

The quarterly magazine from the Tank Storage Association Also in this issue, we look at the transition to Net Zero and the bulk storage and energy infrastructure sector's focus on supporting the needs of a constantly evolving supply chain.



Insight is published by the Tank Storage Association, the voice of the UK's bulk storage and energy infrastructure sector.

To contact the editorial team, please email info@ tankstorage.org.uk

TSA Insight Team

Peter Davidson, Barrie Salmon, Nunzia Florio

CONNECT WITH US





CONTACT

Tank Storage Association Devonshire Business Centre Works Road Letchworth Garden City Herts. SG6 1GJ United Kingdom

Telephone: 01462 488232 www.tankstorage.org.uk

TSA has used reasonable endevours to ensure that the information provided in this magazine is accurate and up to date. TSA disclaims all liability to the maximum extent permitted by law in relation to the magazine and does not give any warranties (including any statutory ones) in relation to its content. Any copying, redistribution or republication of the TSA magazine(s), or the content thereof, for commercial gain is strictly prohibited unless permission is sought in writing from TSA. Claims by advertisers within this magazine are not necessarily those endorsed by TSA. TSA acknowledges all trademarks and licensees.



Peter Davidson Executive Director, TSA

One of the most significant developments for the Tank Storage Association over the past few months has been the launch of the first sector-wide Energy Transition Charter. affirming the industry's commitment to supporting the achievement of the UK's climate neutrality targets. The Energy Transition Charter has been developed in conjunction with member organisations and is accompanied by strategic commitments encourage to leadership, innovation. skills development, promotion and engagement. In this issue of Insight, we examine the plans, innovations and incentives necessary to unlock future opportunities. We also highlight our sector's focus on supporting the needs of a constantly evolving supply chain. I hope you enjoy this new edition of Insight and don't forget to follow us on social media to keep up to date with all our latest news.

Contents



05 In Focus

Tank Storage Association launches new Energy Transition Charter.

06 Unlocking the roadmap for storage and transport of CO₂ and hydrogen

Key participant in UK's first Net Zero power station to collaborate with Navigator Terminals to unlock roadmap for storage and transport of CO, and hydrogen,

08 Mobile Degassing with ENDEGS – No Visible Flame. No Odor. No Smoke.

ENDEGS tells Insight about its mission to lower emissions and contribute to protect the wonderful world around us.



12 You may not know much about molasses but for ED&F Man it is big business

Molasses, the co-product from cane sugar production, is big business for ED&F Man.

14 Oil terminals in transition as Net Zero approaches

Campaigns, initiatives and much lobbying and political debate continue to gather pace regarding energy transition, decarbonisation and reductions in greenhouse emissions.

17 World leader in composite hose technology

Dantec is a world leader in composite hose technology, exporting products from its UK factory to over 60 countries worldwide.

18 Supporting the needs of the evolving supply chain

Innovation and agility are at the heart of the UM Terminals business strategy.

20 px Group is looking to the future: in conversation with Jay Brooks

Jay Brooks, Site Director Industrial Parks, discusses px Group's objectives and ambitions for the future.

24 Checkers Checking Checkers - Creating Continuous Competence Reynolds Training Services believe it is crucial to not only train people, embedding knowledge and developing skills, but to also assess their competency onsite as an ongoing process.

News:

The Tank Storage Association has launched a new Instagram account. Stay up-to-date with all our latest news by connecting with us @uk_tsa.

Online meetings and webinars

The COVID-19 pandemic has challenged our model of faceto-face meetings. To adapt and respond to the current situation, all of the following meetings will take place online.

- 7 December: TSA Technical Committee
- 8 December 2021: TSA Council
- 9 December 2021: TSA
 Communications Committee
- 16 December 2021: TSA SHE Committee

For more information on TSA's meetings, write to info@tankstorage. org.uk

TSA's Annual Review of the UK's Bulk Liquid Storage Sector is available at www.tankstorage. org.uk/publications



In focus

Tank Storage Association launches new Energy Transition Charter

The Tank Storage Association (TSA) has formally launched a new Energy Transition Charter affirming the sector's shared commitment to supporting the achievement of the UK's climate neutrality targets.

The Energy Transition Charter has been developed in conjunction with member organisations and accompanied by strategic is commitments to encourage skills leadership, innovation. development, promotion and engagement.

As the UK transitions to a decarbonised economy, the bulk liquid and energy infrastructure sector is uniquely positioned to lead on the innovations necessary to succeed and has a crucial role in developing the necessary flexibility to manage change.

Terminals are critically important in providing the vital interconnection to the various modes of liquid transportation in the UK, such as sea transport, inland barge, road, rail and cross-country pipelines, along with the essential logistics services to transfer bulk liquids from one mode of transportation to another. The industry plays an important role in providing services that are vital to the UK consumer and the blending and transformation of substances that meet the diverse needs of both industry and the public in a safe and cost-effective way.

infrastructure sector already has some insight into what a changing landscape might mean for its infrastructure and is already active in many of the areas of growth that will drive success going forward. Ultimately, along with significant investment in enabling infrastructure, collaboration and partnership will be key to seize opportunities and enable solutions for change.

Peter Davidson, Executive Director of the Tank Storage Association, said: "The TSA and its members are committed to leading from the front in the journey to net zero. With efforts already underway, the Energy Transition Charter highlights the sector's ambitions to seize future opportunities. By working with regulators and other stakeholders to ensure an effective transition to alternative energy sources, and by supporting the development of future skills, guidance and standards necessary to safely manage changing processes and inventories, our sector is committed to playing its full part in the transformative journey ahead."

For a copy of the Tank storage Association's Energy Transition Charter, visit www.tankstorage.org. uk/publications/

The bulk storage and energy

UNLOCKING THE ROADMAP FOR STORAGE AND TRANSPORT OF CO2 AND HYDROGEN

Key participant in UK's first Net Zero power station to collaborate with Navigator Terminals to unlock roadmap for storage and transport of CO2 and hydrogen.



avigator Terminals is the UK's leading independent bulk liquid storage provider. It operates four terminals, each strategically located in major UK ports and serving key demand centres within the UK. Across these Navigator offers locations. its customers unique storage solutions for crude, petroleum, chemical, bitumen, liquefied gas and biofuel products. With extensive knowledge and experience in handling such a wide range of specialist products, Navigator is uniquely positioned to meet the demands of an everchanging market.

With global attention turning towards more ambitious targets to accelerate the transformative journey to clean shipping, consideration must also focus on the ways in which the maritime sector can contribute towards a low carbon transition.

And it is in this context that Navigator Terminals has recently announced a memorandum of understanding (MOU) with 8 Rivers Capital LLC's subsidiary, Zero Degrees Whitetail 1 Ltd, to explore a potential collaboration across the storage and transport of chemicals, gases and liquids in the UK, including CO₂, hydrogen, and ammonia by ship.

8 Rivers Capital, a leading clean energy and clean fuels technology developer acting through its UK group, is poised to play a key role in bringing forward the UK's first carbon capture projects, including the Whitetail Clean Energy Net Zero power station in Teesside, as well as deployments of 8RH2, the 8 Rivers technology which produces clean hydrogen and ammonia with full carbon capture.

Under the terms of the agreement, the project team will explore the potential for Navigator Terminal's existing and potential future network of storage assets across the UK to accommodate the growing demand for transport and storage of CO₂, hydrogen, and ammonia as part of the wider growth of geological sequestration of carbon emissions. With outstanding supporting infrastructure, including a deep-water jetty and rail handling facilities, the Navigator Terminals' facility at Teesside is fully integrated into the UK's largest chemical cluster and can rapidly scale to support deep decarbonisation of these carbon intensive industries.

With CCS progressing through its early stages of development, there is a growing demand for permanent geological storage for CO₂ from emitters not co-located near to a

suitable storage site. 8 Rivers is leading the development of the initial net zero emissions power stations in the UK, such as Whitetail Clean Energy. In these projects, nearly all air emissions, including traditional pollutants and CO_2 are eliminated and pipeline-quality CO_2 is produced so that it can be captured and stored offshore. Produced hydrogen or CO_2 or ammonia can then be transferred to a Navigator Terminals' location before onward transfer by ship or pipeline to its destination, such as one of the UK carbon storage sites.

Jason Hornsby, Chief Executive Officer for Navigator Terminals, said of the partnership: "We are the UK's leading transport, storage and handling experts for chemicals, gas, biofuels, and fuels and operate a network of strategically located terminals. We are focused on supporting our regions to decarbonise and utilise the highest quality fuels and energy carriers, as part of supporting the UK to reach Net Zero we are adapting to the changing needs of our local industries. We recognise that in the coming decades there will be significant volumes of CO₂ to be shipped for storage and this partnership with 8 Rivers forms the first step in understanding and then deploying the infrastructure needed to help the North East meet its decarbonisation goals, creating significant jobs and supply chain benefits in the process."

Cam Hosie, Chief Executive of 8 Rivers Capital, added of the project: "This partnership signals the latest step in our commitment to support the UK to develop world leading carbon capture capabilities through commercialising innovative power generation projects such as Whitetail Clean Energy, as well as innovative hydrogen technologies, ensuring that near all air emissions are eliminated and pipeline-quality CO, is produced so that it can be captured and stored offshore, for Net Zero emissions. But once the CO₂ is captured, we need to explore, understand, and deliver infrastructure to support these assets to successfully transfer, transport and store CO, for transport to permanent storage locations. Navigator Terminals is a leading UK terminal operator and has recognised the significant potential of CO₂, hydrogen, and ammonia transport in the coming decades."

Navigator Terminals fully supports the recently launched TSA Energy Transition Charter and this partnership is testament to its commitment to work with all relevant stakeholders throughout the supply chain to ensure an effective transition to alternative energy sources.

For more information about Navigator Terminals, visit www. navigatorterminals.com

For more information about 8 Rivers Capital, visit www.8Rivers.com



MOBILE DEGASSING WITH ENDEGS – NO VISIBLE FLAME. NO ODOR. NO SMOKE.

Our mission: lower emissions. We want to contribute to protect the world around us and our technologies give the industry a way to noticeably reduce emissions.

Kai Sievers, CEO, ENDEGS Group



that subjects have preoccupied governments, business and the press year after year - emissions reduction. What for some people is a desirable but perhaps abstract goal, has dominated my life for over a decade. In 2007, I founded ENDEGS and developed the technology for the world's first mobile degassing system. I was spurred on by the new German Clean Air Act, and by my son. When he was little, I taught him how to swim in local ponds without a second thought. The water quality was good, so even if he swallowed a mouthful, it was safe. That brought home to me how important good water is for quality of life, and it prompted me to wonder if the same might apply to air. Isn't good air equally important? And if that is the case, why can we smell refineries before we see them? Can't we do something about that?

t's one of those

Mobile degassing: We make smart and safe combustion possible

Yes – and ENDEGS is part of it. So, our mission is, to see that fewer hazardous emissions get into the air. We want to

contribute to protect the wonderful world around us. Our technologies give the industry a way to noticeably reduce emissions.

In 2007, I therefore asked myself as an engineer how it might be possible to design a mobile device for degassing VOC and HAP (Hazardous Air Pollutants) of storage tanks, tanker ships and pipes during maintenance or in case of non-functioning of existing infrastructure, including where this was not possible at the time. It seemed to be absurd to simply accept that gases and vapours had to be released to the atmosphere, thousands of tons of them a year. for lack of a suitable solution. In 2008, we developed the world's first trailer-mounted, autonomous, fully equipped combustion chamber for burning off hazardous gases. Since then, our leading-edge and patented technologies have enabled the on-site combustion of hazardous, explosive and/or toxic gas mixtures, safely and very nearly completely. Our systems reduce emissions by over 99,99 percent. Thus, we make a substantial contribution to reducing emissions in Europe, North Africa and soon in Asia.

Critical special cases

When stationary emissions-reduction systems fail, too often vapours are simply vented into the air until the system has been repaired. This releases large amounts of toxic materials – tonnes each day – into the environment, poisoning the air for people and nature. Yet it would be so simple to avoid this. We have a solution that can reduce almost to zero the amount of waste released.

Innovation: Once you start it's hard to stop

With any invention, you keep seeing ways to improve it. So, we soon developed and patented a process that takes care of other pollutant streams (for example from a vacuum truck or temporary storage tanks) during tank degassing. Shortly thereafter followed a patent that reduces the consumption of operating resources and extends the scope of applications. In 2010 we were the first company in the world to start burning off ammonia with excellent measured results. Today we're in demand worldwide for degassing ammonia tanks. Further development work to the combustion chamber allows us to degas substances that tend to polymerize, without smoke or flame and without polymerization, giving us another unique capability. We've developed solutions that allow the use of heating oil instead of gas for auxiliary firing, which enables degassing at sites where liquid gas is unavailable. We also developed and certified systems for explosion group IIC products (like hydrogen), so now we're the only provider of safe degassing for all hazardous substances of explosive classes - IIA, IIB, IIC. One of the things we've done recently was build another 10 MW mobile degassing system this year. Now degassing can be done plug

Purpose-developed Mobile Combustion Units





For more information, visit www.endegs.com

Example of ENDEGS emissions reduction with a substitute VRU unit – mobile, autonomous, safe

Examples of incinerated organic materials in our projects*

PRODUCT	QUANTITIES BURNED	
Raw oil tank, 54 m diameter	15 tonnes	
Petrol tank, 2000 m ³ volume	0.8 tonnes	
Slop tank, 100,000 m3 volume	80 tonnes	
Ship degassing (seagoing tanker)	72 tonnes	

and play with just one trailer in places formerly needing 2 x 5 MW or 4 x 2.5 MW units. This saves transportation costs and setup time. It doesn't take up much space. The system is ideal for applications involving high throughput and high concentrations, such as occur with raw gases with high energy density. ENDEGS also has a 20 MW unit available.

Remote-controlled Robot for rent - Safe work inside tanks on a next level

Motivated by the desire to minimize the health risk to cleaning workers, in 2020 we took a completely new step. We've added another pioneering technology to our lineup: Powerful robots, for the remotecontrolled cleaning of storage tanks and pits in the chemical, petrochemical, automotive, food and other industries. Customers can rent them to replace people where health risks are acute. What makes this important is that where previously people had to do the work at great risk, under rigorous safety precautions and wearing

gas masks and hazmat suits, now a robot does it – remote-controlled by an operator.

This ADEX Robot is designed primarily for the rough cleaning of flat-bottom tanks. These were formerly cleaned by three workers in chemical resistant suits in several shifts. Our robot is a compact, tough multi-talent of stainless steel that meets all current environmental and safety standards. It features maximum traction on the floor through patented magnetic track plates, and has a strong hydraulically operated arm that can grip in any direction with 2,000 Newton meters of force. It's a safe. efficient and cost-effective way to remove 24/7 hazardous and nonhazardous materials from industrial tanks.

When can we drive up to your place?

Contact point: David Wendel, Managing Director: info@endegs.com Tel: +49 (0) 162 24 33 486

For more information, visit www. endegs.com

ENDEGS Remote-controlled Robot – Maximum grip on the floor; cleaning with hydraulic grab arm







News

UM Terminals team helps to raise over £32,000 for the British Heart Foundation in Dragon Boat Spectacular

A team from UM Terminals helped to raise over £32.000 for the British Heart Foundation by taking part in a Dragon Boat Spectacular. Six members Liverpool-headquartered of the bulk liquid storage company, along with colleagues from the wider United Molasses Group, formed two crews of 12 for the event in Belfast. The UM boats competed against representatives from other divisions of holding company W&R Barnett to celebrate the business's 125th anniversary. In total, 10 boats took part. The event was held at Bryson Lagan Sports in Belfast, followed by a celebratory dinner.

The UM Terminals team members were Managing Director Bryan Davies, Commercial Director Vic Brodrick and colleagues Ben Maynard, Karl Pass, Lewis Chambers and Sophie Ryan. So far, the UM team – supported by match funding by W&R Barnett - has raised £32,950. In total, over £221,000 will be donated to the full range of charities nominated by the various crews taking part. Bryan Davies said: *"It was wonderful to be involved in such a spectacularly successful fundraising initiative. I am* incredibly grateful to my colleagues from UM Terminals and the wider UM Group who got involved and, of course, to W&R Barnett for such a generous match funding initiative. The British Heart Foundation is a charity particularly close to our hearts as the father of our colleague, Simon Markham, died from heart disease. The substantial amount of money that we have raised will truly make a difference to the ongoing outstanding work that the charity is able to do."

The full crews for the two UM Dragon Boats were:

Boat 1 – Ben Macer, Jill Pask, Sarah Cripps, Andrew Creasey, Simon Markham, Adam Pierce, Sophie Ryan, Agnieszka Sriskanthan-Reksa, Robbie Flynn, Niall O'Donnell, John Weglarz and Philip Irvine.

Boat 2 – Fionn Beech, Vic Brodrick, Geraldine Carroll, Isabel Conde, Nigel Jones, James Ramsden, Karl Pass, Ben Maynard, Bastian Duesing, Lewis Chambers and Bryan Davies.

For more information, visit www. umterminals.co.uk

YOU MAY NOT KNOW MUCH ABOUT MOLASSES BUT FOR ED&F MAN IT IS BIG BUSINESS.

Molasses, the coproduct from cane sugar production, is big business for ED&F Man.



he company has been involved with sugar-rich molasses since 1783 and now operates from deep water terminals across the UK, supplying molasses and added-value molasses blends to feed manufacturers, farmers and a range of industrial customers.

They are now also a premier provider of bulk liquid storage for the animal feed, food and chemical sectors according to Managing Director, Dr. Phil Holder. "Although a niche supplier in total storage terms, we are intimately involved in the supply of food and feed grade liquids which brings its own challenges."

"We provide receipt, storage, handling, blending and onwards distribution nationwide working closely with customers to deliver high quality tailored solutions. In addition to molasses, we handle vegetable oils, fish oils, fats and distiller syrups for animal feed and food use as well as liquid fertilisers, lube oils and specialist liquids supplying the fermentation, briquetting, chemical processing and transport industries." ED&F Man operates from sites across the country, close to the key markets and import routes. The terminal at Liverpool is ideally suited for connections with the -major molasses producing countries in North and South America and is the biggest facility with a capacity of nearly 27.000 cubic metres. It is also the location of the companies Head Office.

Serving the major ports in Europe, the Hull terminal has tank capacity approaching 26,650 cubic metres while the Grangemouth terminal is one of only a few facilities in Scotland serving the third party bulk storage market focusing on natural liquid products and low hazard chemicals markets in Scotland with a capacity approximately 20,000 cubic metres.

"Storage is just the start of our service offering as we have the capacity to develop bespoke blended products with facilities for batch and in-line blending as well as heating and dispatch quantities from 1000 litre IBCs to full trucks. This allows us to develop balanced feeds for use direct on farm as well as a range of liquid products for use in feed manufacture."

"We are seeing increased focus on sustainability and net carbon reductions across all sectors with livestock production systems particularly under the microscope, and the flexibility of molasses-based blends in seen as a big plus, "Dr. Holder continues. "Being a co-product, molasses is a low carbon product and we are seeing increased interest in other application areas. Across our business we are working hard to improve sustainability and reduce our carbon footprint. All our electricity is from renewable sources and we have installed new high efficiency boilers and improved heat insulation to reduce our energy usage.

Working in the feed and food chains means we are committed to providing a high quality service from all our terminals, working to high levels of environmental and quality accreditation including FEMAS/UFAS and ISO 9001. We are also certified for organic product storage."

About ED&F Man

ED&F Man source, store, sell, ship and distribute agricultural products including coffee, sugar, molasses, animal feed and pulses. ED&F Man trade those products around the world, and with some, process and brand them for industrial customers and the supermarket shelves.

For more information, visit https://edfmanliquidproductsuk.com/

Author

Dr. Phil Holder, Managing Director, ED&F Man.

Storage is just the start of our service offering as we have the capacity to develop bespoke blended products with facilities for batch and in-line blending as well as heating and dispatch quantities from 1000 litre IBCs to full trucks.





For more information, visit www.edfmanliquidproductsuk.com



13

OIL TERMINALS IN TRANSITION AS NET ZERO APPROACHES

Campaigns, initiatives and much lobbying and political debate continue to gather pace regarding energy transition, decarbonisation and reductions in greenhouse emissions.



ampaigns, initiatives and much lobbying and political debate continue to gather pace regarding energy transition, decarbonisation and reductions in greenhouse emissions. This is here to stay and oil storage terminals have to actively consider their future strategy as the decline in fossil fuels accelerates in the coming years. system, i.e., its ability to detect liquid product and stop product flow.

Governments have set and are setting increasingly stringent targets for the reduction in greenhouse emissions and have made some industry changing statements. For example, the UK Government has stated that no new gasoline / diesel only cars can be produced after 2030. Many car manufacturers have already stated that electrification is the future; Jaguar Land Rover, Volvo Cars and others have announced that they will only produce electric vehicles from 2025 for JLR and others on dates in the near future. This will have a dramatic effect on oil terminals whose main, perhaps sole purpose, is to receive, store and redeliver ground fuels to filling stations. For example, some terminals in the South East of England are distributing as much as 10,000 tonnes each day of gasoline and diesel; electrification of cars and vans will lead to very significant reductions in the demand for these fuels and therefore for the tanks they are stored in at oil terminals.

Then there is shipping, which is considered to be a major polluter. Eighty per cent of global cargo is carried by ships, the majority of which are running on fossil fuels stored at oil terminals around the world and if shipping was to be considered a 'Country' it would be the world's sixth largest emitter. As a method of transportation though, ships emit less than 5% of the CO, than a truck does, on a tonne-km basis. Alternative low carbon fuels seems to be attracting considerable interest in the shipping community. For example Maersk, one the world's largest shipping companies, along with a consortium including DFDS, Copenhagen Airports, the airline SAS, Logistics Company DSV Panalpina, and Orsted, is throwing its considerable weight behind methanol. E-methanol would still emit CO, on a tank-to-wake basis, although it avoids sulphur and particulate matter. Crucially, it is liquid at room temperature, no more toxic than diesel and easier to store and handle than ammonia or hydrogen. Manufactured by combining wind energy and energy from carbon capture (CCS) from shoreside fossilfuel powerplants, it would allow



Maersk to run its vessels in a carbonneutral – if not carbon-free – way, exceeding IMO targets. "Our ambition to have a carbon-neutral fleet by 2050 was a 'moon-shot' when we announced it in 2018," said Søren Skou, CEO, A.P. Moller-Maersk, in February. "Today we see it as a challenging yet achievable target".

Ammonia, meanwhile, need only be cooled to -30°C, making it more practical than hydrogen or LNG in terms of storage. Wärtsilä is developing engines for operating on ammonia, as well as a possible retrofit package for existing engines which would allow them to burn it.

Other fuels, e.g. hydrogen, LNG and bioLNG are all actively being considered and used increasingly as an alternative to conventional fossil fuels. For example P&O's new cruise liner, the Iona is using LNG as its main fuel and other ships in the P&O fleet have been modified to run on a range of fuels including LNG.

a transition/replacement fuel is the low emission alternative to diesel, HVO or hydrotreated vegetable oil. This is already being widely used in trucks and in marine diesel engines and can reduce greenhouse emissions by as much as 90%. This is an example of a breakthrough product in the search for clean renewable fuels. It is produced by hydrotreatment of vegetable oils and/or animal fats, and the result is a premium quality fuel with a chemical structure almost identical to regular diesel and can therefore fully replace fossil diesel. It can also be used in conventional diesel engines with no modifications. The UK Government, seeking to be completely diesel free by 2030, could therefore meet this target by expanding the use of HVO, rather than purely relying upon electrification of cars. However, the availability of such fuels is limited in the context of global fuels demand.

So, the tank storage industry must adapt and invest for the future and seek out new storage contracts for the storage of emerging and alternative

Another product gaining popularity as





fuels and embrace innovation. adapting the terminals infrastructure to maximise flexibility. The terminal's management teams should ensure they are at the forefront of obtaining any required licenses, permissions and consents required for the storage of alternative fuels and equally ensure that employees are trained and competent and prepared for the handling of new and different products. Moving from the traditional oil storage terminal model, where there may be a limited number of different products and little in the way of product, to a multi-product, frequent product change terminal, requires a different strategy and operating plan. The terminal infrastructure also needs to be adapted to embrace the required flexibility to cope with multiple products, with simultaneous tank, rail, pipeline and truck operations. This typically means new capex investments in additional pipelines and pumps, along with automated control and monitoring systems so that individual tanks can be filled and emptied with a wider variety of liquid products. It is quite possible that energy transition may lead to a surplus of tanks and terminals, so 'survival of the fittest' will also likely be a major consideration to CEO's considering their strategic plan over the next decade and beyond.

What are the changes in demand that are likely to affect terminal capacity? The IEA forecast on the left hand side puts this into perspective. The biggest reduction in demand is likely to come from OECD countries and it will take longer for the lesser developed world to catch up.

The principal shift out of hydrocarbons will be towards electricity. The development of wind and solar is gathering pace and costs have been reduced dramatically from the earlier forecasts. The key determinant of the speed of change will be the price placed on carbon emissions. A simplistic analogy is the price we pay for clearing our garbage should be reflected in the price of clearing the atmospheric garbage of carbon oxides. At present the price for emitting carbon is anywhere between \$25 and \$55 per tonne of carbon. This is too low to pay for the investment needed for carbon reduction unless a subsidy is paid to corporate investors. Given that the electricity produced by wind and solar is intermittent, one of the major drives in R & D is how to store power effectively without creating massive demands on resources, such as mining for lithium and cobalt. The lithium-ion battery will perform a storage function in the near term but it is an unsustainable model long term.

A better method needs to be found and suggestions are currently working towards ammonia or hydrogen as a store of electricity. Both of these, if they prove effective could be outlets for storage installations. The advantage that storage terminals have, be they coastal or inland, is that they are typically permitted to store toxic materials and it should be relatively easy to extend these permits to ammonia and other cooled liquids. There are already in construction turbines based on stored liquid air. These plants can generate up to 50 MW of electricity and sustain it for a sufficient number of hours to act as 'batteries' for the grid. We foresee that these plants could be built on storage terminals in place of tanks so long as there is a relatively easy connection to the grid. The majority of terminals have grid connections.

Returning to the carbon price issue. We see this as the critical driver of all systems for decarbonising the atmosphere and we fervently hope that COP26 comes up with a global pricing system that gives a financial incentive to all the above mitigating methods. As we argue above, terminals need to get their planning process underway soon if they are to survive and we recommend that a net-zero-planning system be put in place to examine and explore the options so that funding can be gained from the major banks and financial institutions that currently are reluctant to finance anything that does not meet their ESG criteria.

Amongst the possible solutions we also list LPG, particularly in countries where cooking is done on charcoal (a tree destroying fuel). The one outlet from hydrocarbons is almost certain to be the chemical industry. Chemical storage requires different handling criteria and these need to be explored.

As political changes occur it is going to take a regular monitoring of developments if terminals are not to be left behind.

Authors

Martyn Lyons and Charles Daly

Charles Daly is Chairman and founder of Channoil Energy and has a wealth of experience in the downstream oil industry through many years in the industry.

Martyn Lyons has 33 years' experience in the tank storage industry and is a highly experienced Chairman, CEO, Main Board Level Executive and Non-Executive Director.

Channoil Energy is a specialist consultant in the energy field and net zero solutions.

For more information, visit www. channoil.com

News

Dantec is a world leader in composite hose technology

Dantec is a world leader in composite hose technology, exporting products from its UK factory to over 60 countries worldwide. The company is committed to innovation, minimizing environmental damage and above all else, safety and efficiency.

Dantec's history

Starting out as a gasket cutting business in 1969, Dantec has served the requirements of the largest petrochemical complex in the UK, at Ellesmere Port - 10 miles from the Dantec original site. This eventually led to diversification into other industrial products, including hoses.

An ever-increasing demand from existing customers, for a reliable supplier composite hose, led to Dantec commencing manufacture. Continuous innovation and development have placed Dantec as the world leader in composite hose technology. To produce the best quality and comprehensive range of composite hose, the company manufactures hoses from the highest specification materials to the most stringent procedures in its purpose build factory in the North of England.

Today's portfolio

Product hoses form an integral part of transfer operations. The choice of hose must be based on assessments that cover appropriate use, safety and operational efficiency. Due to the uniquely stronger materials in Dantec hoses, the company can manufacture with less layers of material, making the hose lighter and more flexible than other alternatives. The stronger materials also provide a higher safety factor/burst pressure.

Each Dantec product meets all major national and international standards, including:

- IMO, IBC and IGC codes
- Requirement of the United States
 coastguard (for Marine hoses)
- Type approvals from all major bodies including DNV GL, Lloyds Approval and the Korean Register
- ISO9001:2018

Dantec was actually the first composite hose manufacturer to achieve ISOg000 status and has been registered with the British standards institute since 1988.

Products for petrochemicals and oil

Within the brand's portfolio are composite hoses created specifically for the transfer of general chemicals as well as Oil, Hydrocarbons and Biofuels, amongst others. For example, The Dantec Danoil 9 range is a polyamide (nylon) lined hose used for products with high aromatic content and biofuels. The inner helix is available in 316 stainless steel, galvanised steel and aluminium, with the outer wire available in 316 stainless steel and galvanised steel.

To learn more about Dantec and its composite hoses, please visit www. dantec.com

SUPPORTING THE NEEDS OF THE EVOLVING SUPPLY CHAIN

Innovation and agility are at the heart of the UM Terminals business strategy.



Bryan Davies. Managing Director, UM Terminals



nnovation and agility are at the heart of the UM Terminals business strategy. They are vital if the company is to support and serve the needs of its customers in the face of an everevolving supply chain. This was the theme Bryan Davies, UM Terminals' Managing Director, addressed in a talk at the recent European Bulk Liquid Storage Summit in Cartagena.

UM Terminals deliberately maintains a broad portfolio of around 40 products that it stores including vegetable oils, industrial, food and feed, chemical, fertiliser, fuels, biofuels and base oils. It achieves this operating out of 8 terminals, strategically located across the UK, with a current capacity of over 300,000 cubic metres of bulk liquid storage, but with an ambition to increase this to around 400,000 cubic metres.

This more rounded portfolio means that the business is able to adapt quickly if demand is higher or lower in a particular sector and also plan strategically for the expected increasing demand to store products,

such as green hydrogen, that will play an important part in the UK Government's Road to Zero strategy. Bryan said: "While there is an irreversible move towards reducing the world's dependency on fossil fuels, there remains uncertainty about future product requirements, although there are lots of conversations at the moment about green energy and the role it will play. This uncertainty means that companies like ours need to be agile and ready to meet the needs of our customers to store new. more sustainable fuels. We have a track record of adapting and updating the services we are able to provide and this is no different as we move towards products that offer greater sustainability. Once a customer has a product they wish to take to market, it is our job to be ready to support them. While our business is diverse in the range of products we store for our customers, we keep a close watch on market trends so that we are positioned to be a leader in the field of green energy bulk liquid storage."

Bryan said that companies were also looking at various ways to improve their carbon footprint, including strategically storing closer to their end customer. He said: "Supply chains are looking a lot more closely at their last mile delivery, reducing road miles and storing nearer to their customers. It makes sense commercially, operationally and environmentally."

Just over a year ago, UM Terminals launched a strategic growth plan,

consisting of three core pillars. The first concerns maximising its existing UK capability both in terms of current assets and, where appropriate, expanding existing terminals. The second pillar involves optimising the assets of the wider UM Group and its network of facilities in Europe and other parts of the world storing molasses but which could be used to store other products. The third pillar concerns looking for appropriate acquisition targets that would complement the current UM Terminals offer.

Bryan said: "We are already seeing the results of the growth plan we put in place, but the plan is ultimately driven by the way we approach new and existing customer relationships. We don't just talk about being agile and innovative – it is part of the UM Terminals DNA. This extends to investing to meet customer needs if the business case justifies it. This could be part of the continual investment to ensure our existing facilities are bestin-class or investing to meet a new storage requirement. Ultimately, we are investing in long-term customer relationships."

A recent example of responding directly to a customer's request was UM Terminals becoming Halal and Kosher certified at its Regent Road terminal in Liverpool. Led by Jo Winning, UM Terminals' Quality Planning & Performance Manager, the company has also successfully completed the accreditation process for FSSC 22000, the certification scheme for Food Safety Management Systems, for Regent Road and its Gladstone Dock sites. Ensuring the best possible customer service was also integral to the development of the Client Central Services team, providing customers with a wealth of important information including realtime data to make critical business decisions.

Based out of Regent Road and headed by Client Central Services Manager Lynn McCoy, the service integrates all weighbridge and administration from across UM's 8 terminals. A dedicated portal gives clients instant access to essential weighbridge documentation and current stock levels for each tank. They also have a secure log-in and can access their data 24/7, 365 days a year via a desktop, tablet or mobile device. UM Terminals is part of the United Molasses Group, led by CEO Ben Macer, whose history dates back almost 100 years.

UM's founder, Michael Kroyer-Keilberg, was involved in bulk liquid storage even earlier than this – he constructed his first tank for the storage of bulk molasses in 1911 at Victoria Dock in Hull. The Group's other services include the international trading of molasses, the sales and distribution of molasses and the procurement and marketing of vegetable oils for use in the animal feed industry.

For more information, visit www. umterminals.co.uk



PX GROUP IS LOOKING TO THE FUTURE: IN CONVERSATION WITH JAY BROOKS

Jay Brooks, Site Director Industrial Parks, discusses px Group's objectives and ambitions for the future.

Jay Brooks, Site Director Industrial Parks, px Group



x Group is an awardwinning, fully integrated infrastructure solutions business deliverina innovative management services for high hazard and highly regulated environments. px Group manages, operates, and maintains some of the UK's largest industrial facilities, and owns the world-renowned Saltend Chemicals Park at the heart of the UK's Energy Estuary.

px Group has been recently named as one of Britain's fastest-growing companies. What are px Group's objectives and ambitions for the future?

We've been growing steadily for a few years now, and that's down to several factors, one of which is our reputation for efficiently, reliably, and safely operating critical UK national infrastructure. This reputation is borne out year after year. Another factor is creating and maintaining honest and transparent relationships with our clients, which has allowed us to develop long-standing partnerships – we've been operating some assets on behalf of clients for decades!

What we take the most pride in, though, is the emphasis on treating our people properly. px Group's people-first mantra is implemented from the very top of the company, and it's this approach that has allowed us to attract, trust and retain some brilliant people. So, when the pandemic hit, we didn't have to make wide-reaching changes to the way we operate – we knew everyone could get on with the essential job we do!

It has undoubtedly been a transformational year for px Group. Earlier in 2021, we were acquired by Aksiom Services Group, a partnership between US-based Ara Partners and the Aksiom Group. We've been taking stock since then, but we haven't stood still – we're looking at new projects and new markets all the time.

One of the things we're concentrating on is renewable energy and impacting the energy transition. We own the Saltend Chemicals Park, which is central to the Zero Carbon Humber (ZCH) and East Coast Cluster (ECC) decarbonisation plans recently awarded Track One funding by the UK Government to accelerate emissions reductions in the UK. We see Hydrogen (also a crucial part of ZCH ECC) and renewable wind energy as potential major growth areas for us in the coming years.

What is your outlook on the global bulk liquid storage market? In the



context of the energy transition, how can the bulk storage and energy infrastructure sector ensure that the opportunities of tomorrow can be seized?

There is an increasing demand for storage capacity. To meet this demand, the industry and governments should work closely to minimise any barriers to this growth.

Looking ahead, we may start to see a shift away from the storage of traditional hydrocarbon-based fuels to other liquid energy sources. This will result in a broader range of substances being stored, providing the essential components for future blended fuels. In addition, there is likely to be a focus on the storage and distribution of hydrogen in the longer term, with recent reports estimating that this could meet 24% of energy world demand by 2050.

The UK's bulk liquid storage sector supports growth and prosperity by moving, storing, and blending many modern products, feeds, and chemicals integral to our daily lives.

However, the transition will be crucial. Reducing emissions will require partnership, significant investment, and well-coordinated efforts by all parties involved, including businesses, supply chains, consumers, and other stakeholders. As essential partners in the energy transition, we are committed to the innovation and evolution necessary to succeed. px Group has achieved a flurry of awards in the internationally renowned Royal Society for the Prevention of Accidents (RoSPA) Health and Safety Awards for its Health & Safety performance.

It is, of course, a cliché for any company involved in energy to say that safety is their number one priority – we understand that! However, you must prove it repeatedly. Our experience and knowledge of operating Top Tier COMAH sites are applied to every other asset we operate in the UK.

We are naturally delighted that RoSPA has consistently recognised our efforts with several awards over the years. This year, for example, we received a Patron's Award for our health and safety efforts at Teesside Gas Processing Plant – which goes to those that have implemented and overseen very high levels of health and safety management for 25 years consecutively.

I think health and safety performance and implementation are about culture and encouraging people on-site to take ownership and responsibility of their operations and remits – no matter how big or small.

One of the things we benefit from at px Group is that, across all our operations, we're dynamic enough to identify and fix any issues quickly, which can sometimes take larger organisations longer to do. That's, of course, not to say that we don't have strict quality controls and processes, but we're able to identify and speak to the right people at the drop of a hat if something needs seeing to.

Good health and safety can sometimes be taken as a given – and of course, in our industry, it really should be – but it's always worth doing something that little bit different to keep everyone on their toes! So, for me, I'll adjust our meeting agendas to kick off with a health and safety update, which serves as a useful reminder to everyone that safety takes precedence over everything else.

px Group is an integral part of the H2H Saltend project, part of the Zero Carbon Humber partnership, which is building a world-leading clean hydrogen plant with Carbon Capture and Storage (CCS). Tell us more about this project.

We are incredibly excited about the Zero Carbon Humber (ZCH) development, which is part of the wider East Coast Cluster decarbonisation efforts. ZCH will be anchored by H2H Saltend, which will see a large-scale clean hydrogen plant developed and constructed at Saltend Chemicals Park. The plant will produce hydrogen from natural gas, with the emissions generated from that process captured, and then transported for storage (more generally known as Capture and Storage, or CCS) in the North Sea, resulting in a significant reduction in harmful emissions released back into the atmosphere.

21



The Humber, and the Northeast more generally, has been a hub for energy for so long – we're really delighted that the region will continue to play a huge role in the next phase of energy in this country.

px Group is an integral part of the H2H Saltend project, part of the Zero Carbon Humber partnership. All the partners on site at Saltend will be able to switch to hydrogenfuelled energy, and emissions going into Saltend's gas-fired plant will be reduced dramatically. Ultimately, we'll be cutting emissions by 900,000 tonnes of CO, per year. The Humber and the Northeast more generally has been a hub for energy for so long - we're really delighted that the region will continue to play a huge role in the next phase of energy in this country. The ZCH developments bring in some huge names in the industry that are all working together – and it's only by working together on a scale such as this can the country reach Net Zero and really have an impact on climate change.

We were thrilled to hear in late October that the ECC was award Track One funding from the UK Government, which will allow all involved to power ahead and now make good on plans to decarbonise the Northeast. It's a truly interesting time to be involved in energy and industry in the UK, and we encourage everyone to learn about the efforts to cut emissions - not just through ZCH developments (HyNet, another intriguing project, in the Northwest was also awarded Track One funding) - through all the other research and innovation that is taking place right across the country.

For more information, visit www. pxlimited.com



Tank Storage Conference & Exhibition 2022

Presented by TSA

The UK's leading event for the bulk liquid storage sector

22 September 2022 Coventry Building Society Arena, Coventry, UK

Discover the event > www.tankstorage.org.uk/conference-exhibition

Tank Storage Association - The Voice of the Bulk Storage and Energy Infrastructure Sector

CHECKERS CHECKING CHECKERS-CREATING CONTINUOUS COMPETENCE

In the bulk liquid and gas storage sector, there is an obvious need for competence. The simple fact is: more competent workers are more efficient and more effective.

For more information, visit www. reynoldstraining.com



ere in the bulk liquid and gas storage sector, there is an obvious need for competence. The simple fact is: more competent workers are more efficient and more effective.

This is why we, at Reynolds Training Services, believe it is crucial to not only train people, embedding knowledge and developing skills, but to also assess their competency onsite as an ongoing process. This circular process of developing then maintaining and updating (as needed) competence is based on a bedrock of appropriate formal qualifications. And that's a process that begins with Ofqual.

Ofqual and the awarding bodies

The Office of Qualifications and Examinations Regulation (Ofqual) is the official regulatory body for qualifications and exams in England. They are the authority which manages and accredits exam boards and awarding bodies under the direction of the UK government. One of their key concerns is standardisation so, whether you

get a qualification from City and Guilds or GQA (for example) it will have been subjected to the same scrutiny and quality control. It's worth mentioning that the awarding body GQA has recently taken over all the duties of PAA\VQ-SET, as of April 2021, which concentrates on awarding qualifications around Industrial Logistics, involving supply chains, warehousing and transportation. This is reflected in our delivery of a range of GQA courses, covering subjects as diverse as our Level 2 Diploma in Jetty Operations through to our Level 5 Diploma in the Practice of Process Safety Management. Qualifications of this nature are the best way for a person to embark on a career in our sector, or to steer their existing career down the path they want it to take. Developing career pathways in this way is at the very core of the TSA's ambitions, and it is what we, at Reynolds Training, are also striving to do.

The TSA and Developing Career Pathways

The TSA serves as a fundamental link between equipment and service providers and the wider industry, providing an essential communication exchange in technical, safety and competency topics. In our experience, one of the key contributions the TSA makes is in its ability to see where an industry in transition is going now and, importantly, needs to go in the future. The TSA helps in steering



industry and learning providers towards building a better, more responsive, more competent future. This helps build the foundations for career pathways that are in the longterm interest of both our workers at every level and of our industry as a whole. This is especially true given that we, in the energy industries, are in transition - as we travel towards a carbon zero future. While the politicians may argue about exactly when this will happen - there is no hiding from the fact that it will, eventually, happen and we, as a sector, have to be ready for that. There is already a drive towards different energy sources, be it ammonia for ships or hydrogen fuel cells for cars and buses, to name but two. This will change our sector in terms of processing, storage and transportation. We have to be ready for that because each new energy source will bring with it new processes, new technology and new challenges - which will require competent people. And, unlike the energy that people are used to using, competence isn't something that we can turn on at the flick of a switch - it is something that develops through training and experience and continuous vigilance. Our mission is to ensure that the people working in our sector now, and entering our sector in the near future, are capable of continuously updating their competence, of learning these new processes and new technologies so that they can come safely and

successfully on-stream.

We always instill in our learners the importance of this continuous development. Learning to learn is a key skill in our sector, as it continuously evolves and transitions.

Checkers Checking Checkers

Qualifications have to evolve accordingly. This is why we, at Reynolds Training, are continuously developing new qualifications - as we see a need - in conjunction with industry bodies such as Cogent Skills and the TSA. We then submit that proposal to our awarding body, be it IOSH. NEBOSH. QUALSAFE or GQA, who will then work with Ofqual to ensure that the proposal meets the required standard. If it doesn't, we begin a process of refinement. In this way, our qualifications directly plug-in to the energy policies and strategies of central government.

To ensure that our courses evolve as needed - and that our centre maintains appropriate standards our learners' work is assessed by our Assessors who, in-turn, are assessed by the Internal Quality Assurer (IQA). Then, the IQA's work is assessed by the External Quality Assurer (EQA) - who is our independent link to the awarding body. Having that external oversight for our centre is, of course, a requirement of Ofqual, to ensure continuous quality and relevance. This ongoing circle of checkers checking checkers is

essential to maintaining continuous development and continuous competence. It is also the keystone to quality assurance - in that the sector needs to be reassured that. when an Assessor has signed off a worker as competent, that worker can be trusted to be exactly that. And, it is important that this is as true for learners who are taught at Reynolds Training's centre as it is for those who are taught in our industry-based satellite centres. We manage their Competence Assurance Programmes for them, we train their Assessors and their IQAs - or supply our own IQAs and then co-ordinate and check with the External Quality Assurer. This process ensures that satellite centres are abiding by the same principles of Assessment Standards as we do as a Learning Centre. This allows employers to have Assessors on-site, without them having to go through the process of registering as a Learning Centre. They are then bound by our quality assurance and competence. This ensures that standards are maintained and that no learner receives a lesser quality of training, no matter where they study. In the next issue of TSA Insight, we'll expand on this subject and look at the wider RQF (Regulated Qualifications Framework) and the role of bodies like Cogent Skills, TSA, UKPIA and IChemE in maintaining that unbreakable link between training and industry, to ensure we all enjoy a safe and secure future.

25

Place yourself at the heart of the leading bulk liquid storage event

> 8 - 10 March 2022 Ahoy, Rotterdam



Discover the event > www.stocexpo.com

by EASYFAIRS



TSA offers a range of membership benefits, including weekly political and media updates sent directly to your inbox.

To receive all the latest information. news and guidance, visit www.tankstorage.org.uk/join-us



To find out more, write to info@tankstorage. org.uk

Join the voice of the bulk storage and energy infrastructure sector

TSA champions the UK's bulk storage and energy infrastructure sector and its role in supporting growth and prosperity.

We have several membership levels available for bulk liquid terminals, distribution terminals and hubs, as well as equipment and service suppliers.

Join us. Choose your membership at <u>www.</u> <u>tankstorage.org.uk/join-us</u>



The voice of the bulk storage and energy infrastructure sector



9

Tank Storage Association Devonshire Business Centre Works Road Letchworth Garden City Herts. SG6 1GJ United Kingdom

www.tankstorage.org.uk

C T. +44 (0)1462 488232



info@tankstorage.org.uk



TSA Insight Magazine - Issue 8