



INSIGHT



Tank storage provides an essential interface between sea, road, rail and pipeline logistics.

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OPPORTUNITIES, COLLABORATION AND INNOVATION: IN CONVERSATION WITH ADRIAN JACKSON

The quarterly magazine from the Tank Storage Association

Also in this issue, we look at the impact of climate change on process safety and bespoke apprentice training for the tank storage and energy infrastructure sector.



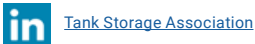
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Peter Davidson Executive Director, TSA

Welcome to Insight's first edition of 2023. At the beginning of the year, the UK Government published an independent review of its net zero strategy. Titled "Mission Zero - Independent Review of Net Zero", the report highlights the need for a "long-term, stable investment plan" in the context of a pro-grow, pro-business energy transition. In line with the review's findings, the tank storage sector has been clear that a long-term and stable policy background is essential to engender investor confidence. The bulk storage and energy infrastructure sector plays a vital role in providing services that are critical to UK, European and global consumers. As it looks ahead, it stands ready to work with the UK Government and other stakeholders to deliver on future opportunities. I hope you enjoy this new edition of Insight and don't forget to follow us on social media for all our latest news.

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A SHORTCUT TO INCREASED EFFICIENCY AND REDUCED EMISSIONS

The growing worldwide demand for chemical products and proper storage and handling makes energy efficiency of storage tanks a key requirement.



S

torage tanks are used to hold a variety of organic liquids or gases including raw materials, intermediates, final products or usable byproducts. Although mainly used in the oil and gas industry, other industries often rely on upright storage tanks to temporarily store liquids (e.g. food and fertilizer industry).

Tanks can vary in design and the properties of the products being stored determine the storage temperature and if additional heating is necessary to maintain a certain temperature inside. In the case of heated storage tanks, this often has to do with preserving the quality of the stored product and preventing solidification of the hot liquid.

Why does energy efficiency matter?

The growing worldwide demand for chemical products and proper storage and handling makes energy efficiency of storage tanks a key requirement. This, combined with

the all-time high energy prices, forces terminals and processing facilities to rationalize their energy consumption and improve the efficient use of energy sources.

Each year, large amounts of energy are wasted due to storage tanks not having proper insulation systems in place. This used to be negligible, but the current economic environment is demanding facilities to rethink the way energy is wasted.

Energy loss in heated storage tanks

When tanks operate above ambient conditions, the tank walls and roofs are often viewed as the main sources of energy loss. However, the heat loss at tank walls and roof will fluctuate when the liquid level increases or decreases but the heat loss through the bottom will always remain constant. Depending on the storage temperature and tank size, heat loss through the tank bottom can run up to $>250 \text{ W/m}^2$ ($80 \text{ BTU/h}\cdot\text{ft}^2$) leading to large yearly energy losses that would accumulate to hundreds of thousands of euros over the lifetime of the tank.

What about carbon emissions?

Globally, heat accounts for nearly half of energy-related carbon emissions. Therefore, losing large amounts of heat leads to high amounts of unnecessary carbon emissions for your facility. In times when processing facilities and terminals are focussing on reducing

their overall carbon footprint, it is inevitable that every opportunity to reduce heat losses and corresponding emissions should be grasped fully.

How to tackle this issue?

One of the easiest and most cost-effective ways to immediately tackle this issue is to install a cellular glass insulation system underneath your heated storage tank. Insulating the tank base can immediately reduce the heat loss through the bottom up to 90%. The insulation value of cellular glass insulation also does not change during its lifespan, which helps to ensure constant and lasting energy savings. This allows for easy calculation of the yearly energy savings, payback periods, annual financial yields and, saved emissions over the lifetime of the tank.

Calculated payback periods and annual yields

Tank builders and terminal owners

can call on the expertise of Owens Corning's technical services team to assist with the calculation of payback periods and annual yields of the investment in a FOAMGLAS® HLB insulation tank base insulation system.

These calculations consider all relevant factors such as temperatures and local energy prices. For each project, the heat lost through the base without insulation is calculated and compared with the total investment cost. This provides the total payback period of the investment in a FOAMGLAS® tank base insulation system, which can be as short as merely months depending on the storage temperature of the contained liquid.

In addition, the total future yield of the investment is calculated for the active life of the tank with an insulated tank base. This shows the amount of energy saved per area of insulated tank base, and the total

yield per year after the payback period.

What about my existing tanks?

This of course is a no-brainer when new tanks are going to be built but what about existing tanks? Dedicated tank base insulation systems can easily be installed during scheduled tank maintenance programs when the tank is emptied to inspect the metal tank bottom and possible metallurgic repairs are being done.

This can be done by lifting the tank and positioning it on jacks. This gives the opportunity to install a tank base insulation system onto the concrete deck before the tank is lowered again.

Another possibility is to install the insulation directly onto the metal base inside the tank and weld a new metal bottom onto the newly installed insulation system.

About Owens Corning FOAMGLAS®

Owens Corning FOAMGLAS® is part of Owens Corning, a global building and industrial materials leader with three integrated businesses that are dedicated to the manufacture and advancement of a broad range of insulation, roofing and fiberglass composite materials.

For more information, please visit www.foamglas.com



FERROUS PROTECTION: A SPECIALIST PROVIDER IN CORROSION PROTECTION

Ferrous Protection's objective has always been to offer the client a comprehensive package that is unique in terms of expertise and quality within the surface protection industry.



Ferrous Protection Ltd was founded in 1987 by John King and Allan Davies.

The business was started in response to an emerging need for coatings that were much safer to use and environmentally friendly. Both had worked extensively in the coatings industry, in particular tank linings, both at home and overseas. John King had sat on several Steering Committees re BS Standards and as a director of the Institute of Corrosion, and the need for safer and more environmentally coatings became increasingly apparent. In 2021, we became part of the Qualitech Group of Companies thus being able to offer tank and bund cleaning as well as waste management and 24/7 emergency spill response services in addition to the services we have offered historically.

Below is a brief outline of our philosophy and the industries in which we work and services we offer. Our objective has always been to offer the client a comprehensive package that is unique in terms of expertise and quality within the surface protection

industry. The package includes:

- Consultation to establish client exact needs.
- Site survey and inspection as necessary.
- The optimum selection of product and application technique based on previous wide-ranging experience.
- Preparation and submission of a fully detailed and comprehensive project HSQE pack, including task and site specific RAMS, Inspection & Test Plan, MSP Programme Gantt Charts, Emergency rescue plans, operative certs, equipment certs etc.
- The execution of the work to agreed programme, specification and budget constraints by our own experienced operatives and qualified supervision.
- Weekly HSQE site inspections by our qualified and experienced management team.
- Inspection, testing and reporting (total quality management) with a full project QAQC Handover Dossier with warranty paperwork on completion.
- Regular re- inspection at agreed frequency.

Always at the forefront of our thinking is our responsibility to our client, their employees and assets, the environment and our workforce.

We have a range of sustainability initiatives from the use of solvent free and water – borne products, to reducing waste during surface preparation through using

environmentally friendly abrasives or captive blasting; and the correct disposal of waste illustrates our commitment to being a responsible and sustainable business by reducing pollution and conserving the environment. We also believe that cost effectiveness is crucial to our continued success and work closely with our clients to ensure the project is executed in the most effective and efficient way, without cutting corners.

The Oil and Petrochemical Industry

Our extensive use of solvent free coatings enables us to work with increased safety, better sustainability and greatly reduced risk of fire/ explosion. We offer:

- Tank cleaning and waste management.
- Tank linings both on new and existing installations.
- Easy clean coating.
- Refurbishment of floating roofs.
- Refurbishment of tank floors.
- Application of spray and hand lay G.R.P. laminates.
- External coating to tanks, pipelines, structures, pumps and other ancillary equipment.
- Lining secondary containment areas.
- Metal spraying.
- Robotic surface preparation and coating application.
- On time completion of projects.
- We can also offer a full package of the above plus scaffolding, NDT, mechanical repairs, protective coating and lining inspection and insulation inspection as required.

Always at the forefront of our thinking is our responsibility to our client, their employees and assets, the environment and our workforce.



The Chemical Industry

Our extensive knowledge of application procedures, and the suitable resistance of various products available, gives us the opportunity to offer "one call" solutions and pricing, for the protection against most types of chemical storage/contact. We have successfully completed many projects for the lining/coating of carbon steel, stainless and alloy tanks and vessels, concrete storage pits and bunds also external protection against chemical corrosive atmospheres.

The Food and Brewing Industry

Application of non – taint systems in active production areas is an essential feature in this industry.

Our wealth of experience in this area has resulted in Ferrous Protection having an exceptionally strong reputation in this sector internationally:

- Use of Solvent free and water borne paints and metal sprayed system.
- Use of food grade floor and wall coatings.
- Protection of hot liquor tanks.
- Linings resistant to a wide variety of service temperatures
- Ability to meet programme requirements during "shut down" periods.

The Water Industry

The sector encompasses both "clean" and "dirty" processes. Suitable certified systems are available for potable water. Chemical/ abrasion resistant coatings are used for digestive/ effluent/sewage conditions. Ferrous Protection are UVDB certified and can protect all types of substrates through the following:

- WRC approved solvent free and

solvent coatings.

- Water – borne approved coatings.
- High quality linings enabling ease of cleaning.
- Long life system complete with performance guarantees.
- Flexible system for concrete substrates.

The Aviation Industry

Ferrous Protection have extensive experience protecting and maintaining both pre-airfield and airside Jet fuel storage tanks and pipework. We are the chosen asset maintenance and surface protection contractor on many of the UK's largest airports as well as airports overseas including most recently the external coating of 4no tank roofs and pipework at Manchester Airport and the re-lining of 7no Jet A1 fuel storage tanks and corrosion protection of 1.46km of cross country pipeline of Greenland's largest military and commercial air transport hub.

We can offer:

- Tank cleaning for API653 tank inspections.
- Hazardous waste management.
- Abrasive blast cleaning.
- Application of protective lining systems in accordance with EI-1541.
- Coating and lining inspections.

General Industries

Within the group we have a wealth of specialist and general knowledge of the surface protection industry. We are frequently consulted about protective and other specialist projects for which we are able to recommend the best possible solutions based on previous contracts and experience, executed successfully for satisfied clients:

- Metal spraying of items as diverse

as " Big Ben" clock Tower Roof, chimney, flare stacks and Tsing Ma Bridge.

- Product storage tanks in the manufacturing sector.
- Blasting and spraying of bridges.
- Coating ship cargo holds for food and chemicals.
- Internal lining of road and rail tankers.
- Coating of aluminium casting pits.
- Industrial painting of buildings, structures, plant and associated equipment.

Overseas Contracts

We have worked extensively overseas in Europe, the Middle East, Asia, India, Caribbean, North and South America, Falkland Islands, Ascension Island. The contracts have ranged from several thousands to in excess of £1m and include both public and private sector clients including MOD, USAF and oil super majors.

Operating globally, from installing a new GRP epoxy lining to an 77m diameter crude oil tank in extreme heat in Trinidad in 2021, to carrying out critical infrastructure upgrade works to the largest commercial and military air transport hub in the extreme cold in Greenland in 2022, allows us to broaden and enhance our store of knowledge. This we are happy to share with you at your next opportunity.

For more information, please visit www.ferrousprotection.co.uk

Contact Ferrous Protection at sales@ferrousprotection.co.uk or call 01457 873419.



In focus

Piping and fittings for the tank storage sector

The tank storage industry utilises kilometres of piping and fittings, transferring fuels, chemicals, and sea water. There is such a wide range of sizes, wall thicknesses, and materials required, that a reliable stockist of the complete package, is essential.

TSA associate member, JBP, has a 45- year history of supplying Valves, Pipe, Fittings, and Flanges to fabricators, EPCs, MRO contractors, and asset operators. Together with their parent company, National Tube Stockholders, they are the leading stockists in the UK.

Pipe, Fittings, and Flanges are stocked in sizes up to 24", with material grades including API 5L, A106B, X52, X65, Duplex, Super Duplex and Cunifer, all held in large quantities for immediate despatch.

Utilising their group transport fleet of over 30 vehicles, JBP supply tank storage facilities throughout the UK and Ireland.

For over 45 years, JBP have supplied facilities across the globe, including the Caribbean, Nigeria, Ghana, the Caspian and the Falkland Islands.

For more information about JBP, please visit www.jbpipeline.co.uk



BIOFUELS: A KEY GROWTH AREA FOR UM TERMINALS

UM Terminals continues to adapt to meet the current and future needs of customers.



UM Terminals puts its continued success down to the diverse range of its product and service offering allied to its customer-first approach. Alongside these two factors is the speed and flexibility with which it can extend its capabilities to meet the ever-evolving requirements of its many blue-chip customers. This philosophy has resulted in UM Terminals, which has its headquarters in Liverpool, starting 2023 with more enquiries than ever before.

A current example of this is the way the business is responding to the increase in demand for its biofuels services. The uptick in enquiries in this area is part of a growing trend ahead of the 2030 deadline for the phasing out of new diesel vehicles and the UK government's 2050 target to reach net-zero carbon.

Enquiries have come from fuel producers and distributors seeking a storage partner for Hydrotreated Vegetable Oils (HVOs), a diesel alternative fuel manufactured from 100% renewable and sustainable waste. UM Terminals has also secured an important new piece of business harnessing the company's pre-treatment

specialism removing moisture and impurities from used cooking oils before their onward transport to Europe.

Phil McEvoy, Managing Director of UM Terminals, said: "Biofuels is an exciting growth area for our business and the enquiries we are receiving are coming from the front and back end of the supply chain. We are partnering with customers which are looking for our pre-treatment and storage capabilities. As we continue on the carbon neutral timeline to 2030 and the phasing out of diesel, we want to be positioned as a biofuels service provider of choice."

One of UM Terminals' key selling points is its network 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.

Vic Brodrick, UM Terminals' Commercial Director, said: "Supply chains are giving particular attention to reducing road miles and storing nearer to their customers. It makes sense commercially, operationally and environmentally. With our terminals distributed across the UK, we are ideally situated to meet our customers' wider transport and logistics requirements."

In addition to broadening its service provision in biofuels, UM Terminals also has increased capability in general chemicals, including acids, alkalis and petrochemicals, building on an expertise established over many years. UM Terminals currently has a small number

of storage opportunities at its Gladstone and Regent Road terminals in Liverpool. The tanks available range from 10,000 to 15,000 cubic metres. All the tanks are of carbon steel construction, have heating available and, crucially, are located next to deep water at the Port of Liverpool. The strategic location and excellent transport links offered by UM Terminals were among the key reasons for one long-term chemicals customer recently increasing its storage capacity.

The client, headquartered in Scandinavia, had previously taken two small tanks at one of UM Terminals' facilities. But following an investment in the region of £2million by UM Terminals, the customer agreed to take a much larger tank that has been specially converted to store an AdBlue product.

Phil McEvoy joined as Managing Director towards the end of 2022 after having held several senior roles in the UK and Europe, most recently as Operations Director for Northern Europe at global chemicals distributor Univar Solutions. Phil said: "UM Terminals has several key strengths as a business, but among the most important are the diversity of our product and service offering, our customer-centric approach and a real can-do attitude among everyone in the team. We love problem-solving for our customers and, when appropriate, matching their needs with bespoke solutions. We recently won a new customer from the fuel industry who told us that our team's customer service, communication and willingness to go the extra mile were a total contrast to what they had previously been used to.

Another customer, one of the biggest brands in the world, told us that our more 'personable service' was the reason they switched from their previous provider. From those making a first enquiry through to long-standing customers, this commitment to listening and responding in an effective, timely and friendly manner is ingrained across our business. Added to this is a hunger to continue adapting to meet the current and future needs of our customers and, where appropriate, supporting this with investment. We are moving into 2023 extending a number of existing customer relationships, to support them with new requirements, as well as onboarding new customers such as the ones in biofuels."

The UM Terminals' portfolio consists of a broad portfolio of around 40 products including vegetable oils, industrial, food and feed, chemical, fertiliser, fuels, biofuels and base oils. Value-added services include biofuel feedstock pre-treatment, blending, water dilution, product packing, HMRC bonded warehouse and COMAH compliance.

UM Terminals is part of the United Molasses Group. 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, please visit www.umterminals.co.uk.



THE IMPACT OF CLIMATE CHANGE, IN PARTICULAR EXTREME TEMPERATURES, ON PROCESS SAFETY

RAS Safety Consultants discuss the impact of climate change on process safety.



It is becoming increasingly difficult for sceptics to argue against not only the existence of climate change and global warming, but also, its impact on our lives. For example, in 1980, there were a little over 200 natural disaster events worldwide, whereas in 2020, that figure had risen to over 800. \$4.5 trillion in damages were accumulated via floods and storms, which made up 70% of natural disasters. On top of this, the simple fact that 2010-2020 was the hottest decade on record makes the concerns of global warming and climate change even more difficult to ignore. You will struggle to find any operations which have not been affected in some way by changes in the climate in recent years. We are left thinking, what is the impact on process safety?

The impact of climate on process safety in the UK

The UK is not known for its extreme conditions, which is particularly welcomed by businesses operating with chemicals and other potentially hazardous substances. For instance,

kerosene has a flashpoint (the lowest liquid temperature at which, under certain standardized conditions, a liquid gives off vapours in a quantity to be capable of forming an ignitable vapour/air mixture) of 38 degrees Celsius, meaning at any level under this temperature, kerosene will not release vapours in a way that it will be a flammable concern. With the tame climates we are accustomed to in the UK, the 38 degree flashpoint is typically not a concern for those handling the fuel, but the key issue here is that recently, due to the heatwaves we have experienced, local ambient temperatures have exceeded 38 degrees, so sites with small tanks of kerosene could have had moments where the ambient temperature was high enough, for long enough, to heat up bulk quantities of kerosene to temperatures above the flash point. Subsequently, if it is spilled, a normally unexpected hazard (fire from ignition of the vapour) is now present. Because temperatures historically have not been high enough to create these risks, sites holding high flash point fluids such as kerosene are not set up to deal with this risk, which can then lead to further issues relating to Hazardous Area Classification and Dangerous Substances and Explosive Atmospheres Regulations (DSEAR), and in turn potential harm to the individuals working on sites.

It is not only abnormally high temperatures that have caused issues in process safety. On the contrary, winter storms have led to freeze

events occurring in some parts of the world. An example of this is the freeze in Texas in February 2021, which led to a major power crisis in the state. Many refineries and petrochemical facilities experienced equipment failures and process upsets due to the unprecedented cold weather, forcing several to stop operating, significantly hindering the refining and plastics manufacturing operations in the U.S. Facilities can implement specific winterisation or freeze protection practices to help reduce the risk of process upsets should an extreme freeze event occur. Though protective measures do exist, there is still a question mark over whether winterisation techniques are sufficient to cope with the higher frequency at which these extremes are occurring, or whether an alternative is required.

The impact of climate on human factors

Human factors is primarily concerned with understanding human capabilities, and then applying this knowledge to the design of equipment, tools, systems, and processes of work in order to provide working conditions which are safe and manageable. Working in high temperatures such as those experienced in the recent heatwaves could have adverse effects on performance as full concentration is difficult to achieve under extreme heat, making mistakes more likely. These conditions could also potentially lead to problems for workers such as heat stress. If temperatures reach levels

where the wellbeing of workers may be compromised, changes must be made for operations to continue in a safe and ethical manner. This may include an increase in air conditioning or ventilation, or changing the processes which occur on site, which may not always be possible if a site is to carry out its primary functions.

With changes in climate such as increasing temperatures showing little signs of levelling off or reverting to levels we are used to, action must be taken to ensure industry responds with appropriate changes in considerations for process safety.

About RAS Safety Consultants

RAS Ltd is an independent firm of risk specialists established in 1993. RAS are founded on a set of simple principles: recruit the best people in the industry, only work in our areas of expertise, and work with our clients, not for them. It's an approach that has seen them grow from being a handful of specialists in the North West to a rapidly developing company working with the leading companies in the oil & gas, pharmaceuticals and specialist chemical sectors across the world. The RAS team has worked on some of the biggest and most influential projects in the industry, and continues to expand their specialist knowledge.

For more information, please visit www.ras.ltd.uk



OPPORTUNITIES, COLLABORATION AND INNOVATION: IN CONVERSATION WITH ADRIAN JACKSON

Adrian Jackson, Chief Executive of the Oil and Pipelines Agency, looks back on his two-year tenure as President of the Tank Storage Association and discusses future opportunities for the sector.

[Adrian Jackson, Chief Executive, Oil and Pipelines Agency](#)



The Oil and Pipelines Agency (OPA) is a Statutory Public Corporation, sponsored by the Secretary of State for Defence, formed in 1986 by virtue of the Oil and Pipelines Act 1985. The OPA manages, operates and maintains seven Naval Oil Fuel Depots and a Petroleum Storage Depot on behalf of the Ministry of Defence. The OPA is a Public Corporation of the Ministry of Defence.

The bulk storage and energy infrastructure sector has a pivotal role to play in the transition to a net zero energy system. The Tank Storage Association (TSA) formally launched a new Energy Transition Charter. Tell us more about this important initiative for the sector.

The bulk storage and energy infrastructure sector plays a vital role in providing services that are critical to UK, European and global consumers. This includes the blending and transformation of substances to meet the diverse needs of both industry and the public in a safe and cost-effective way. In April 2021, as part of its sixth

carbon budget, covering 2033-37, the UK Government set a target for a 78% reduction in Greenhouse Gas Emissions (GHGs) by 2035 relative to 1990, including international aviation and shipping. The Government also published its strategy for Net Zero setting out policies and proposals to deliver emissions reductions to achieve the target of net zero by 2050. The strategy builds on the earlier Ten Point Plan for a Green Industrial Revolution and recognises the importance of creating the necessary conditions for investment in achieving climate neutrality.

In July 2022, the Government further launched its Jet Zero strategy which aims to set a trajectory to reach net zero aviation by 2050. This strategy includes mandating at least 10% Sustainable Aviation Fuel (SAF) in the UK aviation fuel mix by 2030 and achieving net zero for all domestic flights by 2040, with airport operations in England to be zero emission in the same timeframe.

The transition to a net zero energy system brings important challenges but opportunities too for the tank storage sector. TSA members operate 303 bulk liquid storage facilities in the UK and will inevitably see a change in the products that are stored and handled. The sector will also have to display the flexibility necessary to support access to both traditional and suitable energy alternatives, and to facilitate the integration of these alternatives. In this context, it is highly



The Oil & Pipelines Agency

likely that, in order to achieve the desired energy density, bulk liquids or liquified gases will play a key role. In addition, with the breadth of products and services provided by terminals evolving, careful consideration must be given to how safety can continue to be effectively managed, protecting both people and the environment.

In this context, there is a need to consider new energy carriers and how these can be safely imported, stored, and exported, and importantly ensure that workforce competency is aligned with these new challenges. Further, energy efficiency strategies and energy consumption management also form part of fundamental considerations for sector's operators. And it is against this background that the TSA formally launched its Energy Transition Charter affirming our sector's shared commitment to supporting the achievement of the UK's climate neutrality targets. Crucially, the Charter is accompanied by important strategic commitments to encourage leadership, innovation, skills development, promotion and engagement. This is not only a testament to our sector's commitment to leading in the transformative journey towards net zero, but it highlights its ambitions to seize the opportunities that are arising with regard to the expansion of services, facilities and expertise.

Enabling energy infrastructure is key to the energy transition. In this context, tell us more about the role

of the TSA's Energy Transition and Sustainability Committee.

All TSA members supported the creation of a new Energy Transition and Sustainability Committee. This committee seeks to utilise our members' expertise, knowledge and innovation to explore the vital role of bulk storage and energy infrastructure sector in the transition to a net zero energy system. Its main objectives are to facilitate dialogue and champion the unique potential of industry to affect change, along with exploring transformative actions through debate and expert insights on key topics such as alternative energy vectors, sustainable aviation fuels, biofuels, safety and much more. The wealth of knowledge and experience of our TSA members is invaluable as we look ahead to a low-carbon future, and this platform allows us to delve deeper into key issues for our sector.

Under your presidency, the TSA has also introduced a new Environmental, Social and Governance (ESG) Charter.

Environmental, Social and Governance (ESG) are the three key factors in measuring the societal and sustainability impact of our members' businesses. TSA members recognise that a positive ESG commitment is a good demonstration that their organisation is behaving responsibly. Our businesses have to take responsibility for our actions, instill confidence in our key stakeholders,

and operate with full transparency. We have a corporate, social and moral responsibility to manage our impacts on the environment, reducing negative impacts, as well as on expanding and enhancing positive impacts. In working nationally and internationally, it is recognised that environmental impacts can be felt locally and in far reaching communities.

TSA and its leadership strongly support an ESG culture which has seen the introduction of a Charter for the Association affirming its commitment to environmental, social and governance principles. The ESG Charter is further accompanied by a framework to assist TSA members in developing clear and common policies in this context.

As the sector looks to tomorrow, a key priority of your term as President of the TSA has been to shine a light on the rewarding and diverse career opportunities that our industry offers. Tell us more.

I have great confidence in the next generation of people who choose to join our sector, and I strongly believe that they will find innovative solutions to our Energy Transition challenges. However, it is incumbent on the current leadership to offer the next generation of talent the opportunities they need to develop their knowledge and experience. From the very beginning, I have been a keen supporter of the Bulk Liquid

Storage apprenticeship programme as well as traditional Engineering apprenticeships. Starting my career as an engineering apprentice, I know the advantages of gaining a solid foundation on which to build. Our young people deserve every opportunity to learn from their more experienced colleagues, and I am sure they will prove their capabilities and become the future leaders of our businesses.

And, as part of a drive to promote the exciting and unprecedented opportunities that our sector has to offer, the TSA has recently launched a new careers hub dedicated to jobs and apprenticeships in industry. The hub includes inspirational videos from industry's talent, informative resources helping to explain apprenticeships and careers in the sector, up-to-date opportunities and much more. It is my hope that these resources will connect, educate and inspire anyone interested in a career in our vibrant sector.

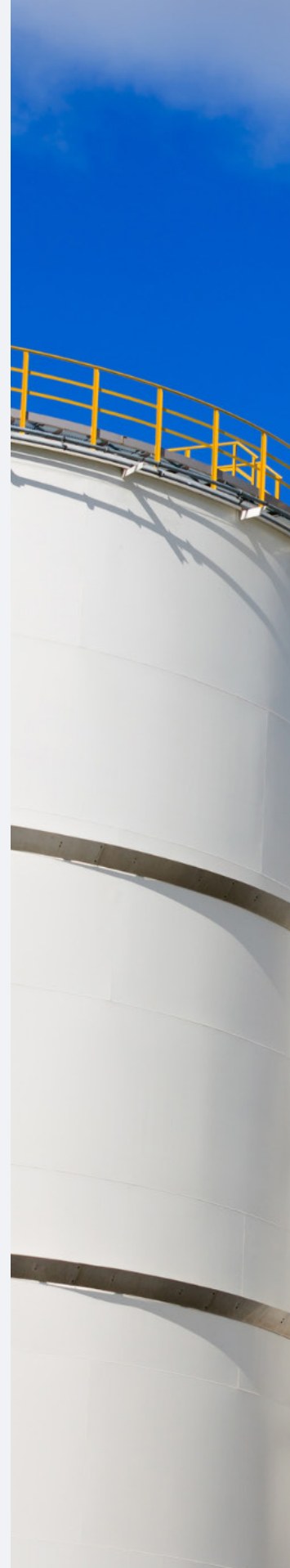
Author

Adrian Jackson is a graduate from the University of Northumbria with a First-class honours degree in Electrical and Electronic Engineering. He is a Fellow of the Institution of Engineering and Technology, and has a Licence in Manufacturing Reliability which he earned at the University of Dayton, Ohio. Adrian began his career at British Coal in 1980, and then moved to Shell UK Oil in 1989, working in engineering and reliability improvement. In 1995 he moved to the chemical industry at the Grangemouth complex, where he held several posts in engineering and operations. Adrian's last role at

Grangemouth was as the Enterprise Reliability Director at Dow Chemical. This required coordination of manufacturing capability, with the supply chain on a global basis. Adrian joined the Oil and Pipelines Agency as Oil Fuel Depot Operations Director in late November 2014, and was made Chief Executive in May 2015. As Chief Executive he is responsible for the safe and efficient operation and management of the oil fuel depots and one petroleum storage depot. In 2021 Adrian attained Chartered Director status with the Institute of Directors, and took on the role of President of the Tank Storage Association.

For more information about the Tank Storage Association, please visit www.tankstorage.org.uk

Find out more about the Tank Storage Association's new careers hub: www.jobs.tankstorage.org.uk



Independent review of UK government's net zero strategy published

The UK Government is committed to achieving net zero by 2050 and the Climate Change Act 2008, as amended in 2019, reflects this ambition. On 13th January 2023, the UK Government published former Energy Minister Chris Skidmore MP's independent review into its strategy for achieving net zero by 2050. Chris Skidmore MP was appointed in September 2022 to lead the review. This was informed through a call for evidence and direct engagement with businesses, organisations, local government, academia and the public. Over 1,800 responses to the call for evidence were received and more than 50 roundtables across the country were held, making it, according to the Government, one of the largest engagement exercises on net zero delivery in the UK.

Titled "*MISSION ZERO - Independent Review of Net Zero*", the report highlights the need for a "*long-term, stable investment plan*" in the context of a pro-grow, pro-business transition. In line with the review's findings, the tank storage sector has been clear that a long-term and stable policy background is essential to engender investor confidence. This approach will avoid delays caused by the lack of transitional infrastructure and provide the resilience and security of supply needed. The report contains 129 recommendations "*designed to make the most of this historic opportunity, covering the length and breadth of our*

economy, so that people in every part of the country can reap the benefits of this both in their communities, and in their pockets". Recommendations include developing a cross-sectoral strategy, by 2025, to support the building and adaptation of infrastructure for electricity, hydrogen, CO₂ and other networks that support the green economy, and reforming planning rules. The review also calls on the government to publish the Low Carbon Fuels Strategy in 2023 and the necessary legislation for the sustainable aviation fuels (SAF) mandate to apply from 2025. It further sets out that the government should continue to work with industry to lay out a clear programme by 2024 to accelerate decarbonisation of the wider freight sector through modal shift and deployment of new technologies, building on the Future of Freight Plan which was published in July 2022.

The tank storage sector is critically important to the resilience of UK's energy supplies and has a vital role to play in the achievement of the nation's climate neutrality targets. The Tank Storage Association stands ready to work with the government and other stakeholders to help to deliver on the opportunities highlighted in the review.

MISSION ZERO - Independent Review of Net Zero is available at www.gov.uk

HOW TO KEEP INDUSTRIAL OPERATIONS GOING DURING DOWNTIMES OF VAPOR TREATMENT SYSTEMS

Mobile combustion units are capable of temporarily replacing vapor recovery units in industrial facilities, ensuring that the business is not interrupted.

Kai Sievers, CEO and founder, ENDEGS Group



Vapor recovery units (VRU) are an important part of industrial facilities as they control the hazardous and toxic vapors that are produced during industrial processes. Thus, harmful VOC (volatile organic compounds) and HAP (hazardous air pollutants) emissions are not just vented into the air, where they would harm both environment and people. Preventing those substances from getting airborne therefore limits the emissions released by facilities and helps the industry to comply with emission regulations.

To ensure their functionality, vapor treatment systems need to be inspected and maintained regularly – a process meaning a downtime for the VRU. From time to time, vapor recovery units also break down or malfunction and therefore need to be shut down for repair. But what to do during VRU downtimes as a facility without a vapor treatment system is not suitable to operate?

Many terminals and refineries still shut down their operations when the

VRU is out of order. This means a downtime for the whole facility and therefore a significant loss of money and can also cause problems for the supply reliability.

But that is not necessary! Replacing stationary vapor treatment systems temporarily with mobile units for the emissions treatment ensures that vapors are still being recovered. As operations can keep going as usual, temporary VRU replacement is a cost-efficient alternative to a complete facility shutdown.

Only minimal interference on daily operations

ENDEGS offers temporary VRU replacement with its mobile vapor combustion units (VCU). The innovative units can treat vapors instead of the recovery unit during its downtime and are capable of burning all kinds of gases, gas compounds and vapors of the hazard groups IIA, IIB and IIC with a combustion rate of more than 99,99 % and no open flame – making ENDEGS the only company in Europe being able to do so. The mobile units can process and treat vapors without noise, open fire or odor, the highly skilled operators monitor the environmental-friendly process and ensure the safety of everyone involved.

VRU replacement with ENDEGS mobile combustion units reduces the downtimes of facilities to a necessary minimum, daily operations can continue undisturbed or with only

minimal interference. Applying this technology guarantees continuous productivity and complies to safety standards as well as emissions regulations.

Efficient processes for many different applications

ENDEGS offers VRU replacement for short-term as well as long-term projects and for both regular projects and unplanned emergency projects. The equipment can be deployed rapidly: for an emergency project in the Netherlands, the ENDEGS personnel was ready for operation in just a few hours, the emergency replacement of a malfunctioning vapor recovery unit in Germany started within 24 hours of project approval.

The mobile vapor combustion units can replace vapor recovery units in many different industries and facilities, for example in refineries, tank or ship terminals and truck or rail loading stations. ENDEGS units were used for an emergency operation in a tank terminal in the Netherlands to replace the VRU and uphold the ship loading in the facility. Two units and operational personnel were used until the VRU was repaired and the project was successfully completed after 14 days. In a refinery, the VRU replacement lasted for three months, preventing a complete shutdown and keeping the truck loading station in operation with approximately 340 truck loadings per day. Another emergency project even lasted for six months, ensuring that the facility was able to uphold

ENDEGS was recently named TOP 100 innovator 2023 and thus recognized as one of the 100 most innovative medium-sized companies in Germany.



the operations and continue with the loading of rail cars containing Ethanol. An ENDEGS combustion unit was also used for a planned VRU replacement project in the Netherlands; during the replacement, the gases from ships were taken over as well as the respiration of the storage tanks from the tank farm. In Hamburg, ENDEGS replaced the VRU during regular maintenance work. During the replacement, the petrol vapors from the vapor accumulator were processed in accordance with TA-Luft.

During a VRU replacement project lasting for three weeks, we intercepted 1.2 tons of emissions per day and 23 tons in total during the whole project. The replacement was carried out in a facility working with petrol and diesel – the emissions we intercepted are equivalent to those emitted by a diesel car with 150hp and a consumption of 4.5L/100 km driving 33.333 km per day for three weeks (a total of 638.889 km) and a petrol car with 150hp and 4.4L/100km driving 34.090 km per day (a total of 653.409 km). Had these emissions been just vented into the air, it would have had a dramatic effect on the environment.

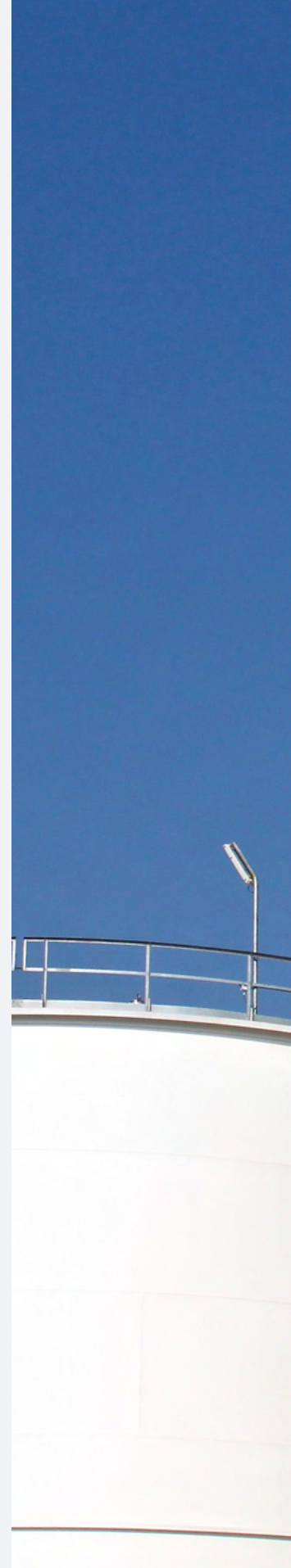
Innovative mobile emission reduction services for all applications

ENDEGS is an expert in safe, clean and sustainable emissions reduction and developed the first portable vapor combustion unit worldwide, enabling mobile emissions treatment for the very first time ever. ENDEGS vapor combustion units are also suitable for the degassing of all types of tanks, containers, pipelines, vessels, ships and other components.

Degassing services by ENDEGS can be applied in different industries, for example commissioning and loading/unloading applications as well as during refinery turnarounds. The units are scalable and operated in four different combustion powers – 3, 5, 10 and 20 MW – so they can be used in different scenarios and applications, for example short-term projects as well as longer projects involving products that need to be burned at a high efficiency.

ENDEGS expands its portfolio of innovative emissions reduction services constantly. For example, the fleet of mobile vaporizers with nitrogen tanks enables the purging and rendering inert of systems and system components handling flaming liquids and gases like LNG/CNG, ammonia, hydrogen or propane. ENDEGS further offers the rental of the remote-controlled ATEX Zone 0 robot, enabling the cleaning of industrial tanks from a safe distance. ENDEGS was recently named TOP 100 innovator 2023 and thus recognized as one of the 100 most innovative medium-sized companies in Germany. The award honors the winners for their strength and qualities in innovation and is based on a scientific evaluation of the participants with high standards and requirements. ENDEGS received the TOP 100 seal for the third year in a row.

For more information, please visit www.endegs.com



Is your PDP card valid?

The Petroleum Driver Passport (PDP) Scheme is a voluntary industry scheme, supported by government, designed to ensure all petroleum product drivers in the UK are trained and assessed to the same consistent standard. It was developed in 2012 by the Downstream Oil Distribution Forum (DODF), a forum of employers, trade associations, government departments and trade unions, and launched in January 2014. The DODF, of which the Tank Storage Association is a member, retains overall responsibility for the PDP Scheme. The Scheme is managed by Scottish Qualifications Authority (SQA) in conjunction with the PDP Management Group. Over 11,000 tanker drivers now hold a PDP Card. The Scheme delivers a consistent level of classroom/practical training to all petroleum tanker drivers, backed up by a standard and a system of approval and enforcement. All petroleum tanker drivers should have a PDP card regardless of their employer, type of vehicles, grade(s) of petroleum product, or loading point. It is additional to ADR training, and importantly includes a practical assessment of a driver's loading, driving and unloading skills and knowledge.

As with an ADR licence, the PDP card is held by the individual driver to allow freedom of movement between employers. The passport is renewed every five years, but also has an annual practical assessment

and an annual classroom training requirement. The annual practical assessment must take place up to four months before the driver's annual anniversary date (this is the same day and month as the expiry date on the driver's PD Passport).

UK terminals are the primary point of enforcement for the PDP Scheme. The terminals issue site-specific loading cards to suitably qualified individuals, and have agreed that drivers with PDP card are demonstrably trained and competent. Therefore, the terminals require drivers to have their PDP card to load, and carry out spot checks on annual validity.

Due to Covid-19 restrictions and driver issues in September-October 2021, some drivers were unable to complete their 2021 Annual Refresher. To allow drivers with a good track record of completing their annual refreshers access to load product, the DODF announced a dispensation stating that "any driver who has taken and passed their annual refresher or 5-year PDP card renewal in 2021 and/or 2020 should be treated as having a valid PDP card and be permitted to load normally". The dispensation was in place until 31st December 2022 and is no longer valid. From 1st January 2023, all drivers are expected to have completed their 2022 Annual Refresher.

For more information, please visit www.pdpassport.com

SAFETY IN FOCUS - THE IMPORTANCE OF PROTECTING PEOPLE AND THE ENVIRONMENT FROM HAZARDS

Dantec has become a world leader in composite hose technology.

DANTEC



Since starting out as a gasket cutting business in 1969, Dantec has become a world leader in composite hose technology. Serving the requirements of the largest petrochemical complex in the UK at Ellesmere Port - 10 miles from Dantec's original site -eventually led to diversification into other industrial products, including hoses.

Increased market demand for reliable composite hoses caused Dantec to begin manufacturing, working towards a commitment to innovation, minimising environmental damage, and above all else, the safety and wellbeing of its employees.

Dantec's parent company, Elaflex, has recently published its new sustainability strategy, aiming to cement the positioning of environmental responsibility at the forefront of the company's future. Combining climate protection, recycling initiatives and health and safety, Elaflex is committed to a sustainable and safe future without

compromising on quality.

Jon Loach, managing director of Dantec, discusses why the issue of safety is paramount.

Protecting human health

Our commitment goes far beyond just compliance with regulatory and legal requirements. The health and safety of our employees is of the utmost importance. And although it may seem like human safety is taking a step away from sustainability, it's essential that all organisations ensure that their manufacturing processes and services are as safe as they can be to help keep accidents at bay.

At Dantec, the safety and wellbeing of our employees is our top priority. By providing ergonomic working conditions, we are able to almost eliminate workplace accidents. It's better to prevent a situation from happening rather than dealing with the consequences - especially when it comes to occupational safety. Providing work aids such as forklifts and cranes also forms part of our focused commitment as a group to protect our employees whilst at work.

Protecting the environment

Here at Dantec, we ensure that our products are equipped for safe handling, whenever and wherever they are in use. Our product range includes equipment for handling hazardous goods including nozzles,

hoses, fittings, rubber bellows and couplings, ensuring that, throughout a wide range of industries, our products ensure environmentally-friendly and safe media transfer – from terminal to nozzle.

Precision engineering for handling hazardous goods

Elaflex is committed to providing first-class products of the highest quality. Safety, environmental sustainability and customer satisfaction are our top priorities. Through our certification accreditation according to ISO 9001 and AD 2000 Wo, as well as regular audits by external bodies, our customers can rely on a high-functioning and professional quality management system.

As a member of various international organisations, we participate in the creation or amendment of norms and standards that contribute to the maintenance of occupational safety and to permanently improve efficient, economical and environmentally friendly fuelling technology.

The certificates, memberships and seals of approval mentioned here attest to the high level of professional competence granted to us and our employees and serve as recognition of high quality. Through continuous improvement processes, we work daily to raise our standards even further.

Elaflex is committed to providing first-class products of the highest quality. Safety, environmental sustainability and customer satisfaction are our top priorities.



A well-designed and manufactured product should last for decades, and our commitment to the environment goes far beyond our compliance to legal and regulatory requirements.



Quality products save resources

A well-designed and manufactured product should last for decades, and our commitment to the environment goes far beyond our compliance to legal and regulatory requirements. Low prices and high demand is still very much trending in most industries. However, the increased use of inferior goods is likely to lead to greater wear and tear and replacements, which in turn use up scarce resources as well as increasing waste production.

Here at Dantec, we manufacture hoses that are fully repairable, providing a maximum service life. As well as the economic advantage to our customers, the environmental impact of producing quality products is significantly reduced - helping

to minimise waste, protect scarce resources and reduce carbon emissions.

Dantec as part of Elaflex: looking forward

The future is bright for Dantec as part of the newly rebranded Elaflex group. Combining Dantec's high quality composite hoses with the far-reaching industry expertise of Elaflex enables customers to access even better connection technologies that enhance the safety and security of their dangerous materials, whatever the industry.

To find out more about how Dantec's composite hose products can support your tank storage needs, please visit www.dantec.com.



Spotlight on security training

Teamwork Security was formed in 2004 in response to the demand for Port Facility Security Officer training following the introduction and enforcement of the ISPS (International Ship and Port Facility Security) Code under amendments to the 1974 SOLAS Convention.

Since its inception, Teamwork Security has expanded its security offering to cover the full range of ISPS and security consultancy services to the shore based maritime community, thereby enabling them to keep abreast of security risks and to implement measures to counteract the ever-increasing threat.

Teamwork Security also works closely with the Maritime Security Division of the Department for Transport (DfT) thereby ensuring that Teamwork's clients are made aware of and adhere to the latest legislative changes and compliance requirements.

For 2023, Teamwork Security has announced that it has increased the number of trainers in order to meet the demand for the Port Facility Security Officer (PFSO) Refresher training which is now mandated by the Department for Transport to be required by PFSOs every five years. The online fully approved and accredited one day PFSO refresher course is also available to TSA Members at a reduced rate. The training is delivered using Microsoft Teams and delegates each receive

their own personalised course notes, colour printed on 120gsm paper and wire bound.

The initial three-day PFSO course is also available online or face-to-face (trainer travel and accommodation costs apply for face-to-face) and it is fully DfT approved and accredited, with delegates each being provided with their own personalised colour printed course notes.

Finally, the most popular product in the Teamwork Security portfolio, ISPS Support, is now available to TSA members at a discounted price. Contact Chris Amos for your personal quote at chris.amos@teamwork-security.co.uk

For further information on the ISPS Support and training courses available, please visit www.teamwork-security.co.uk.

teamwork
security
& training services Ltd

REYNOLDS OPENS UP A NEW WORLD OF LEARNING FOR APPRENTICES

Reynolds Training Services has earned a place on the register of apprenticeship training providers (RoATP).



Our apprenticeship training for the industry has taken a major step forward.

Reynolds Training Services, an organisation devoted to training and developing competence for specialists in bulk liquid storage and handling, has earned a place on the register of apprenticeship training providers (RoATP). This is important; it widens our base for delivery and provides us with an opportunity and freedom to work more closely with clients and apprentices. In doing so, we will be delivering a carefully calibrated programme that will be the foundation for career development within the sector. From this exciting educational platform, we will give apprentices an unrivalled start to their careers – whilst supplying the sector with unrivalled operators that will spearhead the energy transition and meet the challenges of an industry moving from fossil fuels to supporting a greener future.

Fantastic news

Learning we'd earned a place on the RoATP sent a ripple of excitement

through our offices, as years of work trying to be included on this list finally paid off. Since that initial notification of our inclusion, we have undertaken the onboarding process and are already 'transferring' apprentices across to Reynolds, as well as planning for the next cohort in September. Of course, to get to this point, there's no question you have to have the right support. The RoATP is a government-led register of specialist companies, so you need impeccable backing. Reynolds' inclusion is, in no small part, thanks to the Tank Storage Association (TSA). They and their members have stood by us and worked with us to ensure that we had the right support when applying. So, to the TSA, and its members, we would like to extend a massive thank you.

An incredible chance to deliver

When the initial excitement settled, we were humbled by the opportunity; being on the RoATP means being able to offer truly bespoke apprentice training for businesses. That word, bespoke, is crucial. Whatever the industry needs, we can deliver – empowering our learners with properly focused courses. The bulk liquid storage industry is different from everything else, and it needs niche training that, in turn, is just as specialised. Here's one example: our modular programme has been developed to recognise the activities operators undertake in the sector, providing

practical performance activities at the NCPM in key operational standards. This includes internal and external pipeline receipts emulating specific situations apprentices will encounter in the real world.

But it's not just Reynolds or the individual client businesses that contribute to the aims and objectives of these courses. We are constantly in discussion with the rest of the industry. This means we can make learning for the next generation a collective effort that's built around raising the level for all.

Why do we need to put a spotlight on apprentices?

Apprentices will play a bigger role in the years to come – at least doubling the momentum we've seen in our industry over recent years. There are several reasons for this. Apprentices will help us clear clouds hanging over current recruitment efforts. There's been a misunderstanding that's blighted bulk liquid storage and handling's people growth in recent years. The industry has been wrongly labelled as "dirty" when, ironically, our collective know-how and understanding hold the keys to a greener future – new environmentally attuned fuel solutions like hydrogen will need our insight if they are to be received, stored and moved safely. On top of this, the industry has suffered the same issues many have, from the impact of Covid to a workforce that is depleting as seasoned

employees migrate to retirement. This means our industry needs to offer the talent of the future something extra: apprenticeships are where our employers can shape that offering. They give promising candidates training and a purposeful place on a team; in return, employers get staff who soon get to grips with the job at hand and bring with them new energy into the sector.

While we're trying to boost numbers, this is ideal. But what else is making apprenticeships a more popular choice? It's safe to say that people who might once have picked an academic pathway are now looking at this route.

Education is an onerous investment for the individual, and apprenticeships are a great way for people to earn (instead of accumulating debt that will put a hole in their pay packet for decades) whilst at the same time developing lasting relationships that build careers. And even if debt was not an issue, attitudes towards learning are changing. Gone is the assumption that you must automatically aspire to an academic route. Many of the sharpest, most able people want to "learn by doing" rather than spend too much time in a classroom or lecture theatre. Those who are undertaking apprenticeships are already seeing results from their hard work. They are taking the knowledge and practical

experience they have gained and are advancing to supervisory positions within their organisations. By spending more time being visible to industry bosses, apprentices are establishing themselves as a real force in the industry.

Making a case for a greener, more prosperous future

Senior leadership teams are recognising the promise of apprenticeships, and the news of successful apprentices making a real impact on the ground will hopefully inform and encourage heads of our sector at the corporate level. In many ways, this top-level appreciation will be the final piece in the jigsaw. Investment and buy-in from the C-suite will mean an important boost to not only the team sizes out in the field but to the breadth and depth of shared knowledge within the sector. It will boost learning and drive teams at all levels, while improving understanding and helping to meet our collective ambition for a safer, sustainable future. This greater number of trained specialists working in UK facilities will be able to expand what the sector can cater for. They will be able to take the know-how developed over years of working with fossil fuels and begin to adapt and apply it to storing and handling greener fuels like hydrogen. Needless to say, that's good for the planet, great for business and the essential key to providing many successful careers.



The voice of the bulk storage and energy infrastructure sector



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