POWERHOUSE ENERGY GROUP

POWERHOUSE ENERGY GROUP PLC

COMPANY NUMBER: 03934451

Annual Report and Financial Statements
For The Year Ended 31 December 2022

COMPANY INFORMATION

Directors	Antony Gardner-Hillman	*Non-Executive Chairman*
	Keith Riley	*Acting Chief Executive Officer*
	Paul Emmitt	*Chief Operating Officer*
	Hugh McAlister	*Non-Executive Director*
	David Hitchcock	*Non-Executive Director*
	Anthony Gale	*Non-Executive Director*
	Karol Kacprzak	*Non-Executive Director*
Company secretary	Delgany Corporate Services Limited	
Company number	03934451	
Registered office	15 Victoria Mews Mill Field Road Cottingley Business Park Bingley, UK BD16 1PY	
Website	www.powerhouseenergy.co.uk	
Bankers	HSBC 79 Piccadilly London W1J 8EU	
Nominated Adviser	WH Ireland 24 Martin Lane London EC4R 0DR	
Registrar	Neville Registrars Limited Neville House, Steelpark Road Halesowen B62 8HD	
Auditor	Jeffries Henry LLP Finsgate 5-7 Cranwood Street London EC1V 9EE	

Forward-looking statements

This report includes forward-looking statements. Whilst these forward-looking statements are made in good faith, they are based upon the information available to Powerhouse Energy Group PLC at the date of this report and upon current expectations, projections, market conditions and assumptions about future events. These forward-looking statements are subject to risks, uncertainties and assumptions about the Company and should be treated with an appropriate degree of caution.

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Chairman's Statement

I was delighted to join the Board of Powerhouse Energy Group plc ("Powerhouse", PHE" or the "Company") as Non-Executive Chairman on 1 January this year and am pleased to be able to report positive steps forward during the short period of my tenure of office so far.

We have re-assessed where the business stands and is heading. We have re-examined and moved away from the business model of licensing our technology to third party developers for flat returns by way of fixed annual licence fees, a model that we felt was under-selling the real value of Powerhouse. The Company has now altered its strategy towards joint venture arrangements with project development partners, giving Powerhouse more say, and providing upside opportunity for our shareholders. The change of direction has been shown in our recent announcements on the projects at County Longford in Ireland, and at Konin in Poland. We were also very pleased that at the Protos site near Chester, once it became clear that our partner (originally the site owner and licensee of our technology) no longer shared our vision for the project's development, Powerhouse took full ownership and control on terms which included acceptable lease provisions for the site. In addition, we were delighted to announce that we have brought our engineering capability fully in-house, having now increased our ownership of Engsolve Limited ("Engsolve"), our engineering partner, to 100%. Engsolve was established and, until this most recent transaction majority owned, by Powerhouse COO Paul Emmitt (Powerhouse had acquired a 48% interest in Engsolve in 2021). Although the former arrangement worked well in practice, it was not necessarily the best platform from which to build the business that Powerhouse should be. The new arrangement simplifies the Company's access to its essential engineering requirements. The Board sees it as a step forwards in presenting Powerhouse to the market as a stand-alone business, with all the essential components in-house, thereby reducing reliance on third parties and ensuring maximum potential value for Powerhouse's shareholders.

In 2022, excellent progress continued on the Technology Centre in Bridgend, a vitally important part of our ability to demonstrate that Powerhouse intends to place itself at the forefront of businesses aspiring for a position in the waste-to-energy sector. Hydrogen fuel is only one part of the waste-to-energy picture. The Company has maintained a watchful eye on the market for hydrogen, particularly in relation to the publicity attracted by the use of hydrogen as a transport fuel. That market remains in its infancy and as such, we will continue to develop our capabilities in electricity and heat production, fuelled by raw materials (non-recyclable waste products with no use) that to others are a growing problem but which, to Powerhouse, are the keys to the door.

The Company has seen that progression by licensing our technology to third parties does not mean they will provide the significant funding required for the construction of each plant. The Company will continue to need to do that with a development partner, as we will do at Longford and Konin, or as in the case of the Protos site, where the Company expects to "go it alone". We are now exploring the right mix of equity and project finance, to be ready when the opportunity opens up so as to ensure the business can progress according to our strategy.

Post the year end the Board has been re-shaped, with four new non-executive appointments, including myself, bringing an undoubted range of additional skills and experience to provide a non-executive component to support the highly experienced executive team. As Chairman, my focus is on planning the pathway to financial sustainability, ensuring that we have the right skills and other resources within the Company, on the right terms, and that Powerhouse continues to develop and protect its intellectual property. I expect to see Powerhouse prove its viability in a commercial context whilst we develop our working relationships with third parties and maintain their confidence in order to deliver our projects economically.

I wish to thank my predecessor Keith Riley, who held the reins as Interim Non-Executive Chairman before moving to a new role as Acting CEO, leading the small but excellent Powerhouse executive team. They have made the induction process easy for the new non-executive board members. I would also like to thank our shareholders for their continued support over the last few challenging years. The year ahead promises to be an exciting one as we deliver on expectations and progress our vision for Powerhouse.

AR Gardner-Hillman

Antony Gardner-Hillman
Non-Executive Chairman
29 June 2023

CHIEF EXECUTIVE OFFICER'S REVIEW

The year under review was a challenging one for Powerhouse, but one that I believe will be ultimately rewarding. It was the year that started a change that the Board believe will move the Company towards its goal of trading profitably and being at the forefront of the waste-to-energy sector. 2021 had seen a change in chairmanship of the Board, and it was hoped that the appointment of a new Chief Executive Officer in January 2022, followed by a new Non-Executive Chairman three months later would bring stability. This was not to be the case, however, and on request of the Board, I stepped in as Interim Chairman in June, and then had to assume the dual role of Interim Chairman and Acting Chief Executive in August 2022.

My objective in joining the PHE board from the outset was to help progress the Company towards becoming a profitable enterprise. The first step to doing this was to put in place a Board that could both maintain the governance required for a company quoted on AIM, whilst contributing to the day-today running of the Company in a way that previous Boards had not. These changes were finally achieved with the Board appointments which occurred at the beginning of 2023, and I welcome what I see as a fresh start for the Company.

As with previous years from a financial perspective, the Company continued to sustain an overall loss in 2022. In 2021, the Company reported revenue of £701,435 which was derived from three main sources as described in the Strategic Report, one of which was services provided to the Protos project. During 2022, as a result of the construction contract tendering exercise on Protos I describe below, PHE's engineering activity diminished whilst waiting for the prospective contractors to prepare and return their bids. As a result, revenue reduced to £380,277 in the year - a reduction of 46%. This revenue in 2022 was made up of £38,984 of HUI exclusivity income and £341,293 of billings to Protos Plastics to Hydrogen No1 Ltd, Peel NRE's special purpose vehicle (SPV) for the Protos project.. It was also possible, however, to achieve a reduction in cost of sales from £599,914 in 2021 to £295,912 in 2022, lowering the impact on gross profit ahead of exceptionals which reduced from £101,521 in 2021 to £84,365 in 2022 - a reduction of 17%. In the event, however, following the acquisition of the Protos SPV on 28 April 2023, it has been decided to impair £341,293 of billings to the Protos SPV (Refer to note 29 in the financial statements). The added value of the work carried out by the Company billed to the SPV will, however, be recovered during 2023, as it remains an integral part of the project's development.

The major movements in the accounts for 2022 are the reduction in goodwill, the impairment of the loan made to the Protos SPV and the trade debt billed to the Protos SPV described above. All can be attributed to the Company changing its business strategy following the takeover of the Protos SPV and placing the Company on a realistic and solid basis from which it can grow. The Company has moved away from a twin reliance on technology licence sales (with dependence on a third party to develop the project to which the licence will apply), and granting of exclusive rights to third parties in selected territories. It was evident that this approach had led to a restriction on the activities PHE could undertake, and stagnation of the Company's development. In consequence, in 2022 the Company decided to become proactively involved in the development of its own facilities and began initially by entering into joint ventures with development partners. In the event, the joint venture with Peel was not realised and PHE acquired 100% shareholding in the Protos SPV, making it currently the sole developer of this project.

In 2021 the goodwill had been determined by considering a five year view on the development of a series of facilities that Peel was to develop progressively and the quantum determined by summating the incoming licence fees and performing a discounted cash flow to calculate the net present value. This was despite there being no contractual basis or obligation in place for the development of those projects. The goodwill value in 2022 was eroded marginally from that of 2021 due to the passage of time. It became apparent during 2022, however, that the rate of project development anticipated in previous years was optimistic and that due to limitations on resources and supply chain capacity, the realisation of these capital projects will be slower than anticipated. In consequence, the Board decided that the previous goodwill calculation could not be supported and the Company would write off the goodwill value in the 2022 accounts down to a realistic value in today's market. The previous goodwill evaluation of £42.96m is therefore reported as being impaired by £40.66m, along with £0.5m of exclusivity fees from Peel NRE `protos project', giving a total impairment of £41.16 million. There is no implication on the ongoing business of the Company by this reduction in balance sheet value, and the value added represented by the loan value by the SPV under Peel and the trade debt in the Protos project will be re-established in 2023.

As reported in a previous annual report, a Front-End Engineering Design ("FEED") had been carried out on the Powerhouse proprietary technology for converting plastics to hydrogen, trademarked DMG™.. This had been funded through a loan facility to the Protos SPV made available by PHE and underwritten by Peel NRE Ltd, the then project owners, in November 2021. In February 2022, this facility was extended until 31 August 2022, the view at the time being that financial close of the Protos Plastics to Hydrogen project could be achieved within that period. This facility was extended again in August 2022 to 31 March 2023 and then further extended to 29 April 2023.

Chief Executive Officer's Review

Late 2022 saw a major change in the Peel project management team and the contracting strategy for construction of the Protos project. This led to an extensive tendering process during the spring and summer of 2022 whereby four pre-qualified, selected construction contractors were invited to tender for the construction, commissioning and setting to work of the Plastics to Hydrogen facility at Protos based on full specifications and a full form contract draft. This resulted ultimately in Petrofac being selected as preferred contractor, but what was consistent across all bidders was that the total installed cost of the development was significantly greater than had been estimated previously. Also consistent across the potential contractors was a requirement that further work was required on the FEED before prices could be finalised. Rather than the £20 million stated at time of the Dumbarton Dock planning permission, the tenders indicated the installed cost to be more than twice this. It became immediately apparent that the revenues that had been assumed from hydrogen sales and waste gate fees would not produce the return on investment required and Peel could not declare financial close within the timescale anticipated. In consequence, to allow the project development to continue, the various agreements between PHE and Peel had to be extended.

In May 2022, we announced the Global Technology and Information Centre, now known as the Powerhouse Technology Centre, which will be opened late 2023 in Bridgend, Wales. This indicates a strong commitment by the Company to invest in itself and its future development. Gasification as a means of treating large volumes of unprocessed waste has proved to have limitations and has even led to some developments being impaired. This has created a false impression that the technology "does not work" on wastes. This is not the case, and the true potential of converting waste materials into synthetic gas (or syngas) which can then be used to produce other products is still to be realised. The technology Powerhouse deploys is built on years of academic work and an original reference plant. The Company has performed several years of testing using the demonstrator unit at Thornton, and we have more recently used advanced computer techniques with Manchester University to improve the design further. We now even have a patent about to be granted on the temperature control of the kiln with several still pending. Nevertheless, there is still much we can do, and the Feedstock Testing Unit to be installed at Bridgend will be a scaled version of the commercial unit proposed for Protos and elsewhere, and will permit a much closer simulation of the commercial unit than its predecessor did. This will also enable the company to apply its technology to other feedstocks, simplify the gas processing system and optimise the outputs.

In June 2022, Peel announced that it had obtained planning permission at Dumbarton Dock, West Dunbartonshire, Scotland for a 13,500 tonnes per annum DMG™ unit. Unfortunately, this was short-lived as following the moratorium on incineration by Scottish Government, the permission was called in for examination by the Recorder in November 2022. It is my belief that the case for the plastics to hydrogen facility could have been made successfully and would have set a test case for these non-combustion waste conversion technologies, thereby making obtaining planning permission for future facilities that much easier. In the event Peel decided it would not contest the case and withdrew the planning permission.

It was evident to me from this and earlier events in late 2021/early 2022, that if PHE was to have a future, it had to have a level of involvement in projects incorporating its technology. Without this, the Company had no control on project decisions and was making statements on matters that were not of its making, nor had any ability to influence. To address this, it was agreed with Peel that PHE should acquire 50% of the shareholding in Protos Plastics to Hydrogen No1 Ltd, the SPV set up by Peel for development of the project. This was announced in September 2022, and documents were drawn up ready for signature, when following discussions in early 2023 on roles and further funding of the development activities, it was decided that the optimal way forward was for PHE to acquire the entire SPV and take over the project development, with Peel remaining as landlord of the site. This was completed on 28 April 2023 and all agreements between Peel and PHE were terminated.

As a result of this evolution during 2022, the Company used the first quarter of 2023 to develop its new business strategy. The main goal is to develop a portfolio of capital projects, but with a broadening of both the feedstock and product output beyond the narrow niche of plastics to hydrogen. Whilst plastic and hydrogen will remain an important business line for PHE, it relies heavily on the growth of demand for hydrogen. Demand is growing, but currently lags behind what is required to sustain the building of multiple PHE hydrogen from waste production facilities in the UK. The Board has every confidence this will change and by the end of this decade the use of hydrogen as a transport fuel will be common. PHE is in an excellent position to take advantage of this, but in the interim the Company must find alternative sources of revenue. The recent full integration of Engsolve into PHE provides this opportunity and in the Strategic Report we set out the role Engsolve will play.

Engsolve has provided engineering support to PHE for many years, with the Company holding 48% of the shareholding in since August 2021. The Company has now acquired the remaining stock. Engsolve will bring with it a history of successfully delivering engineering services to the energy, oil and gas, manufacturing, waste, and safety sectors. It is PHE's intention to build on this legacy, taking advantage of its specialist knowledge and the R&D capability emerging from the Powerhouse Technology Centre, to become a significant service provider. This will bring new revenue streams into the company and help build its reserves to support the capital projects.

Chief Executive Officer's Review

Lastly, during 2022, PHE embarked upon building a pipeline of projects. This is still underway and results are only now beginning to emerge. Heads of terms were signed with Hydrogen Utopia International Plc ("HUI") in August 2022 for a project in Konin, Poland, but progress was severely delayed due to recent events in Eastern Europe. In March 2023, however, it was announced that a similar arrangement had been agreed with HUI on a project in Longford, Ireland. More recently, we have also announced an initiative in Ballymena, Northern Ireland. We will, however, continue to be cautious in building the pipeline. PHE must maintain focus on Protos, as with an implemented planning permission and engineering largely complete, at time of writing, this still remains PHE's fastest route to an installation - and focus must not be detracted from that. Furthermore, it is important that PHE does not enter into agreements it cannot properly service. The road to success in this market is through expertise and quality. If we deliver the quality the market demands, the quantity will follow, and the Board are confident that it will.

Keith Riley

Keith Riley
Acting Chief Executive Officer
29 June 2023

STRATEGIC REPORT

This strategic report presents the Directors' opinion regarding the future direction of the Company and contains certain forward-looking statements. These statements are made by the Directors in good faith, based on the information available to them at the time of writing and such statements should be treated with caution as they address uncertainties.

During 2022 the Company received three sources of revenue:

1. £38,984 of HUI Exclusivity fees in relation to Konin, Greece & Portugal

2. £341,293 of billings to Peel's Protos special purpose vehicle (SPV), Protos Plastics to Hydrogen No1 Ltd.

3. £60,326 arising from Engsolve profit share

These sources of revenue were the only ones available to the Company in the year. No other source of revenue was available, as income from licencing of the DMG™ Technology could not and would not commence until project documentation for the construction of the project had been completed and the payment profile agreed. With the extant agreements in place, it was possible that no payment would be received until commencement of commercial operations of the facility.

Ahead of exceptional items, the Company made a gross profit in the year of £84,365, derived from revenue items 1 and 2 above. This compared to a gross profit in 2021 of £101,521. During 2022, due to the construction contract tendering exercise on Peel's Protos project, the Company's project related activities reduced pending prospective contractors preparing and returning bids. As a result, revenue reduced to £38,984 of exclusivity income and £341,293 of billings to the Protos SPV - a reduction of 46% from that in 2021. Due to a reduction in cost of sales from £599,914 in 2021 to £295,912 in 2022, gross profit was only reduced by 17%.

The sources of revenue stated above were the only ones available to the Company in 2022. No other source of revenue was available, as income from licencing of the DMG™ Technology could not, and would not commence until project documentation for the construction of the project had been completed and the payment profile agreed. With the agreements in place, it was possible that no payment would be received until commencement of commercial operations of the facility. The Company had no other means of generating revenue available to it.

Administration expenses for the year were £2,258,177, compared with £2,147,476 in 2022, due primarily to the additional costs incurred by changes to the Board of Directors. This gave an overall loss for the year ahead of exceptional items of £2,113,486, compared to £2,007,628 in 2021.

In 2021 the goodwill had been determined by considering a series of 30 facilities that Peel was to develop progressively over a period between 2022 and 2050, with the goodwill being a quantum determined by summating the incoming licence fees over a five-year period and performing a discounted cash flow to calculate the net present value. The goodwill value in 2022 is eroded from that of 2021 due to the passage of time, and the realisation that the incidence of projects over the period will be restricted to 5 in number. The basic model is the same. The previous goodwill evaluation of £42,960,000 is therefore reduced by £40,660,000 to £2,300,000. It has also been decided to impair the Peel NRE exclusivity fees of £500,000, the loan drawdown and interest accrual under the PHE loan facility to the Protos SPV of £2,159,274 along with the trade debtor owed to the Company by the Protos SPV of £1,183,686, giving a total balance sheet reduction of £44.5m.

There is no implication in this adjustment on the ongoing trading of the Company by this reduction in balance sheet value. Both expenditure under the loan and the owner engineer services provided by the Company to the Protos SPV contributed to the development of the project in terms of intellectual property and physical assets. These will be will be re-evaluated and consolidated during 2023 into a loan to Protos Plastics to Hydrogen No 1 Ltd by the Company as project development costs and in accordance with the business strategy described below.

The Vision and the Mission

The vision of Powerhouse is to be a leader in technology solutions that rid the world of and utilise non-recycled wastes producing sustainable energy whilst mitigating climate change impacts.

Strategic Report

The Company's mission is to provide flexible, innovative, solutions to global pollution by converting such non-recycled wastes into valuable end-products, including low carbon energy. We will develop facilities to achieve this and when appropriate, will license third party developers to deliver similar facilities that reduce environmental impact. We will also use our expertise to assist others in their efforts to reduce climate change.

The Commercial Offering

The commercial offering of Powerhouse is to apply its expertise in engineering and project management to the development of facilities that can generate continuous profit streams for the Company. It specialises in low carbon energy production from waste materials but is able to apply its know-how and expertise to any application that reduces the impacts to the environment, both pollution and climate change.

The Company has developed as its core technology a rotating kiln that can process organic or fossil-based carbonaceous materials using pyrolysis and gasification. This produces a synthetic gas (or syngas) that can produce a range of products including:

Gaseous fuels
Liquid fuels
Electrical power
Heat
Chemical feedstocks
Char

Sources of Revenue

Until now, PHE has focused exclusively on the licencing of its proprietary technology for the production of hydrogen from plastics. The arrangement with Peel was based entirely upon a licencing model. This was seen as a low-cost, low-risk option. This model did, however, depend on third parties to develop the application for the technology, and PHE played little or no role in the project management. Unfortunately, it was also flawed because whilst multiple facilities deploying the registered trademark DMG technology were projected, there was little appreciation of the technical complexity involved and the inextricable link that is needed between the engineering and the management of the project development. Consequently, the supply chain's ability to deliver the equipment was over estimated. There was also a hidden risk that to sell any licence there is an inevitable requirement for warranties to be given and with a "hands-off' position within the project, the Company was not set up to deliver these. For the Company to sell further licences to less "friendly" clients than Peel, it was also necessary to have the reference of an operational plant.

In the third quarter of 2022, the decision was made that PHE must be able to control its own destiny and could no longer rely entirely on others to deliver facilities deploying its technology. As a consequence, the licence model was superseded by the Company taking a direct interest in such projects.

To develop an operating facility such as that proposed at Protos, it requires a construction and commissioning programme of at least 18 months. Specialist materials are required for some of the equipment due to the high operating temperatures and the propensity of hydrogen to embrittle steels and leak from even welded joints. This means that some of the equipment can only come from specialist manufacturers and the delivery periods are long due to supply chain issues. Prior to construction, it is necessary to obtain planning permission and the necessary environmental permits, so the typical project cycle time from conception to reality of a PHE plastics to hydrogen facility is around four years. With other configurations - for example, an electricity generation only facility - it can be a few months less, but not substantially shorter. Whatever the period of development, construction and setting to work, the Company earns no revenue during that period whatever business model is adopted and may not do so until the facility is generating sufficient profits.

To date, shareholder funds have financed the Company's working capital. If nothing else is put in place, this would remain the case until revenue was earned from an operating project. On top of this, the question must be addressed of how the capital project is to be financed.

Engsolve, being now fully integrated within the Powerhouse Group, brings with it a history of providing engineering services to third party clients. Although this income is modest at present, it can form a base on which the Company can build a revenue stream whilst the capital projects are developed. This will inevitably require recruitment of some new personnel and a deliberate drive to sell these services. Engsolve has an existing base and a successful track record. With positioning of the Company within its specialist areas, it will be possible to build the client base rapidly, producing income from engineering services to reduce the cash requirement from shareholder funds. This will also enable PHE to build its equity share in the capital projects.

Financing of the PHE Capital Projects

No extensive consideration had previously been given to the financing of facilities within the Company as it was to be done by others. The only action taken by the Company was to carry out a raise of £10 million (gross) through shareholder equity in August 2021. This funded the loan to Peel on Protos – hence the development on that site – and has provided the Company's working capital ever since.

The new strategy is for PHE to develop a portfolio of capital projects. By taking an equity interest in these projects, the eventual dividend flow will greatly exceed that which could be generated by licence fees. This will have a significant positive impact on the Company's value and will drive growth and increase overall returns on invested capital.

To achieve this, each project will be considered on its merits although the approach taken in their structure and financing may differ from project to project. In every case, a special purpose vehicle (SPV) will be formed, and the Company will develop the project to financial close. Ahead financial close, however, a decision will be taken on the approach taken by the Company at financial close, and this may be different for each project. For example, initially when the Company has limited equity, it may dilute its interest at financial close to become a minor shareholder in the SPV, or even sell the total shareholding in the project. The Company's income from the project will be a development fee that will be charged to equity partners entering the project (or for its sale) and a dividend pro rata with the shareholding. As the portfolio builds and cash position strengthens, the proportion of equity the Company maintains in the project can grow.

In each case a form of project finance is used, with minimal or no call on shareholders to invest directly in the SPVs unless they express a wish to do so.

Project Finance

Project finance is the funding of long-term infrastructure, using a limited or even non-recourse financial structure. Equity and debt are used to finance the project and are paid back from the cash flow generated by the project. This is effectively a loan structure that relies primarily on the project's cash flow for repayment, with the project's assets, rights, and interests held as secondary collateral.

The key to obtaining project finance is de-risking the technical risks and attention to detail in establishing the costs and revenue streams and the covenants of the third parties concerned. This is the stage that the Company is now at on Protos and will update the financial market when the appropriate arrangements have been completed.

Research & Development

The application of R&D has always been an important factor in PHE's development. This remains the case, and in 2022 the Company announced its intent to enhance this by establishing the Powerhouse Technology Centre at Bridgend. A purpose-designed Feedstock Testing Unit (FTU) is in manufacture and will be installed within the Centre during 2023. The FTU is a scaled version of the commercial Thermal Conversion Chamber (TCC) and will allow simulations of the commercial operating plant to be carried out under controlled conditions. It is anticipated that this will enable the Powerhouse Technology to be demonstrated in practice independent of building the commercial unit and hence give comfort to potential investors that the technical risk can be mitigated.

It is the director's firm belief that the use of thermal processes such as pyrolysis and gasification will grow in forthcoming years as lead chemical recycling develops and overtakes and possibly replaces for some materials physical recycling. Building the Company's expertise and knowledge in this field will allow the Company to be at the forefront of this transition. The ambition is for the Company to be the go-to company in the UK for these thermal treatments and associated materials behaviour, and for the Powerhouse Technology Centre to become a profit centre in its own right.

PRINCIPAL RISKS AND MITIGATIONS

The Board of Directors is responsible for ensuring that the risk register is maintained and updated. This ensures a reasonable, but not absolute, assurance that significant risks are mitigated and managed to an acceptable level.

The Executive Directors are responsible for establishing and maintaining the risk register on all capital projects. This identifies risks and assesses their potential impact using quantification techniques. Mitigations are then considered, and the residual risk identified.

Significant risks are those which if materialise will have material impact on the Company's long-term performance and delivery of its business strategy. These are summarised in the following table.

Risk	Description	Mitigation
Operations	Greater than anticipated increases in global pricing and pressures on supply chain adversely impact financial viability of capital projects, Supply chain manufacturing capacity is constrained and cannot meet required delivery times. Longer development timescales than anticipated. Key contractors/suppliers are unwilling to provide required performance guarantees.	All suppliers to be pre-qualified for their relevant experience and stability. Regular review of supply chain and maintain competitive tension. General cost-side inflation will be reflected in offtake price escalation. Contract security and performance requirements to be included in all major supplier contracts. In-house team to be strengthened with competent personnel, whilst also working with experienced partners – eg strategic framework agreement with Petrofac.
Technical Risk	Risk that the technical solution chosen does not perform to the standards anticipated.	Pyrolysis and gasification are well established technologies widely reported in the literature. Substantial testing of the feedstock conversion to syngas process has been carried out by PHE using the Demonstrator Unit at Thornton. PHE works with academia to deploy latest computer-aided tools. Independent due diligence on the process will be carried out prior to implementation. The new FTU to be installed at Bridgend will have the capability of simulating the commercial kiln to enable predictive testing to be performed.
Intellectual Property	Patent applications may not be granted. Maintaining patents is costly and cannot cover the whole world.	Patents give PHE unique control over its technology, but knowhow and expertise is considered to be more important and can mitigate against copying.
Government Policy	Drivers of demand for pollution reduction, recycling and climate change avoidance rely on support from Government policy. Policy supports for avoided CO2 emissions and counterfactuals is important to provide PHE with competitive advantage.	Maintain presence and communicate with government departments on Low Carbon Fuels Standards. Currently counterfactuals are not recognised within UK policy.
Competition	Competition may depress revenues or even act as a barrier to PHE's entry to the market.	The need to establish capital projects acts as a high barrier to entry, which deters competition. PHE is not aware of any significant competitor within its business strategic area. Once access to land is established, competitive pressures lie with waste gate fees and offtake sales. PHE strategy now

		is to target waste streams that can command adequate gate fees and adapt offtakes to match market demand – hence the broadening of offering beyond plastics and hydrogen.
Funding of working capital/cash flow	Cost of development significantly above ability of shareholder equity to fund. Cash position inadequate to fund project development.	All capital projects are programmed budgeted and the spend controlled. Most of the development spend on Protos is already expensed. Cash flow is managed and reviewed monthly. New business strategy of providing engineering services through Engsolve will improve cash flow.
Financing of capital projects	Shareholder equity cannot finance capital projects. Cost of capital projects increase and depress IRR below investment level.	Project finance approach to be followed. PHE will de-risk each element required to achieve an investable project. Engineering design completed. Specifications available for plant & equipment to be contracted using model form contracts. Projects value engineered to minimise cost prior to design freeze. Capital costs to be fixed as early as possible. Currency risk to be hedged.
Feedstock supply risk	Feedstock unavailable or only at negative gate fees.	Quantified assessments of available feedstock have been carried out. PHE will target available feedstocks and seek long-term agreements for feedstock supply.
Offtake market risk	Offtake market at different price point than anticipated. Lack of demand for offtake.	Expand the range of offtakers approached to provide competitive tension. Adapt the project to meet market demand.
Regulatory and Compliance Risk	Regulations may change.	Projects designed to meet existing regulations. Change in law provisions included in project contracts.

Key Performance Indicators (KPIs)

Due to the nature of the Company's business strategy, which was essentially passive, relying on others to develop projects so that licences for the Company's technology could be sold, no KPI performance measuring system was in place. It is also of note that the number of employees of the Company as at 31 December 2022 was one.

Following the implementation of the strategy described above, the Company will adopt a range of metrics in the form of KPIs, which will be reported on periodically to measure performance. The implementation of the KPIs will be rolled out during 2023 and cover the following:

Financial measures:

- Underlying profit & loss to measure the Company's profitability for the year attributable to equity shareholders of the Group. It will exclude exceptional items, remeasurements, timing and force majeur incidents from the calculation;
- Company capital investment. The Company plans to invest in the development of its capital projects and will publish five-year plan from January 2023 to March 2028 across all areas of the Powerhouse Group.
- Research and Development spend. This will measure expenditure invested in the development of decarbonisation of energy systems, and will provide a transparent view of the Company's compatibility with reduction in contamination, pollution and climate change mitigation.
- Return on capital employed (ROE). The Company will provide a target and forecast on the potential ROE of its capital investments to provide an indication of its performance in generating value for shareholders.

Non-Financial Measures

- Contamination & Pollution Reduction. This is a projected measure of the reduction the Company's projects will have on reducing contamination and pollution by the waste products processed by the Company's capital projects and engineering services provided to others.
- Climate change mitigation. This is a projected measure of the reduction the Company's projects and engineering services will have on reducing climate change impacts.
- Stakeholder satisfaction. Customer and stakeholder satisfaction, will be measure with view to maintaining engagement with these groups and improving service levels.
- Employee Engagement. The Company will measure how engaged our employees feel, based on the percentage of favourable responses to questions repeated annually in our employee engagement survey. The target will be to increase engagement compared with the previous year. A review of diversity within the workforce will also be carried out with view to increasing diversity as the workforce grows.

Statement of Directors' Duties to Stakeholders under s.172 Companies Act 2006

The Directors acted in in good faith throughout the year with view to promoting the long-term success of the Company for the benefit of its members as a whole, with due regard to stakeholders and the matters set out in section 172 of the Companies Act 2006.

The Board recognises its responsibilities to each of the Company's stakeholders and to society, and have endeavoured to ascertain the interests and views of its stakeholders and consider these when making decisions. The Board acknowledges its responsibility for setting and monitoring the culture, values and reputation of the Powerhouse Energy Group, and seeks to live by its values.

When making decisions, the Directors have regard to all stakeholders but acknowledge that not every decision will result in a preferred outcome for all. The Board strives to balance the different and competing priorities and interests of our stakeholders in a way compatible with the long-term, sustainable success of the business and which maintains a standard of business conduct aligned to our values and purpose.

The Directors are aware of their duty under section 172 of the Companies Act 2006 to act in the way which they consider, in good faith, would be most likely to promote the success of the Company for the benefit of its members as a whole. and, in doing so, to have regards (amongst other matters) to

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

Strategic Report

The Board recognises that the long-term success of the Company requires positive interaction with its stakeholders. Positive engagement with stakeholders will enable our stakeholders to better understand the activities, needs and challenges of the business and enable the Board to better understand and address relevant stakeholder views which will assist the Board in its decision making and to discharge its duties under Section 172 of the Companies Act 2006.

We reproduce here the Code of Conduct of the Company for easy reference which the directors believe meet the requirements of s172.

Company's Code of Conduct

1. **Introduction**

This Powerhouse Energy Group (Powerhouse) Code of Conduct is a steering document that defines how the Company will act towards its employees, towards its clients, business partners, suppliers, competitors, and other organisations in all situations related to our business. The Code of Conduct is an integral part of the Company's Environmental, Social and Governance (ESG) Strategy and defines our corporate responsibility in society.

It is mandatory that this Code of Conduct is understood and complied with by all personnel working for the Company and its subsidiaries or on their behalf, including Representatives.

The Powerhouse Board of Management and CEO are ultimately responsible for the Code and its implementation. The Board will monitor its compliance through annual performance reviews, annual employee surveys and internal and external audits.

All Powerhouse officers, employees and those representing the Company represent the Company's brand and reputation through the solutions and value we create and our behaviour.

2. Our People

Powerhouse will maintain a structured recruitment process with a structured performance appraisal and talent management process. We will create development opportunities and continuous learning for our employees. By encouraging a feedback culture and working with the insights from our employees, we increase their engagement.

It is the responsibility of each employee to look after their own personal and professional development, but at all times supported by the Company. Employees will be given equal opportunities for professional development both within their existing fields and in new areas.

The Company believes that diversity is an important asset within the company and in our relationships with clients and stakeholders. We promote equal rights and opportunities of employees in the workplace regardless of their gender identity, age, ethnicity, religion or other belief, disability, or sexual orientation.

3. Social Responsibility

The company accepts continuing responsibility for its services to its clients and thereby to society. The company will permanently contribute to the benefit of its clients and society through sustained technological development and personnel training aimed at improving its performance.

Sustainability is a permanent goal in every project. The largest contribution to sustainability lies in the projects Powerhouse develops and has three facets:

1. Our projects must contribute to sustainable development;
2. We will strive to increase the sustainability performance of our client's projects; and
3. We will act sustainably in our own operations and performance.

Powerhouse is committed to improve the lives of people and to respect human rights. We should always act in a socially and ethically responsible way, within the laws of the countries in which we operate. We support and respect human rights, as defined by the UN in the Universal Declaration of Human Rights.

4. Quality of Service

The Company will only undertake project assignments in its areas of expertise where it has the capabilities to deliver efficient and effective service to its clients. We are committed to providing high quality services to clients and will focus on quality management as a working methodology and on permanent improvement as a means to improve that quality of service. It is our intent to be certified in Quality, Environment and Health & Safety in accordance with ISO 9001, ISO 14001 and ISO 45001 and we are committed to continuously improve our management system.

Health and safety is a top priority for the Company, with a zero-incident target. We are committed to eliminate hazards, reduce risk and ensure that health and safety information, instruction, training, and supervision is provided to all.

The Company is committed to the continual improvement of its knowledge base, abilities and tools in the area of its expertise. The company will focus on technology management as a working methodology and shall extend to its clients the benefits of its professional achievements.

5. Objectivity

Powerhouse will be loyal to its clients and will maintain the confidentiality of any information from the client that is obtained in the process of performing services. The Company will also keep confidential the documents and reports prepared for the client.

The Company will avoid any conflict of interest and will inform a client beforehand of any potential conflict of interest that could emerged during the execution of its services.

The Company will only offer its services under contracting terms that do not interfere with its independence, integrity and objectivity.

Powerhouse will not accept any remuneration that could encourage the offering of a biased opinion.

6. Corporate integrity

Powerhouse complies with all applicable laws, regulations, and other requirements applicable to operations in the countries where Powerhouse is active. This Code applies to all parts of the organisation, irrespective of where we are based, or where our projects are performed.

The Company will operate and compete in accordance with the legislation of each Territory and will not accept fraud, corruption, bribes, or unpermitted competition-restricting practices. We are committed to supporting international and local efforts to eliminate corruption and financial crime. We will not commit to activities that we cannot defend or account for, and we must not make decisions based on improper relationships or personal relationships. We also undertake to maintain correct and accurate accounting and reporting in accordance with the accounting rules in each Territory in which we operate.

The company will act at all times for the benefit of clients, and will carry out services with professional integrity, whilst not jeopardising the interest of society.

The promotional activity of the company and its services will uphold the dignity and reputation of the industry. Brochures and other formal documents describing resources, experience, work and reputation will reflect the Company's actual circumstances in a truthful manner.

The Company will manage with integrity its internal and external clients. It will focus on business integrity management as a working methodology.

We respect the privacy of individuals and recognise the importance of personal data entrusted to us by our employees, clients, and other parties. Confidential information received by Powerhouse from clients and other external parties must as a minimum be treated and protected in the same way as the Company's own confidential information. It is the responsibility of every employee and Representative to process and protect all personal data compliant with the applicable privacy legislation in a relevant and proper manner.

Employees and Representatives must report any violations of business ethics or human rights that arise in their course of work, even if the Company is not directly involved or party to it. In addition, employees should report incidents which could be a breach of business ethics and may remain anonymous if they so wish.

7. Communications

Powerhouse employees are encouraged to communicate and share information but must at the same time ensure that the Powerhouse brand is strengthened and not weakened.

Our communications must always reflect, protect and develop the Company's position in the market as well as show that we are available to our stakeholders Every Powerhouse employee and Representative is an ambassador for the company. Communications must support the Company's business goals and profitable growth strategy while securing a cohesive brand identity in the market. All managers are responsible for ensuring that they and their employees comply with the guidance documents that apply for communication within and from Powerhouse.

As a company listed on the London AIM stock market we are obliged to communicate anything related to the Powerhouse business, financial condition, and results in line with the laws and rules that apply to listed companies. We report transactions correctly and in a true and fair way.

8. Competition

The company will only solicit work and participate in private and public competitive tendering under a high standard of corporate ethics and competitive practices, and with total integrity in its transactions. The Company will not participate in prohibited anti-competitive activities, illegal price-fixing agreements, market sharing or abuse of dominant position.

The company favours quality-based selection for the contracting of services.

If solicited to review the work performed by another company, the company will act in accordance with its business integrity and objectivity policies.

The Company will not endorse compensation or contribution arrangements destined to influence or secure work no seek commissions from suppliers of equipment and services recommend it to the client as part of the company's services.

The Company will not take part in activities that could damage the reputation of its business or the business of others.

Keith Riley

Keith Riley
Acting Chief Executive Officer
29 June 2023

DIRECTORS' REPORT

The Directors present their report together with the audited financial statements for the year ended 31 December 2022 for Powerhouse Energy Group Plc ("Powerhouse", "PHE" or the "Company"). The financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB), as adopted for use in the United Kingdom (UK) and with those parts of the Companies Act 2006 applicable to companies reporting under IFRS (except as otherwise stated.

Principal Activities

Powerhouse Energy Group Plc (Powerhouse) is a company incorporated in England and Wales with company number 03934451. The Company is a public limited company which trades on the AIM market of the London Stock Exchange. The address of the registered office is 15 Victoria Mews, Mill Field Road, Cottingley Business Park, Bingley BD16 1PY.

Powerhouse designs non-recyclable waste regeneration facilities to produce electricity, heat, and gases such as hydrogen and methane whilst removing carbon from the system. It provides associated engineering and testing services and customer support for the lifetime of the facility. Its offering includes its Distributed Modular Generation (DMG™) product platform for the advanced thermal treatment of waste streams, converting them to a synthesis gas, which can then be processed further as required.

Business Strategy

The Company Business strategy is described in the Strategic Report.

Business Review

The review of the year and the Directors' strategy are set out in the Strategic Report and the Chairman & CEO's Reports.

Key Performance Indicators

At the year ended 31 December 2022, the Directors consider that future performance be measured against the commercialisation and business development milestone activities reported in the Strategic Report.

Future Developments

Expected future developments and the Company's corporate development strategies are reported in the Chairman & CEO's Report and the Strategic Report.

Management of Capital

Matters related to the management of capital are set out in the Strategic Report.

Subsidiaries, associates and other investments

The Company's UK subsidiaries are Powerhouse Energy UK Limited and Powerhouse Energy International Limited. There are long-term restrictions on the operations of the Company's subsidiaries in the US (Powerhouse Energy Inc.) and Switzerland (Pyromex AG). With these restrictions in place, the Company is unable to exert control over the subsidiaries. As such the Company has claimed exemptions applicable to it under Companies Act 2006 sections 405 (2) and 405 (3b) and IFRS 10 to not present any Consolidated financial statements for the year ended 31 December 2022.

In 2022, the Company had one associate, Engsolve Limited ("Engsolve"), in which a 48.39% interest was acquired on 12 August 2021 for a cash consideration of £99,990. Engsolve is incorporated and operates in the UK. On 21 June 2023, the Company completed the acquisition of the entire outstanding shareholding of Engsolve for a cash consideration of £572,896. The accounts include the Company's share of Engsolve's profits made after the 2021 acquisition and prior to the 2023 acquisition. The rationale for the acquisition is detailed in the Strategic Report.

During 2021, the Company's investment in Waste2Tricity International (Thailand) Limited was transferred into a new Thailand based entity, Altec Energy Limited ('Altec"). The Company has not taken part in fund raises investment made by Altec subsequent to its formation. In the previous years' accounts the interest was identified as being reduced to 33.8% as at 31 December 2021 and to 30.4% since December 21. We have been recently informed that the audit of Altec accounts picked up an error in these calculations. The share holding was in fact 33.5% as at December 2021 and 30.1% since December 21 (a 0.3%error in the calculation). PHE Due to the passive nature of the Company's involvement, the interest is held in other investments

Results and Dividends for the Year

The Company financial statements for the year ended 31 December 2022 are set out in this annual report. The Company loss for the year after taxation amounted to £46,198,679 (2021: loss of £1,870,496). The net assets of the Company are £8,868,663 (2021: £55,085,971) with the movement in the year set out in the Statement of Changes in Equity.

The Company has not paid a dividend during the year ended 31 December 2022 (2021: £nil) and the Directors do not recommend the payment of a dividend at 31 December 2022 (2021: £nil).

Research and Development

Research and development related costs incurred during the year, relating to the DMG product, amounted to £431,185 (2021: £585,195). This excludes amounts expended on client projects that are expected to be recovered.

Financial Risk

Financial risk management and exposure are set out in the Strategic Report.

Events after the Reporting Period

There have been no significant events since the balance sheet date other than those discussed in the Strategic Report and note 29 to the Company financial statements.

Directors

The Directors who held office during the period and up to the date of the Annual Report are as follows:

Current Board Members:
Keith Riley
Hugh McAlister (appointed 4 February 2022)
Paul Emmitt (appointed 2 March 2022)
Antony Gardner-Hillman (appointed on 1 January 2023)
David (Dewi) Hitchcock (appointed on 1 January 2023)
Anthony Gale (appointed on 1 January 2023)
Karol Kacprzak (appointed on 16 February 2023)

Board Members who served and left during period:
Russell Ward (appointed on 4 February 2022 and resigned on 10 June 2022)
James Greenstreet (resigned on 30 June 2022)
Paul Drennan-Durose (appointed 14 February 2022, resigned 31 August 2022)
Myles Kitcher (resigned on 8 November 2022)
Gillian Weeks (appointed 18 January 2022, resigned on 8 November 2022)

Company Secretary

Delgany Corporate Services Limited

A brief biography of the current Directors can be found below:

Executive Directors:

Keith Riley, Acting Chief Executive Officer

Keith Riley joined the Board as a Non-Executive Director in 2021 and stepped in as Interim Non-Executive Chair on 27 June 2022 and remained in that role until 30 December 2022 when Antony Gardner-Hillman was appointed as Non-Executive Chair. Mr Riley is now the Acting Chief Executive Officer. Mr Riley is also the proprietor and Chief Executive Officer of Vismundi Limited, a consultancy company providing services to the resources and waste management industry. Prior to that, between 2005 and 2012 he worked for Veolia Environmental Services plc as Group Managing Director for Technology and as Managing Director for Group Technical Services.

Over the course of his career Mr Riley has worked with several specialist waste and resource management companies and was a Non-Executive Director of Waste2tricity Limited. He continues to be a Partner of BH Energy Gap LLP on behalf of Vismundi, which develops projects in the renewables sector and raises the finance to implement them.

Mr Riley chairs the ESG Committee.

Paul Emmitt, Chief Operating Officer

Paul Emmitt was appointed as Chief Technical Officer in June 2021 and joined the Board as an Executive Director on 2 March 2022 after which he became Chief Operating Officer in August 2022. Mr Emmitt is a Chartered Materials Engineer and Chartered Environmental Engineer with over twenty years engineering and operational management experience both in the UK and overseas.

Mr Emmitt holds an MBA in Engineering Management. His experience encompasses work in the oil, gas, energy-from-waste and chemical industries as well as periods with major international companies at levels from Engineer to Director. In all sectors he has been a designer as well as a project and HSE manager.

Non-Executive Directors:

Antony Gardner-Hillman, Non-Executive Chairman

Tony Gardner-Hillman, a solicitor qualified in England and Wales, is an experienced company director and chairman with over 30 years' experience in a range of sectors, and was appointed as Non-Executive Chair of Powerhouse on 30 December 2022. Mr Gardner-Hillman has previously held board positions with seven companies whose shares have been admitted to trading on public exchanges: mostly AIM and also NASDAQ OMX (Stockholm) and NEX Exchange (now Aquis Stock Exchange, London), including two chairman roles. In 1987 Mr Gardner-Hillman co-founded JTC Group and became its first chairman, remaining as a Director and Chairman until selling his shareholding and resigning from the board in 2008. In 2020 Mr Gardner-Hillman co-founded, and subsequently became Chairman of, Rocquaine Management Limited, a privately owned company which provides ownership-structuring and tax consulting services to ultra-high net worth clients.

Hugh McAlister, Non-Executive Director

Mr McAlister was appointed to the Board on 4 February 2022. Hugh McAllister began his career in the City and has over 40 years'stockbroking experience. Most recently he has been the Executive Chairman of Novum Securities Limited since 2018, having been its Chief Executive Officer for the previous nine years. Prior to this, Mr McAlister was a founding partner and head of trading a Kaupthing Singer & Friedlander Capital Markets and Head of Pan European Equities at Dresdner Kleinwort Benson.

Dewi (David) Hitchcock, Non-Executive Director

Dewi (David) Hitchcock OBE joined the Board on 30 December 2022 and has been a director of several UK Companies in the Financial Services and Precision Engineering Sectors, most recently as Chairman of States Bridge Capital which lists private companies onto the UK Stock Market and also acts a financial advisor. He has spent over 30 years in finance including 17 years as a Managing Director at JPMorgan and Chairman of Grant Thornton's UK Banking and Securities Group. He served as a Captain in the Brigade of Gurkhas and is a graduate of The Royal Military Academy, Sandhurst. He was educated at Pembroke College, Cambridge.

Mr Hitchcock is Chair of the Audit Committee.

Directors' Report

Anthony Gale, Non-Executive Director

Tony Gale joined the Board on 30 December 2022. A Royal Navy trained Technician Engineer veteran, Mr Gale has over 30 years' experience in the industrial and manufacturing sectors, primarily in power generation and transmission with 17 years at GE where he was the Corporate Director for enterprise projects and General Manager responsible for delivering GE's Olympic sponsorship programme for London 2012 before moving into working with cleantech SMEs preparing for commercialisation and investment through his company, Tony Gale Cleantech Consultants Ltd. Tony is also Chair of Deploy Tech Ltd, a water tank manufacturer and a Board Observer at Urban Intelligence on behalf of the Development Bank of Wales.

Mr Gale is Chair of the Remuneration Committee.

Karol Kacprzak, Non-Executive Director

Prof. Kacprzak joined the Board on 16 February 2023. He is currently an Associate Professor at the Faculty of Chemistry at Adam Mickiewiez University in Poznan, Poland and has over 20 years' of academic experience. He is also member of the Polish Chemical Society. At Adam Mickiewiez University he was awarded a Phd with distinction in Chemistry and other awards in science and education.

Prof Kacprzak is an expert in organic and medicinal chemistry with ca. 40 research papers, 12 international patents and several patent applications. He is also actively collaborating as an advisor in the chemical industry (AdvaChemLab, Bioten, Grace and others).

Hugh McAlister, Non-Executive Director

Hugh McAlister joined the Board in February 2022. Mr McAlister has over 40 years' stockbroking experience in the city and has been the executive chairman of Novum Securities Limited since 2018, having been its Chief Executive Officer for the previous nine years.

Prior to this, Mr McAlister was a founding partner and head of trading a Kaupthing Singer & Friedlander Capital Markets and Head of Pan European Equities at Dresdner Kleinwort Benson.

Directors' Service Contracts

Details of the Directors' service contracts and their respective notice terms are detailed in the Remuneration Committee report.

Directors' Interests

The interests of the Directors who held office at 28 June 2023, being the latest practicable date before the publication of the Annual Report and at 31 December 2022, in the ordinary shares of the Company, were as follows:

	Number of ordinary shares	
	28 June 2023	**31 December 2022**
Tony Gardner-Hillman	-	-
David Hitchcock	-	-
Keith Riley	12,128,986	12,128,986
Tony Gale	-	N/A
Paul Emmitt	-	N/A
Karol Kacprzak	-	N/A
Hugh McAlister	-	N/A

Significant Shareholders

As at 29 June 2023, being the latest practicable date before the publication of the Annual Report, the Company is aware of the following significant interests in its ordinary, voting share capital:

Holder	Amount	Percentage
White Family* consisting of: -	789,257,099	19.94%
* Josh White	307,785,185	7.78%
* Ben White	190,741,532	4.82%
* Serena White-Reyes	214,584,086	5.42%
* Howard White	76,146,296	1.92%
Hargreaves Lansdown Stockbrokers	803,306,641	20.30%
Interactive Investor Services Limited	430,295,640	10.87%
Halifax Share Dealing Limited	183,964,076	4.65%
Barclays Stockbrokers Limited	128,546,901	3.25%

Corporate Governance

The Company complies with the AIM Rules for Companies, including AIM Rule 26, concerning the disclosure of information. It also complies with the provisions of the Quoted Companies Alliance Corporate Governance Code ("QCA Code"). More details are provided in the Corporate Governance Report in this document.

Payment to Suppliers

The Company does not have a standard or code which deals specifically with the payment of suppliers. Total creditor days for the Company for the year ended 31 December 2022 were 22 days (2021: 24 days).

Risk Management and Principal Risks

The principal risks to the Company, including financial risks and exposures and descriptions of how they are managed is explained in detail in the Strategic Report and in Note 26 to the financial statements.

Going Concern Basis

The financial statements have been prepared on a going concern basis and is explained in Note 1.3 to the financial statements.

Political Donations

The Company has not made any political donations in the year ended 31 December 2022 (2020: nil).

Auditors

Jeffreys Henry LLP (a member of the Gravita Group) has indicated that it will not seek re-appointment as the company's auditor at the forthcoming Annual General Meeting as, following a business reorganisation, the group will provide audit services to clients from another company in the group, Gravita Audit Limited. A resolution to appoint Gravita Audit Limited as the company's auditor will be proposed at the Annual General Meeting.

Each of the persons being 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 ought to have taken as a Director in order to make himself aware of any relevant audit information and to establish that the Company's auditor is aware of that information.

This confirmation is given, and should be interpreted, in accordance with the provisions of s.418 of the Companies Act 2006.

Directors' Report

Approved by the Board of Directors and signed on behalf of the Board on 29 June 2023.

Keith Riley

Keith Riley
Director

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REVIEW

Foreword/Executive Summary

Human life and the planet stand at a crucial crossroad. Centuries of industrial expansion and excessive consumption have taken a heavy toll on the planet's ability to support our existence. This is evidenced by the mountains of waste and pollution that degrade many landscapes, in the steady change in climate and global warming, and in the threats to the health of the biosphere. Yet, mammoth advances in technology and knowledge in recent decades have provided humanity with the tools and means to limit its environmental footprint and, in some cases, reverse the damage done.

If we are to choose the right path at this humanity-defining juncture, it will not only require the will of all society, but also the solid commitment of business and industry to operate in a manner that is sustainable and considers and minimises its impacts on the generations to come. It is incumbent on everyone to take on that responsibility and create the change necessary to bring about a sustainable society, to leave the world for future generations in a better state than we found it.

Herein lies the vision and purpose of Powerhouse, which is to be a force for good by improving the environment through our energy solutions. As a business, PHE has the opportunity to be creative and bold with the solutions it proposes and develops for clients to drive long-term improvement, eliminate adverse impacts, and deliver climate resilient solutions.

In the development and commercialisation of our technology – especially our proprietary system for producing hydrogen and energy from wastes – we offer the ability to create a clean energy source by disposing of waste that fails to be recycled - one of the planet's most pressing pollution challenges. Prevention of pollution as well as minimising climate change sits at the very heart of 'Sustainability'. As does the responsible use of resources, which is essential to sustaining humanity.

While sustainability is at the core of our existence as a Company, it does not mean that it should be taken for granted. It is for this reason that we have dedicated our efforts to drafting a 'Sustainability and Environmental, Social and Governance (ESG) Strategy', the details of which are laid out in this document.

This Strategy describes PHE's approach to sustainability and defines the environmental, social and governance priorities – the three pillars of corporate sustainability – through which the Company's purpose is to be achieved and measured.

The PHE Purpose and Our Approach to Sustainability

The PHE Purpose is to be a force for good for our people, our clients, our communities, the planet, and for society as a whole. We deliver this through the opportunities the Company creates, the impacts it has on the environment, and the long-term value we deliver.

We believe that our corporate activities can make a significant contribution to achieving some of the United Nations' Sustainable Development Goals (SDGs). These 17 goals were developed to support the UN 2030 Agenda which aims ultimately to end poverty and inequality and to protect the planet.

It would be foolhardy to suggest our energy solution could address each one of the 17 SDGs. They are expansive objectives, which should be tackled at a macro socio-economic level. We are, however, well-positioned and capable of contributing to six of the goals, which span the area of our expertise: These include:

- SDG 7 – Ensuring access to affordable, reliable, sustainable and modern energy for all;
- SDG 8 – Promote sustained inclusive and sustainable economic growth, full and productive employment, and decent work for all;
- SDG 9 – Build resilient infrastructure, promote inclusive and sustainable industrialization;
- SDG 11 – Make cities and human settlements inclusive, safe, resilient and sustainable;
- SDG 12 – Ensure sustainable consumption and production patterns; and
- SDG 13 – Take urgent action to combat climate change and its impacts.

PHE's proprietary waste to hydrogen technology can produce low-carbon hydrogen which is a clean energy source at the point of use and results in a lower carbon footprint than most hydrogen currently produced in the world. It also has a lower footprint than the current disposal method of incineration. Hydrogen is increasingly seen as an essential component in the energy transition to clean energy production away from fossil fuels. It is the best available fuel for heavy duty and long range transport, for decarbonising key industries including cement and steel production and potentially domestic heating. The fact that our technology also deals with wastes, the treatment of which would otherwise cause significant production of CO2, makes it a complementary technology rather than a competing one.

Herein lies our contribution to shifting to a far more sustainable way of life.

Investing in innovation

PHE invests in innovation and research. We have developed one means of helping to remove plastic pollution and convert end of life plastic to a carbon-free fuel. The Company will pursue further opportunities to contribute to removal of pollution, achieving a circular economy in use of resources, providing low carbon heat and electricity at a community level, and exploring how to create true sustainable outcomes for the built environment. We will continue to prioritise the use of innovative design approaches to help unlock opportunities for our clients and offer design solutions and options that build resilience for both their and our projects.

Defining What Matters

While our vision and purpose may contribute to and facilitate sustainable development, we firmly understand that a truly sustainable company is one that is a good corporate citizen and seeks to create long-term value for all stakeholders. In other words, as a responsible business it is important that we minimise our own impact and support the communities in which we live and work.

Environmental, Social and Governance (ESG) is the framework by which a Company's good corporate citizenship is measured. Of course, not all ESG issues are material to the business. However, given that PHE is still a small and niche-focused company, our environmental and social impacts and the ways in which these need to be managed are still very limited. As our projects gain traction, we will assess the materiality of our activities to identify what matters most to our stakeholders and to the Company.

ESG Priorities

Considering the current phase of PHE's growth story, being largely focused on feasibility and planning of the Protos Energy Park project in Cheshire and similar projects elsewhere, we consider our current ESG priorities to be as follows:

1. To integrate environmental sustainability into our designs, the engineering and operational services we provide, minimising waste and optimising the use of resources.
2. To reduce emissions and set science-based targets to achieve net zero across the activities of the business by 2035.
3. To ensure the safety and well-being of all our employees and contractors, as well as those communities residing within the sphere of our activities.
4. To make a positive difference to our host communities and to provide high-quality jobs that support local economies.
5. To be collaborative, trusted and a good neighbour helping to tackle common challenges.
6. To create awareness and educate our stakeholders on the scope and value of our projects and of the nature and benefits of low-carbon hydrogen more broadly.

Environmental Stewardship

PHE seeks to protect the environment by addressing the complex challenges presented by population growth, climate change, biodiversity loss, increasing energy demand and resource scarcity to live within the natural limits of planet Earth.

We acknowledge, however, that our waste to energy technology solution, in its current form, does have an environmental footprint, specifically in terms of the release of CO2. Our main ambition of our environmental pillar of this Strategy is, therefore, to become operationally net-zero by 2035. We will achieve this by a combination of technological advancement, by implementing a science-based target for our value chain emissions, and by compensating residual hard-to-decarbonise emissions with certified greenhouse gas removal.

As PHE continues to grow, we will ensure that environmental sustainability practices are at the heart of all development factors and activities. In this, we will endeavour to embed environmental sustainability practices across all spheres of the environment, move towards environmental sustainability by maintaining environmental stewardship, and actively consider in our activities and developments factors including, but not limited to:

- Limit air and water pollution;
- Maintain the biodiversity of our project areas;
- Limit deforestation;
- Ensure our operations are energy efficient;
- Maintain the highest waste management standards; and
- Utilise water resources mindfully.

To implement this progression, the Company will deploy:

- An annual Sustainability Plan
- A Net-Zero Roadmap
- Energy and carbon reporting
- A Carbon Emissions Reduction Plan
- Pledges and signatures
- A sustainable procurement policy

PHE will promote the principles of the circular economy and maximise the re-use and recycling of resources. The Company will seek to adopt these principles in its own operations as well as including them as an integral part of its engineering design, its procurement and in the services it provides.

Social Responsibility

Our People

PHE understands it has a fundamental responsibility to protect and improve the lives of our employees and community stakeholders. The safety, health and well-being of our people, our clients and the public is, therefore, a foremost priority. In fulfilling this commitment, PHE promotes the importance of health and safety to all stakeholders and has implemented procedures to ensure that the working environment is safe.

In ensuring we maintain a productive, motivated and skilled workforce, PHE is committed to implementing and furthering social factors into the human aspects of its business, including, but not limited to:

- Equality, diversity and inclusivity with respect to gender, sexual orientation, race, faith and social class;
- Regular engagement and communication with employees;
- Enshrining human rights;
- Upholding the highest employment standards as set out in the International Labour Organization's core conventions; and
- Skills training and enhancement, including continuous professional development.

PHE maintains an inclusive working environment based on merit, fairness and respect, and encourages talent of any kind to flourish and produce work of the highest quality. As a socially conscious organisation, we embrace the skills, abilities and knowledge that only a diverse and inclusive workforce can provide.

We wish to do work that benefits society and where appropriate, contributes to the upliftment of our local communities.

The Social Responsibility pillar of our Strategy is based on the five elements for sustainable development, namely: human, social, economic, natural and physical. In achieving and measuring sustainable development capital, PHE prioritises:

- Its social value, including its influence on job creation, growth, society and the environment
- Equality of gender, race and religion in employment
- Employee surveys
- Well-being initiatives
- Support for education and training, including outreach to educational institutions
- Volunteering and day off for good causes
- Continuous professional development
- Charitable giving

Our Community

PHE's aim as a responsible corporate citizen is to create sustainable and shared values for the communities residing in the vicinities of our projects. This will be achieved through:

- The regular engagement with host communities;
- Investment in defined community upliftment projects;
- The adoption of a local procurement policy that prioritises the purchase of goods and services from local suppliers wherever possible; and
- The respect of cultural norms of the local communities and host countries in which the Company operates.

Our Clients

PHE will act honourably and with integrity in all our business dealings. We have a strong sense of responsibility to treat people respectfully and we maintain ethical business standards in all the markets in which we operate.

PHE prides itself on its technical innovation to unlock opportunities and provide service for our clients. Engineering technology will be key to addressing the major global issues and the Company wishes to make its contribution to that.

Thought leadership and championing innovation

Our technical knowledge, insights and passion can truly make a difference to society in creating resilient, future-proofed communities, but this can only be done if we communicate our thinking and what we are doing. PHE encourages its staff to be bold in communicating PHE's corporate thinking and the work they are doing by taking a leading role in influencing opinion and action towards a more sustainable world. The Company commits to continuing to share our technical knowledge, insights and experience, and actively engage and collaborate with our peers, academia and industry. Change must come and we want to be part of that renaissance.

Good Governance

PHE is committed to maintaining the highest standards of governance, ethical conduct, and regulatory compliance both in terms of United Kingdom law and international standards. The Board has oversight and overall accountability for guiding the strategic direction of the Company, for ensuring an ethical culture and for effective control and legitimacy.

Governance of the PHE ESG and Sustainability Strategy is overseen at Board level and is led by an ESG Committee, chaired by a director and member of the PHE Board. The Committee shall meet at least twice a year.

The purpose of the Committee is laid out as follows:

- reviews and maintains the ESG and Sustainability Policy;
- establishes the material activities to be carried out by the Company;
- makes recommendations to Board and executive management for implementation;
- establishes the key performance indicators (KPIs) for the Company's ESG performance;
- monitors and audits achievement of the KPIs;

- conducts risk assessments and compiles and maintains the ESG Risk Register;
- reports and communicates performance achievement; and
- have a watching brief to ensure other policies such as Business Ethics and Speak-up are implemented fully and properly.

The ESG Committee will manage the Company's ESG performance and communicate its progress through an annual ESG Statement, which will be made available in the public domain.

As the Company develops, an ESG Sponsor will be appointed, whose role will be to encourage and promote ESG across all Company activities.

To manage and monitor the Company's progress in this ESG and Sustainability Strategy, PHE will align the development of its ESG Priorities against the Global Reporting Initiative.

Keith Riley

Keith Riley

Acting Chief Executive Officer

Chair of ESG Committee

CORPORATE GOVERNANCE REPORT

Introduction

The Directors attach great importance to maintaining high standards of corporate governance to help achieve the Company's goals. To that end they have adopted the principles set out in the Quoted Companies Alliance Corporate Governance Code for Small and Mid-Size Quoted Companies (the 'QCA Code') 2018. The QCA Code, which is constructed around 10 broad principles, sets out a standard of minimum best practice for small and mid-size quoted companies, including AIM companies. Companies are required to disclose how the implementation of the QCA Code has been applied or, to the extent not done so, to explain any areas of departure from its requirements.

We have considered how we apply each principle to the extent that the Board judges these to be appropriate for our circumstances, and below we provide an explanation of the approach taken in relation to each. Our compliance with the QCA Code is based on the Company's current practices and the improvements in its governance made since the last Annual General Meeting.

The QCA Code makes clear it is the prime responsibility of the Chairman to ensure the Company applies the QCA Code for the benefit of all the Company's stakeholders. The Chairman and the Board accept their responsibility for setting the Company's corporate culture, its values and for the behaviour of all its employees.

This report sets out our approach to the QCA Code and governance. Our compliance with the 10 principles is also available to view on the Company's website: www.powerhouseenergy.co.uk

We have identified one principal area where we are not in full compliance:

In 2022 there were insufficient independent non-executive board members to form an Audit Committee which complied with best practice and comprised the Chair of the Company plus two non-executive directors as they were the most suitably qualified for the role. Following changes to the board in 2022 and 2023, the current composition of the Audit Committee does not follow the best practice guidance in that its membership comprises only one independent non-executive director who is the chair of the Audit Committee. The other members are executive directors, appointed for their financial and sector expertise. The composition of the Audit Committee may be reviewed and adjustments made as required.

The QCA Code allows cross reference to disclosures made on the website rather than repeating them all in this Report. The principal disclosures such as the Remuneration Committee and Directors' Report will continue to be included in the Annual Report. However, for a full assessment of the Company, shareholders are encouraged to review the Company's website for regulatory disclosures and for up-to-date information on activities.

QCA Principles

Principle 1 - Establish a strategy and business model which promote long-term value for shareholders
Powerhouse has a clear business model and growth strategy details of which are set out in the Strategic Report. Our objective is to be a leading technology provider, offering solutions to global pollution by converting non-recycled waste into sustainable energy whilst mitigating climate change impacts..

Details of the Company's strategy and business model are set out in the Strategic Report. This describes progress to date, our commercial partnerships, our DMG™ development programme and our plans. Key challenges facing the Company and how they will be addressed are set out in the Strategic Report in the section headed Principal Risks and Uncertainties.

Principle 2 - Seek to understand and meet shareholder needs and expectations
Powerhouse is committed to open communication with all its shareholders. The Company believes it is important to explain business development and financial results to its shareholders and to ensure that suitable arrangements allow the issues and concerns of shareholders to be heard and understood.

Since his appointment in January 2023, the Chair is primarily responsible for shareholder liaison. The Acting Chief Executive Officer and various Non-Executive Directors also support the Chair and have held meetings and discussions with the Company's largest shareholders and its broker to understand shareholders' needs and expectations.

Hard copies of the Annual Report and Accounts are issued to all shareholders who have requested them and these, together with the interim results are also published on the Company's website at www.powerhouseenergy.co.uk. The Company makes full use of its website to provide information to shareholders, other stakeholders, potential customers, and other interested parties.

Shareholders are given the opportunity to raise questions at the Annual General Meeting ("AGM") and the Directors are normally available both before and after the meeting for further discussion with shareholders. As a matter of policy, the level of proxy votes (for, against and votes withheld) lodged on each resolution is declared at the meeting. In the event there were a significant number of votes against a resolution, the Directors would seek to communicate with the shareholder(s) concerned to discuss their issues. There is normally a presentation to shareholders at the AGM to share the Company's vision and discuss its progress and performance.

The Board receives regular share register analysis reports to monitor the Company's shareholder base and help identify the types of investors on the register.

Principle 3 - Take into account wider stakeholder and social responsibilities and their implications for long-term success
The Company regards its shareholders, employees, customers, contractors, consultants and advisors, business partners and suppliers as forming part of the wider stakeholder group. The Company recognises the contribution of each of these stakeholder groups and seeks to build meaningful and mutually beneficial relationships with them all.

As the needs and growth of the business evolves, management identifies key relationships and aims to ensure they are managed appropriately.

The Company's internal stakeholders are its employees and its consultants. The Company is fully committed to promoting a working environment of equal opportunities for all without discrimination or harassment and regardless of part-time working, gender, sexual orientation, age, race, ethnicity, nationality, religion, or disability. The Company will report against this commitment in future annual reports.

The Company proactively seeks feedback to enable the management to make improvements and changes to products and processes. All stakeholders have access to contact information for communication with the Company. Feedback is respectfully acknowledged by the Company and appropriately dealt with.

The Board believes that investment in the wider stakeholder network assists the achievement of its long-term goals and helps create an environment of trust which will promote the long-term success of the Company.

There are further details of the Company's approach to corporate social responsibility in the Environmental, Social and Governance Review in this Annual Report and Financial Statements.

Principle 4 - Embed effective risk management, considering both opportunities and threats, throughout the organisation
Risk assessment and evaluation is an essential part of the Company's planning and an important aspect of the Company's internal control system.

Corporate Governance Report

The Board had established a comprehensive risk register relating to significant aspects of the Company's business. Given the level of Board changes in 2022 and early 2023, the Board will complete a comprehensive revalidation and reassessment of the risks and mitigations within the register in quarter three and continue to review regularly thereafter.

Standards and policies
The Board is committed to maintaining appropriate standards for all the Group's business activities and ensuring that these standards are set out in written policies. Key examples of such standards and policies include:

Policy for Authorities and Approvals
Share Dealing Code
Social Media Policy
Terms of Reference for the Board Committees
Business Ethics Policy
Environmental, Social and Governance Policy
Health and Safety Policy
Employment Policy

Approval process
All significant contracts are required to be reviewed and signed by a Director of the Company.

For further details of the Company's approach to risk and its management, please refer to the Principal Risks and Uncertainties section of the Strategic Report in this Annual Report and Financial Statements.

Principle 5 – Maintain the board as a well-functioning, balanced team led by the chair

The Board comprises two executive and five non-executive Directors and it oversees and implements the Company's corporate governance programme.

Following the departure of Russell Ward in June 2022, Non-Executive Director Keith Riley was appointed as Interim Chair until the appointment of Antony Gardner-Hillman as Non-Executive Chair in January 2023, Keith Riley remains on the board in the role of Interim Chief Executive Officer until a permanent Chief Executive Officer is appointed.

The executive Directors are Keith Riley and Paul Emmitt. The non-executive Directors are Antony Gardner-Hillman, Hugh McAlister, Tony Gale, David Hitchcock and Karol Kacprzak.

The Chairman is responsible for the Company's approach to corporate governance and the application of the principles of the QCA Code. Following new board appointments in 2023, the Chairman and the Non-Executive Directors - Hugh McAlister, Tony Gale, David Hitchcock and Karol Kacprzak - are the Company's independent Directors and, as such, are independent of management and any business or other relationships which would interfere with the exercise of their independent judgement.

Each Board member commits sufficient time to fulfil their duties and obligations to the Board and the Company. They attend board meetings, join ad hoc board calls and are available for consultation when needed. The contractual arrangements between the Directors and the Company specify the minimum time commitments which are considered sufficient for the proper discharge of their duties. When exceptional circumstances arise all Board members understand the need to commit additional time.

Board packs include information on business developments, progress and risks faced as well as financial performance and are circulated ahead of board meetings. Key issues are highlighted and explained, providing board members with sufficient information to enable full discussion in the board meeting. From time to time, members of the Company's senior management present to the Board to update them on issues and developments.

The Board is supported by the Interim Chief Financial Officer, its Audit Committee and its Remuneration Committee.

Corporate Governance Report

Board and committee meetings

Attendances of Directors at Board and committee meetings convened in 2022, and which they were eligible to attend, are set out below:

Director	Board Meetings Attended	Remuneration Committee Attended	Audit Committee Attended
Number of meetings in year	8	1	1
Keith Riley	8/8	N/A	1/1
Paul Emmitt*	6/6	N/A	N/A
Hugh McAlister*	7/7	1/1	N/A
Myles Kitcher	6/8	1/1	1/1
Gillian Weeks*	5/8	1/1	N/A
Paul Drennan-Durose*	5/5	N/A	N/A
James Greenstreet*	5/6	N/A	N/A
Russell Ward*	3/4	N/A	1/1

***Notes:**

Hugh McAlister was appointed to the Board on 4 February 2022.
Russell Ward joined the Board on 4 February 2022 and resigned from the Board on 10 June 2022.
Paul Drennan-Durose joined the Board on 14 February 2022 and resigned from the Board on 12 August 2022.
Paul Emmitt was appointed to the Board on 22 March 2022.
James Greenstreet resigned from the Board on 30 June 2022.
Myles Kitcher resigned from the Board on 8 November 2022.
Gillian Weeks was appointed to the Board on 18 January 2022 and resigned from the Board on 8 November 2022.

2022 was a year of many Board changes. There was only one formal meeting of the Remuneration Committee before two of its members resigned from the Board and the remaining non-executive Director managed matters in conjunction with other Board members for the remainder of the year.

There was only one formal meeting of the Audit Committee in 2022 in which the audit of the financial statements for the year ended 31 December 2021 was discussed. The same financial statements were discussed by the full Board with the auditors before being approved by the Directors of the Company in June 2022. Two of the non-executive directors of the Audit Committee resigned from the Board during the year and the remaining non-executive Director managed matters in conjunction with other Board members.

Appointment and tenure

The Board makes decisions regarding the appointment and removal of Directors. There is a formal, rigorous and transparent procedure for appointments, some of which have been delegated to the Remuneration Committee which, when needed, also acts as Nomination Committee, to make recommendations to the Board about the appointment of Directors and senior executives. Appointments are made on merit, taking account of the balance of skills, experience and knowledge required.

As part of its commitment to improve accountability to shareholders, the Board has decided that, in future, any director who is over the age of 70 or has been on the board for eight years at the date of the Annual General Meeting will submit themselves for re-election annually, in addition to those Directors retiring by rotation in accordance with our Articles of Association.

Principle 6 – Ensure that between them the Directors have the necessary up-to-date experience, skills and capabilities.

The Board comprises two executive Directors and five non-executive Directors, including the Chair, who are all considered to be independent. Details of the Directors are set out in the Directors' Report of this Annual Report and Financial Statements.

The Chair believes that the Board should always have a suitable mix of skills and competencies covering all essential disciplines bringing a balanced perspective that is beneficial both operationally and strategically.

The nature of the Company's business requires the Directors to keep their skillset up to date. Periodic advice on regulatory matters is given by the Company's professional advisers. Directors joining the Board and new employees are offered full familiarisation briefings with the Company's technology, the development programme and the current status of technology risk. New Directors are invited to attend familiarisation visits to the Company's facilities. In addition, the Company periodically holds board meetings at the site of the facilities.

The Board is supported by senior management and by its key partners and professional advisers. The advice provided to the Board is often commercially sensitive. It is used by the Board to inform their decisions but typically will not be disclosed.

The Company Secretary supports the Board and reports directly to the Chair on governance matters.

The Board is supported and advised by an Interim Chief Financial Officer, a chartered accountant with extensive experience, who works closely with the Board and manages financial procedures and controls.

Principle 7 - Evaluate board performance based on clear and relevant objectives, seeking continuous improvement

Board performance effectiveness process
The assessment of the Board's performance has to date been largely focused on its contribution to the achievement of the Company's financial and strategic goals. As the Company moves towards full commercial operation the Board intends to consider how to make the evaluation of its own performance more formal and rigorous.

Each Board member is subject to a review by the Remuneration Committee based on their professional contribution as well as their contribution to the performance of the Company.

The terms and conditions of the arrangements, including remuneration are set by the Remuneration Committee.

Board appointments
The Remuneration Committee, which acts as Nomination Committee as needed, meets when necessary to consider the appointment of new Directors. Board members all have appropriate notice periods so that if a board member indicates his or her intention to step down, there is sufficient time to appoint a replacement, whether internal or external.

Board appointments are made after consultation with advisers in all cases. The Nomad undertakes due diligence on all new potential board candidates.

Each Director is required to offer themselves for re-election at least once every three years as per the Company's articles of association. In addition, any Director who is over the age of 70 or has been on the board for eight years at the date of the Annual General Meeting will submit themselves for re-election annually, in addition to those Directors retiring by rotation in accordance with our Articles of Association.

Succession planning
Succession planning was undertaken by the then Chairman and then by the Interim Chairman in consultation with the Board in 2022. However, with recent Board changes, succession planning is to be a responsibility of the Remuneration Committee which acts as a Nominations Committee as needed.

Principle 8 – Promote a corporate culture that is based on ethical values and behaviours

Consistent with Principle 3 above, the Company operates an inclusive, transparent and respectful culture.

The Board places particular emphasis on operating to the highest ethical and environmental standards. HS&E is a specific agenda item at every board meeting. Sustainability is placed at the heart of all decision-making and business activities. The Company's objectives include observing the highest level of health and safety standards, developing our employees to their highest potential and being a good corporate citizen. A health and safety management system was developed for operation in 2021 with policies for healthy and safety, environment and quality which remain in place.

Management engages with independent environmental and safety engineering specialists to review the Company's product and demonstrate that it will have minimal environmental and safety impact on the communities in which the Company operates.

The Company's employment policies follow best practice, based on equal opportunities for all employees, irrespective of ethnic origin, religion, political opinion, gender, marital status, disability, age or sexual orientation.

The Company strives to create a diverse and inclusive working environment where every employee feels welcome and can do their best work. Powerhouse believes in the benefits of diversity and the importance of bringing a wide range of skills, experience and perspectives into our business. The Directors continually work with senior management to promote the Company's values and to monitor attitudes and behaviours to ensure that they are consistent with its culture.

Principle 9 – Maintain governance structures and processes that are fit for purpose and support good decision- making by the board.

The Board has undergone significant change in the last two years and is now working to ensure that its processes and culture are appropriate for the Company's current size and complexity. It continues to review its practices as the Company evolves and grows as part of its commitment to improve accountability to stakeholders.

The Non-Executive Chair is responsible for the Board, corporate governance, investor relations and PR. The Acting Chief Executive Officer has overall responsibility for managing the day-to-day operations of the Company and business development. The Board as a whole is responsible for implementing the Company's strategy.

The Company has established an Audit Committee and a Remuneration Committee with formally delegated duties and responsibilities.

Audit Committee

The duties of the Audit Committee include reviewing, in draft, form the Company's annual and half-yearly report and accounts and providing advice to the Board. Members of the Audit Committee are also responsible for reviewing and supervising the financial reporting process and internal control systems of Powerhouse. The Audit Committee is comprised of three independent non-executive Directors.

Remuneration Committee

The Remuneration Committee is responsible for determining the policy for Directors' remuneration and setting remuneration for the Company's chair, executive Directors and senior management including share option schemes and any bonus arrangements. The Remuneration Committee also acts as a Nomination Committee as needed. No director plays any role in determining his or her own remuneration.

2022 and early 2023 was a time of many Board changes. Two of the non-executive Directors of the Remuneration Committee resigned from the Board during the year and the remaining non-executive Director managed matters in conjunction with other Board members. In 2023, two new non-executive Directors, including the Chairman of the Board, have been appointed to the Remuneration Committee and normal Committee activities have resumed.

The Board also established its Environmental, Social and Governance (ESG) Committee in 2023, chaired by Keith Riley and supported by Paul Emmitt and Tony Gale. The report of this Committee is set out in this annual report and financial statements.

Principle 10 – Communicate how the company is governed and is performing by maintaining a dialogue with shareholders and other relevant stakeholders

The Company maintains a regular dialogue with stakeholders including shareholders to enable interested parties to make informed decisions about the Company and its performance. Regular communication enables the Board to receive shareholders' views by various means as set out in Principle 2 above.

The Company regularly releases appropriate price sensitive information regarding its activities and progress to the market.

The Board discloses the result of general meetings by way of announcement and discloses the proxy voting numbers to those attending the meetings. In order to improve transparency, the Board has committed to announcing proxy voting results in future and disclosing them on the Company's website. In the event that a significant portion of voters have voted against a resolution, an explanation of what actions it intends to take to understand the reasons behind the vote will be included.

AR Gardner-Hillman

Antony Gardner-Hillman
On behalf of the Board
29 June 2023

REMUNERATION COMMITTEE REPORT

I am pleased to present the Committee's report for the year ended 31 December 2022. The following pages provide an insight into how the Committee discharged its responsibilities during the year and the key topics that it considered in doing so. The composition and terms of reference for the Remuneration Committee were updated in the final quarter of 2020 to reflect the Company's renewed commitment to corporate governance and enhanced practices. Following several changes to the Board during 2022, the Remuneration Committee membership was refreshed in 2023 and terms of reference reviewed and approved by the Board.

Due to the timing of the various changes to the Board in 2021 and 2022, the Remuneration Committee's membership was refreshed in 2022. There were was only one formal meeting of the Remuneration Committee in 2022. At this meeting the terms of reference were reviewed and put to the Board for approval. In late 2021, an independent employment consultancy had been engaged to undertake a remuneration review and its findings and recommendations were discussed. A review of payments to strategic advisors was instigated by the Remuneration Committee with a view to ensure that the Company and shareholders got good value. The remuneration of the current board was also discussed and recommendations made to the Board.

Composition

The membership of the Remuneration Committee was renewed in 2022 and comprised Gill Weeks as Chair, Myles Kitcher and Hugh McAlister. Ms Weeks and Mr Kitcher both resigned from the Board in 2022. Three other members of the Board also resigned during the year - Russell Ward, James Greenstreet and CEO Paul Drennan-Durose. This left the remaining Board unable to fill the committee positions so the Board assumed responsibility for the Remuneration Committee's role. With the appointment of new main Board members in January 2023, Anthony Gale and Antony Gardner-Hillman joined Hugh McAlister to create a new Remuneration Committee and will be reviewing policies and defining any future strategy based on the Company's strategy and financial position.

The Remuneration Committee is responsible for determining the policy for Directors' remuneration and setting remuneration for the Company's chair, executive Directors and senior management including share option schemes and any bonus arrangements. The Remuneration Committee also acts as a Nomination Committee as needed.

Remuneration Policy

The Remuneration Committee is aware that the remuneration package should be sufficiently competitive to attract, retain and motivate individuals capable of achieving the Group's objectives and thereby enhancing shareholder value without paying more than is necessary, having regard to views of shareholders and other stakeholders. In determining remuneration policy, the Remuneration Committee considers all other factors which it deems necessary including relevant legal and regulatory requirements. No director or senior manager is involved in any decisions as to their own remuneration outcome.

Service Contracts of the current Directors

Antony Gardner-Hillman's service contract can be termination by providing three months' written notice. Paul Emmitt has a service contract which can be terminated by providing six months' written notice. Keith Riley, Hugh McAlister and Karol Kacprzak and David Hitchcock have service contracts which can be terminated by providing three months' written notice.

Basic Salary and Benefits

The remuneration of the Directors of the Company paid for the year or since date of appointment, if later, to 31 December 2022 is set out below:

Directors 2022	2022	2022	2022	2022	2022	2021
	Salary/Fee	Pension	Share Based Payments	Other	Total	Total
	£	£	£	£	£	£
Keith Riley	92,546	0	0	0	92,546	8,167
Paul Emmitt	64,906	2,000	0	0	66,906	0
Hugh McAlister	27,232	0	0	0	27,232	0
James Greenstreet	15,000	0	0	0	15,000	30,000
Paul Drennan-Durose	251,026	8,714	0	0	259,740	0
Gillian Weeks	24,296	0	0	0	24,296	0
Alan Vlah	7,500	0	0	0	7,500	37,500
Russell Ward	18,899	0	0	0	18,899	0
Myles Kitcher	25,667	0	0	0	25,667	0
TOTAL	527,072	10,714	0	0	537,786	75,667

Notes:
Alan Vlah resigned from the Board on 31 December 2021.
Hugh McAlister was appointed to the Board on 4 February 2022.
Russell Ward joined the Board on 4 February 2022 and resigned from the Board on 10 June 2022.
Paul Drennan-Durose joined the Board on 14 February 2022 and resigned from the Board on 12 August 2022.
Paul Emmitt was appointed to the Board on 22 March 2022.
James Greenstreet resigned from the Board on 30 June 2022.
Myles Kitcher resigned from the Board on 8 November 2022.
Gillian Weeks was appointed to the Board on 18 January 2022 and resigned from the Board on 8 November 2022.

Share options held by the Directors are detailed in note 27 in the Notes to the Accounts. Total remuneration includes share-based payments arising from the issue of options amounting to £Nil (2021: £40,000) and details are set out in note 27 in the Notes to the Accounts. There have been no awards of shares to Directors under long term incentive plans.

Bonus Schemes
There was no bonus scheme in place for 2022 and therefore no bonuses are payable in respect of the year ended 31 December 2022 (2021: nil).

Share Options
There were no options granted to Directors in 2022.
For details of the total number of options outstanding at 31 December 2022 please refer to Note 25 to the Accounts.

Remuneration Committee Meetings and Attendance
Please see the table in the Corporate Governance Report in this document for attendance by the members of the Remuneration Committee.

On behalf of the Directors of Powerhouse Energy Group plc

AR Gardner-Hillman

Anthony Gale
Chair of Remuneration Committee
29 June 2023

REPORT OF THE AUDIT COMMITTEE

I am pleased to present the Committee's report for the year ended 31 December 2022. The following pages provide an insight into how the Committee discharged its responsibilities during the year and the key topics that it considered in doing so. The composition of the Audit Committee were updated was updated in the first quarter of 2023 when I joined the board of Powerhouse and was appointed Chair of this committee.

Composition

The Audit Committee is comprised of two executive Directors, currently Keith Riley and Paul Emmitt with David Hitchcock, a Non-Executive Director, acting as Chair. The Chair is considered by the Board to have recent and relevant financial experience and the other members have competence relevant to the Company's sector of operation.

Other members of the Board, the Chief Financial Officer and other members of senior management may also be invited to attend the meetings as guests.

Role and Responsibilities

The Audit Committee determines and examines any matters relating to the financial affairs of the Group including the terms of engagement of the Group's auditors and, in consultation with the auditors, the scope of the audit. In 2023 and onwards, the Audit Committee intends to meet at least twice in each financial year.

The Audit Committee is responsible for monitoring the integrity of the Company's financial statements, reviewing significant financial reporting issues, reviewing the effectiveness of the Group's internal control and risk management systems. In addition, it considers the financial performance, position and prospects of the Group and the Company and ensures they are properly monitored and reported on. It oversees the relationship with the Auditor (including advising on their appointment, agreeing the scope of the audit and reviewing the audit findings).

The Board and the Audit Committee do not consider it appropriate for the current size of the Group to establish an internal audit function. However, this will be kept under review.

Principal activities during the year

The Committee held one meeting during the year under review and considered the following:

- An overview of the planned work by the external auditors on the 2021 audit including the scope and regulatory requirements of the audit and the fees; and
- The valuation report of the Company's intangible assets.

A further review of the audit and the financial statements for the year ended 31 December 2021 was undertaken by the full Board. The full Board reviewed the interim statement in 2022.

The Committee's planned activities during 2023 include:

- Review and approve the FY22 and FY23 external Auditor's plan, including the proposed materiality threshold, the scope of the audit, the significant audit risks and fees;
- Review the Company's procedures, systems and controls for the prevention of bribery or fraud;
- Review the adequacy and security of the Company's arrangements for its employees to raise concerns, in confidence, about possible wrongdoing in financial reporting or other matters. The Committee shall ensure that these arrangements allow proportionate and independent investigation of such matters and appropriate follow up action;
- Review the Committee's internal audit role, in the absence of an external provider of an internal audit service;
- Risk – review and challenge the Risk Register and consider the risk appetite of the business.

Audit Committee Report

External Auditor
Jeffreys Henry LLP (part of the Gravita group) has been the external Auditor of the Group since 2018. The continued appointment of Jeffreys Henry is to be reviewed by the Committee each year, taking into account the relevant legislation, guidance and best practice appropriate for a Company of Powerhouse's size, nature and stage of development.

The Committee will consider a number of areas when reviewing the external Auditor appointment, namely its performance in discharging the audit, the scope of the audit and terms of engagement, its independence and objectivity, and its reappointment and remuneration.

The breakdown of fees between audit and non-audit services paid to Jeffreys Henry during the financial year is set out in Note 4 to the Financial Statements. The non-audit fees relate to taxation advisory and compliance services.

Attendance at Audit Committee Meetings
Please see the table in the Corporate Governance Report in this document for attendance by the members of the Audit Committee.

David Hitchcock
Chair of the Audit Committee
29 June 2023

STATEMENT OF DIRECTORS' RESPONSIBILITIES

The Directors are responsible for preparing the Annual 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 International Financial Reporting Standards (IFRSs) as adopted for use in the United Kingdom. Under company law the Directors must not approve the accounts 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, International Accounting Standard 1 requires that Directors:

- properly select and apply accounting policies;
- present information, including accounting policies, in a manner that provides relevant, reliable, comparable and understandable information;
- prepare the Financial Statements on the going concern basis unless it is inappropriate to presume that the company will continue in business;
- provide additional disclosures when compliance with the specific requirements in IFRS Standards is insufficient to enable users to understand the impact of particular transactions, other events and conditions on the entity's financial position and financial performance.

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.

Responsibility Statement

We confirm that to the best of our knowledge that:

- the financial statements, prepared in accordance with International Financial Reporting Standards, give a true and fair view of the assets, liabilities, financial position and profit or loss of the Company;
- the strategic report includes a fair review of the development and performance of the business and the position of the Company together with a description of the principal risks and uncertainties that it faces; and
- the annual report and financial statements, taken as a whole, are fair, balanced and understandable and provide the information necessary for shareholders to assess the Company's performance, business model and strategy.

Keith Riley
Director
On behalf of the Board
29 June 2023

INDEPENDENT AUDITOR'S REPORT
TO THE MEMBERS OF POWERHOUSE ENERGY GROUP PLC

Opinion

We have audited the financial statements of Powerhouse Energy Group Plc (the 'Company') for the year ended 31 December 2022 which comprise the statement of comprehensive income, the statement of financial position, the statement of cash flows, the statement of changes in equity and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in the preparation of the financial statements is applicable law and International Financial Reporting Standards (IFRSs) as adopted by the United Kingdom and, as regards the parent company financial statements, as applied in accordance with the provisions of the Companies Act 2006.

In our opinion, the financial statements:

- give a true and fair view of the state of the company's affairs as at 31 December 2022 and of its loss for the year then ended;
- have been properly prepared in accordance with IFRSs as adopted by the United Kingdom; and,
- the financial statement has 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 as applied to listed entities, 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 director's use of the going concern basis of accounting in the preparation of the financial statements is appropriate. Our evaluation of the director's assessment of the entity's ability to continue to adopt the going concern basis of accounting included, as part of our risk assessment, review of the nature of the business of the company, its business model and related risks including where relevant the impact of the COVID-19 pandemic and Brexit, the requirements of the applicable financial reporting framework and the system of internal control. We evaluated the directors' assessment of the Company's ability to continue as a going concern, including challenging the underlying data and key assumptions used to make the assessment, and evaluated the directors' plans for future actions in relation to their going concern assessment.

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 the financial statements are authorised for issue. However, because not all future events or conditions can be predicted this statement is not a guarantee as to the company's ability to continue as a going concern.

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

Our approach to the audit

Key audit matters
Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period and include the most significant assessed risks of material misstatement (whether or not due to fraud) we identified, including those which had the greatest effect on: the overall audit strategy, the allocation of resources in the audit; and directing the efforts of the engagement team. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters. This is not a complete list of all risk identified by our audit.

Carrying value of intangible assets	Our audit procedures:
A key balance on the statement of financial position is intangible fixed assets of £2,502,073 (2021: £43,554,498) at 31 December 2022 as detailed in Note 11. In the previous year, the Company obtained a third-party opinion of the Goodwill value that was accounted for as a result of the hive up of the Waste2Tricity Limited acquisition. The transaction with Waste2Tricity Limited qualified for merger relief as further described in Note 1.1 and a corresponding goodwill and intangible asset as noted in Note 11. The report of the third-party valuer at 31 December 2021 concluded that no impairment of the Goodwill value was necessary for that year end. In the year to 31 December 2022 the directors have evaluated for themselves the goodwill value at the year end and not sought an external third party valuation of Goodwill. The assumptions used are disclosed in Note 11 and sensitivities to those assumptions have also been shown. The conclusion of the directors' valuation was to impair Goodwill by £40,660,000 (2021: £Nil) and also impair the exclusivity rights by £500,000 (2021: £Nil). Leaving only Goodwill of £2,300,000 (2021: £42,960,000) and exclusivity of £Nil (2021: £500,000). The impairment has been accounted for in the statement of comprehensive income. The Company's policy in 1.18(iii) is that impairment losses on Goodwill are not reversed. The Goodwill impairment has been adjusted in the current year as a reserves transfer between the Merger Relief Reserve and the Accumulated Deficit Reserve. The transfer has resulted in the elimination of the brought forward balance associated with the Merger Relief Reserve. On initial acquisition of Waste2Tricity Limited, the Company identified £500,000 exclusivity rights as intangible assets. This balance was being held at fair value and assessed each year for impairment as described in Note 1.10. The directors' have considered the value of such assets and considered that these have also been impaired fully impaired at year end leaving a balance of £Nil (2021: £500,000) at the year end.	We attended meetings with the client to discuss the Directors findings and establish our view on the model prepared for us. We went through the assumptions and corroborated the information to our understanding of the business. We also compared the approach taken in the model to prior periods to check for consistency of approach and whether the underlying assumptions were still in line with any changes in agreements or information since the review performed by a third party at 31 December 2021. We discussed the model and its assumptions internally to determine whether the valuation model and assumptions used were still appropriate and whether the model was appropriate for the conditions existing at 31 December 2022. We challenged the assumptions used by the Directors in particular to the number of projects achievable. We considered the impact and have checked the sensitivity to the number of achievable projects that have been disclosed. We considered the licences fees in the model which were dependent on the number of systems and projects that were estimated to be completed and which are all expected to be rolled out on UK sites over the next 5 years. All key sensitivities in the assumptions made in the model are disclosed in Note 11, the key being: the number and roll out of systems and sites; the discount rate used; and, the effect of inflation. Valuations based on this methodology were both compliant with IFRS and the International Private Equity and Venture Capital Valuation (IPEV) guidelines. The assumptions and workings in the goodwill model are UK specific and not dependent on any other potential source of activity or income outside the UK. Subsequent to the year end and as disclosed in Note 14 and in Note 29, events have taken place where the agreement with Peel NRE have now concluded.
Loan debtor and Trade debtor	**Our audit procedures:**
The Company had made loans to Protos Plastics to Hydrogen No 1 Limited, the Peel NRE special purpose vehicle and owner of the development of the Protos plant. These loans with accumulated interest amounted to £2,159,274 (2021: £1,165,286). Due to conditions described in Note 14 and in Note 29 the expected credit losses on these loans at the year end required an adjustment to the loan balance. The Directors have applied a full impairment to the carrying value and accumulated interest due to expected credit losses on this balance. As part of works undertaken for Peel NRE, the Company had raised invoices to Protos Plastics to Hydrogen No 1 Limited with accumulated unpaid trade debtors that existed at the year end of £1,183,766 (2021: 447,967). Due to conditions described in	We reviewed the draw downs and the calculation of the interest applied to the loan debtor. We considered and discussed with the Directors the conditions that existed both at and after the year end. We reviewed the calculations and workings for invoices within trade debtors. We discussed with Directors the recoverability of the loan debtor and trade debtors that the company had with Protos Plastics to Hydrogen No 1 Limited. We recomputed the net present value on the terminal value of the 'perpetual loans' and considered whether these impairments met the conditions of an expected credit loss at 31 December 2022.

Note 14 and in Note 29 the expected credit losses on these trade debtor balances at the year end required an adjustment. The Directors have applied a full impairment to the carrying value as a write down due to expected credit losses on this balance.	
Exemption from preparing consolidated financial statements The Company has claimed exemptions applicable to it under Companies Act section 405 (2) and 405 (3b) and IFRS 10 to not present any Consolidated financial statements for the year ended 31 December 2021. This is on the basis that the Company's only UK subsidiary is non-trading and not material and there being long-term restrictions on the operations of the Company's subsidiaries in the US and Switzerland.	**Our audit procedures:** We have reviewed and discussed with the Directors applicable legislation and accounting standard and assessed that based on the Directors' explanation, the Company satisfies the conditions under Companies Act section 405 (2) and 405 (3b) and IFRS 10 to not present any Consolidated financial statements for the year.

Our application of materiality

The scope of our audit was influenced by our application of materiality. We set certain quantitative thresholds for materiality. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and in evaluating the effect of misstatements, both individually and in aggregate on the financial statements as a whole.

Based on our professional judgement, we determined a materiality of £105,000 for all areas (2021: £430,000 for the review of the goodwill and its impairment; and, £100,000 for other areas) was more appropriate for our review. A benchmark of 5% of operating losses was used for all areas (2021: a benchmark of 1% of the net book value of Goodwill for the review of goodwill; and, 5% of operating losses for all areas other than goodwill). We believe that operating losses are a primary measure used by the shareholders in assessing the performance of the company and are a generally accepted auditing benchmark.

We agreed with management that we would report to them misstatements identified during our audit above £5,000 (2021: £5,000) as well as misstatements below those amounts that, in our view, warranted reporting for qualitative reasons.

An overview of the scope of our audit

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we looked at where the Directors made subjective judgments, for example in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. As in all of our audits we also addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by the Directors that represented a risk of material misstatement due to fraud.

How we tailored the audit scope

We tailored the scope of our audit to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole, taking into account the structure of the Company, the accounting processes and controls, and the industry in which they operate.

We performed an audit of the financial information of Powerhouse Energy Group PLC. Our engagement team performed all audit procedures.

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 or 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 by the company, or returns adequate for our audit have not been received from branches not visited by us; or
- the company 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 39, 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 as a whole 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.

Irregularities, including fraud, are instances of non-compliance with laws and regulations. We design procedures in line with our responsibilities, outlined above, to detect material misstatements in respect of irregularities, including fraud. The extent to which our procedures are capable of detecting irregularities, including fraud, is detailed below. However, the primary responsibility for the prevention and detection of fraud rests with both those charged with governance of the entity and management.

Our approach to identifying and assessing the risks of material misstatement in respect of irregularities, including fraud and non-compliance with laws and regulations, was as follows:

- the senior statutory auditor ensured the engagement team collectively had the appropriate competence, capabilities and skills to identify or recognise non-compliance with applicable laws and regulations;
- We focused on specific laws and regulations which we considered may have a direct material effect on the financial statements or the operations of the company;

- we assessed the extent of compliance with the laws and regulations identified above through making enquiries of management and inspecting legal correspondence; and
- identified laws and regulations were communicated within the audit team regularly and the team remained alert to instances of non-compliance throughout the audit.

We assessed the susceptibility of the company's financial statements to material misstatement, including obtaining an understanding of how fraud might occur, by:

- making enquiries of management as to where they considered there was susceptibility to fraud, their knowledge of actual, suspected and alleged fraud;
- considering the internal controls in place to mitigate risks of fraud and non-compliance with laws and regulations.

To address the risk of fraud through management bias and override of controls, we:

- performed analytical procedures to identify any unusual or unexpected relationships;
- tested journal entries to identify unusual transactions;
- assessed whether judgements and assumptions made in determining the accounting estimates set out in Note 1.2 of the Company financial statements were indicative of potential bias; and,
- investigated the rationale behind significant or unusual transactions.

In response to the risk of irregularities and non-compliance with laws and regulations, we designed procedures which included, but were not limited to:

- agreeing financial statement disclosures to underlying supporting documentation;
- reading the minutes of meetings of those charged with governance;
- enquiring of management as to actual and potential litigation and claims; and,
- reviewing correspondence from local authorities and the company's legal advisor.

There are inherent limitations in our audit procedures described above. The more removed that laws and regulations are from financial transactions, the less likely it is that we would become aware of non-compliance. Auditing standards also limit the audit procedures required to identify non-compliance with laws and regulations to enquiry of the directors and other management and the inspection of regulatory and legal correspondence, if any.

Material misstatements that arise due to fraud can be harder to detect than those that arise from error as they may involve deliberate concealment by for example forgery, or intentional misrepresentation or through collusion. Our audit procedures are designed to detect material misstatement. We are not responsible for preventing non-compliance or fraud and cannot be expected to detect non-compliance with all laws and regulations.

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

Use of this 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.

Sachin Ramaiya (Senior Statutory Auditor)
For and on behalf of Jeffreys Henry LLP

Chartered Accountants
Statutory Auditor

Finsgate
5-7 Cranwood Street
London EC1V 9EE

29 June 2023

STATEMENT OF COMPREHENSIVE INCOME
For The Year Ended 31 December 2022

	Note	**31 December 2022 £**	31 December 2021 £
Revenue	2	**380,277**	701,435
Cost of sales		**(295,912)**	(599,914)
Gross Profit		**84,365**	101,521
Administrative expenses	4	**(2,258,177)**	(2,147,476)
Acquisition costs		**0**	(11,735)
Share of associate	5	**60,326**	50,062
Operating loss (pre exceptional items)		**(2,113,486)**	(2,007,628)
Exceptional Items			
Exclusivity Impairment	6	**(500,000)**	-
Goodwill Impairment	6	**(40,660,000)**	-
Loan Impairment	7	**(2,159,274)**	-
Revenue Impairment	7	**(986,392)**	-
Operating Loss (post exceptional items)		**(46,419,152)**	(2,007,628)
Net finance income/(cost)	8	**65,448**	10,987
Loss before taxation		**(46,353,704)**	(1,996,641)
Income tax credit	9	**155,025**	126,145
Total comprehensive loss		**(46,198,679)**	(1,870,496)
Loss per share (pence)	10	**(1.17)**	(0.05)
Diluted loss per share (pence)	10	**(1.17)**	(0.05)

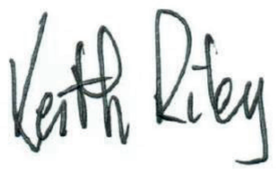
All activities are in respect of continuing operations and there are no other items of comprehensive income.

The notes numbered 1 to 30 are an integral part of the financial information.

STATEMENT OF FINANCIAL POSITION
As At 31 December 2022

	Note	**2022**	2021
		£	£
ASSETS			
Non-current assets			
Intangible fixed assets	11	**2,502,073**	43,554,498
Tangible fixed assets	12	**5,795**	33,092
Investments in subsidiary undertakings	13	**1**	1
Investments in associated undertakings	13	**187,638**	140,540
Total non-current assets		**2,695,507**	43,728,131
Current Assets			
Loans receivable	14	**0**	1,165,286
Trade and other receivables	15	**403,247**	963,648
Corporation tax recoverable	16	**166,318**	155,227
Cash and cash equivalents	17	**5,882,897**	9,637,460
Total current assets		**6,452,462**	11,921,621
Total assets		**9,147,969**	55,649,752
LIABILITIES			
Current liabilities			
Creditors: amounts falling due within one year	18	**(279,306)**	(563,781)
Total current liabilities		**(279,306)**	(563,781)
Total assets less current liabilities		**8,868,663**	55,085,971
Net assets		**8,868,663**	55,085,971
EQUITY			
Share capital	21	**22,900,856**	22,900,856
Share premium	22	**61,291,710**	61,291,710
Merger relief reserve	22	**0**	36,117,711
Accumulated deficit	23	**(75,323,903)**	(65,224,306)
Total surplus		**8,868,663**	55,085,971

The financial statements of Powerhouse Energy Group Plc, Company number 03934451, were approved by the Board of Directors and authorised for issue on 29 June 2023 and signed on its behalf by:



Keith Riley
Director

The notes numbered 1 to 30 are an integral part of the financial information.

STATEMENT OF CASHFLOWS
For The Year Ended 31 December 2022

	Note	**2022**	2021
		£	£
Cash flows from operating activities			
Operating Loss		**(46,419,152)**	(2,007,628)
Adjustments for:			
Share based payments		**(18,629)**	34,829
Amortisation		**10,263**	5,049
Depreciation		**27,970**	28,824
Goodwill & Exclusivity impairment		**41,160,000**	-
Loan Impairment		**2,077,600**	-
Share of associate result		**(49,033)**	(50,062)
Provision against investments		**0**	49
Loan Interest Charge		**81,674**	-
Other none cash movements		**3,006**	-
-Changes in working capital:			
Decrease/(Increase) in contract costs		**0**	14,550
Decrease/(Increase) in trade and other receivables		**560,401**	(763,338)
Increase/(Decrease) in trade and other payables		**(284,475)**	55,015
Tax credits received		**166,318**	118,927
Net cash used in operations		**(2,684,057)**	(2,563,785)
Cash flows from investing activities			
Purchase of interest in associate	13	**0**	(99,990)
Loans advanced	14	**(927,600)**	(1,150,000)
Purchase of intangible fixed assets	11	**(117,838)**	(39,965)
Purchase of tangible fixed assets	12	**(673)**	(8,896)
Net cash flows from investing activities		**(1,046,111)**	(1,298,851)
Cash flows from financing activities			
Proceeds from issue of shares		**0**	10,063,802
Payments of principal under leases	20.3	**(23,455)**	(23,882)
Net finance costs	8	**(940)**	(4,299)
Net cash flows from financing activities		**(24,395)**	10,035,621
Net increase/(decrease) in cash and cash equivalents		**(3,754,563)**	6,172,985
Cash and cash equivalents at beginning of year		**9,637,460**	3,464,475
Cash and cash equivalents at end of year		**5,882,897**	9,637,460

The notes numbered 1 to 30 are an integral part of the financial information.

STATEMENT OF CHANGES IN EQUITY

For The Year Ended 31 December 2022

	Ordinary share capital £	Deferred shares £	Share premium £	Merger relief reserve £	Accumulated deficit £	Total £
Balance at 1 January 2021	18,575,503	3,113,785	52,594,934	36,117,711	(63,544,097)	46,857,836
Transactions with equity parties:						
- Share issues on exercise warrants	24,477	-	174,603	-	-	199,080
- Share issues to exercise options	278,000	-	253,982	-	-	531,982
- Share issues in year	909,091	-	9,090,909	-	-	10,000,000
Share based payments	-	-	-	-	190,287	190,287
Share issue costs	-	-	(822,718)	-	-	(822,718)
Reserve transfer- goodwill impairment	-	-	-	-	-	-
Total comprehensive loss	-	-	-	-	(1,870,496)	(1,870,496)
Balance at 31 December 2021	19,787,071	3,113,785	61,291,710	36,117,711	(65,224,306)	55,085,971
Transactions with equity parties:						
- Share issues on exercise warrants		-	-	-	-	-
- Share issues to exercise options	-	-	-	-	-	-
- Share issues in year	-	-	-	-	-	-
Share based payments	-	-	-	-	(18,629)	(18,629)
Reserve transfer – goodwill impairment	-	-	-	(36,117,711)	36,117,711	0
Total comprehensive loss	-	-	-	-	(46,198,679)	(46,198,679)
Balance at 31 December 2022	19,787,071	3,113,785	61,291,710	0	(75,323,903)	8,868,663

The following describes the nature and purpose of each reserve within equity:

Deferred shares: Represents the combined total of all deferred shares (0.5p, 4p and 4.5p)

Share premium: Amount subscribed for share capital in excess of nominal value

Merger relief reserve: Amount subscribed for share capital in excess of nominal value where merger relief applies (Note 1.1)

Accumulated deficit: Accumulated deficit represents the cumulative losses of the company and all other net gains and losses and transactions with shareholders not recognised elsewhere

The notes 1 to 30 are an integral part of the financial information.

NOTES TO THE ACCOUNTS
For The Year Ended 31 December 2022

1. ACCOUNTING POLICIES

Powerhouse Energy Group Plc is a company incorporated in England and Wales. The Company is a public limited company quoted on the AIM market of the London Stock Exchange. The address of the registered office is 15 Victoria Mews, Mill Field Road, Cottingley Business Park, Bingley BD16 1PY. The principal activity of the Company is to continue the development of its technology and to support its customers in order to achieve its full commercial roll-out. The following accounting policies have been applied consistently in dealing with items which are considered material in relation to the financial information.

1.1. Basis of preparation

This financial information is for the year ended 31 December 2022 and has been prepared in accordance with International Financial Reporting Standards ("IFRS") issued by the International Accounting Standards Board (IASB), as adopted for use in the United Kingdom (UK) and with those parts of the Companies Act 2006 applicable to companies reporting under IFRS (except as otherwise stated). These accounting policies and methods of computation are consistent with the prior year, unless otherwise stated.

The Company's only UK subsidiaries are non-trading and not material. There are also long-term restrictions on the operations of the Company's subsidiaries in the US and Switzerland. With these restrictions in place, the Company is also unable to exert control over the subsidiaries. As such the Company has claimed exemptions applicable to it under Companies Act section 405 (2) and 405 (3b) and IFRS 10 to not present any Consolidated financial statements for the year ended 31 December 2022. Investments in subsidiaries that are not consolidated are carried at cost less any provision for impairment.

The acquisition of Waste2Tricity Limited during 2020 was transacted by way of a share for share exchange and qualifies for merger relief, meaning that no share premium is recorded on the issue of the consideration shares. The excess of the fair value of consideration shares over their nominal value has been recorded in a merger relief reserve.

Associates are entities which the Company has significant influence but not control or joint control as defined under IAS 28. This is generally the case where the Company holds between 20% and 50% of the voting rights. Investments in associates are accounted for using the equity method of accounting.

Under the equity method of accounting, investments are initially recognised at cost and adjusted thereafter to recognise the Company's share of the post-acquisition profits or losses of the investee in the Income statement. Dividends received or receivable from associates and joint ventures are recognised as a reduction in the carrying value of the investment.

When the Company's share of losses in an equity-accounted investment exceeds or equals its interest in the equity, the Company does not recognise further losses, unless it has incurred obligations or made payments on behalf of the other entity. Unrealised gains on transactions between the Company and its associates and joint ventures are eliminated to the extent of the Company's interest in these entities. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment in the asset transferred.

Accounting policies of the equity accounted investees are changed where necessary to ensure consistency with the policies adopted by the Company. The carrying value of equity accounted investments is tested for impairment in accordance with the policy described in Note 1.18 (ii).

As of 31st December 2022 the Company has one associate, Engsolve Limited, the interest in which was acquired during 2021.

Other investments, which are not publicly traded, are initially measured at cost and subsequently measured at cost less accumulated losses.

1.2. Judgements and estimates

The preparation of financial statements in conformity with IFRS requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts in the financial statements.

Areas involving a higher degree of judgements or complexity, or areas where assumptions or estimates are significant to the financial statements such as the exercise to assess the fair value of goodwill, share based payments (share options and warrants) and going concern are disclosed within the relevant notes.

1.3. Going concern

The financial statements have been prepared on a Going Concern basis. The Directors' views are based upon working capital projections which take into account the intended use of the funds in hand over the next 12 months.

At 31st December 2022 the company was still pursuing a business strategy of selling licences for use of its technology to Peel Group on a series of projects to be constructed on sites within Peel's ownership and Peel's control. In prior years, Goodwill had been calculated using a discounted cash flow calculation od licence fees arising from 10 prospective projects to be developed by Peel over a ten-year period. As at 31st December 2022, Peel had two projects under development – Protos in Cheshire and Rothsay Dock in Clydebank – with others still in prospect, but it had become evident that due to availability of resources and limitations in the supply chain, no more than five projects would be constructed within a 10 year view. The Goodwill valuation is, therefore calculated on this basis, resulting in a reduction of Goodwill from 42.69m in 2021 to 2.3m at the end of this reporting period, and it is the view of the directors that this is a fair valuation at this time .

Towards the end of 2022, thinking on the licencing business strategy was changing and discussions were underway with Peel with view to the Company acquiring a 50% ownership of Protos Plastics to Hydrogen No1, the special purpose vehicle (SPV) set up by Peel to finance and develop the project at Protos. This change in business strategy is described in the Strategic Report section of this Annual Report and crystallised post-reporting period in May 2023, when the company acquired 100% of the SPV shareholding. It also entered into a 50/50 joint venture with Hydrogen Utopia International for a project to be developed at Longford, Republic of Ireland and is developing a further prospect for a wholly owned project in Ballymena, Northern Ireland.

In looking forward to determine the Going Concern status, the business planning of the Company post the current reporting period, is based on the following:

- The acquisition of Engsolve Ltd (announced June 2023) giving the Company the ability to earn revenues from engineering services. Engsolve had an existing client base, a history of providing such services and was integrated into the Company Group with an existing bank balance. This provides an immediate and ongoing revenue stream to the Company, extending its positive cash position;
- The development of a series of capital projects addressing contamination, pollution and climate change mitigation and deploying where possible, but not exclusively, the Company's proprietary technology. These projects will be developed to a point where the construction and future operation of the project can be financed using combinations of equity and debt.

Adopting this approach:

- The Company will have an ongoing revenue stream;
- Investment in the development of the capital projects will be via shareholder loans to the SPV, repayable at financial close;
- In the event development of the project does not look viable (for example, failing to obtain the necessary permissions), expenditure will be curtailed and a replacement project identified;
- As the project approaches financial close and viability is established, equity partners will be sought to take shareholder equity in the SPV and the project financed by a mix of equity and debt to be determined or the Company's entire shareholding in the SPV sold.

The directors consider therefore that other than fixed costs, the cash spend looking forward can be managed. Within the 13-month cashflow projection (June 2023 – June 2024) £740k is discretionary and can be adjusted or even stopped. Large capital expenditure can also be avoided until the Company is in a position make to such investments. The Cashflow also includes the net costs of acquisition of Engsolve of £107k and annual spend of £475k. It is anticipated that Engsolve revenues over the period will exceed these values.

A cash inflow of £1.2m is also anticipated following asset financing of the Feedstock Testing Unit and associated equipment to be installed in the Powerhouse Technology Centre at Bridgend later in 2023, offsetting this capital purchase. The Company has received two initial offers of asset finance for the New Test Unit. In the unlikely event the Company does not receive the asset finance it will need to reduce expenditure on capital projects, offset by income from Engsolve activities.

It is of note that the loan made to the Protos SPV of £2.16m was expended on engineering and project management, the value of which has been preserved in the SPV and now under control of the Company. This loan will be recovered along with the £1.18m Protos debt at financial close of the Protos project. In consequence, this balances of £3.34m is not included in the Going Concern evaluation, and in the directors' opinion does not materially impact their opinion regarding Going Concern. The loan and debtor will be provided for at the end of Dec 22 and will be fully impaired. Should the Protos project proceed the provision for the loan and debtor will be reversed and then fully recovered from the Protos SPV.

1.4. Foreign currency translation

The financial information is presented in sterling which is the Company's functional currency.

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are revalued to the exchange rate at date of settlement or at reporting dates (as appropriate). Exchange gains and losses resulting from such revaluations are recognised in the Statement of Comprehensive Income.

Foreign exchange gains and losses are presented in the Statement of Comprehensive Income within administrative expenses.

1.5. Revenue

(i) Engineering services

The Company has provided engineering services for the application of its technology, the intellectual property which the Company owns. Revenue from providing services is recognised in the accounting period in which services are rendered. For fixed-price contracts, revenue is recognised based on the actual service provided to the end of the reporting period as a proportion of the total services to be provided to the extent to which the customer receives the benefits. This is determined based on the actual labour hours spent relative to the total expected labour hours.

Where contracts include multiple performance obligations as specified by the work scope, the transaction price will be allocated to each performance obligation based on estimated expected cost-plus margin.

Estimates of revenues, costs or extent of progress toward completion of services are revised if circumstances change. Any resulting increases or decreases in estimated revenues or costs are reflected in profit or loss in the period in which the circumstances that give rise to the revision become known by management.

In case of fixed-price contracts, the customer pays the fixed amount based on a payment schedule. If the services rendered by the Company exceed the payment, a contract asset is recognised. If the payments exceed the services rendered, a contract liability is recognised.

If a contract includes an hourly fee, revenue is recognised in the amount to which the Company has a right to invoice.

(ii) Exclusivity fees

Where the Company grants a developer exclusive rights to utilise its technology in a particular territory for an exclusivity fee, the fee is recognised in the income statement over the agreed exclusivity period.

1.6. Leases

For any new contracts entered into, the Company considers whether a contract is, or contains, a lease. A lease is defined as 'a contract, or part of a contract, that conveys the right to use an asset for a period of time in exchange for consideration'. To apply this definition the Company assesses whether the contract meets three key evaluations which are whether:

(i) the contract contains an identified asset which is either explicitly defined in the contract or implicitly specified by being identified at the time the asset is made available to the Company;

(ii) the Company has the right to obtain substantially all of the economic benefits from use of the asset throughout the period of use, considering its rights within the defined scope of the contract;

(iii) the Company has the right to direct the use of the identified asset throughout the period of use.

Where the above evaluations are met, at lease commencement date, the Company recognizes a right of use asset and a lease liability on the balance sheet. The right of use asset is measured at cost, which is made up of the measurement of the initial lease liability, any direct initial costs incurred by the Company, an estimate of any costs to dismantle and remove the asset at the end of the lease, and any lease payments made in advance of the lease commencement date.

The Company depreciates right of use assets on a straight-line basis from the lease commencement date to the earlier of the end of the useful life of the right of use asset or the end of the lease term. The Company assesses the right of use asset for impairment when such indicators exist.

At the commencement date the Company measured the lease liability at the present value of the lease payments unpaid at that date, discounted using the interest rate implicit in the lease if that rate is readily available or the Company's incremental borrowing rate. For the assessment of the lease entered into in 2020 the Company applied a rate of 7.5%.

Subsequent to initial measurement the liability will be reduced for payments and increased for interest. It is remeasured to reflect any reassessment or modification or is there are any changes to the repayment schedule.

1.7. Finance income and expenses

(i) Income

Interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset except for financial assets that subsequently become credit impaired. For credit impaired financial assets, the effective interest rate is applied to the net carrying amount of the financial asset (after deduction of the loss allowance).

(ii) Expense

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial liability, or, where appropriate, a shorter period, to the net carrying amount on initial recognition.

1.8. Income tax expense

The tax expense for the period comprises current and deferred tax.

UK corporation 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 temporary 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. Temporary 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.

A net deferred tax asset is regarded as recoverable and therefore 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 temporary differences can be deducted.

Deferred tax is measured at the average tax rates that are expected to apply in the periods in which the temporary differences are expected to reverse, based on tax rates and laws that have been enacted or substantively enacted by the balance sheet date. Deferred tax is measured on a non-discounted basis.

1.9. Property, plant and equipment

Property, plant and equipment is stated at cost less accumulated depreciation. Cost represents the cost of acquisition or construction, including the direct cost of financing the acquisition or construction until the asset comes into use.

Depreciation on property, plant and equipment is provided to allocate the cost less the residual value by equal instalments over their estimated useful economic lives of 3 years, once the asset is complete.

The expected useful lives and residual values of property, plant and equipment are reviewed on an annual basis and, if necessary, changes in useful life or residual value are accounted for prospectively.

1.10. Intangible assets

Goodwill represents the future economic benefits arising from a business combination that are not individually identified and separately recognised. Goodwill is carried at cost less accumulated impairment losses. Refer to note 1.18 for impairment testing procedures. Goodwill impairment losses are not reversible as explained in note 1.18 (iii).

Exclusivity rights acquired in a business combination that qualify for separate recognition are recognised as intangible assets at their fair value and subsequently assessed for impairment loss.

Costs associated with patent applications are capitalised in the year of spend and amortised over their estimated useful lives of 20 years on a straight-line basis commencing from the date of patent application. Any cost associated with the upkeep of a patent is amortised over the remaining useful life of that patent.

An internally generated intangible asset arising from development is only recognised where all of the following have been demonstrated: (i) the technical feasibility of completing the asset; (ii) the intention to complete the asset and the ability to use or sell it; (iii) the availability of resources to complete the asset; and (iv) the ability to reliably measure the cost attributable to the asset during its development.

Research and development

In all other instances research and development expenditure is recognised as an expense as incurred. Development costs previously recognised as an expense are not recognised as an asset in a subsequent period.

1.11. Other non-current assets

Other non-current assets represent investments in subsidiaries. The investments are carried at cost less accumulated impairment. Cost was determined using the fair value of shares issued to acquire the investment.

Financial assets

The Company classifies financial assets as loans and receivables within current assets, except for maturities greater than 12 months after the balance sheet date. These are classified as noncurrent assets. Assets are initially recognised at fair value plus transaction costs. Loans and receivables are subsequently carried at amortised cost using the effective interest rate method.

1.12. Contract costs

The Company recognises costs incurred in fulfilling contracts with customers that are directly associated with the contract as an asset if those costs are expected to be recoverable. Contract costs are amortised on a basis consistent with the transfer of goods and services to which the asset relates.

1.13. Trade and other receivables

Trade receivables are initially recognised at fair value. Subsequently they are carried at amortised cost less any provision for impairment.

1.14. Cash and cash equivalents

Cash and cash equivalents comprise cash balances and call deposits and are recognised and subsequently carried at fair value. For the purpose of presentation in the statement of cashflows, cash and cash equivalents include cash on hand, deposits held at call with financial institutions, other short term, highly liquid investments with original maturities of three months or less that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value, and bank overdrafts. Bank overdrafts are shown within borrowings in current liabilities in the balance sheet.

1.15. Trade and other payables

Trade payables are obligations to pay for goods or services that have been acquired in the ordinary course of business from suppliers. Trade and other payables are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method.

1.16. Financial assets and liabilities

i) Financial assets

Loans receivable, where forward receivables comprise solely of payments of principal and interest, are measured at amortised cost. Interest income from these financial assets is included in finance income using the effective interest rate method.

ii) Financial liabilities

Loans payable are financial obligations arising from funding received and used to support the operational costs of the Company. These are initially recognised at fair value. Loans are subsequently carried at amortised cost using the effective interest method.

1.17. Adoption of new and revised standards

i) New and amended standards adopted by the Company

New and amended standards for the current period and effective from 1 January 2022 have been applied by the Company, including:

Covid-19 Related Rent Concessions (Amendment to IFRS 16)
Interest Rate Benchmark Reform – Phase 2 (Amendments to IFRS 9, IAS 39 and IFRS 7)
Business Combinations (Amendments to IFRS 3
Onerous Contracts - cost of fulfilling a contract (Amendment to IAS 37)
Annual Improvement to IFRS Standards (Amends 4 IFRS standards)
Property Plant & Equipment – Proceeds before intended use Amendment to IAS 16

There are no transition adjustments relating to the adoption of these standards.

ii) Standards issued but not yet effective

Certain new accounting standards and interpretations have been published that are not mandatory for 31 December 2022 reporting periods and have not been adopted early by the Company. These standards are not expected to have a material impact on the entity in the current or future reporting periods and on foreseeable future transactions.

1.18. Impairment

(i) Goodwill

Goodwill and intangible assets that have an indefinite useful life are not subject to amortisation and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired.

(ii) Other assets

At each balance sheet date, the carrying amounts of assets are reviewed to determine whether there is any indication that those assets have suffered an impairment loss. An impairment loss is recognised whenever the carrying amount of an asset or its cash generating unit exceeds its recoverable amount. Impairment losses recognised in respect of cash generating units are allocated first to reduce the carrying amount of any goodwill allocated to cash generating units and then to reduce the carrying amount of the other assets in the unit on a pro-rata basis. A cash generating unit is the group of assets identified on acquisition that generate cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The recoverable amount of assets or cash generating units is the greater of their fair value less costs to sell and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. For an asset that does not generate largely independent cash inflows, the recoverable amount is determined for the cash generating unit to which the asset belongs.

(iii) Reversals of impairments

An impairment loss in respect of goodwill is not reversed. In respect of other assets, an impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount.

An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

1.19. Share based payments

Share based payments are made to employees and third parties and all are equity settled.

(i) Third party provision of services

a) Via issue of shares

Contractors receive remuneration in the form of share-based payments, whereby services are provided and settled by the issue of shares. The cost of equity settled transactions is determined at the fair value of the services provided, based upon invoiced amounts or formal agreements in place with suppliers.

b) Via issues of share warrants

The Company also issues share warrants to third parties in relation to services provided by suppliers. The cost of equity settled transactions is determined at the fair value of the services provided, based upon invoiced amounts or formal agreements in place with suppliers. Where no fair value of services can be directly obtained, the fair value at the grant date is determined using the Black and Scholes valuation model. At each reporting date the Company revises its estimates of the number of options that are likely to be exercised with any adjustment recognised in the income statement.

(ii) Directors and employees

c) Via issues of share options

The Company has issued share options to Directors and employees through approved and unapproved option plans. The fair value of options issued is determined at the date of grant and is recognised as an expense in the Income Statement. The fair value at the grant date is determined using the Black and Scholes valuation model. At each reporting date the Company revises its estimates of the number of options that are likely to be exercised with any adjustment recognised in the income statement.

Where share-based payments give rise to the issue of new share capital, the proceeds received by the Company are credited to share capital and share premium when the share entitlements are exercised.

1.20. Employee benefits

Liabilities for wages and salaries, including non-monetary benefits, annual leave and accumulating sick leave that are expected to be settled wholly within 12 months after the end of the period in which the employees render the related service are recognised in respect of employees' services up to the end of the reporting period and are measured at the amounts expected to be paid when the liabilities are settled. The liabilities are included within creditors in the balance sheet.

For defined contribution pension plans, the company pays contributions to publicly or private administered pension insurance plans on a mandatory, contractual or voluntary basis. The Company has no further payment obligations once the contributions have been paid. The contributions are recognised as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

The Company does not contribute to any defined benefit pension plans.

1.21. Segmental reporting

An operating segment is a component of the Company:

- that engages in business activities from which it may earn revenues and incur expenses (including revenues and expenses relating to transactions with other components of the Company);
- whose operating results are reviewed regularly by the Company's chief decision maker to make decisions about resources to be allocated to the segment and assess its performance; and
- for which discrete financial information is available.

The Company considers it has one business segment, being a UK based development company intending to license its technology to projects in the UK and internationally.

2. Revenue

	2022	2021
	£	£
Engineering and related services	**341,293**	628,859
Exclusivity fees	**38,984**	71,829
Other	**-**	747
	380,277	701,435

During the year, the Company billed for engineering work carried out on projects. All revenue generated has arisen in the UK.

3. Employee costs

	2022	2021
	£	£
Directors' fees	**581,072**	274,575
Wages and salaries	**174,769**	178,710
Social security costs	**75,609**	48,835
Pensions	**16,817**	3,960
	848,267	506,080

Highest Paid Director – refer to note 27

The number of average monthly employees (including Directors) are as follows:

	2022	2021
Management	**6**	7
Operations	**3**	3
Total	**9**	10

The total number of employees as at 31 December 2022 (including Directors) was 4 (2021: 9) comprising 3 in management and 1 in operations (2020: 5 in management, 4 in operations). All Directors are classed as management.

4. Administrative expenses

Included in administrative expenses are:	**2022**	2021
	£	£
Research and development costs	**431,185**	585,195
Amortisation	**10,263**	5,049
Depreciation	**5,397**	4,199
Depreciation – right of use asset	**22,573**	24,625
Share based payments	**(18,629)**	34,829
Foreign exchange (gains)/losses	**162**	(429)
Auditor's remuneration for audit services:		
Fees payable to the Company's auditor for the audit of the Company's annual financial statements	**31,000**	25,000
Fees payable to the Company's auditor and their associates for other services:	**1,500**	1,000
Non-audit fees paid to auditors		
R & D Taxation advisory and compliance services	**12,000**	10,000

5. Share of associate

	2022	2020
	£	£
Share of profits	**60,326**	50,062
	60,326	50,062

The Company acquired a 48.39% stake in Engsolve on 12 August 2021 as explained in note 13. The above result represents the Company's share of the associate's profits arising since acquisition. The Company's share of the associate's tax is included in the tax charge (see note 9).

6. Goodwill & Exclusivity impairment

	2022	2021
	£	£
Goodwill Impairment	**40,660,000**	-
Exclusivity impairment	**500,000**	-
	41,160,000	-

In 2020, Goodwill of £57,152,699 was recognised on the acquisition and hive up of Waste2tricity Limited. An independent fair value assessment is commissioned by the Directors on the carrying value at each balance sheet date as explained in note 11. Impairments are made based upon the results of those assessments plus input from the Board. Refer to CEO Report

7. Loan & Revenue impairment

	2022	2021
	£	£
Loan Impairment	**2,159,274**	
Revenue impairment	**986,392**	-
	3,145,666	-

Further description on the impairment of the Loan impairment ("loan debtor") and Revenue impairment ("trade debtor") is disclosed in Note 14.

In 2020, Exclusivity of £500,000 was recognised on the acquisition and hive up of Waste2tricity Limited. An independent fair value assessment is commissioned by the Directors on the carrying value at each balance sheet date as explained in note 11. Impairments are made based upon the results of those assessments.

8. Net finance income/(cost)

	2022 £	2021 £
Loan interest receivable	**66,388**	15,286
Other interest receivable	**251**	47
Bank and other interest payable	**(1,191)**	(4,346)
	65,448	(10,987)

9. Income tax and deferred tax

As the Company incurred a loss, no current tax is payable (2021: £nil). In addition, as there is no certainty about future profits from which accumulated tax losses could be utilised, accordingly no deferred tax asset has been recognised. The Company submitted a claim for research and development tax credits during the year amounting to £166,318 (2021: £135,657) which has been recognised in the accounts. Accumulated tax losses amount to an estimated £22.0 million (2021: £17.0 million) and reflect tax losses submitted in tax returns and arising during the period less any relief taken for research and development credits. The tax credit rate is lower (2021: lower) than the standard rate of tax. Differences are explained below.

Current tax	2022 £	2021 £
Loss before taxation	**46,353,704**	1,996,641
Tax credit at standard UK corporation tax rate of 19% (2019: 19%)	**8,807,204**	379,362
Effects of:		
Goodwill impairment not deductible for tax purposes	**(7,820,400)**	-
Expenses not deductible for tax purposes	**2,429**	(9,837)
Allowable deduction on exercise of share options	-	445,750
Research and development tax credits claimed	**166,318**	135,657
Deferred tax asset not recognised	**(1,000,526)**	(824,787)
Income tax credit	**155,025**	126,145

10. Loss per share

	2022	2021
Total comprehensive loss (£)	**(46,198,679)**	(1,870,496)
Weighted average number of shares	**3,957,414,135**	3,918,497
Loss per share in pence	**(1.17)**	(0.05)
Diluted loss per share in pence	**(1.17)**	(0.05)

For the year ended 31 December 2022, 3,581,355 of the options in issue and 381,100,979 of the warrants in issue were excluded from the diluted loss per share calculation due to being anti-dilutive.

For the year ended 31 December 2021, 1,062,692 of the options in issue and 9,090,910 of the warrants in issue were excluded from the diluted loss per share calculation due to being anti-dilutive.

There have been no shares issued in the financial year or since the year end.

11. Intangible fixed assets

	Goodwill	Exclusivity rights	Patent costs	Total
	£	£	£	£
Cost				
At 1 January 2021	57,152,699	500,000	61,752	57,714,451
Additions – hive up of W2T	-	-	-	-
Additions	-	-	39,965	39,965
At 31 December 2021	57,152,699	500,000	101,717	57,754,416
Accumulated amortisation & impairment				
At 1 January 2021	14,192,699	-	2,170	14,194,869
Amortisation charge for the year	-	-	5,049	5,049
At 31 December 2021	14,192,699	-	7,219	14,199,918
Carrying amount				
At 31 December 2021	42,960,000	500,000	94,498	43,554,498
Cost				
At 1 January 2022	57,152,699	500,000	101,717	57,754,416
Additions	-	-	117,838	117,838
At 31 December 2022	57,152,699	500,000	219,555	57,872,254
Accumulated amortisation & impairment				
At 1 January 2022	14,192,699	-	7,219	14,199,918
Amortisation charge for the year		-	10,263	10,263
Impairment charge for the year	40,660,000	500,000	-	41,160,000
At 31 December 2022	54,852,699	500,000	17,482	55,370,181
Carrying amount				
At 31 December 2022	2,300,000	-	202,073	2,502,073

Goodwill acquired in 2020 arose on the acquisition and hive up of Waste2Tricity Limited. It was considered attributable to the Company's DMG™ technology, which is intended to be licensed on a project-by-project basis to generate income to the Company over the lifetime of each project.

The recoverable amount of goodwill at the balance sheet date was assessed as a directors' valuation (2021: via independent third-party valuation). The directors (2021: Valuer) assessed impairment of £40.66m to goodwill (2021: the valuer assessed goodwill above its carrying value resulting in no impairment). The directors (2021: valuer) took note of the ICAEW Corporate Finance Faculty Best Practice Guideline April 2008 and applied a discounted cashflow approach, supported by the International Private Equity and Venture Capital Guidelines of December 2018.

The key assumptions made by the directors (2021: valuer) were:

the expected roll out of the technology over 5 years following the delivery of the Protos project (2021: roll out over 5 years based on probability adjusted scenarios);

that the roll out will not be significantly impacted by competing technologies (2021: same assumption);

that the Company and roll out developer construct 5 projects (2021: have the capability to scale up where necessary to deliver the assumed roll out pipeline);

the expected operating life of projects from which the Company will earn licence revenues (2021: same assumption);

the expected licence fees arising per project based upon agreements with Peel NRE (2021: same assumption);

the expected cost of services to support annual licence fee income estimated by the Company based upon current draft project agreements (2021: same assumption);

applying a discount rate to cashflow of 35% (2021: 10%) assessed by review of market survey reports of discount rates for projects within similar and competing sectors which was considered to provide a reasonable estimate of a weighted average cost of capital for a company benefiting from the assumed roll out.

Changes to the above assumptions would impact the valuation assessment.

The Directors believe that key sensitivities in the valuation are as follows:

(i) In 2022, the directors have assumed a fixed number of 5 projects and 6 systems to be rolled out. Sensitivity workings with the roll out of 3 projects and 3 systems would decrease the valuation by c£0.8m to £1.5m. (2021: the valuer assumed a probability adjusted roll out scenario). The valuer attributed probabilities to different roll out scenarios based upon a review of information provided by the Company and Peel NRE. This takes account of expected timelines and the average number of systems expected to be deployed at each site. The rollout assumptions made by the valuer averages out at 17.85 systems. Based upon the valuer's assumptions, an incremental system would increase or decrease the valuation by c £2.3m).

(ii) The discount rate applied to the cashflows. Sensitivity workings with a discount rate 5% higher at 40% would decrease the valuation by c£0.5m to £1.8m. (2021: an increase in the discount rate of 1% to 11% would impact the Valuer's valuation assessment by £4.4m).

(iii) Inflation – an increase in the inflation assumption above that assumed in the directors (2021: valuer's) model would result in adjustment to the licence fees and result in an increase the director's (2021: valuer's) valuation.

The Directors have not accounted for the possibility of any onerous obligations arising within the service contracts from which licence fees will be earnt as there is no reason to expect that these will arise at this stage in the business life cycle.

Exclusivity rights arose on the acquisition and hive up of Waste2Tricity Limited. They are subject to an Option Agreement between the Company and Peel NRE. The directors have provided for a full impairment of £500,000 for exclusivity rights (2021: no impairment is considered to have arisen).

As explained in note 28, the Company acquired the full ownership of Protos Plastics to Hydrogen No. 1 Ltd (also known as "Protos SPV") from Peel NRE Ltd for a nominal payment of £1 on 28 April 2023. During the year to 31 December 2022, the company had been in discussions with Peel NRE to enter into a 50/50 Joint Venture arrangement with Peel NRE. However, this did not materialise and Peel NRE continued to own 100% of Protos SPV until the Company finally purchased 100% of the share capital of Protos SPV on 28 April 2023. The purchase agreement by the Company secures full control of Protos SPV with an option to lease on the site at Protos Chester, CH2 4RB. This post balance sheet event, is a material change in business approach for the Company, allowing the Company to take full responsibility for funding, construction and operation of a waste to energy site utilising the DMG™ technology. The directors have opted not to pursue a licencing business model that was previously part of the reason for the hive up of Waste2Tricity Limited into the Company in 2020. This has therefore resulted in a non-adjusting post balance sheet event under IAS 28.

Refer to the CEO section of the Annual Report

12. Tangible fixed assets

	Right of use asset Land and buildings £	Property, plant and equipment £	Fixtures and fittings £	Total £
Cost				
At 1 January 2021	49,250	12,720	-	61,970
Additions	-	7,693	1,203	8,896
At 31 December 2021	49,250	20,413	1,203	70,866
Accumulated depreciation				
At 1 January 2021	2,052	6,898	-	8,950
Charge for the year	24,625	3,807	392	28,824
At 31 December 2021	26,677	10,705	392	37,774
Carrying amount				
At 31 December 2021	22,573	9,708	811	33,092
Cost				
At 1 January 2022	49,250	20,413	1,203	70,866
Additions	-	-	673	673
At 31 December 2022	49,250	20,413	1,876	71,539
Accumulated depreciation				
At 1 January 2022	26,677	10,705	392	37,774
Charge for the year	22,573	4,865	532	27,970
At 31 December 2022	49,250	15,570	924	65,744
Carrying amount				
At 31 December 2022	-	4,843	952	5,795

13. Investments

	2022 £ Subsidiaries	**2022 £ Associates**	**2022 £ Other**	2021 £ Subsidiaries	2021 £ Associates	2021 £ Other
Cost or carrying value at 1 January	**48,947,155**	**140,540**	-	48,947,156	49	-
Additions	-	-	-	-	99,990	-
Goodwill recognised	-	-	-	-	-	-
Dividends	-	**(1,935)**	-	-	-	-
Share of associate's net result	-	**49,033**	-	-	40,550	-
Transfers	-	-	-	-	(49)	49
Disposals	-	-	-	(1)	-	-
Cost or carrying value 31 December	**48,947,155**	**187,638**	-	48,947,155	140,540	49
Provision at 1 January	**(48,947,154)**	-	-	(48,947,154)	-	-
Additions	-	-	-	-	-	(49)
Disposals	-	-	-	-	-	-
Accumulated impairment	**(48,947,154)**	-		(48,947,154)	-	(49)
Carrying value	**1**	**187,638**	-	1	140,540	-

(i) Subsidiaries

Investments relate to costs of investments in subsidiary undertakings, namely in Powerhouse Energy, Inc, Pyromex AG and Powerhouse Energy UK Limited. Powerhouse Energy, Inc is incorporated in California in the United States of America and the Company holds 100 per cent of the common stock and voting rights of the subsidiary. Pyromex AG is based in Zug, Switzerland and the Company holds 100 per cent of the shares and voting rights of the subsidiary. Powerhouse Energy UK Limited is a wholly owned UK based dormant company.

The registered address of Powerhouse Energy Inc is 145 N Sierra Madre Blvd, Pasadena, CA 91107, USA.
The registered address of Pyromex AG is Chollerstrasse 3, CH-6300, Zug, Switzerland.

The registered address of Powerhouse Energy UK Limited is 15 Victoria Mews, Mill Field Road, Cottingley Business Park, Bingley BD16 1PY.

Waste2Tricity Limited, which was acquired in 2020, was incorporated in the UK and on 1 January 2021 the Company owned 100 per cent of its common stock and voting rights. It was dissolved on 1 June 2021.

(ii) Acquisition of interest in Engsolve Limited

On 12 August 2021, the Company acquired 48.39% of the share capital of Engsolve Limited for cash consideration of £99,990. Engsolve Limited is incorporated and operates in the UK. Summary financial information of Engsolve Limited at acquisition and balance sheet dates is provided below:

	31 Dec 2022	31 Dec 2021
	£	£
Summarised balance sheet		
Fixed assets	6,221	7,848
Cash and cash equivalents	400,073	317,423
Other current assets	86,632	99,845
Current liabilities	(109,457)	(138,981)
Net assets	383,469	286,135
Company share	48.39%	48.39%
Share of net assets	185,550	138,452
Summarised Income statement – post acquisition		
Revenue	976,182	402,122
Profit from continuing operations	101,334	83,804
Profit from discontinued operations	-	-
Other comprehensive income	-	-
Total comprehensive income	101,334	83,804
Company Share of pre-tax profit	60,326	50,062
Company share of tax	(11,293)	(9,512)
Dividends received	1,935	£nil

The Company incurred advisory costs associated with the acquisition which were expensed in 2021.

(iii) Other investments

During 2021, the Company's investment in Waste2Tricity International (Thailand) Limited was transferred into a new Thailand based entity, Altec Energy Limited ("Altec"). The Company has not taken part in fund raises investment made by Altec subsequent to its formation. In the previous year's accounts the interest was identified as being reduced to 33.8% as at 31 December 2021 and to 30.4% since December 2021. We have been recently informed that the audit of Altec accounts picked up an error in these calculations. The share holding was in fact 33.5% as at December 2021 and 30.1% since December 2021 (a 0.3% error in the calculation). PHE Due to the passive nature of the Company's involvement, the interest is held in other investments.

14. Loans receivable

	2022	2021
	£	£
Loans advanced	**2,077,600**	1,150,000
Accrued interest	**81,674**	15,286
Loan provision	**(2,159,274)**	-
	-	1,165,286

On 12 May 2021, the Company agreed to provide a loan facility for up to £3.8m to Protos Plastics to Hydrogen No 1 Limited, the Peel NRE special purpose vehicle and owner of the development of the Protos plant. The loan was to provide support to the plant construction and to secure long lead time items and project design services. The loan facility was made available for an initial 6-month period, accruing interest daily at the Bank of England base rate plus 2%. The availability period for the facility was subsequently extended until 28 April 2023 at which point Powerhouse Energy Group Plc acquired 100% of the share capital of Protos Plastics to Hydrogen No1 Limited for £1. From October 2022 to the year end, the directors were seeking a 50/50 JV with Peel NRE and there had been other indicators of a change in the risk profile. The directors in note 11 have assumed a discount rate of 35% for the project with Peel NRE, due to the change in the risk profile. Accordingly, the Directors have impaired the loan in full. The Directors have also applied the same approach to the trade debtor balance of £986,392 which existed between Powerhouse Energy Group Plc and Protos Plastics to Hydrogen No 1 Limited and have subsequently impaired the trade debtor balance also to £Nil value at the year end.

15. Trade and other receivables

	2022 £	2021 £
Trade receivables	-	447,967
Other receivables	342,021	177,513
Prepayments and accrued income	61,226	338,168
	403,247	963,648

16. Corporation tax

	2022 £	2021 £
Corporation tax recoverable	166,318	155,227
	166,318	155,227

17. Cash and cash equivalents

	2022 £	2021 £
Cash balances	5,882,897	9,637,460
	5,882,897	9,637,460

18. Trade and other payables: amounts falling due within one year

	2022 £	2021 £
Trade payables	116,560	144,105
Lease liability	-	23,455
Other creditors and accruals	148,563	238,955
Other taxes	10,677	156,642
Pensions payable	3,506	624
	279,306	563,781

19. Financial assets and financial liabilities

Financial assets	2022 £	2021 £
Financial assets at amortised cost:		
- Trade receivables	-	447,967
- Other financial assets at amortised cost	-	1,165,286
- Cash and cash equivalents	5,882,897	9,637,460
	5,882,897	11,250,713

Financial liabilities	2022 £	2021 £
Liabilities at amortised cost		
- Trade payables	116,560	144,105
- Other creditors	148,563	238,955
- Taxes – VAT & payroll	10,677	156,642
- Pensions payable	3,506	624
- Lease liabilities	-	23,455
	279,306	563,781

20. Leases

The Company has leased offices at the location of its research facility for a duration less than one year. The lease is reflected in the accounts as an expense on the income statement.

20.1 Amounts recognised in the balance sheet

Right of use assets relate to leased properties that do not meet the definition of investment property and are presented within tangible fixed assets per Note 11.

	2022	2021
	£	£
Right of use assets		
Balance at 1 January	**22,573**	47,198
Additions to right of use assets	**-**	-
Depreciation charge for the year	**(22,573)**	(24,625)
Balance at 31 December	**-**	22,573

	2022	2021
Future minimum rentals payable are as follows:	**£**	£
Amounts payable:		
Within one year	**-**	24,310
Later than one year and not later than five years	**-**	-
Total gross payments	**-**	24,310
Impact of finance expenses	**-**	(855)
Carrying value of liability	**-**	23,455

20.2 Amounts recognised in income statement

	2022	2021
	£	£
Depreciation charge	**22,573**	24,625
Interest on lease liabilities	**855**	2,638
Expenses relating to short term leases	**120**	-
	23,548	27,263

20.3 Amounts recognised in statement of cashflows

	2022	2021
	£	£
Interest on lease liabilities	**855**	2,638
Repayment of lease principal	**23,455**	23,882
Total cash outflow for leases	**24,310**	26,520

21. Share capital

(i) Number of shares

	0.5 p Ordinary shares	0.5 p Deferred shares	4.5 p Deferred shares	0 p Deferred shares
Shares at 1 January 2021	3,715,100,693	388,496,747	17,373,523	9,737,353
Issue of shares	242,313,442	-	-	-
Shares at 31 December 2021	**3,957,414,135**	**388,496,747**	**17,373,523**	**9,737,353**
Issue of shares	-	-	-	-
Shares at 31 December 2022	**3,957,414,135**	**388,496,747**	**17,373,523**	**9,737,353**

(ii) Value in £

	0.5 p Ordinary shares	0.5 p Deferred shares	4.5 p Deferred shares	4.0 p Deferred shares	Share Capital
	£	£	£	£	£
At 1 January 2021	18,575,503	1,942,483	781,808	389,494	21,689,288
Issue of shares	1,211,568	-	-	-	1,211,568
At 31 December 2021	**19,787,071**	**1,942,483**	**781,808**	**389,494**	**22,900,856**
Issue of shares	-	-	-	-	-
At 31 December 2022	**19,787,071**	**1,942,483**	**781,808**	**389,494**	**22,900,856**

All ordinary shares of the Company rank pari-passu in all respects.

The deferred shares do not carry any voting rights or any entitlement to attend general meetings of the Company. They carry only a right to participate in any return of capital once an amount of £100 has been paid in respect of each ordinary share.

On 21 January 2021, the Company issued 181,818,182 ordinary shares of 0.5p each (“Ordinary shares”) in the Company at a price of 5.5p each amounting to £10,000,000 before issue costs. The Company also granted 9,090,910 warrants to subscribe for Ordinary Shares at the issue price of 5.5p to its broker.

On 26 January 2021, the Company issued 4,895,260 ordinary shares of 0.5p each in the Company further to the exercise of warrants for proceeds amounting to £122,382.

On 9 February 2021, the Company issued 6,000,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £36,000.

On 24 February 2021, the Company issued 1,600,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £12,000.

On 4 March 2021, the Company issued 6,000,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £45,000.

On 17 March 2021, the Company issued 500,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £3,000.

On 19 April 2021, the Company issued 6,000,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £36,000.

On 22 July 2021, the Company issued 8,000,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £48,000.

On 19 August 2021, the Company issued 13,500,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £81,000.

On 7 October 2021, the Company issued 7,000,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £42,000.

On 9 December 2021, the Company issued 7,000,000 ordinary shares of 0.5p each in the Company further to the exercise of options for proceeds amounting to £42,000.

22. Other reserves

	Merger relief reserve £	**Share premium account £**
As at 1 January 2021	36,117,711	52,592,934
Issue of shares	-	9,519,495
Share issue costs	-	(822,719)
Reserve transfer – goodwill impairment	-	-
At 31 December 2021	**36,117,711**	**61,291,710**
Issue of shares	-	-
Share issue costs	-	-
Reserve transfer – goodwill impairment	(36,117,711)	-
At 31 December 2022	**-**	**61,291,710**

23. Accumulated deficit

	2022 £	2021 £
As at 1 January	**(65,224,306)**	(63,544,097)
Loss for the year	**(46,198,679)**	(1,870,496)
Share based payments	**(18,629)**	190,287
Reserve transfer – goodwill impairment	**36,117,711**	-
At 31 December	**(75,323,903)**	(65,224,306)

24. Share based payments

The expense recognized for share-based payments during the year is shown in the following table:

	2022 £	2021 £
Share based payment charge recognised in Income Statement		
Expense arising from equity-settled share-based payment transactions:		
- Share options for Directors and employees	-	34,829
- Shares issued for third party services	-	-
Total share-based payment charge in Income Statement	-	34,829
Share based payment charge recognised in Share Premium Account		
Warrants for third party services	-	419,138
Total share-based payment charge in Share Premium Account	-	419,138
Total share-based payment charges recognised	-	453,967
Other share-based payment movement		
Exercise of share options by Directors and employees	-	(186,982)
Exercise of warrants for third party services	-	(76,698)
Shares option lapsed in Jan 22	**(18,629)**	-

Total share-based payment	**(18,629)**	(190,287)

There were no liabilities recognised in relation to share based payment transactions.

25.1 Share options for Directors and employees

The Company has put in place various options schemes for Directors and employees as follows:

On 8 December 2014, the Company granted 11,000,000 options over ordinary shares to the Board. The options may be exercised between the grant date and the tenth anniversary of the grant date and will lapse if not exercised during that period.

On 7 March 2016, the Company granted 15,000,000 options over ordinary shares to the Board. The options may be exercised between the grant date and the fifth anniversary of the grant date and will lapse if not exercised during that period.

On 6 March 2018, the Company granted 32,100,000 options over ordinary shares to employees, including a Board member, under the Powerhouse Energy Group PLC 2018 EMI Option Scheme. The options vest to the employees over a period of 24 months and are exercisable between the relevant vesting dates and the tenth anniversary of the grant date and will lapse if not exercised during that period. These options had all been exercised or forfeited by 31 December 2019.

On 6 March 2018, the Company granted 60,000,000 options over ordinary shares to Board members under the Powerhouse Energy Group PLC 2018 non-employee Share Option Plan. The options vest to the Board members over a period of 24 months and are exercisable between the relevant vesting dates and the tenth anniversary of the grant date and will lapse if not exercised during that period.

On 23 April 2021, the Company granted 1,773,239 share options in ordinary shares of 0.5p each in the Company to two Directors of the Company in lieu of part or all of their fees to which they are entitled. The options have an exercise price of 6.3p each and lapse 3 years from the date of grant.

The movement of share options in the year are as follows:

	2022	**2022**	2021	2021
	Number	**WAEP (pence)**	Number	WAEP (pence)
Outstanding at 1 January	**16,062,692**	**1.33**	75,000,000	0.77
Granted during the year	**-**	**-**	1,773,239	6.3
Forfeited during the year	**(481,337)**	**6.3**	(5,100,547)	2.55
Exercised during the year	**-**	**-**	(55,600,000)	0.62
Outstanding at 31 December	**15,581,355**	**1.13**	16,062,692	1.33
Exercisable at 31 December	**15,581,355**	**1.13**	16,062,692	1.33

The weighted average remaining contractual life for the share options outstanding as at 31 December 2022 was 4.4 years (2021: 5.3 years)

No share options were granted during the year (2021: 1,773,239).

The range of exercise prices for options outstanding at the year-end was 0.6p to 6.3p (2021: 0.6p to 6.3p).

The number of options outstanding at 31 December 2022 and the movements in the year are as follows:

Date of grant	Granted	Share price on gran	Exercised	Forfeited	At 31 Dec 2022	Exercise price	Exercise period
8 Dec 2014	6,000,000	1.875p	-	(3,000,000)	3,000,000	2.5p	9 Dec 2014 until 8 Dec 2024
7 Mar 2016	9,000,000	0.55p	(7,600,000)	(1,400,000)	-	0.75p	8 Mar 2016 until 7 Mar 2021
6 Mar 2018	60,000,000	0.57p	(48,000,000)	-	12,000,000	0.6p	7 Mar 2018 until 8 Dec 24*
22 Apr 2021	1,773,239	5.58p	-	(1,191,884)	581,355	6.3p	23 Apr 2021 until 22 Apr 2024
Total	76,773,729	(55,600,00)	(5,591,884)		15,581,355		

*The expiry date of the option granted on 6 March 2018 was adjusted by the board due to a director leaving the Company in June 2022. The expiry date was adjusted from 6 Mar 2028 to the 8 Dec 2024. Refer to note 27 in the financial statements.

The estimated fair value of the options issued was calculated by applying the Black-Scholes option pricing model. The assumptions used in the calculation were as follows:

	8 December 2014	6 March 2018	22 April 2021
Options in issue 31 December 2022	3,000,000	12,000,000	581,355
Exercise price	2.5p	0.6p	6.3p
Expected volatility	127.56%	70.00%**	214.8%**
Contractual life	10 years	10 years	3 years
Risk free rate	2%	1.49%	0.15%
Estimated fair value of each option	1.79p	0.32p*	3.87p*

* the calculation applies a 25% discount for small companies
** expected volatility based on historic volatility at the point of grant.

25.2 Warrants for third party services

The Company has issued warrants in respect of services provided by consultants as part of their service arrangements. It has also issued warrants to participating shareholders in respect of certain fund raises. No share-based payment charge is recognised for warrants issued to participating shareholders as they are outside of the scope of IFRS 2.

Details of warrants which have been issued during the year are as follows:

On 15 September 2020, the Company granted 5,395,260 warrants to the Company's broker as part of its service arrangement in relation to the fund raise arising on that date. The options may be exercised between the grant date and the third anniversary of the grant date and will lapse of not exercised during that period. At the date of grant the share price was 3.3p and the warrants have an exercise price of 2.5p per share.

On 21 January 2021, the Company granted 9,090,910 warrants to the Company's broker as part of its service arrangement in relation to the fund raise arising on that date. The options may be exercised between the grant date and the third anniversary of the grant date and will lapse of not exercised during that period. At the date of grant the share price was 8.6p and the warrants have an exercise price of 5.5p per share.

Warrants in respect of services provided:

The movement of warrants issued for share-based payments in the year are as follows:

	2022 Number	2022 WAEP (pence)	2021 Number	2021 WAEP (pence)
Outstanding at 1 January	**9,590,910**	**5.3**	5,395,260	2.5
Granted during the year	-	-	9,090,910	5.5
Forfeited during the year	-	-	-	-
Exercised during the year	-	-	(4,895,260)	2.5
Outstanding at 31 December	**9,590,910**	**5.3**	9,590,910	5.3
Exercisable at 31 December	**9,590,910**	**5.3**	9,590,910	5.3

The weighted average remaining contractual life for the share warrants outstanding as at 31 December 2022 was 1.0 years (2021: 2.1 years)

The range of exercise prices for warrants outstanding at the year-end was 2.5p to 5.5p (2021: 2.5p to 5.5p).

The number of warrants, which have been included for share-based payment purposes, outstanding at 31 December 2022 and the movements in the year are as follows:

Date of grant	Granted	Share price on grant	Exercised	Forfeited	At 31 Dec 2022	Exercise Price	Exercise period
15 Sep 2020	5,395,260	3.3p	-	-	500,000	2.5p	16 Sep 2020 until 15 Sep 2023
21 Jan 2021	9,090,910	8.6p	-	-	9,090,910	5.5p	22 Jan 2021 until 21 Jan 2024
Total	**14,486,170**		**-**	**-**	**9,590,910**		

The Company is required to assess the fair value of instruments issued in respect of services received, with such value charged to the Income Statement. The estimated fair value of the warrants issued during the year was calculated by applying the Black-Scholes option pricing model. The assumptions used in the calculation were as follows:

Warrants issued for services	15 Sep 2020	21 Jan 2021
In issue 31 December 2022	500,000	9,090,910
Exercise price	2.5p	5.5p
Expected volatility*	92.10%	161.6%
Contractual life	3 years	3 years
Risk free rate	0.07%	(0.07%)
Estimated fair value of each option	1.57p	4.6p

* expected volatility based on historic volatility at the point of grant.

Warrants issued to participating shareholders

Warrants issued to participating shareholders are outside the scope of IFRS 2 and no share-based payment charges have been recognised on them. On initial recognition the warrants' cost was deducted from equity as it represents the cost of shares issued to investors. As the agreements had a fixed-for-fixed requirement, they are also recognised as equity at the same time. As such, there is £nil net impact on equity and has not been included in the statement of changes in equity.

The number of warrants issued to participating shareholders, which have not been included for share-based payment purposes, outstanding at 31 December 2022 and the movements in the year are as follows:

Date of grant	Granted	Share price on grant	Exercised	Forfeited	At 31 Dec 2022	Exercise price	Exercise period
15 Sep 2020	371,510,069	3.3p	-	-	371,510,069	2.75p	16 Sep 2020 until 15 Sep 2022
Total	**371,510,069**		**-**	**-**	**371,510,069**		

The estimated fair value of the warrants issued was calculated by applying the Black-Scholes option pricing model. The assumptions used in the calculation were as follows:

Warrants issued to participating shareholders	15 Sep 2020
In issue 31 December 2022	371,510,069
Exercise price	2.75p
Expected volatility*	106.20%
Contractual life	2 years
Risk free rate	0.04%
Estimated fair value of each option	1.46p

* expected volatility based on historic volatility at the point of grant.

All warrants

The number of all warrants outstanding at 31 December 2022 and the movements in the year are as follows:

Date of grant	Granted	Share price on grant	As at 1 Jan 2022	Exercised	Forfeited	At 31 Dec 2021	Exercise price	Exercise period
15 Sep 2020	5,395,260	3.3p	500,000	-	-	500,000	2.5p	16 Sep 2020 until 15 Sep 2023
15 Sep 2020	371,510,069*	3.3p	371,510,06	-	-	371,510,069	2.75p	16 Sep 2020 until29 Apr 2023
21 Jan 2021	9,090,910	8.6p	9,090,910	-	-	9,090,910	5.5p	22 Jan 2021 until 21 Jan 2024
Total	**385,996,239**		**381,100,979**	**-**	**-**	**381,100,979**		

***Please see the Post Balance Sheet Event note on Peel warrants**

26. Material risks

The Company is subject to various risks relating to political, economic, legal, social, industry, business and financial conditions. Risk assessment and evaluation is an essential part of the Company's planning and an important aspect of the Company's internal control system. The Company's approach to these risks is detailed in the Strategic Report.

27. Directors' remuneration and share interests

The Directors who held office at 31 December 2022 had the following interests, including any interests of a connected party in the ordinary shares of the Company:

	Number of ordinary shares of 0.5p each	Percentage of voting rights
Keith Riley	12,128,986	<0.5

The remuneration of the Directors of the Company paid or payable for the year or since date of appointment, if later, to 31 December 2022 is:

Notes to the Accounts for the Year Ended 31 December 2022

	2022 £ Salary/Fee	2022 £ Pension	2022 £ Share based payments	2022 £ Other	2022 £ Total	2021 £ Total
Tim Yeo	**54,000**	-	-	**5,500**	**59,500**	127,944
David Ryan	-	-	-	-	-	97,996
William Cameron Davies	-	-	-	-	-	7,500
Paul Emmitt	**64,906**	**2,000**	-	-	**66,906**	-
James John Pryn Greenstreet	**15,000**	-	-	-	**15,000**	30,000
Hugh Mcallister	**27,232**	-	-	-	**27,232**	-
Paul Drennan-Durose	**251,026**	**8,714**	-	-	**259,740**	-
Gillian Weeks	**24,296**	-	-	-	**24,296**	-
Russell Ward	**18,899**	-	-	-	**18,899**	-
Myles Howard Kitcher	**25,667**	-	-	-	**25,667**	-
Allan Vlah	**7,500**	-	-	-	**7,500**	37,500
Kirsten Gogan	-	-	-	-	-	23,468
Keith Riley	**92,546**	-	-	-	**92,546**	8,167
Mark Berry	-	-	-	-	-	17,500
Total	**581,072**	**10,714**	-	**5,500**	**597,286**	350,075

Total remuneration includes share-based payments arising from the issue of options amounting to nil in 2022 (2021: £40,000). There have been no awards of shares to Directors under long term incentive plans during the year.

The Directors' social security costs for the year amounted to £54,026 (2021: £29,965) resulting in a total remuneration expense of £651,312 (2020: £380,040).

Prior to their resignations from the Board, Tim Yeo, William Cameron Davies, James John Pryn Greenstreet, Allan Vlah, Kirsten Gogan and Mark Berry had service contracts that could be terminated by the provision of three months' notice. David Ryan had a service contract that could be terminated by the provision of six months' notice.

Keith Riley has a service contract which can be terminated by providing three months' written notice.

Rivermill Partners Limited, a company wholly owned by Tim Yeo and his associates, provided executive corporate management services during the year the value of which is included in the above remuneration. These services are contracted for on an annual basis as required.

Share options held by the Directors who served during the year are as follows:

	Options at 1/1/22	**Forfeited**	**Exercised**	**Options at 31/12/22**	**Exercise price**	**Earliest and latest date of exercise**
Options granted 8 Dec 2014						
James John Pryn Greenstreet	3,000,000	-	-	3,000,000	2.5p	9/12/14 – 8/12/24

	Options at 1/1/22	**Forfeited**	**Exercised**	**Options at 31/12/22**	**Exercise price**	**Earliest and latest date of exercise**
Options granted 6 March 2018						
James John Pryn Greenstreet	12,000,000	-	-	12,000,000	0.6p	7/3/18 – 8/12/24*

	Options granted /1/22	**Forfeited or not vested**	**Exercised**	**Options at 31/12/22**	**Exercise price**	**Earliest and latest date of exercise**
Options granted 22 April 2021						
Allan Vlah	581,355	-	-	581,355	6.3p	23/4/21 – 22/4/24

***On the 29th September 2022 the board agreed to align the termination/expiry dates for both sets of options for James Greenstreet to 8th Dec 2024**

Highest Paid Director

Paul Drennan-Durose was the highest paid Director in the year. There were no shares received or receivable by him in respect of qualifying services under long term incentive schemes.

28. Related parties

Rivermill Partners Limited, a corporate management services company, wholly owned by Tim Yeo and his associates, was a related party for the 12 month period after which Tim Yeo was a Director of the Company. During that period, Rivermill provided executive corporate management services amounting to £54,000 (2021: £48,000) and the Company agreed a termination settlement of £5,500.

Engsolve Limited, an engineering solutions company, was a related party until 30 June 2021 due to a Director's family member being part of its key management personnel, and from 12 August 2021 when the Company acquired 48.39% of its share capital. Engsolve provided engineering services to the Company during the year amounting to £596,172 (2021: £621,968). Amounts outstanding at year end for services provided and included in these accounts amounted to £31,778 (2021: £41,058).

During 2021 Hydrogen Utopia International entered into an exclusivity agreement with Powerhouse Energy Group Plc. This exclusivity agreement covered Hungry, Greece & Poland. During 2022 Hydrogen Utopia International paid £38,983 for this Exclusivity Agreement (2021 £71,829). This exclusivity agreement covering Hungary, Greece and Poland ended in March 2022.

Keith Riley was a Non-Executive Director, Interim Chairman and acting Chief Executive Officer of the Company during 2022. Keith was also an active director in Engsolve Ltd in 2022. Keith joined Hydrogen Utopia PLC as Technical Director on 6th January 2022 and resigned on 26th May 2023. Keith was also a director of HU2021 International UK Ltd from 18th January 2022 until 31st May 23.

Howard White is a shareholder in the Company and also a strategic Consultant to the Company, having received £60,000.00 for his services in 2022. Howard White is also an active Board Member and shareholder of Hydrogen Utopia International.

Hugh McAlister was a Non-Executive Director of the Company during 2022 and also owned shares in Hydrogen Utopia International.

29. Events after the reporting period

On 16 March 2023 the Company entered into a lease agreement for a building to house the forthcoming Powerhouse Technology Centre. The lease term is 10 years with a break option at 5 years, at a rental of £46,000 per annum.

On 21 March 2023, the Company announced it had entered into a Joint Venture agreement with Hydrogen Utopia International Plc for the proposed joint development of a non-recyclable plastic waste-to-hydrogen facility site at Longford, County Longford in the Republic of Ireland. The joint venture is entered into with equal shareholding by each party and development costs being contributed on a 50:50 basis. PHE has agreed to pay HUI a non-returnable payment of up to £400,000 in cash in recognition of HUI's contribution to identifying the Longford Project, securing the option to lease and progressing the project. This cash payment comprises an initial payment of £100,000 on signing the heads of terms and a further payment of £100,000 upon finalisation of the project documentation between HUI and PHE - principally comprising a development agreement and a shareholder agreement. PHE has agreed to make a further payment of £200,000 in cash to HUI once planning permission has been granted for the Longford Project on the Longford Site.

The Company announced that it had acquired full ownership of Protos Plastics to Hydrogen No.1 Ltd on 28 April 2023 from Peel NRE Ltd for a nominal payment of £1. The Protos Plastics to Hydrogen Peel NRE is a special purpose vehicle and owner of the development of the Protos plant, the first proposed commercial application of the Company's DMG™ technology. Powerhouse Energy Group Plc had previously provided a loan facility of £3.8m to support the Protos plant development and construction. Loans made under the facility at Dec 22 amounted to £2.159m (incl. Loan interest) and trade debtors amounted to £1.18m. Due to the acquisition of the Protos SPV by the company the loan balance of £2.159m and the debtors balance of £1.18m were impaired as at December 2022.

On 2 May 2023 the Company announced that the subscription and warrant agreement dated September 2020 made between Peel holdings (IOM) Ltd and the Company had expired on 29 April 2023. This warrant agreement included 371,510,069 options exercisable at 2.75p.

On 30 May 2023, the Company announced that it had entered into an agreement with Noage Energy Ltd to act as representative of PHE in Northern Ireland. PHE paid Noage a fee of £50,000 on entering the agreement. Noage will also receive a number of success related fees, payable on completion of specified milestones, giving it the possibility of receiving total fees of £1.725 million for a fully implemented project (including the initial fee).The Agreement has an initial term of five years, but can be extended for a further two years on the request of Noage. Under the arrangement, however, all contractual commitments with third parties will be with PHE directly and Noage will not be able to give commitments on PHE's behalf.

On 12 August 2021, the Company acquired a 48.39% interest in Engsolve Limited, an engineering consultancy company incorporated and operating in the UK. On 21 June 2023, the Company completed the acquisition of the entire outstanding shareholding of Engsolve for a cash consideration of £572,896. The Company considers this a strategic acquisition as it brings Engineering expertise in house and enables it to generate a regular income stream through the providing and development of Engineering Services into the UK market.

30. Ultimate controlling party

There is no controlling party of the Company.