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A Comprehensive Guide to the Chemical
Processing Sector in North East England





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CREDITS

EDITOR

Louise Gwynne-Jones
louise.gwynne-jones@nepic.co.uk

ADVERTISING

Liz Rooney
liz.rooney@nepic.co.uk

DESIGN

Victoria Pepper
victoria.pepper@nepic.co.uk

PRINTING

Alphagraphics
www.alphagraphics.co.uk

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If you wish to discuss circulation or request a hardcopy of this publication, please contact Louise Gwynne-Jones, louise.gwynne-jones@nepic.co.uk or Liz Rooney, liz.rooney@nepic.co.uk

CONTACT US

[@nepic_ltd](https://www.nepic.co.uk)
www.nepic.co.uk
enquiries@nepic.co.uk

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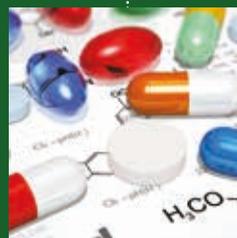
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WELCOME



LOUISE GWYNNE-JONES
PR & Communications
Manager, NEPIC

Dear Readers,

It is with great pleasure that I welcome you to the NEPIC Directory 2018. First and foremost, I would like to thank this year's contributors and supporters - and not to mention the great team behind its production - for without you this flagship publication would not be possible.

One of our key aims in producing the NEPIC Directory is to showcase the world-leading businesses located here and highlight the competitive advantages that are shaping our region and future. We also seek to cast our nets wide to explore themes and issues by providing relevant, insightful and challenging content from a range of perspectives from across the industry.

Whether you are a buyer seeking innovative solutions, a supplier looking for new opportunities, a business set on growth through collaboration and an investor looking to put down roots, our goal is to serve your needs - the needs of a diverse community of companies and individuals involved in doing business in this great place.

We can't create a community by ourselves. Only with your help will we create a broad and thriving community that, in its own right, highlights the outstanding opportunities on offer, showcases the unrivalled experience we possess and addresses the unique challenges we face.

Together, let's give this region's chemical processing sector the attention it deserves and make sure our network and your businesses go from strength to strength.

Thank you for joining us as readers and as always, we welcome comments and suggestions that could be beneficial to the future success of this publication.

With best wishes

Louise Gwynne-Jones

WHERE TO FIND US



SUNDERLAND OFFICE
Loftus House
12 Colima Avenue
Sunderland
SR5 3XB
+44(0)191 516 4400

WILTON OFFICE
Room H224, The Wilton Centre
Wilton
Redcar
Cleveland
TS10 4RF
+44(0)1642 442 560



Philip Aldridge
CHIEF EXECUTIVE
philip.aldridge@nepic.co.uk



Lynne Aungiers
OFFICE MANAGER & PA TO CEO
lynne.aungiers@nepic.co.uk



Felix O'Hare
DIRECTOR OF PROJECTS, SMES
felix.ohare@nepic.co.uk



Joanne Rout
PROJECT MANAGER, INDUSTRY & ACADEMIA
joanne.rout@nepic.co.uk



Louise Gwynne-Jones
PR & COMMUNICATIONS MANAGER
louise.gwynne-jones@nepic.co.uk



Dave Robson
PROJECT MANAGER
dave.robson@nepic.co.uk



Dawn Huntrod
BUSINESS DEVELOPMENT MANAGER
dawn.huntrod@nepic.co.uk



Ebba McGuigan
MEMBERSHIP & ENGAGEMENT MANAGER
ebba.mcguigan@nepic.co.uk



Liz Rooney
MEMBERSHIP MANAGER
liz.rooney@nepic.co.uk



Amanda Rowan
PROJECT ASSOCIATE
amanda.rowan@nepic.co.uk



Victoria Pepper
GRAPHIC DESIGNER & DIGITAL MARKETING ASSISTANT
victoria.pepper@nepic.co.uk



Kath Birkin
PROJECT ADMINISTRATOR
kath.birkin@nepic.co.uk

FOLLOW US:

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CHAIRMAN'S NOTE



MARK KENRICK
NEPIC Chairman &
Chief Executive Officer,
px group

As the new Chairman of NEPIC I'd like to welcome you to the latest NEPIC Directory which I'm sure you will find extremely valuable. From the fact that you are reading our Directory, I assume you are involved, directly or indirectly, in the process industry here in the North East of England. As such you will know that the sector continues to be a vibrant and diverse one contributing significantly to the region's economy and wellbeing.

The last 12 months have certainly been interesting and the next 12 show no signs of being any different. Brexit discussions have ground inexorably on without any real clues so far as to what we can expect but as the North East continues to be one of the very few net exporting regions in the UK, with a significant proportion of those exports coming from NEPIC members, it is clear what we need from Brexit to ensure the ongoing sustainability of our sector. As described by the Chemical Industrial Association (CIA) we must have frictionless, tariff free trade; regulatory consistency and access to, and movement of, skilled people.

An area of tangible progress driven by the impending Brexit has been the discussions on the establishment of a Free Port around the River Tees that, along with the redevelopment of the former SSI land by the South Tees Development Corporation, brings huge potential for growth and with that opportunities for NEPIC members.

The two Local Enterprise Partnerships in our area have continued to develop their industrial strategies and activities over the last year and, with the establishment of the Tees Valley Combined Authority (TVCA), we are seeing much more local influence being brought to bear on the Government's 'Northern Powerhouse' concept than could

probably have been said this time last year.

To paraphrase the TVCA, the North East is a region that is already well on the way but needs to do more to become a region that is truly sustainable. To achieve this, we must ensure that we are highly productive, highly innovative, highly export focussed, highly skilled and high in growth potential.

As a sector we already tick these boxes and with growth from major new projects in progress such as Sirius Minerals, MGT, Peak Resources, and work being carried out across our region to define and deliver a sustainable circular economy we are, and must remain, at the heart of these strategies.

Looking ahead, how would I like NEPIC to be perceived? First and foremost, as a growing organisation that brings tangible and demonstrative value to its members. Secondly, as regional representatives of the process industry, ensuring right, consistent messages are included by the CIA, the LEs, TVCA and HMG in strategy formulation and execution. And lastly, as a key player in the development and execution of a process industry focussed industrial strategy nationally, locally and across the Northern Powerhouse region.

As I said at the start, welcome to the NEPIC Directory 2018. I am positive it will be of great value to you and I look forward to you all taking full part in the success of NEPIC and our region. Finally, I'd like to take this opportunity to thank Ian Swales for his chairmanship of NEPIC over the last three years and wish him well in what he says really is retirement!

Mark Kenrick



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CHIEF EXECUTIVE'S FOREWORD



PHILIP ALDRIDGE
Chief Executive, NEPIC

Hello. I would like to introduce myself as the recently appointed Chief Executive of NEPIC.

Although new to the role, I'm not new to the organisation having joined 6 years ago to help deliver the business acceleration for SME's programme. Since then I have been leading the SME Growth project in the north of the region and looking after NEPIC's pharmaceutical members and their supply chain.

It is well known that companies in clusters outperform those without the geographical proximity of suppliers, collaborators and competitors. We have a natural cluster of process industries in North East England with all the advantages of a large skilled labour pool, a wide range of specialist suppliers and potential collaborators to solve collective problems. An advantage of 'our' cluster is that we have such a variety of processing companies ranging from petrochemical, fine and speciality chemicals, to medicines manufacturing; both small molecule and biopharmaceuticals. These are supported by a strong science and technology base, exemplified by our seven

university members and the various parts of the Centre for Process Innovation.

NEPIC exists to enhance the natural synergies and business opportunities in this diverse process sector. Many more valuable connections are made through NEPIC than would otherwise be made naturally. We can achieve this, not because we are particular technology experts, but because we understand the business of the sector and can facilitate introductions in an intelligent way. This not only helps member companies to thrive within the cluster, it leverages the largest industry cluster to the benefit of the region's economy.

We can bring greater benefit to individual members and to the regional economy if we grow our membership base, thereby increasing the potential for positive member to member interactions. This will be one of my goals as NEPIC Chief Executive. We achieve the high degree of organisation to organisation connectivity through a range of methods. We hold a major annual conference, Meet the Members, which aims both to showcase the region's process sector strengths and opportunities but also to put people together.

At the other end of the scale, we host a monthly Cluster Connect meeting, giving members the opportunity to introduce themselves and make connections and contacts. We also hold specialist conferences covering Asset Management, Bioresources and Pharmaceuticals - reacting to current trends and challenges. Using European money, we

have helped many hundreds of SMEs to sell into our sector to the benefit of these small companies and our members. Ultimately, we make many introductions between members that would otherwise not happen.

We will continue to work closely with the Local Enterprise Partnerships to achieve their economic goals and take our message of the importance of the North East process sector to Westminster. We will maintain an active role with bodies that can influence government policy such as the Chemistry Growth Partnership and Chemical Industries Association. Nationally important issues affecting our industry, such as Industrial Carbon Capture & Storage, the Circular Economy and the Hydrogen Economy, will also have NEPIC involvement with the intention of making sure our members benefit.

If your organisation is a NEPIC member, please get in touch and let me know how you think we are doing. If you are not a member, please also get in touch and learn more how we can help your business. These are uncertain times, but I am confident that if you join NEPIC, and get involved with our network, your organisation will benefit from the increased business interactions we provide.

Philip Aldridge



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ABOUT NEPIC

NEPIC is an award-winning membership cluster organisation working with the chemical-using industries in the North East of England.

We cover a broad sweep of chemistry-focused industries including petrochemicals, polymers & materials, fine & speciality chemicals, pharmaceuticals, biotechnology and renewables.

Together with our member companies, we work to build upon the already powerful industrial base located here and make this region one of the most competitive and successful chemical-processing locations in Europe.

We are privately-owned, led by industry and work to support cluster members to become successful and sustainable organisations, in a collaborative business environment that helps them to grow.

Formed in 2004, NEPIC was the result of the merger of two industry bodies - the Teesside Chemical Initiative, who represented the heavy base chemical in the south of the region, and the P&S Cluster who worked with the pharmaceutical and life science businesses that were predominately based towards the north.



...PRIVATELY-OWNED, LED BY INDUSTRY AND WORK TO SUPPORT CLUSTER MEMBERS TO BECOME SUCCESSFUL AND SUSTAINABLE ORGANISATIONS IN A COLLABORATIVE BUSINESS ENVIRONMENT.

Steered by Michael Porter's theory of clustering for competitive advantage, NEPIC's remit was clear - reconnect the fragmented industrial sectors - a result of ICI's exit from the region in the late 90's - and create an industrial powerhouse to rival all other global locations.

In 2014, NEPIC was the first UK cluster to receive the GOLD standard ESCA accreditation for cluster excellence - and in 2016, achieved £3.5 billion of Gross Value Added to the region since inception. ■

BACK TO THE FUTURE

SABIC'S VISION FOR RETURN TO WILTON SITE'S GLORY DAYS

The Wilton International Site can return to its "glory days" as part of a new industrial revolution on Teesside. That's the exciting message from the new man in charge of SABIC's Teesside operations, Daren Smith (pictured left).

In its heyday of the late Sixties and early Seventies, former chemical giant ICI employed up to 25,000 people on what was the largest chemical complex in Europe.

Now ICI is no more and the past ten years have seen the site endure difficult times with a series of plant closures by firms such as Dow, Invista, BP and Croda as a result of the economic downturn and fluctuating global markets.

But many more continue to thrive.

SABIC leads the way. Its recently upgraded Olefins Cracker remains the beating heart of Teesside's process industry.

Lotte Chemical UK, Huntsman Polyurethanes, Ensus, Sembcorp Utilities and Suez all run significant operations on the site too. And much more is on the way, with four major developments currently at various stages of pre-construction planning.

But SABIC's newly appointed site director believes the remaining blue-chip companies, who between them employ around 1,500 Teesside people and engage hundreds more contractors and supply chain partners, could form the focus of a new beginning for the site.

Smith, who took on his permanent role at the start of 2018 after six months in an acting position, is confident that far better days are ahead if the right decisions are made.

And he reveals that high-level talks are ongoing within the region to devise a strategy that would see a series of ongoing investments and plant openings in the years ahead, creating hundreds or even thousands of high-quality local jobs for skilled professionals.

Sitting in his office in the Wilton Centre, Smith says: "The site's ICI days embodied many great things for the Teesside region, and maybe, just maybe, we can make that happen again - it would be in a different way, of course, but it could happen.

Continues...



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...continued.

“We’ve got the building blocks on the site to recreate the glory days of Teesside’s chemical industry.

“I get a big buzz out from getting up in the morning and coming to work here, with all the great things we are doing on the site. But it’s not just about sustaining what we have - it’s about growing for the future too.

“What excites me is what could come for Teesside’s chemical industry, with SABIC at the heart of it.”

Smith believes that repairing the region’s broken supply chain is the key to securing a thriving future for the Wilton site.

He explains: “With its high feedstock flexibility, SABIC’s Olefins Cracker is one of the most cost-competitive crackers in Europe.

“Right now we liquefy a substantial part of our ethylene production before it is transported to customers in Europe as well as to SABIC’s polymer plants on mainland Europe. SABIC is managing the product flows across its sites in Europe in a cost-efficient manner but there is further cost-saving potential.

“So why not upgrade those ethylene molecules and add value to the product here on Teesside? We could take them into high or low-density polyethylene, or we could upgrade them into ethylene oxide and re-start the ethylene

glycol and surfactants chain that we lost here some years ago.

“In the past, other companies produced ethylene oxide and others upgraded that into surfactants. Unfortunately, during the downturn, companies took business decisions to move their manufacturing bases from Teesside, some moved out of the business and others went under.

“But there is the potential to have those supply chains again and re-establish the UK surfactants sector here on Teesside.”

Smith says he is determined to drive the growth agenda, but is at pains to emphasise that SABIC cannot do it all alone.

He continues: “SABIC is a growing corporation, with worldwide aspirations. It has many other assets and growth capabilities to think about around the world, so our Teesside site is competing internally for finance and development opportunities.

“We can start the conversations and show willing. But it can’t just be SABIC - it needs collaboration and it needs investment from other companies.”

Smith reveals that talks are ongoing with the government’s Department for Business, Energy and Industrial Strategy (BEIS) about the potential for the Tees region.

“There are principle discussions going on at a high strategic



WE’VE GOT THE BUILDING BLOCKS ON SITE TO RECREATE THE GLORY DAYS OF TEESSIDE’S CHEMICAL INDUSTRY.

level with BEIS,” he says.

“We’ve talked about industrial strategy, broken supply chains, the excess of ethylene we have here and the type of things we can do with it.

“There is a vast site at Wilton - it covers 2,000 acres, the equivalent of 1,300 football pitches - with all the facilities, utilities and support networks needed to re-establish a world-scale chemical manufacturing complex.”

And he insists that there has never been a better time or opportunity for Teesside to seize the day and create a strong, sustainable future at the heart of the process sector.

“Everything we do has to build a sustainable future for the Teesside region, because chemical manufacturing is not only part of our heritage but part of our ongoing lifeblood.

Continues...

"Right now we find ourselves in a unique position in terms of the new mayor, the network he brings and the influence he is able to leverage for the Teesside region.

"So now is the time for Teesside - and SABIC's operations here - to move forward, look beyond simply surviving and dare to dream."

WILTON WATCH

These four developments will create hundreds more Teesside jobs when work gets underway next year and beyond:

- Construction work is scheduled to begin next year on a processing plant for polyhalite rock from the new Sirius Minerals mine near Whitby, as part of an overall £2bn development.
- Also in the pipeline is a mineral processing plant, with Aussie firm Peak Resources awaiting planning permission to build a £70m unit to process rare earth ore that will make the core ingredients for magnets used in such things as mobile phones and motors.
- Sustainable technology start-up ST2 is proposing to build a large data centre on land formerly occupied by a Croda surfactants plant.
- Planning permission is being sought by Sembcorp Utilities to build a new £700m gas-fired power station on the site of the former Enron/GDF Suez power plant.

WE'VE ONLY JUST BEGUN

SABIC's Teesside site director Daren Smith says levels of confidence and pride within the company's 500-strong workforce are higher than he has known - but the Teesside operation must continue to innovate to retain its competitive edge.

The past two years have seen the global chemical giant invest multi-millions into upgrading its Olefins cracker at Wilton, near Redcar, resulting in a successful 2017 and reasons to be confident about the years ahead. But, he insists, the hard work starts now.

Smith, who has risen to head the company's Teesside operations from humble beginnings as an apprentice at Darlington engineering firm Cummings, said: "In 2017 we had an excellent year for manufacturing.

"I see the plant's reliability improving, I see the workforce aligned, engaged and motivated, and I see a real sense of purpose, optimism and ambition to a far greater level than I've known in my 17 years with the business.

"We've come through some difficult times to achieve the successful implementation of our Gas Cracking Project over the last two years, bringing in competitively advantaged feedstock to Teesside and delivering above expectation.

"So are we succeeding? Emphatically, yes, we are.



NOW IS THE TIME FOR TEESSIDE - AND SABIC'S OPERATIONS HERE - TO MOVE FORWARD, LOOK BEYOND SIMPLY SURVIVING AND DARE TO DREAM.

"But I will not allow us to sit back on our laurels and think that completion of the Gas Cracking Project was it - because we've only just started.

"Now we need to fight to retain our competitive edge. Having some of the cheapest ethylene molecules in Europe is a statement that will not stand the test of time if we don't continue to innovate and build on our privileged position to create a sustainable future." ■

Feature courtesy of Tees Business

Words: Dave Allan

Picture: Martin Walker



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THE FREE PORTS OPPORTUNITY - GATEWAY FOR THE NORTH

The Free Port concept dates back 2,500 years when a small Greek island offered respite from import taxes in the hope of attracting the support of merchants. Today, they are a popular tool used by Governments across the world to help boost trade and manufacturing in industrial areas as markets become more globalised. Goods can be imported, turned into higher value products and then re-exported from within the freeport zone without incurring tax and duties.

There are approximately 3,500 Free Ports worldwide, employing 66 million people across 135 countries. The United States alone is home to more than 250 zones, handling \$750bn of merchandise and playing a significant role in retaining, reshoring and growing domestic manufacturing activity and boosting trade. So, with not a single free trade zone on mainland Britain, why now and why Teesport?

As a member of the single market, the UK does not have control over its trade policy, is not able to set its own customs duties and therefore Free Trade Zones do not exist in the UK or anywhere in the EU. However, Brexit provides the UK with new found freedom and the opportunity to significantly increase manufacturing. In 1952, 25 per cent of all global

manufacturing exports came from the UK and rightly earned us the title of the 'workshop of the world'. Today, that figure stands at just 2 per cent.

Despite this, our Ports remain among the World's most advanced. British ports handle 96 per cent of UK trade and are the second largest ports sector in Europe. The North of England accounts for more than a third of national port capacity and with the potential to create 86,000 jobs if Free Ports are as successful here as they were in the US, it is no wonder that all eyes are on Teesport.

Teesport, which handles 4,500 vessels and 27 million tonnes of cargo a year, has strong structural advantages towards being favoured for free port status including a deep-water facility, providing lock-free access to the sea and strong road and rail services. But more importantly, it's integral to Teesside's manufacturing complex which includes chemicals, engineering, energy and automotive.

Furthermore, the South Tees Development Corporation, the biggest regeneration programme outside of London, has set out

Continues...

...continued.

its ambition to create 20,000 additional jobs in high value manufacturing over 25 years, adding £1bn to the local economy through the transformation of the former SSI site.

In 2017, we welcomed Prime Minister, Theresa May, to discuss some of the key national infrastructure projects taking place at the Port and most recently it was the turn of Brexit secretary, the Rt Hon David Davis during his visit to the region led by Tees Valley Mayor, Ben Houchen.

Using Teesport as a base to deliver his landmark speech formally setting out the UK's aims for the transition period following the withdrawal of the UK from the EU. Citing the region as the UK's exporting Capital, he went on the talk about the potential opportunities a post-Brexit Britain may present including the opportunity to establish Free Port status, setting out a positive vision for future trade and investment when markets become more globalised.

Mr Davis set out his plan for a timed implementation period, following the UK's exit from the EU, providing certainty and clarity to businesses.

Addressing the specific opportunities for Teesport and the region, Mr Davis assured the people of the Tees Valley that the implementation period would continue to make the area successful. He said the "prize" of the best possible access to the EU, while opening up greater

access to the rest of the market, would be enormous for Teesport above all else. Mr Davis went on to say that any transition period would and should not preclude the UK from signing independent trade agreement entering force post-implementation.

PD Ports' COO, Jerry Hopkinson, said:

"The Minister's speech at Teesport is a welcomed step forward in understanding the potential opportunities for international trade that Brexit might deliver.

"What is important in the coming months is ensuring we have the best possible conditions in which we can attract further inward investment and create a platform for growth and help to develop long-term sustainable industries for the Tees Valley and regional economy.

"Free Port status at Teesport would act as a catalyst to remove trade barriers and enable industry to thrive; creating employment and capitalising on the readily available skills the region is globally renowned for."

Teesside's industrial heritage is steeped in the very skills and competences that would complement any new manufacturing facilities attracted to the region through inward investment. Teesport itself has the capacity to accommodate growth derived from its current available land bank and river frontage whilst also being the gateway to 4,500 acres of brownfield industrial land that was dominated by the former SSI steelworks.



THE PRIZE OF THE BEST POSSIBLE ACCESS TO THE EU WOULD BE ENORMOUS TO TEESPORT ABOVE ALL ELSE.

The combined geography and physical infrastructure, river, ports and land bank, linked to skills and competence in the region represents a unique opportunity for the UK to 'pilot' Teesport as a 'Free Port'.

Quick and simple to implement, Free Ports would provide a bold message to the world, an almighty boost to British manufacturing and employment growth where it is needed most. Let's offer our ports the freedom to recapture their proud history as the engines of our economy and seek to regain our manufacturing crown. ■

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SOUTH TEES: THE SINGLE BIGGEST DEVELOPMENT OPPORTUNITY IN THE UK



In October 2017, an ambitious 25-year plan to redevelop a huge area south of the Tees and create 20,000 jobs was announced by Tees Valley Mayor, Ben Houchen. Hailed the beginning of a new era of economic development in Tees Valley, the transformation of the 4,500-acre former SSI steel works site would lead to a hotbed of new industry and pump an additional £1 billion into the Teesside economy, creating well paid jobs in new industries.

Spearheaded by the South Tees Development Corporation (STDC), the Master Plan proposed growth to the Tees Valley economy through the creation of a world-class industrial park on the River Tees. And, with a focus on industrial investment, would create skilled jobs, heavily focused on manufacturing innovation and advanced technologies within a high value, low carbon, diverse and circular economy.

In addition to the four industrial zones identified for potential development, the Master Plan's vision also incorporates significant transport connectivity and infrastructure proposals, along with coastal community zones, heritage preservation and the enhancement of environmentally important habitats.

Announcements and developments
Since Prime Minister Theresa May officially launched the South Tees Development

Corporation, the first Mayoral Development Corporation outside of London, significant developments have been achieved. First came the Autumn Budget announcement that saw a £123 million cash boost to support the ongoing maintenance and clean-up of the former SSI site, which provided a significant kick-start to proposals.

Since then, STDC revealed that over 100 expressions of interest had been received from global companies looking to base themselves here. During a key-note speech in May 2018, the Mayor disclosed that we will soon see the first announcement of private investment on this site since the South Tees Development Corporation was written into statute. This anchor project of "national significance" is a multi-billion-pound energy plant set to create thousands of jobs and many more across the supply chain.

South Tees Development Corporation welcomed a VIP delegation from Heathrow as part of its bid to become a logistics hub for the London airport's proposed expansion. Logistics hubs will help to make sure that businesses from across the UK can be part of the supply chain for Heathrow's new third runway. At these hubs, components of the airport will be pre-assembled before being transported to the London site. *Continues...*

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Heathrow expansion is considered to be a critical infrastructure project for the UK that is expected to deliver up to £5 billion in economic benefits and 5,100 jobs across the North East.

Furthermore, Sirius Minerals was reported to be the first company to sign up to taking a lease on land for storage facilities, as it builds its £3.2bn polyhalite mine and Wilton processing facility, and industrial giant, Ineos, has indicated that the site may be in the running for its new UK car manufacturing plant.

A landmark partnership agreement with energy and utilities firm, Sembcorp, has too been signed to maximise investment opportunities across both the STDC and Wilton International Sites. Both sites have seen massive interest from global investors, with Wilton securing more than £1.5 billion of new investment in the past 15 years.

To ensure that both areas fulfil their potential and attract the right kinds of businesses to the most appropriate sites, STDC and Sembcorp have now signed a Memorandum of Understanding – an agreement to jointly promote investment and direct businesses to the most appropriate site for their requirements.

Ownership and responsibility

However, as businesses line up to invest, the final piece of the jigsaw – securing ownership of the land – is required and Mayor Houchen has “every confidence

we will find a solution”. The former SSI site is currently owned by the Official Receiver and charged to three Thai banks. An in-principle agreement was made between the STDC and the banks to buy the land.

A final agreement will need to be agreed by the Official Receiver and the boards of the banks, which is hoped can be progressed before the end of 2018. A significant milestone for the corporation, these developments would allow the site to be bought back and speed up regeneration efforts and get spades in the ground sooner than previously thought.

The UK government currently pays for the safety, security and upkeep of the former SSI steelworks site, through the South Tees Site Company that manages the site on behalf of the Official Receiver.



WHILE MANY HAVE FOUND A NEW PATH IN LIFE FOLLOWING SSI, WE OWE IT TO THE FORMER WORKERS, THEIR FAMILIES AND THE REST OF THE TEES VALLEY TO MAKE A SUCCESS OF THE STDC.

A draft transition plan has been put to the Cabinet of the Tees Valley Combined Authority for approval to transfer the long-term responsibility of the former SSI steelworks site from London to Teesside.

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In preparation for the transfer of ownership and responsibility, STDC is developing a business case to government which outlines how much cash will be required from central government to allow the STDC to manage the financial risks of taking responsibility of the land.

About South Tees

Situated at the mouth of the River Tees, the area benefits from river access and encompasses the major port facilities of Teesport. Importantly, the area includes significant operators such as PD Ports, Redcar Bulk Terminals, British Steel, BOC and Northumbrian Water, and it also benefits from the major industrial complex of Wilton International, operated by Sembcorp, all of which are critical to realise successful outcomes for the redevelopment and regeneration programme.

The South Tees area has some of the lowest operating costs in the UK, with rents and rates about half of most major cities, and a quarter of those in London and Aberdeen. The area is also home to a large, experienced and highly skilled workforce, with the lowest staff turnover of any UK region, guaranteeing companies investing in South Tees access to a secure, highly efficient workforce.

One of the key commitments of the Devolution Deal, which was signed in October 2015, was the opportunity to be given the authority to create new Mayoral Development Corporations (MDCs) within the

Tees Valley area. MDCs can draw on a wide range of powers, covering infrastructure, financial incentives, regeneration and land acquisition, devolving powers from central government to the local area. The decision to create a Development Corporation for South Tees was part of the area's response to the closure of the SSI Steelworks and the wider strategy to drive forward growth and investment, create jobs and support local communities.

Reflection

Speaking at an event to mark one year since his election as Tees Valley Mayor, Ben Houchen, reflects on the SSI closure.

He said:

"But we can't talk about the Development Corporation without mentioning the major reason for it in the first place. 2,000 reasons in fact. 2,000 men and women who lost their livelihoods on that fateful day in 2015. An end to 170 years of steelmaking on Teesside. I remember when the news broke. We all do. I pray that the people of Teesside never have to endure such a seismic shock ever again.

"So, two and a half years on, I want us to take a moment to recognise what has been achieved by the SSI Taskforce. 98 per cent of those who lost their jobs are back in work. 300 new start-ups supported. 23,700 training courses funded. £50 million invested. These aren't just numbers on a spreadsheet – these are real people, real families and real communities. While many have found a new

path in life following SSI, we owe it to the former workers, their families and the rest of the Tees Valley to make a success of the South Tees Development Corporation."

Ensuring local procurement

Ensuring local procurement is a key part of the Master Plan and vitally important to its long term success. The vision of the Development Corporation will see the area completely transformed and businesses must be ready for the supply chain opportunities that will present themselves.

NEPIC fully endorses the South Tees Development Corporation's vision and ambition, which has the potential to transform the entire local economy, providing substantial numbers of well-paid jobs and modern and innovative manufacturing facilities that could compete with anywhere on earth.

Having engaged NEPIC members via an industry specific consultation event with STDC, and formally fed into the process, we will continue to keep members informed about the exciting prospects taking place and help them to make the most of those opportunities for their own businesses. ■



high tide

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INNOVATION & COLLABORATION

COLLABORATION BETWEEN LARGE
& SMALL COMPANIES CAN PRODUCE
THE BEST INNOVATION

The power of collaborative innovation has been brought to the fore by a far-reaching report by commercial law firm Womble Bond Dickinson, highlighting the rewards that can be delivered when the Davids and Goliaths of business work together.

The firm's research - Close Encounters: The Power of Collaborative Innovation - revealed that in the last four financial years, large organisations have ploughed £102bn into 5,447 deals with UK SMEs, far outweighing the £62bn big companies have spent on R&D.

In late 2017, North East business leaders, advisers and lenders came together to share their thoughts on the report's central topics. Hosted in Newcastle by The Journal and Womble Bond Dickinson, leaders from a range of sectors discussed everything from cultural difficulties and managing expectations to how we should look to European counterparts to make gains.

Delegates at the event agreed that small operations were often better at coming up with innovative ideas but they often lack the heft, resource and - most importantly - the funds to bring those ideas to fruition.

Within large organisations these issues are reversed as they have plenty of resource plus the ability to deal with regulatory environments well, but they are not as nimble because of the levels of management and policy that lies ahead. With this in mind, working together makes perfect sense - but managing expectations of both sides can often be a fraught, balancing act.

Kevin Robertson, Womble Bond Dickinson's head of office for Newcastle and head of the projects and procurement team, said: "It's about the dynamics of those different businesses - we act for the smaller, innovative, disrupting businesses but also the big PLCs.

"When you speak to both parties they both want to achieve the same thing but the concerns and fears of the smaller guys as to what their intellectual property is and whether they will get swallowed up and lost in a large commercial beast, as opposed to the larger companies thinking about how they will extract value from this investment."

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Andrew Bayliff, director at Innovia Films' Carlisle facility, said his business had a mixed success rate at getting collaborative deals over the line. The firm is best known for producing plastic for the newer Bank of England notes, and it also works within packaging markets, producing film labels for a range of markets including tobacco, food and drink, cosmetics and confectionery.

He said: "In the bank note side of the business we work with a lot of smaller companies who are often working on security features. Our main role is making sure they can be operated at scale, which is something small companies aren't very good at, but in which we work well. In the more general packaging market it's hard to find firms with a realistic expectation for what they can offer, so we've not had many good collaborations in that space."

The report highlights the importance of rising numbers of innovation centres - the likes of Newcastle's Science Central as an innovative hub - accelerator programmes such as Ignite, which is now being replicated across the UK, and tech clusters, which are bringing the two diverse but mutually dependent sides together.

Philip Aldridge, chief executive of NEPIC, the cluster organisation working with the chemical-using industries in the North East, said: "In terms of what NEPIC have done, the power of clusters in a nutshell

is about trying to get people talking, to try to collaborate.

"That's key on a sectoral basis and regional basis. But I also think it's important cross-sector. There is some clever stuff going on in the automotive sector - how can chemicals in the North East benefit from that?"

"I think we are behind the curve. The likes of NEPIC and our automotive counterpart, NEAA, are doing a lot but Europe in clusters get this much more and have been established much longer."

Newcastle's Reece Group is a prime example of a group which is seeking to partner with outside organisations to bring forward innovative products. Ryan Lamb, head of finance at the pioneering engineering firm, explained how its newest division Reece Group Innovation is acting as an innovation partner for larger entities, like Newcastle University and Northumbrian Water, as well as smaller firms who have come to the region to tap into the firm's expertise.

As a group, it also needs to tap into different companies to get out new products - a strategy which led to it taking a majority stake in food packaging firm Continuous Retort.

Mr Lamb said: "That was a very small company with no limits on what they could do, but it has been a challenging process incorporating the two.

"It's getting the balance between having procedures



WE DO HAVE A TRULY COLLABORATIVE NETWORK WHICH RECOGNISES THAT BY COMING TOGETHER THEY ARE DERISKING THE INNOVATION AND HELPING ON FINANCIAL TARGETS.

and controls but still having that level of autonomy to not completely sit on top of it, so they can still think and do their own thing. If we just make it part of the Reece Group that completely goes. It's quite a soft thing we do and that's why it's working."

The Womble Bond Dickinson study shows a significant drop of 28% in the number of collaborations between large firms and SMEs since the vote to leave the EU.

Peter Snaith, the law firm's head of manufacturing, said: "It's policy related in that people won't make the investment if there are going to be changes down the line.

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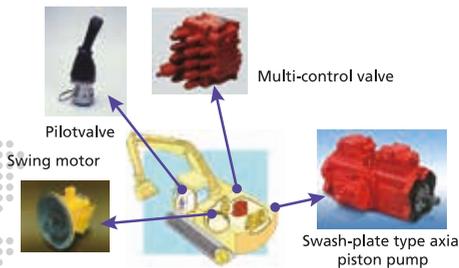
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...continued.

"You have to know the path you are embarking on will be a straight one otherwise you won't take the risk."

This is perhaps why many large firms are, instead, looking inward and trying to innovate from within.

Sandra Thompson, audit partner and office managing partner at EY's Newcastle base, said: "I would argue that there's a lot of innovation going on inside big companies. Allegedly we're the leading edge of technological advancement across the Big Four, but I think the only way we've been able to do that is in small teams.

"We've carved out divisions like EY Absolute, EY X, but essentially it's people who have been taken out of the business to work on innovative technology, artificial intelligence - we've got some amazing stuff.

"I think it has to happen in small teams. The problem is to scale it out, which is quite tricky, unless it gets the backing of everyone in the business. Would EY go out to SMEs? We have done but it's rare. It's difficult with all the rules and regulations to remain independent. It's such a shame because there is so much we can do."

Creating a collaborative culture within businesses is just as important, especially when some have large workforces who aren't aware of their fellow colleagues duties.

When Sandra was first appointed

EY's Newcastle office manager she went to great lengths to create an exciting working environment, installing table tennis tables, to get people meeting and talking.

"We also had an event in Gosforth - a fair, with a tin can alley, hoopla - and it was the first time that everyone had been together. When you become such a scale it sounds fantastic but keeping it all together and making sure everyone feels part of the same company is quite tricky."

Kevin Robertson said the legal sector has been on catch-up and, learning from other sectors, Womble Bond Dickinson created an internal innovation team, adding: "It's open to everybody. It doesn't matter what your job is. It's taken a while for people to realise it's for everyone to join in.

"When you've been in the same business doing the same process for so long it becomes more difficult to see a new way to do it, so in response we got some fantastic ideas in a competition, including one from a paralegal which we are taking, backing and running with. That got us to look inward and say: 'We've got ideas within our own business, how do we get to them?'

"It's a cultural thing. You should feel that if you have ideas you can make them heard." Andrew Buchanan, of investment fund Tourian, said: "Research and development often just breeds more research and development, and doesn't necessarily scale up. That's where the gap is." Phil Kite, director at EEF, former

CEO at Reece Group and the leader of Team Tyne Innovation, agreed.

Phil's Team Tyne Innovation project will see him and three other rowers journey 3,000 miles across the Atlantic in the world's toughest rowing race - a project which will involve as many North East SMEs as possible by showcasing products they provide to help them get across the ocean.

He said: "That's why we have Science Central. You could produce an environment for innovation and innovative companies, but they've got to grow. Newcastle will hopefully be the city of innovation, a great aspiration to have, but how do you invest in that to take it forward and make it the next big company? That's where a lot of thought has to go in."

Philip Aldridge said that while the UK is great at encouraging start-ups, helping them to grow is another matter - so rounded off the discussion with a very popular suggestion: the formation of a regional business cluster.

He said: "I think we need to play to our strengths in the North East. We are a relatively small region and most of the big players know each other. We need to encourage a regional cluster of business managing and mentoring to help potential firms really grow." ■

Feature courtesy of Womble Bond Dickinson

Words: The Journal

BRANDING YOUR BUSINESS

WHY YOUR BRAND STORYTELLING MUST START WITH HUMAN RESOURCES

Strengthen your brand and gain competitive advantage by aligning Human Resources and Marketing.

One of the key issues for businesses in the North East is the ability to attract and retain talented people. By building a distinctive brand you increase your profile both to your customers and to future staff. However, it's increasingly difficult to achieve, particularly in today's challenging marketplace where brands have to compete in an overcrowded and noisy space.

A distinctive brand starts with a compelling idea that may be a disruptor in the marketplace, but certainly should capture peoples' attention. Good brands start from the inside out and are about creating the desired culture that will support the vision of the organisation. They have a core purpose that is the driving force, and this is well communicated throughout the business, so all members of staff understand how their role contributes to the bigger picture.

Customer service is a key focus for organisations with strong brands and their people understand they need to demonstrate passion and consistency in that delivery, whether its services or products.

Brands are about how you make your customers feel and that is dependent on the quality and consistency of your people.

One of the most critical partnerships in an organisation is to bring Human Resources and Marketing together to create a corporate culture that is on-brand, on-strategy and, ultimately, more effective at delivering bottom-line results.

Companies that align their marketing and human resource teams often see benefits in collaborative working and have higher levels of employee engagement and increased levels of productivity. So how do you build a supportive internal culture?

The starting point is to focus on your values and the internal communication within the business. Think about how you recruit, induct and train your people. Do they understand the vision for the organisation, where it is going and what role do they play in its development? Do the behaviours of your people and, in particular, your leadership team fit with the culture your brand wants to promote externally?

Continues...



JEAN-PIERRE VAN ZYL
Head of Employment
Square One Law

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We've seen a great deal in the press recently, how behaviours from certain individuals can have a very negative impact on brands and culture. Also, the speed and connectivity of social media has a huge influence on developing and promoting brands, but equally the wrong messages about the organisation or its people can have devastating effects and these need to be dealt with promptly to minimise any damage.

To create a service delivery culture, it must start at the top and the leadership team must live the brand and demonstrate the type of behaviours they want to see in the organisation. If they do not buy in, why should their staff?

A brand's position, purpose and culture should all be employed by management to guide decision making and leading brands fully understand how important it is to have a cultural fit that is supportive to brand strategy.

A supportive internal culture that has a feeling of ownership strengthens employee engagement and has a far better chance of delivering an outstanding service. Companies who align their internal and external brand messages, and most importantly, stay relevant, have seen more collaborative working and an increase in productivity.

Since a brand's strength lies in its delivery, not just its communication, HR can be extremely effective in creating a brand-based culture through training programmes,

new employee inductions and performance evaluations.

When we set up Square One Law seven years ago we asked prospective clients what sort of legal service they would like to see and overwhelmingly the replies were, speed of response, flexibility and value for money. So, we focussed on developing a culture that could deliver that type of service and ensured that our marketing message aligned with the realities of the internal culture, employees and infrastructure.

Your external brand needs to be an accurate and authentic representation of the firm within, to ensure that it can ultimately deliver on the promises that your brand is making, and your Human Resources and Marketing teams have the skill sets to train your people and make this happen. ■



ONE OF THE MOST CRITICAL PARTNERSHIPS IN AN ORGANISATION IS TO BRING HUMAN RESOURCES AND MARKETING TOGETHER TO CREATE A CORPORATE CULTURE THAT IS ON-BRAND, ON-STRATEGY AND, ULTIMATELY, MORE EFFECTIVE AT DELIVERING BOTTOM-LINE RESULTS.



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GEAR UP FOR THE ELECTRIC CAR REVOLUTION



ELECTRIC VEHICLES HAVE BEEN IDENTIFIED AS A KEY POST-BREXIT MANUFACTURING OPPORTUNITY FOR THE UK.

As the world's leading chemical companies, that for decades have made catalysts that remove polluting substances from vehicle exhausts, switch their focus to become key players in powering electric cars of the future, we look at the efforts in place to ensure the UK is at the forefront of this transformation and the supply chain opportunities it presents.

Worldwide sales of pure electric vehicles grew by 45 per cent last year and the International Energy Agency estimates that there will be between 9m and 20m electric vehicles on the road by 2020 and between 40m and 70m by 2035 - by which point it is estimated to be a £5bn market opportunity in the UK and £50bn across Europe.

Big chemical players, such as Umicore in Belgium, chemical giant, BASF, and UK-listed Johnson Matthey are now preparing for the eventual decline of traditional internal combustion engines. All three hope to capture the growth in demand for components used in rechargeable lithium-ion cells and are planning to expand production of cathode materials,

critical in increasing the amount of power a battery can deliver.

Most recently, UK-based chemicals group, Johnson Matthey - which is one of the world's largest suppliers of catalytic converters - announced plans to build a battery materials demonstration plant in the UK with double the originally expected production capacity, as well as a £200m commercial plant in Europe with the aim of commercial production by 2021.

The post-Brexit opportunity

Electric vehicles have been identified as a key post-Brexit manufacturing opportunity for the UK, with one in five electrical vehicles driven in Europe produced here. Several manufacturers have sizable facilities including Nissan in Sunderland and Jaguar Land Rover in the Midlands.

In November 2017, Greg Clarke, Secretary of State for Business, Energy and Industrial Strategy, announced £80m of funding to establish a National Battery Manufacturing Development Facility.

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As part of the Automotive Sector Deal included in the recent Industrial Strategy, the battery facility is part of efforts to place the UK at the forefront of the global energy storage market. It will be responsible for turning the most promising early and mid-stage research and development practices into scalable and commercially viable propositions.

Mr Clarke said: "Battery technology is one of the most game-changing forms of energy innovation and it is one of the cornerstones of our ambition, through the industrial strategy and the Faraday Challenge, to ensure that the UK leads the world, and reaps the economic benefits, in the global transition to a low carbon economy."

Further monies will be injected to tackle the biggest challenges including key technologies such as the development of battery materials and cell manufacturing; design and production of modules and packs including advances in thermal management and battery management systems and of course, recycling and the recyclability of battery packs.

Chemical supply chain for battery manufacture

The rise of battery manufacturing in the UK will lead to a significant number of opportunities in the supply chain. These opportunities will cover several key areas - some specific to battery manufacturing and other more generic in terms

of process design, control and instrumentation, engineering and other service and support functions. The battery specific opportunities are likely to focus around chemicals supply, injection moulding, waste disposal and software development.

Lithium-Ion Battery (LIB) is a generic term for batteries whose electric and chemical properties depend on lithium. LIB cells are comprised of four main components - cathodes, anodes, separators and electrolytes - inserted in various container types. Cathodes, anodes and separators take the form of sheets, and are wound or stacked to form alternating layers of cathode-separators-anode, with ions flowing between the cathode and anode sheets via an electrolyte solution.

LIB's are primarily utilised in consumer electronics applications due to their high energy density and lifecycle. Their high potential power output also makes them well-suited to automotive applications. The LIB value chain comprises of raw and processed materials; electrodes; cells and battery pack - which together generate quite a shopping list of common chemicals, materials and processes.

The Faraday Challenge

The Faraday Challenge is a £246m commitment from Government to battery development for the automotive electrification market opportunity.

Over the next four years, it will provide a new 'application-inspired' research programme coordinated at national scale and an innovation programme to support collaborative research and development with co-investment from industry. Furthermore, it features a scale-up programme to allow companies of all sizes to rapidly move new battery technologies to market.

The UK has world class expertise across a range of areas in battery science and has already built a significant number of research networks and pilot facilities upon which this challenge will build. Compatible infrastructure and a unified transport and energy system are also critical to electric vehicle uptake. The recently launched £20 million Vehicle-to-Grid (V2G) competition seeks to support this by funding projects which aid the interaction between electric vehicles and the grid, paving the way for widespread adoption of electric vehicles.

This is a comprehensive research, innovation and scale up programme, focussed on batteries from their raw materials and electrochemistry to end of life treatment, encompassing cell manufacture, modules, battery pack design and assemblies, and vehicle application.

By any scale this is a game changing investment in the UK and will make people around the globe take notice of what the UK is preparing for in terms of electric vehicle introduction.

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FEATURE
SUPPLY CHAIN

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The movement from the internal combustion engine to an electric vehicle is transformative. It's entirely different technology and at present an entirely different cost structure. This poses both risks but also huge opportunities for the UK economy.

The programme will develop safe, cost effective, durable, lighter weight, high performing and recyclable batteries which will power the next generation of electric vehicles. This will involve businesses with a wide range of materials and manufacturing capabilities from across different sectors, creating a new supply chain to support battery production in the UK at scale.

Alongside this there is legislation moving through Parliament, the Vehicle Technology and Aviation Bill, which will pave the way for autonomous and connected driverless cars. The UK is at the forefront of legislative and regulatory change in order to enable this technology to be deployed in the UK which will be based on electric and Ultra Low Emission vehicles.

As you will also read in this Directory, there are significant opportunities for the use of Hydrogen in transport. This complements electric vehicles with most appropriate solution being dependant on usage patterns, which can be considered similar to the current diesel/ petrol options available to consumers.

The other seldom mentioned fact is that hydrogen powered vehicles are still reliant on batteries to efficiently utilise the electricity produced by the vehicles' fuel cell, therefore, the work to improve batteries helps drive forward both technologies.

Over the coming months NEPIC will continue to work closely with the Chemistry Growth Partnership, Innovate UK, Warwick Manufacturing Group and the Faraday Challenge to ensure our members are aware of the developments and are geared and ready to take advantage of this significant opportunity. ■



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01642 442 579 / 07711 375 426



CENTENARY YEAR FOR NEPIC MEMBER BRENNTAG



SHAUN MYERS
Business Services Director,
Brenntag UK & Ireland

Brenntag has been a member of NEPIC for over ten years. How has Brenntag evolved over these years? We speak to Shaun Myers, Business Services Director for Brenntag UK & Ireland.

Why did you get involved with NEPIC all those years ago?

Back in 2008 when we joined I was the General Manager at our site at Birtley. It was obvious to me that a cluster organisation like NEPIC matched closely our own position within the infrastructure of North East manufacturing. We are integrated horizontally and vertically into the region as a customer of, and supplier and service provider to many

of the region's organisations. As such the North East particularly is a very important region for Brenntag.

What would you describe as the key strength of Brenntag in the North East?

The loyalty and the experience of staff has to be number 1, which leads to loyalty of our customers and fantastic working relationships (some for over decades). 2018 marks the Centenary year of chemical related activities on our Brenntag Newcastle (Birtley) site, dating back to 1918 with the establishment of Ouseburn Trading Company. Back in those



Connecting **Chemistry**

1918 Centenary Year 2018



- 1918 Ouseburn Trading Co
- 1930 Newcastle Zinc Oxide Co
- 1947 Durham Chemicals
- 1983 Hays Chemicals
- 2001 Albion Chemicals
- 2006 Brenntag Group



days the focus was on chemical manufacturing which is a valuable heritage for Brenntag. However chemical distribution of specialty and industrial chemical ingredients is what has been our successful focus for several decades. Over the last ten years our business model has been changing rapidly, as we are now leading in the supply of specialty chemicals and bespoke added value services such as specialist blending, formulation, regulatory and legislative support, with the North East providing one of the mainstays of our capabilities in these areas. Our Newcastle blending facilities, for instance, service significant life and industrial science market across the region, whilst supporting our wider UK network of Brenntag sites and blending facilities.

As we are now part of the world's largest chemical distribution business, our heritage as a manufacturing company is deployed at our

blending services activity on site, as well as at our manufacturing facilities. Our thorough knowledge of the manufacturing process means we understand the exacting demands of our customers.

However, we are not complacent; hence over a year ago we have engaged in the comprehensive Customer Experience program which is extremely multifaceted. It includes both ongoing Customer Experience surveys where we measure customers' propensity to recommend Brenntag to industry colleagues, as well as the bespoke expert led training that touches every single role across the Brenntag employee base. We want the Brenntag name to be synonymous with great customer experience. It has been 150 years of Brenntag history in the chemical industry, and 100 years in the North East- we want to ensure that customers enjoy dealing with

Continues...

“
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“ WE ARE NEARING THE COMPLETION OF THE MAJOR PROJECT THAT WILL MARK THE OPENING OF OUR NEW STATE OF THE ART, PURPOSE BUILT FACILITY LOCATED WITHIN THE TURBINE BUSINESS PARK NEAR WASHINGTON.

who himself followed Nicola Boulter (Brenntag UK & Ireland Commercial Director) as the previous General Manager of the site. I am proud to say that we enjoy some of the greatest levels of customer intimacy with many of our business partners in the North East. Based on the ongoing direct feedback and the likelihood to recommend sought in our ongoing Customer survey, it is rewarding to both myself and the team to know that the Newcastle site continues to offer best in class customer service.

What would you say are the reasons for such high degree of customer intimacy?

This goes back to our teams: their experience, dedication, ability and desire to go an extra mile, all allow us to develop the deep understanding of customer requirements and to go above and beyond to ensure that we meet and exceed those on the ongoing basis. The engagement and motivation of our colleagues means we look at delivering the great service level and continuously evaluate and expand our product and service offering as well as business processes and infrastructure to support our ambitious plans for business growth.

What's next for Brenntag in the North East?

Our Centenary year marks the end of our tenure at the current Birtley site. We are nearing the completion of the major project that will mark the opening of our new state of the art, purpose built facility located within the Turbine Business Park near Washington. The new site will have 4000 sq ft of office and amenities, a 15,000 sq ft warehouse with

dedicated, high bay storage for both life and material science specialty ingredients, and bulk storage facilities for the range of inorganic products.

The new site is adjacent to the main arterial routes, the A1 and A19, and the new location will enable us to provide even greater focus on customer experience. This major investment, along with ongoing multi-million investment plan across the UK & Ireland, signifies our strategic intent to further enhance the efficiency of our infrastructure, geographical reach and added value capabilities in the core markets we serve. The North East is one of the key net exporting regions helping to fuel the UK economy, and Brenntag are proud to be part of the region's ongoing success. We are totally focused on supporting our customers in all aspects of chemical and ingredient distribution.

For further information on how Brenntag can assist your business please contact:

Email newcastle.sales@brenntag.co.uk
Tel 0191 410 9215

www.brenntag.co.uk

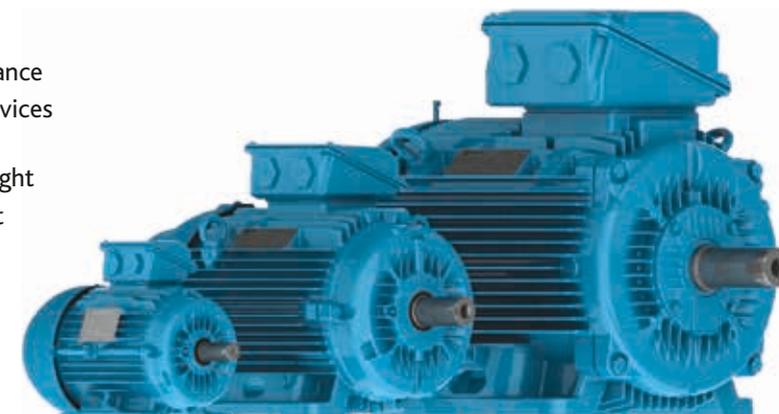


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For more than a decade, NEPIC have delivered high quality business growth support, working with member companies of all shapes and sizes. Our activities to date have generated in excess £3.5 billion of GVA for the region.

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Membership of NEPIC offers immediate connectivity to a

wide and diverse process industry incorporating petrochemicals, pharmaceuticals, fine & speciality, biotechnology, polymers, bioresources & renewables and a significant supply chain.

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Join us today and benefit from:

- Face-to-face business support and signposting via NEPIC's highly experienced team, along with access to a wealth of knowledge via industry mentors and the wider network.
- Support and guidance relating to access to finance, innovation channels, exporting, tactical PR and much, much more.

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MENTORS.

...continued.

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- Company promotion and signposting via free profile listings both on-line and within NEPIC's award winning Directory publication.
- Publicise your news and thoughts with free editorial opportunities in print through Focal Point Magazine, online at Members' Hub and via various social media platforms.

- Complimentary copies of NEPIC publications including the NEPIC Directory and Focal Point Magazine, along with subscription to membership and industry e-updates.
- And whilst you are busy networking and building your business through these services, we are also hard at work tackling the key issues facing industry such as Brexit, talent attraction and retention, integration, sustainability and of course, attracting inward investment!

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To start your journey with us, contact our Membership & Engagement Team or visit

www.nepic.co.uk/join-now

Liz Rooney
liz.rooney@nepic.co.uk
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COLLABORATION IS KEY TO CAREER CHOICE CHALLENGE

AN INTERVIEW WITH LAUREN BYWATER, GENERAL
MANAGER OF THE HIGH TIDE FOUNDATION



THE WAY WE
ENGAGE &
INSPIRE YOUNG
PEOPLE IS TO
GET THEM OUT
THERE AMONGST
INDUSTRY &
MEETING THE
PEOPLE THAT
MAKE THINGS
HAPPEN.

It's not about writing a cheque, it's about attitude, culture, collaboration and involvement, a bold statement from Lauren Bywater, General Manager of the High Tide Foundation, talking about the importance of business engagement in inspiring a young person's career choices.

For the last five years, Lauren has become a driving force in transforming the way in which young people across the Tees Valley view a career in industry through the High Tide Foundation, based in Middlesbrough.

With the recent launch of the Tees Valley Mayor's skills strategy, which identifies up to 133,000 jobs to be filled by 2024 in the Tees Valley, Lauren talks to NEPIC about how the High Tide Foundation has built an enviable reputation bringing businesses, education providers and young people together for the benefit of everyone.

Originally from Redcar, Lauren left the region at the age of 18 to

further her studies at Hull University before returning to the area and is now helping other young Teessiders on their career path.

Lauren's focus is on connecting education directly with businesses to deliver a programme of career education, enrichment activities and first-hand workplace experience opportunities through High Tide including sector specific weeks, site visits, cadetships and a fresh approach to work experience.

The Foundation, which was established in 2012 works with 83% of secondary schools across the Tees Valley and has ambitious plans to increase this to all secondary schools, providing access to High Tide programmes for every student.

Continues...

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“**TIME & RESOURCES TO DELIVER MEMORABLE & IMPACTFUL PROGRAMMES TO INSPIRE YOUNG PEOPLE IS TOP OF THE AGENDA.**”

“Over the last five years we have seen our membership grow to over 150 with businesses that span all sectors and all sizes. We appreciate all levels of support, no matter how great or small - whether it's speaking at a career assembly or leading on one of our new work experience programmes.

“Skills development and retention is a key challenge facing many sectors, locally, regionally and nationally. The programmes we deliver at High Tide not only provide real life work experience they also offer genuinely unique and life-changing opportunities for young people. Every business across our region have one thing in common, we all need good people. Fresh talent with bundles of enthusiasm, equipped with the right level of skills disrupt the norm within business, they spark innovation and push the boundaries which drives progress and positive change.

“The process industry is a lynch pin of our region's economic success and it continues to see considerable growth. As processes change and new technologies are implemented across the industry, we need to ensure we are equipping our young people with the necessary skills to have a chance at being part of this world-class industry on our door

step. To create a desire to want to learn these necessary skills, these young people need to have the fire in their bellies lit. They need to be enthused by the industry and eager to be a part of it. They need to see more visible role models, this is especially true of young females who often depict such industries as 'jobs for the boys'. I'd encourage any business to open their doors to young people and show them how education translates into practical skills in the workplace. Show them first hand what's achievable.”

“To enable us to achieve our future ambitions for High Tide we need to upscale, with more employers pledging their commitment to supporting the skills development of young people. It's not just about the big firms, it all sizes, all sectors. We don't charge members to be involved with the Foundation; time and resources to deliver memorable and impactful programmes to inspire young people is top of the agenda,” concluded Lauren. ■

If you would like to become a member of High Tide or support any of the Foundations events, contact:

lauren@hightidefoundation.co.uk
or visit www.hightidefoundation.co.uk

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ENERGISING THE INDUSTRIAL RENAISSANCE OF THE SOUTH TEES



NOMI AHMAD
Head of UK Business,
Sembcorp Industries
Group

Effective business partnership combined with the "can do" attitude of the people of the Tees Valley will be the twin drivers of the area's industrial regeneration.

That's the view of Sembcorp, which stands ready and able to energise the industrial renaissance of the South Tees area as well as to contribute towards the power needs of the country.

The integrated energy, utilities and services company owns much of the prime industrial development land at the 2,000 acre Wilton International site and is behind an exciting new power station proposal that will supply site needs and more in the decades ahead.

Sembcorp's track record in delivering ultra-reliable supplies of competitively priced, low carbon energy to customers over the past 15 years has played a pivotal role in attracting more than £1.5 billion of new investment to the site in that time.

Today, Wilton is home to a variety of companies in a range of important manufacturing sectors including

biofuels, plastics recycling, power generation and minerals processing.

Established firms such as SABIC UK Petrochemicals, chemical companies Lotte and Huntsman Polyurethanes and sustainable biofuels manufacturer Ensus have all made massive investments in their assets in recent years.

Now, they look set to be joined by other firms investing hundreds of millions in new assets on the site - developments which will lead to a brighter future, not just for Wilton but the economy of the area as a whole.

Sembcorp's own investment plans are aimed at boosting the generation capacity of the Wilton site to meet the anticipated higher power demand, supporting new investments both at Wilton and potentially on South Tees Development Corporation (STDC) land south of the River Tees.

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The company is more than half way through a planning process that could see a "nationally significant" new gas-fired power facility of up to 1,700MW built on the site of the former Teesside Power Station.

Importantly, the Tees Combined Cycle Power Plant ("Tees CCGT") would be carbon capture ready and - along with an added 1,000 megawatts of capacity acquired as part of a deal to buy Midlands-based UK Power Reserve (UKPR) recently - would be capable of exporting power into the National Grid to help meet UK needs at times of peak demand.

Nomi Ahmad, Head of Sembcorp's newly-formed UK business, said: "It's a really busy and extremely exciting time for us.

"Our customers all have one thing in common - the need for low carbon, reliability and competitively priced power - and with the recent acquisition of UKPR we have more than tripled our existing operating capacity and gained substantially more in construction and under development."

The £216 million deal marked a major milestone in the transformation of Sembcorp into an integrated energy business in the UK - giving the company a national presence, a firm foothold in the distributed energy market and a total overall capacity of around 1,200 MW of power - the equivalent of the power used in more than 1 million homes.

Mr Ahmad added: "Our parent company, Sembcorp Industries, said at the start of 2018 that we were looking to deepen our presence in the UK energy market and this is proof that it is happening. The acquisition gives us greater opportunities for



OUR CUSTOMERS HAVE ONE THING IN COMMON - THE NEED FOR LOW CARBON, RELIABILITY AND COMPETITIVELY PRICED POWER.

further expansion and sets us firmly on track to grow in the UK."

UKPR's portfolio of highly flexible assets at 32 locations around England and Wales includes small scale fast-ramping gas fired power units and rapid response batteries connected at the distribution level close to customer load.

Flexible distributed generation is the fastest growing sector of the UK energy market given its role in bridging supply gaps between intermittent renewables and slow-to-fire thermal power generators. The versatile units add resilience to the National Grid by providing high value, rapid response services that help to balance the national power supply system, particularly at times of high demand.

In making the acquisition announcement, Neil McGregor, Group President and CEO of Sembcorp, said: "It transforms our UK business from being a centralised utilities provider on Teesside into an integrated energy business with operations across the country.

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It also builds up Sembcorp's merchant energy business, which we have identified as an area of focus for the Group."

Yet, despite its new national profile, Sembcorp is determined to keep its UK headquarters firmly on Teesside and believes that a flourishing partnership with the new Mayoral Development Corporation and other bodies will result in further 'organic' growth.

Sembcorp and the STDC have recently signed a Memorandum of Understanding - an agreement to jointly promote further investment in the area - ensuring that potential investors are directed to the most appropriate sites for their requirements.

The move also ensures that business and marketing skills are combined, avoiding duplication of effort and unnecessary competition between the Wilton International site and its 4,500 acre neighbour.



THE STDC AREA IS THE SINGLE GREATEST DEVELOPMENT OPPORTUNITY IN THE UK RIGHT NOW.

Tees Valley Mayor Ben Houchen, Chair of STDC, said of the agreement:

"It made perfect sense to join forces with Sembcorp to support the development of both sites rather than work in isolation. The STDC area is the single greatest development opportunity in the UK right now. Our bold vision will see the area completely transformed into a hotbed of new industry bringing sustainable economic growth and prosperity to the region."

Mr Ahmad said:

"The talks we've been having with the Mayor, STDC, PD Ports, our local MPs and local authorities over the past year have been extremely productive and it's been clear that there are a number of ways in which we can help each other and work in genuine partnership to achieve the same thing - to bring new jobs and investment to the area."

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HYDROGEN: THE SECOND DASH FOR GAS?

The hydrogen economy is growing in publicity with references occurring in technical journals and news reports, inboxes are overflowing not only with GDPR related emails but also hydrogen related courses, press releases and events. Perhaps now is the time to look at what the benefits of a hydrogen economy could mean to the North East and how we as a region can seize the opportunity.

The hydrogen market is developed and established due to its use in ammonia and methanol production, as well as in the refining of crude oil. However, more recently, its use is transitioning as it becomes an energy vector too in areas such as transport, fossil fuel replacement and energy storage.

Furthermore, there is growing development of hydrogen's potential in the domestic setting as well as its current industrial use. When most think of hydrogen one of their first thoughts is the 1937 Hindenburg disaster and yet, despite this, safety surrounding hydrogen has developed such that, less than 100 years later, plans are being drawn up to pipe it directly into homes as an alternative domestic fuel. So what improvements have been made in safety and how significant are the advantages that vastly outweigh this preconception?

Environment and safety

When hydrogen burns it produces water as opposed to conventional fossil fuels which produce CO₂ - the main cause of global warming. Hydrogen is therefore a good choice for replacing fossil fuels such as natural gas, diesel or petrol in applications where it is particularly hard to reduce CO₂ emissions by other means. Additionally, combustion does not generate particulates, which can be problem in urban locations or enclosed areas and is estimated to lead to approximately 29,000 deaths per year in the UK.

Energy system stability and optimisation

Hydrogen can be produced by the electrolysis of water and thus can assist with balancing supply and demand on the National Grid, this is especially important with the higher utilisation of renewable generation such as wind and solar resulting in supplies onto the grid being hard to predict and control compared to conventional generation.

By utilising surplus electricity to produce hydrogen the imbalance can be controlled, and a useful product obtained that can either then be used as hydrogen in transport or industrial processes for example. Alternatively, hydrogen can be stored and converted back into electricity when there is a shortfall by using fuel cells.

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Compressed hydrogen has an energy density 4x that of Lithium Ion Batteries on a volume basis and 3x that of petrol on a mass basis, making the use of hydrogen as an energy storage medium very attractive for both fixed energy storage systems and a replacement for petrol and diesel-powered vehicles.

Hydrogen use

The use of hydrogen poses several unique technical, social, financial and political challenges and work is ongoing to overcome and current progress is considered to be very positive.

The nature of the hydrogen molecule, being extremely small and its very fast flame speed, present a number of challenges which need to be considered in the design of hydrogen related equipment. Although these challenges are present with natural gas and petrol for example, mitigation measures have been built into existing engineering and operational controls.

The extremely small nature of the hydrogen molecule mean that leakage rates are much greater than other gases and hydrogen can actually dissolve into metals affecting their properties and leading to embrittlement if materials of construction are not carefully selected. Integrity of joints in hydrogen systems is critically important to ensure that leakage is controlled.

It must be remembered that the Chemical Industry is widely experienced at designing, operating and maintaining large scale complex systems containing dangerous and corrosive gases and has a good safety record - experience that is transferable to that required for the hydrogen economy in general.

The issues associated with utilising hydrogen in domestic equipment, such as cookers and hot water boilers, are currently being explored through several different studies examining both safety and practicality of the conversion of the existing natural gas distribution network to hydrogen.

The use of hydrogen in domestic equipment is likely to require changes to the design of burners that are optimised for natural gas and these changes may require the purchase of new equipment, installation of conversion kits. Indeed, in future, dual fuel equipment may be released on the market capable of firing either hydrogen or natural gas.

The situation with the use of hydrogen for transport is much further advanced with both hydrogen fuelled vehicles, trains

and refuelling stations already available and operating in some areas. In this case the situation can be compared with the roll out of electric vehicles albeit due to the higher ranges and re-fuelling speeds currently seen on hydrogen vehicles the infrastructure requirements are likely to be less.

Hydrogen and the NEPIC region

Teesside already has 50 per cent of the UK's total hydrogen production with BOC's steam methane reformer, as well as distribution pipelines and salt caverns for transporting and storing large volumes of hydrogen. SABIC's "Cracker" also produces hydrogen as by-product of the cracking of ethane and used internally in the process and as a fuel gas.

The region is also well provided with existing electrical generation with more schemes currently in planning, including several renewable and biomass plants, and the grid connection point for part of the Dogger Bank Wind Farm project allowing additional "green hydrogen" to be produced utilising electrolysis. Furthermore, the Carbon Capture network proposed by Teesside Collective has already examined and costed the installation and operation of Carbon Capture from BOC's steam methane reformer.

The ambitious H21 Leeds City Gate project seeks to demonstrate the conversion of reformers located in the Tees Valley - utilising salt caverns for storage and the proposed Teesside Collective CCS network

to capture the carbon produced during manufacture.

In terms of transport and logistics, the region also makes a fantastic location for the development and roll-out of hydrogen powered vehicles given the existing hydrogen assets, supply chain, skills and knowledgebase that already exists.

Additionally, the manufacturing sector within the region generates in a high number of vehicle movements covering relatively high mileage per day but within a physically compact area. The region is already familiar with High Hazard COMAH sites and makes the provision of hydrogen refuelling facilities less problematic than if there was the need to install a much more geographically diverse network.

Work is already going on to examine and increase the efficiency of hydrogen production by fermentation of wastes and biomass thus adding further opportunities to produce green hydrogen. Again, the region has vast experience in biotechnology that can be harnessed to take advantage of this opportunity.

Conclusion

The growth of the Hydrogen Economy is increasing and will result in significant disruption to many existing markets ranging from automotive, domestic equipment, oil and gas and energy through to the process sector. This disruption also creates a number of opportunities and it is up to us as a region and sector to seize these and exploit our talents and resources to ensure we are

at the forefront of the process and enjoy the commercial and environmental benefits rather than be left behind as our competitor's race ahead.

The NEPIC region is ideally placed to take advantage of the benefits of the hydrogen economy due to the unique combination of existing assets, established supply chain, unrivalled R&D facilities and the skills and experience of the existing workforce.

One thing is for certain, if the region does not firmly grasp the opportunity other regions will and we will miss out on the economic and energy security benefits associated with the Hydrogen Economy. Already other regions such as the North West are progressing plans to incorporate H2 and Carbon Capture and Storage in parallel with Germany, Japan and the US already active in developing substantial hydrogen powered transport systems.

Given the potential benefits to the region NEPIC is keen to see the North East process sector at the forefront of the hydrogen economy and will be looking to work with members to seek opportunities and help progress this vital technology. As part of this we will be engaging with key players to understand how we can help the region deliver the opportunities a hydrogen-based economy promises. ■

POTENT BIOPHARMACEUTICAL OCCUPATIONAL HEALTH AND SAFETY

BIOPHARMACEUTICAL MATERIALS CAN HAVE A PROFOUND EFFECT ON PATIENT PHYSIOLOGY.

Occupational health and safety for potent active pharmaceutical ingredients (PAPs) and highly potent APIs (HPAPIs) should be approached with the same systematic and scientific diligence used, for example, in controlling the quality of drugs given to patients.

Very small doses of drugs can have very large effects. Thirty millionths of one gramme or 0.00003g is sufficient to radically precipitate a physiological change and render a woman infertile in oral contraception. New generations of ultrapotent materials may be given in even lower doses, especially if targeted to the disease site, in an attempt to reduce side effects.

It is noteworthy that society is willing to take a significant risk, by giving patients doses of biopharmaceutical materials that can have a profound effect on their physiology. Doctors are empowered to prescribe potent active pharmaceutical ingredients (APIs) in anticipation that the beneficial medical effect will outweigh any negative health downside. In the UK we are even bolder; we direct The National Institute for Health and Care Excellence (NICE) to act on our collective behalf and decide, on an evidence-basis, what monetary costs the public are willing to pay to provide medical therapies.

With high potency and toxicity it is then a simple matter of logic, that the health of workers handling PAPs and HPAPIs is also at significant risk if they are exposed at work. Healthy workers, people who are not ill and do not need medication, maybe in their 20s, of reproductive capacity and with many years of healthy life ahead of them, have a lot to lose. There is nothing on the benefits side of the equation for these people against which the risk may be weighed. Any health effect arising out of exposure to a drug at work would be adverse.



JUSTIN MASON-HOME
Director,
HPAPI Project Services



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Biopharmaceutical companies put in a lot of effort to validate that a drug is safe and efficacious and then control its quality prior to it being prescribed to a patient. The tools they use are primarily those of science; scientific data and evidence that “proves” that a drug is what it says it is and does what it should. Great investment is made, as the consequences of getting it wrong can have profound impact on profitability and company reputation. You’d think then that at least the same standard of science would be used to protect healthy employees. Sometimes it is. Biopharma occupational health and safety may not be as eye-catching and “cool” as the latest targeted immunotherapy, but it is good business and it is the criminal law.

The good news is that potent drug safety management follows the same systematic and scientific rules and disciplines that should be readily understood by science-based companies.

In contrast to other chemical substances, biopharmaceutical substances have toxicological information determined about them at the conceptual and research stage, preclinically in animal studies, at the clinical stage in humans and post market authorisation. The dataset available to assess hazard then is unrivalled. All occupational health and safety management starts with a need to know the intrinsic property of the material that is the hazard. Getting the hazard wrong can result in either over investment or inadequate worker protection, both of which are bad for business.

With the hazard established, the next stage is to understand risk.

Risk assessment underpins all health and safety management around the world. If a high hazard material such as a PAPI or HPAPI is handled in such a manner that the potential for worker exposure is very low, then the risk may be low. Conversely, if exposure levels are significant, then the risk to health may be unacceptably high. What sort of levels are we talking about? The measure by which we can assess the hazard of substances is the occupational exposure limit or “OEL”.

OELs of some more familiar hazardous substances are:

Substance	OEL 8-hour time weighted average/ ng m-3
Cyanide	5,000,000
Benzene (human carcinogen)	3,250,000
Phosgene	80,000
Paclitaxel (anti-cancer chemotherapy)	1,000
Ethinyl estradiol (contraception)	40
Antibody drug conjugate (ADC) toxin (anti-cancer)	<10

Risk assessment involving such potent and toxic materials as PAPIs and HPAPIs is a challenge. The quantities are so low as to be very difficult to measure or even imagine. Risks and risk perception are generally beyond human appreciation. Unlike for cyanide, benzene and phosgene, no continuous speciated method for sampling and analysing any drug substance, at health relevant levels in air, has ever been developed and may well never be. Many falter by making rash assumptions about risk, using over-optimistic, non-scientific guesstimations rather than applying systematic science. Potent drug safety

does follow strict scientific principles of chemistry and chemical engineering. Material behaviour is dictated by material physico-chemical properties and exposure potential by physico-chemical engineering principles of mass transport, but it does remain rather non-intuitive.

What there is no place for, is “emotional” guesswork. With toxicological hazard and exposure risks reasonably well understood, the next question is “what can be done about it”?

Robotic biopharma working environments have been promulgated for over 15 years... but never really seen. Even with current leaps and bounds in AI, the robotic research and development chemist or biochemist is some way off!

A clue about what to do can be found in UK health and safety Control of Substances Hazardous to Health Regulations (COSHH).

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"Control" can be delivered by a variety of means which, when used in concert, can establish and maintain a safe working environment. A combination of facility designs and layouts, closed processing operations, engineering controls such as ventilation and barrier containment around unit operations, definition and delivery of excellent working practices, personal protective equipment (PPE) and medical surveillance of workers all have a role to play.

With high hazard, high risk potential and a lack of traditional "tools" for monitoring and verifying that the workplace is safe, the PAPI and HPAPI workplace can be a highly uncertain environment, making investment complex. Contrast handling radioactive materials. High hazard is certainly present,

but the availability of reliable and robust monitoring, a government mandated safe limit and indeed individual worker monitoring makes it a certain and confident working environment. Furthermore, monitoring systems can be set to alert workers and mitigation can be taken early, all with a high degree of certainty. In the PAPI and HPAPI space there is no such level of certainty. Workplace monitoring in the form of equipment control (containment) performance testing and worker exposure testing is often extremely limited and in many cases, absent altogether. Occupational hygiene testing can and should provide some data which can be used in assessing workplace safety, but it must be recognised that the sort of certainty available elsewhere is just not possible.

PAPIs and HPAPIs are here to stay. Both product safety, for example in the form of cross-

contamination management, and worker potent drug occupational health and safety, can both be significant company liabilities. Effective management of them should be integrated into any biopharma project on a systematic and scientific basis, thereby protecting businesses and their shareholders.

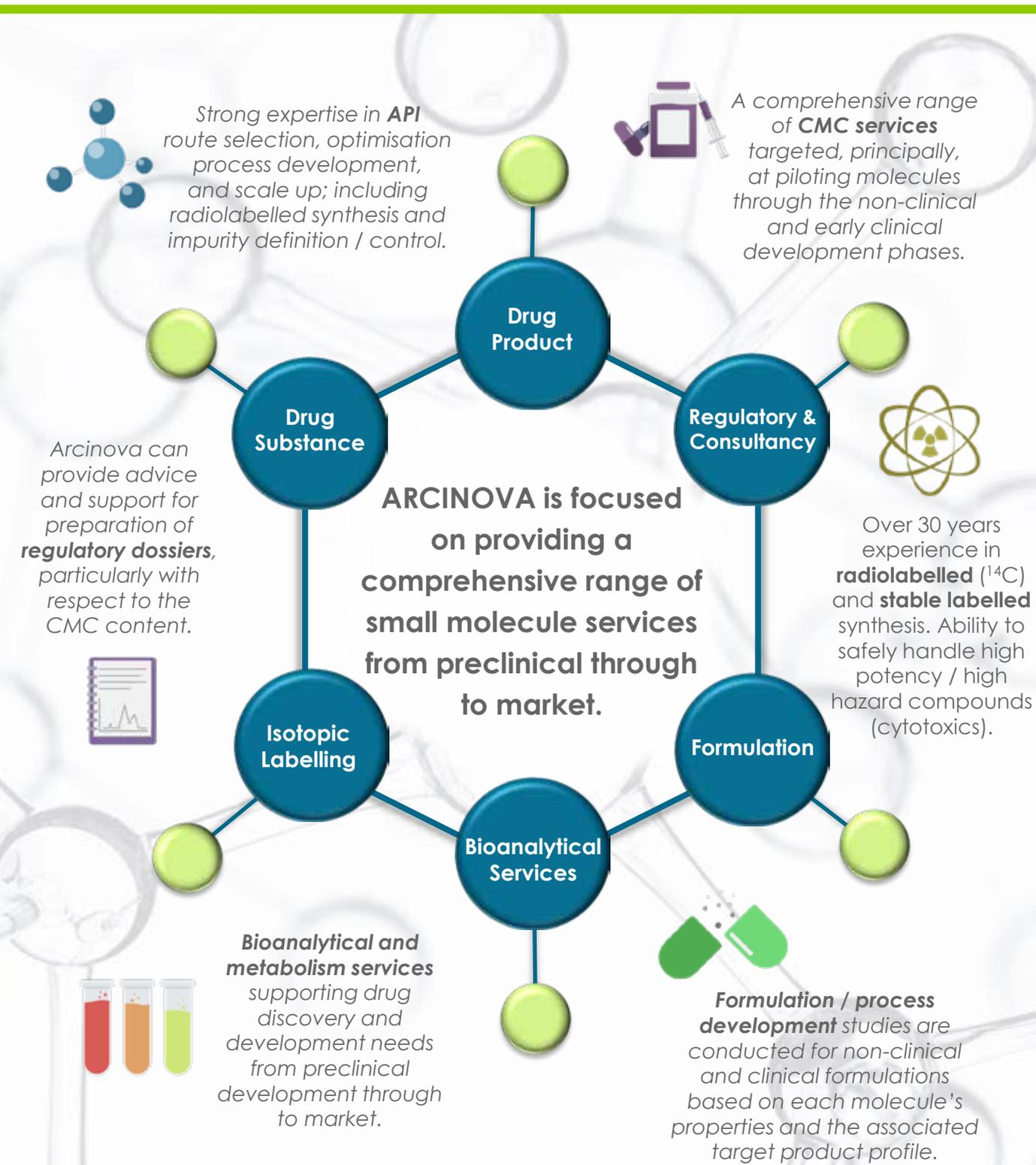
HPAPI Services Limited has over 15 years of highly potent API occupational health and safety and offers a high level and practically-focused resource to support biopharma companies design, develop and deliver potent and HPAPI chemical and pharmaceutical projects; from R&D, scale-up and formulation development, right through to full scale manufacturing. ■

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CYBER SECURITY

CHEMICAL-PROCESSING INDUSTRY RESPONDS TO INCREASING CYBER SECURITY THREAT

In the BBC's recent drama series, *McMafia*, a hacker accessed files and take control of Mumbai Port's IT network through a vending machine with poor security credentials. At first glance, this may appear implausible, but the threat to critical infrastructure is very real. As more devices are connected the ability to compromise a corporate network through an unpatched IoT connected device poses a real threat.

It is predicted that there will be 20.4 billion connected devices in existence by the end of 2020. It's evident that connected devices will continue to increase, posing many benefits, but also presenting growing security risk. As networks become more dynamic and continue to grow, it gets harder to identify and manage all the devices connected to them.

Unfortunately, critical infrastructure such as the Mumbai port shown in *McMafia* is particularly at risk. Some concerning examples of similar compromises include multiple water supply plants hacked between 2011 and 2016, and the US power grid that was infiltrated 17 times in just 2 years. But perhaps the most worrying of all

occurred in 2016 when a nuclear plant was hacked.

The 4th Industrial Revolution represents an extraordinary growth opportunity for manufacturing in general, however, by its very nature brings with it increased risk. A recent report highlighted that almost 50 per cent of manufacturers have fallen victim to cyber security, with a quarter suffering some financial loss or disruption.

Manufacturing is now the third most targeted sector for attack behind Government systems and finance. However, unlike the connected device examples above, much of this vulnerability arises from industrial systems installed on plants that have built up and been modified over several years and, in some cases, decades. Whilst there is no change to the data collected, collated and used, the data management systems differ, resulting in an integration challenge to produce real time, meaningful information whilst protecting the asset.

Industrial & Automation Control Systems cyber security trends

Looking beyond the headline-grabbing cyber security incidents

of recent years, threat intelligence gathered from the National Cyber Security Centre and global chemical companies, along with the insights and examples by the Health & Safety Executive (HSE), has exposed key Industrial & Automation Control Systems (IACS) cyber-security threats including Watering Hole; Triton, WannaCry, State-sponsored attacks and of course, human error.

A recent watering hole example occurred on a COMAH site following 'spear-phishing' email sent from a supplier's system and contained Malware that gave the attacker command and control of a corporate desktop PC. The attacker then spread laterally across the network, securing access and acquiring information and knowledge needed to penetrate deeper into the control system. In this instance, the attacker intercepted and modified MODBUS over TCP/IP communications between the tank farm PLC and DCS and overrode the safety instrumented system (SIS) that resulted in material being covertly pumped to overfill the jetty tank.

In 2017 a malicious cyber-attack was carried-out on a petrochemical plant in Saudi

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Arabia that resulted in the attackers gaining control over a safety system that was critical in defending against catastrophic events. Malicious software, dubbed Triton, allowed the hackers to manipulate the devices' memory and run unauthorised programs on the system by leveraging the previously unknown bug.

Another example in 2017, saw WannaCry hit the headlines when attackers held the NHS to ransom for its patient data, causing outrage and chaos in equal measure. The WannaCry cyber-attack had potentially serious implications for the NHS and its ability to provide care to patients. It was a relatively unsophisticated attack and could have been prevented had basic IT security best practice been followed.

In recent years allegations of state-sponsored cyber-attacks have occurred within the Middle East region with probably the Saudi Aramco attack being the most well-known. The Saudi Aramco cyber-attack was carried-out in 2012 using a virus known as Shamoon. The virus disrupted computers by overwriting the master boot record, making it impossible for them to start up.

While ransomware cyber-attacks continued to make the headlines, accidental breaches caused by employee error or network-breaches prompted by third party suppliers continue to be a major threat to the effectiveness of IACS cyber security within the chemical-processing industries.

One chemical-processing company - with sites across the

globe - came up against a major failure that would have impacted 80 servers and 200 database systems following an accidental incident that occurred as two of its plants were in the middle of a turnaround. An incident was raised with a vendor regarding unsupported hardware and while the vendor supplied replacement hardware, they also provided incorrect procedures for its installation. This in-turn caused a major hardware failure and data corruption and although a disaster recovery was implemented, this was further hindered with issues with backups. The complete loss of plant functionality was avoided in the main through effective communication and restoration for key systems taking place in order of importance.

Health and safety executive response

Two years ago, the HSE recognised that the number of malicious and accidental cyber security incidents was increasing rapidly, both in the UK and globally. The HSE's response was to draft and release new Operational Guidelines for IACS which would be followed up with on-site cyber security audits that came into force in 2018 in plants across the country.

The key objective of the HSE's IACS Operational Guidelines was to offer a baseline from which organisations could implement cyber security processes, standards and training to successfully manage the health and safety risks resulting from a cyber security incident.

However, while there is no doubt there is a real and present need for the new guidelines, and that some in the chemical processing



THE 4TH INDUSTRIAL
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BY ITS VERY NATURE BRINGS
WITH IT INCREASED RISKS

industry have responded positively to the HSE's actions, there is a number of significant challenges that lay ahead for the majority. The HSE plans to update its operational guidelines later this year following recent trials across a range of sites.

A collaborative approach

To tackle this challenge, NEPIC sat down with Wilton-based Tekgem earlier this year to discuss how best to educate those working within the chemical-processing industry and help them to address the issues associated with IACS cyber security. The answer, we both agreed was they needed to hear from the source.

In March, the HSE's leading cyber security inspectors visited Wilton to outline the cyber security threats and discuss the key points within the guidelines. The HSE, along with SABIC, Tekgem and Frazer Nash addressed an audience that ranged from Instrument & Control Engineers to IT/OT Support Technicians, Automation & DCS Managers to Engineering Directors and HSE managers, all of whom are currently working on chemical-processing plants.

The event was the start of an IACS cyber security journey for all parties and participating member companies made it clear that they saw real benefits and agreed that an open and collaborative approach was needed to effectively manage the ever-evolving threat of cyber-attack, whether malicious or accidental. In fact, the high levels of knowledge shown by those at the event is a great reflection on the

true professionalism that exists within the industry.

Aware of the high-profile ransomware cyber-attacks, guests also recognised the risks posed by accidental breaches caused by employee error or network-breaches prompted by third party suppliers and represent a major threat to the effectiveness of IACS cyber security within the chemical-processing industries.

However, a cultural change is required within all organisations going forward to ensure that, despite not witnessing the effects of a cyber-attack first hand, we fully understand the size, scale and scope of the potential risks and are prepared and accountable should an incident occur. The first question that needs to be answered is who is responsible? And if you're that person it is better to respond to your cyber security threats now, rather than think the unthinkable won't happen.

Help it at hand and the HSE have provided some simple steps to improve security of IACS systems and the guidelines provide more detailed support. Also, expertise is available from organisations like Tekgem with their 'Defence in Depth' strategy. ■

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ITS House, High Force Road, Riverside Park,
Middlesbrough, Teesside,
TS2 1RH
T: +44 (0)1642 222232

Darwin House – Suite D, 414 The Quadrant,
Birchwood Park, Warrington,
WA3 6FW
T: +44 (0)1925 818161

E: enquiries@its-ltd.co.uk

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To get involved contact Louise Wise at: Louise.wise@york.ac.uk



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