

 AKSELOS
SUCCESS STORY

**INCREASING ORV THROUGHPUT
WITH AKSELOS SPM**



EXECUTIVE SUMMARY

A class society-verified ORV re-rating delivered by Akselos and COSMI unlocks more gas from existing infrastructure for Adriatic LNG.

Adriatic LNG (ALNG) operates one of Europe's most critical LNG terminals.

Their 4 Open Rack Vaporizers (ORVs) are safety-critical assets that directly governs how much gas the terminal can send to market.

By safely increasing operating pressure from 78 → 90.1 bar, ALNG can deliver more gas through the same infrastructure, extend the useful life

of a key asset, and avoid tens of millions in potential replacement CAPEX — all with regulator-approved confidence.

This project is a first-of-its-kind, class-verified ORV re-rating using a structural twin in the LNG sector. It also establishes a repeatable Structural Performance Management pathway that can be applied across vaporization systems and other critical assets.



THE CHALLENGE: CAN AN ORV SAFELY DO MORE?

Adriatic LNG's 4 ORVs are essential to national energy delivery, but its operating envelope was defined years ago using conservative assumptions.

To increase throughput, ALNG needed to know whether ORV #3, after 16 years in service, could carry higher pressure over time without compromising safety, with evidence acceptable to Class and regulators.

Conventional assessment approaches and coarse models, while well-established, offered limited visibility into the true margins of an ageing, complex structure under higher operating pressures.

Success criterias:

- A Fitness-For-Service assessment aligned with **ASME VIII Div.2 Part 5**
- Proof that their ORVs could safely operate at **90.1 bar of operating pressure**
- A regulator-ready justification, verified by **Class**
- A method capable of evaluating the **full structural system**, not just local sections

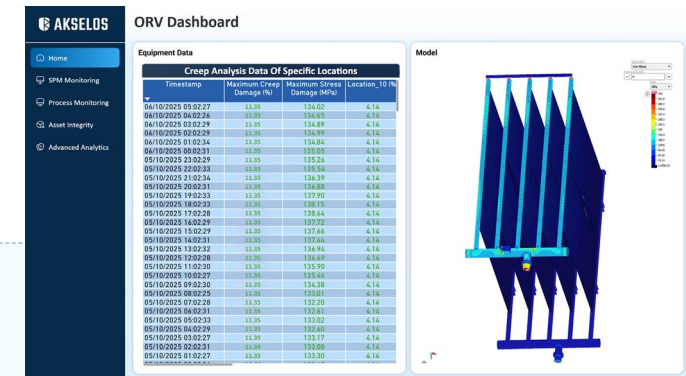
THE BREAKTHROUGH: A STRUCTURAL TWIN FOR ORV

Akselos applied **SPM*** to ORV #3, which allowed ALNG to:

- See the asset's real condition, unveiling its conservative integrity assumptions
- Evaluate the structural impact at 90.1 bar **pre-implementation**
- Monitor in real-time post-implementation, accounting for **ageing effects**, including permanent bending and thermal history, with **verifiable structural evidence** acceptable to Class and regulators

**What is Structural Performance Management (SPM)?*

SPM combines a high-fidelity structural twin with a patented Reduced-Basis Finite Element Analysis (RB-FEA) solver and physics-based AI to deliver actionable integrity insights, helping operators get more value from their steel assets.



VERIFICATION & CLASS APPROVAL

After using SPM, Akselos, COSMI, and **an Italian class society** assessed ORV #3's performance according to the success criterias above.

All criterias returned a PASS. ORV#3 could safely operate at 90.1 bar.

The classification society validated the methodology, load cases, and results. **COSMI, the prime contractor for maintenance of the terminal**, managed alignment with regulators and authorities. The relevant authorities then approved the operating pressure increase, and the 90.1 bar envelope is now fully approved, implemented, and operational at ALNG.

WHAT THIS UNLOCKS FOR ADRIATIC LNG (ALNG)

10%
THROUGHPUT INCREASE

Revenue Protection And Uplift

Raising operating pressure from 78 → 90.1 bar enables ALNG to send out significantly more gas through the same terminal, supporting both security of supply and revenue.

If applied SPM to all 4 ORVs, ALNG could see a 10% throughput increase, resulting in a net estimated value of €16M/year.

Extended ORV Life

High-fidelity structural insight showed that ORV #3 has more usable life than conservative estimates suggested, deferring the need for major replacement or overhaul.

If applied to all 4 ORVs, ALNG could save €32M from CAPEX deferral & avoidance

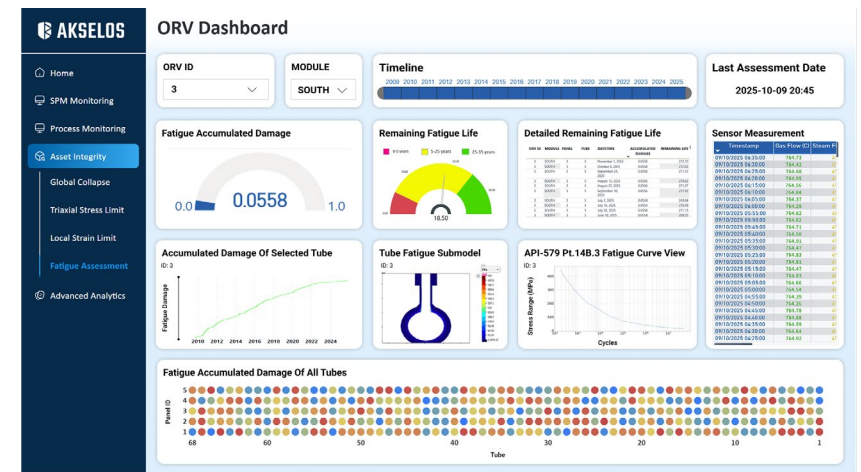
€32M
FROM CAPEX DEFERRAL & AVOIDANCE

BEYOND ALNG: €200M+ UNLOCKABLE STRUCTURAL VALUE

ALNG's outcome reflects a potential value lingering across LNG terminals and vaporization systems: **substantial structural value is often locked inside existing assets.**

Analysis across comparable operations indicates that more than **€200M in structural value** can be unlocked by:

- Safely increasing throughput where real structural margins allow
- Extending asset life and deferring large replacement programs
- Reducing unnecessary inspection and maintenance activity
- Operating with higher confidence in the true limits of ageing infrastructure



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