

SNAM strategic pipeline projects in Italy

Matteo Cheber, Snam, Rome, 01/10/2026

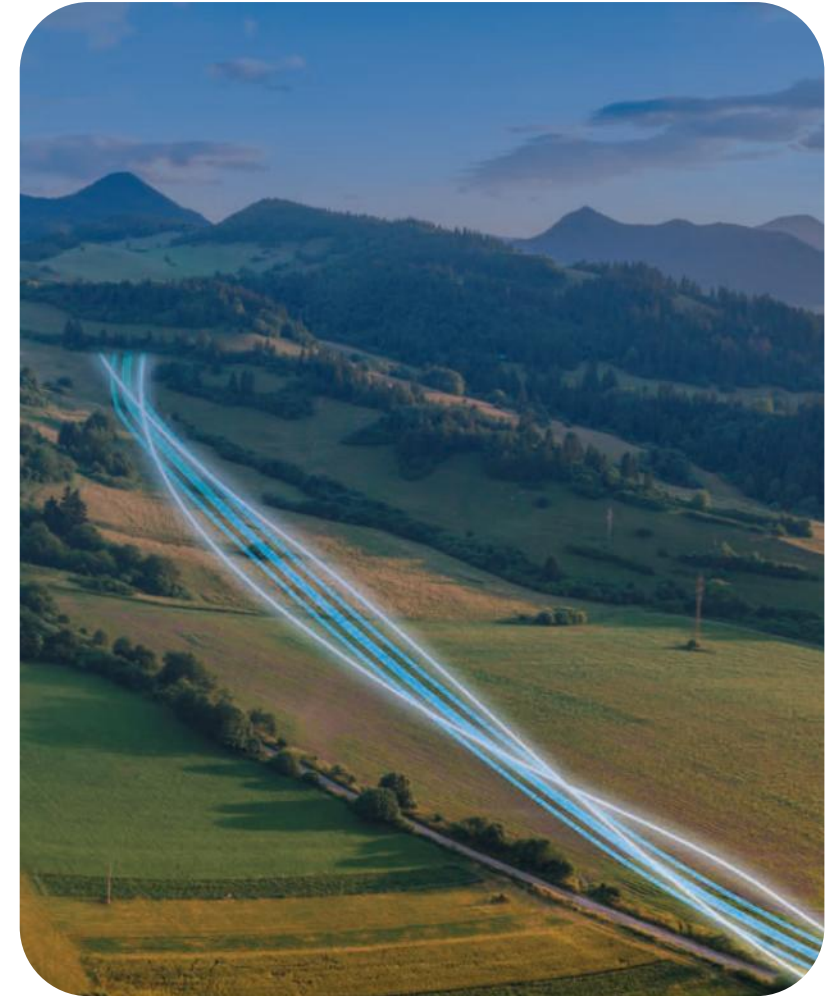


Overview of Snam Infrastructure Network



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- Italy relies on imports to meet more **than 80%** of its energy demand; in the case of natural gas, this share **exceeds 90%**. This situation makes it essential to maintain, and where necessary, strengthen supply infrastructure in order to ensure the continuity and security of the national energy system.
- Industrial competitiveness, in fact, depends on access to energy that is **secure, economically sustainable**, and **flexible**, supported by reliable and interconnected infrastructure.



Overview of Snam Infrastructure Network



- The main drivers for the development of the Snam network are: **security** of supply, **competition** and **diversification** of supply sources, **safe operation** of the network, market integration, extension of natural gas service to previously unserved areas and the fulfilment of new demand, environmental **sustainability**, and service **quality**.

Overview of Snam Infrastructure Network



- Italy's gas infrastructure system consists of more than **35,000 kilometres** of transmission pipelines, **13 gas storage** facilities, **5 LNG** receiving and regasification terminals, and a gas distribution network extending over 260,000 kilometres.
- Snam Rete Gas, Italy's largest gas transmission operator, **manages approximately 93%** of the national gas transmission network, corresponding to around 32,800 kilometres of pipelines.

Overview of Snam Infrastructure Network

- Snam, through its subsidiary **Snam Stoccaggio**, is the leading gas storage operator in Italy and one of the major operators in Europe. It manages **12 storage facilities** that operate in synergy with the Company's transmission and regasification assets, contributing to the security of the country's energy supply.
- The storage system helps **balance the differences between gas supply and demand**. While gas supplies, sourced from imports and domestic production, remain relatively stable throughout the year, gas demand is largely concentrated during the winter season. In addition, gas storage activities ensure the availability of strategic gas reserves, designed to mitigate potential disruptions or reductions in non-EU gas supplies and to help address temporary crises affecting the gas system.



Source: Snam website

Overview of Snam Infrastructure Network

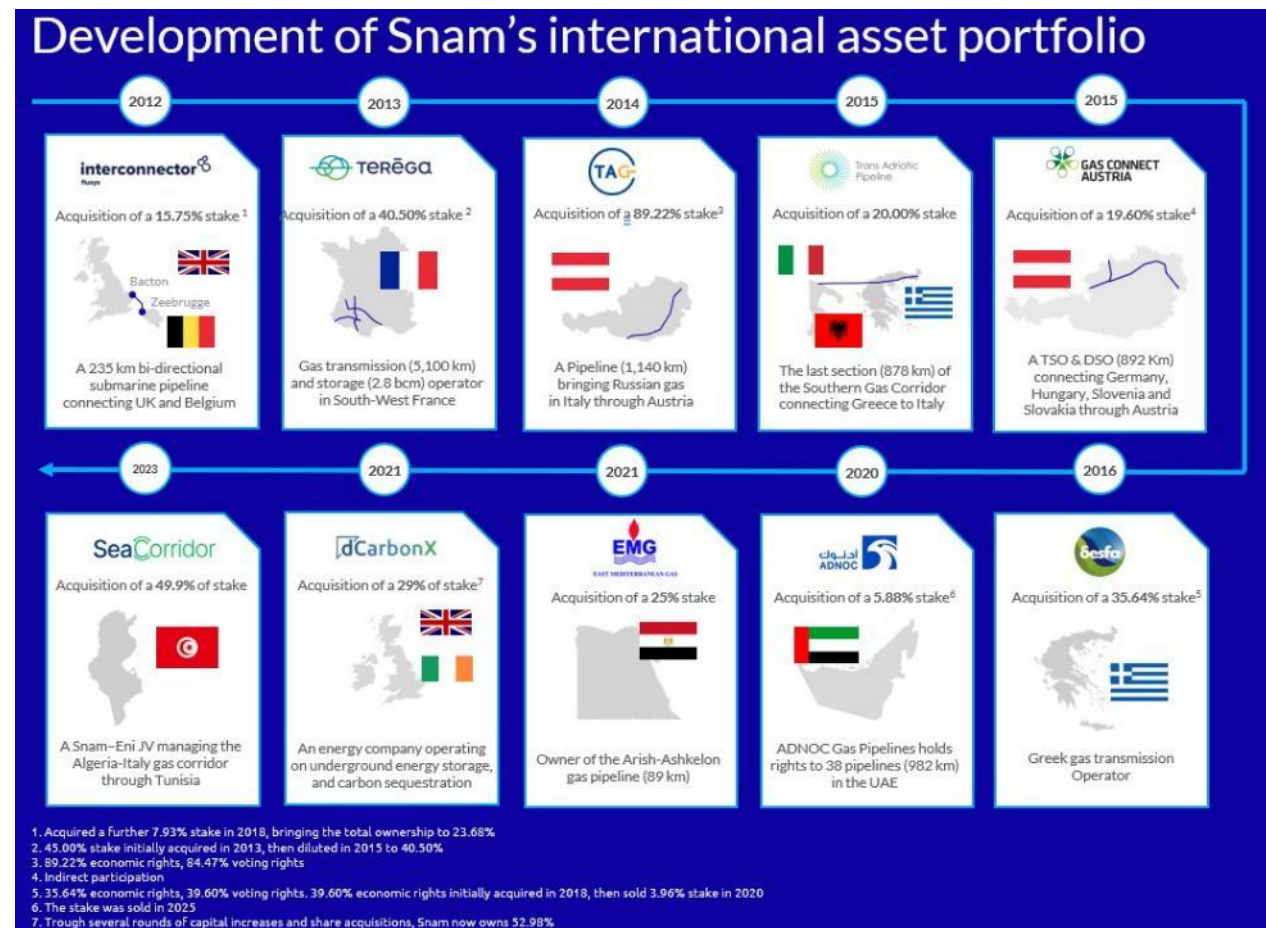


To import natural gas from distant production fields, it can be liquefied and transported by LNG carriers. Before it can be injected into the transmission network and used by end consumers, liquefied natural gas (LNG), which is stored at approximately -160°C , must be converted back into its gaseous state through a heat exchange process. Italy currently has **five operational regasification terminals**, with a total maximum regasification capacity of approximately 28 billion cubic metres per year. Through its subsidiary **Snam LNG**, Snam directly operates the Panigaglia, Piombino, Ravenna, and Livorno terminals, and also holds a 30% stake in the Porto Viro terminal, where it serves as the operator.

Overview of Snam Infrastructure Network

Snam main objective, in line with the 2026–2030 Strategic Plan, is to build an increasingly integrated, secure and competitive **Italian and European energy system**. To achieve this, we are strengthening our strategic infrastructure and proactively managing our portfolio of associates to create value for all our stakeholders.

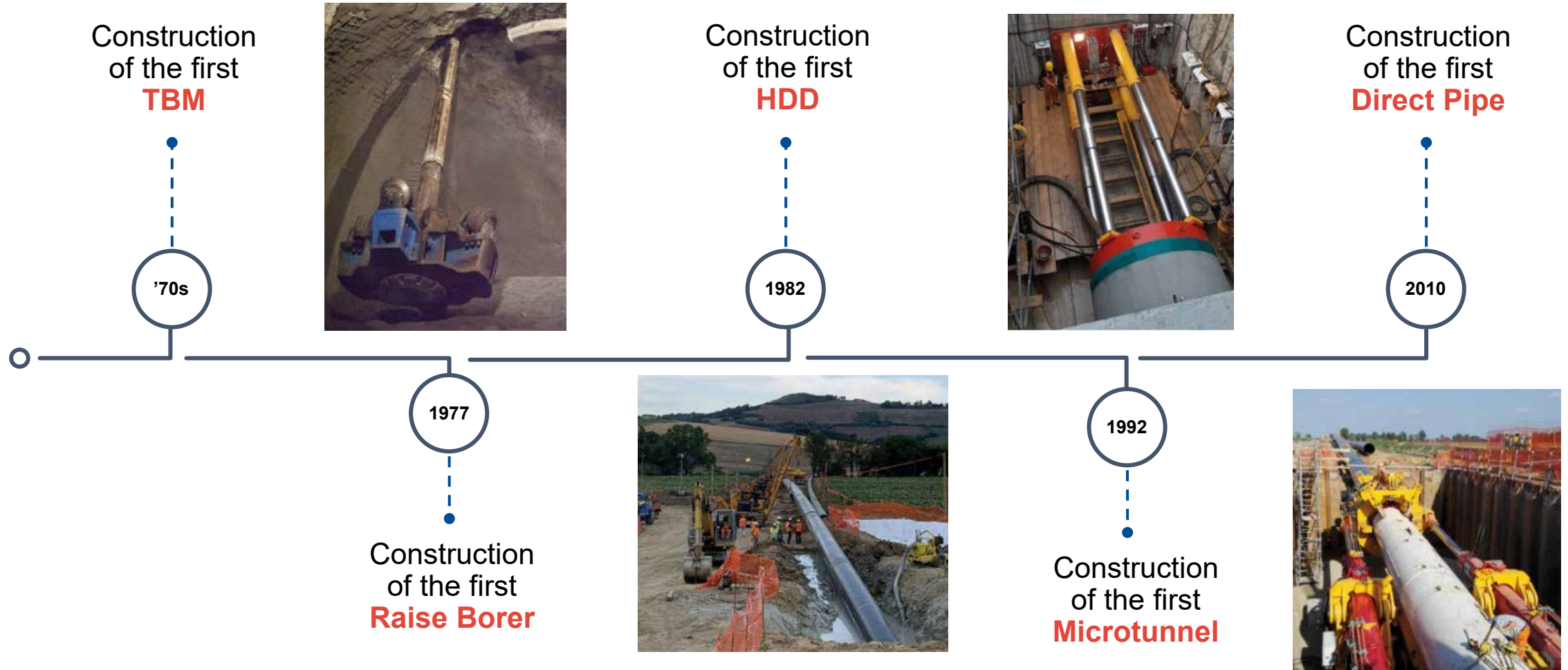
Since 2012, Snam has embarked on a structured path of **international expansion** based on targeted acquisitions and strategic partnerships with leading European and global gas infrastructure operators. This process is part of an industrial vision aimed at strengthening the integration of European energy markets, enhancing security of supply and leveraging Italy's role as a key hub for gas flows.



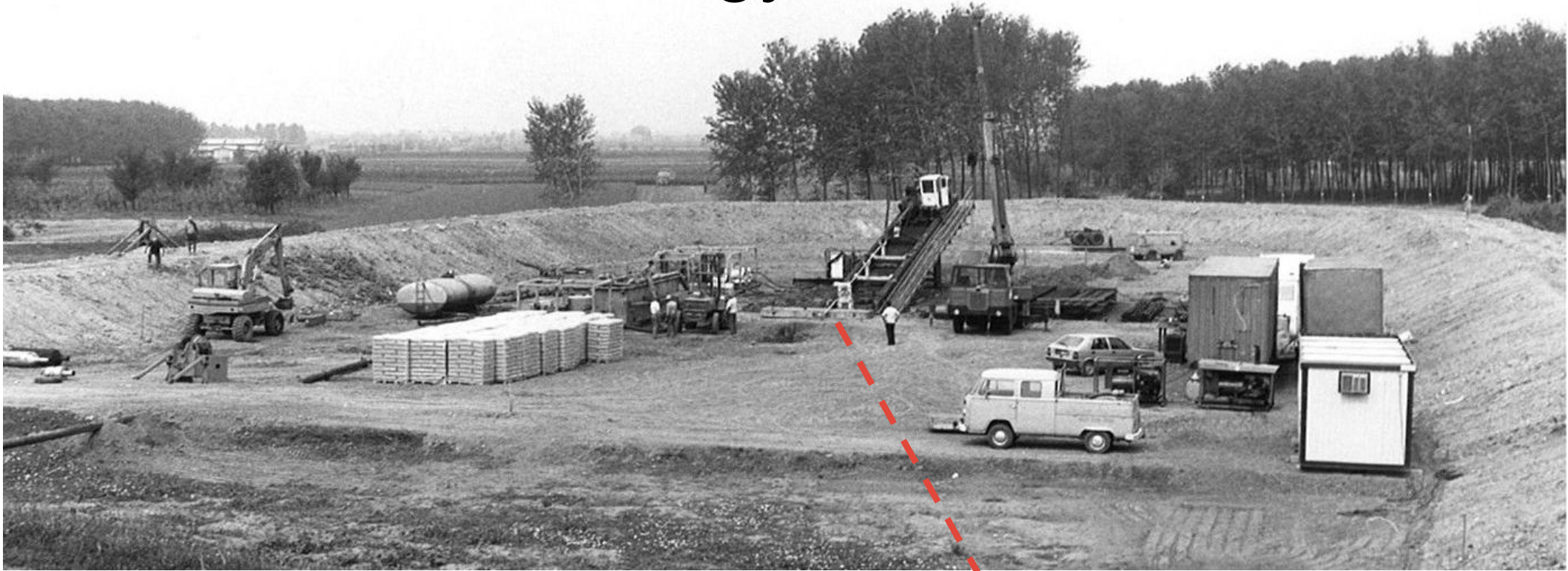
Trenchless technology at Snam



Trenchless technology at Snam



Trenchless technology at Snam



Sermide 1982 – Crossing of Po River

Allacciamento Centrale Enel DN 500 (20")

The first HDD crossing executed in Italy and the third in Europe

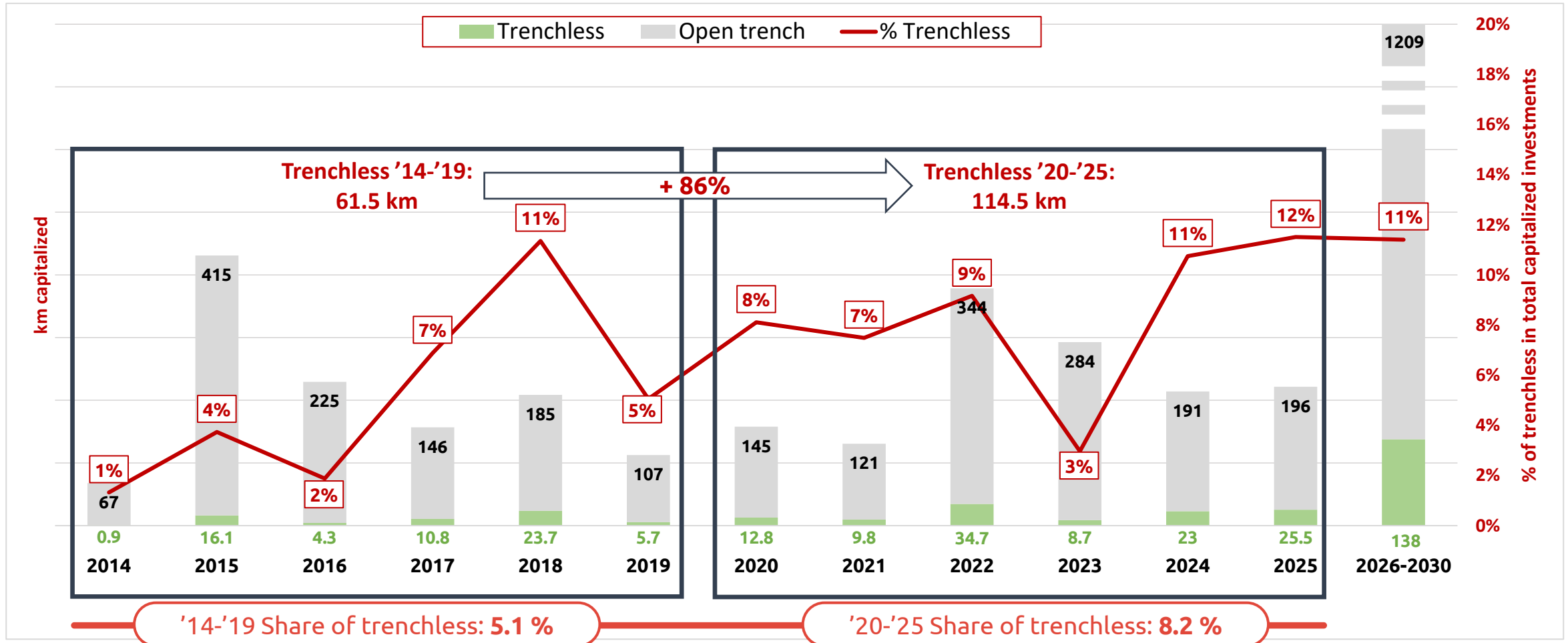
Trenchless technology at Snam

HDD was initially employed **exclusively for river and watercourse crossings**. Over time, its application was extended to the crossing of environmentally sensitive areas, including parks, Natura 2000 sites, forested areas, archaeological sites, hydrogeological risk zones, unstable terrain, roads and other critical infrastructures. This approach has enabled the **successful resolution of major design and construction challenges**, while also facilitating the acquisition of public and private permits. Today, without the availability of trenchless technologies, many infrastructure projects would simply not be feasible. Over the last four decades, hundreds of HDD crossings have been completed, for a total installed length of several **tens of kilometres**.

Sermide 1982 – Crossing of Po River



Trenchless technology at Snam



Trenchless technology at Snam

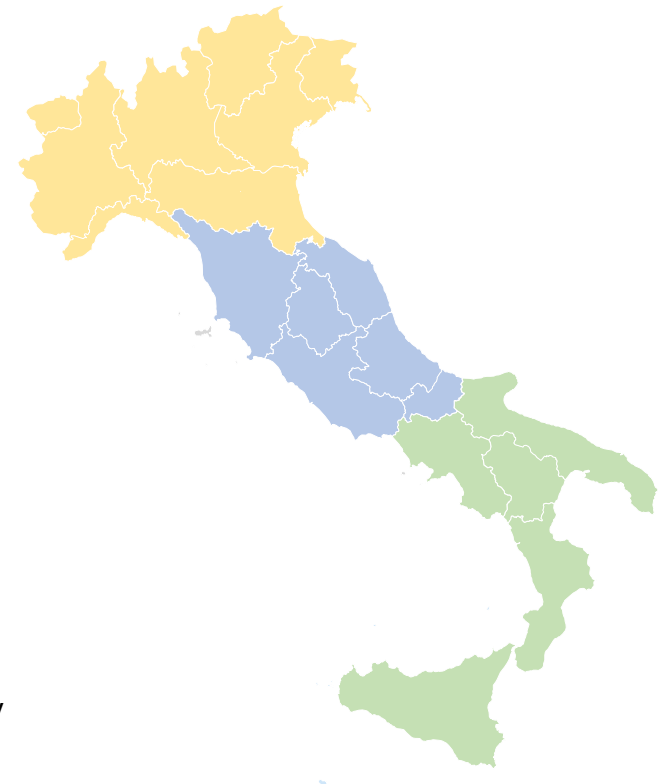
...**138 km** of trenchless will be brought into operation during the 2026-2030 period. About **90% of the crossings** will be constructed using **HDD** and **Microtunnel** technologies.



28 km in Northern Italy

88 km in Central Italy

22 km in Southern Italy



Livorno-Piombino Project



Livorno-Piombino SOW

The **Livorno–Piombino pipeline**, originally built in the 1970s along the Tuscan Tyrrhenian coast, forms the western section of the gas transmission system known as the “**Tuscan Ring**”, interconnected with the southern transmission backbone (**TransMed Pipeline**) at **Terranuova Bracciolini** in the north and at **Chiusi** and **Foiano della Chiana** in the south.

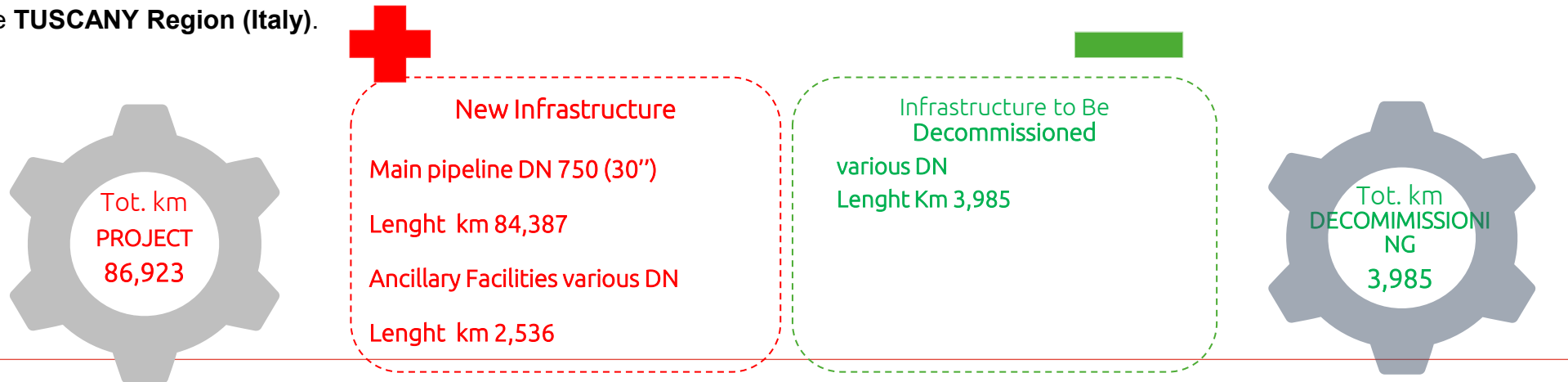
Due to its progressive aging, the existing Livorno–Piombino pipeline is no longer suitable, in the medium term, for **high-pressure gas transportation**, which requires strict structural integrity standards and compliance with increasingly demanding long-term reliability requirements.

The **New Livorno–Piombino Pipeline Project**, whose route is largely parallel to the existing pipeline, has therefore become necessary to ensure the continuation of high-pressure gas transportation services to the **Rosignano (LI) thermoelectric hub** and other key industrial customers.

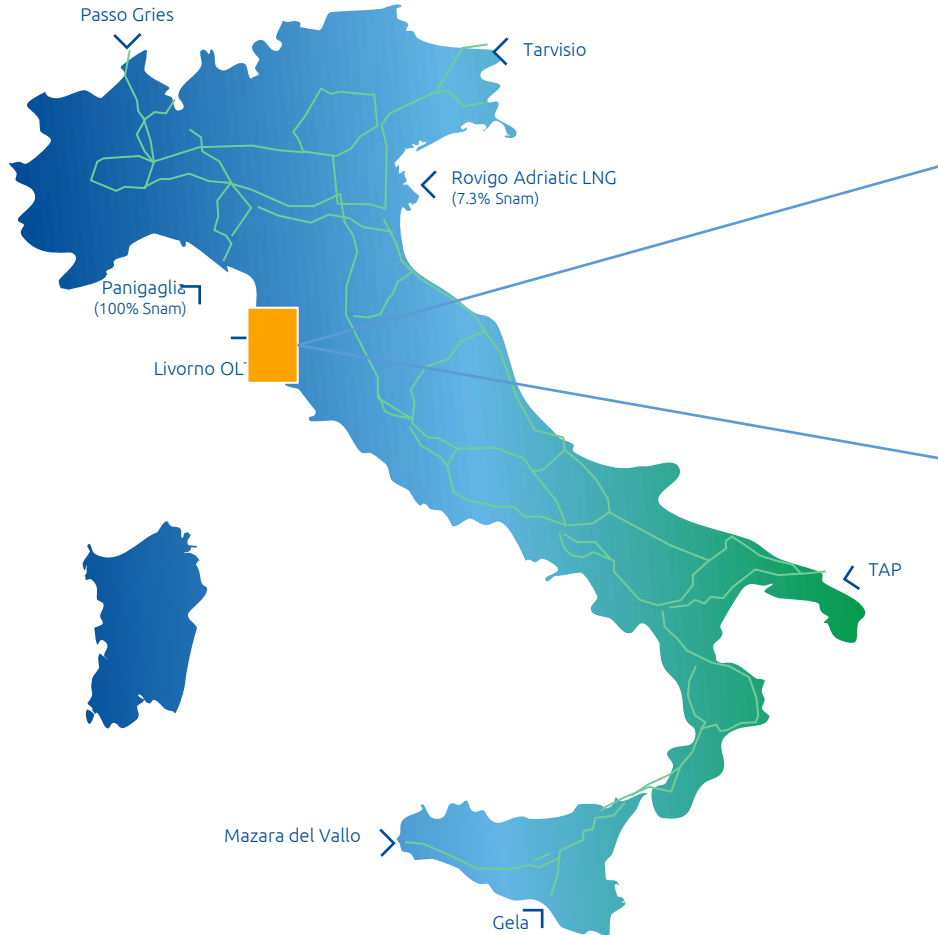
In addition, the new pipeline will preserve the current **high-pressure ring network configuration**, ensuring operational flexibility and security across the entire Tuscan regional gas transmission system.

Following its pressure downgrading, the existing pipeline will continue to support regional and local gas transportation, supplying customers with lower pressure requirements.

The project is located in the **TUSCANY Region (Italy)**.



Livorno-Piombino Project



Livorno-Piombino Pipeline | Project Progress Summary

PHYSICAL PROGRESS

69.6%

WORKING STRIP: 70.2 km

WELDING: 63.8 km

EXCAVATION: 55.4 km

PIPE LAYING: 51.4 km

Key Activities Status

Main construction lots and trenchless crossings HDD+MT*DP 14,26 km, 17% of pipeline length

HDD
No. 21



Completed: 13

In progress: 2

Trenchless crossings under completion.

PIPEJACKING
No. 84



Completed: 77

In progress: 2

Horizontal drilling activities partially completed.

6 MICROTUNNELS
& 1 Direct Pipe



Completed: 4

In progress: 2 MT + 1 Direct
Pipe

Microtunnel and Direct Pipe works currently ongoing.

Summary

The project shows measurable advancement across the main pipeline construction sequence, with welding and working strip activities more advanced than excavation and pipe laying. Trenchless crossing works are ongoing across HDD, drilling, microtunnel and Direct Pipe activities.

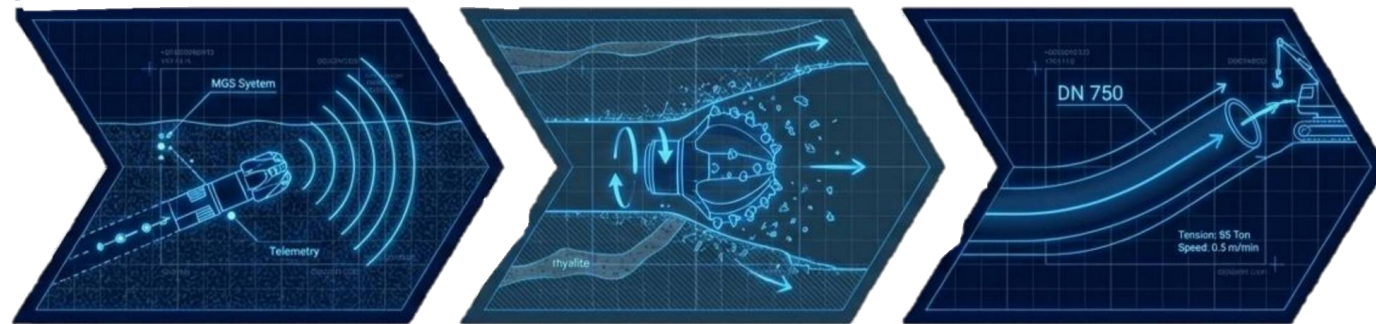
Case study 1: HDD Uliveto Podere San Bernardo

Contractor: Anese Srl



HDD used to safeguard the centuries-old olive grove
237.7 m twin crossing (DN 750 Gas Pipeline + DN 200 Service Line).
9.8 m drop between drill hub and lunch hub

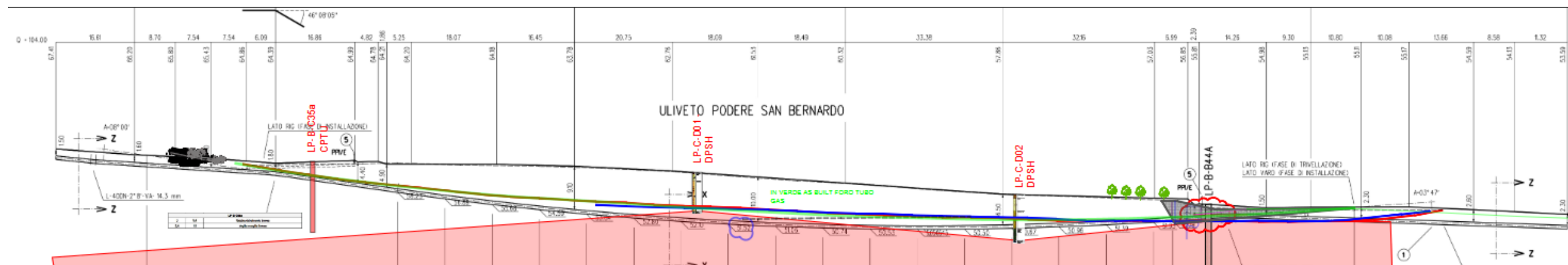
Challenge: Highly variable ground conditions (sands vs. rhyolites).
Pilot boreholes were drilled to use the drill head as a real-time mechanical sensor, identifying an optimal profile above the hardest rock layers while preserving surface integrity.



1. Pilot hole
Alignment validated by Geo-Probe investigations and continuously monitored through the MGS / ParaTrack 2 magnetic guidance system

2. Reaming
Reaming 24" to 40" from the downstream side to control pulling forces and drilling fluid pressures. Use of dedicated rock reamers to traverse rhyolite formations.

3. Pull back
Final pullback of the main pipeline successfully completed with a peak pull force of 55 tonnes.



DN 750



GEO 1 - DN 200



GEO 2



GEO 2 BIS

BORE-WRAP System HDD P. S. Bernardo



Application of the ARO System (Abrasion Resistant Outerwrap)

A sacrificial armor designed to withstand drag forces while passing through fractured rhyolite formations.

Maximum protection against SAIG forces (Shear, Abrasion, Impact and Gouge)

Ensuring the complete integrity of the pipeline's primary HDPE coating (2.5 mm) during the pullback of the 30-inch pipeline.

Case study 2: HDD Vigneto Frescobaldi

Subcontractor: Festa Spa



Project Overview:

HDD crossing designed to pass beneath the Frescobaldi premium vineyard

Crossing length: 298 m Average cover: 12 m

Classified as a high frac-out risk crossing due to shallow cover and geomechanically fragile formations.

Main Challenges: 5 frac-out events recorded during pilot hole and reaming operations.

Largest event affected approximately 400 m² within the vineyard. Event occurred approximately 150 m rig side at a depth of about 12 m.

Environmental Management: formal notifications submitted to authorities (as Dlgs. 152/06).

Characterization activities confirmed no exceedance of contamination thresholds (CSC).

Administrative process closed following restoration works and agreement with the landowner.

The largest frac-out was recovered using a vacuum excavation truck (suction excavator), allowing the safe collection of bentonite slurry while minimizing additional disturbance to the vineyard.

The crossing demonstrated the importance of combining geotechnical risk assessment, real-time drilling pressure control and rapid environmental response measures, including the use of suction excavators for bentonite recovery, to safely execute HDD works in environmentally sensitive areas.

Case study 3: HDD Fosso della Madonna

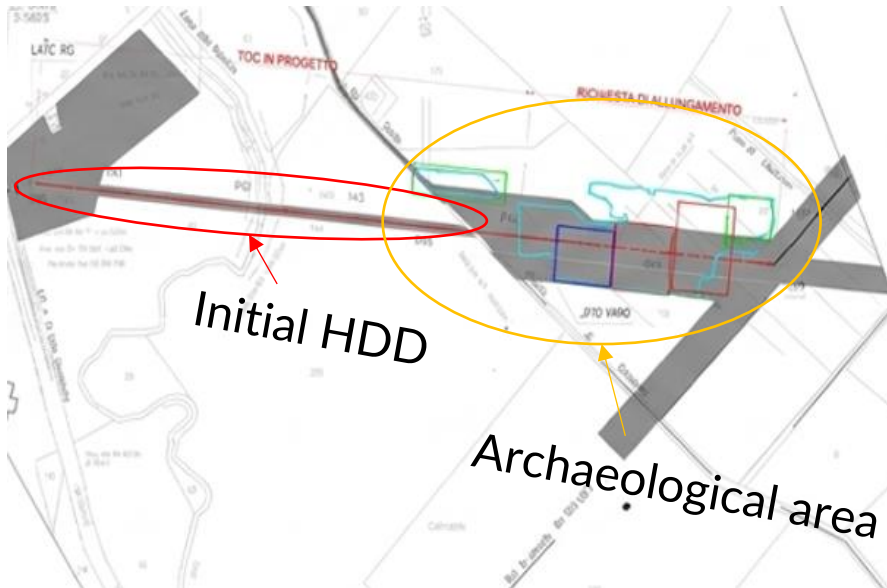
Contractor: Anese Srl

Roman villa remains identified along the pipeline planned alignment after the HDD «Fosso della Madonna»

The archaeological constraint required a clearer definition of the buried structures and their spatial extent before confirming the final TOC geometry.

GOAL

Preserve the archaeological area while avoiding construction delays and major pipeline rerouting.

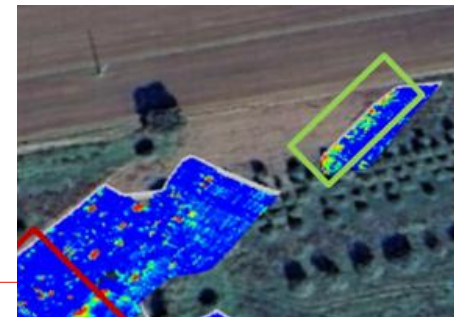
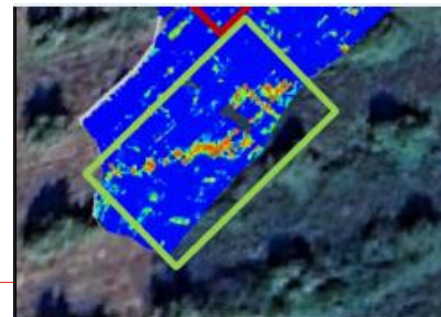


GEORADAR Survey to Define the Archaeological Extent

SURVEY PURPOSE

Delineate buried anomalies and identify the sectors requiring focused verification.

- 1 **Characterize** subsurface discontinuities and electromagnetic anomalies
- 2 **Assess** possible continuation of buried anthropogenic structures
- 3 **Support** the selection of a lower-risk TOC extension

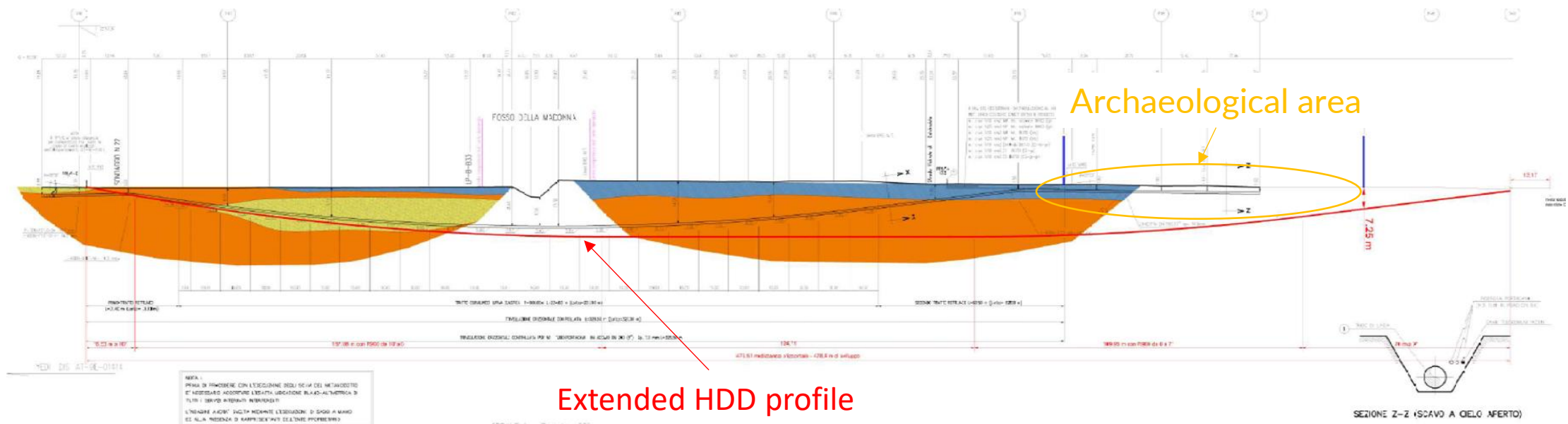


Solution

Extend the HDD from V40-P45 to V49

The longer trenchless section shifts the exit point beyond the main archaeological constrain identified along the corridor.

- ✓ Avoids the main archaeological interference
- ✓ Maintains the trenchless construction approach
- ✓ Reduces excavation within sensitive sectors



Closing remarks

Three different challenges. One flexible trenchless solution.



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Contractor: Anese Srl

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3. Pull back: Final pullback of the main pipeline successfully completed with a peak pull force of 55 tonnes.

01 Olive grove protection

Adapting the bore profile to variable ground conditions while safeguarding a centuries-old olive grove.

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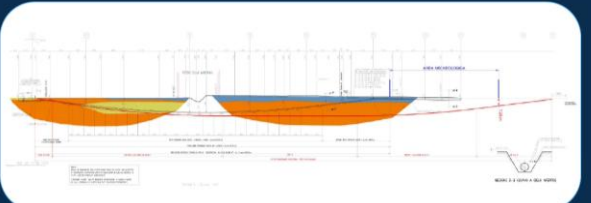
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02 Frac-out management

Combining geotechnical risk assessment, real-time pressure control and rapid bentonite recovery with suction excavators.

Profilo longitudinale della TOC
Sviluppo piano-altimetrico e attraversamento dell'area archeologica



03 Roman villa discovery

Extending the HDD beyond the archaeological area, preserving the remains without major pipeline rerouting.

HDD FLEXIBILITY

Adapting alignment, geometry and execution methods enables HDD to meet client needs and overcome unforeseen constraints.

Thank you for your attention

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Thank you for your attention

