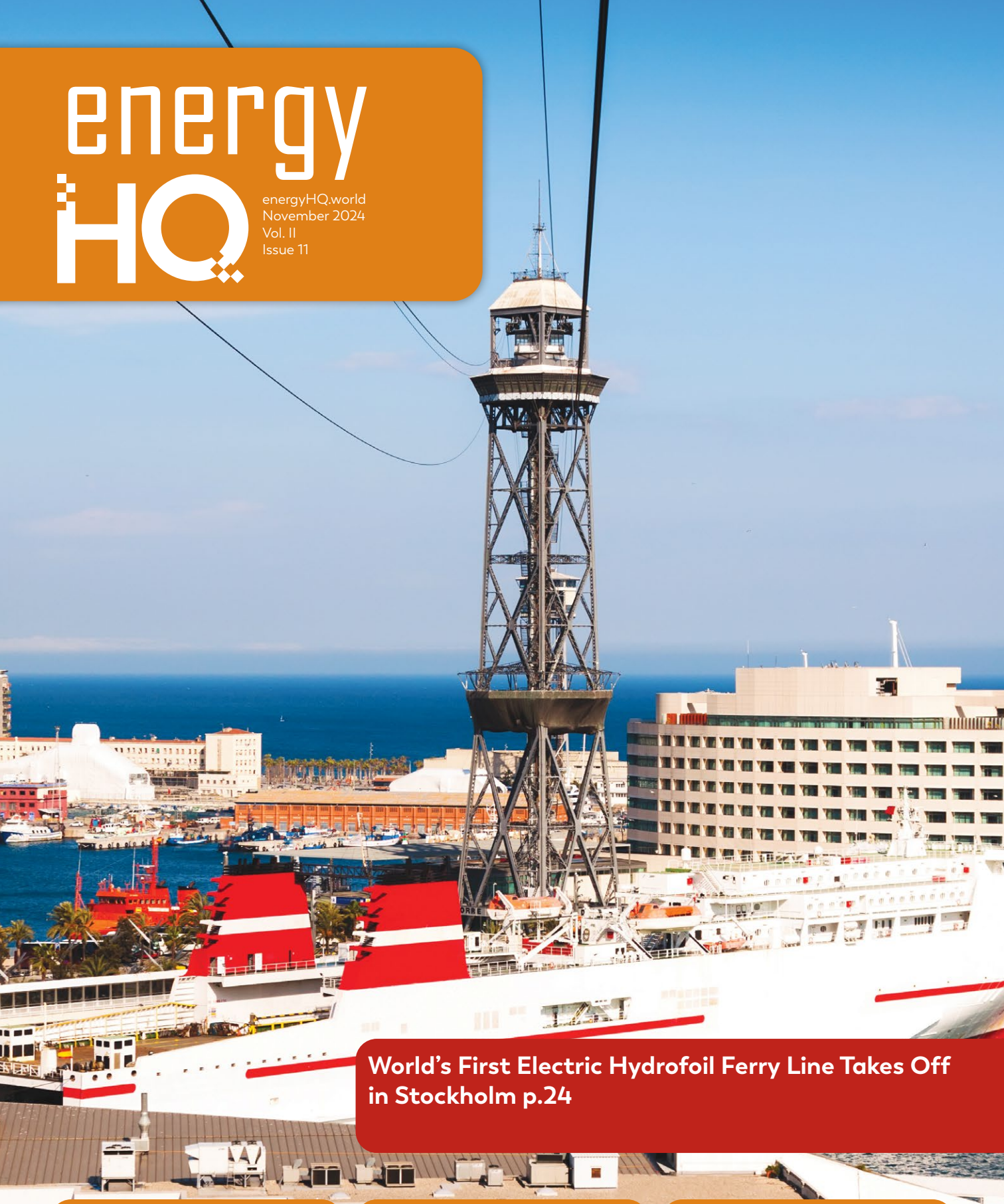
energy HQ
energyHQ.world
November 2024
Vol. II
Issue 11



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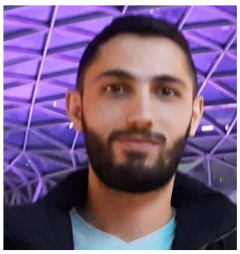
Powering Progress: Electric Ferries and Energy Industry Updates



The energy industry is seeing a surge of innovations that aim to reduce emissions and create sustainable power solutions. Among these advancements, electric ferries are emerging as a revolutionary shift in maritime transportation, aligning with global goals for a cleaner future.

Electric ferries, which now make up about 45% of the recent developments in sustainable maritime technology, showcase the potential of electric power to reduce the environmental footprint of large-scale transport. Traditional ferries rely heavily on diesel engines, which contribute to air and water pollution. In contrast, electric ferries operate on high-capacity battery systems, cutting down emissions and creating a quieter, more eco-friendly transport option. This transition is especially critical for areas with significant ferry traffic, where electric alternatives can meaningfully improve local air quality.

Pioneering companies in Norway, the Netherlands, and Sweden are leading the charge, with fully electric ferries already in operation across various water routes. These vessels not only reduce greenhouse gas emissions but also minimize noise pollution, benefiting marine life and coastal communities. Furthermore, technological advancements in battery efficiency and charging infrastructure have allowed these ferries to travel longer distances, making them viable for both short commuter routes and longer transport journeys. As the demand for cleaner energy solutions in transportation grows, electric ferries set an example for how renewable power can transform even the most demanding industries.

In addition to electric ferries, other sectors within the energy industry are embracing innovation. The integration of smart grid technologies, for example, is enabling better energy distribution and management, reducing strain on traditional power sources and supporting renewable energy integration. Smart grids are particularly valuable in regions experiencing rapid growth in renewable energy production, helping to stabilize power distribution even during peak demand periods.

Another major focus is the expansion of hydrogen as an energy carrier. With its potential for zero-emission output, hydrogen is gaining traction as a clean fuel for heavy industries, shipping, and aviation. Efforts to enhance hydrogen storage and transport capabilities are accelerating, with international collaborations aiming to make hydrogen a competitive alternative in the global energy market.

Together, these advancements underscore the energy industry's commitment to a more sustainable future. While electric ferries represent a transformative step in maritime transportation, the broader push toward innovative energy solutions—from smart grids to hydrogen infrastructure—is shaping a resilient and efficient energy landscape. As these technologies evolve, they pave the way for a cleaner, more sustainable global energy system.

In This Issue!

energyHQ's November 2024 issue covers the most recent developments and events pertaining to the energy industry, as well as including valuable insights, details and spec sheets / peer reviews related to latest technologies, innovations, products, services, and projects of relevance to the industry and its audience.

- Article on page 7 talks about Renewable Energy Jobs & Skills
- Article on page 16 focuses on The Future of Nuclear
- Article on page 24 sheds the light on Electric Ferry Revolution

Additional content is also available covering the latest activities of manufacturers, importers, and exporters – worldwide!

We hope you benefit from this issue's content and find it useful & actionable for your business. For any comments, suggestions, or feedback please don't hesitate to contact me.

Best wishes,
Hassan Mourtada
Editor-in-Chief
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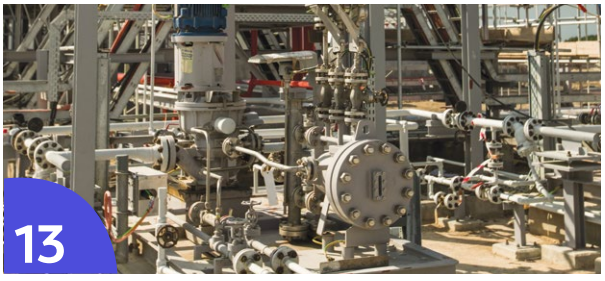

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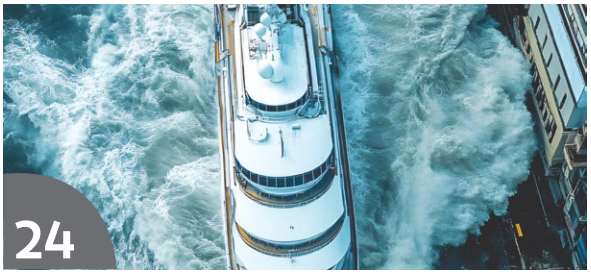


World Digest

Malaysia

Malaysia's renewable energy, green tech industries set for strong growth: Allianz SE

Malaysia's renewable energy and green technology industries are positioned for strong growth as the global green transition is creating significant opportunities for the country.

Allianz SE chief economist Ludovic Subran said industries such as solar energy, sustainable manufacturing and green tech innovation are experiencing high demand, especially as global supply chains push for cleaner energy sources.

He noted that Malaysia's strong export performance in upstream industrial sectors such as technology and equipment bolstered the renewable energy sector.

Touching on the domestic economy, Subran said Malaysia's gross domestic product (GDP) growth for 2025 is expected to slow down amid external economic headwinds and domestic challenges.

He forecast a 0.5% reduction in Malaysia's GDP growth in 2025, citing fiscal tightening and the Malaysian central bank's decision to maintain interest rates.

Additionally, he noted that fiscal tightening measures have reduced public expenditures, which is expected to contribute to slower growth. "The half-point fiscal cut is creating what we call the 'Ricardian' effect, where consumers are holding back on spending due to expectations of higher taxes or reduced public benefits," he added.

Jordan

Jordan Launches New Solar Energy Support Program To Reduce Household Bills

The Minister of Energy and Mineral Resources, Dr. Saleh Al-Kharabsheh, announced the launch of a new phase of Jordan's solar energy support program, aimed at reducing household electricity bills by 30%. This initiative includes the installation of 4,000 solar cell systems and 5,000 solar water heater systems across the country, with total investments amounting to 8 million and 3 million Jordanian dinars, respectively.

During a press conference, Al-Kharabsheh highlighted the program's role in sustaining the energy market, preserving jobs, creating new employment opportunities, and boosting investments in the solar energy sector. The initiative aligns with Jordan's Economic Modernization Vision 2030 and the Sustainable Development Goals, contributing to a smooth energy transition and supporting Jordan's commitment to reducing emissions.

The minister emphasized that the government remains committed to providing financial support and leveraging the available capacity of the electricity grid across governorates. He noted that the program is part of the ministry's strategic plan for 2022-2024 and falls under the broader Renewable Energy Fund and the Rural Philosophy initiative.

This phase also focuses on supporting low-income families and military casualties, with the ministry offering 100% grants for solar energy systems in cooperation with the Ministry of Social Development and the National Aid Fund.

Netherlands

Renewable energy dominates Dutch electricity production in 2024

For the first time, renewable energy has generated more than half of the total electricity produced in the Netherlands, accounting for 53% of the energy mix in the first half of 2024, according to data from Centraal Bureau voor de Statistiek (CBS).

The Netherlands has reached a historic milestone in its energy transition. In 2024, for the first time, renewable sources produced more electricity than fossil fuels during the first six months of the year. According to CBS, wind, solar, and biomass energy generated 32.3 billion kilowatt-hours (kWh), accounting for 53% of the country's total electricity. This performance marks a strategic shift in reducing reliance on fossil fuels while supporting both national and European climate commitments.

The data also show a significant decline in electricity production from coal and natural gas, confirming the shift toward cleaner and more sustainable sources. Coal power generation fell by nearly 40% in 2024, reaching only 3.9 billion kWh. This decline is partly due to the increased competitiveness of renewables, made more attractive by technological advancements and infrastructure development.

Morrocco

Britcham Conference Explores Morocco's Green Energy Potential

Morocco strives to be an energy hub, harnessing its solar and wind potential to generate green hydrogen, targeting over 4% of global demand by 2030.

Rabat - The British Chamber of Commerce for Morocco (Britcham) hosted on Wednesday evening an integral green hydrogen conference titled "Green Hydrogen: Challenges and Perspectives for Morocco" at the Hyatt Regency Casablanca.

The event gathered influential leaders and experts to discuss the fundamental role of green hydrogen in Morocco's sustainable development.

Its talking points included discussions on the regulatory framework and development perspectives for green hydrogen, focusing on ongoing investments and projects in the sector.

Key speakers examined the role of green ammonia and hydrogen in creating a sustainable future, focusing on their potential to drive economic growth and reduce carbon emissions in Morocco.

Norway

Northern Lights, the First Major Carbon Capture and Storage Project in Norway

Northern Lights is the first project in the world allowing industrial companies to transport and sequester their CO2 emissions. The project is owned in equal shares by TotalEnergies, Equinor and Shell. Operational since September 2024, the Phase 1 installations can store to 1.5 million tons of CO2 per year.

TotalEnergies is aiming to develop a CO2 storage capacity (CCS) of more than 10 million tons by 2030, both for its own facilities and for its customers. Europe has a central role to play in the Company's CCS strategy, especially the North Sea where the Company can harness its status as a long-standing operator as well as its recognized operational and geological skills. Together with Equinor and Shell, we are developing Northern Lights, the first large-scale CO2 transport and storage project off the Norwegian coast.

Accelerating the decarbonization of heavy industry in Europe

Approved by the Norwegian government in 2020 and designated as a Project of Common Interest (PIC(1)) by the European Union, Northern Lights aims to transport, receive and store CO2 in geological layers buried at approximately 2,600 meters below the seabed in the Northern North Sea. The goal is to help European industrial companies reduce their CO2 emissions.

Tunisia

Tunisia launches 200 MW solar tender

Tunisia has initiated a new phase in its renewable energy development by launching a 200 MW solar tender. The country's Ministry of Industry, Mines and Energy announced the tender, aimed at the construction of multiple large-scale photovoltaic (PV) projects.

The selected independent power producers (IPPs) will be responsible for developing these projects and will supply electricity to Société tunisienne de l'électricité et du gaz (STEG), the state-owned utility, under long-term power purchase agreements (PPAs). Interested developers have until January 15 to submit their proposals, marking the next step in Tunisia's plan to expand its renewable energy capacity.

This tender is part of Tunisia's broader strategy to increase its utility-scale solar energy production. The government has been actively supporting solar development through a series of tenders, including a notable 500 MW solar tender completed in December 2019.

The most recent tender prior to this new one was launched in January 2023. According to data from the International Renewable Energy Agency (IRENA), Tunisia's total installed PV capacity was 506 MW at the end of 2023, with approximately 309 MW of new capacity added that year. This ongoing effort reflects Tunisia's commitment to enhancing its renewable energy footprint and reducing reliance on fossil fuels.

Renewable Energy

07 Renewable Energy Jobs & Skills

Renewable Energy Transition Under Threat from Critical Skills Shortage

The forecasted expansion of the renewable energy sector could be a dumpster fire, as a new report has highlighted the significant strain it could have on the labour market.

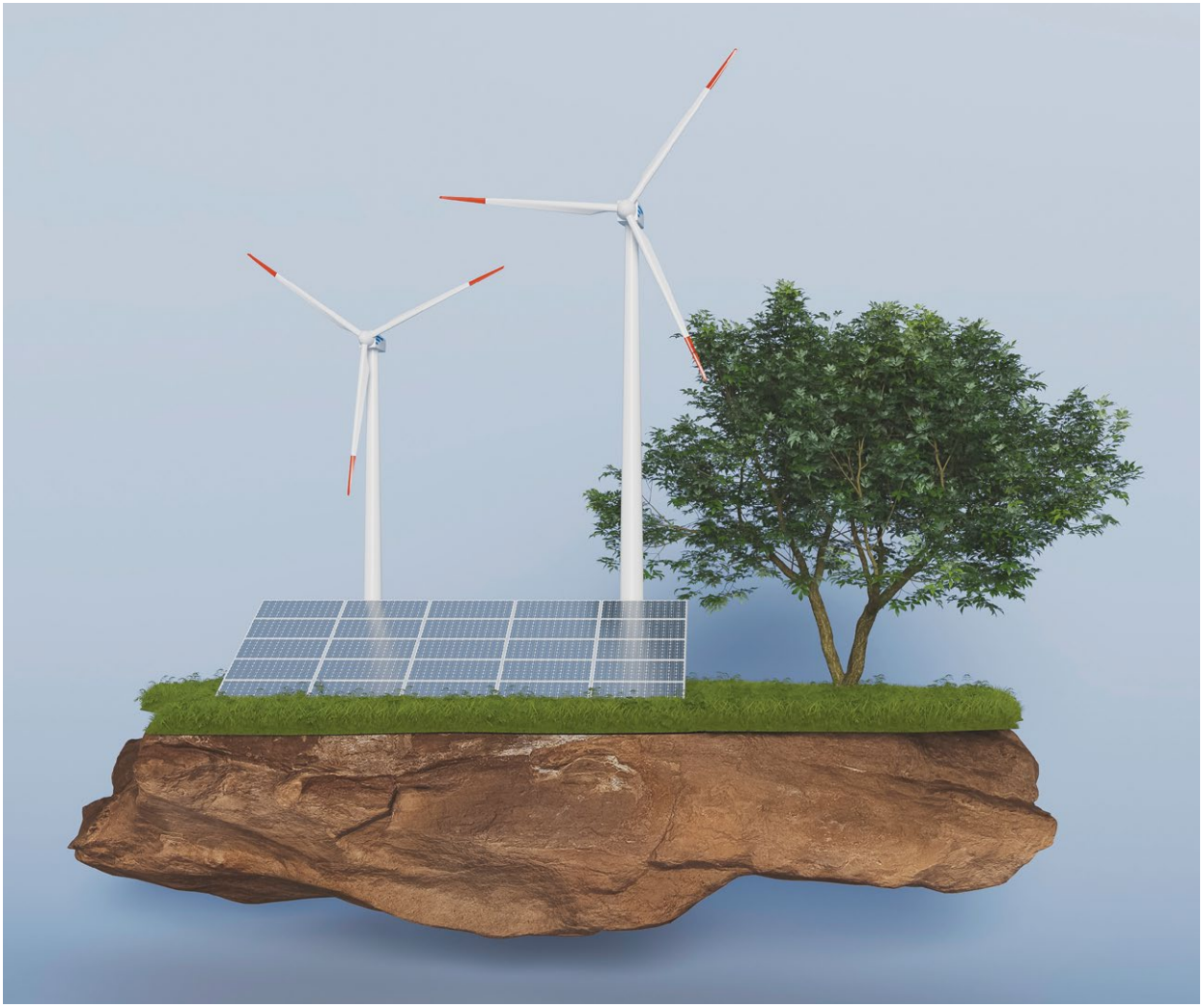
A new report undertaken by the ISF (Institute for Sustainable Futures) has shown that Australia's energy sector is ready to be impacted by exceptional job growth, yet may lack the means to keep up. Potential skills shortages could threaten to derail the transition to a clean energy future.

According to the report, electricity sector jobs are forecast to double by 2029, an increase of 33,000 in just five years in the most likely scenario of the **2024 Integrated System Plan (ISP).**

These new jobs will be in renewable energy, with solar, wind, and battery storage, at the top of the pile. It also stressed the importance of operations and maintenance roles expected to account for 65 per cent of the electricity sector workforce by 2033.

The transition to a clean energy future presents a huge opportunity for Australia, both in terms of job creation and economic growth," said Jay Rutovitz, chief investigator for the project.

Despite this opportunity, the findings highlight the immense strain that the renewable energy sector could have on the labour market:



The demand for a range of skilled workers, including electricians, mechanical trades, and engineers will increase significantly, potentially causing project delays. The renewable energy sector invests very little in skills development and training, as noted by Jobs and Skills Australia in a recent report.

Boom-bust cycles caused by the construction-heavy nature of renewable energy projects will see a highly variable workforce with a risk of boom-bust cycles. This reduces national, regional, and local opportunities as it becomes much harder to train and retain a stable workforce.

Regional challenges: Many renewable energy projects are located in remote areas, competing for labour with infrastructure projects in big cities.

"We need to act now to address the potential skills shortages to make sure we can deliver this transition and realise the benefits," said Rutovitz.

Several recommendations were offered throughout the report, which included ideas like smoothing the development pipeline through government policies, Australian Skills Guarantee for one in 10 workers on publicly funded projects to be apprentices or trainees, and attracting more diverse workers.

"The findings highlight the critical need for a proactive approach to workforce development in the renewable energy sector," said Genevieve Simpson, program leader at RACE for 2030.

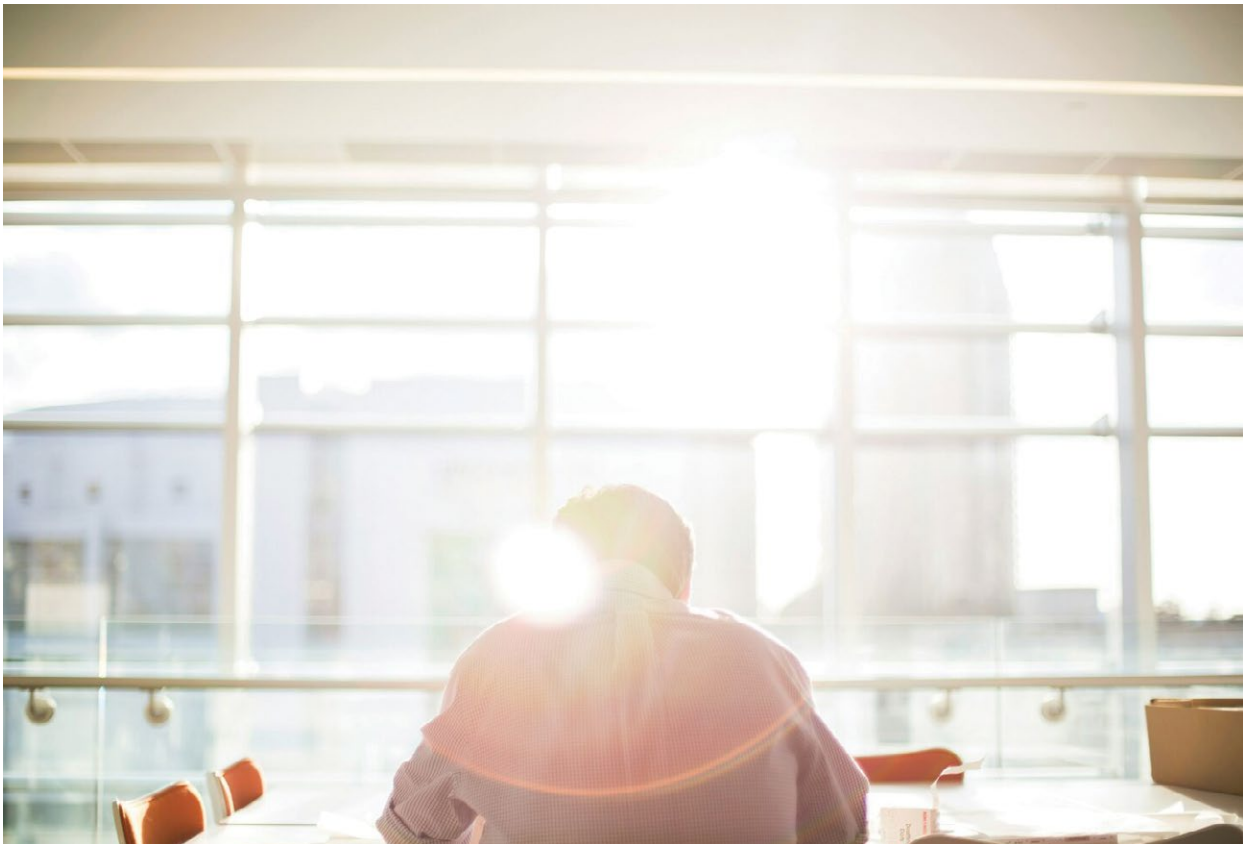
"The report underscores the urgent need for collaboration between industry, government, and training providers to ensure we have the skilled workforce required to deliver the ISP and achieve a clean energy future for Australia."

By Kace O'Neill
https://www.hrleader.com.au/

Sustainability & Decarbonization

10 Measuring & Reporting Sustainability Progress

Greenhushing, Sustainability, and Corporate Transparency: A Conversation with ClimeCo's David Prieto



In today's evolving business landscape, sustainability should be central to every corporate strategy. Increasing pressure from consumers, investors, and policymakers compels companies to adopt net-zero targets, prioritize climate action, and heighten transparency in sustainability reporting.

However, as the momentum for corporate sustainability grows, so does the complexity of navigating public perception, regulations, and internal processes. One phenomenon complicating this journey is "greenhushing"—the deliberate under-communication or withholding of sustainability achievements.

David Prieto, Vice President of Sustainability, Policy, and Advisory at ClimeCo, shares insights into the challenges and opportunities of navigating sustainability communications in this shifting landscape. Prieto addresses the rise of greenhushing, its implications for corporate transparency, and how companies can balance communicating climate efforts while mitigating potential risks.

Understanding Greenwashing, Greenwishing, and Greenhushing

- The landscape of sustainability initiatives is fraught with terms like greenwashing, greenwishing, and greenhushing:
- Greenwashing refers to misleading claims about environmental benefits, where companies portray themselves as more sustainable than they are, often investing more in marketing than actual impact.
- Greenwishing is the act of setting aspirational, yet overly ambitious, environmental goals without concrete plans, often leading to unrealistic stakeholder expectations.
- Greenhushing involves companies downplaying or avoiding publicity about

their environmental goals and achievements to avoid scrutiny or accusations of greenwashing.

Factors Behind Greenhushing

Recent regulatory uncertainties and disagreements over sustainability terminology have contributed to the rise of greenhushing. Companies may fear criticism, legal challenges, or reputational damage if their sustainability claims are seen as insufficient or misleading. Additionally, the complexity and evolving nature of global standards can make compliance difficult, leading some companies to opt for silence rather than risk backlash.

Impacts of Greenhushing on Global Climate Action

The dangers of greenhushing are significant, including:

- Increased Uncertainty and Lack of Trust: Stakeholders may interpret silence as inaction, undermining trust in sustainability efforts.
- Reduced Acceptance of Sustainable Practices: Without transparent communication, stakeholders may not fully embrace sustainable practices, slowing industry progress.
- Missed Leadership Opportunities: By not sharing achievements, companies miss the chance to lead and set benchmarks within their sectors.
- Stakeholder Relationships and the Risks of Greenhushing
- Effective communication with stakeholders—customers, investors, employees, regulators, and competitors—is essential for a company's success. Greenhushing can damage credibility, hinder capital attraction, and affect regulatory compliance. Companies that fail to transparently communicate their sustainability strategies risk falling behind competitors who are open about their efforts.

Balancing Transparency with Regulatory Risks

To manage exposure to changing regulations while ensuring transparency, companies can adopt strategies such as:

- Accurate Baseline Data: Start with a thorough sustainability audit to establish clear benchmarks.
- Strengthening Internal Programs: Develop robust internal sustainability programs to back claims with concrete actions.
- Presenting Honest, Data-Backed Claims: Communicate progress transparently, including areas of improvement.
- Engaging Stakeholders: Tailor communication strategies to different stakeholders and keep them informed through consistent engagement.

Evolving Regulatory Landscape and Its Influence

New regulations, like the SEC's climate rules and the EU's Green Claims Directive, are shifting disclosure from voluntary to mandatory, forcing companies to be more transparent. While this adds pressure, it also provides an opportunity for companies to showcase their genuine sustainability efforts and build trust.

The Importance of Transparency and Honesty

Maintaining transparency in climate communications can lead to long-term benefits, including:

- Risk Management: Reduces reputational risks by building credibility.
- Competitive Advantage: Companies that communicate their sustainability progress can gain a competitive edge.
- Stakeholder Trust: Clear, honest communication fosters trust among investors, customers, and employees.

Companies must embrace transparency, not just to comply with regulations but to lead the charge in sustainable business practices. As Prieto emphasizes, "Honest and effective communication is essential for building trust and driving meaningful progress in sustainability."

Edited by energyHQ Staff

By Willow Kennedy
https://www.environmentenergyleader.com/

Oil & Gas

13 Investing in Oil & Gas

Northern Oil and Gas Reports Increased Oil Production In Q3

Northern Oil and Gas, Inc. (NYSE: NOG) has announced its operational update for the third quarter of 2024, highlighting increased oil production and continued share repurchases. Despite fewer wells being turned-in-line (TIL), the company reported a record oil volume, marking a significant achievement in its operational performance.

Production for the quarter is estimated to have averaged between 121.6 and 121.8 thousand barrels of oil equivalent (MBoe) per day, with oil volumes making up approximately 58.1% to 58.3% of total production. This translates to about 70,775 to 70,925 barrels of oil per day. The company attributes the increase in oil production to a rise in refrac activity and strong well performance, which compensated for the nearly 70% sequential quarter reduction in TILs.

The company's drilling and completion (D&C) activities have also shown robust growth, with the D&C list expanding to 52.2 net wells-in-process by the end of the quarter, an increase of 11.2 from the previous quarter. This positions the company for a significant uptick in TILs in the fourth quarter, aligning with its annual targets.

Regarding financials, Northern Oil and Gas reported unrealized mark-to-market gains on derivatives estimated at $208.0 to $209.0 million for the third quarter. Realized hedge

gains were estimated at $29.5 to $29.7 million. The company has actively managed its hedging program in response to increased volatility in commodity prices, securing substantial hedges for oil and natural gas for the remainder of 2024, as well as for 2025 and 2026.

In terms of shareholder returns, Northern Oil and Gas paid roughly $40 million in dividends during the third quarter and repurchased 397,301 shares at an average price of $36.38. Year-to-date, the company's repurchases total 1.84 million shares, amounting to a value of $69.3 million. The company plans to review its dividend policy by the first quarter of 2025.

The company reiterated its 2024 production and capital expenditure guidance, with any necessary adjustments to be communicated in its third quarter earnings report.

CEO Nick O'Grady expressed confidence in the company's performance and future prospects, particularly highlighting the successful acquisitions of Point and XCL, which are expected to contribute to the company's growth.

This operational update is based on preliminary unaudited financial and operating information and is subject to final adjustments following the company's financial closing procedures and audit processes. The information presented in this press release is based on a press release statement and not an endorsement of the company's claims.

In other recent news, Northern Oil and Gas demonstrated a robust financial performance in its second quarter 2024 earnings call. The company reported a 31% year-over-year increase in adjusted EBITDA and a 33% growth in cash flow from operations. In addition, Northern Oil and Gas has completed the acquisition of assets in the Uinta Basin from XCL Resources and Altamont Energy. This deal expands the company's footprint by approximately 15,800 net acres and adds around 116 undeveloped locations with potential for further exploration.

Jefferies has resumed coverage on Northern Oil and Gas shares with a Buy rating, basing their valuation on a 4.3 times enterprise value to two-year forward EBITDA multiple on estimated 2027 EBITDA. The firm's estimated EBITDA for 2027 is approximately $1.6 billion, which is about 10% lower than the consensus.

Mizuho Securities also initiated coverage of Northern Oil and Gas with an Outperform rating, highlighting the company's unique non-operating exploration and production model. Despite expectations of a decline in natural gas production, Northern Oil and Gas anticipates per-share growth through 2025 and has proposed a midyear dividend increase. These are the recent developments for Northern Oil and Gas.

InvestingPro Insights

Northern Oil and Gas's operational update for Q3 2024 aligns with several key metrics and insights from InvestingPro. The company's record oil volume and increased production are reflected in its strong financial performance. According to InvestingPro data, NOG's revenue growth for the last twelve months as of Q2 2024 was 17.65%, with quarterly revenue growth in Q2 2024 reaching an impressive 35.1%.

The company's focus on shareholder returns, including dividends and share repurchases, is supported by InvestingPro Tips. One tip notes that NOG "has raised its dividend for 3 consecutive years," which is consistent with the company's commitment to returning value to shareholders. The current dividend yield stands at 4.51%, making it an attractive option for income-focused investors.

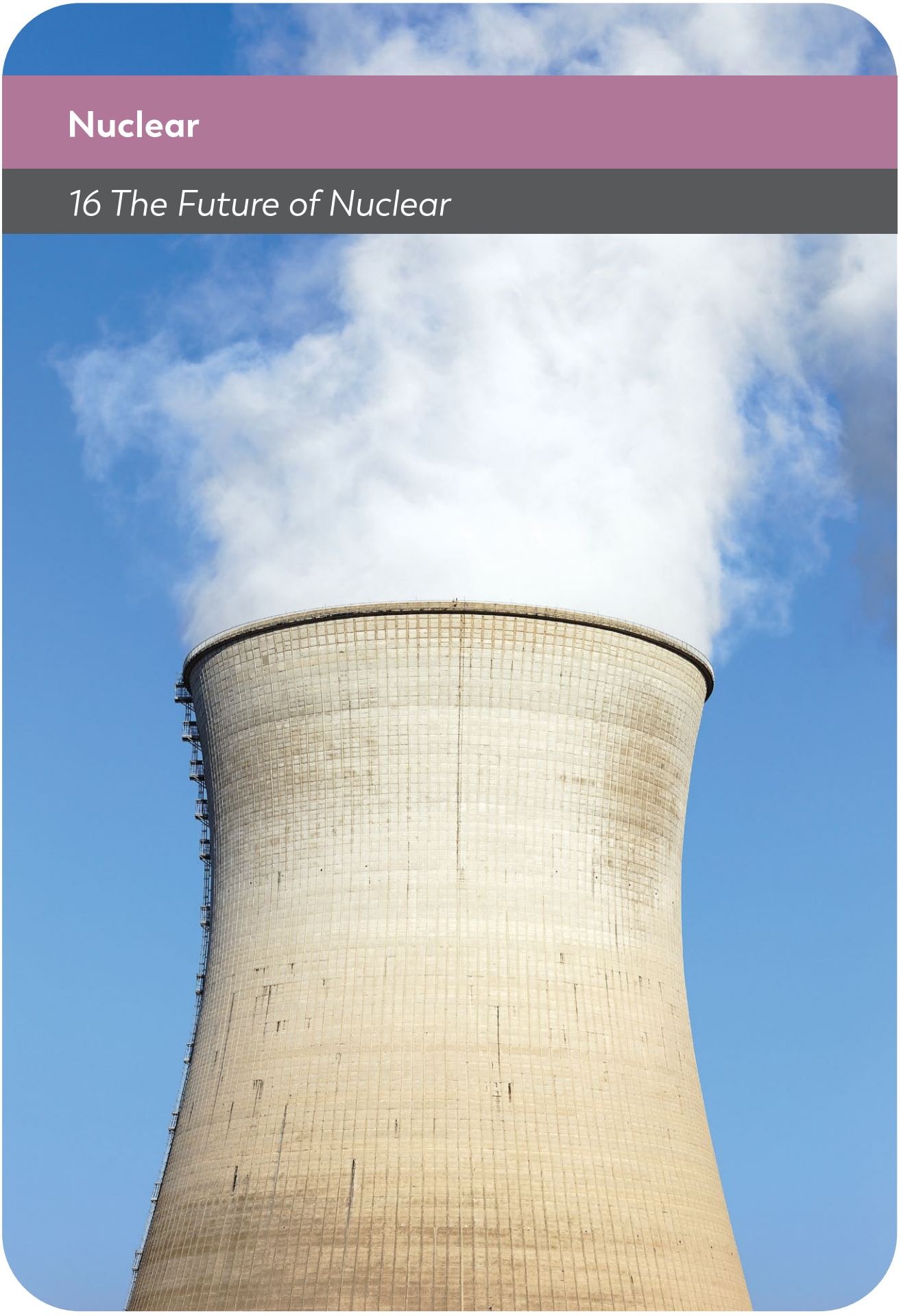
NOG's profitability is also highlighted in the InvestingPro data, with a P/E ratio of 6.49 and a gross profit margin of 80.17% for the last twelve months as of Q2 2024. This aligns with the InvestingPro Tip stating that the company has been "profitable over the last twelve months."

For investors seeking more comprehensive insights, InvestingPro offers additional tips and metrics. Currently, there are 6 more InvestingPro Tips available for Northern Oil and Gas, providing a deeper understanding of the company's financial health and market position.

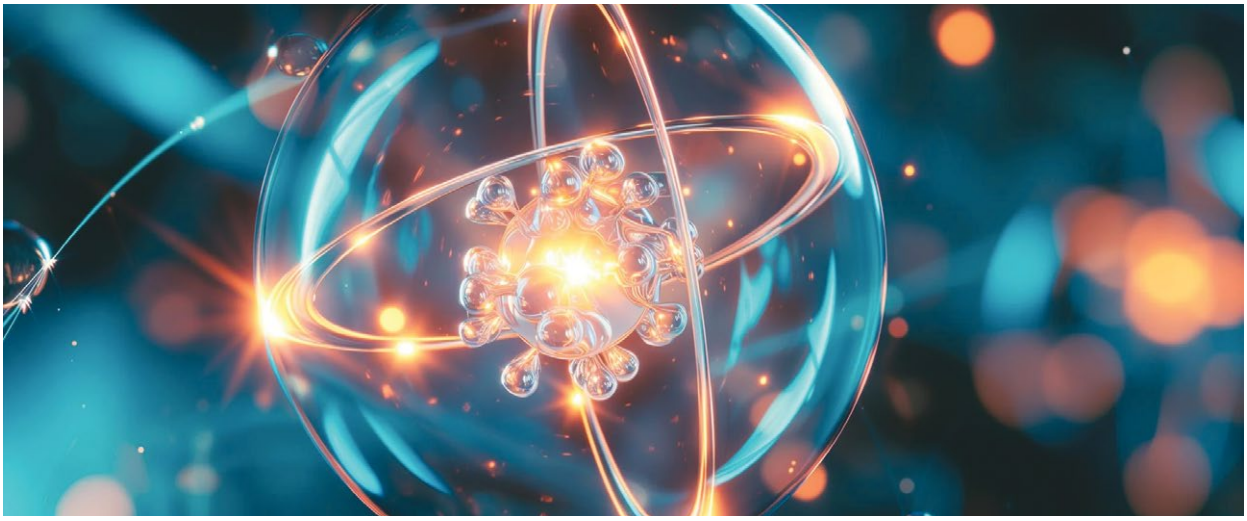
https://www.investing.com/

Nuclear

16 The Future of Nuclear



Chinese Scientists Synthesize Plutonium-227: The New Isotope Shaping the Future of Nuclear Physics



Plutonium-227, newly discovered by Chinese scientists, sheds light on the behavior of transuranium isotopes and advances our understanding of nuclear physics, particularly regarding neutron shell closures. Credit: SciTechDaily.com

Researchers at the Chinese Academy of Sciences have synthesized a novel plutonium isotope, plutonium-227, marking a significant breakthrough in nuclear physics.

A team from the Institute of Modern Physics (IMP) at the Chinese Academy of Sciences (CAS) has successfully synthesized a new isotope of plutonium, plutonium-227. The results of their study were published in the journal Physical Review C on October 3.

In nuclear physics, certain numbers of protons and neutrons—2, 8, 20, 28, 50, 82, and 126—are known as "magic numbers" because they create stable, closed shells within an atom. Systematic analyses in past studies have revealed a persistent weakening of the neutron shell closure of 126 up to uranium, making it fascinating to explore whether shell closures fade in the transuranium region.

"We have discovered the presence of the shell closure in neptunium isotopes through a series of experiments. However, due to the absence of experimental data, the robustness of this closure in plutonium isotopes remains unknown," said Prof. Zaiguo Gan from IMP.

Probing the Unknown in Plutonium Isotopes

To probe unknown plutonium isotopes, the researchers at IMP and their collaborators carried out their experiment at the gas-filled recoil separator, Spectrometer for Heavy Atoms and Nuclear Structure, part of the Heavy Ion Research Facility in Lanzhou (HIRFL) in China.

Using the fusion evaporation reaction, the researchers synthesized plutonium-227, a very neutron-deficient plutonium isotope, for the first time. Plutonium-227 is the 39th new isotope discovered by IMP, and it is also the first plutonium isotope discovered by Chinese scientists.

From the nine observed decay chains, the researchers then measured the -particle energy and half-life of plutonium-227 to be about 8191 keV and 0.78 s, respectively. The data fit quite well with the systematics of known plutonium isotopes.

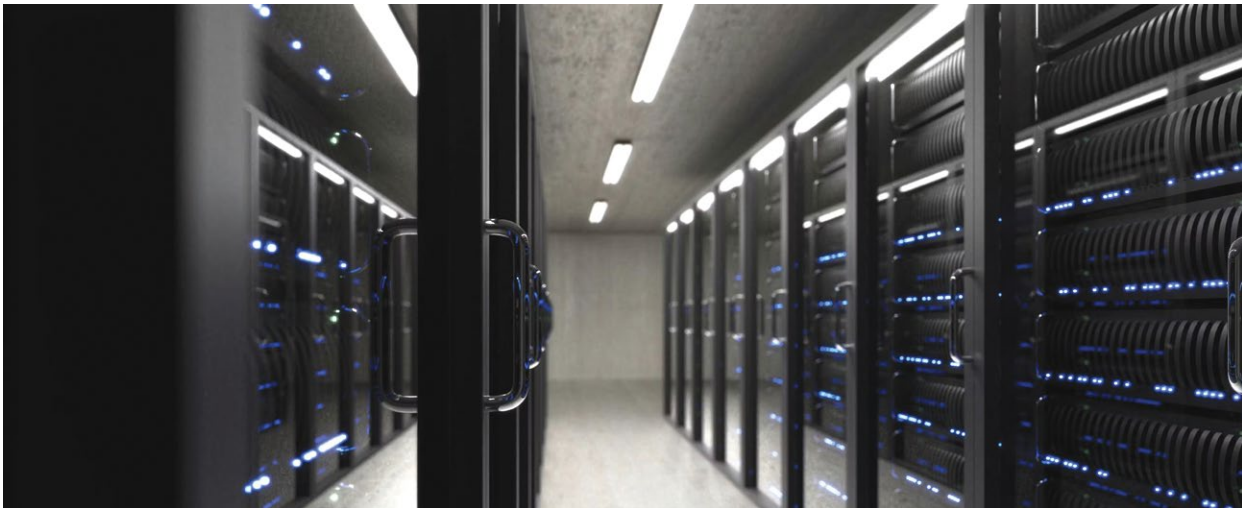
Future Research Directions

The research team plans to investigate more plutonium isotopes, aiming to gain a deeper understanding of shell evolution in plutonium.

"The newly discovered plutonium-227 is still seven neutrons away from the magic number of 126. To study the robustness of the shell closure in plutonium, it is necessary to continue research on even lighter plutonium isotopes, including plutonium-221 to plutonium-226," said Dr. Huabin Yang from IMP, first author of this study.

By Chinese Academy of Sciences
https://scitechdaily.com/

Data Center Energy Frontier: Big Tech Making Big Bets on Small Nuclear



Tech giants Amazon and Google this week announced huge bets on the future of small reactor nuclear projects. Those moves followed Microsoft's recent agreement with Constellation Energy that will reopen Three Mile Island's Unit 1 by 2028.

The path for more nuclear energy in the future could lead to achieving sustainability and power resiliency goals, but it faces huge hurdles including financial, political and personal, including "not in my backyard" safety and health concerns.

The biggest driver of future electricity growth, the data tech sector, apparently has no such reservations and is ready to embrace the next level of nuclear power generation financially, politically and personally.

Tech giants Amazon and Google this week announced huge bets on the future of small reactor nuclear projects. Those moves followed Microsoft's recent agreement with Constellation Energy that will reopen Three Mile Island's Unit 1 by 2028.

Ample and emission-free power to meet data center growth

Small nuclear startups such as X-energy and Kairos Power are suddenly the beneficiaries of fresh capital and commitment from Amazon and Google, respectively. And these are long-term deals which realize that new reactors may not be operational until the next decade.

Even so, the moves prove that Big Tech and Big Money believe that nuclear power is dependable, has high capacity and is carbon free—exactly what they want.

"Nuclear is an important source of clean and reliable power that our nation needs to meet the growing demand for energy," Ken Griffin, founder and CEO of Citadel, whose affiliate is one of the lead investors in the $500 million funding round for X-energy that included sizable contributions from Amazon's Climate Pledge Fund, said in a statement.

Earlier this week, Google also announced it signed a master plant development agreement with Kairos Power to deploy about 500 MW of advanced nuclear energy plants by 2035.

The Amazon deal with X-energy is even more ambitious, aiming for 5 GW by 2039. The companies initially will develop a four-unit, 320-MW project with regional utility Energy Northwestern in central Washington state.

"This collaboration between Amazon and X-energy is a significant step toward accelerating advanced nuclear technologies that can help us bring new sources of carbon-free energy to the grid cost-effectively and safely," said Kevin Miller, Amazon's Vice President of Global Data Centers.

By Rod Walton, Managing Editor
https://www.microgridknowledge.com/

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L.B. White Guardian 2.0 Forced Air Heater w/Hot Surface Ignition, 100K BTU, Variable Heat, Natural Gas, White (AG Use Only)

The direct-fired L.B. White Guardian heater is designed to protect swine and poultry producers’ investments when the weather turns cold.

Guardian building heaters provide consistent, dependable heat that helps control house climate and can be used in all production environments and phases including gestation, nursery, and wean-to-finish.

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November 2024
Vol. II
Issue 11

Hydrogen

21 The Future of Hydrogen

Hydrogen To Start to Flow in Pipelines in Germany in 2025

Germany is set to see the first hydrogen flow in pipelines in 2025 following approval of the country's hydrogen "core grid" by the Federal Network Agency (BNetzA). "The first hydrogen pipelines of the core grid will go into operation as early as next year," economy minister Robert Habeck said during a press conference. "The core grid is the starting point for a new infrastructure and a central component of the energy transition. This makes Germany a pioneer in Europe."

The core grid is set to be completed by 2032 and will cost nearly 19 billion euros. It will be made up of 9,040 kilometres of pipeline that will be finalised over the next few years. That is about 600 kilometres less than in the initial approval application – a reduction Habeck said will keep grid fees down.

All federal states will be connected to the network, which will link the focal points of hydrogen production, consumption, storage and import. Habeck likened the hydrogen grid to the autobahn (Germany's motorway), saying that the big arteries had to be built first, with smaller feeder roads connecting companies and power plants coming later.

More to come

The grid – a key part of the country's plans to reach net-zero by 2045 – "will now be built," Habeck said, adding that his ministry had taken the project from idea to approval in "record" time. That is despite criticisms that the process has been too slow.

Around 60 percent of the grid will be converted gas pipelines and 40 percent will be newly built. Only pipelines no longer needed for transportation of the fossil fuel will be converted, while an extra 2 billion euros will be invested in additional gas pipelines to ensure security of supply, said BNetzA head Klaus Müller at the press conference.

The BNetzA plans to present a network development plan for electricity, gas and hydrogen in the summer, detailing which cities and municipalities will be further connected, Tagesspiegel Background reported.

Energy industry welcomes approval

Germany's National Hydrogen Council, an independent government advisory body, welcomed the BNetzA's approval, saying it was an "important signal" for the green energy transition that would help make Germany a pioneer in hydrogen infrastructure.

Energy industry association BDEW called the approval "a milestone" and an "important signal" for all wanting to produce or use hydrogen in the future. "The hydrogen ramp-up can only succeed with a well-developed network," BDEW head Kerstin Andreae said.

German Energy Agency (dena) head Corinna Enders also called the approval a "landmark decision".

"The approval is an important signal for all players involved in the hydrogen market ramp-up: there is now clarity about where hydrogen pipelines will be located in the transmission network in the future – and where not," she said. "Today's approval of the core network is groundbreaking in terms of breaking the mutual wait-and-see approach to investment decisions."

Southern states feel left behind

Nicole Hoffmeister-Kraut, economic affairs minister in the southern state of Baden-Württemberg, criticised the plans, saying that large parts of the state continue to be ignored despite a fifth of the country's industrial value creation taking place there. "If one of the economically strongest federal states is neglected in this way, Germany's economic strength as a whole will be jeopardised," she said.

Andreas Jung, climate and energy policy spokesman for the CDU/CSU parliamentary group, called the plans a "a low blow to the south and a bitter disappointment", adding that the core grid had "a glaring north-south skew".

A July survey by business daily Handelsblatt found that industry in southwestern Germany worried it would be left behind as planning for the country's core hydrogen grid advanced, with regional chambers of industry and commerce fearing they will not be able to participate in the transition.

Hydrogen to play central role in Germany's future energy mix

In the fight against climate change, hydrogen made with renewable electricity is seen as essential for the decarbonisation of sectors with particularly stubborn emissions, such as heavy industry and aviation.

Germany has set out to become a global leader in the associated hydrogen technologies, and the government has penned a National Hydrogen Strategy to achieve these ambitions. The country will largely have to import the fuel in future due to unfavourable local conditions for renewable electricity production.

However, a recent report by environmental think tank Wuppertal Institute said that many states will focus on ramping up production for domestic demand first. The report suggested Germany needed "more in-house production" of hydrogen, while at the same time bolstering global alliances. The authors called for an increase in cooperation across Europe to expand the H2 economy.

By Jennifer Collins, Carolina Kyllmann
https://www.cleanenergywire.org/

Cover Story

24 Electric Ferry Revolution

World's First Electric Hydrofoil Ferry Line Takes Off in Stockholm

Heralding a new era of waterborne transport: Candela P-12 is the fastest electric ferry, and at 25 knots faster than Stockholm's diesel-powered commuter boats.

The world's first electric hydrofoil ferry has begun its service. Candela P-12 "Nova" sets out to eliminate emissions from Stockholm's public transport while halving commute times.

"This is a paradigm shift for urban transport and a revival of our waterways," says Gustav Hasselskog, founder and CEO of Candela.

At 07:15 on Tuesday, Stockholm's new star, "Nova," departed from its dock in the quiet suburb of Tappström, powered by its electric motors, and took off. Flying silently a meter above the water's surface, it completed the 15 km route to Stockholm's City Hall in just over 30 minutes.

For the delighted commuters on the world's first electric foiling ship, the usual morning commute was almost cut in half.

For Stockholm—and potentially the world—this may signal a future where city water transport is sustainable, affordable, and faster than traveling by car.

"Nova" is the first of Candela's new P-12 model to enter service. Its computer-controlled hydrofoil wings lift the hull above water, reducing energy consumption by 80% compared to conventional vessels by cutting water friction.

"Conventional ships haven't evolved much in 100 years and are among the least energy-efficient transport modes, only rivaled by a battle tank," says Gustav Hasselskog.

The challenge with conventional fast vessels is that they consume enormous amounts of energy at high speeds, plowing through the water. This makes electrification difficult, as their range is limited even with large batteries.

Stockholm's approximately 70 public transport vessels use more fossil fuels than the city's buses and trains combined, despite representing only a small share of total ridership. Water transport is costly and slow, as the vessels create large wakes, limiting their speed in the city center.

Yet, many commuters enjoy traveling by water. Region Stockholm aims to transition all vessels to renewable energy, with goals to reduce emissions and minimize disruptive wakes.

Candela P-12's hydrofoil technology is key to address these challenges.

Since "Nova" flies above the water rather

than pushing through it like conventional vessels, it creates minimal wake. As a result, the ferry is allowed to travel at high speeds within the city limits, where other vessels are restricted by wake regulations. "Nova" runs on 100% renewable electricity, and emits minimal noise even at high speeds, thanks to its electric C-POD motors with no mechanical transmission.

Thanks to its hydrofoil technology, "Nova" is not only the fastest electric ferry in operation in the world but also the fastest in Stockholm's public transport fleet, cruising at 25 knots—outpacing the diesel-powered V-class ferries that previously held the speed record.

Ekerö, Stockholm's fastest-growing island suburb, lies just 15 km from the city center. But commuting typically takes an hour by traditional ferries, limited by speed restrictions, or by bus/metro and car, subject to rush-hour congestion. By reducing travel times to a half hour, the new hydrofoil line brings Ekerö closer to the capital.

"In many cities, the shortest route is over water, which is humanity's oldest infrastructure. Today, our waterways are underutilized due to the high costs, wake concerns, and emissions of traditional vessels. If we can unlock this potential, we can make cities more attractive," said Gustav Hasselskog.

With its energy efficiency, "Nova" requires no costly dock infrastructure, charging instead at a regular car fast charger at the City Hall. Its long range allows it to match the schedule of conventional diesel ferries, with recharging during the typical lunch break.

"Nova" will operate through fall 2024 until the waters freeze, resuming service in spring and continuing through August 2025. The route is a pilot project run by Candela, Trafikverket, and Region Stockholm (SL), aiming to explore how hydrofoil technology can enable faster, more affordable, and emissions-free maritime travel, creating new transit patterns in Stockholm.

But even before its official launch, Candela's P-12 had already made waves in the maritime industry. In 2024, Candela received orders from Saudi Arabia, New Zealand, and Berlin, with additional clients to be announced.

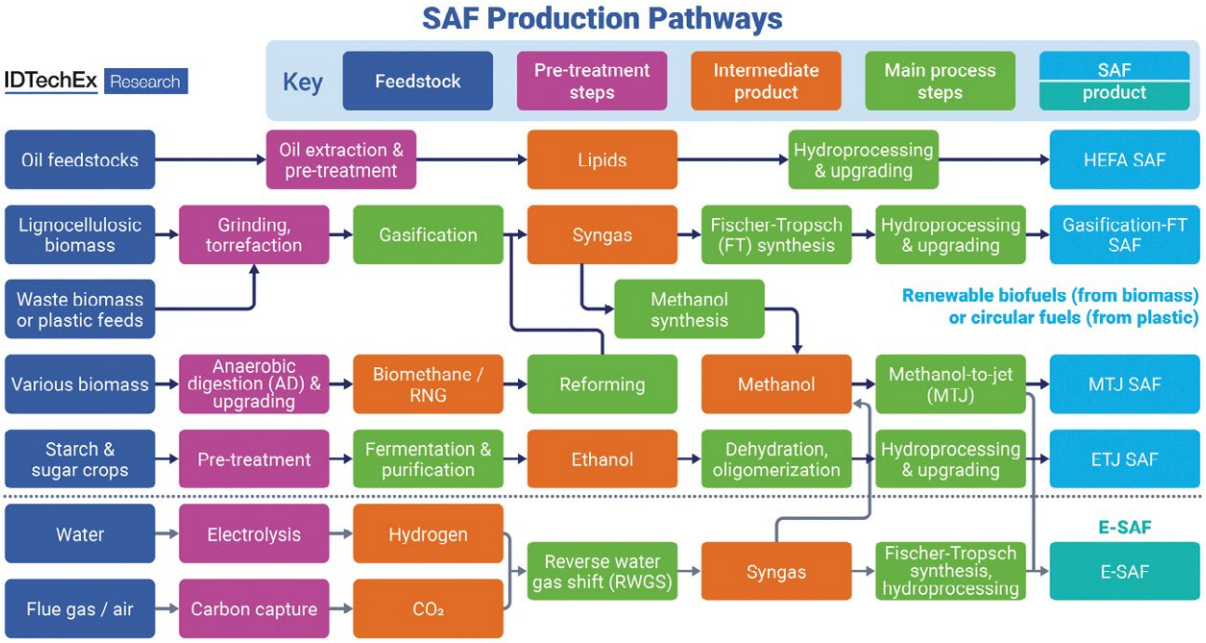
"For the first time, there is a vessel that makes waterborne transport faster, greener, and more affordable than land transport. It's a renaissance for the world's waterways, and it's exciting that Stockholm is leading the way," said Gustav Hasselskog.

Source: CANDELA

Energy Storage & Grids

27 Cybersecurity and Grid Vulnerabilities

The Evolution of the Biofuel and E-Fuel Production Landscape



Overview of key SAF production pathways. Note: this diagram does not include pyrolysis, hydrothermal liquefaction (HTL), and algal biofuel technologies. Source: IDTechEx

Electrification is widely regarded as a leading solution for decarbonizing the on-road transport sector. However, for certain industries, electrification may not be the most viable option, leading to the growing interest in alternative low-carbon fuels like hydrogen, ammonia, biofuels, and e-fuels. In the biofuel space, biodiesel and bioethanol have historically dominated the market, but concerns about their sustainability, particularly land-use change and competition with food production, have prompted sustainable fuel producers to explore more advanced fuels like renewable diesel and sustainable aviation fuel (SAF), derived from alternative (2nd generation) feedstocks and new process technologies.

This has influenced the rise of renewable diesel, especially in regions like the US, Europe, and parts of Asia, such as China, which supply these fuels to global markets. While renewable diesel was initially produced from virgin oils, there is now a strong shift toward more sustainable feedstocks like used cooking oil, waste oils, and animal fats. These alternative sources are also gaining traction in the production of sustainable aviation fuel (SAF), offering a lower environmental footprint.

Despite the variety of existing technologies, both the advanced biofuel and e-fuel markets are still in relatively early stages of development compared to bioethanol and biodiesel. A dominant factor driving the growth of this market is regulation and policy support in key regions like the EU and the US. However, the introduction of new or improved process technologies will also cause a significant shift in the future production landscape. This article will delve into some of the key market drivers and technological developments shaping the future of advanced biofuels and e-fuels using research from IDTechEx's new report, "Sustainable Biofuels & E-Fuels Market 2025-2035: Technologies, Players, Forecasts".

Dominance of HEFA process

The most widely used process for producing renewable diesel and sustainable aviation fuel (SAF) is the hydro-treated esters and fatty acids (HEFA) process. This process mirrors the operations in a petroleum refinery, where various fuel fractions are synthesized

from crude oil. Key steps in HEFA include hydrotreating, hydrocracking, isomerization (upgrading), and fractional distillation, all of which convert the triglycerides from oil-based feedstocks into branched hydrocarbons with the right properties to be used as drop-in fuels. Due to its commercial maturity and proven reliability, most biorefineries producing renewable diesel today rely on the HEFA process.

Emergence of alternative processes & interest in SAF as a key driver of growth

The sustainable fuel landscape is evolving, and innovative technologies are gaining ground. One such advancement is the combination of gasification with Fischer-Tropsch (FT) synthesis. This process transforms waste biomass – such as agricultural and forestry residues – into synthetic hydrocarbon fuels, including renewable diesel, SAF, and gasoline. Another exciting development is the conversion of methanol and ethanol into jet fuel or gasoline, commonly known as alcohol-to-jet (ATJ) and alcohol-to-gasoline (ATG) processes. Additionally, e-fuels, which have the potential to be carbon-neutral, are generated using CO2 from the air or biogenic sources, along with water and renewable energy. These emerging technologies promise to expand the range of sustainable fuel production methods, offering alternative pathways to provide more sustainable fuels to long-haul and heavy-duty transport sectors.

The growing interest in SAF has become a significant driver of innovation in the sustainable fuel industry. This surge in attention is largely attributed to the implementation of SAF mandates in key markets. In the EU, the ReFuelEU Aviation initiative mandates a gradual increase in SAF blending, starting with 2% in 2025 and reaching 70% by 2050. Similarly, the US has introduced the SAF Grand Challenge, aiming to produce 3 billion gallons of SAF annually by 2030. These regulatory frameworks have created a strong market pull, incentivizing airlines to invest directly in technology companies and SAF production facilities. For instance, British Airways partnered with LanzaJet to build one of Europe's first commercial-scale alcohol-to-jet (ATJ) production facilities in the UK, investing £2.5 million in the project.

Biofuel technological alternatives to HEFA are developing quickly

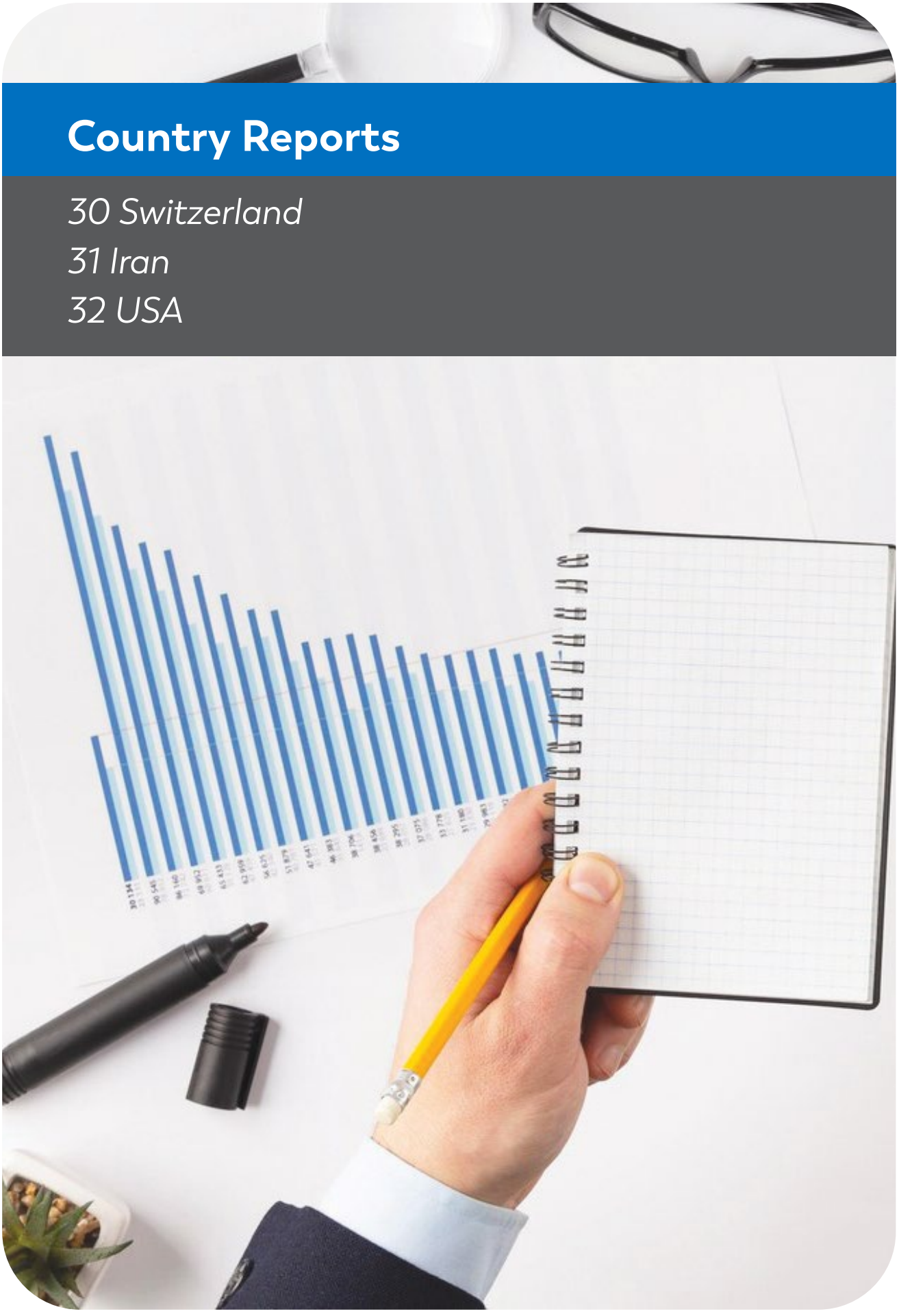
In recent years, cellulosic ethanol, derived from lignocellulosic biomass like agricultural residues, has garnered significant attention and investment. Companies such as Clariant have led efforts to develop plants capable of producing a more sustainable alternative to conventional bioethanol. However, despite this early promise, many companies have pulled back due to economic and technical challenges. Nevertheless, a renewed interest in cellulosic ethanol has emerged, as it is now being seen as a viable feedstock for sustainable aviation fuel (SAF) production through the alcohol-to-jet (ATJ) process. This has created fresh market opportunities. For instance, Brazilian company GranBio has partnered with Honeywell UOP to build an ATJ facility in Georgia, USA, which is expected to produce 1.2 million gallons of SAF annually.

The gasification-Fischer-Tropsch (FT) sector is also gaining momentum, with increasing commercial interest. Gasification, a mature technology primarily used to convert coal into syngas, is being adapted for biomass conversion, although it presents more challenges, such as the production of tar, which must be converted into syngas for FT synthesis. Companies like UK-based ABSL are developing innovative solutions like plasma reformers to break down tar and produce clean syngas. Additionally, FT technology, which has long been established in synthetic fuels, is seeing innovations, such as the micro-channel FT reactors being developed by companies like Velocys, aimed at increasing efficiency and enabling more compact, modular installations.

Among other innovations, technologies like pyrolysis and hydrothermal liquefaction (HTL) are also gaining attention. While pyrolysis is mainly targeted for production of biochar from biomass or recycling of plastics, HTL developers aim to use feedstocks that are conventionally hard to deal with (e.g. wastewater) and convert them into biocrude oil that can be refined into renewable diesel and SAF. IDTechEx's report details more technological innovations and commercial insights.

Author: Chingis Idrissov, Senior Technology Analyst at IDTechEx

Country Reports



Switzerland / Nuclear Startup Unveils Compact Reactor 'Specifically for Data Centres'

Deep Atomic said its MK60 light-water reactor offers a compact and scalable energy solution. Courtesy Deep Atomic.

A Switzerland-based nuclear energy startup has revealed plans for a compact small modular reactor (SMR) specifically aimed at powering the growing number of energy hungry data centres.

Deep Atomic said its MK60 light-water reactor offers a compact and scalable energy solution, tailored to the unique needs of modern and future data centres, which support cloud services, cryptocurrency operations and AI applications.

The Zurich-headquartered startup said each unit is capable of producing up to 60 MW of electricity, with an additional 60 MW available for cooling.

The plant is designed to be installed onsite at data centres, delivering reliable zero-carbon electricity and energy-efficient cooling.

Deep Atomic said the plant's modular design and factory production will reduce costs and deployment times. It said the reactor will help expand digital infrastructure in areas with limited grid access.

Deep Atomic said that as AI advances, and companies like Google, Amazon and Meta attract ever more users to a growing range of digital services, the global demand for computing power is skyrocketing. This, in turn, is leading to unsustainable energy consumption and carbon emissions from digital infrastructure.

"Data centres are the backbone of digital innovation, but their massive energy needs have become the critical bottleneck blocking growth," said William Theron, Deep Atomic's founder and chief executive officer.

The decision to opt for a 60 MW design, in contrast to the larger 300 MW SMRs typical in the industry, is strategic, Deep Atomic said. These units are large enough to sustain significant computer infrastructure but small enough for modular deployment, thus reducing initial capital outlay and project risk.

Deep Atomic head of engineering Freddy Mondale said that "a 60 MW reactor with additional 60 MW of cooling capacity hits a sweet spot for data centres".

"It's large enough to power significant compute infrastructure, yet small enough to allow for modular deployment and scaling," he said.

Small Modular Reactors And Big Tech

The move comes as the power required to run ever-expanding data centres – especially with the advent of power-hungry artificial intelligence (AI) – becomes a greater concern.

Tech giants such as Microsoft are grappling with massive power needs as they scale up artificial intelligence. Constellation Energy recently unveiled plans to restart the Three Mile Island nuclear plant in Pennsylvania in 2028 through an agreement with Microsoft.

Google, Amazon and Oracle have all said they plan to use next-generation small nuclear reactors.

Earlier this month, Google signed what it said was a "world first" deal to buy nuclear energy from SMRs being developed by Kairos Power to power its AI technology.

Soon afterwards Amazon Web Services announced it had signed agreements with Dominion Energy and X-energy to acquire 620 MW of generation capacity from SMRs as part of efforts to meet its growing energy needs and net zero commitments.

During an earnings call of software giant Oracle, its chief technology officer Larry Ellison revealed that the company is looking at using power from three SMRs to run a planned 1,000 MW AI data centre.

By David Dalton
https://www.nucnet.org/

Iran's Energy Crisis Deepens: Gas Shortages and Limited Investment Threaten Industries

As autumn begins and winter approaches, Iran's national electricity company, Tavanir, issued a notice warning of impending gas shortages and urging citizens to conserve energy. The announcement highlighted the growing pressure on Iran's energy system due to falling temperatures in the northern half of the country, which has driven up natural gas consumption.

Tavanir stressed that energy consumption management—both electricity and gas—is critical for maintaining fuel reserves for power plants. It pointed out that the majority of Iran's electricity is generated using gas in thermal power plants, making the country highly dependent on this fuel source. The company emphasized that maintaining a stable electricity supply depends on public cooperation in reducing energy use and more efficient energy management.

The statement also addressed Iran's broader energy challenge: during the summer, gas consumption rises to meet electricity demand, while in winter, gas usage spikes due to heating needs. However, Iran's energy infrastructure has been hampered by a lack of investment and the absence of new technologies, which has severely limited the country's production capacity.

This underinvestment has forced industries and power plants to shut down in response to gas shortages. The lack of development in renewable energy and failure to implement sustainable energy policies have further exacerbated the crisis, leaving both households and industries facing significant disruptions.

A Growing Crisis in the Gas Sector

Iran's gas production has not kept pace with consumption, particularly impacting its industrial sector. The government has frequently placed the blame for shortages on consumers, while prioritizing industries in gas allocations during times of scarcity. But the underlying problems are much larger, including the uncertainty surrounding gas reserves, the heavy reliance on gas for thermal power plants, and the country's aggressive development of gas extraction without adequate investment in infrastructure.

A 2022 report from the Parliament Research Center revealed alarming statistics: during the coldest three months of the year, the average gas supply imbalance reached 227 million cubic meters per day, rising to 315 million cubic meters in February. In 2022, Iran's total gas consumption was around 241 billion cubic meters, with daily consumption averaging 597 million cubic meters during the warmer months and soaring to 782 million cubic meters in the colder months.

By January 2023, the CEO of Iran's National Gas Company, Saeed Tavakoli, reported that the daily gas supply imbalance had reached 260 million cubic meters, describing the situation as critical and calling for urgent measures to address the shortfall.

By Mostafa Aslani
https://irannewsupdate.com/

US Energy Sector Vulnerable to Supply Chain Attacks

The US energy sector is at particularly high risk of supply chain attacks, with 45% of security breaches hitting this industry in the past year third-party related, according to new research by SecurityScorecard and KPMG.

This compares to a global average of 29% for supply chain breaches across all other industries.

Additionally, the study found that 90% of attacks on energy companies breached more than once involved third parties.

Two-thirds (67%) of third-party related breaches involved external software and IT providers. Around a fifth (22%) involved other energy companies.

The most common cause of third-party breaches in the energy sector was the large scale exploitation of the MOVEit file transfer software vulnerability by the Clop gang in 2023, making up 39% of recorded third-party breaches.

Three of the seven MOVEit compromises analysed by the research involved energy companies directly using the MOVEit software. The other four were as a result of vendors who were breached via their own MOVEit installations – essentially fourth party breaches.

Prasanna Govindankutty, Principal, Cyber Security US Sector Leader at KPMG, warned that the energy industry is undergoing a "generational" supply chain transition, which has ramped up the cybersecurity risks it is facing.

"With geopolitical and technology-based threats on the rise, this complex system is facing an equally generational risk exposure that could harm citizens and businesses alike," he commented.

The research analyzed 250 top US energy companies, comprised of a range of sub sectors including power and utilities, oil and gas, natural resources, and chemicals.

Variation in Energy Sector's Cybersecurity Performance

Differing levels of cybersecurity performance can be found across the energy sector, the report found.

Overall, the US energy industry scored a 'B' rating according to Scorecard's rating methodology, which is considered good or respectable. These ratings take into account a range of cybersecurity areas.

More than four-fifths (81%) of companies analyzed had A and B ratings, leaving 19% rated as weak, deficient or bad.

Oil and natural gas scored highest of all the energy sub sectors, likely due to their larger size and greater financial capacity to invest in security programs.

The sub sector with the lowest security rating was renewable energy, with companies in this area often newer and smaller.

Among the evaluated security factors, 92% of the lowest scores were concentrated in application security, DNS Health and network security.

Just 8% of the organizations included in the analysis showed evidence of network compromises over the past year. The researchers said this rate is significantly lower than other sectors, such as the global aviation industry, which stands at 17%.

By James Coker
https://www.infosecurity-magazine.com/

Services

34 Coming Events

Coming Events

International Conference on Solar Power Technology 2024
Residency Sarovar Portico, Mumbai, Mumbai, India
02 Nov 2024
https://itrgroup.net/Conference/1255/ICSPT/

International Conference on Solar Power Technology aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences...

Africa Energy Expo 2024
Kigali Convention Centre, Kigali, Rwanda
04 - 06 Nov 2024
https://www.africa-energyexpo.com

With an aim to fully back Africa's climate pledges at COP 27, the Africa Energy Expo will serve as a scene-setter to the Africa Power Vision by bringing key energy stakeholders together...

ADIPEC Conference & Exhibition 2024
Abu Dhabi, UAE
04 - 07 Nov 2024
https://www.adipec.com/

ADIPEC is a significant meeting of energy industry professionals that will unite global policymakers, CEOs, innovators, and experts to develop solutions for the energy transition. It offers...

Power Energy Ghana expo 2024
Accra International Conference Center, Accra, Ghana
06 - 08 Nov 2024
https://www.powerenergyghana.com/

Power Energy Ghana Expo is would be the finest marketing and reaching out platform for global manufacturers and exporters of all products and items related to power energy and electrical...

The Decarbonized Mine
Toronto, Canada
12 - 13 Nov 2024
https://toronto.energyandmines.com/

As mine decarbonization shifts from ambitious targets to implementation, The Decarbonized Mine is the title of this years Energy and Mines event, bringing together 400 mining...

Nigerian Association of Petroleum Explorationists International Conference & Exhibition 2024
Eko Hotels & Suites, Lagos, Nigeria
10 - 14 Nov 2024
https://conference.nape.org.ng/

The Nigerian Association of Petroleum Explorationists International Conference & Exhibition is the leading platform for petroleum geologists and related professionals in Nigeria...

ASEAN Clean Energy Week
Manila, Philippines
21 – 22 November 2024
https://www.aseancleanenergyweek.com/

In November the SMX Convention Center Manila will host the 7th edition of ASEAN Clean Energy Week. 5000 attendees, of which 1,500 are C-suite executives will come together to discuss how to expedite the green transition in Southeast Asia...

Egypt Energy 2024
Egypt International Exhibition Center, Cairo, Egypt
26 - 28 Nov 2024
https://www.egypt-energy.com/

Join Egypt Energy, a prestigious event celebrating Egypt's thriving energy sector. Connect with energy leaders and explore a diverse range of products. Egypt Energy is North Africa's largest...

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Navigating Taxation Turmoil: Legal Battle Surrounding A 250 MW Solar Power Project In Rajasthan

AI Will Drive Decarbonisation and Boost Energy Efficiency, Say Top Executives

Joint study by Adnoc, Masdar and Microsoft surveyed more than 400 global leaders, including Nvidia chief Jensen Huang and BlackRock's Larry Fink

Artificial Intelligence will revolutionise the energy sector, slashing emissions and boosting efficiency, according to a report jointly published by Adnoc, Masdar and Microsoft on Thursday.

Around 92 per cent of executives believe AI will have a significant impact on improving energy efficiency by 2030, and 97 per cent expect AI to play a central role by 2050 in developing new energy solutions, according to the report titled Powering Possible: AI and Energy for a Sustainable Future.

The report surveyed more than 400 global leaders in sectors such as technology, energy and finance, including Jensen Huang, chief executive of Nvidia, Larry Fink, BlackRock's chief executive, and Patrick Pouyanne, chief executive of French energy giant TotalEnergies.

The study underscored AI's ability to clean up traditional energy sources, improve energy use and speed up the shift to cleaner energy.

"We are at a pivotal moment for human progress driven by three megatrends: the rise of the Global South, the accelerated energy transition and the rapid growth of AI," said Dr Sultan Al Jaber, UAE Minister of Industry and Advanced Technology.

"AI is an era-defining innovation that is altering the pace of change itself – resetting the boundaries of productivity and the possibilities of progress," said Dr Al Jaber, who is also Adnoc's group chief executive and managing director.

The energy sector typically contributes more than 90 per cent of global carbon dioxide emissions and 75 per cent of the total greenhouse gas emissions in developed countries, according to the UN.

The jointly authored report highlighted the role AI can play in reducing methane emissions – a greenhouse gas that is 80 times more effective at trapping heat than carbon dioxide.

New AI tools can detect methane leaks much more accurately than older methods, and will be crucial in meeting the global goal of cutting methane emissions by 30 per cent by 2030, the report said.

At the Cop28 climate summit in Dubai many oil and gas companies pledged to reach net-zero emissions by 2050 or earlier. They also committed to reducing methane emissions and eliminating routine flaring by 2030.

The report also outlined a road map to tackle the increasing energy demands of AI-powered data centres, expected to almost double their share of global electricity consumption by 2026. It noted that, although AI's electricity usage remains relatively minor on a global scale, in certain regions, data centres can account for a significant portion of total power demand.

The International Energy Agency has predicted that the total electricity consumption of data centres could exceed 1,000 terawatt-hours by 2026, nearly matching the electricity usage of Japan.

"This new era calls on us to do two things at once: meet the AI moment while transitioning to a more sustainable economy," said Brad Smith, vice chair and president of Microsoft.

"In a world that will need more electricity, not less, it's imperative that we generate more carbon-free energy to power AI, and use that very same technology to increase capacity, optimise transmission and expand energy access to communities around the world," he added.

John Benny

https://www.thenationalnews.com/

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