

REDUCING EMISSIONS

Through risk-based hydrate management

The Arran field in the North Sea required a solution for reducing emissions from flaring.

An investigation was initiated by the Shearwater onshore support team to review alternative hydrate strategies from across Shell.

The team used learnings from the Gulf of Mexico to develop a risk-based approach to managing hydrates that was new to the UK. This was enabled through Shell's digital q-FIRST technology and used the organisation's proprietary exception based surveillance tool.

The challenge

Arran is a new, approximately 50-km subsea tie-back to the Shearwater platform in the Central North Sea that started up in September 2021 (Figure 1). It is a gas condensate field that comprises two Arran North wells, two Arran South wells and the third-party Columbus well. Arran was designed with a hydrate management strategy that focused on staying outside the hydrate region. This resulted in flaring on start-up, during the methanol sweep before pressurisation and from blowdowns on unplanned shutdowns. Owing to the significant flaring from Arran, the UK regulator only granted flaring and vent consent to



The Shearwater platform in the Central North Sea off Scotland, UK

Arran until the end of December 2021. Therefore, a new hydrate management strategy was required to reduce emissions and safeguard production.

The investigation

It was observed, after an unplanned shutdown, that Arran had very low water holdup fractions in the pipeline on settle-out; these peaked at about 5%. Experience was shared from the Pierce field, where flowlines with similar water holdup fractions are left pressurised after unplanned shutdowns without any experience of hydrate blockages during its 20 years of operation. This provided the investigation team with the insight that perhaps a similar strategy could be applied to Arran. However, it was important to gather further examples from across the group to be sure of its success. To achieve this, the team collaborated with Gaurav Bhatnagar, a hydrate subject matter expert in the Gulf of Mexico, who was able to share some examples that were pivotal to developing the new strategy for Arran.

continued on page 2

INSIDE



6 VIEW FROM THE TOP
New GPAE Chairperson
Samantha Nicholson's debut column



7 GPA TECHNICAL MEETING & AGM
Highlights from our event speakers



12 ANNUAL REPORT 2024
Myrian Schenk presents a summary of last year's key events



The Shearwater platform

Case study 1

The first case study investigated the experimental data on the risk of plugging for operating in the hydrate region during the transient phase of start-up.

Past flow-loop (laboratory scale flowline) test data were used to estimate the hydrate volume fraction (HVF) and water volume fraction (WVF) at which plugging was observed. Figure 2 shows WVF plotted against the thermodynamically calculated HVF. Each dot on the chart represents a different flow loop experiment; dark purple dots show no hydrate blockage, lilac dots show a hydrate blockage and the yellow dot represents Arran.

The WVF is the fraction that water occupies in the flow loop if the total flow loop volume is treated as a cylinder. It is recognised that a lot of fields have localised water holdup fractions much higher than the average WVF that increase the risk of plugging. Therefore, the flow loop was designed with low points, for example, the four data points at 20% WVF had localised water holdup fractions as high as 60–80%.

If there was 100% conversion of water into hydrates then these would end up on the 1:1 line. However, if, for example, there was a gas-starved system or salty water, the result would be below this line, thus implying less than 100% conversion of water to hydrates. The WVF of the flowline for Arran is much less than the peak water holdup fraction; however, being conservative, the peak water holdup fraction of about 5% was applied as the WVF on the chart.

The study was able to conclude that plugging is seen at HVFs or WVFs above 20%, whereas the results show a low risk of plugging for HVFs or WVFs below 10%. These data were applied to an operating subsea tie-back. At 5–10% HVF they did not see any significant risk of blockage and therefore accepted the hydrate risk during the transient phase of start-up: the shutdown period was typically one to four days and subcooling was about 14°C, similar to Arran. The key takeaway here is that, because of Arran's low peak water holdup fraction and WVF, the risk of a hydrate blockage is low. This is supported by these flow loop data and the subsea tie-back field experience.

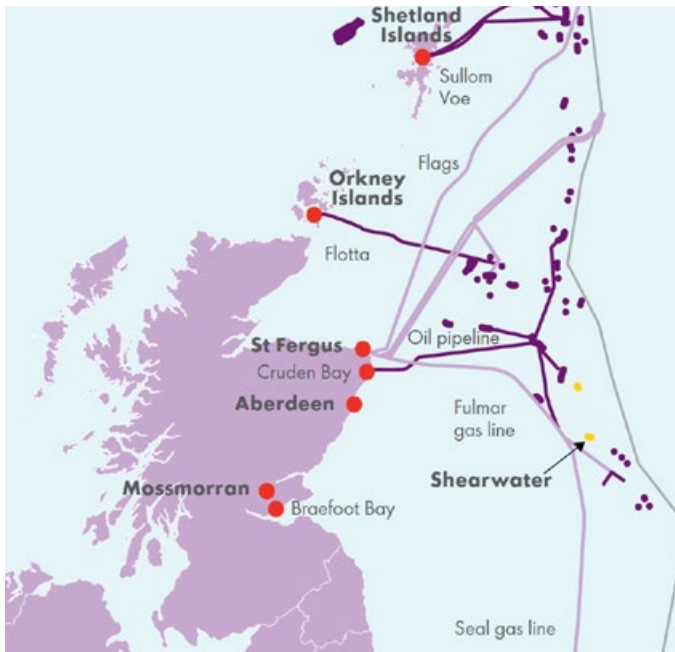


FIGURE 1 The location of the Shearwater platform.

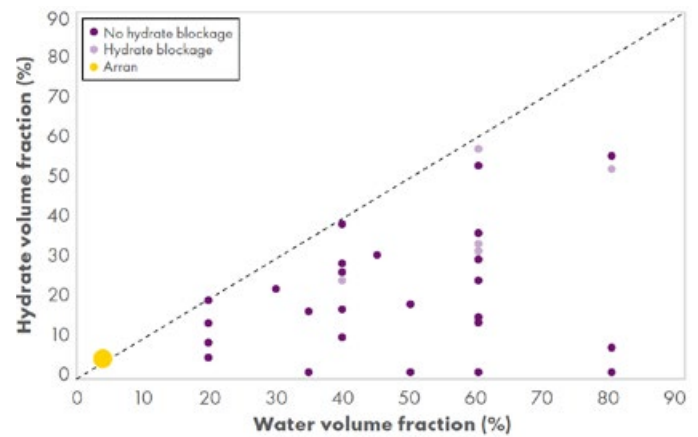


FIGURE 2 Risk of plugging during the transient phase of start-up.

Case study 2

The second case study concerned trigger pressures for managing hydrates at a second subsea tie-back. This field differs from Arran in that it operates continuously in the hydrate region and, in 2020, the strategy changed from continuous low dosage hydrate inhibitor (LDHI) injection to batch treatment with methanol. The batch frequency is driven by a rise in pressure to a trigger point that prompts the injection of a pill of methanol (Figure 3). On average, this happens every two to three days, and the flowline is never depressurised, a large operating expenditure saving compared with LDHI use. The key takeaway here is that, even if operating continuously in the hydrate region, a risk-based approach can be taken involving the use of trigger pressures for the injection of methanol pills.

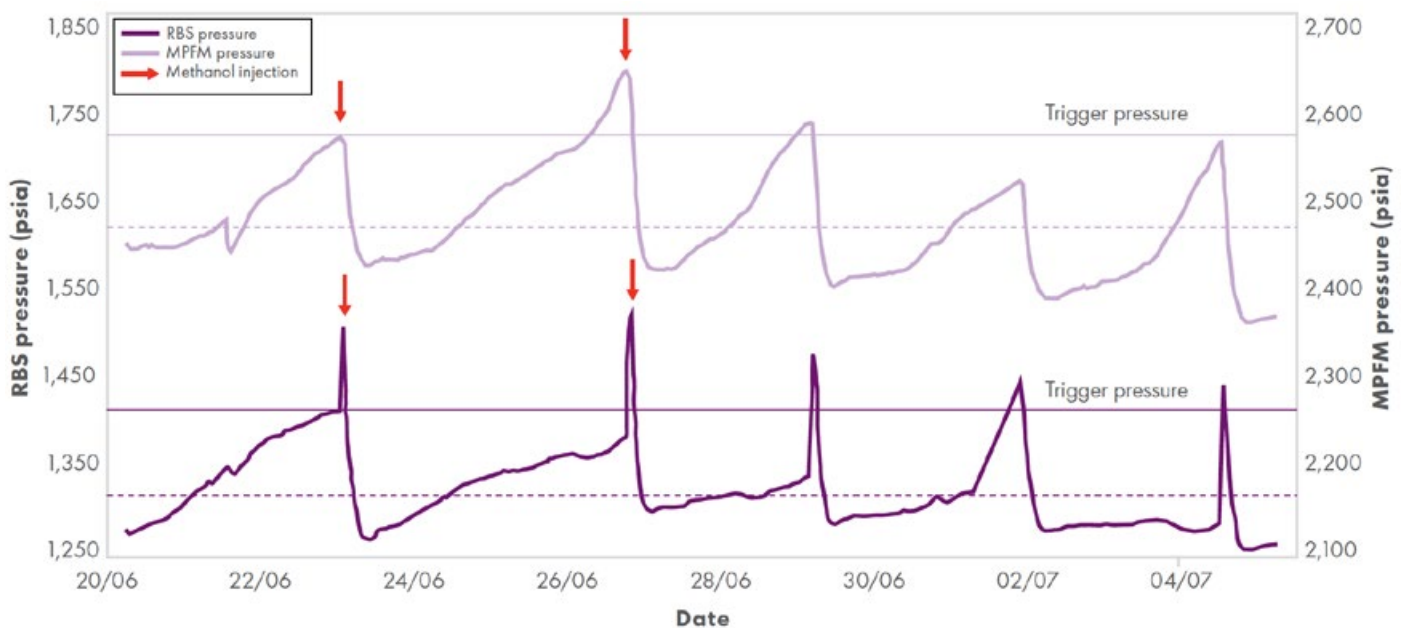


FIGURE 3 Response to methanol pills in Case study 2

The solution

On the basis of the information from the case studies, the team decided to accept the low risk of a hydrate blockage at Arran due to the low water holdup fraction and WWF. This meant that the pipeline could be left pressurised after an unplanned shutdown. However, when a risk is accepted, it is important to have mitigations in place to manage this, including a remediation plan if the threat is realised.

This was enabled by implementing:

1. a digital q-FiRST solution (digital twin) for real-time exception based surveillance for hydrates; and
2. a single-sided depressurisation tool as a contingency in case of hydrate plugging.

In step 1, the project deployed existing Shell solutions for dynamic flowline modelling and surveillance:

- COMPAS: dynamic flowline models;
- q-SPiN: links models to real-time PI data; and
- q-FiRST: runs COMPAS and q-SPiN continuously on a server.

A UniSim COMPAS model for the Arran subsea flowlines was built and benchmarked. The model was then linked to PI data and set up to run in real time using q-SPiN and q-FiRST (Figure 4).

Surveillance displays have been developed in PI Vision that provide advanced pressure monitoring along the flowline, looking for any discrepancy between actual and theoretical pressure behaviour as an early indication of hydrate buildup. The model can also forecast the arrival of liquid slugs at the platform during start-up and the temperature profile along the flowline (Figure 5). The learning from Case study 2 led to setting a trigger pressure at a 10% deviation that will require the operator to inject a slug of methanol into the flowline. At a 20% pressure discrepancy, a further trigger requires the operator to shut down production and perform single-sided depressurisation.

This led on to step 2, which involved developing a single-sided depressurisation tool to enable the operator to take immediate action at the 20% trigger pressure deviation. The tool provides guidance on target pressures to ensure the hydrate blockage does not hit a subsea manifold or Shearwater; depressurisation rate; and hold points. The tool was built in Excel and utilises mass and force balances, first to locate the plug and second to determine how far the plug would travel.

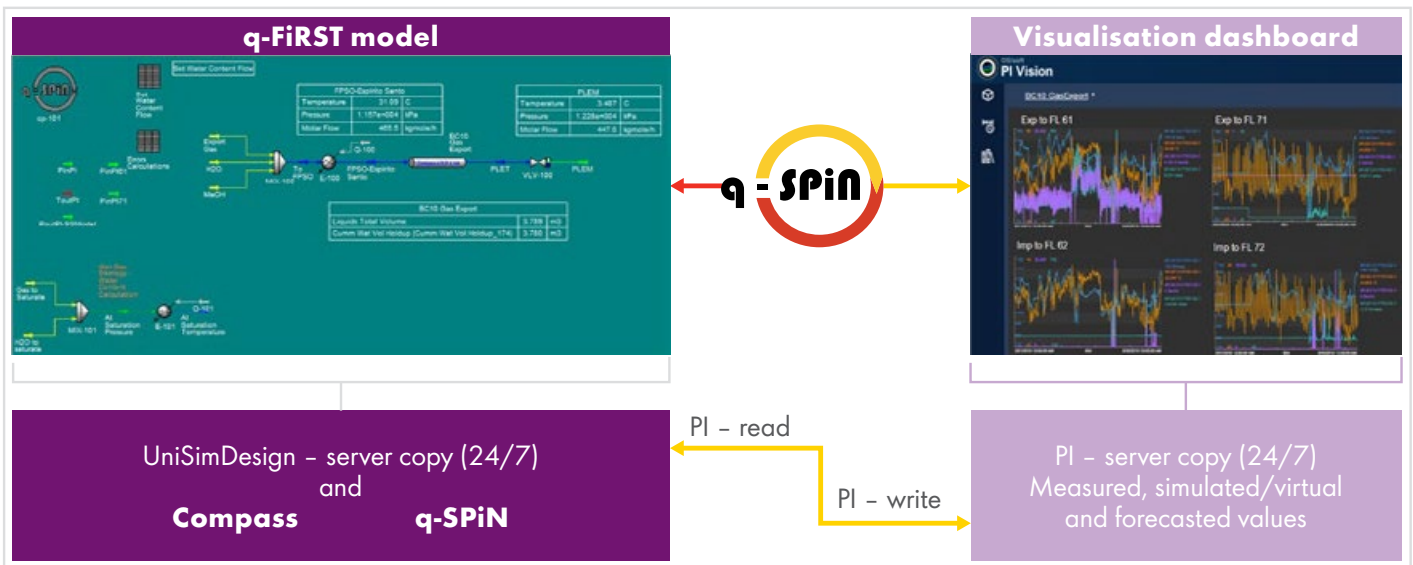


FIGURE 4 The Arran q-FiRST solution.





FIGURE 5 PI Vision exception based surveillance display.

Business Impact

The benefits of this new strategy are threefold. It:

- avoids the need to perform a methanol sweep to flare during start-up and to perform blowdowns after unplanned shutdowns, thereby reducing emissions;
- safeguarded production following flare consent approval by the regulator; and
- accelerates start-up and ramp-up by leaving the system pressurised after an unplanned shutdown.

The accuracy of the q-FIRST solution makes it invaluable to the business for managing start-ups for Arran, as demonstrated by the pressure tracking on the visualisation dashboard (Figure 4).

Path forward

The team is actively looking for opportunities to replicate this success at other UK assets and projects. The team is also looking to further support the operations team by using the q-FIRST solution to implement forecasting capabilities for arrival temperature and methanol, condensate and water arrival times.

Acknowledgements

The author would like to acknowledge the contributions of Timothy Wilson, Ian Brown and Robert Trachsel from the Shearwater asset; Patricio Rosen Esquivel, Giuseppe Pagliuca and René La Riviere from the q-FIRST team; and Gaurav Bhatnagar in the Gulf of Mexico.

Review: Ruud Henkes, principal technical expert fluid flow



About the author

Tom Brawley is a process engineer for the Shearwater platform, based in Aberdeen, UK. In his six-year career with Shell, Tom has worked in the Netherlands and the UK in a variety of project and operational roles in the Upstream business. He has an MEng in chemical and process engineering from the University of Strathclyde, UK.

A CALL TO THE NEXT GENERATION OF ENGINEERS

It is a great honour for me to write my first 'View from the Top' as chair of GPA Europe. I took over the role at the AGM in November 2024 and I find that we are already at our annual conference and close to Alban Hefin, the Summer Solstice 2025.

During the AGM, we discussed the changes that the industry is going through: changes in demographics, when as many as 20% of our engineers have recently retired or will do so soon; changes in workplace dynamics; and the uptake of AI and the distinct expectations of the different generational groups.

We also thought about changes to the energy outlook. To be honest, I think we were all predicting some movement due to political reshape over the pond but I think very few would have imagined the wide-ranging scope of policy amendments.

We are, however, a proudly European organisation and feel that the European perspective is a better long-term view. Earth Overshoot Day¹ was 1 August in 2024 compared to 28 December at the beginning of the 1970s and we cannot forget about our legacy.

Whilst our governments work towards key net-zero targets, we have the opportunity to look at emerging technologies in a way which is not supported by looking at profit alone.

Our role in GPA Europe is to support each other in our industry, whether that be in terms of processing of gas and condensate, LNG, gas treatment or carbon capture.

During 2025, our Key Strategic Initiative groups are reaching out further afield to ensure we understand the new technologies being developed in companies outside of our membership and also in our universities.

In creating new and reviving older contacts, we hope to encourage the next generation of engineers to understand the importance of our industry and make use of the benefits that GPA Europe provides. GPA Europe promotes technical and operational excellence and serves as a forum for the exchange of ideas and information.



I look forward to meeting many of you on 4 June at the Annual Conference in The Hague. We are, however, already busy organising the 2026 Annual Conference where we plan to visit Bergen in Norway and The Northern Lights project.

It's time to get your thinking caps on for some more fascinating papers.

Samantha Nicholson

GPAE Chairperson

¹ Earth Overshoot Day marks the date when humanity's demand for ecological resources and services in a given year exceeds what Earth can regenerate in that year.

GPAE TECHNICAL MEETING & AGM, LONDON

21 November 2024

Morning Session

Session Chair Report (by Myrian Schenk, Baker Hughes, UK)

Thank you to all of you that joined us for the Technical Meeting and AGM in London.

We started the Technical Meeting in the morning with three very interesting papers, all related to decarbonisation in our industry, with views from different angles and sector: hydrogen; process intensification technologies for carbon capture and infrastructure for CO₂; and the challenges to build a CO₂ pipeline network in congested areas.

Morning session paper abstracts are presented below.



A question from the floor

Andrew Fenwick, Topsoe

Unlocking the Potential of Low Carbon Hydrogen: Innovations in Clean Technology

Hydrogen, a vital utility for refineries, has traditionally been produced using fossil feeds, resulting in 'grey hydrogen' with associated CO₂ emissions. To fully harness hydrogen's potential in the energy transition and reduce carbon intensity, it is imperative to explore low carbon hydrogen production methods.

This presentation aims to discuss and benchmark various approaches, both in terms of technology and economics, for producing low carbon hydrogen.

By combining traditional production techniques with clean technology innovations, we can revamp existing grey hydrogen plants or construct new grassroots hydrogen plants supplemented by carbon capture. These methods offer a pathway to produce hydrogen with significantly reduced carbon intensity.

Topsoe, a leader in clean energy solutions, will showcase its groundbreaking H2Bridge™ technology, which integrates renewable hydrogen production with renewable fuel production. This unique approach, utilising H2Bridge™, demonstrates the production of renewable hydrogen, a form of low carbon hydrogen.

Furthermore, Topsoe will unveil their latest innovation, the Topsoe eReact™ (electrified reformer), integrated into Topsoe H2Bridge™ technology. This cutting-edge technology not only produces hydrogen with ultra-low carbon intensity but also achieves negative carbon intensity in the hydrogen production process.



Andrew Fenwick



The speakers gather for a group photograph at the event

Eddie Griffiths, Carbon Clean

CycloneCC: The Technology to Accelerate Industrial Decarbonisation

CycloneCC is Carbon Clean's next-generation carbon capture technology that makes carbon capture scalable and more affordable – bringing it within reach of a huge number of industrial emitters. The technology overcomes the traditional barriers to widespread adoption by reducing the overall capital expenditure (CapEx) and the physical footprint of carbon capture by up to 50% when compared to conventional solutions.

It achieves this through a combination of two proven process intensification technologies – Carbon Clean's advanced, proprietary amine-promoted buffer salt solvent, APBS-CDRMax®, and rotating packed beds (RPBs).

Carbon Clean has commissioned CycloneCC at a fertiliser facility with one of the world's largest energy companies in the UAE and at an industrial facility in Canada. These diverse projects and agreements speak to the wide applicability of CycloneCC to different industries, geographies and climates.

The technology's modular design and prefabricated skids makes it easier to integrate with existing industrial operations to minimise disruption, maximise cost effectiveness, and simplify plant maintenance.

CycloneCC is being standardised across capacities of 75-855 tonnes per day per train. The system validation of the industrial demonstration unit will enable the further scale up of CycloneCC and the commercialisation with select partners.



Eddie Griffiths



Niku Nobakhti

Niku Nobakhti, Costain

Building a Blueprint for Industrial Decarbonisation in the East Coast Cluster

In early 2024, Costain successfully completed the front-end engineering design (FEED) of a 14km above ground CO₂ gathering network, with a maximum design capacity of 3.8MTPA, that will connect key emitters North of the Tees to the NZT Power plant for compression and subsequent transportation to offshore storage for captured CO₂ emissions.

Due to the properties of CO₂ as a fluid, other examples of CO₂ pipelines and networks use a wholly below ground infrastructure. Designing any element of a first-of-a-kind project is not without its complexities, including but not limited to understanding the impact on fluid properties and constructability.

This project formed part of the development of the East Coast Cluster (ECC) and by reviewing its challenges and outcomes in this presentation it is hoped to provide a blueprint for similar CO₂ transportation projects, in the drive towards net zero.



Myrian Schenk

Myrian Schenk reflects on the morning presentations

What a start of the day! Good presentations, good engagement from the audience and lots to think about when we return to work: how we keep going with the energy transition moment? Are we prepared for it? In my humble opinion, we are getting there.

We are unlocking the potential, we are bringing new technologies, to improve, to reduce costs of implementation. In addition, with more and more detailed projects we better understand the challenges, we are forging the rules for building this new industry, we are contributing to create the standards, we are demonstrating our experience, our transferable skill and we are trying to change our world to leave a better one for the generations to come.

The most important thing, I believe, we need to do it together: government, operators, technology providers, constructors and equipment vendors. Though collaboration we will get there faster.

21 November 2024

Afternoon Session

Session Chair Report

The Technical Meeting afternoon session consisted of four papers covering various areas of gas processing. The first two papers were on CO₂ capture technologies, by both adsorption and absorption.

Afternoon session paper abstracts are presented below.

Justin Hearne, Svante Solid Adsorbent Carbon Capture

Svante is a Canadian company that has developed an Adsorption-based technology to remove CO₂ from flue gases. Key to this technology are MOFs (Metal Organic Frameworks).

MOFs have a huge specific surface area and low regeneration energy characteristics. The real challenge was to find a versatile MOF that can adsorb/desorb CO₂ reliably while remaining stable in the presence of flue gas contaminants and water.



Justin Hearne



The audience shows its appreciation during the sessions

Gary Bowerbank, Shell Global Solutions

Demonstration of latest CANSOLV CO₂ capture technology advancements at TCM

In a six-month demonstration campaign at TCM (Technology Centre Mongstad), Shell Global Solutions showcased the latest advancements in CANSOLV CO₂ capture technology. Key improvements include increasing the amine regeneration pressure from 2 bara to 4 bara, enabling up to 10% reduction in specific regeneration energy and 25% reduction in compression power.

Additionally, expanding the solvent portfolio with improved tailored blends, referred to as Alpha blends, enables a reduction in solvent circulation, absorber packing height and regeneration energy while ensuring emissions remain compliant with stringent limits.

In a commercial context, this last enhancement can lead to a reduction of up to 30% in absorber packing height, a 20% decrease in solvent circulation, and a 5% reduction in reboiler duty while maintaining amine emissions in the parts per billion by volume (ppbv) range.



Gary Bowerbank

Howard Seckler, Honeywell UOP

A Novel Solution for Troubleshooting Natural Gas and CO₂ Dehydration Unit Issues

For certain natural gas dehydration units where minimisation of co-adsorption of contaminants such as H₂S, CO₂ and methanol are required, a 3A molecular sieve has long been the optimum solution.

However, 3A molecular sieve has some limitations in adsorption capacity when compared to 4A molecular sieve and suffers from hydrothermal stability issues during regeneration. What customers need is a 4A sieve that behaves like a 3A sieve.

Honeywell UOP's UI-800 molecular sieve is exactly that, resulting in extended cycle times, fewer regenerations per annum, energy savings for the customer and reduced CO₂ emissions.

The final paper was presented online by Katarzyna Cholast from Orlen, on The Reduction of Methane Content in the Nitrogen Waste from a Nitrogen Rejection Unit (NRU).



Howard Seckler

Katarzyna Cholast, PGNiG

Reduction of Methane Content in the Nitrogen Waste Gas from a NRU

Waste nitrogen gas as one of streams going out of nitrogen rejection unit NRU shall content minimum level of methane; not only for economical reasons, but also due to the recent methane emissions regulations.

There were several constraining factors considered, such as: required purity and quantity of products, variable feed gas conditions; and the process sensitivity to them.

As a first step current operation of the existing plant was modelled by gathering operating data. That identified opportunities to reduce methane in waste gas, among others, by optimisation of some process parameters. Out of several examined options, the selected ones can reduce methane content from 2% down to even 0.05%.



A question from the floor

ANNUAL CONFERENCE AWARDS

The GPAE Best Paper Award and GPAE Aungier Award were selected from our 2023 Technical Meeting & AGM, 2024 Webinar Series and Annual Conference 2024 (the winners judged based on scores received at the event).

The GPAE Best Paper Award – titled *Benefits of Latest HySWEET® Solvent Formulation: Insights from Recent Operational Units* – was delivered by TotalEnergies' Renaud Cadours and Axens' Carmella Alfano during the Annual Conference.

The GPAE Aungier Award recognises the best paper delivered by one of our Young Professionals, with the winner also receiving a prize of £1,500. The victor was Bechtel's Esme Elman, with her paper *Development of a Site-Assembled CO₂ Absorber Column*.



GPA Chairperson Myrian Schenk presents the Best Paper Award to Carmella Alfano



GPAE CHAIRPERSON'S ANNUAL REPORT 2024

By Myrian Schenk, GPA Europe Chairperson

Ladies and Gentlemen, friends and colleagues, welcome to the 2024 Annual General Meeting of GPA Europe Ltd.

We started the year with a new type of event for GPAE, our first AfterWork Talk hosted by Fluor. We welcomed back David Simmonds, former GPAE Chairperson, whose presentation "Energy for 2050 and Beyond a Plan B" considered a system lead transformation utilising hybrid technologies which offer consumers both efficiency and flexibility – a fantastic evening which provided an enlightening insight into hydrogen's potential to drive sustainable solutions.

Our webinars for 2024 saw the redelivery of three excellent presentations which were delivered at our Technical Meeting & AGM, as well as one new addition. These short sessions, typically over a lunchtime provided us the opportunity to cover a wide range of themes and were provided to our members for free, and are available to members via our website <https://gpaeurope.com/category/presentations>.

I would personally like to thank everyone who attended for making them a success, but most of all I would like to show my appreciation for the various speakers.

These types of events are primarily to keep our members engaged during the year, but they also allow GPAE to reach out to different technologies and market sectors which are becoming more and more important during this time of energy transition.

For the main GPAE celebration, we headed back to Milan, for our Annual Meeting in September. We kick started the three days with our Young Professional Training Day. A different format to normal and organised by our Young Professional Committee, it was a day focus on development supported



Myrian Schenk

by GPAE Senior (perhaps, not so young!) Professionals.

We also had the help of TotalEnergies to deliver an engaging group exercise on optimising the value chain for H2 production. A special thanks to Filip Ceijka from Bryan Research & Engineering who led our Young Professional Committee and helped to structure the event. Our Young Professional Committee is always keen to know what our young professionals want from these events, so if there is anything you would like to hear about, or talk about for that matter, do get in touch with Filip, or of course Lesley at our admin office.

On the first day of our Annual Conference, we welcomed back our very own Malcolm Harrison from PetroSkills who delivered our workshop on the future of the energy industry. The workshop provoked a lot of interaction and post event conversation. The need for creativity and innovation is unparalleled. The industry will be a fantastic place to work for the next few decades.

It is crying out for the brightest and the best engineers and scientists. As many at the workshop confirmed, global warming will be a positive influence on the lives of those who chose to work in the energy industry.

The second day opened with our panel discussion organised by RINA on "Energy Transition from Oil to Gas and recent developments in renewable & low carbon fuels".

Leonardo BRUNORI, Energy Executive Vice President, from RINA, moderated the event and was joined by three industry experts. They were Dina LANZI, Head of Technological Development in the Decarbonization Projects Unit di Snam and President of Comitato Italiano Gas; Claudio EVANGELISTI, CEO, Gas & Heat S.p.A.; and Raimondo GIAMI, VP Hydrogen, Marketing & Strategy, Baker Hughes.

We also had a round of posters, consisting of 5-minute presentations which are very well attended, to increase the number of topics and allowing more members to present. The third day finished, as usual to complete the good selection of paper presentations. A big thanks to everyone that was presenting and helping to deliver another successful GPAE conference.

We move on now, with a look ahead to next year. We will continue the webinars focusing on the energy transition and decarbonisation where we bring you the opportunity to learn and share together in this fast journey that our industry is embracing!

Our Annual Conference will be heading to The Hague 4-6 June 2025 – save the dates! Keep checking the website and follow GPAE on LinkedIn to keep up to date with all the events and activities.

The 2024 AGM marked my final day as Chairperson of GPAE and I'll be handing over this privilege to Samantha Nicholson of Fluor. I wish her all the best in her tenure and offer my unconditional support as required.

It has been a pleasure to be the Chair of the GPAE, to run the Management Committee with renovated energy and with a fantastic team. Serving our members and ready tackle any further challenges in the industry, we continue fostering our goal to promote technical and operational excellence and to service as a forum for the exchange of ideas and information for all participants in the European Gas Processing Industry.

I will continue to be active in GPAE as your Secretary, and also as part of the TechComm and KSI Future Energies Group as we continue with our main purpose of creating value for our members through improving knowledge sharing, technology, and help with people development.

I strongly believe that all of us at the GPAE are helping to spread the knowledge and implementation of modern gas processing technologies and equipment through our ability to communicate and connect our industry.

Thank you for being there with us, and for your continued support.

Before I close, I would like to express my sincere thanks to the Directors, Management Committee and Technical Committee of GPAE. All of these people are volunteers and willingly give up their time so that the organisation exists. Thank you ManComm.

Finally, a very big and personal thank you to Helen Boddy, our Administrator who is currently on maternity leave and will be returning to us in October 2025. She has left the role in the very capable hands of Lesley Potts who we welcome into the GPAE family.

We look forward to 2025. We expect it to be another GREAT YEAR – come and help us to do that!

All the best,

Myrian



Myrian Schenk handing over the baton to Samantha Nicholson

EVENTS DIARY 2025

Be part of our conferences promoting a new energy future and the transition of our industry towards that future.

Technical Webinar
“CO₂ Capture”
17 April 2025

Technical Webinar
“Future Energies”
25 September 2025

Annual Conference & Young Professional Training Day

4-6 June 2025

The Marriott Hotel, The Hague

A conference and networking event organised by GPA Europe.

WHAT'S ON		
<p>YP Training Day</p> <p>We have a Young Professionals Training Day on Wednesday 4 June. FREE to members' Young Professionals.</p>	<p>Workshop</p> <p>A high-quality afternoon Workshop on Wednesday 4 June. Workshop theme: <i>Purification of Gas for Cryogenic Processes</i></p>	<p>Keynote Address</p> <p>Don't miss the keynote address.</p>
<p>Panel Discussion</p> <p>90 minutes, bringing participants' fascinating debate and big picture outlooks from some of the big names in the gas processing industry. Panel theme: <i>Roadmap or Roadblock? Co₂ and Hydrogen Pipelines.</i></p>	<p>Technical Conference</p> <p>Hear from selected speakers during the event. Themes include:</p> <ul style="list-style-type: none"> • CO₂ Infrastructure • Green Hydrogen/Green Ammonia • CO₂ Capture • Traditional Gas Industry 	<p>Exhibition</p> <p>We have limited exhibition space. An opportunity to promote your organisation and exhibit your wares.</p>
<p>Welcome Reception</p> <p>Join us in the late afternoon/early evening in the The Hague Marriott Hotel for drinks, canapés and networking.</p>	<p>Conference Dinner</p> <p>A Conference dinner will take place on Thursday 5 June, giving you more opportunity to network with your fellow delegates.</p>	<p>Hotel</p> <p>GPAAE has secured a limited number of discounted rooms at The Hague Marriott Hotel.</p>

Technical Meeting & AGM

20 November 2025 The Clermont Hotel, London, UK

Find out more: <https://gpaeurope.com/events>



CONTACT

GPA Admin Office

GPA Europe, Willow Cottage,
Stroud Lane, Fleet, Hampshire,
GU51 5ST United Kingdom

☎ | +44 (0)1252 625542
✉ | admin@gpaeurope.com
🔍 | www.gpaeurope.com



 @GPA-EUROPE-LIMITED  @GPAEUROPE  @GPA-EUROPE-LTD

CORPORATE MEMBERS

This listing of current Corporate Members represents the status at 1 May 2025

Level 1 Members

Air Liquide Global E&C Solutions Germany GmbH
Amines & Plasticizers Ltd
ANDRITZ AG
Arkema France
Atlas Copco Energas GmbH
Axens
BASF SE
Bechtel Ltd.
BP Exploration Operating Co. Ltd.
CB&I Ltd
ConocoPhillips LNG Technology & Licensing
Costain
DNV Services UK Limited
Dow Chemical Co. Ltd
ENGIE - CRIGEN
ENI Spa
Equinor
Fives Cryo
Fjords Processing France SAS
Fluor Ltd.
Francoise Sabatier
Gassco AS
Huntsman Belgium BVBA
Johnson Matthey
Kellogg Brown & Root
Norit
Pall Europe
Parker Hannifin Manufacturing Limited
Petrofac Facilities Management Ltd
Saipem
Saudi Aramco

Sazeh Consultants
Shell Global Solutions International BV
SLB
Technimont
Technip Energies France S.A.S
TotalEnergies One Tech SAS
Uniper Technologies GmbH
William Blythe Limited
Wood Group UK Limited
Worley Comprimo

Siemens Process Systems Engineering Limited
Sulzer Chemtech AG
Teesside Gas & Liquids
TGE Gas Engineering GmbH UK Branch
Tranter
UOP Ltd
Vahterus Oy
VTU Engineering GmbH
WinSim Inc
Zeochem AG

Level 2 Members

Aragon AS
Axiom Angewandte Prozesstechnik GmbH
BASF Catalysts Germany GmbH
Bryan Research And Engineering
Chart Energy
Hatch
Heatric
Iv-Oil and Gas
KBC Process Technology Ltd.
Kelvion Ltd
Kent Energies UK Ltd
Liquid Gas Equipment Ltd
MySep Pte Ltd
Oil & Gas Systems Limited
Orbital Gas Systems Ltd
Paqell B.V.
PetroSkills|John M Campbell
PGNiG SA Oddzial w Odolanowie
Process Vision Ltd
SBM Schiedam

Level 3 Members

Abbey Industrial Sales Co Ltd
Bohr Limited
Bring Solutions BV
Chem Group MPR Services LLC
Gasconsult Ltd
ISG
Kirk Process Solutions
Optimized Gas Treating
Phillip Townsend Associates Ltd
SDS Separation Technology B.V.
Sulphur Experts Inc
Thermasep

Academic and Media Members

Hydrocarbon Processing
University of Bradford