



# energyNOW

A publication of the Energy Chamber of Trinidad and Tobago

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# The Dragon can dance

Last month, the consortium of Shell and the National Gas Company of Trinidad signed the license to develop the Dragon gas field in Venezuela. The gas from the field is destined for export from Venezuela to Trinidad & Tobago via the Shell operated Hibiscus platform, just across the maritime border.

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Gas pipelines

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A development that the local energy industry is keenly watching.

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## Building pathways toward tomorrow

New advancements continue to be made at a rapid pace within the energy sector. At Atlantic, we continue to fuel world-class progress as part of the global energy system, creating value for Trinidad & Tobago and building bridges to the rest of the world.





# The Power of Performance shines through...

as PowerGen celebrates the achievement of **3 MILLION SAFE MAN-HOURS** at its successful HSE Week 2023

In a week-long celebration of safety and well-being, PowerGen's HSE Division hosted its **HSE Week 2023** from October 30th to November 3rd, 2023. The main theme, "**HSE in the Workplace – Goal Zero,**" was chosen in alignment with the International Labour Organisation's commitment to safety and health as a fundamental right in the workplace. The theme resonated throughout the engaging sessions held at PowerGen's Point Lisas Plant (October 30th - October 31st) and Penal Plant (November 1st to November 2nd).

The closing ceremony, held on November 3rd, 2023 at the Pt. Lisas Plant, was a fitting conclusion to a week filled with interactive and educational sessions. The highlight of HSE Week was the noteworthy achievement of **3 MILLION SAFE MAN HOURS**, underscoring PowerGen's unwavering commitment to safety and excellence. The week also marked the launch of PowerGen's Life Saving Rules and a plaque was presented in recognition of PowerGen's dedication to creating a positive safety culture.

PowerGen's General Manager, Dr. Haydn I. Furlonge, shared valuable insights during the HSE Week launch by emphasising the company's **GOAL ZERO** aspiration for **zero accidents, zero oil spills, zero unsafe acts, zero unsafe condition, and ultimately zero harm.** Dr. Furlonge further highlighted the importance of reliability, safety, and competitiveness as pillars to secure the future of PowerGen. The company's proactive approach to safety,

includes emergency drills, structural integrity assessments, and the recognition of outstanding employee contributions through HSE SPOT Awards.

The HSE Week featured lectures on various topics including invigorating safety culture, managing diabetes, work-life balance, self-defense, environmental management, home gardening, defensive driving and an aerobics burnout providing both mental and physical engagement for employees.

Earlier this year, Commemorative plaques were presented to each location in recognition of the **3 MILLION SAFE MAN HOURS** when the milestone was achieved.

PowerGen's HSE Week 2023 can be described as a resounding success, showcasing the company's leadership and commitment to safety, to a greener, more sustainable.

**PowerGen remains a reliable and socially responsible long-term energy partner, committed to a greener, more sustainable Trinidad and Tobago.**



PowerGen General Manager- Dr. Haydn I. Furlonge delivers remarks at HSE Week 2023



Liaison Officer presents Acting Pt Lisas Plant Manager - Mr Enrico Walters with a commemorative plaque



Liaison Officer GM- Dr Haydn I Furlonge presents Penal Plant Manager - Ms. Natisha Mohammed with a commemorative plaque



Liaison Officer GM Dr Haydn I Furlonge presents Head of Finance- Mr Dharmendra Singh with a commemorative plaque



Penal employees participate in HSE Week 2023



Head HSE, Mr. Daren Jadoo presents a token to fellow employee Ms. Christlene Deder



Chairman of OSHA - Mr. Curt Cadot delivers remarks at the closing ceremony of HSE Week 2023



PowerGen General Manager- Dr. Haydn I. Furlonge presents a token to Chairman of OSHA - Mr. Curt Cadot



Fitness Demo at Pt. Lisas Plant during HSE Week 2023



L to R: Pt. Lisas Plant Manager - Mr. Curt Bookris, Penal Plant Manager- Ms. Natisha Mohammed, PowerGen General Manager- Dr. Haydn I. Furlonge, Head HSE, Mr. Daren Jadoo and Chairman of OSHA - Mr. Curt Cadot pose with a plaque commemorating the launch of PowerGen Lifesaving rules



Couva One Stop Garden Shop presents on food security as part of HSE Week 2023



HSE team members partake in a fitness burnout HSE Week 2023



Not just Power... People too!

# The Dragon can dance

(continued)

This historic license was negotiated between the parties after the US government waived the sanctions regime on the field, in response to intense diplomatic efforts from the Trinidad & Tobago Government, with notable support from other Caribbean nations.

The license and agreement to export gas from Venezuela marks an important new development, given the fact that Venezuela has traditionally placed much greater focus on oil production and its massive gas resources remain relatively underdeveloped.

Antero Alvarado, Managing Partner and Director at the energy consulting firm Gas Energy Latin America, in an interview with EnergyNow, said, "Despite all hindrances, finally it is going to be possible to monetise large gas reserves and to export abroad. After more than 100 years of oil operations, it's time for natural gas."

The development of the Dragon gas field means that gas will be produced in Venezuela waters and then exported to Trinidad via pipeline to enter T&T's gas pipeline network and be utilised for petrochemical and LNG production.

While cross-border gas pipelines exist around the world, particularly in Europe, this is the first of its kind for T&T and Venezuela. The project has significant potential to benefit both nations. T&T needs access to natural gas, as domestic gas volumes have fallen over the last 10 years, and Venezuela has the opportunity to monetise a resource for which a market was not readily available in the past.

"There is a technical challenge to connect two different nations with gas systems that are completely different. However, I'm convinced that TT players know the Gulf of Paria waters very well."

Alvarado said, "The relationship [between T&T and Venezuela] was guided by the idea of regional integration. Trade is the best way to improve relations between nations". In Venezuela, the sentiment toward the project appeared also favourable. He said, "The feeling was that after so many years trying to export natural gas, common sense prevailed".

He also indicated that the project itself was not without challenges. He said, "There is a technical challenge to connect two different nations with gas systems that are completely different. However, I'm convinced that TT players know the Gulf of Paria waters very well." He added that good relations with CARICOM were important to ensure first gas.

When asked about next steps, Alvarado said that "Venezuela and TT need to re-engage the unitisation of cross-border fields as well as develop the fields in the Gulf of Paria and Columbus Basin".

At the time of the announcement, the Prime Minister of Trinidad and Tobago, Dr. the Honourable Keith Rowley also stated that, "In the spirit of good neighbourliness, the Dragon can dance." He also stated that "A door to a new commercial frontier has been opened for the benefit of all our people."

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# Celebrating 90 years in Trinidad and Tobago

It is with great pride that SLB celebrates 90 years of collaboration and innovation in Trinidad and Tobago. Our thanks go to all our employees, customers, community members, and partners for joining us on this journey. Looking forward to more exciting challenges and opportunities as we shape the future together, **driving energy innovation for a balanced planet.**



# McDermott receives limited notice to proceed for Manatee gas development project offshore Trinidad and Tobago



Photo: www.mcdermott.com

Staff Writer | Energy Chamber

McDermott received a limited notice to proceed for an engineering, procurement, construction and installation (EPCI) contract from Shell Trinidad and Tobago for the Manatee gas field development project, located off the east coast of Trinidad and Tobago.

Subject to Shell taking a final investment decision, the Manatee project scope is for the design, procurement, fabrication, transportation, installation, and commissioning of a wellhead platform, offshore and onshore gas pipelines.

“This award follows our successful delivery of the front-end engineering design for the Manatee gas field,” said Mahesh Swaminathan, McDermott’s Senior Vice President, Subsea and Floating Facilities. “It is testament to McDermott’s integrated EPCI capabilities built over the last 100

years around the world including many successful projects in Trinidad and Tobago. We will again deliver for Shell, building on a partnership marked by trust, collaboration, and shared success, to execute this important project.”

The Manatee field is a conventional gas development and once commissioned, gas will supply both domestic and export markets from Trinidad and Tobago.

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## ANSA McAL and Kenesjay Green sign MOU on regional green energy development in the Caribbean

Staff Writer | Energy Chamber

The ANSA McAL Group, a major conglomerate operating across the Caribbean, and Kenesjay Green Limited (KGL), an indigenous regional leader in green energy project development, have signed an MOU to accelerate the development of new and commercially viable green energy projects in the Caribbean.

Significantly, the December 2nd signing was done at the COP28 Climate Summit in Dubai, during the session on “Regional Green Hydrogen Developments in the Caribbean”. The event was applauded by representative ministers of several Caribbean states, and enthusiastically supported by co-hosts in the auspicious Nationally Determined Contributions (NDC) Pavilion in the Blue Zone – the Commonwealth of Dominica, the Caribbean Climate-Smart Accelerator (CCSA) and KGL. Also witnessing the signal event were multi-lateral financing institutions and other key stakeholders.

Speaking at the signing ceremony, Anthony N. Sabga, Group CEO of ANSA McAL, stated, “I am proud of this first step taken today to partner with KGL to explore projects to harness the Caribbean’s natural resources to provide more sustainable solutions that impact the lives of the people of our region. It is our intent to bring

considerable resources in people, capital and technology to support the efforts of our region in the fight for a greener future. This resonates deeply with our purpose: ‘Inspiring Better Choices for a Better World.’”

Philip Julien, Founder and Chairman of KGL, an affiliate of Kenesjay Systems Limited, said, “We bring our track record of project development expertise which has recently focused on bankable low carbon and green hydrogen projects in the Caribbean. Our collaboration in Dominica to deliver geothermal to green hydrogen bears testament to this focus. This MOU with a Caribbean corporate heavyweight like ANSA McAL is an important step in advancing potential green projects in the region, including other geothermal-rich countries in the Caribbean.”

COP28, the United Nations Climate Change Conference, was held 30 November to 12 December, 2023 in Dubai, United Arab Emirates. It is the world’s only multilateral decision-making forum on climate change with almost complete membership of every country in the world.

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## bp to take full ownership of Lightsource bp

Staff Writer | Energy Chamber

bp has agreed to acquire the 50.03% interest it does not already own in Lightsource bp, one of the world’s leading developers and operators of utility-scale solar and battery storage assets. The parties agreed that now was the right time for bp to take full ownership, enabling Lightsource bp’s continuing growth and high performance.

Lightsource bp operates with a proven develop, engineer, construct and farm down business model that creates value through selling majority interests in assets it has developed, to strategic partners. With this capital-light model, it has built a track record of delivering renewables projects with equity returns in the mid-teens.

Full ownership will now enable bp to further scale up Lightsource bp and create additional value by applying bp’s complementary capabilities and strengths—including in finance and trading—fully to the business. bp will continue to target double-digit equity returns from this business.

In addition, bp intends to use Lightsource bp’s world-class capabilities as a developer of cost-competitive utility-scale onshore renewable power to help meet its own demand for low-carbon power. This integration is expected to underpin and

de-risk delivery of bp’s targets for its transition growth engines—in hydrogen, EV charging and biofuels as well as in power trading.

bp has structured and priced the acquisition terms to be highly competitive, reflecting market conditions and with a consideration structure that is biased to performance. In time, bp may also look to unlock further value through bringing a strategic partner into the business.

The acquisition will be fully accommodated within bp’s financial frame and meet bp’s expectations for investment returns from renewables and power, unlevered and before integration benefits. Subject to regulatory approvals, the transaction is currently anticipated to close in mid-2024.

Anja-Isabel Dotzenrath, bp executive vice president for gas and low-carbon energy, said, “This is a natural evolution of the partnership we have built over the past six years. I look forward to welcoming the Lightsource bp team to bp and am confident that together we can further strengthen its position as a leading global renewables developer.”

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## GSC signed with PCS Nitrogen to boost T&T’s position as leading ammonia exporter

Press Release

The National Gas Company of Trinidad and Tobago Limited (NGC) completed the signing of a Gas Sales Contract (GSC) with PCS Nitrogen Trinidad Limited (Nutrien). The contract, one of several with ammonia exporters operating in Trinidad and Tobago, affirms this country’s position as one of the world’s leading exporters of ammonia.

President of NGC, Mark Loquan, said, “NGC is committed to doing our part as the aggregator of gas to ensure our downstream sector remains a globally competitive and major contributor to Trinidad and Tobago’s sustained economic development.”

The supply of natural gas from NGC will support Nutrien’s ammonia plants and one urea plant, which are located at the Point Lisas Industrial Estate (PLIE). Nutrien operates one of the world’s

largest nitrogen complexes contributing to Trinidad being one of the largest exporters of ammonia, 20% of the world’s production. Its ammonia complex is strategically located to serve the US Gulf Coast, the Caribbean and Latin America.

Managing Director of Nutrien Trinidad, Erik Vettergren, stated, “We welcome this contract agreement with NGC and believe it will go some way towards limiting the impact of upstream-related interruptions to gas supplies, further contributing to safety and reliability at our Point Lisas facility. We have significant investments planned in 2024 that will enhance reliability and efficiency across our operations in Trinidad and while we believe that we will continue to experience some gas supply tightness over the next two years or so, we appreciate NGC’s efforts to minimise disruptions.”



Mark Loquan and Erik Vettergren (Photo: ngc.co.tt)

Loquan also thanked the teams associated with the negotiations for their efforts. “Specifically, I’d like to thank the team at Nutrien for their partnership and I thank the team members at NGC for their dedication.”

In recent weeks, NGC has successfully closed other ammonia sector GSCs, notably with Proman for the execution of Gas Sales Contracts for Caribbean Nitrogen Company

Limited and Nitrogen (2000) Unlimited, Point Lisas Nitrogen Limited and the Trinidad Nitrogen Company Limited. NGC is continuing to work with other key business partners in the sector to close GSCs that will enable these businesses to continue on their growth path.

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## Minister Young meets with Woodside Energy executives



The Honourable Stuart R. Young  
Minister of Energy and Energy Industries  
and Minister in the Office of the Prime  
Minister

Staff Writer | Energy Chamber

Minister of Energy and Energy Industries Stuart Young along with several senior Government officials met with Woodside Energy executives at the Ministry in Port-of-Spain.

Shiva McMahon, Executive Vice President, International Operations at Woodside Energy, gave an update on the company's international portfolio of high-quality assets, which includes the Calypso gas development block, located in deep water, Trinidad and Tobago. Ongoing operations at the Ruby and Angostura blocks were also discussed as well as the incorporation of more local content into the operations at Woodside Energy Trinidad and Tobago.

Minister Young stated that in an effort to optimise the development of our hydrocarbon province, Government remained supportive of progressing the Calypso project and the deep-water frontier.

McMahon also took the opportunity to congratulate the Government on the successful restructuring of Atlantic LNG. Minister Young reiterated that to remain globally competitive, Government was prepared to work with all multinationals and energy stakeholders to drive investments towards the further development of hydrocarbon resources within Trinidad and Tobago.

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## Energy Chamber welcomes the news of the signing of the Atlantic restructuring agreement

Staff Writer |  
Energy Chamber

The Energy Chamber of Trinidad & Tobago welcomed the news of the final signing of the Atlantic restructuring agreement. The Chamber thanked and complimented the negotiating teams from bpTT, Shell, the National Gas Company of Trinidad and Tobago Limited and the Government of Trinidad and Tobago, for having completed the complex process and for delivering the new commercial and legal structure for Atlantic. This is a major development for the Trinidad and Tobago gas sector and therefore the overall economy of the country.

The restructuring of Atlantic will create greater certainty for the facility's shareholders and allow investment into the plant, including investments to reduce the carbon footprint of the LNG produced through Atlantic. While the specific details of the new commercial and legal structure are not yet known,



Signatories at the meeting (Photo: ngc.co.tt)

we are cautiously optimistic that the new structure will positively influence much-needed future investment into upstream gas production. Increased investment into upstream production will provide additional work for the service companies and contractors, increased security of supply to the downstream plants and increased Government revenue.

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## NGC, EOG and Woodside discuss energy matters



Participants at NGC's special Board meeting (Photo: ngc.co.tt)

Staff Writer | Energy Chamber

The task of securing the future of domestic energy must be a collaborative undertaking, with the involvement of all stakeholders along the energy value chain. This is the thinking behind NGC's continued engagement with upstream suppliers in unprecedented, targeted discussions around energy matters, including energy security and the energy transition.

NGC held two separate special Board meetings in December with EOG Resources and Woodside Energy to discuss the path forward for local energy. They were joined at both meetings by the Minister of Energy and Energy Industries.

Among the points that the teams discussed were long-term gas supply, strategies for decarbonisation of the energy and industrial sectors, and mechanisms to help transition the energy value chain to a low-carbon future.

These two special meetings were a continuation of discussions initiated in February 2023, when NGC first started this type of dialogue with upstream suppliers.

Participating in the two meetings were The Hon. Stuart Young, Minister of Energy and Energy Industries; Dr. Joseph Ishmael Khan, Chairman, NGC, along with the Board of Directors; Mark Loquan, President, NGC; George Vieira, Managing Director, EOG;

Kellyanne Lochan, T&T Country Manager, Woodside; as well as other senior executives from all companies.

Minister Young commented after the meetings: "I am happy to see NGC and our upstream operators taking this initiative to come together deliberately and proactively, to share plans and ideas for addressing industry challenges and moving local energy forward. This spirit of collaboration strengthens our industry and brings us closer to realising our vision for local energy, which is to build a system that is both profitable and sustainable."

NGC President Mark Loquan expressed his satisfaction with the outcome: "It is extremely heartening for us at NGC to be able to engage in these candid and fruitful conversations with our upstream partners, because alignment across the value chain helps us better serve our customers and generate value for the country. We are grateful to EOG and Woodside for meeting us at the table and for giving us valuable insights into their plans and growth strategies. We hope to build on this engagement in 2024, with all our stakeholders, for the ultimate benefit of Trinidad and Tobago."

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## Woodside positive on Calypso project, assessing both LNG and petrochemical offtake for gas

Staff Writer | Energy Chamber

Woodside's CEO Meg O'Neill and Shiva McMahon, EVP International Operations, spoke at the company's Investor Briefing Day about the future of the Calypso deepwater development in Trinidad and Tobago—a development that the local energy industry is keenly watching.

In recent months, the Ministry of Energy and Energy Industries has publicised several meetings with Woodside's leadership in T&T, including with the new country manager Kellyann Lochan.

The Calypso project comprises five discoveries—Bongos, Bele, Tuk, Hi-Hat, and Boom—in blocks 23(a) and 14 off the north-east of Tobago. Woodside is the operator with 70% ownership, along with joint venture partner BP that owns 30%. BP previously said that the project is "the first of its kind" for T&T.

At the Investor Briefing, Shiva McMahon said that T&T was an advantaged region, with existing infrastructure and favourable demand outlook. She also said, "We're continuing to progress Calypso in the deep water. We have selected an infield host as the preferred development concept and are making really good progress on commercial and marketing fronts as well."

Meg O'Neill concurred that Calypso continues to make good progress. She said, "We've got many of the attributes that are constructive, so it is a good quality gas resource. It's not particularly big. It's in a jurisdiction though that is very supportive of development—Trinidad and Tobago's whole economy is founded on oil and gas. They've got LNG, they have petrochemical, so the Government is very supportive of progressing Calypso. Our partner is supportive, so that one is a field that's got a bit of momentum."

She added, "We want to make sure that our focus is in places where we have that line of sight to rapid development. Calypso's probably a great example of something that came to us in the merger, again a discovery in a country that strongly supports the industry, where again you've got the right fiscal framework, you've got the right commercial framework, you've got the right industrial setting. So, that's going to be our focus."

O'Neill was asked about the importance of gaining access to Atlantic LNG for the commercial development of Calypso and if the Government was facilitating that at the moment. She said, "The Government's been doing quite a bit of work actually to harmonise the fiscal terms for Atlantic LNG and to commercially restructure that venture. The reality for us though is we're interested in both LNG and we've got the option for sales into some of the petchem facilities."

She added that "One of the key forms of hydrogen that's going to be attractive is ammonia, and there are facilities in Trinidad and Tobago that produce ammonia. So, we want to make sure that we keep the door open, that we create a bit of commercial tension amongst all the potential processors of gas and consider options for us to offtake our product as well."

She indicated that this was very much a live conversation right now but added, "We believe we'd be able to access Atlantic LNG if that was our preferred development concept."

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## NGC signs gas sales contract with TRINGEN



Mark Loquan and Treveno Stenn Mowassie (Photo: ngc.co.tt)

Staff Writer | Energy Chamber

NGC has successfully closed another important gas sales contract with the Trinidad Nitrogen Company Limited (TRINGEN), one of the longest-operating companies on the Point Lisas Industrial Estate. The agreement also affirms NGC's and TRINGEN's commitment to environmental responsibility.

Treveno Stenn Mowassie, President of Yara Trinidad Limited, commented, "The agreement enables the continued development of our environmentally responsible naturepositive solutions, and we look forward to collaborating towards securing a sustainable long-term gas supply. I am proud of our team effort and recognise the professionalism of NGC during these negotiations."

TRINGEN is a leading manufacturer of anhydrous ammonia at two (2) independent production plants, TRINGEN I and TRINGEN II, at Pt. Lisas. It is a limited liability company, of which 51% is owned by National Enterprises Limited (NEL) and 49% by Yara Caribbean (2002) Limited. The company also operates a gas-turbine power generation plant. Commenting on the agreement with TRINGEN, NGC President Mark Loquan relayed that, "NGC is pleased to have completed this agreement as it affirms our commitment as the aggregator of gas and to providing support to the petrochemical sector in Trinidad and Tobago."

Loquan also thanked both teams for their efforts in successfully bringing the negotiations to final signing.

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# Chairman's Remarks at the Local Content Forum 2023

**Jerome Dookie** | Chairman, Energy Chamber of T&T

I stand before you with a great deal of enthusiasm at the Energy Chamber's 11th Local Content Forum. I am enthusiastic because I know the collaborative efforts that we are about to embark on today will yield great benefits for our ever-changing energy industry. This gathering of our member companies exemplifies our collective commitment to fostering growth, sustainability and competitiveness in our dynamic industry.

In Trinidad and Tobago, the energy sector is a driver of economic prosperity and a catalyst for local development and empowerment. We, the Energy Chamber, are aware of the importance of local content in the energy sector and how it contributes to the growth of our industry and to the well-being of the communities in which we operate. As such, we remain committed to ensure that we continuously focus on initiatives and activities that promote local content within the industry.

Success in local content initiatives requires collaboration at every level. The journey is not a solitary one—it is a shared endeavour that requires teamwork and the creation of partnerships, building bridges and forging connections amongst all stakeholders in the energy sector. Our success is intertwined with the prosperity of others. Operators must be successful and have activity in order for energy services companies to have jobs, and energy services companies must have jobs with the operators to create opportunities in the communities in which they operate.

The Energy Chamber has recognised the importance of this collaborative approach and how lobbying for opportunities in the upstream sector will ultimately benefit both our members in the petrochemical and LNG sectors and all our local service companies who provide goods and services across the value chain. This is what our Six Point Plan to increase gas production and maximise export revenue, formulated in 2022, focuses on.

We also have very specific initiatives that are geared towards local content development and building competitive companies, for example, our Local Content Management System and the work that falls under our Sustainable Energy Services Taskforce. The work that we do in the area of local content development is not always communicated to our members in a way that shows the long-term benefits of these initiatives, and we will be placing more emphasis on effective communication, so



Jerome Dookie

We, the Energy Chamber, are aware of the importance of local content in the energy sector and how it contributes to the growth of our industry and to the well-being of the communities in which we operate. As such, we remain committed to ensure that we continuously focus on initiatives and activities that promote local content within the industry.

that our members can get a sense of all that is happening behind the scenes to assist them when it is not always apparent.

In conclusion, as we navigate the complex landscape of the energy sector, let us remain steadfast in our commitment to local content. Woodside and their predecessor BHP have been consistent in supporting the Local Content Forum as the major sponsor. I would like to also recognise our other sponsors—Atlantic, Touchstone, NGC, Shell, bpTT and Proman—for their unwavering commitment to local content development.

I firmly believe through transparent communication and shared goals, we can build a foundation for a sustainable energy future that benefits us all. This is why we have all gathered here—we have the same vision for the energy sector. By approaching local content collaboratively, we secure the future of our industry and become architects of a resilient energy industry.

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# Ready to work: creating an industry-wide pre-qualification system



Energy Chamber President and CEO Dax Driver with participants at the Local Content Forum.

**Dax Driver** | President and CEO, Energy Chamber of T&T

One of the topics discussed at the Energy Chamber's Local Content Forum was creating a uniform pre-qualification system across the energy sector. This idea got resounding support from the members who attended the Forum from across the supply chain. The discussion at the Forum concentrated on how this could best be achieved and the issues that will need to be addressed to make it happen.

Given the maturity of Trinidad and Tobago's oil, gas and petrochemical sector there is a lot of pressure on the supply chain to be as efficient as possible and to cut out unnecessary costs. The energy transition in progress means that international energy companies are being extremely disciplined about where they allocate capital, so it is important for a country like Trinidad and Tobago to always focus on efficiency and making it easy to do business.

A lot of the time we focus on efficiency of state agencies and the delays that this causes. The first of the recommendations of our 6-point plan to secure the future of the gas industry is to speed up approvals and cut unnecessary red tape to reduce the administrative burden (also a topic of conversation at the Local Content Forum). But the industry can also control certain things itself to be more efficient, such as standardisation. A well designed and implemented pre-qualification system could be important in that regard.

To reduce administrative burdens and streamline the pre-qualification across the industry, the existing Safe to Work (STOW)

database can provide a good foundation to build on as we develop the overall uniform pre-qualification system. A lot of the data that is needed in a pre-qualification system is already captured in that mature system. This goes beyond the HSE management system data that is captured in STOW, as other data on service companies is also produced through a STOW audit.

We can also learn from the recent experiences of the Office of Procurement Regulation registration system as we develop our system. We will have to ensure integration with the OPR system, if the industry pre-qualification system is going to include the state companies in the energy sector (Heritage and the NGC group are very important customers for energy service companies).

We will also need to address issues around data security, transparency and technical challenges that can be overcome with the right team, dedication and processes. The bigger challenge is the human side of the transformation. We are going to have to make sure that procurement professionals in operator companies and the leadership of the services sector both see this as a process that is going to make their lives easier, create a level playing field and cut out duplication of effort.

We are off to an excellent start with the discussions at the Local Content Forum – we now have to build on that momentum and bring everyone along on this journey.

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# SIX-POINT PLAN TO SECURE NEW NATURAL GAS SUPPLIES AND MAXIMISE EXPORTS FROM TRINIDAD & TOBAGO: 2022 – 2030

## FAST-TRACK bid rounds & the approval processes



1

Acreage needs to be awarded to competent operator companies for new exploration to take place. Improving regulatory approval processes will reduce the time between the award of new acreage and first gas production. This will significantly improve project economics and make new gas available faster. A one-year reduction in the time taken to first gas has been calculated to create US\$ 120 million in additional net present value for a typical Trinidad & Tobago medium-sized offshore gas field.<sup>1</sup>

The current structure of upstream royalties and taxation does not encourage companies to reinvestment in exploration or the development of new fields. The fiscal regime, inclusive of the VAT system, needs to be reformed to unlock new investment.<sup>2</sup>

2



## REFORM upstream tax system to incentivise investment

## INVEST in reducing the carbon intensity of operations and products



3

Cross border adjustment mechanisms (CBAM) for carbon taxes pose a threat to exports of LNG, petrochemicals and iron and steel from Trinidad & Tobago, especially to the European Union. If Trinidad & Tobago commodity exports are to be able to sell to higher price premium markets the carbon intensity of production must be able to compete with other jurisdictions. This will require the reduction of CO<sub>2</sub> emissions from operations, reducing methane emissions and flaring, accessing offsets, and the introduction of low carbon molecules into the product mix (including green<sup>3</sup> and blue<sup>4</sup> hydrogen).

Gas for electricity generation is sold at prices far below the market rates for petrochemicals or export markets through LNG, which acts as a disincentive for upstream companies to invest in gas production. Reducing gas going to electricity, though both increased renewable generation and improved energy efficiency (including upgrades towards high efficiency electricity generation and higher reliability in IPP and distribution sectors) will make more gas available for these foreign exchange earning sectors and will improve the profitability of upstream gas developments.<sup>5</sup> Green hydrogen can also supplement natural gas as a feedstock.

4



## DIVERT GAS from domestic electricity generation through energy efficiency and renewables

## Encourage innovative approaches to SMALL FIELD DEVELOPMENT



5

As Trinidad & Tobago has matured as a gas province, new fields are often smaller and more difficult to develop. Working with the Ministry of Energy, operator companies need to find new ways of bringing this gas to market making the best use of existing infrastructure.

There are significant gas resources in neighbouring territories, especially Venezuela but also potentially in Barbados and Grenada (in the longer-term). In addition to significant untapped offshore gas fields, more natural gas is flared on the North Monagas oilfields in eastern Venezuela alone than the current shortfall in Trinidad production. Securing these resources for export to Trinidad is politically challenging but has huge potential economic benefits and, in the case of the flared gas in particular, significant climate change benefits as well.

6



## Secure CROSS BORDER SUPPLIES

1. Kenesjay Systems Ltd "Project Fast-track" submission to T&T Energy Chamber, November 2019. A reduction in the time taken from bid round to first gas from the current average 5 years to 4 years would represent an increase in the NPV (8%) of a typical gas field in T&T from US\$ 815 million to US\$ 934 million.  
2. Energy Chamber's Fiscal Reform Task Force "Final Report" delivered to Government of Trinidad & Tobago, August 2021.  
3. Green hydrogen produced from the electrolysis of water or plasmification of waste.  
4. Blue hydrogen produced from natural gas with CO<sub>2</sub> captured and sequestered (carbon capture and sequestration).  
5. "Draft Energy Conservation and Energy Efficiency Policy Action Plan 2020 to 2024", submitted to Minister of Public Utilities, September 2019.

# NGC maintains gold standard status for international methane reporting

Staff Writer | Energy Chamber

At COP28, the global Oil and Gas Methane Partnership (OGMP) released its signature report on methane emissions, which outlines the commitments made by member companies to reduce their methane output. In this report, NGC (OGMP member since 2021) was highlighted as one of 84 companies achieving the “Gold Standard” status for its level of reporting and for its methane reduction ambitions. This is the second consecutive year that NGC has achieved this recognition.

The OGMP is a multi-stakeholder partnership to improve the accuracy and transparency of methane emissions reporting. The Gold Standard is conferred upon companies that have demonstrated “an explicit and credible path” to progress through the OGMP’s tiered system for tracking and reporting methane emissions from their operations.

The OGMP noted that NGC’s achievement was attained “on the basis of a credible implementation plan”. With its membership, NGC made the voluntary commitment to set targets for reducing fugitive and vented methane emissions

from its business, and report on its performance. NGC’s campaign to track and reduce the methane output from its operations includes the use of an infrared camera to detect fugitive emissions along pipelines and gas handling infrastructure, and a partnership with Netherlands-based service provider Orbital Eye to detect emissions through satellite imaging. NGC is also represented on the International Gas Union’s (IGU) methane experts panel and works in close collaboration with both IGU and OGMP on this global initiative.

Methane is a powerful greenhouse gas with 80 times the global warming potential of carbon dioxide on a 20-year timescale. It is the primary component of natural gas, and one of the main greenhouse gas emissions of the energy sector. Implementing plans and technologies for tracking, measuring and mitigating methane emissions from energy infrastructure is therefore a critical concern of climate action plans.

Commenting on the achievement, NGC President Mark Loquan stated: “NGC continues to be recognised as a climate-conscious energy business, taking



deliberate and aggressive steps to reduce its carbon impact. Our methane mitigation campaign is just one prong of a diverse Green Agenda strategy, through which we are making important inroads to support national emissions reduction targets. We are honoured to receive the OGMP acknowledgement of our efforts to date and our intentions moving forward, where methane is concerned. Our focus is now on ensuring we keep the momentum going

to achieve our target of 25% reduction in absolute methane emissions from our business by the year 2025. We are well on our way, and intend to accelerate our work programme come 2024.”

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- Heat Treatment Services



# First production from Payara Development offshore Guyana



FPSO Prosperity (Source: Keppel Offshore & Marine)

Staff Writer | Energy Chamber

Hess Corporation has announced startup of production from the Payara development on the Stabroek Block offshore Guyana, utilising the *Prosperity* floating production, storage and offloading (FPSO) vessel. *Prosperity* is expected to reach its initial production of 220,000 gross barrels of oil per day over the first half of 2024 as new wells are brought online. Production capacity on the Stabroek Block is now approximately 620,000 gross barrels of oil per day.

The *Prosperity* FPSO arrived in Guyana in April 2023. It is moored in water depth of about 6,300 feet and will develop an estimated resource base of more than 600 million barrels of oil.

"We are proud to be a partner in the successful development of this world-class oil resource for the benefit of the people of Guyana and all other stakeholders and congratulate ExxonMobil as operator for outstanding project execution," CEO John Hess said. "The world will need these low-cost oil resources to meet future energy demand and help ensure an affordable, just and secure energy transition."

The *Liza* Phase 1 and *Liza* Phase 2 developments began producing in

December 2019 and February 2022 respectively, and together have a production capacity of approximately 400,000 gross barrels of oil per day. *Yellowtail* and *Uaru*, the fourth and fifth projects, are in progress and will each have a production capacity of approximately 250,000 gross barrels of oil per day. The operator is currently working with the Government of Guyana to secure regulatory approvals for a sixth project at Whiptail.

In total, six FPSOs with a gross production capacity of more than 1.2 million barrels of oil per day are expected to be online on the Stabroek Block by the end of 2027, with the potential for up to ten FPSOs to develop the estimated gross discovered recoverable resources of more than 11 billion barrels of oil equivalent.

The Stabroek Block is 6.6 million acres. ExxonMobil Guyana Limited is operator and holds 45% interest in the Stabroek Block. Hess Guyana Exploration Ltd. holds 30% interest and CNOOC Petroleum Guyana Limited holds 25% interest.

Hess Corporation is a leading global independent energy company engaged in the exploration and production of crude oil and natural gas.

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## Three additional production sharing contracts for Staatsolie



Staff Writer | Energy Chamber

Staatsolie has signed three additional offshore production sharing contracts (PSCs) with international oil and gas companies for Blocks 63, 64 and 65, which were part of the Demerara Bid Round held from November 2022 to May 2023. Contracts from the bids were signed after negotiations with selected partners. The Demerara Bid Round was part of Staatsolie's strategy to sign PSCs for as many offshore areas as possible. Through the PSCs, Staatsolie extends the rights for exploration, development and production to these companies. The costs and risks during the exploration period are fully covered by the latter. The exploration period consists of three phases and will last seven years.

A PSC has been signed for Block 63 with PETRONAS, who had submitted a bid for this block. The PSC for Block 64 was signed with the collaborating companies TotalEnergies, QatarEnergy and PETRONAS, who submitted a joint bid. TotalEnergies is in the lead in the partnership (operator) with a 40% participation interest; QatarEnergy and PETRONAS each have a 30% stake. BG International (a subsidiary of Shell) and QatarEnergy had made a joint bid for Block 65. QatarEnergy has a 40% participation interest; Shell has a 60% interest and will act as operator.

An exploration well will be drilled in both Block 64 and Block 65 in the first phase, which will last three years. In Block 63 the first exploration well follows in the second phase of the exploration period. In the event of an oil or gas discovery that is

declared commercial, Staatsolie has the right to participate in all three blocks for a maximum of 20% from the development period.

The PSCs, which are valid for thirty years, were signed by Staatsolie's General Manager Annand Jagesar and for Block 65, the representatives of BG International and QatarEnergy, Mark Regis and Ali Abdulla Al-Mana respectively. For Block 63 it was Zamri Baseri from PETRONAS. The signing took place in the presence of the Minister of Natural Resources, David Abiamofo.

Blocks 63, 64 and 65 are located in the Demerara area, in the central northern part of the Surinamese territorial waters, and are located 160 to 355 km offshore in water depths of between 150 and 3,000 m. By entering into PSCs in the fairly challenging deep-sea area, the industry's confidence in the Suriname-Guyana basin and in Staatsolie has once again been confirmed.

The Shallow Offshore 2 Bid Round is currently underway for eleven blocks in the shallow sea area, the so-called shallow offshore. This area is located south of the deepwater oil and gas discoveries and north of Staatsolie's production fields in the Saramacca district and has water depths of up to 150 m. This tender round also fits in with Staatsolie's strategy to have as much area as possible under contract with international parties.

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# Saipem awarded two offshore contracts in Guyana and Brazil worth US\$1.9 billion

Staff Writer | Energy Chamber

Saipem has been awarded two offshore contracts, one in Guyana and the other in Brazil, worth approximately US\$1.9 billion.

The first contract has been awarded by ExxonMobil's subsidiary ExxonMobil Guyana Limited for the proposed Whiptail oilfield development, located in the Stabroek block offshore Guyana, at a water depth of approximately 2,000 metres. Saipem's scope of work includes the design, fabrication and installation of subsea structures, risers, flowlines and umbilicals for a large subsea production facility.

Saipem will perform operations using its state-of-the-art vessels FDS2, *Constellation* and *Castorone*, and will deploy as key fabrication site for its execution model Saipem's Guyana offshore construction facility, located at the port of Georgetown, enhancing a sustainable steady growth in the country. Subject to the necessary Government approvals, the project sanction by ExxonMobil Guyana Limited and its Stabroek block coventurers and an authorisation to proceed with the final

phase, the award will allow Saipem to begin some limited activities, namely detailed engineering and procurement.

The second contract has been awarded by Equinor for the Raia project, the development of a pre-salt gas and condensate field in the Campos Basin, located about 200 km offshore the state of Rio de Janeiro in Brazil.

Saipem's scope of work encompasses the offshore transport and installation of a subsea gas export line and associated equipment in water depths of around 2,900 metres, as well as the horizontal drilling activities for the shore approach. Saipem will deploy its pipelaying vessel *Castorone* for the installation works.

With this project, Saipem will contribute to the realisation of one of the most important gas development projects in Brazil, which could represent 15% of the total domestic demand of the country. The extracted gas will be transported through pipelines installed by Saipem for approximately 200 km from the field



Saipem Constellation (www.saipem.com)

to a gas-receiving facility to be built in Cabiúnas, in the city of Macaé in the State of Rio de Janeiro.

The two awards confirm, once again, the competitiveness of Saipem's offer in bidding processes and the ability to build long-term partnerships based on consistent

performances. Moreover, they further strengthen the visibility on Saipem's key assets utilisation throughout 2027.

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# Accelerating Action

## editorial

IN THE YEAR since the last T&T Energy Conference there have been many positive developments in the local energy sector: we have seen the Atlantic restructuring completed, a license signed for the Dragon gas field, deepwater exploration blocks PSCs signed, onshore licenses awarded, a shallow water bid round launched (with more attractive terms), the Manatee project moving towards construction, continued activity to progress the Calypso project, new downstream supply contracts signed and the first major solar project in the country under construction. We have had first gas from Cascadura, and the Mento and Cypre projects are under execution.

Despite this positive news, the gas supply situation is challenging and will remain so over the next few years. The major projects in the pipeline that could increase production are going to take a few years to be completed and in the meantime, the struggle is to maintain production without significant additional declines.

This reality highlights the need to move actions forward as quickly as possible, hence the theme chosen for the 2024 edition of the T&T Energy Conference: *Accelerating Action*. The Energy Chamber's view is that there is good alignment between the Government and industry on what needs to happen to create a sustainable future for our energy sector. The key challenge that the Energy Chamber sees, is to move faster and implement the decisions that are needed to bring on new projects and invest in efficiency in the existing system as quickly as possible.

The Energy Chamber has written about the systemic elements that we think could be addressed to move actions along faster in the past. We have identified items like a lack of general understanding across society of the serious challenge that we face in the gas sector, the problem of siloed decision making in Government,

archaic processes (still mainly paper-based in 2024) and the problem of institutional capacity and the ability of key Government agencies to recruit and retain all the skilled professionals that they need.

We expect that issues like these and many others that impact Government decision-making will be discussed during the 2024 edition of the Energy Conference. The Conference must also discuss, however, what the industry can do to speed up project delivery. There is a lot of scope for partnerships between operators, and for partnerships between operators and service companies, that can improve the efficiency and speed of implementation. There are some existing initiatives that have been very fruitful in this regard, but there is certainly more that can be done. This requires dialogue and exchange and for companies to be willing to do things differently than they have done in the past.

As a membership organisation comprising companies from across the value and supply chain, the Energy Chamber is well placed and fully committed to facilitating the sort of dialogue needed for these initiatives. Coming out of the Local Content Forum last year, we are working on the issue of pre-qualification of contractors and on the competency of the labour force. There is a lot of scope for improved efficiency with better industry-wide systems in place, and these are obviously things that a trade association like the Energy Chamber is well positioned to advance.

If we are going to accelerate action, we are going to need commitment by a wide range of different stakeholders. The Energy Conference is an excellent opportunity to get those stakeholders together to advance all those conversations and actions.

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## The Energy Chamber's work on behalf of our small and medium member companies

AROUND HALF of the members of the Energy Chamber of Trinidad & Tobago are small to medium enterprises with annual revenue below TT\$25 million, companies owned by a family or a few individual shareholders with a small workforce offering services to the energy industry.

Many of these have had a rough time in the past few years. The overall size of the market has declined, especially for companies focused on new greenfield projects and construction. The closure of the Point a Pierre refinery represented the loss of a very important major customer. At the same time, small companies have to constantly invest in improving standards, efficiency and safety, in line with stringent industry requirements. The general lack of ease of doing business, an archaic industrial relations systems, limited access to foreign exchange and security issues impact everyone in the private sector.

The work that the Energy Chamber does on behalf of our smaller member companies typically does not get the same sort of attention as our big-ticket advocacy work to create the right environment to attract investment into the gas industry and into the energy transition. Small member companies often need assistance in making contacts with customer companies and advice on dealing with particular issues. Sometimes these are systemic issues that we can address on an industry-wide basis, as we did with the creation of a uniform HSE pre-qualification system through the Safe to Work programme, and at other times they are specific issues with a particular client.

The Local Content Forum is the major event in our annual calendar when we get a chance to discuss these systemic issues and create engagement between operator companies and the energy service sector. We had the tenth annual instalment of this event at the end of 2023; it has been sponsored since inception by Woodside Energy and their predecessor BHP, with many other companies also supporting this important event.

My view is that this tenth anniversary edition was especially impactful and



Dr. Thackwray 'Dax' Driver

there was great engagement. There are three very important initiatives coming out of the Forum, which we are going to be discussing further at the T&T Energy Conference on 22 January 2024: the issue of timely payments; the idea of creating one industry-wide pre-qualification system beyond just creating the IT system, for which the STOW database gives us a good starting point; and the setting up a more detailed engagement process in three targeted areas to increase local content: marine services, engineering services and inspection services. These have been identified through the work of the Task Force on Sustainable Energy Services and the data collected by the Local Content Management System, and then validated through a series of engagement sessions with both service companies and operators. Our next step is to set-up some targeted engagement sessions for the companies which offer these services to identify areas where we could increase the local content (which we define as the value of spend retained in-country) in these areas.

On a personal note, I have always found the work that we do for our smaller member companies extremely professionally gratifying. It is often challenging, because there are sometimes problems that companies have, which we just can not solve, but it is a great feeling when we do actually manage to resolve issues and see smaller locally-owned family businesses flourish. One of the things I realise I have not managed to always do is communicate how important this work is for the Energy Chamber and how central it is to our mission. That is something that I am going to fix over this coming year.

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# NGC introduces its Climate Adaptation and Resilience Portal (CARP)

Mario Singh | Contributor



Mario Singh

In a world of rapidly accelerating climate change and global warming, due in large part to greenhouse gas emissions (GHGs), and other man-made changes to ecosystems that affect the planet's ability to effectively absorb and recycle carbon, Small Island Developing States (SIDS) such as those in the Caribbean are particularly vulnerable to climate change impacts.

The factors that make the region vulnerable include its geographic location, limited land area, abundance of sensitive ecosystems such as forests, mangroves, coral reefs and other natural habitats, high population density in coastal areas, economic dependence on climate-sensitive sectors, and limited access to resources for adaptation and resilience-building.

One key vulnerability of SIDS is their exposure to sea-level rise. Many SIDS have low-lying coastal areas, making them highly susceptible to inundation and coastal erosion as sea levels continue to rise.

In its '2022 Sea Level Rise Technical Report', the National Oceanic and Atmospheric Administration (NOAA) projected that over the next three decades, sea-level rise in the Caribbean is projected to be, on average, 8–10 inches (0.2–0.25 meters). While this may seem small at first glance, this poses significant risks to infrastructure, settlements, and freshwater resources as well as to the livelihoods and well-being of the population. The sea-level rise will lead to coastal erosion and have disastrous consequences on economic activities such as tourism, fishing, agriculture and farming, threatening the region's ability to withstand planetary warming greater than 1.5°C. The economic impacts of coastal erosion will be substantial and require investments in adaptation measures to protect vulnerable areas.

It is within this context of climate impacts to SIDS that NGC decided to develop its Climate Adaptation and Resilience Portal (CARP), which seeks to build on the success of NGC's CariGreen website, launched in 2021. While CariGreen successfully brings together datasets and knowledge on climate change mitigation from around the Caribbean into one central location, CARP focuses on climate adaptation and resilience.

Adaptation refers to the process of adjusting and modifying societal and natural systems to minimise the adverse effects of climate change. It involves developing strategies and implementing measures to reduce vulnerability and enhance resilience in the face of changing climatic conditions. Resilience is the capacity of a system to absorb shocks, adapt, and recover from disturbances while maintaining essential functions and structures.

CARP will provide information and alerts on climate change-related risks such as sea-level rise, coastal erosion and vulnerability, maritime alerts, bush fires, air quality, deforestation and other emerging threats that disrupt lives in the Caribbean.

## CARP screenshot comparison of climate projections for sea level rise in parts of northwestern Trinidad



Using interactive Geographic Information Systems (GIS) technology, CARP will illustrate climate risks using maps, charts and other interactive tools to assist NGC's employees and members of the public in making more informed decisions in their daily lives considering the evolving environmental conditions associated with climate change.

## Why is it important to become aware and educated on climate change impacts using tools like NGC's CARP?

Education on climate adaptation and the impacts of climate change is crucial for increasing awareness, driving mitigation and adaptation efforts, fostering resilience, creating economic opportunities, promoting social equity, advocating for policy action, and achieving sustainable development. Tools like CARP empower society to more effectively address the challenges of climate change and work towards a more sustainable and resilient future.

Here are some key reasons to become more climate-aware and educated using tools like NGC's CARP:

- Awareness and Understanding:** Develop a better understanding of the challenges posed by climate change, including the need for adaptation strategies.
- Mitigation and Adaptation:** Help individuals and businesses understand the importance of reducing greenhouse gas emissions and adopt sustainable practices to mitigate climate change. Equip societies to prepare for and respond to the impacts of climate change.
- Resilience and Preparedness:** Develop strategies to respond to climate-related risks.
- Economic Opportunities:** Enables society to identify and seize opportunities for developing and offering climate-resilient products and services. A well-informed workforce can contribute to innovation and the development of sustainable solutions, creating green jobs and promoting economic growth.
- Social Equity:** Climate change disproportionately affects vulnerable communities and exacerbates existing inequalities. Education can help address these disparities.
- Policy Advocacy and Action:** Enable society to advocate for effective climate policies and take collective action. Engage in discussions, participate in decision-making processes, and hold policymakers accountable for implementing climate adaptation measures. Foster a sense of responsibility and collective action, promoting behaviour change and community-based initiatives.
- Sustainable Development:** Equip society with the knowledge and skills necessary to balance environmental, social, and economic considerations.

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## Members of the public are free to use NGC's CARP to visualise climate change impacts using variables such as:

- Sea level rise
- Coastal zone monitoring—stability and vulnerability
- Active hurricane/cyclones
- Air quality
- Annual mean temperature and precipitation
- Location of critical public infrastructure
- Active adverse weather alerts
- Tidal information

To access CARP visit <https://carp.ngc.co.tt/>

To view the interactive portal, click the 'view portal' icon. Once in the portal:

- Toggle layers on the left sidebar to view/hide layers in the map using the eye icon. Groups can also be expanded to see individual layers.
- The right sidebar shows the legend for the visible layers on the map. Please scroll to see the entire legend, depending on the number of layers visible.
- At the top-right corner, there are tools that you can use in the map. These include 'Views' that take you to different map extents, 'Directions' to show routes from point to point, 'Search' to search for features in the map and share the link to different social media platforms.
- Feel free to comment/suggest improvements through the survey form.





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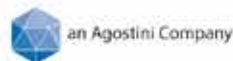


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# RYSTAD COP28: Ten steps to a faster, more efficient energy transition

## Rystad

The global energy system is at a tipping point on its path to a net-zero emission future. At the COP28 conference, Rystad Energy outlined 10 critical steps required to accelerate the transition, limit global warming and ensure a clean and reliable energy future.

The transition from fossil fuels to clean energy sources is gaining momentum, with notable progress in the adoption of clean technologies around the world. Despite current progress, an even quicker expansion is required, and global government and business leaders will play a foundational role when it comes to setting the pace.

Nevertheless, slow infrastructure developments, underinvestment in new technologies and poor grid optimisation limit meaningful progress. International collaboration is vital too, but recent global tensions and conflicts have proved to be a setback in recent years. Although these tensions, like the ongoing trade dispute between China and the US, have expedited the shift toward renewable energy, they have also fragmented global supply chains, which could be detrimental to clean tech developments.



### Step 1: Fast-track renewable developments

The supply chain is primed and ready to expand developments quickly, but the rollout needs to pick up speed. Permitting times need to be shortened, and short-term financing barriers like high interest rates need to be mitigated if new capacity is going to hit its required target by 2030.

According to Rystad models, global renewable capacity needs to increase from about 3.6 terawatts (TW, one trillion watts) last year to nearly 11.2 TW by 2030 to meet a 1.6°C global warming scenario. Solar photovoltaics will account for about 65% of this required expansion, but more work is needed before the world is on that pathway. Based on existing projects, policies and industry trends, global renewable generation capacity will reach only 8 TW by 2030 and will not hit 11.2 TW until 2034 at the earliest.

To accelerate renewable developments, permitting reform in the West, policy support in Asia and optimisation of the global solar supply chain are needed. Additionally, Contracts for Difference (CfDs) in high renewable penetration markets can mitigate the financial risks of price cannibalisation, thereby fostering stable investment in renewable energy projects.

### Step 2: Double down on energy efficiency

Out of the 500 exajoules (EJ,  $10^{18}$  [one quintillion] joules) of primary energy from fossil fuels, only 250 EJ is ultimately used. If solar, wind or hydro are the primary energy source, about 440 EJ would be available to the end user.

When molecules are burned to produce electricity or motion, only 30–50% of the chemical energy is converted to useful energy. The remaining energy is lost as heat to the environment. In contrast, with

renewable energy sources like solar or wind, 70–90% of the primary energy is available for the end user, even after accounting for storage and distribution. Heat pumps in industry and buildings enable much more efficient heat generation than traditional electric radiators.

Energy efficiency improvements in buildings, appliances and machines have increased by 1% per year over the last few decades due to better materials and design. However, this trend needs stronger regulations and policy incentives to accelerate to the levels required to align with the most ambitious climate scenarios.

### Step 3: Meaningful action on methane

Methane is responsible for 15–20% of global greenhouse gas emissions, but reducing methane emissions is often overlooked in net-zero strategies. Methane is at least 25 times more potent than carbon dioxide ( $\text{CO}_2$ ) as a greenhouse gas, so clear targets, monitoring, penalties for non-compliance and methane capture incentives are paramount.

Agriculture, particularly livestock, and landfills are significant sources of methane emissions. Supporting investments in emerging agriculture technologies like cellular agriculture and precision fermentation can significantly reduce emissions from livestock. Additionally, promoting landfill gas capture and anaerobic digestion can turn these emissions into energy or hydrogen, reducing methane release into the atmosphere.

The oil and gas sector also significantly contributes to methane emissions, primarily from production and transportation infrastructure leaks. Implementing best practices for regular and advanced leak detection, followed by timely repairs, minimising flaring and accelerating

deployment of modern air pneumatics can significantly reduce emissions.

### Step 4: Put a price on carbon

A gradual maturation of the value of carbon will send a powerful financial signal to polluters to reduce emissions. This is particularly important in hard-to-abate sectors, where a carbon price directly influences the adoption rate of clean technology. For instance, in the cement sector, the business case for using carbon capture, utilisation and storage (CCUS) is strengthened by a value on carbon.

Currently, CCUS is costly, but chemical absorption process advancements are expected to significantly lower costs in the coming years. Chemical absorption is leading the way in CCUS technology adoption within the cement sector, accounting for 32% of announced technology in upcoming projects, including a project led by Heidelberg Cement, which aims to capture 400,000 tonnes per annum.

### Step 5: Scale up clean tech investments

Clean tech investments, including solar and wind, will surpass oil and gas investments by 2025. However, it is crucial to accelerate the process, particularly in emerging countries and technologies, such as green hydrogen.

In 2023, 70% of low-carbon investments were made in eight countries, with 50% in China and 20% spread across the G7 countries. The remaining 30% were made mainly in developed economies, except for India, which accounted for 2.5% of global low-carbon investments. Therefore, it is essential to stimulate early market demand for low-carbon products in emerging economies by investing in mature end-user technologies that can boost demand for electrification and clean technologies.

### Step 6: Optimise grid utilisation

The limitations of power grids often hold back renewable energy sources. It is commonly believed that integrating new variable renewable energy requires massive investments in grid infrastructure, but that is inaccurate. Only 40–50% of grids are actively utilised, so increasing grid efficiency could significantly reduce the required new capacity.

By implementing existing and affordable technologies such as topology optimization and dynamic line ratings, transmission capacity can be increased by 30–40% and 20%, respectively. This would significantly enhance grid resilience, flexibility and efficiency. In addition, robust energy storage solutions could manage demand spikes during heat waves and cold snaps.

### Step 7: Embrace electrification of road transport

The shift to electric vehicles (EVs) is crucial to reduce our dependency on fossil fuels. Road transport alone accounts for 19% of global final energy demand and 15% of global  $\text{CO}_2$  emissions. To be on track for a 1.6°C warming scenario, an ambitious but achievable target of 70% EV penetration should be set.

To facilitate an accelerated transition in the sector, financial incentives like the US Inflation Reduction Act's US\$7,500 subsidy per vehicle are crucial, as well as expanding the charging network.

### Step 8: Reduce, reuse, recycle

The circular economy is critical for an efficient decarbonisation strategy. Reusing materials, like repurposing EV batteries for stationary energy storage, and significantly

*continued on page ...*

## RYSTAD Ten steps (continued):

increasing recycling rates are essential. Without specific actions and supportive policies, opportunities for sustainable industry practices may be missed.

Recycling is particularly crucial for hard-to-abate sectors like steel production. Primary steel production emits 2.3 tonnes of CO<sub>2</sub> per tonne of steel, while recycled steel produces only 680 kg of CO<sub>2</sub> per tonne, resulting in a 70% reduction in emissions. This highlights the critical role of recycled steel in environmental sustainability, and policymakers should take note.

### Step 9: Cut inefficient fossil fuel subsidies

Inefficient subsidies for fossil fuel consumption create a significant distortion in global energy markets. These subsidies encourage the inefficient and increased use of fossil fuels, create imprecise price signals for fuel efficiency and provide an unfair advantage for the transition to clean energy technologies.

While sizeable, the direct financial impact of these subsidies is further compounded by environmental and health impacts. A structured and gradual phase-out should be implemented to level the playing field, realign market dynamics towards sustainable energy use and facilitate a smoother transition for economies and consumers accustomed to subsidized energy prices.

### Step 10: Avoid trade tensions setting back progress

To tackle climate change effectively, global leaders must face the risks of trade tensions and the trend of homeshoring supply chains. While localising production boosts domestic industries, it can significantly slow the energy transition by encouraging subsidy races in key clean tech sectors like batteries, hydrogen and solar photovoltaics. Additionally, injecting funds into these industries is not the cure, especially given the associated skill shortages.

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# IEA assessment of the evolving pledges at COP28

Staff Writer | Energy Chamber

At the COP28 climate change conference in Dubai, pledges have been made in three key areas by many countries on renewables and energy efficiency, and by a significant number of companies on methane. These are three of the five crucial areas for action highlighted by the International Energy Agency (IEA) ahead of COP28.

The IEA has now analysed what the impact would be on global energy-related greenhouse gas emissions if all the signatories of these pledges delivered on them in full. It shows that while the pledges are positive steps forward in tackling the energy sector's greenhouse gas emissions, they would not be nearly enough to move the world onto a path to reaching international climate targets, in particular the goal of limiting global warming to 1.5°C.

In December 2023, around 130 countries signed up to the pledge to triple global renewable power capacity by 2030 and double the annual rate of energy efficiency improvements every year to 2030. Those countries together account for 40% of global carbon dioxide (CO<sub>2</sub>) emissions from fossil fuel combustion, 37% of total global energy demand and 56% of global GDP.

In addition to the potential impact of those pledges, the IEA has assessed what the effect would be of the full implementation of the methane pledge of the Oil and Gas Decarbonisation Charter, which is to zero-out methane emissions and eliminate routine flaring by 2030. The 50 companies that have signed up to it, account for about 40% of global oil production and 35% of combined oil and gas production.

IEA analysis shows that the full delivery on these pledges—covering renewables, efficiency and methane/flaring—by the current signatories would result in global energy-related greenhouse gas emissions in 2030 being around 4 gigatonnes of CO<sub>2</sub> equivalent lower than would be expected without them (based on the Stated Policies Scenario in the IEA's World Energy Outlook 2023).

This reduction in 2030 emissions represents only around 30% of the emissions gap that needs to be bridged to get the world on a pathway compatible with

limiting global warming to 1.5°C (the IEA's Net Zero Emissions by 2050 Scenario).

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# Innovative policymaking is crucial to drive green hydrogen market and ensure its sustainable production

IRENA | International Renewable Energy Agency

According to the International Renewable Energy Agency's (IRENA) *World Energy Transitions Outlook 2023*, the most realistic way to course-correct the 1.5°C pathway is by tripling renewable energy and the doubling of energy efficiency by 2030. Green hydrogen has an important role to play in helping reach of that target.

Over the last few years, green hydrogen has been championed as the fuel of the future, thanks to its reputation as a clean, storable and portable energy source. Its high energy density makes it ideal for fuelling energy-intensive industrial processes that are difficult to electrify and hard-to-abate sectors such as aviation and shipping.

There is a pressing need to increase demand by moving from commitments and pledges to actual projects. However, progress in international cooperation to establish global targets for demand creation has been limited. This is where policy framework should come in.

In light of the upcoming report by IRENA, speakers at the COP28's Global Renewables Hub representing the United Nations Industrial Development Organization (UNIDO) and the German Institute of Development and Sustainability (IDOS), discussed how policymakers can drive local value chain creation around green hydrogen production. Based on these insights, country-specific needs may subsequently be addressed through projects and cooperation.

In his opening, UNIDO Managing Director Gunther Beger said, "Innovative solutions for de-risking investments are required to push the green hydrogen globally. Such solutions can pave the way for hydrogen to help us reach net zero goals. I am very happy with this cooperation, resulting in an extensive and insightful report, which we hope can help accelerate the uptake of green hydrogen."

IRENA Acting Director of Knowledge, Policy and Finance Centre Ute Collier said, "Green hydrogen development has the potential to generate socio-economic benefits such as job creation, which we would like to see more in the developing world. We do hope our joint report can shed light on how policymakers can address the challenges faced by green hydrogen."

Global South countries hold the keys for a sustainable green hydrogen production, as they have the highest potential for producing it. By prioritising use over export and aligning green hydrogen production with Sustainable Development Goals, Global South countries can unleash the opportunities that this energy carrier can offer them, as pointed out by Rita Strohmaier from IDOS. After all, exploiting the benefits of green hydrogen accelerates the energy transition.

Scaling up green hydrogen production is not without consequences, however. Increased green hydrogen production equals increased water withdrawal and consumption. As global



demand for hydrogen expands, the total freshwater withdrawal could more than triple by 2040 and increase sixfold by 2050.

Water shortages can put pressure on the energy sector, and are likely to continue to occur and become more frequent as extreme weather events intensify, especially in areas best suited to green hydrogen production. In regions where water is scarce— to reduce water use and potentially lower costs—the use of water-efficient cooling technologies like air cooling is recommended by another new report by IRENA.

Developed with Bluerisk and launched at COP28, *Water for Hydrogen Production* offers tailored recommendations to guide policymakers and industry towards more water-efficient practices. This includes conducting thorough water risk assessments and setting up stringent water use regulations, to ensure sustainable growth in the hydrogen industry while preserving scarce and shared water resources and minimising disruptions that could arise from climate risks or competition for water use.

Collier said, "Hydrogen is expected to play an important role in the energy transition that will allow us to achieve the 1.5°C climate target. This report aims to start a conversation between policymakers, industry leaders, and communities towards a more informed and sustainable production and use of hydrogen."

The report's in-depth analysis results in a set of specific recommendations. Chief among them is the call on governments to prioritise renewables-based hydrogen in the establishment of hydrogen market

Concluding his presentation during the launch, Bluerisk Director Tianyi Luo said, "Water withdrawal and consumption should be considered as performance indicators of green hydrogen. Our report recommends regulations and financial incentives to favour projects that demonstrate efficiency, prioritising sustainability of water and energy."

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# Proman Stena Bulk holds naming ceremony for methanol tankers *Stena Provident* and *Stena Progressive*



Staff Writer | Energy Chamber

Launch of the *Stena Provident* and *Progressive*

Proman Stena Bulk, the joint venture between leading tanker company Stena Bulk and the leading methanol producer Proman, has formally christened its latest two vessels in its six-strong methanol-fuelled tanker fleet *Stena Provident* and *Stena Progressive*. The two were named at a ceremony held at Guangzhou Shipyard International (GSI) in China.

The naming ceremony for both vessels was attended by representatives from Proman, Stena Bulk and GSI as well as from the local maritime community in southern China. The naming ceremony of the two tankers also saw Alicia Schnabel named as the godmother of *Stena Provident*, and Ambassador Marie-Claire Swärd Capra, Consul General of Sweden in Shanghai, of *Stena Progressive*.

The decision to name the final two vessels at GSI, recognises the shipyard's pivotal role in the construction of the six joint venture methanol tankers. The construction of Proman Stena Bulk's fleet was executed by the shipyard over the last three years, including during the Covid-19 pandemic.

Executing the newbuildings during this unique period required close collaboration between Stena Bulk, Proman and GSI. It has created a blueprint for the industry to follow as it scales up methanol-fuelled shipping over the coming decade.

Both vessels are 49,990 DWT (deadweight tonnage) dual-fuel mid-range (MR) tankers. Once operational, the ships will consume 12,000 tonnes of methanol annually, realising reduced NOx emissions by 80%, the

"We now have a market-leading fleet of futureproofed methanol tankers that clearly show the way for methanol as a marine fuel."

virtual elimination of SOx and Particulate Matter (PM), and a CO<sub>2</sub> emissions reduction of 15% on a tank-to-wake basis compared to conventional marine fuels.

Uniquely for the joint venture fleet, *Stena Provident* and *Stena Progressive*'s tanks are equipped with the industry's best-in-class high performance polymer MarineLINE cargo tank lining, affording them greater cargo flexibility. As the vessels are set to be time chartered, this means that a greater range of organisations and charterers will be able to build experience operating with methanol-fuelled ships and realise near-term positive sustainability impacts.

Speaking about the naming ceremony, David Cassidy, Chief Executive of Proman, said: "Naming *Stena Provident* and *Stena Progressive* at GSI is a fantastic milestone for the Proman Stena Bulk joint venture. We now have a market-leading fleet of future-proofed methanol tankers that clearly show the way for methanol as a marine fuel. That these two tankers will be time-chartered means that more players across the market can familiarise themselves with methanol and the considerable near-term benefits it can bring to their operations. We look forward to working with partners across the supply chain to continue demonstrating the

upsides of using methanol today."

Erik Hånell, President and CEO of Stena Bulk, added: "Naming *Stena Provident* and *Stena Progressive* at GSI provides us with the perfect opportunity to celebrate the pivotal role that the shipyard has played in realising our joint venture methanol-fuelled tanker fleet. Together, Stena Bulk, Proman and GSI have developed unique and industry-leading experience about how to make methanol shipping a reality; an experience that we hope to share more widely across our sector as we all work together to reach the ambitious decarbonisation targets set out before us."

This final naming ceremony for the last vessels in the joint venture's initial fleet means that Proman Stena Bulk's tankers now account for one quarter of the currently operational methanol-fuelled ships on the water, according to data from Clarksons.

This market share gives the joint venture unique insight into methanol in operation, and sets out a clear pathway for decarbonisation as green methanol supplies are scaled over the coming decade.

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# Woodside signs COP28 Oil & Gas Decarbonisation Charter

Staff Writer | Energy Chamber

Woodside Energy has become a signatory to the Oil & Gas Decarbonisation Charter launched at the United Nations Climate Change Conference COP28 in the United Arab Emirates.

The voluntary Charter was launched by COP28 President Dr. Sultan Al Jaber and signed by 50 global oil and gas companies, including some that have adopted net zero 2050 targets for the first time. Woodside is the only Australian signatory to the Charter.

Woodside CEO Meg O'Neill said signing the Charter reinforced the company's existing commitments to reducing carbon and methane emissions and to investing in the products and services customers need as they do the same.

"Signatories to the Charter have committed to net zero operations by or before 2050, ending routine flaring by 2030, and near-zero upstream methane emissions.

"The signatories have also agreed to work towards industry best practices and key actions in a number of areas, including: emissions reduction; investing in renewables and low-carbon fuels; and improved transparency through enhanced measurement, reporting and verification of greenhouse gas emissions.

"The Charter is dedicated to speeding up climate action and achieving high-scale impact across the oil and gas sectors, including through cooperation with governments to support national policies that accelerate net zero delivery; partnering with the technology and financial sectors

to drive holistic outcomes; and engaging with customers and other energy-intensive industries to reduce emissions.

"Woodside is already committed to reducing our net equity Scope 1 and Scope 2 emissions by 15% by 2025 and 30% by 2030, and an aspiration for net zero by 2050 or sooner.

"We have also had a strong historic focus on minimising methane emissions. This meant that in 2022, our methane emissions were around 0.1% of our production by volume, well below the Oil and Gas Climate Initiative (OGCI)'s methane intensity target of below 0.2%.

"Under the OGCI's Aiming for Zero Methane Emissions Initiative which Woodside joined in 2022, we are committed to striving for near-zero methane emissions on operated assets by 2030.

"The COP28 Charter recognises that a differentiated approach to the energy transition is required to take advantage of the diversity of capabilities across the oil and gas sector. By signing this important industry Charter, Woodside is reaffirming its strong commitment to working with our peers to take action on climate change," she said.

According to COP28, the Charter signatory companies represent more than 40% of global oil production.

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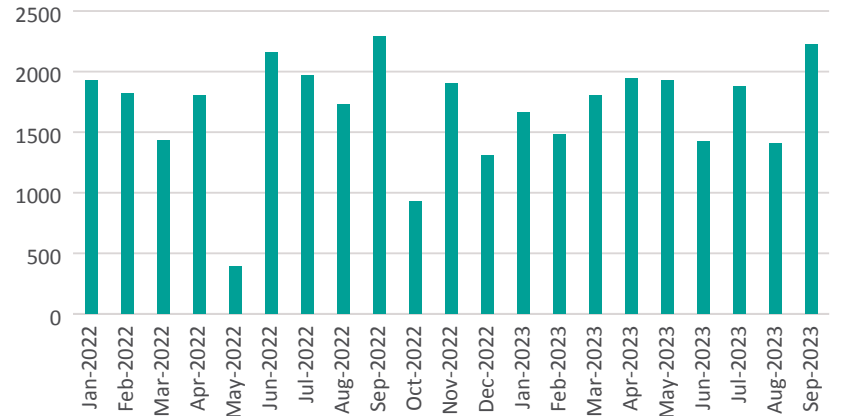
# Monthly Review

## CRUDE OIL

Crude Oil Production Daily Average (000' bbls/d)



Crude Oil Exports (000' barrels)



## NATURAL GAS

Natural Gas Production (mmcf/day)



Liquefied Natural Gas Production (m³)



## DRILLING

Depth Drilled (ft)



Number of Rig Days



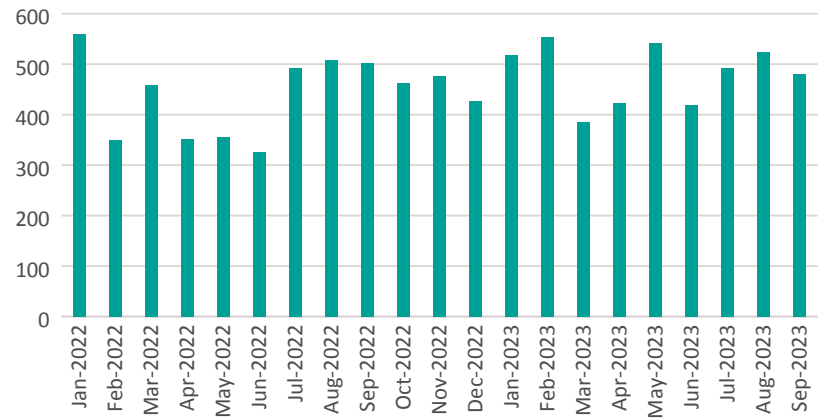


# METHANOL

**Methanol Production (000' tonnes)**

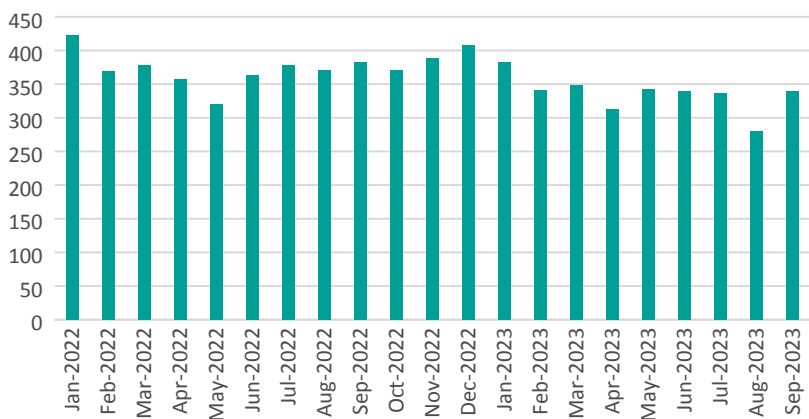


**Methanol Exports (000' tonnes)**

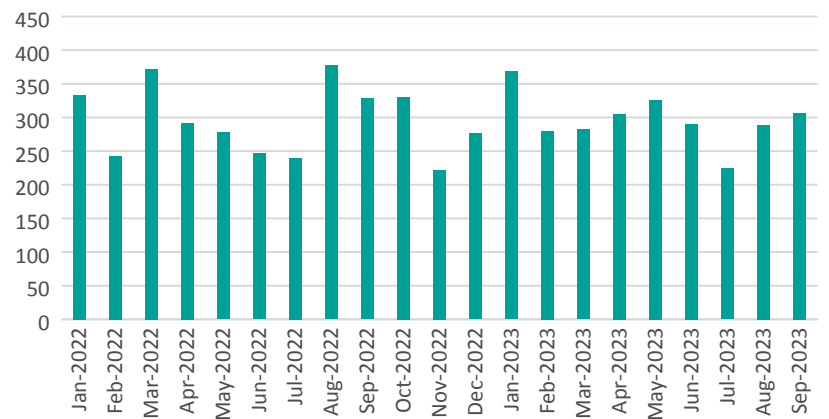


# AMMONIA

**Ammonia Production (000' tonnes)**

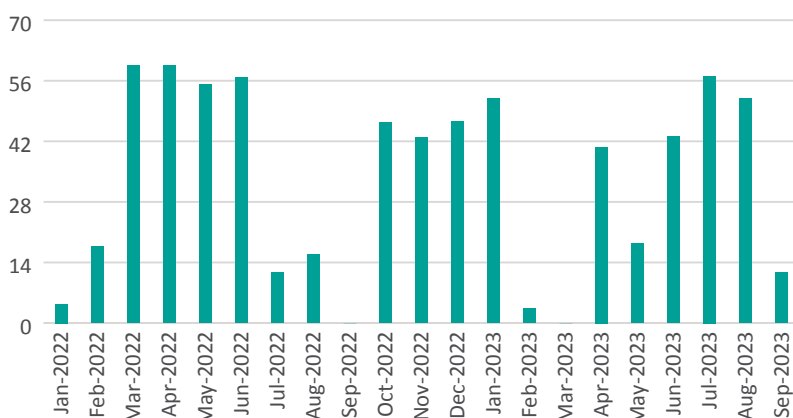


**Ammonia Exports (000' tonnes)**

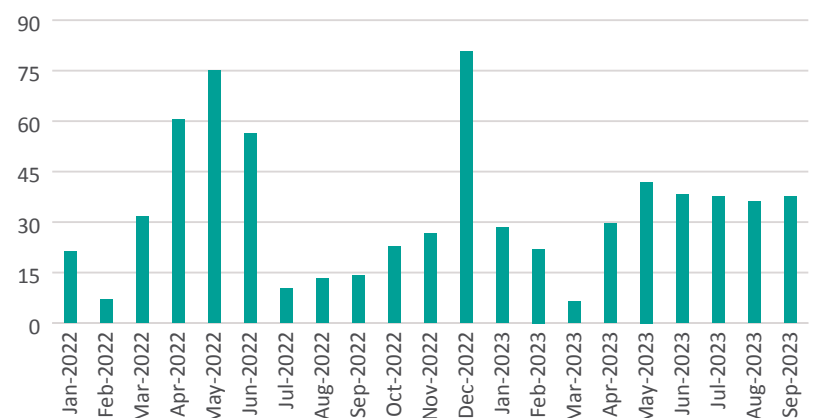


# UREA

**Urea Production (000' tonnes)**



**Urea Exports (000' tonnes)**



# Atlantic becomes a member of UNEP Oil and Gas Methane Partnership

Staff Writer | Energy Chamber

LNG producer Atlantic is now a member of the United Nations Environmental Programme Oil and Gas Methane Partnership (OGMP). This membership demonstrates Atlantic's commitment to a sustainable global energy system by reducing its greenhouse gas emissions and aligning to global standards of measurement and reporting.

Atlantic's membership comes on the heels of the Global Methane Pledge at COP28, which saw significant grant funding and national commitments to actions to deliver on the goal to cut methane by at least 30% by 2030.

Chief Executive Officer Ron Adams stressed the importance of Atlantic's admission saying, "This membership directly aligns to our wider strategic goals around sustainability. It also reflects our understanding of climate change and the specific impact of methane emissions, while bringing us in line with other major oil and gas producers who have committed

to reducing methane leaks to near zero by 2030. Additionally, it will support the larger national objective to cumulatively reduce greenhouse gases by 2030."

OGMP 2.0 is UNEP's flagship oil and gas reporting and mitigation programme. It is the only comprehensive, measurement-based international reporting framework for the sector, and aims to improve the accuracy and transparency of methane emissions reporting. Atlantic joins over 100 companies who have committed to the framework.

This partnership is in support of Atlantic's current and planned initiatives towards proactively reducing greenhouse gas emissions through the pre-emptive detection of leaks, conducting repairs and making improvements in flare gas measurement and flaring efficiency.

Membership in OGMP 2.0 will allow Atlantic to continuously improve the accuracy of its reporting on methane emissions and responsibly manage them. It is also an opportunity for Atlantic to actively contribute to global conversations through the International Methane Emissions



Atlantic

Observatory's advisory council, which drives action on methane reduction.

This latest membership highlights Atlantic's position as a global player and demonstrates its ability to continue creating value for Trinidad and Tobago, as global demands grow for reliable energy with a lower emissions profile.

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affiliates of Shell, BP, and The National Gas Company of Trinidad and Tobago, its cargoes are delivered to multiple worldwide destinations in Europe, USA, South America, Asia and the Caribbean.

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