SUCCESS STORY

Electronic Fuel Management System (SAEC) for PEMEX

Implementation of an advanced fuel monitoring and control system for vessels, complying with PEMEX's requirements for tenders that mandate an SAEC system.

PARTNER: OSP

CLIENT: PEMEX (Ciudad de México, México)

vNode

Introduction

This project aimed to meet PEMEX's fuel consumption monitoring and control requirements through the implementation of the Electronic Fuel Management System (SAEC). By integrating vNode and atvise®, OSP developed a solution that provides real-time, detailed information on diesel supply and consumption in PEMEX vessels.

This solution optimizes fuel control, facilitates regulatory compliance, and ensures data backup for audits and analysis. Additionally, it enables clients to participate in tenders by meeting the required specifications.

Integrator

Obras y Soluciones Petroleras (OSP) is a Mexican company with over 20 years of experience in the oil and gas industry, specializing in technological solutions for process monitoring and control. Their expertise includes automation project design and execution, technical support, and specialized training. OSP offers personalized support, ensuring that their solutions are tailored to each client's operational needs.

Contact details:

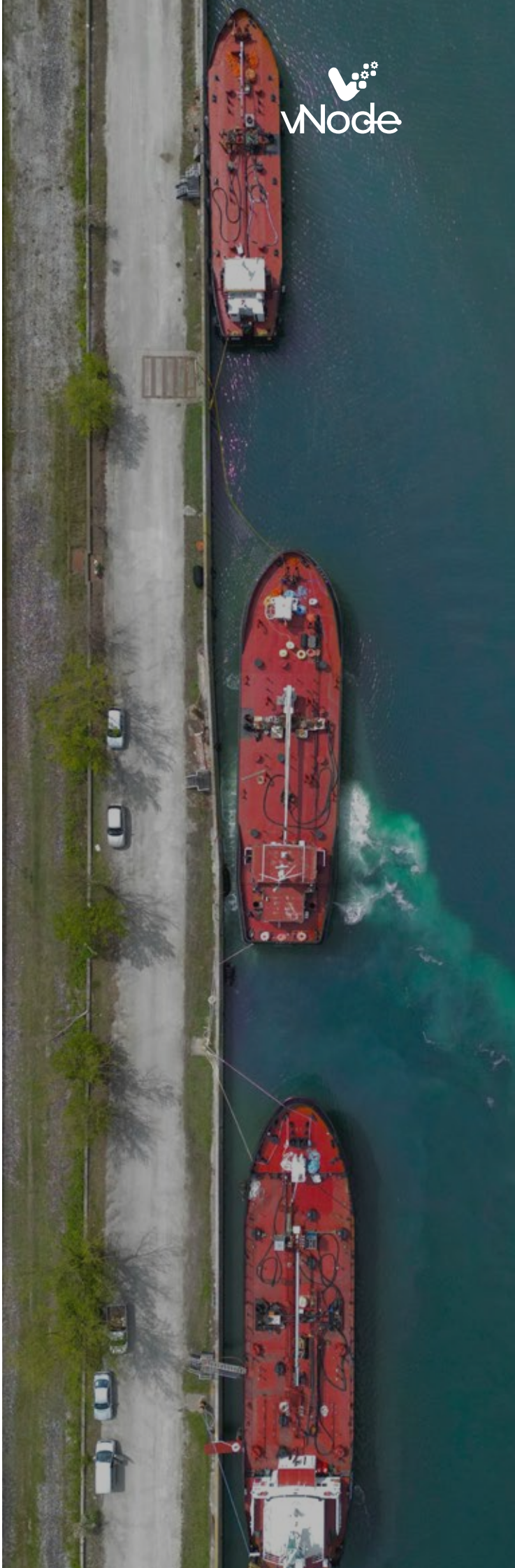
www.ospg.com.mx

osp@ospg.com.mx

compras@ospg.com.mx

+99 3311 1501

86370, Comalcalco, Tabasco, Mexico.

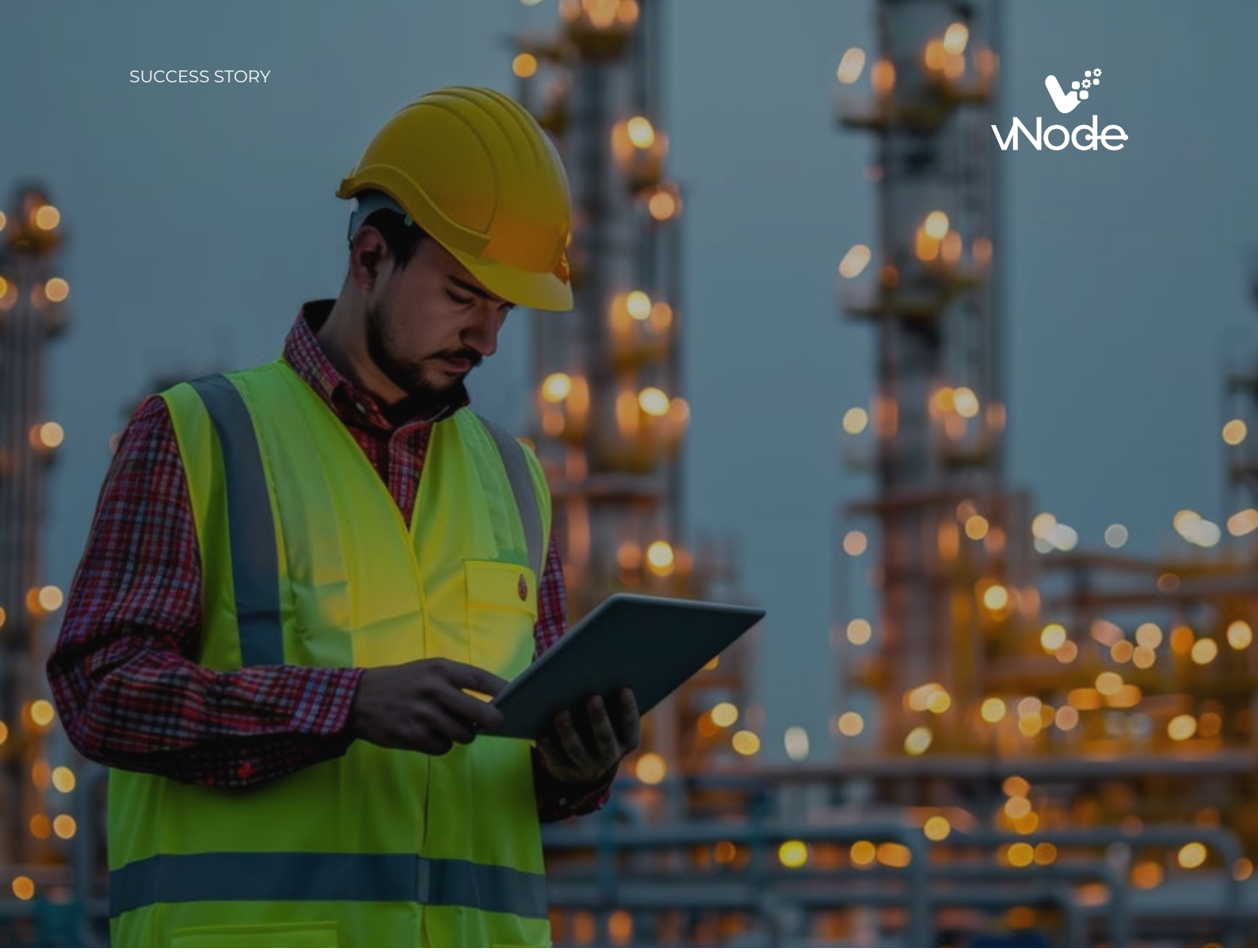


Objectives

- Comply with PEMEX's monitoring and control requirements for tenders.
- Implement a remote monitoring system with real-time access and secure data storage.
- Facilitate decision-making through real-time visualization and automated reporting.
- Ensure continuous and secure data transmission without information loss.
- Optimize fuel supply operations and logistics.

Challenges

- **Automation and Accuracy:** Centralized monitoring to eliminate error-prone manual processes.
- **Real-Time Integration:** Reliable connection of Coriolis flowmeters and level sensors.
- **Data Security:** Secure transmission and reliable storage of sensitive information.
- **User-Friendly Interface:** Intuitive platform for real-time analysis.
- **Alerts and Maintenance:** Automatic notifications for critical events.
- **Data Backup and Audits:** Guaranteed data storage and retrieval for regulatory compliance.



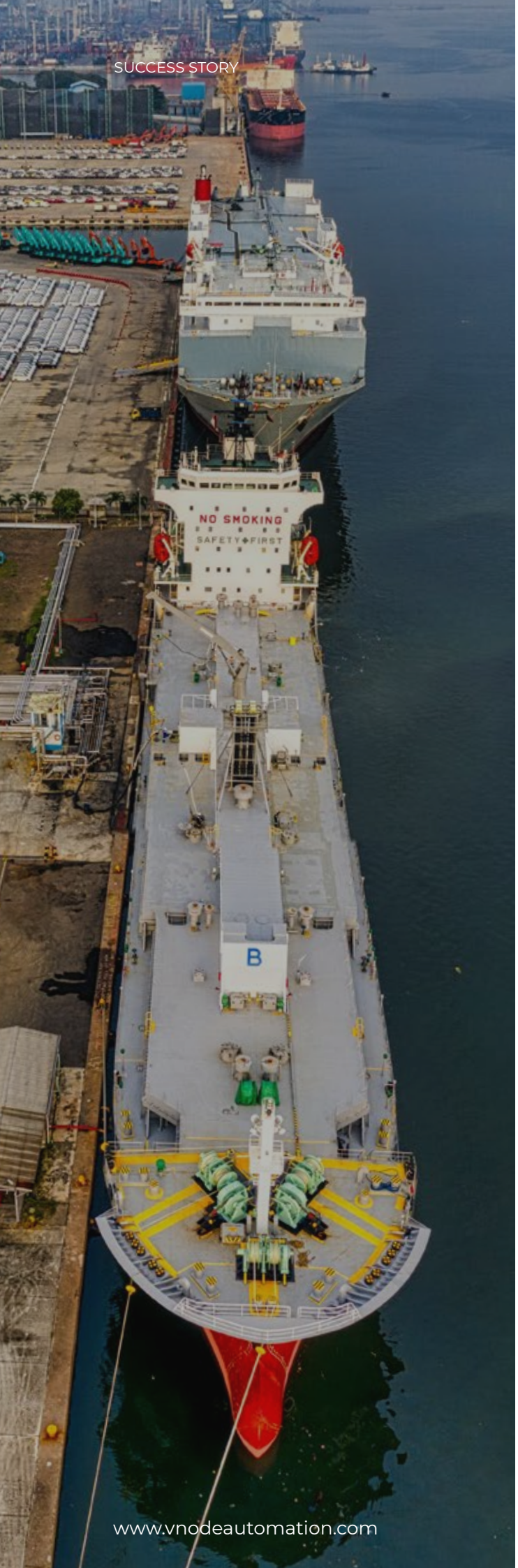
Background

Before the SAEC implementation, fuel consumption monitoring on PEMEX vessels was manual and localized, lacking remote connectivity and automation. Fuel supply and consumption records were manually logged, leading to a high risk of human errors and data loss. The absence of connectivity prevented operators from accessing real-time information, affecting decision-making and operational efficiency.

To modernize the system, PEMEX required a comprehensive solution ensuring accuracy, security, and regulatory compliance.

Solution

PEMEX needed an electronic measurement system capable of remotely monitoring fuel supply and consumption on vessels, with real-time data access and secure online connectivity. By implementing vNode and atvise®, OSP delivered an advanced solution that automates data collection and ensures secure storage, significantly reducing human errors.



Technical Benefits of vNode and atvise®:

Seamless integration with vessel PLCs using native industrial protocols.

Native OPC UA connectivity, ensuring interoperability with other SCADA systems.

Optimized satellite bandwidth usage through data compression and efficient transmission algorithms.

Store & Forward capability, enabling local storage and data forwarding in case of communication failures.

Advanced SCADA interface developed in atvise®, featuring customizable dashboards and remote access.

Robust security, with TLS 1.3 encryption and certificate-based authentication.

The SAEC system enabled centralized data management on an intuitive, scalable platform, facilitating real-time supervision and providing advanced analytical tools to optimize fuel consumption. The integration of vNode ensured accurate data acquisition from multiple devices, guaranteeing reliable and uninterrupted data transmission.

Download the solutions for free

vNode IoT Gateway

atvise® SCADA

The implementation of these technologies also ensured compatibility with PEMEX's existing IT infrastructure, facilitating future expansions and integration with other monitoring and operational management systems.

> *"vNode has been key for reliable real-time data acquisition and transfer, enhancing fuel consumption monitoring and optimization in our operations.*
>
> -Miguel Monrroy, OSPG

Results

The implementation of the SAEC system allowed PEMEX to:

Meet tender requirements, ensuring transparency and reliability in fuel monitoring.

Reduce data acquisition and processing times, eliminating manual logs and ensuring real-time data availability.

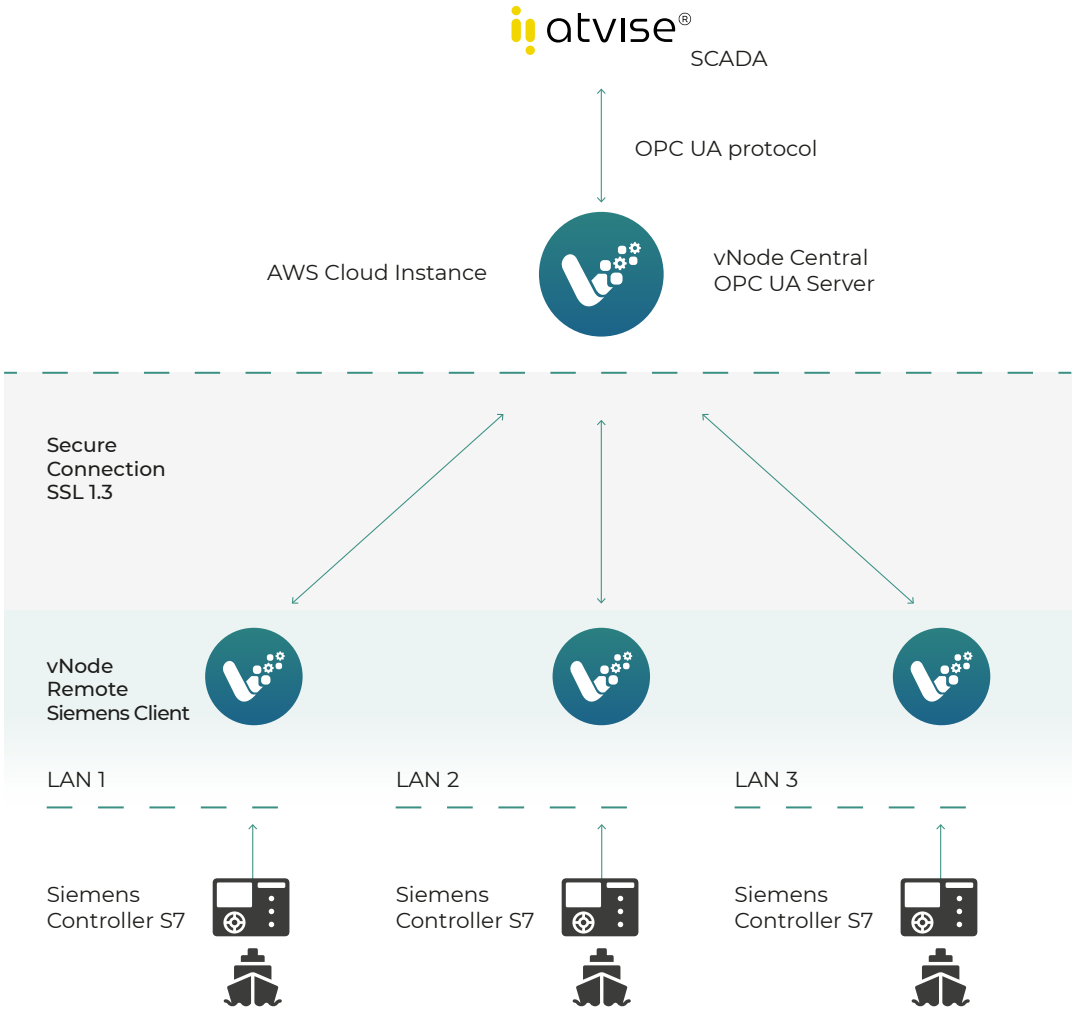
Improve decision-making with interactive dashboards and dynamic reports generated in atvise®.

Minimize human errors through process automation and continuous data validation.

Optimize operations and planning, with access to historical data and predictive analysis to enhance fuel supply logistics efficiency.

Ensure operational continuity with a backup and data recovery architecture that prevents critical information loss.

The impact of the implementation resulted in greater operational efficiency for PEMEX, with a significant cost reduction associated with fuel waste and lack of supply control.



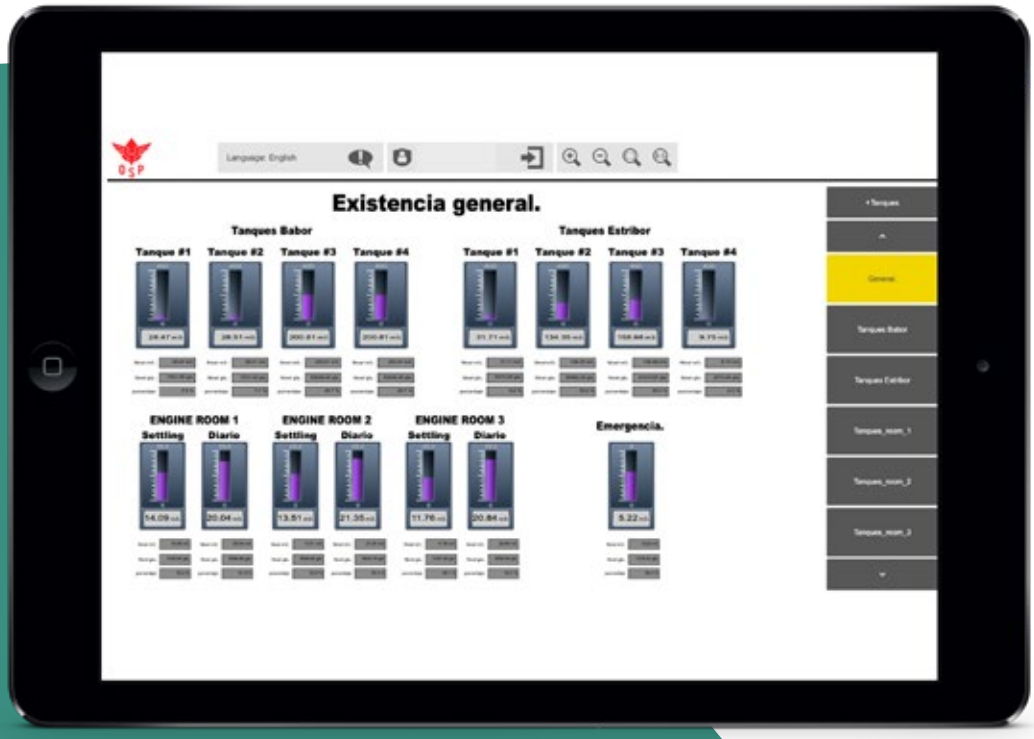
"The integration of a secure and flexible digital platform has facilitated the adoption of new technologies and improved fuel monitoring processes"

-Miguel Monrroy, OSPG

Conclusion

The implementation of SAEC on PEMEX's tendered vessels transformed fuel monitoring into an automated, secure, and efficient operation. From integrating measurement equipment to developing an intuitive interface and a real-time alert system, this solution has reduced errors, improved decision-making, and ensured regulatory compliance.

By combining vNode and atvise®, PEMEX has optimized its fuel management, guaranteeing reliability, security, and efficiency in its processes. The system's scalability also enables future expansion across other company operations.



"Thanks to vNode, an efficient and secure integration between field devices and the supervision platform has been achieved, enabling real-time data acquisition, alarm generation, and compliance with PEMEX regulatory standards"

-Equipo de PEMEX

Sales Contact:

info@vnodeautomation.com
sales@vnodeautomation.com
saleseurope@vnodeautomation.com

Vester Business USA
1549 NE 123 St, North Miami, FL, 33161,
United States
+1 (754) 755-0009

Vester Business Spain
Av Cerdanyola 92, 2da Planta Of 27, 08173,
Sant Cugat del Valles, Spain
(+34) 93 572 10 07

Vester Business France
672 Rue du Mas de Verchant, 34967,
Montpellier CEDEX 2, France
+33 (0)4 13 68 01 06

Vester Business Costa Rica
Ofimall 3er Piso, Oficina #57,
San Pedro de Montes de Oca, San José,
Costa Rica
(+506) 2225 2344

www.vnodeautomation.com