



# Hydrogen MEGC Filling

## For P2X Solutions



## Project Success Story P2X Solutions, Finland

We have successfully completed an integrated hydrogen MEGC filling system for P2X Solutions, Finland's leading Power-to-X pioneer and operator of the country's first industrial-scale green hydrogen plant. As part of the project, P2X Solutions were awarded Finland's first ISCC EU RFNBO certificate – an internationally recognised confirmation of strict environmental and sustainability performance.

This achievement has enabled P2X Solutions to supply certified green RFNBO hydrogen and methane, delivering at least 70% lower greenhouse-gas emissions compared to fossil alternatives. "The certificate was an important step in creating a market for green hydrogen and clean fuels. I am very proud of this achievement that the P2X Greenteam accomplished together," stated CEO Herkko Plit.



# A Collaborative Project from Day One

The success of the project was built on early collaboration and a shared understanding of the requirements for industrial hydrogen MEGC/Trailer filling. Together we developed a demand-based system that considered the complete process chain – from compressor operation to pressure management and systems wide process and operational safety.

P2X Solutions recognised the fundamental differences between hydrogen dispensing and MEGC/trailer filling, enabling a design approach focused on long-term efficiency, reliability, and safety. Through our joint FEED work, we ensured:

- Proper integration between the filling system and upstream supply
- Stable compressor operation with minimised stop/starts
- Clear design boundaries for MEGC/Trailer pressures and filling rates
- Early involvement of the Notified Body
- Civil and safety concepts tailored specifically for MEGC operation



# A Robust and Safe System Design

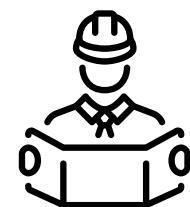
iGAS delivered the complete process, mechanical, electrical, instrumentation, and control design – supported by full HAZOP and LOPA reviews (IEC 61511 - Functional Safety). The system addressed the core safety challenges of high-pressure hydrogen, including:

- PED-compliant, CE-marked high-pressure assemblies
- ATEX-certified equipment and static-safe operation
- Automated leak testing and hose purge before every fill
- Dynamic earth monitoring interlocked to the filling sequence
- Automatic hose-rupture detection and safe shutdown
- Clear operator guidance with RFID login, asset identification and fully automated sequences
- Double-block-bleed isolation and N<sub>2</sub> purge for safe maintenance
- Safe vent routing and strict separation of utilities

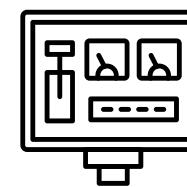
The result was a factory-built and tested package, approved by P2X Solutions prior to delivery.

Key technical features included:

- Intelligent, temperature-compensated filling
- Integrated mass-flow measurement
- Trailer and operator recognition (RFID)
- Pneumatic interface for trailer valves
- High-level DCS communication
- Unmanned filling capability
- Monitoring of trailer return pressure
- Safe hose-park interlock feedback



**Safety-Driven Engineering**



**Control & Automation**



**Compliance & Reliability**



# From Commissioning to Operation

To ensure a seamless transition into production, iGAS prepared all SAT (Site Acceptance Testing) and training materials in advance, secured spare parts, and performed comprehensive commissioning and operator training on site. Our controls department provided remote engineering support throughout start-up and early operation, ensuring smooth system performance from day one.



## Ongoing Support

Long-term support ensures that the system continues to operate safely and efficiently. Through annual follow-ups, optimisation reviews, refresher training, and proactive maintenance planning, P2X Solutions benefits from sustained operational reliability and long-term lifecycle performance.

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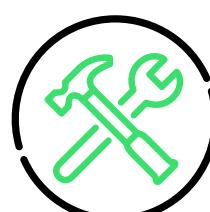
# A Milestone for Finland's Green Hydrogen Future

This project marked a significant step for both P2X Solutions and the Finnish hydrogen sector. By combining technical expertise, a rigorous safety-driven design, and close collaboration, we delivered a solution that supported P2X Solutions in establishing the country's first RFNBO-certified green hydrogen production.

Together, we contributed to a cleaner, more sustainable energy future for Finland.



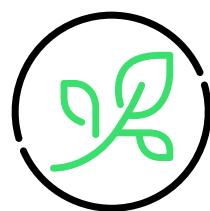
**Optimise Service**



**Improve Reliability**



**Increase Efficiency**



**Reduce Emissions**



# Contact us

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iGAS Technology Solutions Ltd.  
Units 1A & 1C Douglas Drive, Catteshall Lane, Godalming GU7 1JX  
Phone: +44(0)1483268269  
Email: [enquiries@igas-ts.com](mailto:enquiries@igas-ts.com)

# Our Values

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SCAN ME

