



# INSIGHT

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

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## THE EUROPEAN TANK STORAGE SECTOR: 2050 AND BEYOND

The quarterly  
magazine from  
the Tank Storage  
Association

Also in this issue, we explore the future  
of energy storage, the decarbonisation of  
transport and the UK's newly launched "jet  
zero" strategy.



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

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**Peter Davidson**  
Executive Director, TSA

Welcome to the autumn edition of Insight. For this issue, we explore the implications of the energy transition, and what it means for the tank storage sector. A new report by the Hague Centre for Strategic Studies, analysing the role of tank storage in the transition to net zero, highlights the transformational challenge faced by the sector as it looks to 2050 and beyond. Most crucially, it points to the need for constructive cooperation in the journey towards climate neutrality. In this issue, we also explore the diverse options currently being proposed with regard to the future of energy storage as well as the decarbonisation of transport, including the UK's newly launched "jet zero" strategy which sets out how the country plans to achieve net zero aviation by 2050. 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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# THE OIL STORAGE INDUSTRY - FUTURE OPTIONS

**Channoil Energy's Chairman, Charles Daly, explores future options for the oil storage sector as it looks ahead to 2050 and beyond.**



**B**ased on the current theory that the life of the fossil fuel industry is less than 30 years or so, to take us beyond the current 2050 target for eliminating fossil fuels from the world, then we must look at what potential alternative uses these large areas of primarily waterfront locations can be turned to.

The current thinking is that about a third of storage terminals that are currently employed storing chemicals will continue in use. Those storing vegetable extracted oils will also continue in use but may be under capacity pressure.

The results will be that current transportation fuels terminals storing gasoline, diesel, kerosene and bunker fuels should become more or less redundant. That is the theory. However, once we remove the political rhetoric, what is a most likely scenario? The developed world, primarily the G6 countries plus the EU 27 might be able to achieve their stated targets of Net Zero by 2050. The stated Net Zero

targets will be a struggle to achieve. What exactly is meant by Net Zero? Will it be achieved?

The history in this respect is not good. When it came to environmental clean-up, waste was exported from these (G6 + EU) countries to the developing world in order to achieve their own targets. The same occurred with the first-generation biofuels. In this case swathes of land were turned to palm oil and sugar cane to create so called clean fuels. Then it was realised that when land use change was considered, these biofuels were no better than fossil-based ones in terms of carbon emissions. Could the same happen with Net Zero? Net Zero implies that for every tonne of carbon emitted by the G6 +EU 27, a tonne of carbon needs to be eliminated elsewhere on the planet. Maybe this can be achieved by planting trees in the developing world and using this argument to offset ongoing fossil fuel use but still achieving Net Zero. Nonetheless, efforts are being made to decarbonise power through the furious pace of building offshore wind and desert based solar farms. This, coupled with nuclear generation, will eliminate a substantial amount of the carbon emitted by the power generation industry.

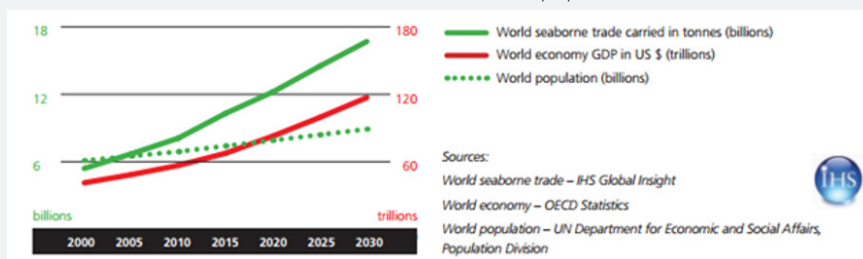
Now the world is moving towards a major conversion of the transport fleet to electricity. The case for this



change has been pushed by political rhetoric but has not yet been made or fully researched. The scarcity of the battery building metals and the damage to the environment created by the energy and human effort needed to mine them, has not been sufficiently explained to the general population and if and when the message gets through, there will be a massive outcry and could result in a slowdown in take-up or even rejection of the EV.

How does this bear on the oil terminal? The reality is that those oil terminals that are sea fed and have lengths of waterfront, can shift their business to other waterborne trades, albeit with some investment. The first is the container trade. If the growth forecasts for international trade are to be believed, then an increase in container traffic is to be expected.

Predicted increases in world seaborne trade, GDP and population (Source: IHS)



The next change would be driven by the fact that oil storage is only one form of energy storage and therefore other forms of power storage should be considered as potential use for the redundant tank farms. At this stage of this

revolutionary change to energy supply, it is impossible to guess which technology will win out and what will be the game changer. In this article we will try and review the diverse options currently being proposed as the future storage of power options.

### Li-Ion Grid scale batteries

The most obvious is the Li-Ion battery. There are currently many grid scale batteries being built around the world, especially in those countries that already have surplus wind and solar power. These batteries can store surplus cheap power when the grid is overloaded, at night for example or on extremely sunny periods. One of the arguments against Li-I is the one stated above of the damaging impact to the environment in those countries where the basic metals are mined.

These metals are lithium, cobalt and manganese. These rare earths are so called because they are not abundant. They occur in conflicted areas and are subject to human exploitation. Think of countries such as the Congo, Mali, Senegal and

China. There is another reason to be cautious about these large Li-I batteries. They are known to have the propensity to self-combust and once the fire takes hold it is almost impossible to put out, as it is a chemical reaction. Recent cases resulted in a battery fire in a car on a car carrier in the mid-Atlantic that resulted in the ship sinking with the loss of its cargo of luxury cars. Therefore, placing of these storage batteries needs to be away from population centres and hazardous materials, which seems to defeat the object of the exercise in the first place.

Another problem not clearly publicised is that the weight of the EV is much more than a conventional one and this creates more tyre and road surface wear. All these need energy to produce and repair. These considerations need to be taken into consideration when evaluating the potential damage to the environment in a 'mine to wheel' analysis.

Volvo recently produced an interesting report on this subject. This report presents the carbon footprint of the new fully electric Volvo C40 Recharge, in comparison with a Volvo XC40 ICE. The major finding was that the accumulated emissions from the materials production and refining, Li-ion battery modules and Volvo Cars manufacturing phases of C40 Recharge are nearly 70% higher

than for XC40 ICE. However, the savings in carbon emission during the running of the two vehicles shows that carbon emission break-even occurs at round the 110,000 km when utilising global electricity production mix.<sup>1</sup>

## Hydrogen

Storing energy in the form of hydrogen appears to be gaining attraction in the current climate. Hydrogen made by the electrolysis of water seems so easy to produce and the revolutionary fuel slips off a politician's tongue like ice. What is electrolysis and if it is so easy, why has it not been done at scale to date?

Electrolysis is the splitting of a molecule by the use of two electrodes and requires lots of electricity. A molecule of water H<sub>2</sub>O holds two atoms of hydrogen and one atom of oxygen. Splitting this molecule will give you the hydrogen and the oxygen, simple! If this hydrogen is being used as a store of energy, then why consume so much energy to produce it? The ratio of production is as follows: 50KWH is needed to electrolyse 9 litres of water to produce 1 kg of H<sub>2</sub> (99.9% purity).

A further constraint is that hydrogen is a very light gas and to store it requires cooling it to below minus 240°C. This in itself requires considerable amount of energy. As an example, a liquefier for hydrogen production of 27,000 Kg per day will have a capital cost of

around \$US 100 million and a power demand of 8-10 KWH/Kg.

The other problem with hydrogen is that it is a tiny molecule and it escapes easily, therefore storing it costs a lot of depending on the form of storage. Underground storage (the cheapest) could be \$1.80 per Kg or \$1,800 per tonne. Compare this with current fossil fuel storage rates of \$3.00 per tonne. However, hydrogen can be useful in high cost single consumer applications, such as the manufacture of steel or fertilizer. When comparing hydrogen as a fuel against cheaper and better alternatives, the case fails. Politicians are very glib about this new wonder fuel, but are burying their heads in the sand when it comes to the practicalities - they are for someone else to solve. Professor Sir Dieter Helm, in a recent assessment of the UK Government's Energy policy paper calls it a 'Lobbyist's Utopia'. I think this is an astute observation.

For instance there is no mention of the enormous cost of converting

domestic heating and cooking systems wholly to hydrogen.

This exercise will require changing the current grid and every boiler and cooker in the world. The limitation of injecting hydrogen into natural gas without change in infrastructure is 20%. This constraint will place great strains on households that will need to be driven by electric cooking in order to completely eliminate fossil fuels. This also implies a massive write off of the gas grid infrastructure. From the storage industry point of view there is no case to pioneer building storage for pure hydrogen until the economic case for its use is made.

## Hydrogen in chemical carrier composition

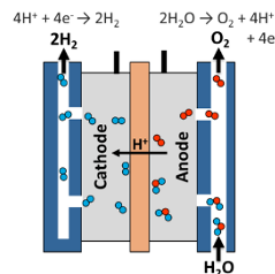
The other case is that hydrogen can be carried within chemical compounds that are easier to handle and store. These routes are already well known as is the case for most hydrocarbons. However, if we want to eliminate carbon we need non-carbon compounds.

[Predicted increases in world seaborne trade, GDP and population \(Source: US Energy Department\)](#)

## How Does it Work?

Like fuel cells, electrolyzers consist of an anode and a cathode separated by an electrolyte. Different electrolyzers function in different ways, mainly due to the different type of electrolyte material involved and the ionic species it conducts.

## Polymer Electrolyte Membrane Electrolyzers



Most discussed at present is ammonia ( $\text{NH}_3$ ). This is a liquid at Standard Temperature and Pressure (STP) and can be handled by most systems, except that it easily combines with water to produce  $\text{NH}_4(\text{OH})$ . This product is commonly known as ammonia water and is used as a domestic bleach. In concentrations above 40% ammonia it causes burns to the skin and its vapours cause irritation to the eyes. It is corrosive to copper and zinc and can explode in an exothermic reaction when in contact with strong acids such as Sulphuric Acid. It has a boiling point of  $38^\circ\text{C}$ , which implies a need for cooling in warm climates.

Therefore its use as a carrier for hydrogen has certain limitations and will require investment in current mild steel terminals for it to be handled at scale.

Nonetheless ammonia is expected to be the prevailing option for long-distance hydrogen transport as it is already known how to handle it and it is just a question of scaling up. It will be used to transport hydrogen from sunny producer countries to cold consumer countries.

Other methods of carrying hydrogen includes the use of hydrides. However the problems with non carbon based hydrides is that they require a lot of heat to release or bond the hydrogen atom and most of the stable ones are metallic. These can be handled as

powders. Therefore their use will be very industry specific. One for the silo rather than the oil tank.

### **Liquid Air-Cryogenic battery**

The development of liquid air cryogenic batteries is currently being tested at pilot and commercial scale in the UK, Spain and the USA. This technology is well known and should represent a simple solution to the power storage issue. Air is liquefied overnight when power cost is low and stored in liquid form. A synchronous turbine is coupled to the tanks and runs in slow rotation. When the grid calls for additional power the turbine can be spooled up to provide grid based power by releasing the air from its liquid state. The only issue with this technology is that it is not long duration power.

### **The liquid alternative fuels** ***Methanol***

There is an argument in favour of methanol, particularly cellulose derived. Sustainable production of methanol is already being used in powering the transport sector but can also be used in clean cooking. Sustainable methanol ( $\text{CH}_3\text{OH}$ ) can be produced from biomass, timber or by fusing captured  $\text{CO}_2$  and hydrogen produced from cheap offshore wind powered electrolysis. Although a caution here from the paragraph on Pure Hydrogen above. Nonetheless, if the economics of methanol as a fuel are proven and carbon emissions pricing is the

key to this, then storage terminals can certainly handle it. It is a light colourless liquid with a density at  $15^\circ\text{C}$  of 0.786 and a Flash point of  $11^\circ\text{C}$ . Therefore very similar to the lighter petroleum fractions that are regularly stored.

There are already a number of ships currently operating methanol powered engines and it is the author's belief that a substantial number of new builds will be delivered into the fleet in the future. This is one for the bunker industry to think about, since they have not been traditionally used to handling low flash material.

### ***Crop Based Biofuels***

These are currently being used and stored in oil terminals where blending occurs to meet the various road transport fuel obligations imposed by Governments. They are the solution only in the short term if the drive to EVs remains as positive as it is now and whilst the future ban of sales of conventional ICE vehicles stays in place.

Therefore they are not likely to be a long term solution. They cannot continue to compete with food demand as the planet's population continues to grow.

### ***Liquefied Natural Gas (LNG) - Liquefied Petroleum Gas (LPG)***

Thus far we have seen LNG used in ships and LPG in cars as autogas. However, as these are derived

from fossil fuels, they do not have a long term future. In reality they will probably be around for a long time as they can be classified as lower emission fuels with respect to carbon emission when compared to the alternatives.

## Conclusions

From the foregoing, it is clear that Oil Storage Terminals will need to change their functionality. They will need to invest in diversity and handling capability. The future is not sufficiently clear at the moment and brave pioneers may or may not get it right. The panaceas of liquid hydrogen as the fuel of the future is not proven.

Alternative uses can include battery storage or other forms of liquid power alternatives to fossil fuels. Timing is going to be critical as we observe the development of clear thinking on carbon emissions valuations and the derivative markets that are needed to facilitate investment decisions. The technology of the future is not known and a number of

game changers could be just over the horizon. Clarity on CCUS and Nuclear power is sorely needed by industry in order to cause a wave of serious investment in realigning the storage terminal industry.

The article "*The oil storage industry - future options*" is by Charles L. Daly. For further detailed studies in the sector, contact [consult@channoilenergy.com](mailto:consult@channoilenergy.com). For more information, visit [www.channoilenergy.com](http://www.channoilenergy.com)

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# Remote operated shut-off valves

Remotely Operated Shutoff Valves (ROSoV) are valves designed and installed for the purpose of quickly isolating plant items which are used for the storage of hazardous substances. These valves are also known as Emergency Isolation Valves (EIV) or Emergency Shutdown Valves (ESDV).

TSA associate member JBP, have supplied hundreds of these valves to Storage facilities throughout the UK, Ireland, Mauritius, Kenya, Ghana, The Caribbean, and Algeria. They have also supplied specially

designed hydraulically operated ROSoV to an oil production plant in Africa, where conventional power supplies were limited. For over 45 years, JBP has been at the forefront of piping and valve supplies. With over £5M of stock, and backed by a privately owned international group with over \$500M in revenue, JBP has the experience, stock, infrastructure, sustainability, and creativity, to service their customers in over 30 countries.

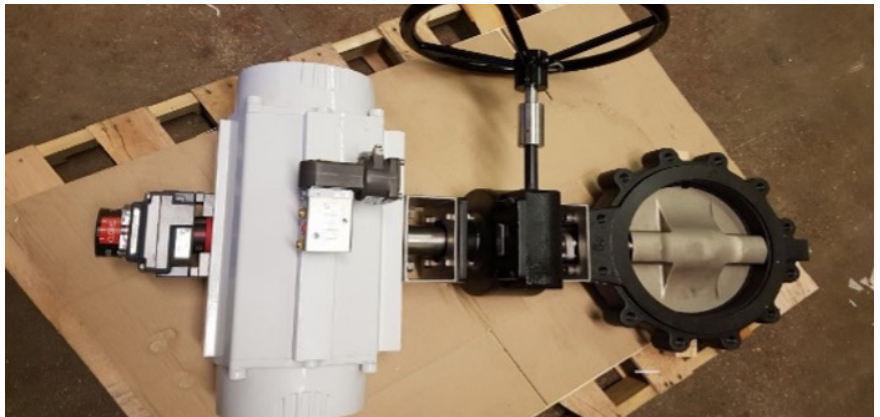
For more information about JBP, please visit [www.jbpipeline.co.uk](http://www.jbpipeline.co.uk). Contact Steve McGourlay: [smcgourlay@jbpipeline.co.uk](mailto:smcgourlay@jbpipeline.co.uk).

Hydraulically operated remote shut off ball valves.



Set up for a tank side valve with actuation mounted across the pipework to eliminate the actuator fouling the tank.

**JBP**  
John Bell Pipeline



# THE EUROPEAN TANK STORAGE SECTOR: 2050 AND BEYOND

**The Hague Centre for Strategic Studies has published its fourth report on European tank storage in global supply chains.**



The EU has set a binding target of achieving climate neutrality by 2050<sup>1</sup>.

This requires current greenhouse gas emission levels to drop substantially over the next decades. As an intermediate step towards climate neutrality, the EU has raised its 2030 climate ambition, committing to cutting emissions by at least 55% by 2030<sup>2</sup>. The UK Government has also committed to achieving net zero by 2050 and the Climate Change Act<sup>3</sup>, as amended in 2019, reflects this ambition. Leading up to COP26, the UK Government has also set out its new strategy for Net Zero<sup>4</sup>. This strategy aligns with the emissions target of net zero by 2050 and a 78% reduction from 1990 to 2035, including international aviation and shipping. It also includes commitments such as that to fully decarbonise electricity generation by 2035, to end the sale of new petrol and diesel cars by 2030 and for all cars to be fully zero-emissions capable by 2035. Funding to kickstart the UK hydrogen economy is also included along with support

for two industrial clusters. Many other countries across the globe have also announced or are considering a target of reducing emissions to net zero by 2050. In the transition to a net zero energy system, the bulk storage and energy infrastructure sector undoubtedly has an important role to play. The role, challenges and opportunities for the sector in this context, have been explored in a recent report by The Hague Centre for Strategic Studies. The report, titled *"The European tank storage sector: 2050 and beyond"*,<sup>5</sup> was commissioned by the Federation of European Tank Storage Associations (FETSA), of which the Tank Storage Association is an active member. This is the final report in a series of four papers analysing the role of tank storage in the energy transition.

The first paper *"The European tank storage sector and the global energy land-scape"* sets the scene by examining broad developments in the global energy sector and their impact on tank storage. The second paper *"European tank storage in today's global value chains: What role does it play in our economy?"* outlines the current role of the tank storage sector in maintaining Europe's prosperity, competitiveness, and geopolitical position. The third paper titled *"European tank storage in global supply chains: Outlook to 2030"* analyses the role of European tank storage in the global energy



system in the medium term (2030-2035). The new report seeks to distinguish long-term trends for energy infrastructures by analysing technological developments against the background of global climate ambitions.

### **Future infrastructure needs**

The report is clear that, the decline of oil in the European energy mix by 2050 and the concurrent increase in usage of alternative fuels will necessitate adaptation of the existing tank storage infrastructure. While many alternative fuels such as biodiesel, bioethanol, Hydrotreated Vegetable Oil (HVO) and Sustainable Aviation Fuels (SAFs) can make use of existing infrastructure without requiring any significant or only minimal changes in existing storage infrastructure, most storage capacity would need to be retrofitted in some way, for example to prevent the degrading effect of the new fuel, to adjust to new freezing temperatures or to prevent contamination and microbial degradation. In addition, the report points out to the lower energy density of many alternative fuels. This will result in more storage being needed in order to provide the same amount of energy as today, resulting in the need for investment by operators in the sector as well as additional spatial requirements.

### **The international playing field**

Looking ahead, the report points out to a geographical shift in both oil

production and consumption which will centre towards the Middle East and Asia and make carbon neutrality pledges in the long-term highly dependent on the actions of regions outside of Europe<sup>6</sup>. Furthermore, at least up to 2050, countries around the world will remain dependent on the Middle East to provide energy security of supply. And competition between low-cost suppliers in the Middle East might lead to downward pressure on global oil prices, while volatility and uncertainty will dominate the global market. At the same time, the report notes that a new geopolitical landscape will emerge. This landscape is likely to feature new dependency relations between producers and consumers and the emergence of new power politics in countries with critical minerals and low-cost hydrogen production facilities. Most of the (green) hydrogen used in Europe will likely be produced in countries where renewable energy power can be cheaply and easily generated, such as in the Middle East and North Africa<sup>7</sup>. Renewable energy generation, on the other hand, is dependent on critical minerals and technologies largely produced in China.

### **Pathways to 2050**

It is clear that the pathway to a net zero energy system is yet uncertain. The report by The Hague Centre for Strategic Studies analyses a variety of scenarios, taking into account the

perspectives of the International Energy Agency (IEA), Equinor and TNO. It distinguishes three broad pathways to 2050, which account for differing degrees of achieving global climate ambitions.

The first pathway (Rivalry, STEPS) emerges as the most pessimistic from an environmental perspective, foreseeing a continued use of fossil fuels and the slowing down of renewables' deployment due to protectionism and a decline in international cooperation. Against this background, on the global scale, tank storage would continue storing fossil fuels with little change in terms of the large-scale usage of new products. In Europe, the demand for fossil fuels would decrease but not significantly and deteriorating trade relations would disrupt global supply chains, making it more difficult for Europe to satisfy its domestic energy demand, particularly with regard to new energy carriers such as hydrogen, the bulk of which will be imported rather than produced in Europe.

The second pathway (Reform, APS) refers to a scenario in which governments are making some progress toward net zero, but the gap between ambitions and policies is too large, leading to insufficient progress. In the market-driven world described in this pathway, the storage sector would have to be prepared to keep storing fossil fuels while balancing out the increasing



demand for low-carbon fuels, a task that companies and other players in energy supply chains are already trying to tackle. In this scenario, the report notes that the transition is likely to be characterised by volatility and uncertainty, followed by a more stable period where the world is functioning in a sustainable way. However, it also warns that it is not a given that the transition period will last for a pre-determined amount of time. As such, if the ambitions' gap is not closed, the transition period will continue well until 2050 and possibly beyond.

The third (Rebalance, NZE) and final pathway, whilst the most desirable from a climate perspective, appears to be also relatively idealistic in that it relies heavily on national governments and companies to act together, whereas historical trends show differently<sup>8</sup>. In this context, the tank storage will have to adapt to changing circumstances in the global energy market by restructuring their business model and building new infrastructure. With electrification becoming one of the main energy sources, stationary battery storage capacity would have to be extended. Entire supply chains will also have to be established to ensure a stable supply of hydrogen in its different forms (ammonia, methanol, LOHC, etc.). The bulk storage and energy infrastructure sector would therefore need to respond to changing developments and provide new services in relation to the changing economic and geopolitical landscape.

### Looking to the future

As it looks to the future, the report

concludes by highlighting the need for governments across Europe to support domestic industries towards a net zero energy system and in setting up new supply chains. Constructive cooperation both domestically and internationally will also be key in the journey towards climate neutrality. What is clear is that reducing emissions will require partnership, significant investment and well-coordinated efforts by governments, businesses, supply chains, consumers, and other stakeholders. Above all, as an essential partner in the energy transition, the bulk storage and energy infrastructure sector is committed to the innovation and evolution that will be necessary to succeed and to working with all partners to seize the opportunities of tomorrow.

For a copy of the report, "*The European tank storage sector: 2050 and beyond*", visit <https://hcsc.nl/report/the-european-tank-storage-sector-2050-and-beyond/>

The report, "*The European tank storage sector: 2050 and beyond*", is by Irina Patrahau, Michel Rademaker and Lucia van Geuns.

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## UK Government publishes Jet Zero strategy

In July 2022, at the Farnborough International Airshow, the UK Government launched its Jet Zero strategy which outlines how the country plans to achieve net zero aviation by 2050.

Aviation is currently responsible for around 2.5% of global carbon dioxide (CO<sub>2</sub>) emissions. The UK strategy aims to build on the government's Net Zero strategy and the Transport decarbonisation plan, which outlines the government's commitments and the actions needed to decarbonise the entire transport system.

The Jet Zero strategy sets a trajectory for the sector to reach net zero by 2050, with a pathway that should mean that aviation emissions stay below the pre-pandemic levels of 2019. It aims for domestic flights to achieve net zero by 2040 and for all airport operations in England to be zero emission by the same year. It also includes a progress review every five years. Progress will be measured against the emissions reduction trajectory and key performance indicators (KPIs) which have been set out across each of the policy measures.

As part of the new strategy, the government plans to have at least five commercial sustainable aviation fuels (SAF) plants under construction by 2025. SAF production and uptake will be supported by the introduction of a

SAF mandate by 2025 with the aim to see at least 10% of SAF (c.1.2 million tonnes) in the UK aviation fuel mix by 2030. This is in addition to the ongoing support through the government's advanced fuel competitions.

In this context, the government has now launched the £165m Advanced Fuels Fund to support pioneering projects. The fund will be available for three years and build on the progress made in previous advanced fuels grant competitions, such as the Green Fuel Green Skies (GFGS) competition and the Future Fuels for Flight and Freight Competition (F4C).

The UK government is also moving ahead with the next phase of the £1m competition to provide the first ever net-zero 100% SAF-driven transatlantic flight. The competition was launched in May 2022 to support the delivery of a UK- US flight running on 100% SAF. The winner of is due to be announced by autumn 2022 and the government plans to then work with the winning airline and delivery partners to ensure the flight can take off in 2023.

For more information on the 'Jet Zero strategy: delivering net zero aviation by 2050', visit [www.gov.uk/government/publications/jet-zero-strategy-delivering-net-zero-aviation-by-2050](https://www.gov.uk/government/publications/jet-zero-strategy-delivering-net-zero-aviation-by-2050).

# THE FUTURE OF TRANSPORT AND LOGISTICS: MANAGING CRITICAL INFRASTRUCTURE AND PREPARING FOR THE ENERGY FUTURE

**Fuelled by the government's transport decarbonisation plan, the industry is committed to reaching Net-Zero by 2050.**



With transport the largest contributor to UK greenhouse gas emissions, at 27%, there is an urgent need to act and reduce them.

Fuelled by the government's transport decarbonisation plan, the industry is committed to reaching Net-Zero by 2050.

The picture varies across modes. Road transport and logistics organisations are currently at a crossroads, deciding whether to move to the erratic HVO market or electric and hydrogen fuelling, which requires higher upfront costs.

Aviation is the hardest area of logistics to decarbonise due to the energy intensity of flying. The focus in the short to medium term is to reduce GHG emissions by accelerating the delivery of sustainable aviation fuels and replacing older planes with newer, more fuel-efficient aircraft. While road and aviation transport and logistics operators plan their next steps, they also face the challenges of maintaining critical assets and

reducing risks to the environment, their business, and reputation. Due to the lower GHG emission freight option, logistics operators are shifting modes to rail and water. However, this modal shift makes it even more crucial for rail and shipping operators to ensure they maintain their critical assets compliantly.

Your primary (tank), secondary (bund), and tertiary (separator) containment systems are your first, second, and third line of defence against environmental pollution. Regular asset maintenance is essential to keep all pollution prevention equipment working at optimum efficiency, safeguarding transport and logistics businesses handling and storing oil or other hazardous materials.

Shirley Miles, Head of Environmental Protection at Adler and Allan, discusses how partnering with a trusted environmental protection provider can help you implement the standards correctly to ensure your critical infrastructure remains compliant.

## Evaluating industry awareness

In May and June 2022, Adler and Allan, along with Logistics UK, ran a series of polls on social media and at the Multimodal exhibition.

The survey explored asset maintenance regimes and knowledge of BS EN 858-2:2003 Separator systems for light liquids, the current standard by which separators/



interceptors should be operated and maintained.

- 74% knew the condition of their critical assets, such as fuel tanks, bunds, and separators, and had regular maintenance schedules for each.
- 56% understood the maintenance regime required by BS EN 858-2:2003 for separators.
- Just 40% followed the requirement to have automatic warning devices fitted to their separators.
- Similarly, only 40% adhered to the guideline to perform a five-yearly integrity inspection on their separators.

### **Practical plans for primary, secondary, and tertiary containment**

A pollution incident caused by a poorly maintained asset or inadequate containment is a strict liability offence. Failure to adhere to standards is a key factor in considering enforcement action, with potential fines of up to 100% of an organisation's pre-tax profits. A robust asset maintenance programme provides information for service log scrutiny during routine inspections or following an incident. It is also an essential part of pollution prevention.

#### **Primary containment (tanks)**

Primary containment is the most important means of avoiding major pollution events. It includes equipment in direct contact with stored substances, such as tanks, vessels, pipework, valves, and pumps,

as well as equipment that prevents the loss of contaminants under abnormal conditions.

In addition to weekly visual checks, you should use a qualified technician to perform a detailed annual inspection and service of your storage facilities. Transport and logistics operators should also commit to preventative measures, including:

- Tank audits and inspections to test for leaks and structural concerns
- NDT testing against API standards to evaluate asset quality without destroying serviceability
- Tank lining to protect against deterioration and resist water and chemicals
- Tank cleaning to remove harmful build-up and contamination

#### **Secondary containment (bunds)**

Regular inspection and cleaning are key to an effective bund maintenance programme, ensuring your secondary containment system is structurally sound and free of contaminants. This should include:

- Bund audits to assess performance and identify defects before they compromise integrity
- Bund cleaning to remove leaked tank contents, even in hard-to-access spaces
- Bund lining to protect against deterioration, degradation, and structural weakness.

#### **Tertiary containment (separators)**

Separators form an integral part of a tertiary containment strategy as

they are designed to trap harmful light liquids before they enter the surrounding area. A preventative maintenance plan should cover:

- A separator alarm system that monitors oil, silt, and liquid levels, ensuring assets are operating correctly and preventing pollutants
- Six-monthly inspections by an experienced environmental expert to check levels and functionality of key components
- Five-yearly integrity audits that check for fractures, displacements, and groundwater ingress

Proactive risk reduction services and tailored, specialist support can significantly reduce the risk of an environmental emergency – and the penalties imposed following a pollution event.

Decarbonisation is a defining moment for the transport and logistics industry. Ensuring your critical assets remain compliant helps you rise to the Net-Zero challenge and shape a sustainable business strategy, through the energy transition and beyond.

For a copy of the white paper, 'Managing critical infrastructure and preparing for the energy future', visit [www.adlerandallan.co.uk/sectors/transport-and-logistics/managing-critical-infrastructure-preparing-energy-future-whitepaper/](http://www.adlerandallan.co.uk/sectors/transport-and-logistics/managing-critical-infrastructure-preparing-energy-future-whitepaper/)

# THE POWER OF PARTNERSHIPS

**UM Terminals has many blue-chip customer relationships which extend over many decades.**

Vic Brodrick, Managing Director,  
UM Terminals



UM Terminals has many blue-chip customer relationships which extend over many decades. The Liverpool-headquartered company maintains such strong partnerships because of its willingness to invest to ensure that its capabilities continue to evolve to meet the current and future requirements of its clients.

UM Terminals 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.

The UM Terminals' team has recently demonstrated its willingness to flex and invest to meet the needs of one long-term customer in the chemicals sector. 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 is taking a much larger tank that has been specially converted to store an AdBlue product. In addition, the company will also maintain a further tank for a product used in odour treatment.

A further major appeal for the customer is the available logistics network with the flexibility of the products being transport in by vessel or road and out by road.

Vic Brodrick, who took over as UM Terminals' interim Managing Director in June, said: "We are delighted to have been able to meet the very specific requirements of a long-term and highly valued customer. We are committed to enabling our customers to grow with us and we pride ourselves on our adaptability and, where appropriate, willingness to invest to ensure that the facilities clients require are best-in-class. Our customers depend on us to meet a wide range of demands, sometimes enabling them to secure further strategic growth and sometimes to meet supply chain challenges necessitating a rethink in the storage provision to ensure business continuity and future resilience. In addition to providing this industrial solutions customer with significantly enhanced storage capability in Liverpool, we are also in discussions with them about them taking additional storage at another of our terminals in the



UK. Our customers value our team's wider skill-sets including engineering, logistics, health and safety and compliance. Providing our customers with the complete solution takes a real team effort."

Vic replaced Bryan Davies as Managing Director and is combining his new interim role with his other role as the company's Commercial Director. He will continue to execute the strategic growth plan that the business launched in September 2020 maximising its UK capability, harnessing the assets of the wider UM Group, and looking for potential acquisition targets.

A key pillar to the company's dedication to delivering the best possible customer service is its dedicated Client Central Services team. Based out of Regent Road in Liverpool 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.

Quality management and compliance is another area in which UM Terminals is continually investing. The company is ISO 9001:2015 accredited and holds various industry assurance

schemes including UFAS (Universal Feed Assurance Scheme) and FIAS (Fertiliser Industry Assurance Scheme). It is also COMAH accredited for terminals handling hazardous liquids.

Most recently, the business successfully completed the accreditation process for FSSC 22000, the certification scheme for Food Safety Management Systems, for its Regent Road and Gladstone Dock sites. The scheme uses international and independent standards such as ISO 22000 and ISO 9001 as well as technical food sector requirements. UM Terminals is also Halal and Kosher certified at its Regent Road facility in Liverpool, something that was secured to enable it to meet the additional storage requirements of a major customer.

Jo Winning, UM Terminals' Quality Planning & Performance Manager, said: "Our team works tirelessly to ensure that we have the best Quality Management systems in place and all the required accreditations and certifications governing the products that we store for our clients. It is a continual process of learning and auditing and, as with the case of the Halal and Kosher certifications, innovating where appropriate to meet new and changing requirements of our customers."

UM Terminals is part of the United Molasses Group, led by CEO Ben Macer. 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.

Vic said: "These are exciting times at UM Terminals and we are delighted to have been selected by a mix of existing and new customers to fulfil their storage requirements. We also have a small number of strategic opportunities for businesses requiring tanks at our Liverpool sites. These would be of particular interest to companies requiring a deep-sea facility and excellent transport links. Our customers tell us they like our flexible, can-do, customer-centric approach to meeting their supply chain challenges and opportunities. This is and will continue to be the UM Terminals DNA."

For more information, visit [www.umterminals.co.uk](http://www.umterminals.co.uk)

# IT'S TIME TO CHANGE THE MINDSET: SEIZING OPPORTUNITIES AMID A CHALLENGING BACKGROUND

**SABER EVNAT explores the use of technology amid a changing energy landscape.**

Andrejs Višņausks, Member of the Board at SABER EVNAT



**E**U Member States have committed to strive for a 15% reduction in gas consumption, compared to their average consumption in the past five years, between 1<sup>st</sup> August 2022 and 31<sup>st</sup> March 2023. Against the backdrop of a potential security of supply crisis, the EU's long-term strategy is to reach climate neutrality by 2050. The law also sets the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. The UK Government has also committed to achieving climate neutrality by 2050 and the Climate Change Act, as amended in 2019, reflects this ambition. Undoubtedly, today's crisis is the biggest since the energy crisis of the 1970s which changed the landscape of the goals and aspirations of Western democracies. However, the question is how today's challenges will shape the landscape both in the medium and in the long-term.

## **The Golden Age will end...**

Amid today's supply challenges, the

energy landscape appears to be characterised by an unprecedented degree of uncertainty. The revival of coal in Poland and proposals with regard to the use of fuel oil to heat homes and offices in several EU countries in the upcoming winter season mark an unprecedented response to the supply crunch.

The verdict about the end of the Golden Age is in plain sight. A number of European countries have already called for a number of measures to reduce energy consumption, such as shutting off electricity for a few hours a day. At the same time, EU citizens have been encouraged to give up using their own cars and switch to public transport, to use water more economically, and reuse it for watering plants, as well as to remove from sockets any switched on charger that is plugged in as this will still use electricity, regardless of whether the device is attached or not. Supply diversification also features high on the agenda. It is clear that we have now entered a new era, uncharted for our generation, which is having far-reaching impacts on the global energy system and has undoubtedly changed the landscape for consumers and businesses alike.

## **...but it won't end tomorrow**

The energy transition is in full swing. In the UK, the government's Net Zero Strategy: Build Back Greener<sup>1</sup> aligns with the emissions

target of net zero by 2050 and a 78% reduction from 1990 to 2035, including international aviation and shipping. It also includes commitments such as that to fully decarbonise electricity generation by 2035, to end the sale of new petrol and diesel cars by 2030 and for all cars to be fully zero-emissions capable by 2035<sup>2</sup>. However, meeting future ambitions will require the support and contribution of a wide range of players and a broad mix of solutions. Most crucially, the sector will play a key role in supporting access to traditional and suitable energy alternatives as well as in providing the flexibility needed to integrate these alternatives.

While carmakers across the globe launch new lines of electric

vehicles, passenger cars, trucks and commercial vehicles available on the market today won't disappear from our roads for years to come. For example, with regard to road transport, the average lifespan of a UK car is about 12 to 13 years and, according to the UK's Department for Transport, there were around 40 million licensed vehicles on the road at the end of March 2022<sup>3</sup>. Of these, about 1.9 million are hybrid or non-ICE: 4.75% of the total number. While this share continues to increase, and the trend is upward, petroleum products will continue to power mobility particularly in the short and medium-term. It is therefore clear that managing the transition will require careful advance planning and management to ensure the supply chain can be maintained in the interim and to minimise change in the consumer experience. It will also require

careful management of existing production resources and the use of systems more efficiently and sparingly.

### Yes, we can!

How can we strike the right balance while significantly reducing resource use? Where are the potential savings in the petrochemical industry? The answer lies in science and technology. Here we present a specific case study by our company at a production facility.

When recently installed at a production facility, EVNAT equipment enabled a 75–90% reduction in oil sludge formation in the tanks. This meant savings on reservoir cleaning and better environmental friendliness. The tanks were fitted with EVNAT devices that ensured homogeneous mixing of the product and prevented sludge build-up.



At the same time, our device helped to guarantee high-quality preparation of raw materials by compounding mixed crude grades, which enabled stable equipment operation and increased the yield of light petroleum products.

That's only one part of the solution. The other is just as important: EVNAT technologies at this facility accelerated the production and reduced the prime cost for commercial petrol, thus boosting the refinery's operational efficiency.

In this particular case, our device improved the product to comply with the regulatory quality requirements in the shortest possible time— 1 to 2 hours. Once our equipment was installed at the tank farm for clean petroleum products, homogeneous-quality commercial petrol was obtained at the outlet, right as the tank was being filled up. The high mixing speed enabled the refinery to save the energy consumed by the running pumping equipment.

Therefore, the introduction of a single innovative development has secured a significant economic and environmental effect. Yet this is but one case: what if this equipment were to be implemented across the entire industry?

### Test results

Let's consider the device performance as tested at that specific refinery.

The device was fitted and tested in a 5000 m<sup>3</sup> pontoon tank. The tests were designed to assess the homogeneity of the resulting fuel mixture across the entire tank during compounding (mixing) of several different production components. The test conditions were such that the throughput of the pumps that fed those components varied from 48 to 214 m<sup>3</sup>/h, the performance during circulation reached 160–420 m<sup>3</sup>/h, the mixed media (components') density was 560–772.4 kg/m<sup>3</sup>.

When the storage tank was filled through the device, the test results recorded the difference in the petrol density in the tank's upper and lower parts as 0.3–6.4 kg/m<sup>3</sup>. The temperature difference between the upper and lower layers was 1 degree Celsius. After the circulation using EVNAT technology, the difference in petrol density in the upper vs lower layers ranged between 0.1 and 1.1 kg/m<sup>3</sup>. No pontoon fluctuations or whipping were recorded during filling. The minimum circulation time with the device was 63 minutes. The results obtained suggest that even the shortest time of circulation with the device ensures an optimal degree of commercial petrol's homogeneity. Faster mixing also means shorter pump uptime and lower electricity consumption. It therefore saves both time and money—and it is common knowledge that in business these two concepts are equivalent.

### How does it work?

Motor petrol is a kind of cocktail of light hydrocarbons and various additives, sulphur impurities, nitrogen, oxygenated compounds. This substance cannot remain stable for long. Regardless of where petrol is stored, be it a petrol can or a huge tank, it sooner or later deteriorates due to various chemical processes.

However, such deterioration process can be slowed down, and petrol production can become faster and cheaper. How does one do that? Let's explore the reasons for which petrol specifications may change over time, between its production at the refinery and the sale to consumers.

This is where we need to understand what happens to petrol or diesel fuel during storage at oil depots. Beside the physical storage of a certain quantity of product, the main purpose of a tank is to secure one of the fuel's critical properties. That is to ensure the stability of fuel's specifications under production, storage and use conditions.

The most significant physical process to trigger a change in fuel quality during manufacture and storage is the mixing of its components in a tank during the production of a commercial blend. Incomplete and poor mixing of components when making commercial product can cause the stratification of hydrocarbon fuel into fractions, so the lighter ones



with the lowest density tend to rise to the surface, whereas the heavier fractions, being the densest ones, gravitate toward the bottom. Along with that, losses go up as the lighter fractions evaporate. Ultimately, the test results for the entire batch of fuel may show it to be substandard in terms of "density" and "fractional composition".

It is known that intensive agitation of the stratified diesel fuel can restore its lubricating capacity to almost the original value. Therefore, the use of mixers in vertical storage tanks in the long-term storage of fuels (especially diesel fuel grades) is highly relevant.

The EVNAT Jet Mixing Device is the best fit for the complete and high-quality mixing of fuel components (petrol, diesel, marine fuels), as well as other petroleum products and chemical liquids in tanks. Mixing and homogenisation of the liquid products in tanks of various volumes occur due to the ejection effect created by the device in the entire tank, in a predetermined and precalculated way, either using circulation or filling mode.

### **Fuel, fuel oil, chemicals - you name it...**

Fuel prices in the current crisis have become an actual marker and key concern for consumers in the UK, the USA, Canada, Japan, and many other countries. We managed to bring production costs down at one

facility, where the refinery was able to quickly recover the investment—and ultimately make a profit. Observing these results, we could only hope that the above case would go global.

From the outside it seems that nothing can be done about the continuing rise in fuel prices.

To increase the profit share, companies need to upgrade their facilities and cut losses that occur at various stages of the production cycle — particularly, during storage and processing. Tank cleaning and oil sludge disposal cost millions of euros annually, and businesses have long since accepted these losses, considering them routine. Implementing EVNAT technology our clients get immediate results. These results are not only financially beneficial to the business, but also to the end user as they become reflected in the product price.

These savings allow businesses to avoid yet another price hike, compensating for the losses with own reserves. Meanwhile, against a backdrop of rising pump prices, some European countries have even imposed quotas on petrol stations amidst the crisis; and all of the above has impacted the commodity supply chain and ultimately fuelled inflation. A portion of these losses could be avoided or offset by introducing EVNAT jet mixers to the oil industry across the board. This statement is

very well grounded. Our technology is powered by scientific research and highly advanced hydrodynamics calculations, as well as by economic calculations.

These are just a few specific examples of the application of new technologies. Indeed, there are many innovative solutions in other areas and we are convinced that our technology can revolutionise the sector.

Very often these technologies end up unused because of inertia and reluctance to change. Maybe the current crisis will finally result in a mindset shift for the benefit of all?

For more information, visit [www.saberevnat.eu](http://www.saberevnat.eu)

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# RENTAL SERVICE FOR A REMOTE- CONTROLLED CLEANING OF INDUSTRIAL TANKS

**Safe and effective  
tank cleaning with  
the ATEX Zone 0  
robot.**

Kai Sievers, CEO and founder,  
ENDEGS Group



At ENDEGS, we care for the safety of environment and people. Therefore, we have added another pioneering technology to our portfolio of environmentally-friendly emissions reductions services: the ATEX Zone 0 robot as a rental service. The remote-controlled robot enables a safe cleaning of industrial tanks; it is a safe, efficient and cost-effective way to remove hazardous and non-hazardous materials from industrial tanks and can be applied in various industries and on a wide range of products. Leveraging the robot, zero emissions develop during tank cleaning. The ATEX Zone 0 robot can be used on its own or in combination with one of ENDEGS' mobile vapor combustion units (VCU) so that the tank can be degassed with a combustion rate of almost 100 % as well as cleaned.

Previously, employees had to work in the dangerous ATEX Zone 0 when cleaning industrial tanks; despite safety suits and masks, they were exposed to a significant health risk. The ATEX Zone 0 robot changes

that: it is remote-controlled and takes over the cleaning work so that employees no longer have to enter the dangerous area. Instead, the robot is remote-controlled from a safe distance. The robot is the first one to be certified for ATEX Zone 0 and meets all safety requirements – the same goes for every system component.

The ATEX Zone 0 robot is part of the so called ESOT system (Equipment Set for Oil Tank Cleaning) and is controlled by an operator in a transportable vented cabin (TVC) which contains the radio remote control and the hydraulic unit. The TVC also meets all relevant European safety standards and is certified for ATEX Zone 1. Thus, the operator is at a safe distance in the TVC while the robot is at work. Setting up and controlling the ATEX Zone 0 robot is easy. Our trained personnel accompany and control the robot and, if necessary, will happily instruct the customer's operators on-site to prepare them for the specific maintenance and cleaning tasks.

## **Remote-controlled tank cleaning for a safe and efficient process**

The robot has maximum traction to the floor due to its patented magnetic tracks. That makes it perfectly suited for deployment in the ATEX Zone 0. It further has two semi-automatic settings that make the operator's job easier by allowing him to concentrate on steering the

robot. The operator controls the robot out of the TVC via a control panel with two joysticks, a monitor shows each movement of the ATEX zone 0 robot in real time.

The robot enters the tank by a ramp and through the manhole. It has a LED light and three ADEX Cameras, eliminating the complication of extra lighting in the tank. It is connected by a hose to a suction truck outside the tank. This quickly removes the material taken in by the suction head, whether it is heating oil, crude oil, sludge or anything else. Due to its small size, mobility and versatile robot arm movements, the ATEX Zone 0 robot can be used in many industries for many different materials. For example, the robot can be used, among many other applications, for pit cleaning, petro-chemical cleaning, chemical cleaning, decommissioning cleaning, cesspit and septic tank cleaning and vacuuming applications.

Compared to manual cleaning, leveraging the remote-controlled robot for tank cleaning is not only safer, but much more efficient and cheaper as well. For one, the chemical protection suites and respirators with air supply required for manual tank cleaning are very expensive. Furthermore, tank cleaning personnel are only allowed to stay in a tank for about two hours at the most. Therefore, as many as 18 workers are needed for three

The ATEX Zone 0 robot in the United Kingdom during training of the staff of the tank cleaner



**ENDEGS**   
Mobile Degassing Technologies

Operating the ATEX Zone 0 robot out of the transportable, vented cabin





eight-hour shifts – and 18 hazmat suits and oxygen tanks per day. The ATEX Zone 0 robot only requires two workers for an eight-hour shift; neither needing protective equipment, neither being exposed to hazards and neither coming out of a hot tank drained and exhausted. ENDEGS provides the ATEX Zone 0 robot to customers exactly when and for how long they need them. We rent worldwide and take care of getting the equipment to and from the site – wherever it is. Our personnel can also train the customer's operators on-site.

#### **Tank cleaning with or without an additional vapor combustion unit**

We are looking at more than just the rough cleaning of the tank – we want to make the entire cleaning and degassing process safe and emissions-free. Thus, before the robot enters the tank, a mobile ENDEGS vapor combustion unit (VCU) is connected to it for degassing.

ENDEGS was the first company worldwide to develop a fully equipped, autonomously operated, trailer-mounted vapor combustion unit and thus making mobile degassing and emissions treatment possible for the first time ever. Our combustion units are capable of burning all kinds of gases, gas compounds and vapors of the hazard groups IIA, IIB and IIC with no open flame – making us the only company in Europe being able to do so. The ENDEGS VCUs are available with 3, 5, 10 and 20 MW combustion power.

Connecting a VCU with the tank sets up a slight negative pressure

within the tank, preventing vapors from escaping. Manual fine cleaning can start as soon as the robot rough cleaning is finished. Once VCU and robot have done their respective job, the concentration of volatile organic compounds (VOC) in the tank is low. Cleaning personnel in the tank only need to wear a respiratory mask with filter while removing the small amount of material still remaining. The suction tank is degassed as well: As the hazardous materials are pumped into the suction truck, they create dangerous gas concentrations. Instead of just releasing these into the atmosphere – a common but harmful practice – we burn them off with a combustion rate of more than 99.99 % after patent EP2241 806 B1. But of course, the ATEX Zone 0 robot can also be deployed alone and without the use of a VCU.

Currently, we carry out a pilot project in the United Kingdom, lasting several weeks. During the project, we present the robot to different companies in the entire UK. Besides showing all features and advantages of the ATEX Zone 0 robot in exemplary tank cleanings, we also train the on-site operators in the use of the robot and answer questions. If you are interested in experiencing the ATEX Zone 0 robot in your facility, contact David Wendel.

For more information, visit [www.endegs.com](http://www.endegs.com); contact David Wendel, Managing Director, at [david.wendel@endegs.com](mailto:david.wendel@endegs.com) or on (0049) 162 243 34 86.





# The energy transformation challenge

**BCECA Chief Executive Tracey Shelley sets the scene for the Association's Annual Conference.**

The former Prime Minister, Harold Wilson, was a memorable champion of science and technology. On 3 November 1975, The Queen pressed a button in BP's control centre near Aberdeen. Crude oil began flowing from the Forties Field. A defining moment, heralding a golden period for UK energy production. Engineering contractors played a key role in designing and delivering the infrastructure needed to transport, store and process the new 'black gold'. Storage capacity for crude oil, feedstocks and refined product expanded at sites all over the UK. Harold Wilson once said: "A week is a long time in politics". What would he make of the past year if he were alive today?

Last summer, we were struggling with COVID19 restrictions. Physical meetings were impossible. Nonetheless, the pressure for 'Net Zero' continued. COP26 was imminent. Politicians were fully expected to renew their commitment to delivering the 'energy transformation'. BCECA wrestled with the challenge of gathering the decision makers and opinion formers who would tackle decarbonisation at the sharp end. Our first virtual conference took place in October 2021. *"Delivering the energy transition"* was shaped by organisations with a central role in taking carbon reduction targets from policy to reality. The event attracted

150 delegates from contractors, consultants, and supply chain partners. Delegates discussed policy, technology, and skills implications of the energy transition. 2021 ended with optimism. A vision for decisive action on the energy transition emerged from COP26. Then everything changed. The invasion of Ukraine caused shockwaves. Prices soared. Energy security was back on the agenda. Bulk storage to buffer against supply disruption is back in vogue, but what about decarbonisation?

Has the energy transition stalled, or is the energy transformation the world needs waiting around the corner? Discover more at BCECA's 2nd Annual Online Conference, *The energy transformation challenge*, which takes place on Wednesday 5 October 2022. Highlights include an assessment of the politics of Net Zero from the Shadow Minister for Climate Change, Dr Alan Whitehead MP and a progress update from HyNet, one of the UK's biggest decarbonisation projects. BCECA members will offer case studies spanning hydrogen, carbon capture, sustainable aviation fuel and enhancing the performance of ageing assets. Financing, skills, and supply chain collaboration will also feature strongly. Effective storage and management of bulk liquids is a key aspect of sustainable process design. TSA members are invited to join the conversation.

For more information and free registration: <https://bit.ly/TETC2022>

# NEW BRANDING, SAME QUALITY PRODUCTS: WHAT DANTEC'S REBRAND MEANS FOR THE COMPANY AND ITS CUSTOMERS

**Dantec has undergone a recent brand overhaul to better align the company with its parent group, Elaflex.**



Dantec has paved the way for innovative manufacturing of composite hoses for more than 50 years, exporting from the UK to more than 60 countries and supporting customers anywhere in the world. Our composite hoses are renowned for their high quality and safety parameters, and we are proud to be a market leader in the industry.

Dantec has undergone a recent brand overhaul to better align the company with its parent group, Elaflex. Read on to discover how the rebrand has affected Dantec and its customers, and what this means for the future of the company.

## **Part of the Elaflex family**

Becoming a part of the Elaflex group in 2016 signified an important milestone in the history of Dantec - growing from a small, family-run company into part of something much bigger. Elaflex represents a long history of manufacturing safe connections for the transfer of dangerous goods and sensitive fluids, affecting industries like

construction, chemicals, energy and many more.

With sixteen subsidiary companies around the world, the need for a more universally aligned brand became clear. The rebrand allowed Dantec to better integrate with Elaflex's own branding, enabling a more synergistic relationship between the two.

## **The quality you expect**

Dantec's branding might be new, but it doesn't signify any differences in the products themselves. Known for high quality composite hoses, Dantec is committed to supplying its customers with the standard of product they expect. This is mirrored in Elaflex's own values of responsibility, continuity, innovation and flexibility, enabling both companies to offer the utmost in customer service and satisfaction.

## **Paying it forward**

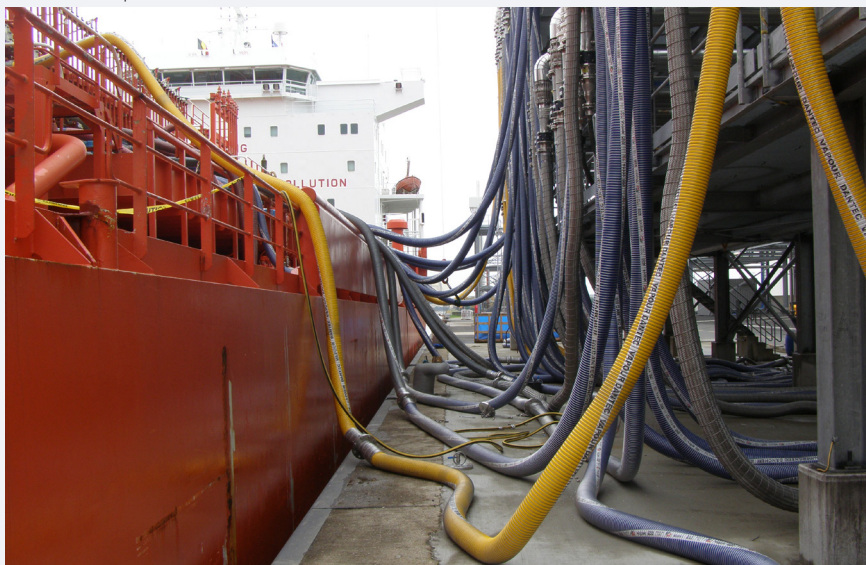
In addition to the ongoing rebrand within its subsidiaries, Elaflex has recently published its new sustainability strategy, putting environmental responsibility at the forefront of the company's future. Combining climate protection, recycling initiatives and much more, Elaflex is committed to a sustainable future without compromising on quality.

## **The future in your hands**

The new strategy targets four key areas of sustainability -



Across the Elaflex group, quality products are to be expected and work is made to last.



climate protection, human health, conservation of resources and carbon emissions reduction. For each area, Elaflex details the company goals and the steps being taken to meet them.

Climate change is a global issue, and businesses should be increasingly aware of the impact of their entire supply chain in order to truly make a difference. That's why Elaflex has developed strategic operational changes like increased digitisation and energy-efficient fittings, helping to create a sustainably efficient manufacturing facility so customers can be sure their supplier is aligned with their environmental goals.

The health and safety of employees is top priority for Elaflex, which is why the company has committed

to a focused strategy for improving working conditions across its departments. From company sports initiatives to ergonomic office environments, the health and happiness of employees is always at the forefront. Plus, by working with a full-time occupational safety specialist, Elaflex has been able to almost eliminate workplace accidents.

Managing waste output is a key part of the strategy, and Elaflex believes that avoidance is better than recycling where possible. That means that the company has worked to create less waste from the start, rather than focusing solely on recycling initiatives. Through this framework, digitisation has enabled Elaflex to become a

paperless factory. Where waste is unavoidable, rigorous recycling projects for materials such as brass or aluminium have been undertaken to ensure as little as possible is wasted.

Across the Elaflex group, quality products are to be expected and work is made to last. This durability helps to reduce the need for production further down the line, creating a smaller carbon footprint than products of poorer quality. The Elaflex group is committed to innovating high-quality, long-lasting products that stay with our customers for decades to come, manufacturing responsibly and reliably.

## **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, visit [www.dantec.com](http://www.dantec.com).



# JOINING FORCES

**Ferrous Protection has joined forces with Qualitech Environmental Services, one of the UK's leading tank cleaning and waste management companies.**



Ferrous Protection have been recognised as a leading supplier of specialist bulk storage tank lining and industrial painting solutions since the early 1980s. Even in our early years, we saw technical innovation as an essential tool in achieving our ambition of leading the corrosion protection industry as we spearheaded the drive to bring solvent free epoxies into mainstream tank lining in the UK. Since then, we have worked with a wide variety of customers in most continents across the globe to protect their bulk storage assets and associated infrastructure from corrosion and chemical attack; from small manufacturing and chemical process plants to tank farms and many of the oil supermajors.

Here comes the exciting news – we have now joined forces with Qualitech Environmental Services who are one of the UK's leading tank cleaning and waste management companies. Qualitech are well known in the industry for delivering customer focused waste

management and effective tank cleaning solutions with capability to clean anything from septic tanks to large petroleum storage tanks.

What does this merger mean for the customer? Well, there are two main benefits on offer:

1. We are not a 'jack of all trades', we are two specialist companies combined meaning our customers can take advantage of having multiple areas of expertise all under one roof. The benefits here are significant cost and time efficiencies and improved quality associated with being able to share and apply that specialist knowledge internally.
2. Having the full project (from tank cleaning and waste removal, through to inspection and repairs, surface preparation, tank lining, re-inspection and handover), all under one roof can cut down on the admin, and the headache, of our customers. The customer can still have full control over the project, but through a single trusted point of contact rather than several, often many, points of contact across different contractors.

## Case Study

One of our valued customers, the aviation division of one of the world's oil and gas supermajors, has recently benefited from this relationship. In 2021, we were successful in tendering for the





major fuel infrastructure upgrade of Greenland's largest commercial airport and main air transport hub. The project includes the corrosion repair, and application of AkzoNobel's protective three-coat epoxy system from its International® brand, to 1.4km of fuel transfer pipeline and the re-lining of six bullet tanks and a flat bottom storage tank with Interline® 984 epoxy phenolic at 400µm d.f.t.

The tank re-lining works included:

- Mobilisation and shipping of ten 20' containers and hazardous goods cargo.
- Installation of scaffolding using a vetted and trusted subcontractor.
- Erection of perimeter fencing, and implementation of Ferrous Protection permit to work system.
- Confined space entry and

provision of an emergency rescue and safety standby team, including both vertical and horizontal emergency extraction.

- Implementation of engineering controls and monitoring of atmospheric conditions within the storage tanks.
- Pumping and downgrade of residual fuel to arctic diesel.
- Tank cleaning using high pressure water jetting & on-site filtration of contaminated washings down to 3.5ppm.
- Very thorough blast cleaning of the internal substrate using an inert, naturally occurring, and eco-friendly blast media.
- Preparation of all steelwork defects.
- Application of International's Interline® 982 two-component holding primer by airless spray.
- Application of a stripe coat

using International Interline 984 solvent free epoxy phenolic to all edges, welds and intricate areas by brush and roller.

- Application of a scrape coat where required to work the epoxy phenolic into any excessive pitting.
- Application of the epoxy phenolic to the full internal substrate by airless spray.
- Detailed inspection of the newly applied lining including holiday detection, visual inspection, DFT checks, and Methyl Ethyl Ketone rub test. All snags were marked up, repaired and re-tested.
- Soak test, re-instatement of gaskets, closure of the tank and handover to the client.
- Submission of a fully detailed QAQC dossier.
- Demobilisation just in time for the fjord to freeze back over.

The application of the new Interline 984 epoxy phenolic tank lining system offers the tanks another 12-15 years life to first maintenance and is critical in allowing Greenland's main air transport hub to continue operating.

Following initial engagement with Ferrous Protection on the project in 2021, the client was facing supply chain difficulties with the tank cleaning contractor they had appointed - the appointed contractor could not meet the client's timeframe. With time against

the client, we teamed with Qualitech Environmental Services to undertake the pre-clean of the flat bottom bulk storage tank to facilitate an initial tank inspection.

Qualitech Environmental Services were subcontracted through Ferrous Protection saving the customer precious time going through the procurement and pre-qualification process again.

We had also already began planning the lining phase of works to start this year, so Qualitech were able to use our knowledge to help them effectively plan their work and mobilise extremely quickly which was critical given the logistical complexity of working in such a remote corner of the world.

Qualitech were also able to temporarily store their contaminated waste locally which was dealt with alongside our contaminated waste

during the re-lining phase this year, saving the customer money by halving the number of times they would need to ship and dispose contaminated waste across the two phases.

In short, through Ferrous Protection and Qualitech coordinating their efforts and offering two specialist services under one roof, the client was able to:

- Find a prompt and effective solution to their time critical problem.
- Save time and cost through reduced admin and avoiding duplication of effort associated with engaging with multiple contractors.
- Avoid pitfalls through using one company for both phases of the work.
- Take advantage of both Ferrous Protection's and Qualitech's extensive combined experience in the storage tank industry.
- Benefit from Qualitech

Environmental Services' extensive knowledge and expertise in the waste management sector to minimise the environmental impact of the works.

We are now on track to complete the fuel infrastructure upgrade two weeks ahead of schedule, with high safety standards maintained and with minimal impact on the environment to allow Greenland's biggest commercial airport to continue running for years to come.

To discuss how you might benefit from Ferrous Protection's and Qualitech's partnership or either of our services, feel free to get in touch with Ferrous Protection's Projects Manager Dominic Marshall on +447540222477 or [dominic@ferrousprotection.co.uk](mailto:dominic@ferrousprotection.co.uk).



# **Risk Management Training**

## **Mitigate risk in hazardous work.**

### **Managing Fatigue**

**ONLINE SELF-PACED**

Learn how to recognise the symptoms of fatigue across all operations with our free eLearning course.

### **Introduction to Process Safety Management (PSM)**

**ONLINE SELF-PACED**

**CLASSROOM: 4-6 OCTOBER**

This training addresses hazards in most industries, providing assurance of well-managed risk.

### **Hazardous Area Classification**

**CLASSROOM: 11-13 OCTOBER**

Identify how flammable atmospheres can form and methods for classifying them into zones.

### **Human Factors Foundation**

**CLASSROOM: 17-21 OCTOBER**

Learn the importance of human factors in high-hazard industries and how these influence behaviour.

And more available at  
[energy-inst.org/risk-management](http://energy-inst.org/risk-management)

### **Looking for in-house training?**

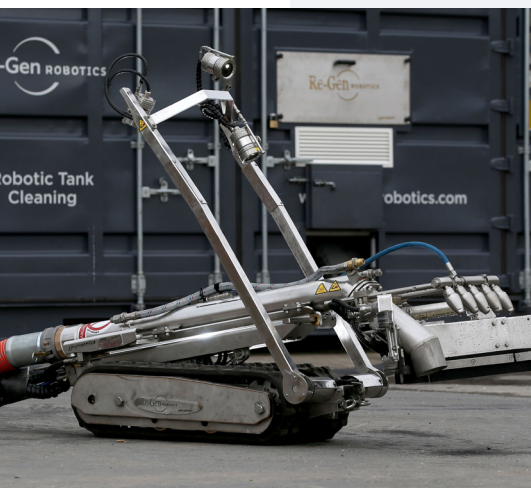
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# FACTORS WORTH CONSIDERING WHEN SELECTING A SAFE, SMART, EFFICIENT TANK CLEANING SERVICE

**Ensuring tanks and related equipment are maintained and inspected according to the highest industry safety standards sits at the core of Re-Gen Robotics' mission.**



In 2019, the oil terminal industry witnessed a new era in tank cleaning

safety with the entry into the market of Re-Gen Robotics. In three years, Re-Gen Robotics has established its reputation in Europe, as the 'go to' company for 100% no man entry tank cleaning solutions.

Responding to the rising number of confined space deaths, the team at Re-Gen Robotics have spent years researching and designing a bespoke robotic cleaning service to eradicate the need for human entry into tanks. They have redefined how the dirtiest most dangerous tanks are cleaned and have set a new benchmark for tank cleaning in the sector.

Ensuring tanks and related equipment are maintained and inspected according to the highest industry safety standards sits at the core of Re-Gen Robotics' mission. They understand that finding the most efficient, safe, economical, and environmentally friendly method of cleaning oil storage tanks is essential to ensure that proper cleaning is

available to every terminal operator in the industry.

Operators in turn are aware of the moral and business imperatives of providing safe practise to protect employees, contractors, the community, and the environment in which they operate. That's why the team at Re-Gen Robotics is relentlessly pursuing safety first before everything else – to eliminate fatalities and personal injury in the sector.

With access to the latest and best in technology and innovation Re-Gen Robotics' has created the demand in the industry for safe, reliable, affordable, robotic tank cleaning and monitoring solutions. Re-Gen Robotics is the first and only Zone 0, EX certified, remote controlled, 100% 'No Man Entry' robotic tank cleaning company, in the UK and Ireland. Its patented tank cleaning service is significantly adding value to their clients' reputations and bottom line.

The industry demand for a safer cleaning technique has given rise to the development of remotely controlled robotic tank cleaning systems that have eradicated the need for manual cleaning - the most basic and dangerous service on the market. The industry now recognises that this method has very few benefits when compared to its many dreadful downsides.

As the industry embraces change and introduces new innovative technology



onto sites to replace dated methods, terminal operators are profiting from major operational benefits including:

### **Safety**

Our process is strictly 100% no man entry. The protection of personnel is the cornerstone of our business. The robotic operator manages all aspects of the tank clean from a dedicated, air-conditioned control room through a series of ATEX cameras and gas monitoring equipment. This ensures every clean, no matter what category of tank is uncomplicated as the operation is remotely controlled with permanent visual connection.

### **Cost**

On a day rate the manual cleaning and the automated option may seem more cost effective but ultimately robotic tank cleaning requires less expense. A fully contained system is provided so no scaffolding, cranes or vacuum jetting is required. Because the service is 100% no man entry, standby rescue teams are not required.

### **Set up speed**

Re-Gen Robotics is classed as a medium risk contractor. This reduces paperwork and permits, there is no requirement for capital outlay or spading of tanks.

From arrival onsite, to the robot entering the tank is approximately two hours. As well as this the job can be done from 45% up to 80% faster in comparison to traditional methods.

### **Efficiency**

Significant reduction in downtime of tanks, leads to increased efficiencies for the client. One of the leading causes of downtime in plants is human error. Workers performing monotonous and repetitive tasks will often experience mental and physical fatigue — leading to unwanted errors and potential injuries. Robotic cleaning systems help ensure production doesn't slow, getting tanks ready up to 50% faster than human cleaning crews.

### **Environmental impact**

Both robotic tank cleaning and automated systems feature closed-loop cleaning circuits and a highly efficient hydrocarbon recovery system to protect the environment. Manual cleaning uses an open system and does not recycle the leftover waste, which places a tremendous load on people and the environment.

### **Intelligent reporting**

The intelligent reporting facility helps clients understand and respond to what is happening inside their tanks. These are easily adapted to provide bespoke reporting solutions depending on clients' needs.

Our combination unit provides real-time information on all key parameters including waste generation, hours worked per day, water consumption on each project and jetting pressures recorded for the duration of the tank clean.

### **Our equipment**

The self-contained system includes vacuum, jetting, cranes, and robotics, with nothing extra to hire or buy, simplifying the entire tank cleaning process. Productivity is enhanced and tanks are brought into operation again more quickly. Re-Gen Robotics is continually investing in New Product Development to propel safety in the industry forward and set new standards.

This includes a range of telemetry technology in our vacuum trucks, new tech for our control units, robots and ancillary equipment such as multiple washing and suction heads - that will allow us to carry out more and more diverse tasks remotely.

Depending on the type of tank and the type of material present, we have various detachable washing heads for our Zone 0 EX rated robotic equipment.

### **The team**

With an ambitious, young team driving the company's success, they have single-handedly disrupted the oil tank cleaning sector by establishing new norms of safety, service, integrity, and trust. The team is agile and ready to meet the needs of their customers, staying close to them to ascertain what additional features they can create to provide them most value. Since 2019, Re-Gen Robotics has made £7 million investment across all key areas of their service, in preparation for significant international growth.

### Our service

Re-Gen Robotics offers four main robotic tank cleaning services to include Fixed Roof, Floating Roof, Heavy Fuel Oil and Coned Floor cleaning.

We use an integral approach where we involve our clients so we can tailor our service to their cleaning requirements. We monitor the entire cleaning process to optimise a quality result and the efficient use of water and energy.

Our R&D Department tests and implement the latest tech to ensure that we not only meet client requirements but also comply with highest safety standards.

### Our work

Re-Gen Robotics enables oil terminal operators to safely and efficiently manage their tank cleaning schedule

To date the company has eliminated 11,000+ hours of CSE cleaning in tanks. Over 40 tanks consisting of white oil, black oil and distillate tanks in gas plants have been cleaned and they have completed the first worldwide, 100% no man entry tank cleans for oil majors such as Shell, Phillips 66, Vermilion, ExxonMobil, Valero among others.

The industry understands that Re-Gen Robotics is resolutely committed to safety and performance that goes far beyond their requirements. By engaging Re-Gen Robotics' tank cleaning services, terminal operators' own business performance, competitiveness, and reputation are reinforced.

### Recent awards

Re-Gen Robotics was recognised with the Safety Technology Award at the 2020 Global Tank Storage Awards, for revolutionising safety in the tank terminal industry. They were

awarded for 'adding an additional layer of safety to oil terminals and eliminating the risk of injury or death to employees in the surrounding area'.

In December 2021, the company was recognised with three awards at the Energy Industries Council Awards, including the Innovation Award, the Sustainability Award, and the prestigious Company of the Year Award.

Additionally, Managing Director Fintan Duffy won the Outstanding Achievement category at The Global Tank Storage Awards 2022, held in Rotterdam in May. He was recognised by the judging panel for his commitment to his role and for his achievements in non-man entry tank cleaning.

For further information, visit [www.regenrobotics.com](http://www.regenrobotics.com)



## 2022 Tank Storage Conference & Exhibition

The Tank Storage Association's Conference & Exhibition returns to the Coventry Building Society Arena on Thursday 22 September 2022. The UK's flagship event for the bulk storage and energy infrastructure sector provides one of the best opportunities for anyone interested in effective and safe bulk liquid storage operations to come together to share knowledge and network.

The conference programme once again features top keynote speakers from regulators and industry, as well as subject experts offering delegates thought-provoking discussions and thorough analyses on a range of key industry issues.

Delegates will get the chance to delve deeper into up-to-the-minute topics relevant to the bulk storage and energy infrastructure sector, including the energy transition, Net Zero priorities, demand trends and supply infrastructure, and much more.

Peter Davidson, Executive Director of the Tank Storage Association, said: *"This year's event allows us to consider latest innovations and developments in the bulk liquid storage industry, while also highlighting our focus on the future of the sector in the journey to climate neutrality. Our industry has a key role to play in the energy transition and beyond, and is already active in a number of areas that will drive success going forward. For*

*example, with regard to transport, it is widely accepted that future solutions will encompass a wide range of technologies. Low-carbon liquid fuels will play an essential part for sectors that have limitations in using electricity directly, such as long-distance heavy-duty transport, aviation and shipping. The tank storage sector also has a vital role to play in unlocking the potential of hydrogen which is fast emerging as a potential energy solution for a range of transport modes, including large goods vehicles, where it is proving difficult to meaningfully reduce emissions. The Conference & Exhibition will provide us with an opportunity to hear from a panel of renowned experts about the challenges and opportunities for our sector against a complex and evolving landscape."*

Registration is still open for delegates. The TSA looks forward to welcoming members, exhibitors and delegates on 22 September 2022. To stay connected until then, please schedule a call with our conference organisers on 01462 488232 or write to [tsa@tankstorage.org.uk](mailto:tsa@tankstorage.org.uk).

For all the latest news and updates, follow us on LinkedIn, Twitter and Instagram. For more information about the event and an agenda, visit <https://tankstorage.org.uk/conference-exhibition/>.



# DECARBONISING AVIATION – SAF TAKING OFF

**In this article, Stopford advises on recent government initiatives and its involvement in the development and manufacture of Sustainable Aviation Fuels (SAF) promoting these areas via innovation and collaboration.**

Deb Pal, Consultancy Director,  
Stopford



Worldwide, the aviation sector generates 3% of all greenhouse gases (GHG). A myriad of future technologies are being explored in the aviation sector to reduce GHG's, such as hydrogen, fuel cells and, electrification. However, they all present challenges, especially for long haul flights that requires fuel to have a high energy density. In the short and medium term, SAF has been identified as a pathway to reducing greenhouse gas (GHG) emissions.

The combination of bio and synthetic SAF has the greatest potential to reduce the carbon footprint in the aviation sector in the medium term. Governments are introducing tax incentives for the manufacture of SAF. In August, US Congress passed the Inflation Reduction Act of 2022. Among the incentives in the act is a SAF fuel tax credit of \$1.25 to \$1.75 per gallon, depending on usage and production.

In the UK, the government announced in July the following measures following a consultation<sup>1</sup> to:

- SAF mandate equivalent to at least 10% (c1.5bn litres) of fuel to be made from sustainable sources by 2030. The mandate will operate as a greenhouse gas emission reduction scheme with tradeable certificates.
- The mandate will apply to jet fuel suppliers and will begin in 2025, outside of the Renewable Transport Fuel Obligation (RTFO).
- Eligible fuels will be waste-derived biofuels, recycled carbon fuels (making use of unrecyclable plastic and waste industrial gases) and power to liquid (PtL) fuels.
- SAF must meet strict sustainability criteria including delivering at least 50% GHG savings relative to fossil jet fuel.
- SAF derived from hydroprocessed esters and fatty acids (HEFA) will be capped and a PtL subtarget will be introduced to encourage the development of strategically important SAF pathways.

Stopford are working with partners to produce SAF from a variety of waste products; one such feedstock is non-recyclable waste plastic. There are several challenges, from availability of sufficient quantities of feedstock to certifying the fuel as a SAF.

SAF must have the same characteristics as conventional jet fuel, i.e. it must be fully fungible. No modifications are required to the aircraft engine or any of the fuel delivery infrastructure to use SAF, so the same tanks, pipes and hydrant systems can be utilised.



International specifications have been developed for jet fuel, such as ASTM D1655.

This standard specifies criteria such as flash point, freezing point, combustion heat, sulphur content, viscosity, thermal stability and density. The specification for technical certification of SAF is ASTM D7566. Once certified, SAF can then be blended up to a maximum certified limit with conventional jet fuel. In addition, the production route of SAF must also meet a set of sustainability criteria to be eligible for use within the ICAO Carbon Offsetting and Reduction Scheme for International Aviation, more commonly known as CORSIA.

The standard practice for evaluation and approval of aviation fuels (ASTM D4054) is expensive (costing in excess of \$5 million) and time consuming (3-5 years) and the US aviation industry and regulators have recognised that a different approach is required for SAFs.

ASTM D4054 was modified in 2020 to include a fast track option, which is a faster and more cost effective route to entering the SAF market. There are currently 9 approved aviation fuel alternatives, which include fuels using feedstocks of waste oils, biomass (from a variety of sources), natural gas, coal and algae. Fuel using waste plastic as a feedstock, processed using pyrolysis and hydrotreatment, is not currently approved. Work is being conducted to demonstrate that this process is suitable for an additional annex to the standard, widening the process routes available and, to be considered for fast track approval.

The UK government in their Jet Zero strategy state a PtL sub-target. The PtL-Power to liquid process seeks to address concerns that other process routes have the potential to increase the use of natural resources, land, water and food sources. PtL, which produces synthetic liquid hydrocarbon fuels using renewable electricity (for hydrogen generation from water electrolysis) and non-fossil

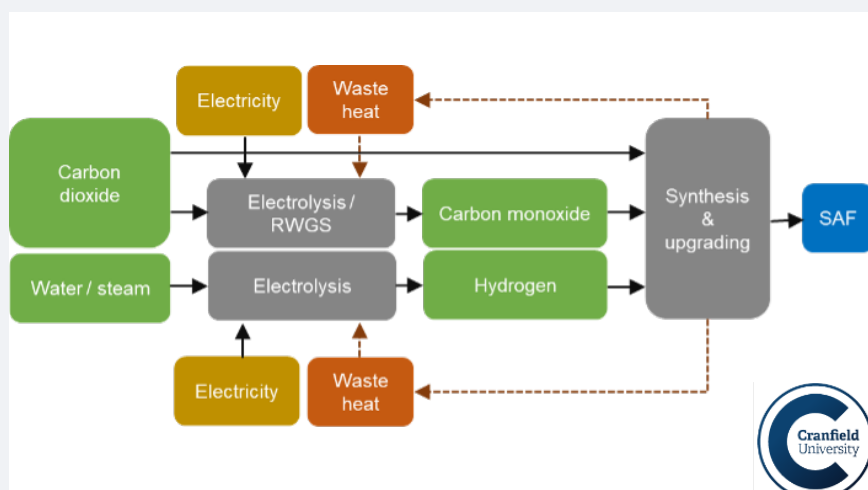
carbon dioxide (CO<sub>2</sub>) as the main feedstocks, is seen as a promising SAF pathway. A flowsheet<sup>2</sup> of the process is shown below.

### An overview of the PtL process

Stopford are currently identifying areas for collaboration with Cranfield University in several areas within the circular economy. Cranfield University have a long and distinguished track record in aviation innovation and development. They are developing and optimising the PtL process with industry partners so that it can be effectively scaled up.

The TSA has a critical role in ensuring that the storage and distribution sector facilitates the increased production and throughput of SAF across UK airports. We are pleased to be partnering with World Fuel Services to present more insight on the Take-off of SAF at this year's TSA Conference.

For further information, visit [www.stopford.co.uk](http://www.stopford.co.uk); contact Deb Pal, Consultancy Director, at [deb.pal@stopford.co.uk](mailto:deb.pal@stopford.co.uk).



### References

1. Mandating the use of sustainable aviation fuels: <https://www.gov.uk/government/consultations/mandating-the-use-of-sustainable-aviation-fuels-in-the-uk>
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# BRIDGING THE SKILLS GAP!

**The clock ticks for the Bulk Liquid Storage industry to address the skills gap!**



The bulk liquid storage sector has been my life for over 30 years. I love the people, the structures, architecture, technology, and its role in UK PLC. I'm passionate about its future, but I am also concerned. I, like others, see an emerging skills gap as my generation start to look towards the setting sun, while emerging generations do not see our sector as an aspirational option for career progression. In the industry's early days and certainly, when I joined, we undertook 'simple' operations within a 'dirty' environment. Training was 'on the job' provided by 'experienced' operators, embedding the practices of the time and age. Jobs were generally gained through who you knew, but it was (and is) a career with a secure future. Over time, qualifications emerged that strove to improve our standards, underpinned by the Level 2 Diploma in Bulk Liquid Operations, a qualification that has stood the test of time for over 25 years. However, progress beyond this has never been structured, instead relying on the varying career pathways within individual companies.

## **An industry in transition – let's capitalise on this**

We are an industry in transition; you could argue that we always have been. I have seen many changes in my time, be they technology, infrastructure, or both, especially as we have moved through the changes brought about by the PSLG and associated reports post the 'B' word!

However, this transition is different. It is fuelled by an environmental shift and a focus on new energy sources such as hydrogen and ammonia, as well as exploring emerging technology around carbon capture. All of this while we must continue to drive the need for safety in the legacy fuels and chemicals that will undoubtedly be with us for the immediate future. Our industry challenge as these more 'complex' processes around greener fuels take hold, is that we attract a new generation of people to pick up the baton to inspire, promote and drive forward safety and operational excellence that underpins what we do! But, to capitalise on this, we need to offer a better career pathway that will not only develop those within our industry but also attract new talent in.

## **Career expectations are changing; our sector needs to keep up**

Younger generations are not only looking for defined career pathways, they are also intelligently looking at the 'transferability' of the skills they have gained within differing (and competing) sectors. They are also evaluating their employer's 'green'

credentials as this directly impacts how we are seen by society as a whole! The 'one company career' is very much changing.

The widening skills gap is rapidly moving towards a skills crisis. Without change, we risk losing talented people to other sectors attracted by cleaner, greener credentials compounded by the natural loss of immense knowledge, skill, and experience through retirement, removing the educational foundation that not only maintains this knowledge but also drives development. Our focus on career structures needs to shift. We need to provide a pathway that not only ploughs our own furrow but also aligns with other careers because, without this, all we are offering is a job! And that is not going to cut it in attracting the talent we want.

### Structured training and qualifications are key

We have made a start. Over the last ten years and particularly the last 5, the focus has begun to change, and a pathway started to develop; for example, we have:

- Level 2 Diploma in Bulk Liquid Operations
- Apprenticeship Route – forged by the Science and Manufacturing Technician Standard, with the Bulk liquid Terminal Technician Specialism
- Level 3 Diploma for a Bulk Storage Operator Technician (L3 BSOT)
- Level 5 Principles and Practice of Process Safety Management.

We talked earlier about renewables such as hydrogen. This as an alternative fuel is beginning to get real traction. Still, with that traction, we also need to develop competence standards to meet and maintenance needs, be that process or personal safety!

Cogent, along with the TSA and others from the industry, have picked up that baton, and national occupational standards for production, storage, and distribution are currently being developed. This is positive for our sector. If we get the career path right, it will enable us to lead in attracting talent. The apprenticeship route should be the foundation stone that

attracts new young talent into the sector; it is, after all, a route designed by industry for industry to not only deliver but evolve as we evolve and transition. The qualification that underpins this route (L3 BSOT) is also approved by IChemE, providing successful learners with Engineering Technician status and a wider career pathway. In the next three months, we will have operators from the OPA, BP, Exolum, and OIKOS qualified to this level – a significant move forward and achievement for the individuals personally, their respective companies and our industry!

### The opportunity to attract talent

We are making progress, but in truth, it is slow. We need the whole sector to get behind this and increase the pace. If we don't address the skills and training gap now, we will not have the skilled operators to manage the inevitable changes in our sector, and that is a very bleak outlook for an industry I have committed my career to. The opportunity to attract new talent is within our grasp, and it will enable us to transition more smoothly. If we embrace career pathways and work together to drive this forward, we will continue to deliver for UK PLC and lead others in this transitional phase that we are on the threshold of. Lets do this!

### Author

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For more information, visit [www.reynoldstraining.com](http://www.reynoldstraining.com)





# The voice of the bulk storage and energy infrastructure sector



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