamination, greenhouse gas emissions and ocean temperatures. Some of this work builds on long-standing expertise at NPL while other work relies on partnerships and collaborations with other organisations who have specialist facilities and vital expertise.

For example, NPL is leading the Greenhouse Gas Emissions Measurement and Modelling Advancement (GEMMA) Programme. This will measure UK emissions and display them through a monthly dashboard. This system will allow the UK to accurately measure and assess changes in greenhouse gases including vital information on the contribution from different sectors.

NPL has joined a national consortium led by the National Centre for Earth Observation to create a UK Earth Observation Climate Information Service and develop a new earth observation data hub.

Meanwhile NPL is searching for ever more ways to improve the environmental sustainability of its own operations. Of course, we want robust measures of our own progress. We have already increased our recycling rate, donated unwanted scientific instruments to schools and reduced single-use plastics. We work in partnership with Giki Zero - a social enterprise - and The Institute of Environmental Management and Assessment to engage and train our people. Our site in Teddington has greater biodiversity thanks to even more sensitive management of our gardens and grounds.

It should be no surprise to see such a strong focus on environmental sustainability in this report. NPL is proud of its contribution to such an important agenda and is strongly committed to its own continuous improvement in future.

A handwritten signature in blue ink that reads "Graeme Reid". The signature is written in a cursive style.

Professor Graeme Reid

Chair of the National Physical Laboratory



Chief Executive's Summary

NPL makes a tangible difference to people and the planet – from saving lives, to protecting the environment and enabling the population to feel safe and secure, our people make things happen, each and every single day.

2023 was no different and I'm so proud of the impact our people achieved over the past year. We continued to make world-changing scientific breakthroughs, address critical national challenges, support new innovations, provide measurement infrastructure and overcome industrial obstacles.

From projects in Tenerife to South Africa, our impact can be felt on a global scale. A prime example includes working with CERN to develop a caesium atomic fountain clock for experiments that aim to change the way we understand the Universe.

On home soil we launched the UK Telecoms Lab on behalf of the Department for Science, Innovation & Technology (DSIT) - which provides the capability to improve the security of the UK's telecoms networks. We delivered extraordinary impact to micro and SME companies to scale up via our successful Measurement for Business (M4B) and Analysis for Innovators (A4I) partnerships – giving businesses across the UK access to our world-leading expertise, helping them to tackle challenges that would otherwise hold back their innovation.

In 2023 we made strides in the healthcare arena, providing the measurement infrastructure to accelerate the technological advances that will enable the UK to diagnose, monitor, treat, cure and prevent a wide range of diseases and reduce health inequalities. We developed the world's first primary standard for proton radiotherapy, a cancer treatment proven to be particularly successful for treating children and complex tumours. This primary standard will improve outcomes and positively impact cancer care from the perspective of patients and clinicians alike.

In terms of the global green agenda, our expertise in the calibration of sensors and standards associated with data outputs, has uniquely placed us to give critical input into the national greenhouse gas inventory. Our knowledge is helping to steer the UK towards

its 2050 net-zero target via the Greenhouse Gas Emissions Measurement and Modelling Advancement (GEMMA) Programme. GEMMA is an NPL led consortium created to demonstrate the integrated total of measured UK emissions, displayed through a monthly national emissions dashboard. Over the next two years the data from this programme will contribute to an operational system framework that will define requirements and capabilities to map net zero implementation to 2050 and beyond.

In October, the UK Government announced a new policy framework to tackle the risks associated with position, navigation, and timing (PNT). Within the policy, the Government outlined its continued support of NPL's National Timing Centre (NTC), which provides resilient, terrestrial, sovereign and high-quality timing for the UK. Improved timing resilience will help to accelerate innovation in new technologies such as smart grids, time-critical 5G and 6G applications, factories of the future, smart cities and connected autonomous vehicles.



Image 1: Dr Peter Thompson, CEO, Dr Emma Haynes, Partnership Director and Dr Leon Lobo, Head of NTC visiting NPL's caesium fountain clock installed at CERN.

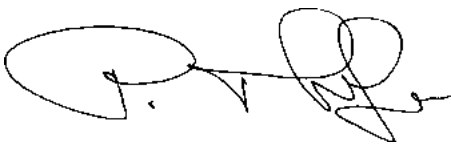
In November, we collaborated with BSI, the Department for Science, Innovation and Technology (DSIT), UKQuantum, the National Cyber Security Centre (NCSC) and the National Quantum Computing Centre (NQCC) to launch the UK Quantum Standards

Network Pilot. The pilot will provide a focal point on standards for UK industry, helping to further the advancement of quantum technologies in applications ranging from healthcare to finance, defence to communications.

We continued to inspire the next generation of scientific pioneers through our many engaging outreach activities, including partnering with the Royal Institution for a series of talks, in which we connected with over 1,000 members of the public on global challenges such as climate change, health and resilient timing infrastructure.

And finally, over the summer, we took to the river Thames for a historic event in which we presented the Royal Museums Greenwich with an atomic clock to celebrate how our two organisations continue to play a hugely influential role in how the world tells time.

In summary, 2023 was an exceptionally busy year for our extraordinarily talented people. Our diverse workforce, made up of over 1,600 talented scientists, engineers, technicians and professionals have a marked history of breaking down barriers, transforming society and inspiring the next generation, and we hope to continue this far into the future.



Dr Peter Thompson

Chief Executive Officer
of the National Physical Laboratory



Directors Report

The Directors present the Annual Report and Accounts of NPL Management Limited for the year to 31 December 2023.

The company is domiciled and incorporated in the United Kingdom, the parent and ultimate controlling party of the Company is the Secretary of State for Science, Innovation and Technology.

The principal activity of the Company is to provide scientific research and development, programme management and business support services, as a wholly-owned subsidiary of the Department for Science, Innovation and Technology (DSIT)¹. Excellent science is at the heart of NPL's activities – driving innovation, supporting industry and improving quality of life, both for the UK and internationally. We maintain a wide portfolio of internationally-visible research programmes that advance measurement science, underpin the SI system of measurement units and support cross-disciplinary technologies.

The directors are not aware, at the date of this report, of any major changes in the Company's activities in the next year.

Details of future developments, the Company's business relationships with suppliers, customers and others, financial risk management and employee involvement, can be found in the Strategic Report and form part of this report by cross-reference. Details of the Company's risk management approach and the principal risks faced by the Company can be found in the Governance Report and form part of this report by cross-reference.

Details of greenhouse gas emissions, energy consumption and energy efficiency requirements can be found in the Sustainability Report.

During the financial year, the directors have ensured that full and fair consideration was given to applications for employment by the company made by disabled persons, having regard to their particular aptitudes and abilities. Furthermore, the directors ensured that there was employment of, and appropriate training for, employees of the company who have become disabled persons during the period when they were employed by the

¹ On 10 February 2023 responsibility for NPL transferred from the Department for Business, Energy and Industrial Strategy (BEIS) to DSIT

company, and that there was training, career development and promotion of disabled people employed by the company. Further details of the Company's approach to all aspects of diversity and inclusion can be found in the Strategic Report.

Dividends

No dividends have been paid or declared in the year. The directors do not recommend a final dividend (2022: £nil)

Directors

The following directors held office during the period 1 January 2023 up to the date of the signing of the financial statements:

Professor G Reid (Chair)

Dr P Thompson

Professor Sir J McDonald (Non-Executive)

Professor G Q Max Lu (Non-Executive)

Ms P Holt

Dr R Hart (passed away 14 February 2023)

Ms C Quinn (Non- Executive)

Ms H Wallace (Non- Executive) (resigned 9 January 2023)

Dr R Sorrell (Non- Executive)

Dr C Bell (Senior Independent Non-Executive)

Mr A Chang (Non- Executive)

Ms C Schmolke (Non- Executive)

Mr D Sandford (Non- Executive) (appointed 9 January 2023, resigned 4 September 2023)

Mr D McSweeney (appointed 14 June 2023, resigned 19 February 2024)

Ms L Jamieson (Non- Executive) (appointed 4 September 2023)

Dr V Seward (appointed 2 October 2023)

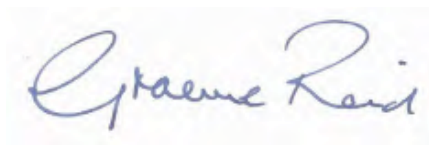
Disclosures to Auditor

Each of the persons who is a director at the date of approval of this report confirms that:

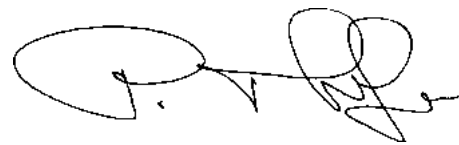
- so far as the director is aware, there is no relevant audit information of which the Company's auditor is unaware; and
- the director has taken all the steps that he/she ought to have taken as a director in order to make himself/herself aware of any relevant audit information and to establish that the company's auditor is aware of that information.

This confirmation is given and should be interpreted in accordance with the provisions of s418 of the Companies Act 2006.

Approved by the Board and signed on its behalf by:



Professor Graeme Reid | Chair



Dr Peter Thomson | CEO

Date: 30th May 2024

Governance Statement

The purpose of the governance statement

The Governance Statement gives a clear description and illustration of the composition and organisation of NPL's governance structures, explaining its control and decision-making structure. NPL is not required to comply with the provisions of the UK Corporate Governance Code ('The Code') but does aim to adhere to the principles where relevant and practicable. The statement explains how NPL has complied with the principles of good governance and how the NPLML Board (the Board / NPL Board) has acted on its responsibility for the appropriate and effective governance of NPL.

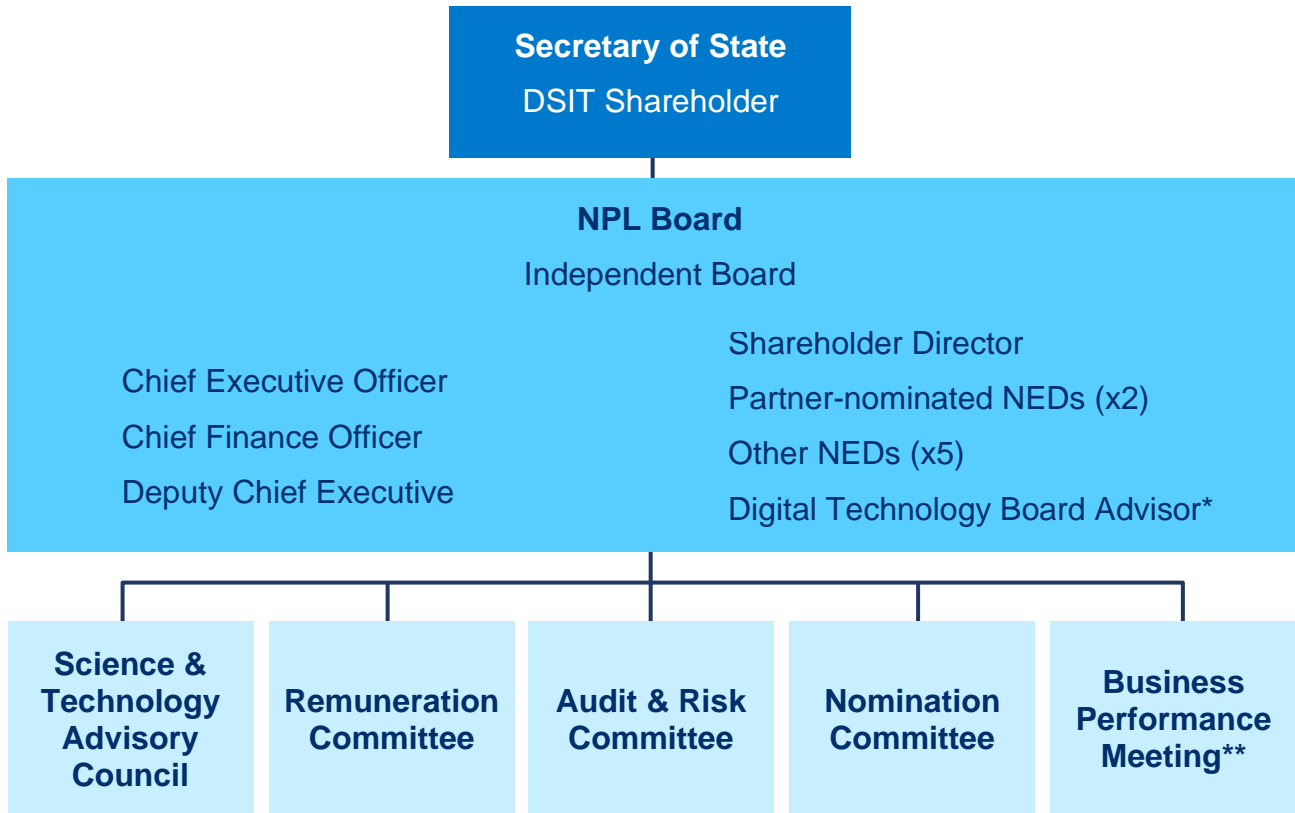
Sustainability aspects of governance are covered in the sustainability report which is to be found on page 43.

Statement of responsibility

As Chief Executive Officer and NPL's Accountable Person, I have responsibility for the maintenance and oversight of a sound system of internal control and governance that supports the achievement of NPL policies, aims and objectives. In addition, I am responsible to the DSIT Principal Accounting Officer for the high standards of probity in the management of public funds and departmental assets. This is in accordance with the responsibilities assigned to me in HM Treasury's Managing Public Money. The Board of Directors is responsible for the wider governance of NPL.

The governance framework

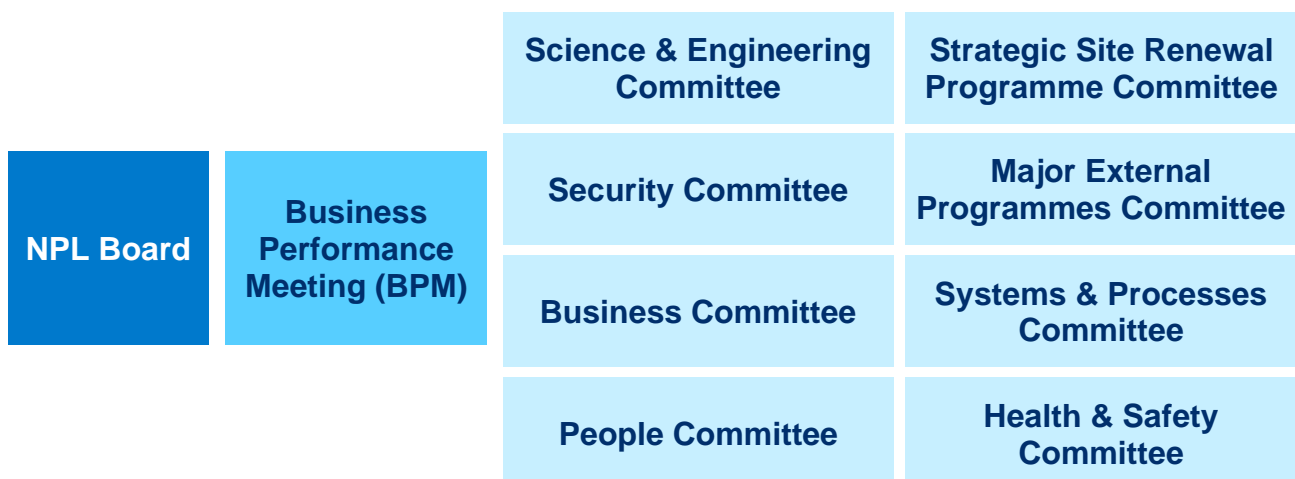
NPL Board Level Committees



*The Digital Technology Board Advisor is not appointed as a Board Director but supports the Board and attends Board meetings

**The Business Performance Meeting is not a committee of the NPL Board, but reports from this meeting are circulated to the NPL Board

NPL Executive Level Committees



The NPL Board and its Committees

Roles and high-level responsibilities within NPL's governance framework include the following:

DSIT Secretary of State

The Secretary of State for Science, Innovation and Technology (DSIT) is the Minister with formal responsibility for NPL. Day-to-day ministerial oversight is undertaken by the Minister for Science, Research and Innovation. The Secretary of State and the Minister for Science, Research and Innovation are answerable to Parliament for all matters relating to NPL and hold ministerial policy responsibility for NPL.

NPL Board

The Board ensures that NPL is working within a framework of effective governance arrangements. The Board provides support, independent constructive challenge and strategic leadership to the NPL Executive Team and enables risk to be appropriately assessed and managed. The Board is led by an independent, non-executive Chair, Professor Graeme Reid. The Senior Independent Director remains Dr Carol Bell.

The Board's composition

The NPL Board composition underwent some changes through 2023, in part as a result of the tragic untimely passing of Dr Robin Hart, NPL's Deputy CEO, in February 2023. Following a period of reflection and a review of the Deputy CEO role, a recruitment campaign was undertaken and Dr Vicki Saward was appointed as Deputy CEO in October 2023.

Ms Penny Holt, NPL's Chief Financial Officer, took a leave of absence owing to ill health from April 2023 and was absent from her role for the remainder of the year. Mr David McSweeney was appointed as interim Chief Financial Officer to support NPL during Ms Penny Holt's absence and was appointed as a statutory Director in June 2023.

Mr Niall Trafford joined NPL as a Distinguished Visitor to provide additional support to the NPL Executive Team during this time of change but was not a member of the NPL Board.

The Boards composition comprises:

- an independent Chair (Professor Graeme Reid).
- a senior independent Director (Dr Carol Bell).
- a DSIT Shareholder Representative (Mr David Sandford resigned on 4 September 2023 and was succeeded immediately by Ms Lindsay Jamieson).
- representation from each of NPL's Strategic University Partners: The University of Surrey (Professor G. Q. Max Lu) and University of Strathclyde (Professor Sir Jim McDonald).
- four other independent Non-Executive Directors:
 - Mr Andrew Chang (also the Chair of the Audit and Risk Committee)
 - Ms Catherine Quinn (also the Chair of the Remuneration Committee, re-appointed for a second three-year term on 11 November 2023)
 - Dr Robert Sorrell (also the Chair of STAC)
 - Ms Catriona Schmolke
- three Executive Directors:
 - the Chief Executive Officer
 - the Chief Finance Officer
 - the Deputy Chief Executive Officer
- a senior civil servant acting as NPL's digital and technology advisor who is not appointed as a Board Director but supports the Board and attends Board meetings (Mr Dan Rodenhurst).

The Science and Technology Advisory Council (STAC):

The STAC provides independent strategic advice, challenge and support to NPL, particularly on the quality, international standing and industrial relevance of NPL's science and technology. Members comprise 15 independent and distinguished members from across industry, academia and international laboratories. Biographies of all members of the STAC can be found on NPL's website at: <https://www.npl.co.uk/about-us/people/stac>. The Chair of the STAC remains Dr Robert Sorrell.

The Remuneration Committee (Rem Com):

The Rem Com approves the remuneration and incentives for employees and, in particular, for the Executive Directors in accordance with its terms of reference. During 2023 the Rem Com was chaired by Ms Catherine Quinn.

The Audit and Risk Committee (ARC):

The ARC oversees audit and risk management in NPL. The Committee is responsible for providing assurance to the Board on the adequacy and effectiveness of governance, internal control and risk management arrangements. The ARC is chaired by Mr Andrew Chang.

The Nominations Committee (Nom Com):

The Nom Com plays a key role in the appointment process for Board members and for making recommendations to the Board. The Nom Com is chaired by the Senior Independent Director, Dr Carol Bell.

The Business Performance Meeting (BPM):

The BPM membership comprises the NPL Executive and is NPL's business and operational decision-making forum, providing direction and leadership to the organisation. The BPM meets on a monthly basis and was chaired by Dr Peter Thompson during 2023.

Thermology Health Ltd.

Thermology Health Ltd. Was incorporated as a subsidiary entity of NPL Management Ltd on 19 July 2023. Previously known as Celsius Health Ltd, Thermology Health Ltd's Executive Team was led by Yuval Yashiv, CEO, Noeline Sanders, CFO, and Dr Paul Hayes, Chief Medical Officer, during 2023. The Board was chaired by Dr Peter Thompson, and comprises Yuval Yashiv (CEO); Christopher Langley (non-executive Director); and Simon Devonshire (non-executive Director).

For more information on Thermology Health Ltd, please refer to page 82.



Image 2: Concept art of Thermology Health's thermal scanning technology.

NPL Board and Board Committee attendance

2023 Board Members	Position	NPL Board	Rem Com	ARC	Nom Com	STAC*
Total Number of Meetings		3²	3	4	3	2
Prof Graeme Reid	NPL Board Chair	3			3	2
Dr Carol Bell	Senior Independent Director	2		3	3	
Mr Andrew Chang	Non-Executive Director	3	2	4		
Ms Catriona Schmolke	Non-Executive Director	3		4	3	
Dr Robert Sorrell	Non-Executive Director	3	3			2
Ms Catherine Quinn	Non-Executive Director	3	3	3		
Ms Harriet Wallace³	Shareholder Director					
Mr David Sandford⁴	Shareholder Director	1/1	0/2	2/2	2/2	
Ms Lindsay Jamieson⁵	Shareholder Director	2/2	1/1	2/2	1/1	
Prof G.Q. Max Lu	Partner-nominated Non-Executive Director	3	2			
Prof Sir Jim McDonald	Partner-nominated Non-Executive Director	3			0/3	
Dr Peter Thompson	Chief Executive Officer	3				
Dr Vicki Saward⁶	Deputy Chief Executive Officer	1/1				
Ms Penny Holt⁷	Chief Finance Officer	0/3				
Mr David McSweeney	Interim Chief Finance Officer	2/2				
Mr Dan Rodenhurst	Digital Technology Board Advisor	3				

² Dr Robin Hart's tragic passing in February led to the cancellation of the February Board meeting. Whilst monthly Board calls were held in the interim periods, the Board met three times for formal Board meetings through 2023.

³ Ms Harriet Wallace resigned on 9 January 2023.

⁴ Mr David Sandford was appointed on 9 January 2023 and resigned on 4 September 2023.

⁵ Ms Lindsay Jamieson was appointed on 4 September 2023.

⁶ Dr Vicki Saward was appointed on 2 October 2023.

⁷ Ms Penny Holt took a leave of absence due to ill health from April 2023 and, owing to the timings of this leave, did not attend any Board meetings in 2023. Mr David McSweeney was appointed as a Director on 14 June 2023 in the capacity of Interim Chief Finance Officer to support NPL during Ms Penny Holt's leave of absence.

NPL Board business

During the year the NPL Board met three times for full Board meetings and seven times across the months when there was no formal full Board meeting for 1-hour Teams Meetings. The Board also met for a full strategy day in July 2023. The Board held wide ranging discussions on subjects of key importance to NPL, covering items for visibility, advice and decision-making. These included:

- consideration of the latest Health and Safety Reports
- reports from the Board's Committees on their activities
- financial and business performance, including the five-year Capital Plan and Business Performance Metrics
- reports on the activity of the NPL People Committee⁸
- updates from the DSIT Shareholder on relevant activity in central government
- review and scrutiny of the NPL strategic risk register, including internal and external risks and mitigations to business performance
- authorisations of cash expenditure and opportunities with a value of over £3m
- NPL's major external programmes
- NPL's values

⁸ The NPL People Committee is an Executive Committee.

Board effectiveness

The Board completed the undertaking of an external effectiveness review in the Spring and considered the final report at the NPL Board. A number of actions were agreed to deliver continuous improvement in the maturity of the Board and enhanced governance to suit the needs of the organisation. These actions and changes were implemented throughout 2023.

In November 2023, the Nominations Committee commenced work on a Board skills self-assessment exercise, to consider areas of focus to support skills development, succession planning and continuous improvement. This work will conclude in 2024.

Board interests

All members of the NPL Board and the Executive Team are required to declare any conflict of interests or perceived conflict that may impact on, or be perceived to impact on, their judgement or independence regarding decision making or involvement with any future of existing transaction or arrangement. This is in compliance with Sections 175, 178 and 182 of the Companies Act 2006. Where conflicts have been declared, these have been recorded and handled in accordance with best practice.

In 2023 Dr Peter Thompson declared a conflict in his capacity as CEO of NPL Management Ltd, in being appointed the Chair of the Thermology Health Ltd Board. The appointment would be from the point of incorporation through to investment, when the Board would be reconstituted. The potential for conflict, or perceived conflict, was noted early in the process of establishing the Board for Thermology Health Ltd and independent advice was sought on the appointment. Through this process, mitigation was put in place to allow Dr Peter Thompson to step away from any financial negotiation and decision making on behalf of NPLML in connection with Thermology Health Ltd, with the NPL Chief Finance Officer taking on this role and reporting directly to the Board on these matters.

Each of NPL's independent non-executive Directors hold multiple roles on Boards and Committees for other organisations. Consideration has been given to their collective commitments to ensure each non-executive Director has sufficient capacity to fulfil their role on the Board and their fiduciary duties.

The Company's remuneration policy and practices

The Remuneration Committee has robust terms of reference which give a clear mandate for responsibility of NPL's remuneration policy. The Remuneration Committee decides and advises on NPL's remuneration policy and approach to pay and incentives for employees and for Executive Directors.

The Remuneration Policy includes the following criteria, such that remuneration levels:

- are aligned with the objectives of NPL;
- are sufficient to attract and motivate high-calibre individuals to drive the delivery of the activities and objectives of NPL;
- are structured to link remuneration of all employees to performance in line with the Corporate Plan;
- deliver value for money; and
- take account of remuneration levels within comparable public sector institutions and are set with wider public sector pay policy in mind.

The committee's work is also undertaken with reference to the NPL Framework Document and the UK Corporate Governance Code 2018, all of which support the strategic direction of NPL's Remuneration Policy.

The Remuneration Committee comprises six Non-Executive Directors and is chaired by an experienced Non-Executive Director, Ms Catherine Quinn. NPL's Chief Executive and Chief People Officer are invited to attend all meetings (except for items that consider their own remuneration and/or terms and conditions of employment). The membership of the Remuneration Committee includes the DSIT Shareholder Director and ensures that the Shareholder view is considered in decision making. The committee also considers industrial relations and employee engagement.

The Committee met three times in 2023 to consider items including the discussion and approval of NPL's leadership bonus for 2022 and pay proposals for 2024. The Committee has evidence of NPL's performance metrics, achievements against strategic objectives,

and the ways in which these outcomes were accomplished, supporting the Committee in its decision making on remuneration proposals.

The Committee ensures decisions on remuneration, including the design of any bonus scheme and the level of annual staff salary increases, are made with wider consideration of the principles set out in Provision 40 of the UK Corporate Governance Code 2018, ensuring remuneration arrangements are clear and transparent; as simple as possible; adopt a risk-based approach; proportionate; and aligned with NPL's organisational cultures, values and strategy. NPL's remuneration policy is operating as intended.

The Remuneration Committee exercised their discretion in decision making through 2023 on remuneration outcomes, agreeing to honour Robin Hart's annual performance bonus for 2022 and pay this to his estate.

Executive management effectiveness

As Chief Executive Officer, I have primary responsibility for the day-to-day management of the business and discharge my responsibilities through the Executive Leadership Team. The Executive Leadership Team meets formally, on a monthly basis, at the Business Performance Meeting and also meets monthly for an Executive Strategy Day.

Executive-level governance

Sub-committees of the BPM report into the BPM monthly through written reports and verbal updates, ensuring good information flow between the committees; the appropriate escalation of risk and opportunity; and holistic decision making with clear accountabilities. Through 2023 some reform of the sub-committees of the BPM was undertaken to improve the governance structures and align with NPL's priorities. A new Security Committee was established, and a Strategic Site Renewal Programme Committee (SSRPC) was also created. The Assets and Environment Committee was discontinued, and its responsibilities incorporated into the Terms of Reference for the SSRPC.

The internal control framework

NPL continues to maintain and update the existing internal control framework which has operated successfully for many years. As part of its wider Corporate Assurance responsibilities, NPL reviews and updates its internal controls on a rolling cycle to ensure they meet the changing needs of the organisation. The Audit & Risk Committee reviews the framework annually.

Tax compliance (Alexander review)

NPL is compliant with the requirements of the Alexander Review. NPL has sought and gained assurance that the appropriate tax arrangements are in place for all contractors, including IR35.

Quality assurance

The MacPherson Review of Quality Assurance (QA) of Government Analytical Models is not applicable to NPL as NPL does not use such models.

Risk management

The NPL Board has accountability for risk management and has delegated this to the NPL Audit and Risk Committee. Together, the NPL Board, Audit and Risk Committee and the Business Performance Meeting provide the governance processes and the time to consider NPL's risk landscape and provide the oversight and leadership of risk management in NPL.

The NPL Executive Team has overall responsibility for identifying major risks to NPL's business activities. All business and commercial activities contain risk and uncertainty and risk management is an integral part of business management. Some risks and uncertainties cannot be eliminated completely, so NPL's aim is to understand them and devise a control and mitigation strategy.

NPL's approach to risk aligns with the Government's Orange Book on the principles and concepts of risk management.

The NPL Executive Team maintains a strategic and operational risk register and reviews its risk landscape monthly at the Business Performance Management meeting. This approach ensures strategic and operational risks are identified, assessed, and monitored. In addition, deep-dives of individual risks are undertaken regularly by the NPL Board, the Audit & Risk Committee and the Business Performance Meeting (BPM).

The most significant risks in 2023 were in the areas of:

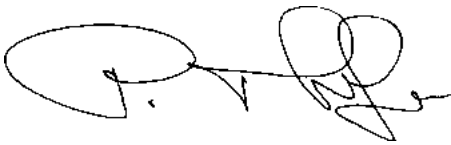
- A major Health, Safety or Environmental occurrence adversely affecting our people, neighbours, the general public or the local environment as a direct result of an unsafe act or omission by NPL.
- Talent acquisition, development and retention to support national challenges.
- Economic shock challenging financial sustainability.
- Supply chain challenges impacting capital procurement and customer delivery.
- Reputational damage owing to failures to comply with operational compliance legislation and standards, including emerging ESG standards and best practice.
- A major cybersecurity incident.

Through the autumn of 2023, the Executive Team reviewed NPL's risk appetite against the thirteen risk categories and framework set out in the Government's Orange Book. The Executive Team have defined NPL's risk appetite through the following statement:

"NPL has an ambitious strategy to be **recognised as a world leading centre of excellence, pushing the boundaries** of measurement science, engineering and technology to **provide extraordinary impact** that underpins the prosperity and quality of life in the UK. Our risk appetite is aligned with this strategy, recognising that the delivery of new science, innovation and the technology to realise it requires a **high risk** appetite.

The building blocks of this strategy, covering a broad range of disciplines, the scale of programmes and change and the openness of the organisation to innovation require the flexibility of a **medium risk** profile.

There is a **very low to low risk** appetite in those areas where emergent issues, poor risk control or divergence from NPL values could distract from the corporate plan, or in areas that relate to the health and safety of our people.”

A handwritten signature in black ink, appearing to be 'P. Thompson', written in a cursive style.

Dr Peter Thompson

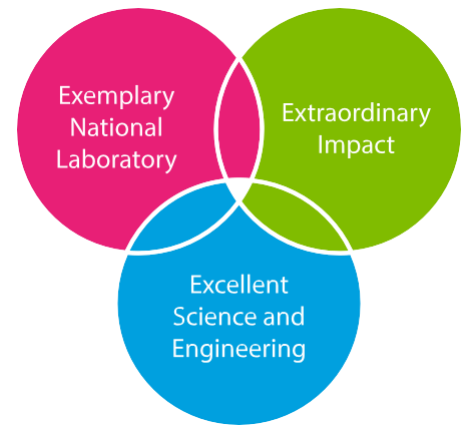
Accountable Person

Date: 30th May 2024

Strategic Report

Mission, vision and values

Throughout 2023 our high-quality science and engineering continued to deliver on our mission to provide the measurement capability that underpins the UK's prosperity and quality of life.



Our vision continues to be to deliver extraordinary impact from excellent science and engineering as a world-leading and exemplary national laboratory.

We are committed to providing a progressive and inclusive working environment that promotes wellbeing and flexible ways of working, enabling our values to flourish and our people to thrive and be their authentic selves, wherever they are working.

Review of the year and future outlook

Our focus over the past year has firmly remained on applying our science and engineering expertise to further the innovation landscape in the UK, tackling the most pressing challenges at hand. We have been working to drive technology forward in emerging areas such as AI, engineering biology, future telecommunications, semiconductors and quantum technologies. We continued to convene with thought leaders across a wide range of industries and sectors, from across the UK and the globe.

NPL continued to provide the measurement infrastructure to accelerate the technological advances that enable diagnosis, monitoring, treatment and prevention of disease. In 2023 we developed a dedicated primary standard specifically for proton radiotherapy, as well as protocols for auditing clinics, which will improve outcomes and quality of life for cancer patients.

Our participation in Innovate UK's Analysis for Innovators funding programme continued into 2023, with three rounds running across the year. We assisted in delivering 80 projects, with 15 different scientific groups providing their expertise and cutting-edge R&D to help organisations tackle challenges that would have otherwise held back their innovation.

The development of energy storage technology is vital to the large-scale utilisation of renewable energy and is one of the keys to realising the UK's Net Zero Strategy. NPL scientists teamed up with researchers from the University of Surrey and University College London to develop an ultrathin semiconductor film that can address the safety issues of solid-state electrolytes, whilst dramatically increasing the lifespan of solid-state lithium-ion batteries. The advancement of next-generation energy storage technology will help to reduce the risk of climate change.

We continued NPL working with industry, government, and academia to research, develop and implement new clean hydrogen capabilities. Our work is supporting the Government's national ambition to achieve 10 GW of low carbon hydrogen production in the UK by 2030 through supporting the development of electrochemical technologies, including fuel cells and electrolyzers, and the deployment of hydrogen as an alternative fuel. Alongside this, we are also assessing the suitability of existing gas infrastructure and materials for hydrogen transportation and validating techniques for hydrogen storage.

Our work was felt on a global scale. In 2023, we deployed a new solar radiance measurement facility at the Teide Observatory in Tenerife, the first of its kind to be traceable to the SI, with high spectral resolution and fully characterised uncertainties. This will provide critical data for monitoring climate change. We installed state-of-the-art NPL thermocouple calibration equipment at the NMI in South Africa, allowing them to reduce their uncertainties and develop world-leading capabilities in contact thermometry.

We helped inspire the minds of tomorrow's scientific pioneers through innovative programs, engaging events, and inclusive initiatives. We ran our annual calendar events such as NPL Academy, Water Rockets Festival, Bushy House Open Day as well as new collaborations such as those with the Blakett Lab Family, promoting physics to teenage Londoners of African heritage and a talk at the Brooklands Innovation Academy.

As we move forward, we remain focussed on harnessing our world-leading expertise and capabilities to address the most pertinent challenges facing the planet, the people who inhabit it, and their prosperity.

As shown in the Company's profit and loss account on page 61, for the year ended 31 December 2023, the Company's turnover increased by 21% to £156.1m (2022: increase of 9.1% to £129.0m).

The Company made a profit before tax of £6.8m (2022: profit before tax of £1.9m). The increased profit for the year ended 31 December 2023 was due to a continued focus on improved efficiencies, coupled with the full year effect of changes to our operating model during 2022. As a result, turnover per employee for the year ended 31 December 2023 increased by 10% to £128k (2022: £116k).

As shown in the Company's balance sheet on page 64, net assets increased to £89.5m at 31 December 2023 (2022: £82.7m).

An important measure of the Company's financial health is the utilisation of our people on revenue-generating activities. The proportion of people costs charged to revenue generating projects increased from 59.4% in 2022 to 63.5% during 2023 following changes to our operating model during 2022, which included the roll out of time recording to non-scientific roles in April 2022. The NPL Net Promoter Score (NPS) for the year of 2023 is 84. This is a slight increase on the score of 83 for 2022.

Section 172(1) statement

The directors of NPL – and those of all UK companies – must act in accordance with a general set of duties. These duties are detailed in the UK Companies Act and include a duty to promote the success of the company, having regard to:

- The likely consequences of any decision in the long term; The interests of the Company's employees;
- The need to foster business relationships with suppliers, customers and others; The impact of the Company's operations on the community and environment;
- The desirability of the Company maintaining a reputation for high standards of business conduct; and
- The need to act fairly as between shareholders of the Company

As part of their induction, directors are briefed on their duties and are able to access advice on these from the Company Secretary.

The directors fulfil their duties partly through a governance framework that delegates day to day decision making to the Company's executive management and employees. Details of this can be found in our Governance Statement on pages 12 to 25.

The following paragraphs summarise how the directors fulfil their duties:

Our purpose, strategy and consideration of the consequence of decisions for the long term

As the UK's National Measurement Institute, NPL develops and maintains the primary measurement standards for the nation. From enabling the transformation and accuracy of cancer treatments to the redefining of the second, NPL's scientific achievements and game-changing technological advances must be built on a foundation of reliable measurement to succeed.

During our Board meetings in 2023 our primary considerations have been how our strategy should evolve to continue to deliver maximum impact, particularly in areas of national priority, as well as the safety, security and wellbeing of our people. In addition to the quarterly scheduled Board meetings, monthly Board teleconferences were held throughout 2023, focusing specifically on NPL's financial performance, priority strategic projects, and governance matters. Each year the Board also undertakes an in-depth review of the Company's strategy and in July 2023 an additional strategic Board meeting was held at one of our University Partner locations at Strathclyde University. This strategic Board meeting focused on NPL's ambition and plans to support the Government's medium and longer-term priorities for science, innovation, and technology.

Risk management

The Company operates a risk management system, which is regularly reviewed by the directors. The directors seek to ensure that risk is managed with the purpose of minimising any potential adverse effect on the Company's performance. The Company's approach to risk management and a summary of the most significant strategic risks facing the Company are set out in the Governance Statement on page 12. There is a robust schedule of Board and Committee meetings that review these risks.

Our people

The Directors recognise that NPL's employees are fundamental to our business and delivery of our strategic ambitions. The success of our business depends on attracting,

retaining and motivating our employees. From ensuring that we remain a responsible employer, from pay and benefits to our health, safety and workplace environment, the Directors factor the implications of decisions on employees and the wider workforce, wherever relevant.

Further details of how we engage with our people, our culture, working environment, our approach to diversity and inclusion and how we are supporting early career scientists can be found on pages 33-41.



Image 3: Recreational space is provided for employees to use for collaborative working and social engagement.

Our business relationships

Delivering our strategy requires strong mutually beneficial relationships with Government, suppliers, customers, and partners across both industry and academia.

With this in mind, on 1 April 2015, we concluded a Partnering Agreement with BEIS, NPL, the University of Strathclyde and the University of Surrey. The partnership enables all parties to strengthen both the excellence of their science and their engagement with business and is the basis of our Postgraduate Institute, which is creating the next generation of world-class measurement scientists.

On 10 February 2023 responsibility for NPL transferred from the Department for Business, Energy and Industrial Strategy (BEIS) to the new Department for Science, Innovation & Technology (DSIT).

The Directors also receive information updates on a variety of topics throughout the year that indicate and inform how stakeholders have been engaged. This information is provided from each of the sub-committees outlined in the Governance Statement on page 12.

The community and environment

NPL is an active participant in the community, through our extensive outreach activities, (described on page 40) the matched funding we make available to employees raising sponsorship for charity and by encouraging our people to volunteer for local community projects for which special paid leave is available.



Image 4: NPL staff showcasing a popular outreach activity: our Liquid Nitrogen Show.

Our world-leading measurement solutions are critical to business and government, accelerating research and innovation, improving quality of life and enabling trade. We seek to ensure that our cutting-edge measurement science has a positive impact in the real world, focusing on key national challenges such as health, security & resilience, and energy & the environment. The Sustainability Report on pages 43-53 discusses some of the recent work that NPL has been leading in this arena.

The Company also recognises the importance of its own environmental responsibilities, monitors its impact on the environment, and designs and implements policies to reduce any damage that might be caused by its activities. Initiatives designed to reduce the Company's impact on the environment include a comprehensive recycling programme, taking steps to reduce energy consumption and engaging our people in identifying and implementing further opportunities to enhance our approaches to sustainability.

Our ESG directorate, established in in 2021, focuses specifically on driving future environmental, societal and governance initiatives. Initial priorities have focused on developing an environmental strategy and establishing a strengthened assurance capability.

High standards of business conduct

The Board periodically reviews and approves, either directly or through relevant sub-committees, NPL's frameworks, principles and policies, ensuring that high standards are maintained both within NPL and the business relationships we maintain. In 2023, the quality management system (holding all of NPL's corporate standards) was fully digitised, driving the accountability of standards and conduct to owners and improving the quality, transparency, and ease-of-use of these standards.

Following the identification of potential gaps for further attention, the three lines of assurance model has been further improved in a step-change to align it with the Orange Book. Our approaches have further developed through the embedding of the new learning management system, launched in 2022 to replace four legacy systems. The new system gives greater visibility of training records to individuals and their managers, mitigates risks and supports the development of our people. The new system ensures appropriate safety, regulatory and compliance training can be assigned, delivered and recorded.

This strive for continuous improvement, complemented by the ways the Board is informed and monitors compliance with relevant governance standards, help assure its decisions are taken in ways that promote high standards of business conduct.

Statement on bribery and anti-corruption

The business is committed to having professional and ethical relationships with its suppliers. The company clearly articulates its stance on anti-corruption, anti-bribery, and modern slavery with all suppliers ensuring the highest standards of ethics and transparency are maintained. Suppliers are assessed before we buy from them to ensure they provide us with the quality we demand and that they have the prerequisite technical capabilities and meet our requirements around good corporate governance.

Our shareholder

NPL is 100% owned by DSIT⁹ and a DSIT shareholder representative is a member of the Board. At each Board meeting the directors receive an update from the DSIT shareholder representative on relevant activity in central government and the directors work closely with the DSIT sponsor team across a wide range of programmes and initiatives each year.

An engaged workforce

We are committed to creating and maintaining an engaged workforce, where employees feel respected and comfortable being their authentic selves. We encourage colleague collaboration, allowing employees to add value and feel appreciated for their unique contributions.

Employee voice

We believe in the importance of championing a strong employee voice to ensure feedback is central to our employee engagement and wellbeing strategy.

⁹ On 10 February 2023 responsibility for NPL transferred from the Department for Business, Energy and Industrial Strategy (BEIS) to the new Department for Science, Innovation & Technology (DSIT).

We have enhanced employee feedback through new forums introduced in 2023, including our people network and people council, and continue to engage with Prospect, our recognised trade union. These groups aim to gather insights and foster discussion on important topics, sharing experiences and ideas from a truly representative voice across the organisation.

Our leadership team focuses on keeping our people informed of key NPL activity. Our quarterly all-employee communication sessions, led by the CEO and other key personnel, along with monthly team meetings led by line managers, continue. In addition, we fully brief our extended leaders on a monthly basis, providing them with relevant and up-to-date information to share with their teams for further discussion and feedback.

Our people are able to engage with us via our internal communication platform. In 2023 we migrated fully to SharePoint which has become a critical communication tool for our people to share updates and access helpful tools and resources.

Platform for the employee voice and measurement tool

We continue to engage with our people through the use of ThymoMetrics (our employee engagement platform) which provides a simple, always-on system for employees to have their voices heard.

ThymoMetrics remains available all day, every day for employees to anonymously share their thoughts and feelings regarding the organisation and communicate any questions, concerns or suggestions they have. The platform allows NPL to seek feedback on, and engage in, targeted, yet anonymous discussions with employees on topics such as the quality of leadership and wellbeing. We continue to use the platform to highlight specific issues and look for organisational and local solutions.

During 2023, 1,796 comments were received through ThymoMetrics, highlighting topics that are important to our people. Key themes included pay, culture, leadership and management.

Other more private mechanisms for feedback also remain active, including a direct route to the People team and CEO.



Image 5: Dr Peter Thompson, CEO, talking with a member of our facilities team, Hamdan Ramadhan, at NPL Open Day

Developing our People

In 2023 we launched two mentoring programmes, Grow and Aspire, on Mentorloop. Both programmes focussed on career development, providing support towards a career goal and/or milestone while helping to address a particular challenge or explore future career opportunities. Across the organisation **58 people** took part in these programmes.

We continued to develop future leaders within the business and ran four cohorts of our New Manager Programme. We trained 45 new Managers and delivered 43 individual coaching sessions.

We invested in our senior leaders through the introduction of a 9 month leadership development programme which included learning sessions, one-on-one coaching, a 360 assessment and speaker events aimed at fostering agile working in response to strategic innovation projects.

Our people are critical to our success, we are committed to bringing our leaders together to learn, develop and strengthen their networks, offering learning initiatives, strategic insights and collaborative sessions.



Image 6: NPL staff have the opportunity to participate in a range of developmental workshops

Culture and working environment

NPL's culture continues to be shaped by our company values and values in action. These principles guide our expectations for our people and are at the heart of the way we work, fostering an environment that is truly inclusive and respectful.

In 2023 we focused on honing our Employee Value Proposition (EVP) to capture the essence of what makes NPL a great place to work, encapsulated in 'The Measure of Us' and shared on a dedicated SharePoint site. Our EVP was influenced by insights shared in survey responses from 250 colleagues and engaging listening sessions involving 150 individuals across various departments.

After listening to how our people talk about working at NPL, we have identified three core themes;

- Firstly, people chose to work and stay at NPL because of the impact our work has on the world and on their career.
- Second, the communities we engage with, whether professional, social, or local, hold significant importance.

- Lastly, at NPL, people can find the balance to be the best they can be, in and outside of work.

‘The measure of us’ is more than just words on paper; it is a pledge—a commitment to defining and upholding what makes our workplace truly special.

The wellbeing of our people remains a key priority, ensuring that everyone feels supported in maintaining their health and wellness. Our leaders are equipped to provide necessary support to their team members, and we have a wealth of resources available in line with our wellbeing pillars. We have also continued to offer learning initiatives that provide our people with the skills to feel empowered and resilient.

NPL continues to celebrate the success of employees through our values award scheme. In 2023, 316 employees were rewarded for demonstrating outstanding behaviours and achievements, with a further 1,422 on-the-spot thank you recognitions presented for demonstrating Values in Action during everyday work.

Our Recognition Reception events recognise and celebrate colleague achievements from the previous year. At the 2023 event, we invited 93 colleagues who had been promoted in the previous 12 months, 84 who had received long service awards, 146 were recognised for professional achievements, 70 won individual values awards, and 147 won team values awards. The events spanned two evenings and included speeches, awards, and a celebratory networking event for our award winners.

Diversity and inclusion

At NPL we believe that diversity and inclusion is critical to our vision to deliver extraordinary impact as an exemplary national laboratory that employs people from around the world. In 2023, we continued to make progress against our Diversity and Inclusion strategy.

This year we welcomed our first diversity and inclusion club, which introduced the topic of British Sign Language and promoted its use in the workplace. This was added to our offering of 11 other special interest groups, each of which has an Executive sponsor and meets regularly throughout the year. These interest groups gather input from the organisation and provide support to our people, to ensure that our work is informed by a range of perspectives.

NPL holds several accreditations, including being a signatory of the Race at Work Charter, Institute of Physics Project Juno Practitioner award holder and member of the Business Disability Forum. In 2023, NPL undertook a review of our work to date and successfully moved up to become a Disability Confident Employer (level 2). We also participated in the Stonewall Workplace index, becoming a bronze award holder, ranking in the top 200 in the UK, and 13th in the science, research, and technology sector.

We have continued to raise awareness and discuss a wide range of diversity and inclusion topics, placing a focus on the design of our Stronger Together Everyone Matters campaign this year. A series of internal events have provided the opportunity for colleagues to share their stories with us and each other, allowing all to see and understand the diversity of the people within our organisation.

We continue to invest in delivering a rolling programme of activities aligned to our strategy, ensuring that all of our people feel able to be their genuine selves at work and having access to resources should they need it. Some of examples of activities in 2023 include:

- We launched a new mentoring programme, which includes a diversity and inclusion focused scheme. This was designed based on colleague feedback from our previous scheme. The scheme is hosted on our new digital mentoring platform.
- We completed our first departmental deep dive, providing senior leaders from across the business with a bespoke analysis to support them in prioritising areas for local action.
- We built on the success of our neurodiversity kit trial and now offer neurodiversity equipment, such as a range of sensory and tactile gadgets and ergonomic pens, as part of our Day 1 induction. We have also developed a loan scheme where colleagues can borrow equipment for their family to try out.
- We continued to embed our understanding of accessibility into communications, processes and systems across the organisation, using our accessibility checklist to implement small but important changes in our documents and systems, such as our corporate reports and slide templates.
- We introduced a new accessibility toolbar to the main website, which allows users to customise their experience of the NPL website in a way that works best for them.



Image 7: An example of the neurodiversity tools on offer to NPL staff.

Supporting early career scientists

Early career scientists are a key talent pipeline for NPL, providing great benefit to the organisation as well as a valuable opportunity for individuals. In 2023, we launched our Graduate Scheme, with 32 graduates joining across 8 of our Science and Engineering Departments. The programme has been extremely successful and will continue through to 2024.

We remain invested in apprenticeships across NPL and have recruited over 140 apprentices since restarting the programme in 2013. We currently have 24 apprentices across our science and engineering programmes, filling our talent pipelines for the future. We have continued to invest in upskilling our apprentices, with various schemes to offer further development and growth opportunities.

Our 2023 summer work experience programme, NPL Academy, was the largest in its 15-year history. 32 students participated in 9 on-site projects and a further 35 worked in hybrid mode on 4 projects. 70 NPL people facilitated this activity hosting students in 13 areas including Marketing and Communications, the International Office, Quantum Electrical Metrology, Advanced Engineering Materials, Data Science, and the National Centre of Excellence in Mass Spectrometry Imaging.

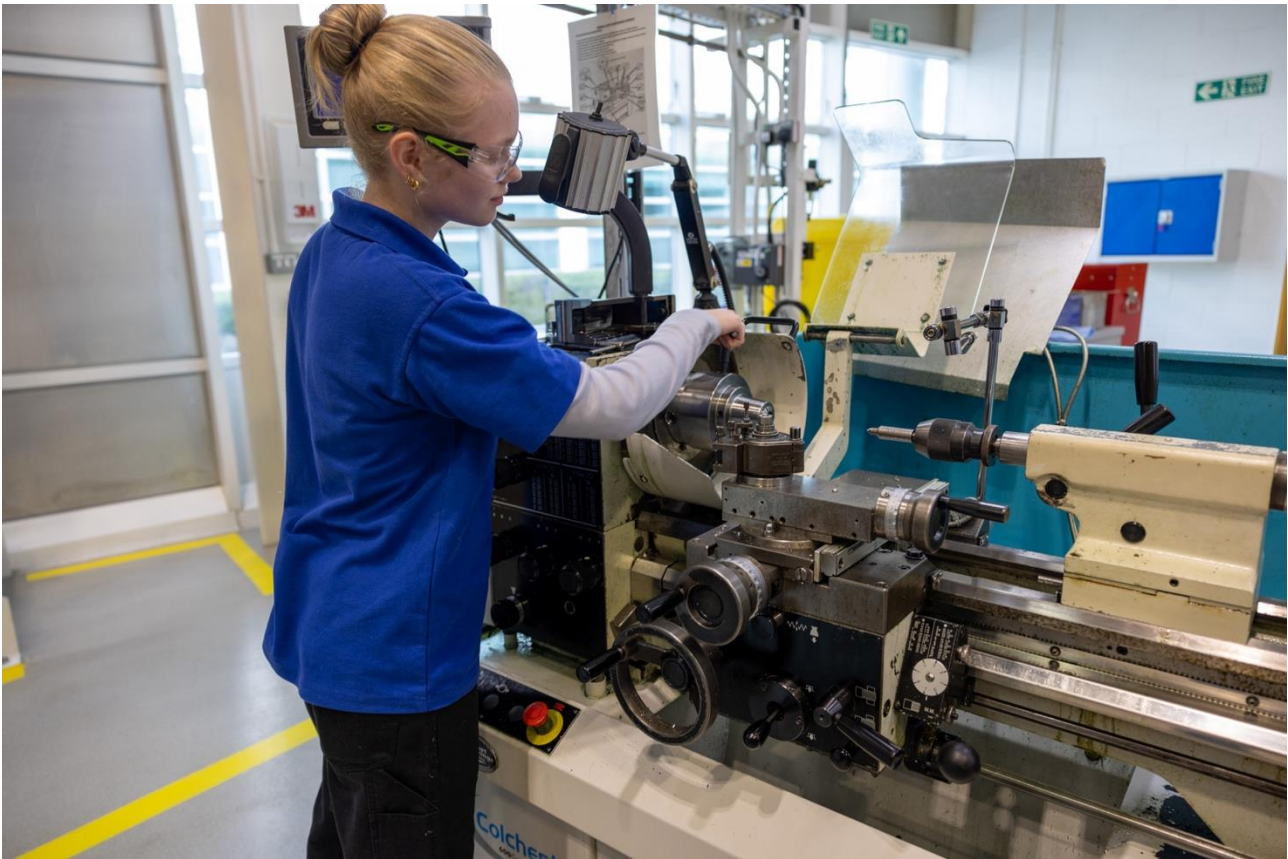


Image 8: We offer apprenticeships across engineering, IT and Junior Measurement science.

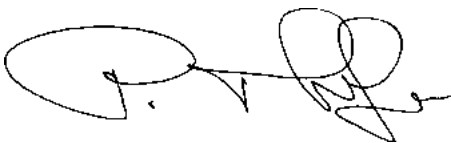
Encouraging Science, Technology, Engineering, and Mathematics (STEM)

NPL's outreach programme delivers an exciting range of activities to support the STEM agenda, enabling enthusiastic NPL speakers to tell powerfully engaging stories of the impact of our work to audiences in schools, colleges, and the general public.

814 NPL colleagues (42% of whom were female) enabled 214 activities. In 2023 we reached almost 66,000 people comprising 50% primary, and 24% secondary school students, and 26% teachers, VIPs and members of the public.

Outreach highlights from 2023 include:

- explaining new SI prefixes through online and in-person shows, amassing audiences of over 26,000 students at 392 schools, also through a prefix mnemonic challenge that had over 300 entries
- the highest ever attendance at our annual Water Rocket Challenge, with 42 school teams participating in the afternoon school session, and 29 more at the evening community event, raising money for local scouts
- promoting physics to teenage Londoners of African heritage by helping run the Blakett Family summer school for a cohort of 30, including a day of activities at NPL
- joining forces with Richmond Borough's Festival of Ideas with several events including a STEM inspired dance performance in the NPL reception area and talks in a local art centre under a planet earth exhibit
- Brooklands Innovation Academy, where our speakers joined Brian Cox on stage to inspire 400 students, and the Duchess of Edinburgh, by witnessing our rocket engineering challenge launching up a world-famous racetrack
- over 4,200 interested locals attending open days on World Metrology Day in May, and again in September at Bushy House and the new Advanced Quantum Metrology Laboratory
- partnering with NPL's preferred charity, In2Science, to increase access to STEM careers for people from underprivileged backgrounds through several events
- delivering a series of talks at the Royal Institution, covering global challenges such as climate change, health and resilient timing infrastructure, connecting us with over 1,000 members of the public.



Dr Peter Thompson

Director

Date: 30th May 2024



Image 9: Water Rocket Challenge attendees excited to launch their creations.



Image 10: The Blackett Lab Family Summer School attendees under Newton's apple tree.

Sustainability Report

Introduction

Excellent science is at the heart of NPL's activities – driving innovation, supporting industry, and improving quality of life, both for the UK and internationally. We maintain a wide portfolio of internationally visible research programmes that advance measurement science, underpin the SI system of measurement units and support cross-disciplinary technologies.

NPL Management Ltd has a non-trading entity National Physical Laboratory Ltd that is covered by this report for which there are no sustainable aspect or impacts.

This report covers the period from 1 January 2023 up to the 31 December 2023. Contact sustainability@npl.co.uk for more information.

NPL's contribution to the UK's target to achieve net zero by 2050

NPL continues its commitment to developing trusted relationships with collaborators and beneficiaries, supporting firms to deliver impact from science and working in emerging sectors with highly innovative organisations. We shape our national programmes to address the UK's most pressing challenges. This ensures that new measurement capabilities established will positively impact the UK's economic prosperity and quality of life and endure long after the original investment was made.

During 2023 we led the Greenhouse Gas Measurement and Modelling Advancement Programme (GEMMA). The programme has been recognised by the World Metrology Organisation as the UK's principal GHG emissions initiative to participate in the Global Greenhouse Gas Watch programme (WMO 3GW). The GEMMA project is a UK led consortium using a multi-disciplinary science approach to decarbonise all sectors of the UK economy by 2050. To provide confidence in actual progress towards this target, the GEMMA programme will demonstrate an integrated total of measured UK emissions, displayed through a monthly national emissions dashboard.

This system will allow the UK to accurately measure and assess changes in Greenhouse Gases (GHGs), including vital information on the contribution from different sectors.

NPL is also part of a consortium who are developing new Earth Observation capabilities which will gather critical climate information to inform and support developments in tackling the impacts of climate change.

NPL ensures the quality and density of this complex data, fed in from multiple satellites, and is also developing a product quality certification scheme. This data will be open to all via the UK earth Observation Climate Information Service (EOCIS) developed online services. The data will enable better informed local decisions for addressing climate change in the UK.

With global biodiversity decreasing at an exponential rate and unparalleled species decline, the importance of having quality detailed data on a global scale has never been more urgent.

NPL is part of a team developing a method of collecting and identifying ecological DNA from pre-existing air quality monitor filters. The team established that the filters contained hundreds of species from a wide range of taxa including plants, mammals, and birds. This rich source of data holds great value for the future development of interventions to save and improve global biodiversity.

Poor air quality is a major public health issue, which has been estimated to result in 29,000–43,000 deaths per year in the UK (UK Health Security Agency, 2022). The health effects of exposure to metals in particulate matter include damage to the respiratory and cardiovascular systems, the brain and impaired mental health. Further health effects of exposure to metals in ambient air and other environmental matrices are also well documented: for example, cadmium exposure is associated with kidney and bone damage and is a potential human carcinogen, whilst lead exposure has development and neurobehavioral effects. As the present annual mortality burden from air pollution indicates, the challenge of improving UK air quality continues and is a current and pressing public health matter. The UK heavy metals ambient air quality network is one of several UK ambient air quality monitoring networks run by NPL on behalf of the Environment Agency and UK Government's Department for Environment, Food and Rural Affairs. The network measures 12 metals in the PM10 fraction of ambient air: Arsenic (As), Cadmium (Cd), Cobalt (Co), Chromium (Cr), Copper (Cu), Iron (Fe), Manganese (Mn),

Nickel (Ni), Lead (Pb), Selenium (Se), Vanadium (V) and Zinc (Zn) at 23 monitoring stations around the UK. The networks assess adherence to legislation and allow collection of long-term trend data to inform models and policy interventions.



Image 11: GEMMA equipment measuring greenhouse gases and urban pollutants in the atmosphere

NPL's internal initiatives through 2023

This year we have begun to build a more detailed picture of our emissions; we understand our Scope 1 and 2 emissions and our Scope 3, category 6: Business travel. Over the coming years, we will expand this understanding to all Scope 3 emissions. Our operations have an impact on the climate and we are committed to achieving our strategic goals in a sustainable way. By engaging our people positively, and developing plans to reduce our impacts, we are progressing towards our goal of becoming carbon neutral in 2040.

A range of initiatives were implemented across the NPL estate in 2023, steering us towards our goal of reducing our carbon footprint. Our colleagues have been actively involved in identifying opportunities through the Green Council and green ideas tracker.

- We introduced new recycling waste streams of glass, cardboard and wood, and implemented a composting process for our green waste.
- Collaborating with our estates teams and service partners, we increased our recycling rate by 37% to 50%.
- We donated or reused over a tonne of unwanted items including a time-of-flight secondary ion mass spectrometer soon to go to the University of Sao Paulo and nine SmartScreen monitors to two local schools.
- We provided colleagues with 1,500 reusable cups, saving 16,000 single use cups and reducing single-use plastic by a further 37%.
- Our partnership with Giki Zero, a social enterprise that supports organisations to deliver carbon emission reductions through engaging people on campaigns, activities and steps. In 2023 our people started actions accounting for 17.3 tonnes of carbon reductions, over 1.1 million litres of water savings and 2,170 fewer items of single use plastic required.
- Continuing our work engaging our colleagues, we ran three sustainability weeks across the year. The key themes covered energy, waste and travel; and featured supplier events, guest talks, sustainable give-aways, news articles, quizzes and Giki Zero activities.
- We actively engaged the Institute of Environmental Management and Assessment (IEMA) on training and the Association for Innovation, Research and Technology Organisation (AIRTO) with NPL's ESG Director, Dr Penny Owen as a Co-Chair of the organisation's Sustainability Interest Group
- We continued our active approach to increasing biodiversity by instigating permanent No Mow areas across our Teddington site.

Environmental report for the year 1 January 2023 to 31 December 2023

Since 2021, NPL has reported against the metrics and data requirements of the central government Greening Government Commitments (GGCs), which sets out the actions UK government departments and their partner organisations will take to reduce their impacts on the environment in the period 2021 - 2025. These metrics provide additional insights alongside the guidance of the Streamlined Energy and Carbon Reporting (SECR) requirements. An aggregate of the data, pulling together GGC reporting from relevant partner organisations, is published by DSIT in its Annual Report and Accounts.

Change in emissions in 2023

NPL's emission profile in 2023 has increased by 6.7% as the business has continued to grow. Individual emissions profiles have been impacted by changes in the way people work and how our buildings are used, however, the overall intensity ratio has dropped by 2.7% since 2022 reflecting a decrease in carbon emissions per full time employee (FTE). This has been supported by NPL self-generating 240,423 kWh of energy from solar and Ground Source Heat Pumps. Business travel continued to increase this year as NPL continues to support customers and projects across the world.

- Scope 1 – decreased by 0.8%
- Scope 2 – increased by 12.8%
- Scope 3 – increased by 14.6%

Table 1. summary of carbon emissions	2023	% Variance	2022
Scope 1			
Gas Consumption (Gross CV)	3,776.68	-2.4	3,866
Vehicles (owned, hired or leased)	8.13	-26.1	11
Fugitive emissions	60.1	+60000	0.1
Total Scope 1 (tCO2e)	3,844.91	-0.8	3,877.1
Scope 2			
Location based			
Electricity	4,849.77	+12.8	4,301
Total Scope 2 (tCO2e)	4,849.77	+12.8	4,301
Scope 3			
Business travel (rail and air)	53.54	+205.9	17.5
Transmission and distribution losses	419.58	+6.8	393
Water and wastewater	9.46	-14	11
Waste	3.81	+27	3
Total Scope 3 (tCO2e)	486.39	+14.6	424.5
Total emissions (tCO2e)	9,181.07	+6.7	8,602.6

Note 1: In accordance with GGC guidance, the scope 1 Vehicles figures reported above cover owned, hired and leased vehicles. In 2020, under SECR, we reported on own vehicles only.

Note 2: Market based electricity emissions were 2,038 tCO2e in 2023 (2,761 tCO2e in 2022).

Note 3: In accordance with GGC guidance the Scope 3 Business travel figures reported above cover rail and domestic air travel. In 2020, under SECR, we reported on rail travel only.

Intensity measurement

We have chosen full time equivalent employee numbers to demonstrate our intensity ratio. NPL's intensity ratio will be high in comparison with many organisations as our laboratory-based operations by their nature require space for scientific plant and machinery.

Table 2. Summary of carbon intensity

Intensity ratio	2023	2022	2021
tCO ₂ e	7.54	7.75	8.64

Responsible procurement

NPL aims to embed responsible procurement into all aspects of its procurement activities – incorporating sustainability, social value, responsible sourcing and supply chain transparency. The procurement team is continually building its understanding of sustainability and Social Value to ensure that it reduces, where possible, any negative impacts of its procurement activities, and maximises the value it can bring to the environment and society. Through its membership of the London Universities Purchasing Consortium (LUPC), NPL is an affiliated member of Electronics Watch, the independent monitoring organisation which helps public sector entities meet their responsibility to protect the labour rights and safety of workers in global electronics supply chains. This also enables us to have access to guidance, resources and contract clauses to support responsible procurement.

NPL has developed a Responsible Procurement Statement which ensures procurement is conducted in a sustainable and ethically sound manner, and identifies ethical issues within the supply chain - including modern slavery and human trafficking. Suppliers are required to produce reports on the actions taken to ensure that slavery and human trafficking does not take place in any of their supply chain.

Reducing environmental impacts from Information Communication Technology (ICT) and digital

NPL continues to follow the guidance for HMG Greening Government ICT Assessment and has made significant strides towards increasing digital ways of working and reducing the footprint of ICT infrastructure. Virtual server infrastructure, cloud-based backups and integrated telephony have been installed and are operational across the NPL Estate. A circular economic approach is now taken to reduce waste and use resources more efficiently, for instance - the gifting of nine Smart Touch screens to two local schools. In April 2023 we introduced a circular economic approach to our waste processes, this approach has diverted over a tonne of potential waste to new users. In 2023 we reduced the amount of copiers and paper used, and will monitor the use of this in 2024.

Quantification and reporting methodology

We calculated our emissions from electricity using both location-based and market-based approaches and have included our location-based emissions in our total emissions calculation. The emissions using the market-based approach are lower due to our current supplier's (EDF) fuel mix, which includes a high percentage of nuclear-generated electricity.

As NPL are early on their sustainability reporting journey this year, we are reporting to the Global Reporting Initiative (GRI) standard, a highly respected sustainability framework, for the first time with the view to move to reporting in accordance with the GRI standards in years to come. As this is our first-time reporting to the framework, there are no previous points of information to report. Given the report style we have not sought a full external assurance of the sustainability data in this report.

Organisational boundary

We have used the operational control approach and reported emissions from our Teddington estate only. We have allocated working areas outside of our control in the Universities of Huddersfield, Strathclyde and Surrey, but their carbon impact is minimal.

Energy usage

During 2023, NPL consumed 20,648.9 MWh of gas (2022: 21,184MWh) and 23,420.5 MWh (2022: 22,236 MWh) of electricity, we generated an additional 24.6 MWh from our own solar array and 215.8 MWh from a Ground Source Heat Pump system in the Advanced Quantum Metrology Laboratory building.

Commitment

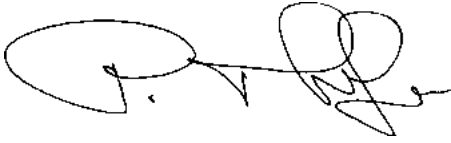
Our emissions reduction commitment is to look for ways to reduce our emissions in line with the targets of the Greening Government Commitments on an ongoing basis, wherever reasonably possible. Over time, we expect the compound effect of these reductions to become increasingly significant.

Our material impacts are business travel, electricity and gas usage, based on analysis of currently available data using the hybrid method as described in the Greenhouse Gas Protocol. As we mature the process, we will refine our list of material issues and associated methods of data gathering.

TCFD Phase 1 Compliance Statement

NPL has reported on climate-related financial disclosures consistent with HM Treasury's TCFD-aligned disclosure application guidance which interprets and adapts the framework for the UK public sector. NPL has complied with the TCFD recommendations and recommendations disclosures around 96090: governance (all recommended disclosures) and metrics and targets (disclosures (b)). This is in line with the central government's TCFD-aligned disclosure implementation timetable. NPL plans to make disclosures for

Strategy, Risk Management and Metrics and Targets (disclosures (a) and (c)) in future reporting periods in line with the central government implementation timetable.

A handwritten signature in black ink, appearing to read 'P. Thompson', with a large, stylized initial 'P'.

Dr Peter Thompson

Director

Date: 30th May 2024

GRI Index

Statement of Use	NPL has reported the information cited in this GRI content index for the period 1st January 2023 to 31st December 2023 with reference to the GRI Standards.
GRI 1 used	GRI 1: Foundation 2021

GRI Standard	Disclosure	Location
GRI 2: General Disclosures 2021	2-1 Organisational details	P.9, P.43
	2-2 Entities included in the organisation's sustainability reporting	P.9, P.43
	2-3 Reporting period, frequency, and contact point	P.43
	2-4 Restatements of information	P.51
	2-5 External assurance	P.51
GRI 3: Material Topics 2021		p.51

Directors' Responsibilities Statement

The directors are responsible for preparing the Strategic Report and 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 the directors have elected to prepare the financial statements in accordance with United Kingdom Generally Accepted Accounting Practice, United Kingdom Accounting Standards and applicable law. 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 judgments and accounting 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; and
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that the company will continue in business.

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 also responsible for safeguarding the assets of the company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The directors are responsible for the maintenance and integrity of the corporate and financial information included on the company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Independent auditor's report to the members of NPL Management Limited

Opinion

We have audited the financial statements of NPL Management Limited (the 'company') for the year ended 31 December 2023 which comprise the Profit and Loss Account, Statement of Comprehensive Income, Statement of Changes in Equity, Balance Sheet and notes 1 – 23 to the financial statements, including significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including FRS 102 "The Financial Reporting Standard applicable in the UK and Republic of Ireland" (United Kingdom Generally Accepted Accounting Practice).

In our opinion, the financial statements:

- give a true and fair view of the state of the company's affairs as at 31 December 2023 and of its profit for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice;
- have been prepared in accordance with the requirements of the Companies Act 2006.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report. We are independent of the company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

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.

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.

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

Other information

The other information comprises the information included in the annual report, other than the financial statements and our auditor's report thereon. The directors are responsible for the other information contained within the annual report. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon.

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 course of the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether this gives rise to a material misstatement in the financial statements themselves. 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 in this regard.

Opinions on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the strategic report and the directors' report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the strategic report and the directors' report have been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception

In the light of the knowledge and understanding of the company and its environment obtained in the course of the audit, we have not identified material misstatements in the strategic report or the directors' report.

We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 requires us to report to you if, in our opinion:

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

Responsibilities of directors

As explained more fully in the directors' responsibilities statement set out on page 54, the directors are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the directors 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.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements are free from material misstatement, whether due to fraud or error, and to issue an auditor's 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.

The extent to which the audit was considered capable of detecting irregularities, including fraud

Irregularities are instances of non-compliance with laws and regulations. The objectives of our audit are to obtain sufficient appropriate audit evidence regarding compliance with laws and regulations that have a direct effect on the determination of material amounts and disclosures in the financial statements, to perform audit procedures to help identify instances of non-compliance with other laws and regulations that may have a material effect on the financial statements, and to respond appropriately to identified or suspected non-compliance with laws and regulations identified during the audit.

In relation to fraud, the objectives of our audit are to identify and assess the risk of material misstatement of the financial statements due to fraud, to obtain sufficient appropriate audit evidence regarding the assessed risks of material misstatement due to fraud through designing and implementing appropriate responses and to respond appropriately to fraud or suspected fraud identified during the audit.

However, it is the primary responsibility of management, with the oversight of those charged with governance, to ensure that the entity's operations are conducted in accordance with the provisions of laws and regulations and for the prevention and detection of fraud.

In identifying and assessing risks of material misstatement in respect of irregularities, including fraud, the audit engagement team:

- obtained an understanding of the nature of the industry and sector, including the legal and regulatory framework that the company operates in and how the company is complying with the legal and regulatory framework;
- inquired of management, and those charged with governance, about their own identification and assessment of the risks of irregularities, including any known actual, suspected or alleged instances of fraud;
- discussed matters about non-compliance with laws and regulations and how fraud might occur including assessment of how and where the financial statements may be susceptible to fraud.

As a result of these procedures, we consider the most significant laws and regulations that have a direct impact on the financial statements are FRS 102, the Companies Act 2006, tax compliance regulations and pension law. We have performed audit procedures to detect non-compliances which may have a material impact on the financial statements which included reviewing financial statement disclosures, evaluating advice received from external tax advisors and confirmed that the company continues to make pension contributions in line with the agreed contribution schedule.

The audit engagement team identified the risk of management override of controls and revenue cut-off as the areas where the financial statements were most susceptible to material misstatement due to fraud. Audit procedures performed included, but were not limited to, testing manual journal entries and other adjustments and evaluating the business rationale in relation to significant, unusual transactions and transactions entered into outside the normal course of business and reviewing managements stage of completion calculations on a sample of contracts at the balance sheet date.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: <http://www.frc.org.uk/auditorsresponsibilities>. This description forms part of our auditor's report.

Use of our report

This report is made solely to the company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members as a body, for our audit work, for this report, or for the opinions we have formed.

RSM UK Audit LLP

Christopher Hurren BA FCA (Senior Statutory Auditor)

For and on behalf of RSM UK Audit LLP, Statutory Auditor

Chartered Accountants

Third Floor

One London Square

Cross Lanes

Guildford

GU1 1UN

Date: **23 July 2024**

Profit and Loss Account

For the year ended 31 December 2023

	Notes	2023 £000s	2022 £000s
Turnover	3	156,122	128,993
Cost of sales		(104,196)	(86,032)
Gross profit		51,926	42,961
Administrative expenses		(45,739)	(40,811)
Operating profit		6,187	2,150
Interest receivable and similar income	5	1,884	954
Interest payable and similar charges	6	(1,294)	(1,209)
Profit before taxation	7	6,777	1,895
Tax on profit	8	304	(8,729)
Profit/(Loss) for the year		7,081	(6,834)

Statement of Comprehensive Income

For the year ended 31 December 2023

	Notes	2023 £000s	2022 £000s
Profit/(Loss) for the financial year		7,081	(6,834)
Other comprehensive income:			
Pension scheme actuarial loss	18	(434)	(15,425)
Tax on other comprehensive income – deferred tax	8	109	3,856
Other comprehensive (loss)/income net of taxation		(325)	(11,569)
Total comprehensive income/(loss) for the year		6,756	(18,403)

Statement of Changes in Equity

For the year ended 31 December 2023

	Share premium reserve £000	Retired benefit obligation reserve £000s	Profit and Loss reserve £000s	Total £000s
Balance at 1 January 2022	115,400	(685)	(13,576)	101,139
Loss for the year	-	-	(6,834)	(6,834)
Actuarial gain on pension employment scheme (Note 18)	-	(15,425)	-	(15,425)
Tax charge on net actuarial gains (Note 8)	-	3,856	-	3,856
Balance at 31 December 2022	115,400	(12,254)	(20,410)	82,736
Profit for the year	-	-	7,081	7,081
Actuarial gain on pension employment scheme (Note 18)	-	(434)	-	(434)
Tax charge on net actuarial gains (Note 8)	-	109	-	109
Balance at 31 December 2023	115,400	(12,579)	(13,329)	89,492

The profit and loss reserve represents cumulative profits or losses, net of dividends paid.

The retired benefit obligation reserve represents cumulative actuarial gains and losses and cumulative credits or charges derived by deferred tax movement in relation to the defined benefit pension scheme.

The share premium reserve represents the premium to their nominal value arising on the issue of equity shares, net of issue expenses.

Balance Sheet

As at 31 December 2023

	Notes	2023 £000s	2022 £000s
Fixed Assets			
Intangible assets	9	-	2,250
Tangible assets	10	69,107	58,106
Total Fixed Assets		69,107	60,356
Current Assets			
Stock		243	164
Debtors:			
- amounts falling due within one year	12	42,159	36,079
- amounts due after more than one year	13	8,689	8,276
Cash at bank and in hand		38,359	33,495
		89,450	78,014
Creditors: amounts falling due within one year	14	(68,674)	(57,802)
Net Current Assets		20,776	20,212
Total Assets less current liabilities		89,883	80,568
Creditors: amounts falling due after one year	20	(36,439)	(32,616)
Provision for liabilities and charges	15	(1,333)	(1,564)
Net Assets excluding retirement benefit asset		52,111	46,388
Retirement benefit assets	18	37,381	36,348
Net Assets including retirement benefit asset		89,492	82,736
Capital and reserves			
Share capital	16	-	-
Share Premium reserve	17	115,400	115,400
Retirement benefit obligation reserve		(12,579)	(12,254)
Profit and loss account		(13,329)	(20,410)
Shareholders' funds		89,492	82,736

The financial statements of NPL Management Limited (company number 02937881) were approved by the Board of Directors and authorised for issue on 30 May 2024.

These were signed on its behalf by:

A handwritten signature in black ink, appearing to be 'P. Thompson', written over a faint, illegible stamp or background.

Dr Peter Thompson

Director

Notes to the Financial Statements

For the year ended 31 December 2023

1. Accounting policies

The principal accounting policies have been described below. They have been applied consistently throughout the year and the preceding year.

a) General information and basis of accounting

NPL Management Limited is a company incorporated in the United Kingdom under the Companies Act. The Company is a private company limited by shares and is registered in England and Wales. The registered office is given in note 21. The nature of the company's operations and its principal activities are set out in the Strategic Report. The financial statements have been prepared under the historical cost convention and in accordance with Financial Reporting Standard 102 (FRS 102) issued by the Financial Reporting Council.

The Company is consolidated within the Whole Government Accounts and is considered to be a qualifying entity (for the purposes of this FRS) and has applied the exemptions available under FRS 102 in respect of the Cash Flow Statement and related notes, and Section 33 'Related Party Disclosures'- Compensation for key management personnel.

The Company is also a qualifying entity for the disclosure exemptions relating to the requirements of Section 11 Paragraphs 11.39 to 11.48A as the equivalent disclosures required by the FRS are included in the consolidated financial statements of the Group in which the Company is consolidated.

The functional currency of NPL Management Limited is considered to be pounds sterling because that is the currency of the primary economic environment in which the Company operates.

The company has taken advantage of the exemption from the requirement to prepare consolidated financial statements in FRS 102 paragraph 9.9A, on the grounds of immateriality. Consequently, these financial statements present the financial position and financial performance of the company as a single entity.

b) Going concern

The directors have acknowledged the guidance on going concern and financial reporting published by the Financial Reporting Council in April 2016.

As the UK's national measurement institute, the company remains at the heart of the UK Measurement Strategy and the company is currently wholly owned by DSIT¹⁰.

Since returning to government ownership in 2015, BEIS¹⁰ made investments in NPL of £59m in March 2016 and £37m in March 2017 in order to eliminate the Company's defined benefit pension deficit. Consequently, at 31 December 2023 the defined pension scheme was an asset of £37.4m (2022: £36.3m).

In March 2020 BEIS made two further equity investments in the Company, an investment of £9.55m to provide the Company with the sufficient cash reserves to operate effectively during and beyond the COVID 19 crisis and, separately, following an extensive review of NPL's IT requirements during 2019, an investment of £9.85m to fund the investments required to progress NPL's planned digital modernisation programme.

The Company's revenues are principally derived from long-term contracts with the UK government and competitively won grants which, historically, have been largely unaffected by changes in the general economy. Consequently, the directors have a good level of visibility of contracted levels of revenue.

In view of the above, coupled with NPL's return to profitability in 2023 and its cash reserves of £38.4M at December 2023, the directors have a reasonable expectation that the Company has adequate resources to continue in operational existence for the foreseeable future. Accordingly, they continue to adopt the going concern basis in preparing the financial statements.

¹⁰ On 10 February 2023 responsibility for NPL transferred from the Department for Business, Energy and Industrial Strategy (BEIS) to the Department for Science, Innovation & Technology (DSIT).

c) Turnover

Turnover from contracts

Turnover from contracts represents the value of services provided under contracts to the extent that there is a right to consideration and is recorded at the fair value of the consideration received or receivable. Where a contract has only been partially completed at the balance sheet date, turnover represents the fair value of the service provided to date based on the stage of completion of the contract activity at the balance sheet date. This is normally measured by the proportion that contract costs incurred for work performed to date bear to the estimated total contract costs, except where this would not be representative of the stage of completion. Variations in contract work, claims and incentive payments are included to the extent that the amount can be measured reliably, and its receipt is considered probable.

Where payments are received from customers in advance of services provided, the amounts are recorded as deferred income and included as part of creditors due within one year. Any turnover recognised in excess of amounts invoiced is recorded as 'amounts recoverable on contracts' with debtors. When it is probable that total contract costs will exceed total contract revenue, the expected loss is recognised as an expense immediately.

Grant income

The Company accounts for capital grant income as deferred income and recognises the revenue as it utilises the assets for which the grant income was received. For revenue, grants are accounted for under the accruals method. Grants relating to revenue are recognised in income over the period in which the related costs are recognised. Grants relating to assets are recognised over the expected useful life of the asset. Where part of a grant relating to capital is deferred, it is recognised as deferred income.

d) Research and development

Research expenditure and development expenditure are expensed as incurred and included in cost of sales.

e) Intangible assets

Intangible assets relate to software development costs that have future economic benefit to NPL. Intangibles will not be amortised until ready for use and will be based on useful life thereafter.

f) Tangible assets and depreciation

Tangible assets are stated at cost, net of depreciation and any provision for impairment. Depreciation is provided on all tangible assets on cost over the estimated useful lives of the assets. The rates of depreciation are as follows:

- Technical equipment 10-33%
- Office equipment 20-33%
- Furniture and fittings 10-20%
- Assets in course of construction (not depreciated until ready for use).

g) Taxation

Current tax, including UK corporation tax and foreign tax, is provided at amounts expected to be paid (or recovered) using the tax rates and laws that have been enacted or substantively enacted by the balance sheet date.

Deferred tax is recognised in respect of all timing differences that have originated but not reversed at the balance sheet date where transactions or events that result in an obligation to pay more tax in the future or a right to pay less tax in the future have occurred at the balance sheet date, at rates expected to apply to the reversal of the timing difference. Timing differences are differences between the Company's taxable profits and its results as stated in the financial statements that arise from the inclusion of gains and losses in tax assessments in periods different from those in which they are recognised in the financial statements. Unrelieved tax losses and other deferred tax assets are recognised only to the extent that, on the basis of all available evidence, it can be regarded as more likely than not that there will be suitable taxable profits from which the future reversal of the underlying timing differences can be deducted. Deferred tax is measured using the tax rates and laws that have been enacted or substantively enacted by the balance sheet date that are expected to apply to the reversal of the timing difference. Where items recognised in other comprehensive income or equity are

chargeable to or deductible for tax purposes, the resulting current or deferred tax expense or income is presented in the same component of comprehensive income or equity as the transaction or other event that resulted in the tax expense or income.

Current tax assets and liabilities are offset only when there is a legally enforceable right to set off the amounts and the company intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

h) Leasing

Operating lease rentals are charged to the profit and loss account in equal annual amounts over the lease term, even if payments are not made on such a basis.

i) Financial assets

The Company has elected to apply the provisions of Section 11 'Basic Financial Instruments' and Section 12 'Other Financial Instruments Issues' of FRS 102 to all of its financial instruments. Financial assets are recognised in the Company's balance sheet when the Company becomes party to the contractual provisions of the instrument.

Financial assets are classified into specified categories. The classification depends on the nature and purpose of the financial assets and is determined at the time of recognition. Basic financial assets, which include trade and other debtors and cash and bank balances, are initially measured at transaction price including transaction costs.

Loans and receivables

Trade debtors, loans, other debtors and prepayments that have fixed or determinable payments that are not quoted in an active market are classified as 'loans and receivables'.

Loans and receivables are measured at amortised cost using the effective interest rate method, less any impairment. They are included in current assets, except where maturities are in greater than 12 months after the Balance Sheet date which are classified as non-current assets. The Company's loans and receivables comprise 'trade and other debtors' and 'cash and cash equivalents' in the Balance Sheet.

De-recognition of financial assets

Financial assets are derecognised only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership to another entity.

j) Financial liabilities

Basic financial liabilities are initially measured at transaction price, unless the arrangement constitutes a financing transaction, where the debt instrument is measured at the present value of the future receipts discounted at a market rate of interest.

Other financial liabilities

Loans and borrowings are recognised initially at fair value of the consideration received, less transaction costs. Subsequent to initial recognition, loans and borrowings are stated at amortised cost with any difference between cost and redemption value being recognised in the profit and loss account over the period of the borrowings on an effective interest basis.

De-recognition of financial liabilities

Financial liabilities are de-recognised when, and only when, the Company's obligations are discharged, cancelled, or they expire.

Equity instruments

Ordinary shares are classified as equity. Equity instruments issued by the company are recognised at the proceeds received, net of direct issue costs. Dividends payable on equity instruments are recognised as liabilities once they are no longer at the discretion of the Company.

k) Employee benefit

Defined benefit scheme

For defined benefit schemes the amounts charged to operating profit are the costs arising from employee services rendered during the period and the cost of plan introductions, benefit changes, settlements and curtailments. They are included as part of staff costs.

The net interest received on the net defined benefit asset is credited to profit or loss and included within interest receivable.

Remeasurement amounts, comprising actuarial gains and losses and the return on scheme assets (excluding amounts included in net interest on the net defined benefit asset), are recognised immediately in other comprehensive income.

Defined benefit schemes are funded, with the assets of the scheme held separately from those of the Company, in separate trustee administered funds.

The net defined benefit asset represents the fair value of the pension scheme assets less the present value of the scheme liabilities (measured on an actuarial basis using the projected unit credit method). The asset recognised is limited to the present value of refunds available, the value of the reduction in future contributions to the plan or the value of the surplus that would be recoverable on the death of the last member. Deferred tax is measured at 25% of the pension scheme asset.

Defined contribution scheme

For defined contribution schemes the amount charged to the profit and loss account in respect of pension costs and other retirement benefits is the contributions payable in the year. Differences between contributions payable in the year and contributions actually paid are shown as either accruals or prepayments in the balance sheet. Other long-term employee benefits are measured at the present value of the benefit obligation at the reporting date.

1) Foreign currency

Transactions in foreign currencies are recorded at the rate of exchange at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the balance sheet date are reported at the rates of exchange prevailing at that date. Gains and losses on translation are included in the profit and loss account as they arise.

2. Critical accounting judgements and sources of estimation uncertainty

In the application of the Company's accounting policies, which are described in note 1, the directors are required to make judgements, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

Critical judgements in applying the Company's accounting policies

The following are the critical judgements that the directors have made in the process of applying the Company's accounting policies and that have the most significant effect on the amounts recognised in the financial statements. There are no critical judgements other than those which involve estimations. These are as follows:

Recoverability of deferred tax assets (note 13)

NPL has recognised a deferred tax asset as a result of losses in the business from the recognition of the pension liability. NPL is required to make a judgement concerning the timing and likely extent of use of those tax losses against the future profitability of the business. Future profitability is assessed through the Company's annually updated five-year plan. The underlying financial performance of the Company remains strong, as evidenced by the increase in revenues in 2023, and the growth in its orderbook and sales funnel.

Timing of revenue recognition (note 3)

NPL is required to make an assessment about the timing of revenue recognised. NPL's revenue recognition policy requires forecasts to be made about the outcomes of its long-term contracts, including requiring judgements to be made on the cost forecasts of delivering those contracts. Further, for contracts which span the balance sheet date, consideration is required concerning the stage of completion of that contract.

Recognition of pension scheme asset (note 18)

The pension scheme assets are measured at fair value and liabilities are measured on an actuarial basis using the projected unit credit method. Actuarial valuations are obtained at least triennially and are updated at each balance sheet date. There is significant estimation in the assumptions used to derive the value of the pension scheme liabilities and each assumption is subject to NPL's judgement. NPL has recognised a pension asset as a result of a net surplus for the defined benefit pension scheme. In accordance with paragraph 28.22 of FRS102, NPL is of the view that it is allowed to recognise an asset as it would be able to recover the surplus on the death of the last member.

The valuation of the amounts recognised in the Balance Sheet has been assessed through the following sensitivity analysis. The effect of marginal changes on discount rate, inflation rate, and mortality have the following impact on the net defined benefit asset:

	2023	Minus 0.25% Discount rate	Plus 0.25% Discount rate	Minus 0.25% Inflation rate	Plus 0.25% Inflation rate	Mortality - 1-year age rating
Fair value of plan assets	170,354	170,354	170,354	170,354	170,354	170,354
Defined benefit obligation	(132,973)	(137,781)	(128,421)	(129,432)	(136,638)	(136,490)
Net defined benefit asset	37,381	32,573	41,933	40,922	33,716	33,864

3. Turnover

An analysis of the Company's turnover by class of business is set out below:

	2023	2022
	£000s	£000s
National Measurement System	87,103	75,133
Non-National Measurement System	69,019	53,860
Total	156,122	128,993

All turnover arose from the provision of services in the United Kingdom. (2022: all turnover arose in the UK). Turnover includes Grant income of £25.1m (2022: £16.4m).

4. Information regarding directors and employees

The average monthly number of employees (including executive directors) was:

	2023	2022
	No.	No.
Average number of full-time equivalent employees during the year		
Technical Staff	916	815
Administration	301	294
Total	1,217	1,109

Their aggregate remuneration comprised:

	2023	2022
	£000s	£000s
Wages and salaries	58,182	51,069
Social Security costs	6,540	5,917
Other pensions costs	9,546	9,382
	74,268	66,368

Directors' remuneration

	2023	2022
	£000s	£000s
Directors' emoluments		
Emoluments (excluding pension contribution)	675	615
Pension contributions	32	42
Total	707	657

Highest paid Directors' remuneration

	2023	2022
	£000s	£000s
Aggregate of emoluments	227	216
Pension contributions	17	16
Total	244	232

Number of directors who:

	2023	2022
	£000s	£000s
Are members of a defined benefit pension scheme	-	-
Are members of a money purchase scheme	3	3
Total	3	3

5. Interest receivable and similar income

	2023	2022
	£000s	£000s
Bank interest receivable	49	11
Net interest on defined benefit pension scheme	1,835	943
Total	1,884	954

6. Interest payable and similar charges

	2023	2022
	£000s	£000s
Other loans	1,294	1,209
Total	1,294	1,209

7. Profit before taxation

Profit before taxation is stated after charging:

	2023	2022
	£000s	£000s
Depreciation of tangible assets	8,755	7,642
Operating lease rentals		
- Plant and machinery	426	362
- Property rental costs	16,936	15,792
Loss on disposal of property, plant and equipment	86	43
Research and development expense	53,241	49,027
Exchange losses/(gains)	17	(222)

The analysis of auditor's remuneration is as follows:

	2023	2022
	£000s	£000s
Fees payable to the Company's auditor for the audit of the Company's annual financial statements	69	64
Fees payable for grant auditing services	159	151
Total	228	215

8. Taxation

The tax (credit)/charge comprises:

	2023 £000s	2022 £000s
Analysis of tax charge for the period		
Current tax		
- UK corporation tax at 23.52% (2022: 19%)	-	-
Total current tax charge	-	-
Deferred tax		
Origination and reversal of timing differences	(196)	7,893
Adjustment in respect of prior periods	(108)	(161)
Effect of tax rate change on opening balance	-	997
Total deferred tax (credit)/charge	(304)	8,729
Tax on profit on ordinary activities	(304)	8,729
Tax relating to other comprehensive income	(109)	(3,856)

Under Finance Act 2021, which was substantively enacted on 24 May 2021, the main rate of corporation tax increased to 25% from 1 April 2023. Therefore, the deferred tax balances at 31 December 2023 have been calculated accordingly at 25% except where the timing differences are expected to unwind before 31 March 2024.

The tax charge recognised for the year ended 31 December 2023 is lower than the effective United Kingdom corporation tax rate of 23.52% (2022: 19%). The reasons for this are set out below.

	2023	2022
	£000s	£000s
Reconciliation of tax (credit)/charge		
Profit before tax	6,777	1,895
Tax on profit at standard corporation tax rate of 23.52% (2022: 19%)	1,594	360
Fixed asset differences	-	(276)
Expenses not deductible for tax purposes	39	9
R&D expenditure credits	658	(108)
Adjustments to tax charge in respect of previous periods – deferred tax	(108)	(161)
Timing differences not recognised in the computation	(1,204)	277
Remeasurement of deferred tax for changes in tax rates	68	-
Movement in the deferred tax not recognised	(1,351)	8,628
Tax (credit)/charge for the year	(304)	8,729

9. Intangible assets

	2023	2022
Cost	£000s	£000s
At 1 January	2,250	2,250
Impairment	(2,250)	-
At 31 December	-	2,250

At December 2022 NPL's intangible assets consisted of capitalised development costs for its replacement ERP system. The ERP project was put on hold during 2022 and, following a detailed review of progress, a decision was taken in 2023 to revise the scope of the project and to re-commence development work with a new third party implementation provider. As a result, management considered it appropriate to impair the full carrying value of the asset during 2023. The rescope ERP project has now re-commenced and entered into the development phase during 2024.

10. Tangible assets

Cost	Assets in the			Total
	course of construction	Technical equipment	Office equipment	
	£000	£000s	£000s	£000s
At 1 January 2023	6,940	105,054	6,062	118,056
Additions	6,164	13,193	487	19,844
Disposals	-	(3,125)	(3,162)	(6,287)
At 31 December 2023	13,104	115,122	3,387	131,613
Depreciation				
At 1 January 2023	-	54,507	5,443	59,950
Charge for the year	-	8,423	332	8,755
Disposals	-	(3,047)	(3,152)	(6,199)
At 31 December 2023	-	59,883	2,623	62,506
Net book value				
At 31 December 2023	13,104	55,239	764	69,107
At 31 December 2022	6,940	50,547	619	58,106

11. Investments

Cost	2023	2022
	£000s	£000s
At 1 January	-	-
Investment in subsidiary – direct ownership	200	-
Impairment	(200)	-
At 31 December	-	-

Details of the investments in which the company holds 20% or more of the nominal value of any class of share capital are as follows:

Undertaking	Registered Office	Holding	Proportion of voting rights and shares held	
			2023	2022
Celsius Health Limited	NPL Hampton Road Teddington TW11 0LW	Ordinary	n/a	100%
Thermology Health Limited	NPL Hampton Road Teddington TW11 0LW	Ordinary	84.16%	n/a

Celsius Health Limited was incorporated on 21 December 2018 and remained dormant until it was dissolved on 31 October 2023.

A new subsidiary, Thermology Health Limited, was incorporated on 19 July 2023. The investment in Thermology Health Limited is fully provided against.

12. Debtors: Amounts falling due within one year

	2023 £000s	2022 £000s
Trade debtors	15,139	13,516
Amounts owed by group undertaking	-	1
Amounts recoverable on contracts	10,426	8,868
Other debtors	107	119
Prepayments	4,694	3,185
RDEC tax asset	11,793	10,390
Total	42,159	36,079

13. Deferred tax asset

The deferred tax asset has moved in the year as follows:

	2023 £000s	2022 £000s
Recognition of deferred tax		
Accelerated capital allowances	7,569	6,980
Short term timing differences	(8,830)	(8,654)
Tax losses carried forward and other deductions	7,341	7,341
Other	2,609	2,609
Total deferred tax asset	8,689	8,276
Movement in deferred tax asset:		
Asset at 1 January	8,276	11,830
Deferred tax credit/(charge) in the Profit and Loss Account for the year	304	(8,729)
Statement of Comprehensive Income	109	3,856
Deferred tax on RDEC tax asset	-	1,319
Deferred tax asset at 31 December	8,689	8,276

	2023	2022
	£000s	£000s
Within one year	-	-
More than one year	8,689	8,276
Total	8,689	8,276

Deferred tax assets and liabilities are offset only where the Company has a legally enforceable right to do so and where the assets and liabilities relate to income taxes levied by the same taxation authority on the same taxable entity.

The company has unrecognised deferred tax assets of £11.4M as at 31 December 2023 (2022: £10.6M).

14. Creditors: amounts falling due within one year

	2023	2022
	£000s	£000s
Other loans (see note 20)	3,386	3,031
Trade creditors	7,744	7,240
Other taxes and social security	4,013	4,764
Other creditors	28,368	21,661
Accruals	8,557	7,282
Deferred income	16,606	13,824
Total	68,674	57,802

Within other creditors is £27.2m (2022: £20.5m) of grant income from DSIT to fund the purchase of capital equipment.

15. Provisions for liabilities and charges

The provisions balance is made up as follows:

	2023	2022
	£000s	£000s
Opening balance	1,564	1,156
Increase in provisions	30	602
Provisions released	(261)	(194)
Closing balance	1,333	1,564

The provisions balance is made up of provisions for future loss on contracts and provisions for warranty expenses. Should a project have a requirement to give a warranty, this is provided for based on the best estimate of future cashflows.

16. Share capital

Allotted, called up and fully paid	£
At 1 January 2023 (76 Ordinary shares at £1 each)	76
At 31 December 2023 (76 Ordinary shares at £1 each)	76

Ordinary Share rights

The Company's ordinary shares, which carry no right to fixed income, each carry the right to one vote at general meetings of the Company. All shares rank equally.

17. Share premium reserve

	Share Premium £'000s
Balance at 1 January and 31 December 2023	115,400

18. Employee benefits

Defined contribution schemes

The Company operates a defined contribution scheme for all qualifying employees in the United Kingdom. The contributions payable by the Company charged to profit or loss amounted to £7.68m (2022: £7.22m). Contributions totaling £759k (2022: £799k) were payable to the fund at the year end and are included in creditors.

Defined benefit scheme

The NPL Management Limited Pension Scheme

The Company operates a defined benefit scheme for qualifying employees (closed to new members) of the Company.

Under the scheme, the employees are entitled to retirement benefits varying between 1.111% and 1.667% of final pensionable pay for each year of Pensionable Service on attainment of their normal retirement age of 60. No other post-retirement benefits are provided. The Scheme is a funded scheme.

Under the Schedule of Contributions agreed with the pension scheme trustees following formal actuarial valuation conducted as at 5 April 2019, the Company was contributing to the scheme at the rate of 47.9% of active members' pensionable pay less 3.4% of members' Band Earnings up until June 2023. Following conclusion of the formal actuarial valuation conducted as at 5 April 2022, it was agreed that the Company would cease cash contributions to the scheme while the scheme remains in surplus.

The most recent comprehensive triennial valuation of the Scheme was carried out at 5 April 2022. The company has employed an independent actuary to approximately update this valuation, as required by FRS102, allowing for differences between the actuarial assumptions used by the Scheme for funding purposes and those adopted by the company to measure the Scheme's assets on the financial statements, as well as adjustment for benefits paid by the Scheme.

	Valuation at	
	2023	2022
Key assumptions used:		
Discount rate	4.8%	5.0%
Rate of salary increases	3.1%	3.2%
Rate of increase in pensions in payment	2.9%	3.0%
Inflation (RPI)	3.1%	3.2%
Inflation (CPI)	2.8%	2.9%

Mortality assumptions:

The assumed life expectations on retirement at age 60 are:

	Valuation at	
	2023	2022
Retiring today:		
Males	27.3	27.9
Females	29.3	29.7
Retiring in 20 years:		
Males	28.2	28.7
Females	30.7	31.1

Amounts recognised in the profit and loss account in respect of the defined benefit scheme are as follows:

	2023	2022
	£000s	£000s
Current service cost	1,056	2,525
Net interest gain	(1,835)	(943)
Admin expenses paid from plan assets	483	293
	(296)	1,875

Amounts recognised in other comprehensive income in respect of the defined benefit scheme are as follows:

	2023	2022
	£000s	£000s
Total cost relating to defined benefit scheme	434	15,425

Movements in the fair value of scheme assets were as follows:

	2023	2022
	£000s	£000s
At 1 January	166,112	273,065
Interest income	8,213	4,895
Return on plan assets (excl. amounts incl. in net interest costs)	(286)	(109,605)
Contributions from employer	1,171	2,267
Contributions from scheme participants	35	35
Benefits paid	(4,408)	(4,252)
Admin expenses paid from plan assets	(483)	(293)
At 31 December:	170,354	166,112

Movements in the fair value of scheme liabilities were as follows:

	2023	2022
	£000s	£000s
At 1 January	129,764	221,684
Service cost	1,056	2,525
Interest expense	6,378	3,952
Benefits paid	(4,408)	(4,252)
Settlement payments from employer	35	35
Effect of change in assumptions	1	(100,057)
Effect of experience adjustments	147	5,877
At 31 December:	132,973	129,764
Net Asset recognised in the balance sheet	37,381	36,348

The analysis of the scheme assets at the balance sheet date was as follows:

	Fair value of assets	
	2023	2022
Year	£000s	£000s
Cash and cash equivalents	607	415
Equity instruments	7,680	5,837
Debt instruments	142,082	133,330
Real estate	2,552	5,037
Other assets	17,433	21,493
Total	170,354	166,112

19. Financial commitments

Total future minimum lease payments under non-cancellable operating leases are as follows:

	2023	2022
	£000s	£000s
Within one year	651	799
Between one and five years	835	365
Total	1,486	1,164

In respect of the premises and accommodation services, the Company paid base rent of approximately £16.9m in 2023 to DSIT/BEIS (2022: £15.8m).

20. Other Loans

	2023	2022
	£000s	£000s
Within one year	3,386	3,031
Between one and two years	3,506	3,138
Between two and five years	11,285	10,101
In over five years	21,648	19,377
Less amounts due within one year	(3,386)	(3,031)
Total	36,439	32,616

The loan facility is provided by DSIT to finance the purchase of capital equipment and the creation of associated infrastructure for the laboratories and testing facilities that support the National Measurement System (NMS).

Loans are repayable by instalments over a 10-year term. The amount of the installments will vary depending on the level of drawdown. The rate of interest is fixed at 3.5%.

21. Controlling party

NPL Management Limited's registered office is National Physical Laboratory, Hampton Road, Teddington, Middlesex, TW11 0LW. The Company is wholly owned by the Secretary of State for Science, Innovation and Technology ('DSIT'). The smallest and largest group that the Company's financial statements are consolidated into are the Whole Government Accounts, available at www.gov.uk and from The National Archives.

22. Related parties

The Company has taken advantage of the exemption granted by FRS 102 not to disclose details of related party transactions with DSIT¹¹ and other entities within its 100% owned Group.

23. Capital commitments

The Company had capital commitments relating to scientific equipment of £7.98m at 31 December 2023 (2022: £5.05m).

¹¹ On 10 February 2023 responsibility for NPL transferred from BEIS to the new Department for Science, Innovation & Technology (DSIT).



NPL Annual Report and Financial Statements

For the year ended 31 December 2023

Company Registration No: 02937881 (England and Wales)

To get in touch:

communications@npl.co.uk

Hampton Road

Teddington

Middlesex

TW11 0LW

NPL Management Limited 2024.

Please consider the environment before printing this document