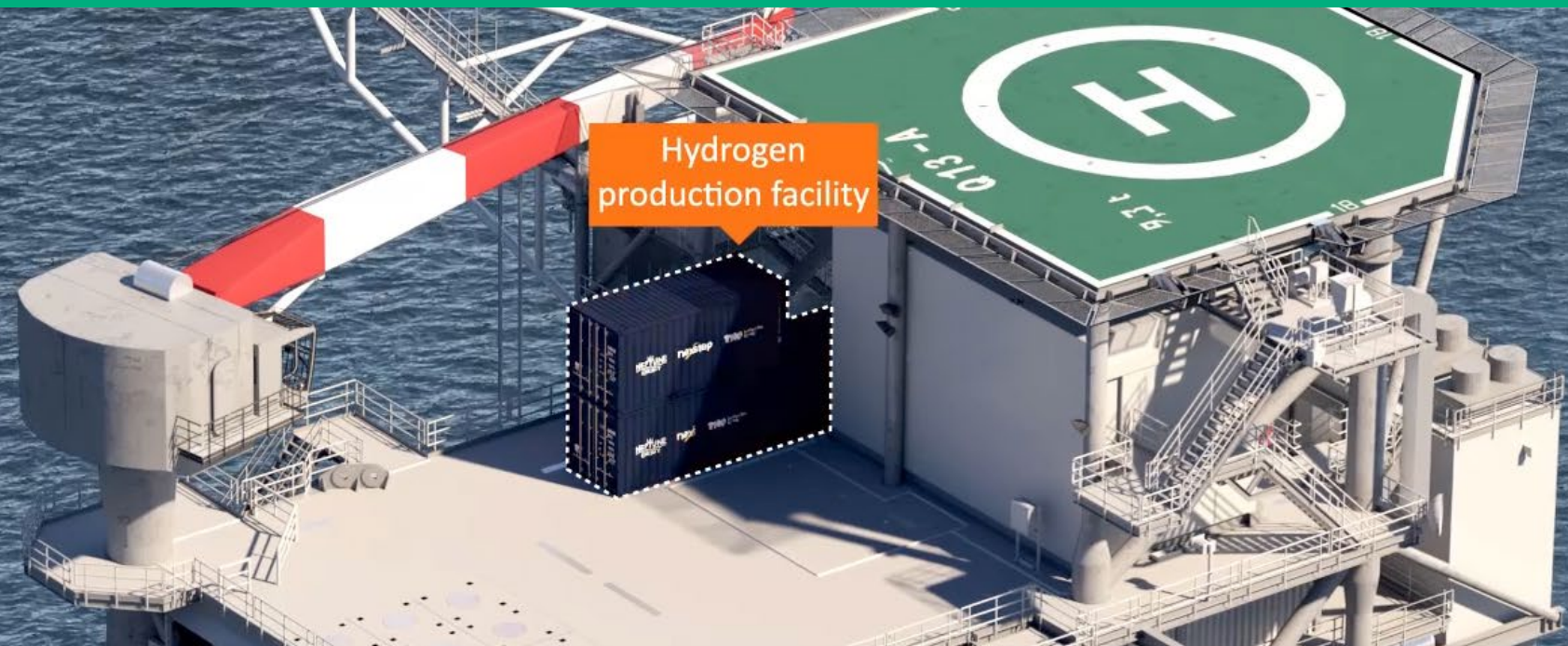


Reach Your Sustainability Goals with Industrial Automation

PRESS ESC TO EXIT FULLSCREEN

Emerson's environmental sustainability framework is designed to meet the needs of customers at any stage in their sustainability and digital transformation journeys.





Today's Technology for Tomorrow's Green Energy Solutions

A pilot project in the Netherlands aims to change the way we think about offshore green hydrogen production. The PosHYdon project is developing new technologies to integrate three energy systems in the North Sea—offshore wind, offshore gas, and offshore hydrogen to enable efficient green hydrogen production on an operational gas platform.

Testing the Critical Sustainability Initiatives of the Future

Neptune Energy's Q13a-A platform in the Dutch North Sea will host the PosHYdon project, which will use green electricity to simulate the fluctuating supply from wind turbines which will use green electricity. To simulate the fluctuating supply from wind turbines, the pilot will follow the

wind profile of wind park Luchterduinen. The green electricity comes via a cable from onshore, powering the production process which converts seawater into demineralized water and then will safely produce hydrogen via electrolysis. The hydrogen will then be blended with natural gas and transported to the coast via an existing gas pipeline to feed into the national grid.

The project will provide critical insight into electrolyzer efficiency from a variable power supply as well as the cost of installing and maintaining a green hydrogen production plant on an offshore platform.

Technology Makes Sustainability Possible

Desalinated water feedstock and variable power supply will be unique challenges in the PosHYdon

project. Emerson software and technologies—including the DeltaV™ distributed control system, DeltaV safety instrumented system, and DeltaV Live operator interface software—will help mitigate the complexity, managing the desalination and electrolyzer units, gas blending, and balance of plant equipment. Advanced digital automation technologies from Emerson will help ensure the existing natural gas operations remain unaffected and blended gas continues to meet its required specifications.

First-of-a-kind applications of technology always present new challenges, but the application of the right digital transformation solutions help overcome those challenges to drive the new technologies that will power a more sustainable tomorrow.

[Learn more](#)

Renewable Refining

Lower Emissions Through Strategic Digital Transformation

One large refinery is on a mission to replace the fossil materials of the world with sustainably produced renewables. The plant will produce sustainable feedstock for many renewable products across a wide variety of industries.

A Smaller, Greener Footprint

The refiner recognized an opportunity to create a circular economy, leveraging processes that would manufacture their product using less energy than with traditional methods. The feedstock they produce will have a carbon footprint that is dramatically smaller than the footprint of fossil-based equivalents.

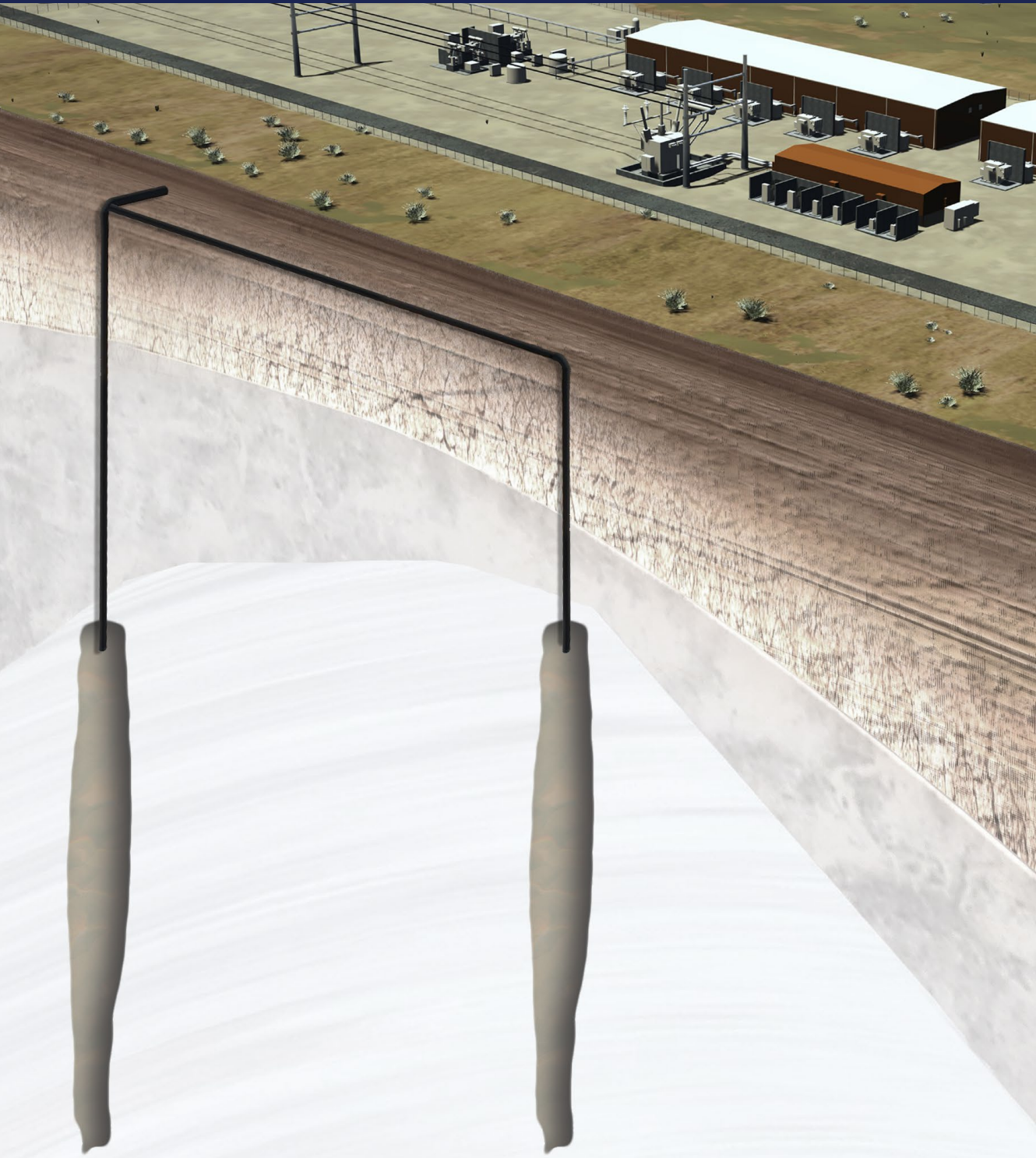
Reduced Complexity for Improved Performance

To accomplish their goals, the project team selected Emerson's DeltaV™ distributed control system, DeltaV safety instrumented system, and DeltaV Live operator interface software. The new best-in-class automation technologies will help the plant deliver efficient production, greater visibility of operational performance and processes, and emergency shutdown for improved worker safety.

The team will work closely with Emerson to digitalize project execution and unlock advanced project strategies such as remote testing of equipment to reduce schedule risk and keep the project on budget, helping deliver sustainability without increased cost.

Today's goal is quickly delivering sustainable manufacturing with a dramatic reduction in carbon dioxide emissions. The refiner will complete this mission while still delivering on the long-term goal of lowering total cost of ownership through strategic implementation of digital transformation software and technologies.





Green Hydrogen Innovation to Reduce Stress on the Grid

As Mitsubishi Power Americas provides power generation and storage solutions to customers, it empowers them to affordably and reliably combat climate change while advancing human prosperity. Nowhere is that more in evidence than in Mitsubishi Power's development of the world's largest green hydrogen production and storage facility—the Advanced Clean Energy Storage Hub.

Generate Today, Use Tomorrow

Recognizing the need to capture excess renewable energy generated during the winter and store it for use during the peak summer season, Mitsubishi Power developed the Advanced Clean Energy Storage Hub. The facility will use renewable energy to produce up to 100 tons of green hydrogen per day, storing up to 300 gigawatt hours of energy in underground salt caverns for later use.

Mitsubishi Power will also collaborate with Emerson on digital solutions for the nearby 840-megawatt Intermountain Power Project, which will use 30% (vol) hydrogen fuel at startup, transitioning to 100% (vol) hydrogen by 2045.

Reliable Technologies Provide More Reliable Power

Mitsubishi Power will rely on Emerson's automation software and hydrogen expertise to increase safety, decrease costs, and simplify maintenance across the lifecycle of the facility. Emerson's Ovation™ integrated control and safety platform will optimize the Advanced Clean Energy Storage Hub's production efficiency and help ensure safe operations. PACSystems™ RSTi-EP I/O will provide easier field connectivity and help facilitate project changes without extending timelines or increasing cost, while AMS Device manager will help monitor the health of plant assets to improve safety, reliability, efficiency, and sustainability.

The plant is a step change in managing the variability of supply and demand to reduce stress on the power grid. By leveraging the digital automation stack to develop an innovative, sustainable way to solve that problem, Mitsubishi Power empowers providers to consistently use peak-production renewable energy in peak-consumption hours.

[Learn more](#)

Out With the Old, In With the New

Leading the transition to a new energy economy is not limited to startup companies. Many energy industry veterans are collaborating with expert automation providers to redesign and retool existing facilities to help drive the future of sustainability. One such company, Albioma, a French independent energy provider, enlisted Emerson's help to transition its coal-fired Bois Rouge plant to 100% renewable energy via biomass feedstock.

By overhauling its facility to use biomass wood pellets, Albioma anticipates reducing greenhouse gas emissions by approximately 640,000 tons of carbon dioxide equivalent per year—an 84% decrease in direct emissions compared to current operating levels.

Making Way for New Technologies

Albioma will use Emerson's Ovation™ distributed control system to modernize the plant's three generating units, alongside new turbine protection and health monitoring systems, safety systems for the boilers, and upgraded boiler control elements and instrumentation. Emerson's software, digital technologies, and expertise in automating renewable energy facilities will help Albioma complete its project within the available timeframe.

Cloud engineering technologies will provide a secure virtual engineering and testing environment, enabling Albioma to access Emerson's resources and ongoing support to reduce project risks and costs.

Ultimately, Albioma aims to reach almost 100% renewable energies by 2030, and Emerson's help to completely discontinue use of coal at the company's flagship site will be a critical milestone in that evolution.



[Learn more](#)

Plastics Recycling



Recycling the 'Unrecyclable'

For organizations focused on solving the problem of end-of-life plastics, complexity often means opportunity. Traditional recycling methods cannot process many post-consumer plastics. Ultimately, those products end up in landfills. Not only is this harmful to the environment, but the plastic packaging material value—\$80 to \$120 billion annually—is lost.

One recycling company is changing that paradigm. The facility will convert waste plastics into the valuable chemicals and oils from which they were originally made. The resulting products can

then be used to manufacture new plastics and other materials.

Increasing Performance to Reduce the Impact of Plastics

The recycler will use Emerson's advanced automation technology and software to help achieve safe, efficient operation of its processes. The DeltaV™ distributed control system and DeltaV safety instrumented system will provide integrated control and safety, also leveraging the Plantweb™ digital ecosystem to provide visibility to process performance and asset health.

The project team will work closely with Emerson

to digitalize project execution to help deliver the plant on budget and on schedule. Those same digitalization technologies will help the plant achieve maximum operational performance and profitability over the lifecycle of the plant.

By working closely with Emerson automation experts, the organization can help ensure the impact of its new recycling plant not only begins as quickly as possible, but also that it operates at the highest efficiency levels. The results will not only drive increased sustainability in a critical area, but also help the company capture a significant portion of the lost plastic packaging material value across the lifecycle of its facility.



Automation Technology Drives Hydrogen Production and Refueling

As low and zero-emission vehicles capture an ever-greater share of the market, countries around the globe need to expand access to renewable fuels like hydrogen. Toyota Australia is contributing to that effort by transforming part of its operations into a demonstration scale hydrogen production, storage and refueling facility. The facility has demonstrated the technical and economic feasibility of manufacturing hydrogen fuel, taking advantage of renewable solar energy for part of the process.

Sustainable hydrogen projects are challenging because they need to integrate many data sources into one balance-of-plant system, a process that's critical for a facility's success. Toyota Australia engaged Emerson to use the DeltaV™ distributed control system to gather data from the plant's complex equipment, making it easier to monitor production and storage of hydrogen gas and document operations.

A Digital Foundation for Improved Efficiency

By incorporating a digital automation foundation to eliminate data silos, Emerson's DeltaV system can not only significantly reduce costs, but also provide greater visibility into system performance. Emerson's DeltaV systems control operations for optimal production efficiencies and help ensure safe operations. Edge control technology from Emerson's PACSystems™ will further reduce cost and complexity of integrating third-party systems.

The Toyota Australia team also utilised pre-existing configuration libraries to reduce setup time. In addition, Emerson's technologies create a platform to add future remote operations and data analytics more easily and cost effectively—helping Toyota Australia get the plant up and running quickly and safely today while also increasing value into the future of operations.

A greener tomorrow starts with a digital technology foundation.



Renewable manufacturing requires careful orchestration of complex software, technologies, and equipment. Emerson's DeltaV™ and Ovation™ control solutions are built from the ground up to provide the visibility, contextualized data, modularity, and performance process manufacturers need to meet their sustainability initiatives and deliver a greener future.

Contact us to prepare for today's requirements and tomorrow's demands.

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