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**exponential energy**  
**FORTUNES**

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# The UK Renewables Revolution – my top two smart plays to make today



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Registered in England and Wales No 9539630. VAT No GB629 7287 94. Registered Office: 2nd Floor, Crowne House, 56-58 Southwark Street, London, SE1 1UN.

ISSN 2516-7197

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# The UK-listed stock set to blow the lid off the £13.6bn offshore wind cable market

One morning in November 2016, as 80mph winds from Storm Angus battered the UK and roiled waves in the Channel, managers at the National Grid noticed something they'd never seen before.

Half of the power link between the UK and France, a series of 43-mile-long cables running between Folkestone in Kent to a site near Calais, suddenly went down, completely out of the blue, depriving the UK of around 2.5% of its power.

The reduced output – equivalent to the loss of one nuclear reactor – was exactly what the grid managers didn't need at that moment in time.

Britain's power system was already stretched to its limits during a time of tight supplies and rising prices heading into the cold winter months. Already National Grid had expected to have to draw on emergency back-up power plant reserves to keep the lights on.

The so-called “system price” for UK electricity – the amount generators have to pay to cover a net shortfall of power they're contracted for – immediately spiked to a mammoth £1,011/MWh, up from just £15.50 earlier that morning, signalling the grid was desperately short of capacity.

And not just Britain. As the cable also gives France access to UK power when needed, the outage suddenly increased the chance of power cuts in France, too, French grid operator RTE declared.

It took until March 2017 to fully repair the power cable, depriving both UK and France of 50% of their mutual import and export capacity over the whole of winter 2016/17.

But what had caused the outage in the first place?

Later investigations showed that the 20 November incident was caused by a ship dragging its anchor during the storm and severing four of the eight interconnector cables running along the seabed.

Although the cables that make up the interconnector are marked on maps, the ship had apparently been forced to urgently drop anchor as it was tossed around in the storm.

It had been an expensive manoeuvre, and not just for the power firms forced to cover their resulting supply shortages in the market at hefty spot prices over the course of the outage.

French grid operator RTE later said the cost of repairs, which involved using sonar technology around five kilometres off the British coast, amounted to a whopping £30-40 million.

## Subsea cable damage is an expensive fact of life

Obviously, the above incident is an extreme example both in terms of the rarity of causation and the costs of repair. But, make no mistake, damage to subsea cables and flexible pipes is a fact of life for cable operators – and certainly not just from rogue anchors.

Mechanical forces from natural turbulence and currents underwater cause abrasion, stress, fatigue and ultimately breakage.

The savings operators can make by adequately protecting their subsea cables from any dynamic movement to prevent failure are considerable.

Indeed, a single subsea power transmission cable failure costs approximately £5.7 million, which comprises both the lost revenue from non-transmission of generated power and the cost of the installation of a new power cable.

Installing a cable protection system (CPS) represents a fraction of the cost of a subsea cable failure. What's more, the costs are immaterial compared to the overall capital investment of an offshore wind farm.

By way of example, a 300 MW offshore wind farm comprising 46 wind turbines has capital costs to the tune of around £1.5 billion. That compares to the cost of cables and cable installation of around £70 million, or £1.5 million per wind turbine.

That's a relatively small capital outlay in the scheme of things.

Think of a CPS as a much, much larger version of the extra bit of rubber you'll find on the end of an iPhone cable. It's a lot stiffer and sturdier than the rest of the wire and isn't as flexible.

But what you really need to know is this: the market for these type of products are exploding right now, caused in large part by the growing needs of the offshore wind industry.

According to a recent report by industry group RenewableUK, over the next five years the annual rate of global cable installations is set to almost double. It will peak in 2024, when over 4,300km of array and export cables will be installed.

These contracts will be worth £1.7 billion alone.

This will be driven mainly by projects in the UK, Germany, Taiwan and the US, while China, France and the Netherlands will also become significant players in the next decade. Poland and Ireland will enter the market too.

What's interesting is that the UK is expected to be the biggest cable market globally between 2018 and 2028, worth £3.64 billion, according to the report. More than 19 GW of capacity is due to be installed in UK waters, requiring over 9,300km of cabling – equivalent to the distance from London to Tokyo.

In the next four years, more than 3,000km of cables are due to be installed in the UK alone, longer than the distance between John O’Groats and Gibraltar.

Elsewhere, China and Germany are expected to require 6,550km and over 4,400km of cables over the next ten years, respectively. What’s more, if all the projects in the international pipeline are built, the global market for offshore wind array and export cables is forecast to be worth a huge £13.6 billion.

## **Offshore wind is a vital part of the energy mix**

There are two main reasons for the rise in offshore wind.

Firstly, a favourable regulatory environment in the developed world has driven big amounts of public and private investment.

Governmental commitments to meet climate change targets, such as in the case of the United Nations Paris climate accord, are already driving demand for increases in renewable energy capacity as a whole, with wind one of the principal beneficiaries.

Secondly, cheaper costs of wind energy means it is increasingly competitive against traditional fossil fuel sources of power. Technological progress, growth in the scale of the industry and a reduction in the cost of capital has resulted in greater levels of competition, all significantly reducing the cost of installing offshore wind farms.

The investment cost of offshore wind in Europe has fallen from €4.41 million/ MW in 2013 to €2.45 million/MW in 2018, a decline of 44%, WindEurope said in 2019.

The rapid fall in offshore wind costs has corresponded with the introduction of competitive auctions across Europe, notably in the Netherlands and Germany where zero-euro bids were successful, resulting in cheaper projects.

In Europe, industry reports indicate that offshore wind will be a more cost-efficient energy source than natural gas by 2022, while WindEurope predicts offshore wind will produce 7-11% of the EU’s electricity demand by 2030.

In 2018 a record 5 GW of global offshore wind capacity was installed, bringing the total to over 22 GW, according to latest figures from the World Forum Offshore Wind.

But global offshore wind capacity is expected to grow to 102.7 GW by 2026, representing a 22% annual growth rate, according to forecasts from Westwood Global Energy. That will equate to almost €444 billion in global capital expenditure in offshore wind.

Europe is the clear leader in offshore wind, accounting for approximately 88% of the global offshore wind power market in 2018. WindEurope forecast Europe to install total wind energy capacity of between 64 GW and 86 GW by 2030.

That's a huge amount of investment in the offshore wind space over the next few years. Make no mistake, these developers will undoubtedly need to install some manner of subsea cable protection system.

And one small British company will be right there to service them.

This company already has a virtual monopoly on the segment, at least in Europe.

And it's looking to scale out its hard won expertise by aggressively targeting new territories. In fact, it has already exported products to China, South Korea, Taiwan, Japan and the US, as well as every European country that is developing offshore wind.

Its name is Tekmar Group (AIM: TGP) and it's one of our *Exponential Energy Fortunes* recommendations.

## **Virtual monopoly on cable protection in Europe**

Tekmar, which became AIM's first offshore wind-related company when it floated in 2018, designs and manufactures cable protection systems for the power transmission cables that run under the sea from offshore wind turbines.

It is the undoubted leader in this space. In fact, since founding in 1985, it had supplied around 65 customers with over 6,170 cable protection systems for 63 named projects on three continents by 2018, more than any other supplier on the planet. It has increased this to 85 projects to date, generating a capacity of over 24GW.

Although the firm produces several products, it is best known for its patented TekLink system, which now has a monopoly across all installed offshore wind farm assets in Europe.

In fact, it's no exaggeration to say TekLink has revolutionised the way power cables are connected to offshore wind farms.

Whereas the conventional steel J-Tube traditionally protected power cables when they entered the subsea foundations of an offshore wind turbine, the TekLink CPS solution offers full and lifetime protection for power cables, right from the top of the turbine foundation through to burial on the seabed.

The system is specifically designed for offshore installation without the need for divers, which reduces installation time and cost. In fact, installing a Teklink CPS costs less than half the price of the typical J-Tube and can be installed in a much shorter period of time.

TekLink CPS represented approximately 79% of Tekmar's aggregate revenues for the ten financial years from 2009 to 31 March 2018, so it's undoubtedly the company's prized product. So it's no wonder the firm has ensured the intellectual property behind the product is shored up.

It has been granted patents in the UK, Germany, France, the Netherlands and Europe for the TekLink CPS, and has won patents internationally for the associated cable hang-off clamps.

But, as said, the company makes other products beyond its flagship TekLink product. In fact, leveraging on its reputation in offshore wind, Tekmar also makes subsea protection for the oil and gas market, where it supplies protection for umbilicals and flexible pipes for platforms.

Having gained API certification – a significant barrier to new market entrants – Tekmar is now included on the approved vendor lists of key operators in the oil and gas industry. It now has a customer base of over 30 approved vendors in this market.

## Eyes on growth

Right now the company is at an extremely exciting stage of its journey, positioned perfectly to take advantage of the continued growth expected in the offshore wind marketplace in Europe and elsewhere. The company plans to roll out new products, with new technology in new geographies.

Tekmar's CEO, James Ritchie, has made it clear he wants to broaden Tekmar's offering and grow its market share, with plans in place to acquire some new technologies and bolt-on businesses, including in the oil and gas space.

Two major clients have recently signed long-term agreements, which give Tekmar great future proofing. They are Orsted and Boskalis, both European markets leaders in offshore wind cable installation.

Its dominant market position in the EU has given it the platform to expand geographically. In particular, China is calling. In China, offshore wind installations are set to grow from 3 GW currently, to 100 GW in 2030.

In 2018 it signed a collaboration deal with SBSS, China's leading provider of subsea cable installation services and one of the key submarine cable installers in Asia. This will see Tekmar supplying export and inter-array cable protection to the Chinese offshore wind market.

With such export deals in the APAC region in place, Tekmar has opened its first overseas office in Shanghai. If it can build on those existing relationships and expand in line with the projected market growth in that part of the world, then growth could be fast and big. In the US, Tekmar recently installed its TekLink cable protection system on the 12 MW Coastal Virginia Offshore Wind project.

But Tekmar is not reliant on just one industry. It has also expanded its reach in the oil and gas market, which in 2019 comprised around 30% of business, up from 16% in 2018.

Acquisitions also form a key part of Tekmar's long-term strategy. The strategy is to broaden its offering to the underwater cable business, able to supply a wide variety of their

technological and servicing needs. The acquisition strategy to fulfil this goal is already well underway.

The acquisition of AgileTek increased external sales by 165% in the six months to September 2018. AgileTek Engineering is an award-winning subsea engineering consultancy, which helps to assess and mitigate risks of offshore projects.

In 2018 it made its first acquisition since becoming a public company, Subsea Innovation Ltd, which protects underwater pipelines. Subsea diversifies Tekmar's product offering, as it is a global leader in the design and construction of emergency pipeline repair clamps, and large submarine equipment handling.

Subsea has itself had success in winning three major contracts from repeat customers. This also brings customers into contact with Tekmar's wider business model, and the hope is for a degree of cross-selling to follow in the coming years, as multiple client needs can be met by Tekmar and its holdings.

Tekmar also made another acquisition in October 2019, purchasing Pipeshield International, a global provider of patented subsea concrete mattress protection systems. This was a continuation of its strategy to become the partner of choice for multiple technologies and services in the sub-marine equipment protection business.

Finally, the company is also moving into more remedial, repair work, as evidenced in 2019 by a £3 million contract with a UK offshore wind farm company. Under this deal, the company is undertaking "bespoke" remedial cable protection system to replace the cable already installed at an unspecified existing UK offshore windfarm.

Currently all of Tekmar's products are manufactured in Newton Aycliffe, County Durham. It also has an engineering office in London, as well as sales operations in countries abroad, employing more than 100 staff in total.

But the firm plans to open more plants further afield, in places like China and the Middle East where demand for its services is booming.

## **Digging into the books...**

Digging into Tekmar's books reveals an interesting picture.

Tekmar became AIM's first offshore wind related company when it floated in June of 2018. The flotation, which raised nearly £62 million gross, allowed Elysian Capital, the main backer of a management buyout in 2011, to exit.

The move to list on London's junior market cleared around £40 million of debt from Tekmar's balance sheet and actually left it with £9 million in cash, which has freed it up to invest wherever it sees the best opportunities for growth.

Its profit and loss statement shows a positive picture, with its most recent interim results seeing things improve markedly from a year before.



The half-year results ending 30 September 2019 included a record order book of £15.9 million, up 23.26% year on year.

What's more, revenues grew across all five of its divisions. The results showed record half-year revenues that were up sharply to £17.1 million (from £7.1 million for the six-month period in 2018) with underlying earnings of £2 million compared with a loss of £800,000 a year earlier.

This optimism was also underpinned by a positive cash balance of £3.9 million at the half-year. The company also stated it is debt-free.

As a result, the company made an operating profit of £795 million for the six months ending 30 September 2019, compared to a loss of £1.6 million during the same period in 2018.

No wonder, then, that the company expects to report markedly improved revenues as part of its full-year results as demand in the offshore wind sector remained strong.

The company said in early May that revenues for the year ended 31 March were projected to be up 40% year-on-year, despite lockdown and social distancing measures stemming from the Covid-19 pandemic impacting activity in its heavily weighted fourth quarter. Last year, it reported revenue of £28.1 million.

Tekmar said it ended its financial year with its order book sitting at a record £10 million, up 39% year-on-year. It also stated its balance sheet was “strong”, with approximately £2.1 million in cash on hand at the end of the year.

Former chief executive James Ritchie said: “While our growth in the period has been impacted by Covid-19, the demand for offshore wind remains strong.”

Growth in revenue and profit, impressive margins, and a strengthening order book point to a strong future financially.

## **Risks**

Of course, as always there are risks to contend with.

If investment in new wind projects suffers a fall, then that will hit associated businesses such as Tekmar.

Right now, of course, Tekmar is the undisputed leader in offshore wind cable protection systems with a global market share of 75%. But if profits are there to be taken, competitors will come.

Tekmar's main competitor, Seaproof Solutions AS (now owned by Balmoral Offshore Engineering), is the only other firm out there that currently possesses the scale and penetration to enable it to compete directly, though there are over a dozen smaller market firms that could also look to muscle in on Tekmar's European domination.

One very specific risk comes out of Tekmar's financial reports is key client risk. As of 31 March 2020, two of its customers each made up over 10% of its revenue.

Tekmar's order book is strong, but for now the loss of one or two major clients could have a big impact on the financials.

What's more, contract delays could also depress the timing of revenues.

All of these factors could result in the share price of Tekmar falling over the short and long term.

And, of course, there's also the impact of the coronavirus to consider. On 18 February, three days before most global markets peaked, the firm announced that coronavirus was expected to significantly impact its business performance this year. It dropped 25% that day, and has failed to recover since.

Business for Tekmar has certainly not stopped. Not only is it already the supplier to the UK's largest offshore wind farm, Hornsea Two, but, on 12 March, it announced it had won the contract to supply its TekLink cable protection system to France's first ever offshore wind farm, at Saint Nazaire.

Tekmar also recently completed a project for a 487 MW project in Belgium.

Tekmar remains debt free and cash rich, meaning it remains a really strong play in the future of offshore wind and will be able to ride out any storm associated with the pandemic.

## **Backed by the big boys**

But if you think the risks are high, then perhaps you can take reassurance from the fact that the list of Tekmar's largest shareholders comprises some of the most well-known institutional holders around.

Usually, for small, niche companies the lists aren't particularly noteworthy, but, in this case, the shareholder list is quite remarkable.

BlackRock and Schrodgers own over 10% each. BlackRock is the world's biggest asset manager, while Schrodgers is a British multinational asset management company. Following these two firms are Berenberg, JO Hambro, BGF Investment Management, Hargreave Hale, Legal & General, Henderson Global Investors, River and Mercantile, Impax Asset Management, Premier Miton Group and Threadneedle Asset Management.

This list is a real who's who of active investment management, and is a very positive sign. Together that list owns over 83% of shares in issue.

Obviously we don't want to just follow the herd mindlessly. But in light of all the other positives, it is nice to see Tekmar's strengths being recognised by a full complement of big names.

With the company on the verge of explosive growth, now is the ideal time to join them.

**Action to take: BUY Tekmar Group plc (AIM:TGP). If the stock is trading above our recommended buy-up-to-price, which you can find on the portfolio page, DO NOT BUY.**

Please make sure you review the latest advice before purchasing. [Click here for the latest portfolio.](#)

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## Invest in the UK-listed innovator producing hydrogen from plastic waste

Once upon a time, back in our hard-to-remember pre-pandemic days, a huge sustainability issue was increasingly grabbing the attention of households, companies and governments alike.

The issue didn't concern water shortages, biodiversity, air pollution or even food production.

It didn't even relate to climate change, at least not directly.

But the topic had moved right to the front and centre of any discussion on how we sustainably manage our resources moving forward.

The issue was plastic.

Specifically, the enormous amounts of pollution our relentless consumption of plastic is producing.

As we all know, plastic waste is the scourge – and perhaps the emblem – of the modern world, being involved in almost all aspects of daily life in some form or another.

Plastic, after all, is cheap. It can be molded and dyed but, unlike glass and ceramics, it is also flexible and durable.

And unlike wood or metal, it doesn't rot or corrode.

But, alas, most plastic doesn't biodegrade, meaning it's with us – and I mean this literally – *forever*.

Although we only started mass production of plastics just six decades ago, it has already created 8.3 billion metric tonnes, 6.3 billion metric tonnes of which has become plastic waste.

Of that, the vast majority – 79% – is accumulating in landfills or left discarded as litter in

our natural environment including our oceans, with devastating impact on our marine life.

A further 12% of all plastic waste has been incinerated.

Amazingly, only 9% of plastic waste – around 600 million metric tonnes – has been recycled.

What that means is that, globally, only around 7% of all plastic ever produced has been made into something new.

What's more, around 1 million plastic bottles *alone* are used *every minute* around the world. In the UK, 38 million plastic bottles are used each and every day.

On top of that, 70 million tyres – made of both natural rubber and plastic – reach the end of their serviceable life each year in the UK, of which only 15% are recycled.

These startling statistics are extremely concerning, of course, revealing the sheer scale of the challenges we all face.

But the good news is that we have seen a huge rise in awareness of the problem at hand.

Many companies including PepsiCo, Coca-Cola, Unilever, Adidas, Nestlé and L'Oréal have made sweeping commitments to source recycled plastic or reduce the amount of plastic packaging in their products.

Meanwhile, over 60 countries have introduced bans or taxes aimed at reducing plastic waste. By 2021, plastic straws and single-use plastic cutlery and plates will be completely prohibited in the European Union.

The initiatives form part of a growing and wider movement for a waste-free, circular economy, one in which we eliminate waste and the continual use of limited resources.

Under this model, we keep resources in use for as long as possible, extracting the maximum value from them before recovering and regenerating products and materials at the end of each service life.

This was one of the main themes to emerge from the World Economic Forum in Davos in January this year, just before the pandemic started to leave its trail of economic and social destruction across the planet.

The idea of a circular economy is all about replacing the traditional “linear” model of growth – make, use, dispose – and in turn minimising the burdens on the planet's finite resources.

Underpinned by a transition to renewable energy sources, the circular model builds economic, natural and social capital.

Indeed, just think how much more *energy efficient* and *cleaner* this model is.

Not only would wide-scale adoption of the concept cut costs and bolster productivity (think of the cheaper inputs that save companies money and energy), but climate change and pollution would be tempered.

But it's not just that.

The implications for investors are stupendous.

## **Where there's muck there's brass – and the brass here is green**

In fact, a “circular economy” approach to waste management represents a \$4.5 trillion-dollar opportunity globally by 2030, less than ten years away, according to Peter Lacy, author of *The Circular Economy Handbook*.

And as the dust settles on the Covid-19 world, attention on building a new sustainable world will surely ramp up, reigniting the discussions again about the horrific amounts of plastic waste we produce.

So I'm pleased to say we have found a company that is right at the heart of this growing \$4.5 trillion movement.

It has found a way to take large amounts of plastic waste that's currently littering our landfills and oceans and turn it into something extremely productive and potentially lucrative with it in the process.

What that something is will be easy for you – as readers of *Exponential Energy Fortunes* – to guess, no doubt.

Energy.

But while the firm is forming a key position in the \$21 billion-a-year waste-to-energy market, a market that itself is poised to be worth \$33 billion by 2023, it's not just focused on any old energy technology.

Indeed, it's found a way to convert plastic waste and leftover tyres into perhaps the most exciting story in all of renewable energy, one that again many of you will all be quite familiar with by now.

Hydrogen.

## **Introducing our next *Exponential Energy Fortunes* recommendation: PowerHouse Energy Group (LSE:PHE)**

Actually, not *just* hydrogen.

PowerHouse Energy (PHE) has developed a technological process that turns non-recyclable waste plastics into not only hydrogen, but also electricity and a synthetic gas for chemical processes.

It has called it its DMG (Distributed Modular Gasification) technology. It's an incredible invention, years in the making, and with enormous potential.

Firstly, the feedstock of plastic bottles, or sometimes used tyres, is crunched down into tiny pieces. Plastic is rejected by recyclers for many reasons – size, nature, foodstuffs attached, or value – but no such restrictions apply to the DMG process.

The fine grains of plastic are then fed into a tank so hot that the plastics melt and evaporate within seconds.

You might think it takes a lot of electricity to run such a machine. It *does*, but only to fire it up. After that, it can be powered by a small amount of the very gas produced by the process itself. Efficient waste management indeed.

In fact, the heating process forms what's called a syngas – a synthetic gas made up of mostly methane and hydrogen.

From there, the solution is remarkably customisable. The process obviously gives off heat locally, so that can be used in heating neighbouring business, wherever the plant is situated.

Or, hydrogen of 99.999% purity can be extracted, which as we well know can be directed towards an incredible array of uses. Or, the gas can be put through a local fuel cell in order to generate electricity.

Just a single truckload of plastic waste – 25 tonnes – would be enough to produce a tonne of hydrogen, which could power 20 HGVs for 300 miles. Or it could generate 28MWh of electricity, enough to power 1,400 homes for the day.

The process can therefore be customised to produce hydrogen or electricity from unrecyclable plastics. It is net zero for carbon emissions when producing electricity, and *net-negative* when producing hydrogen.

We've covered hydrogen quite a bit in *Exponential Energy Fortunes*, so I don't feel a great need to go into too much detail here, but safe to say that the hydrogen economy is set for truly exponential growth – hence its extensive inclusion in our portfolio of recommendations.

In previous recommendations, for companies such as Nel ASA, Hexagon Composites, AFC Energy, Nikola (VTIQ) and Ballard Power, we have covered the topic in detail. Those can be found in the previous recommendations section [here](#).

Anyway, back to the issue at hand...

## Profiting from waste

Normal recycling is obviously good from a waste perspective, although it does a pretty measly job as I outlined above. On top of that though, it also *requires* energy, which is another investment, another cost. The DMG process has the opposite effect: it *creates* electricity, generating a return on investment rather than a loss.

This is obviously a benefit to PHE, but also to the customer as it should allow PHE to undercut waste management competitors, as it is profiting from the waste, rather than disposing of it.

So PHE answers the call for new methods of producing hydrogen, and also for better waste management. Cleaning up industrial waste processes while selling into a rapidly growing market is a match made in sustainable, clean tech heaven.

And I'm not the only one to think so.

In early 2019, UK-based Peel Environmental entered into a long-term partnership with PHE. Peel is one of the largest UK construction firms specialising in environmental, waste and resource management.

Peel's involvement is a real show of faith in PHE, and reassures us that the process has been subjected to the very highest level of technical scrutiny – and passed with flying colours.

As a result, PHE is working in partnership with Peel to deliver a “UK first” plastics-to-hydrogen project at its 54-acre Protos site in Cheshire.

The Protos site is a project of Peel's for innovations in energy and industry.

In its own words:

*The Protos strategic energy hub sits within the Energy Innovation District (EID), which is spearheaded by the Cheshire Energy Hub and brings together energy users, network owners, innovators and partners working alongside Chester Council and the University of Chester.*

There, PHE will treat up to 35 tonnes of waste plastics a day that would otherwise go to landfill, be incinerated, or be dumped in the ocean. It will be the first commercial project of its kind in the UK.

Recently, it passed a vital planning permission stage, which now means that the project can be taken to financiers.

The DMG process at the Protos site will be able to provide hydrogen for sale to HGV or bus operators using fuel cell technology – such as those made by Ballard, another holding in the *Exponential Energy Fortunes* portfolio. Or, it will be able to generate electricity on site, either for local sale to neighbouring businesses, or to the national grid.

Finally, it will also produce heat that can be used on site at Protos itself.

## **The time for PowerHouse has arrived**

Waste2Tricity, which is collaborating on the project and was recently acquired by PHE, is already building relationships with local businesses for the supply of unrecyclable plastics to the plant.

It's a multi-faceted solution that customers can use to effectively manage their waste.

And the Protos site is just one of 11 targeted sites where Peel hopes to roll out PHE's technical solution. PHE, W2T and Peel have agreed to collaborate to build out ten further projects following on from this first site. This is in addition to 24 existing sites that PHE has in its own pipeline.

Peel's involvement is a massive bonus as it has already identified 15 of its other waste management sites, which have existing counterparties in terms of waste feedstock (plastic for the DMG process).

Revenue, as I understand it, will be split according to each individual contract.

This is all so exciting because, for upwards of five years now, PowerHouse has been working away on its technology, leaving its share price languishing.

But now the time has come. The company is focused entirely on rolling out its technology. Revenues, and even earnings, will be on the way soon, which are a powerful catalyst for upward re-ratings in pre-commercial technology stocks such as this one.

The UK is just the first step in the commercialisation of the DMG technology – alongside Peel, PHE is also targeting deals abroad in Europe and East Asia.

## **Its business model is geared for expansion**

The business model will be one of licensing and partnership, allowing PHE to expand faster than if it were manufacturing and operating each site on its own.

One magical thing about the business model, from a financial perspective, is that waste is generally treated as a liability – ie, people and companies pay to get rid of it.

So PowerHouse will actually be able to charge people for their plastic, although to PowerHouse it is a resource, rather than a waste product.

Its fuel isn't just cheap, or free, but they are actually being *paid* to take it. Based on “gate fees” (what they charge people to dump their waste), and the sale of hydrogen/electricity afterwards, PHE estimates that a single site accepting one truckload (25 tonnes) of plastic a day, will generate £3.4 million in revenue.



The Protos plant itself will be a 35 tonne/day facility, offering significant upside to that estimate.

The sites can also be located where they are needed – by landfill and recycling sites, or by hydrogen refuelling stations, or industrial hydrogen customers.

PHE will sell the DMG process machines/modules, and charge associated services for things like engineering, licensing of the technology, and operational support. PHE estimates that customers will include project developers, asset owners, waste management companies, material recovery facilities, as well as community and council operations worldwide.

With the low capex from the licensing business model (generating fees from clients leasing the technology), those revenues look like they could ultimately produce excellent margins. The share of revenue to which PHE will be entitled is obviously not yet known and will depend on the contract, but it's an exciting prospect.

The site at Protos will be the very first operation of the DMG technology, and should it work it's easy to see orders coming in – as it's a win-win for all parties involved.

## **Interest in the technology is growing**

Indeed, international interest in its technology has picked up recently, aided by recent media appearances on the BBC and CNN. PHE claims to be currently negotiating with several overseas parties to act as regional licensing partners.

The scalability of the licensing model is something I always find attractive when looking at pre-commercial technologies like this one, as it allows for rapid growth once revenues and earnings do start coming in.

So the future is looking bright, but it wouldn't do to hype up the company too much without checking in on the company's progress in the face of the largest health and economic shock of the century.

## **Financials**

As it is still pre-commercial, PHE has not yet recorded any revenue.

Over the last three years, it has lost around five and a half million pounds – but it's very hard to gauge this as losses can only be relative – to revenues or earnings. We will just have to wait and see what revenues and earnings come our way in the next few years before we can start using the traditional valuation metrics.

But the opportunity is certainly huge: as I said above, the world market for waste-to-energy is projected to reach \$33 billion by the year 2023, which is really not that far away.

Its share price reflects its recent commercialisation news, as it jumped from around 0.3p to over 1p in the last few months.

This surge started with the December 2019 announcement of improvements in the DMG process (a doubling of hydrogen output) and a deepening of the relationship with Peel on the Protos project. The increased output was apparently achieved with only a marginal increase in cost to the customer, which is obviously a key factor.

As PHE enters the commercialisation phase of its development, it has rapidly reduced costs on the R&D side of things, which was previously a primary expense.

In terms of Powerhouse's financial position, it recently raised £5m to fund its growth strategy, helping it to achieve profitability in the short term and potentially funding some international expansion too. This gives it a stable financial position to push forward from here, and the company is debt free which given current climate is a great sign of safety.

## **Risks**

Let's deal with specific risks associated with coronavirus first.

The first thing to say is that things are actually looking pretty much unchanged for PowerHouse Group. That's because it's at the stage of building up to its first project – securing planning permission and financing, working with consultants and building documents and presentations – all things which can be done from home as easily as at the office.

In an interview on 24 March 2020, CEO Dave Ryan said that coronavirus had had very little impact on the company. "We are creating paper," he said – ie, the firm is mainly doing legal and contractual stuff, mostly working with consultants.

Construction is due later in this year – hence why the pandemic and ensuing lockdown did not have a huge effect on the company.

This also means the Protos project has now been taken to the financing stage. The engineering teams are finishing their modelling and pricing, which Ryan said will take a couple of months, so we should be expecting news on that front soon.

In terms of the next 12 months, Ryan said his focus would be on delivering the Protos project, but the company has MOUs in Thailand, Australia and Spain that will develop into contracts for UK and international delivery by the time the Protos project is complete.

Saying all this, the primary risk of the pandemic still applies, even though the CEO has assured investors that the current operations of the company are almost entirely manageable from home.

If the lockdown has to be re-enforced later in the year, as construction and physical work is beginning again, that's when the problems would arise. And, depressingly, with cases rising in the UK in September, that could be a possibility.

At this stage, though, PowerHouse seems to be in a much more fortunate position than most small companies, and the pandemic is more of a risk to other firms, relatively.

But, in the meantime, there is still plenty of room for sentiment in the wider markets to shift because of the pandemic and the associated economic fallout. There is justified concern about falling earnings, the impact of working from home in the medium term, high valuation in stocks broadly, and corporate leverage in the wake of the pandemic. It would not do to throw caution to the wind.

Of course, there is also risk from competitors and from an Intellectual Property standpoint. PHE has secured some patents, but other companies are attempting a similar thing, such as EQTEC plc – which also has a waste-to-electricity gasification process.

## **PowerHouse has a clear competitive advantage**

Despite the risks, we should remember that PHE's Protos development will be the very first commercial installation for waste to electricity technology in the UK, giving it a crucial first-mover advantage for securing new contracts upon proof of concept.

Peel's choice of PowerHouse as its partner in this endeavour is a resounding affirmation of the patented DMG process. They both give it, and show that it has, a very clear competitive advantage.

For that, and all the reasons outlined above, I believe that PowerHouse Energy will be able to benefit from its first-mover advantage and do some really incredible things in the coming years.

The 2020s are set to be huge for this waste-to-electricity pioneer and I think now is a perfect time to get involved, despite the wider risks.

**Action to take: buy PowerHouse Energy Group (LN: PHE). If the stock is trading above our recommended buy-up-to-price, which you can find on the portfolio page, DO NOT BUY.**

Please make sure you review the latest advice before purchasing. [Click here for the latest portfolio.](#)