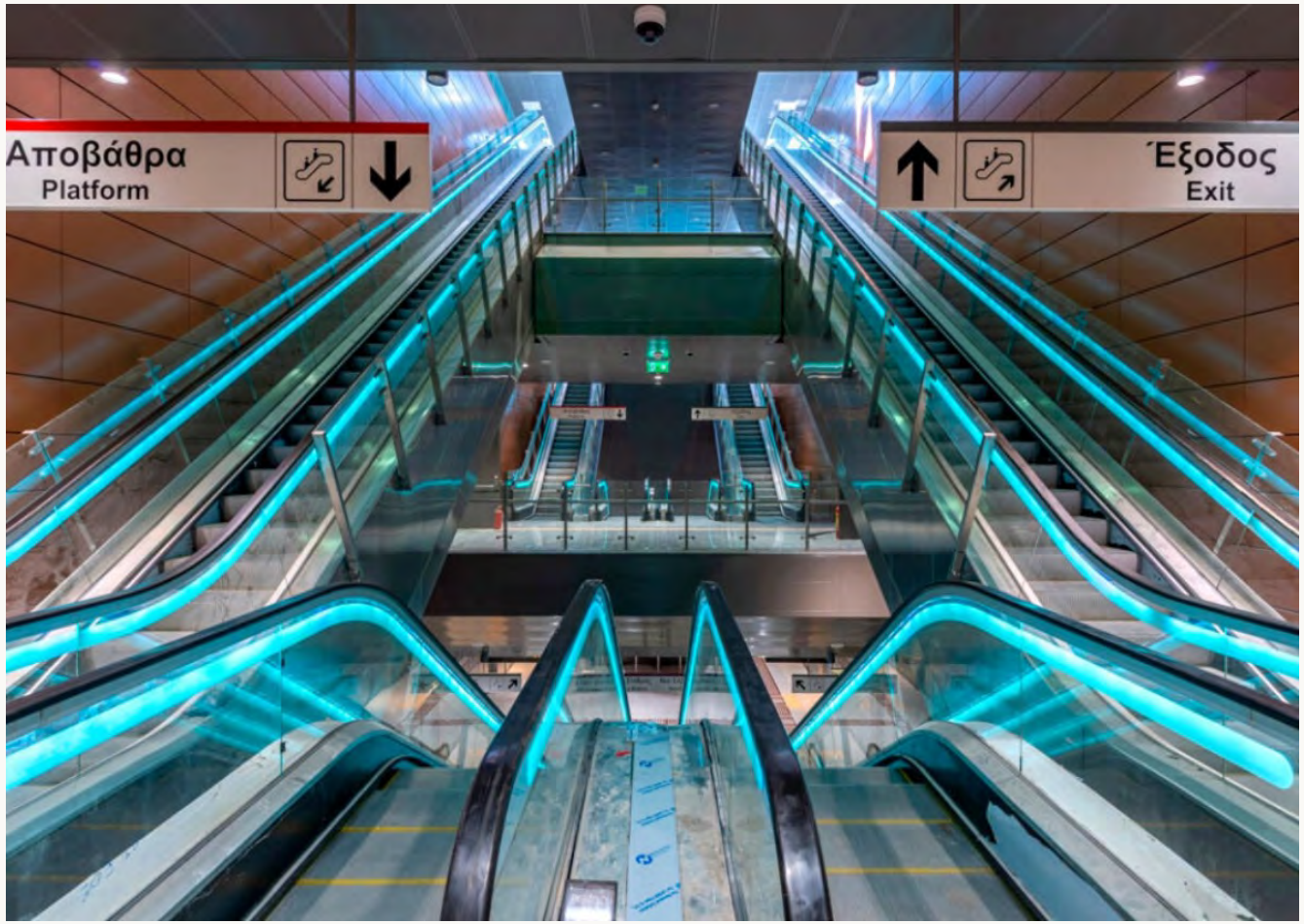


SESSIONS EUROPE : PROJETS & PERSPECTIVES

Tunnelling Projects in Greece

Andreas Benardos

President - GTS
Professor NTUA
General Manager ACUUS



Thessaloniki metro - Venizelou metro station

EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM
Austria · Belgium · France
Germany · Greece · Italy · Portugal
Netherlands · Spain · Switzerland

AFTES
ASSOCIATION FRANÇAISE DES TUNNELS ET DE L'ESPACE SOUTERRAIN

GREEK TUNNELLING SOCIETY

The Greek Tunneling Society:

Supporting Underground Development in Greece since 1995

The 20th century was an era of rapid development for Greece, especially concerning tunnelling and underground construction.

The expertise and technical knowledge gained through this “tunnelling rush” functioned as the **spark** that led to the establishment of GTS in **1995**.

Since then, the Greek Tunnelling Society has brought together :

- Academics
- Industry Professionals
- Major Stakeholders
- Students & Young Scientists/Engineers

across a wide range of disciplines focusing on promoting the advantages and opportunities of underground structures to fellow professionals and the wider public.



GTS’s original certificate of National Membership to the ITA, signed 07/05/1995



The boards of GTS and GTSym at the 30th anniversary of GTS

AFTES
AFTES 2026 LILLE Grand Palais 12-14 octobre
FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM

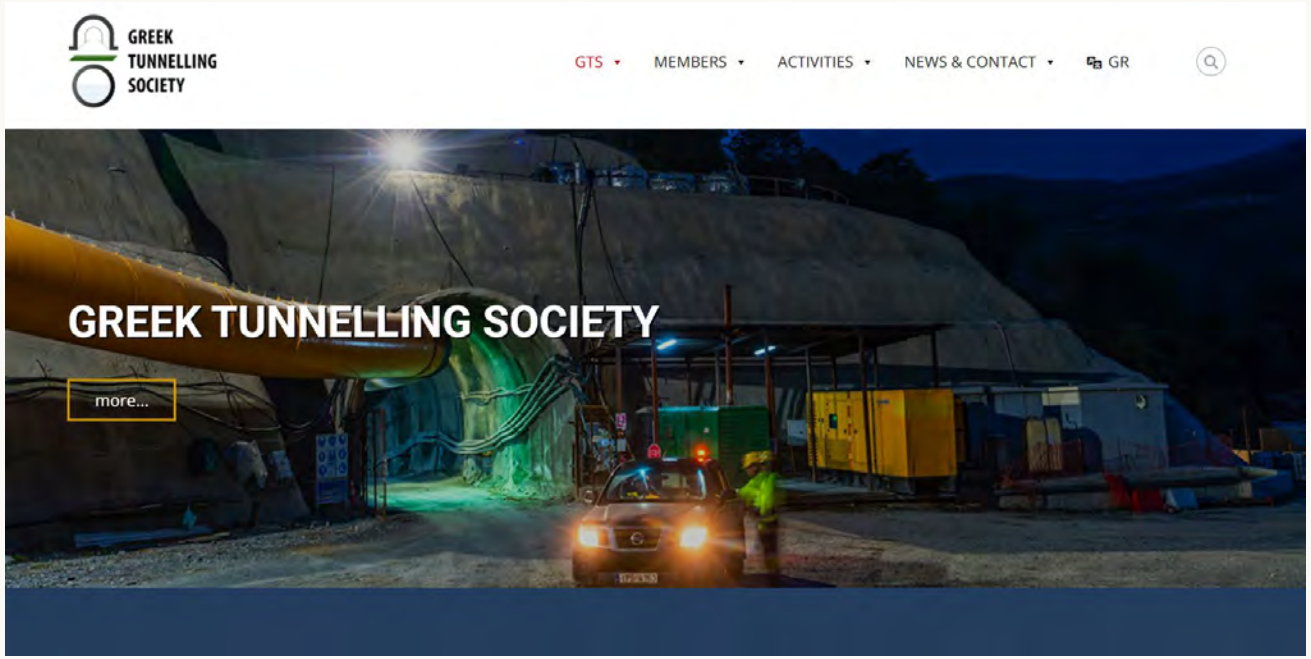
The Greek Tunneling Society:

Supporting Underground Development in Greece since 1995

In 2026, the family of GTS has grown larger than ever:

250 individual members

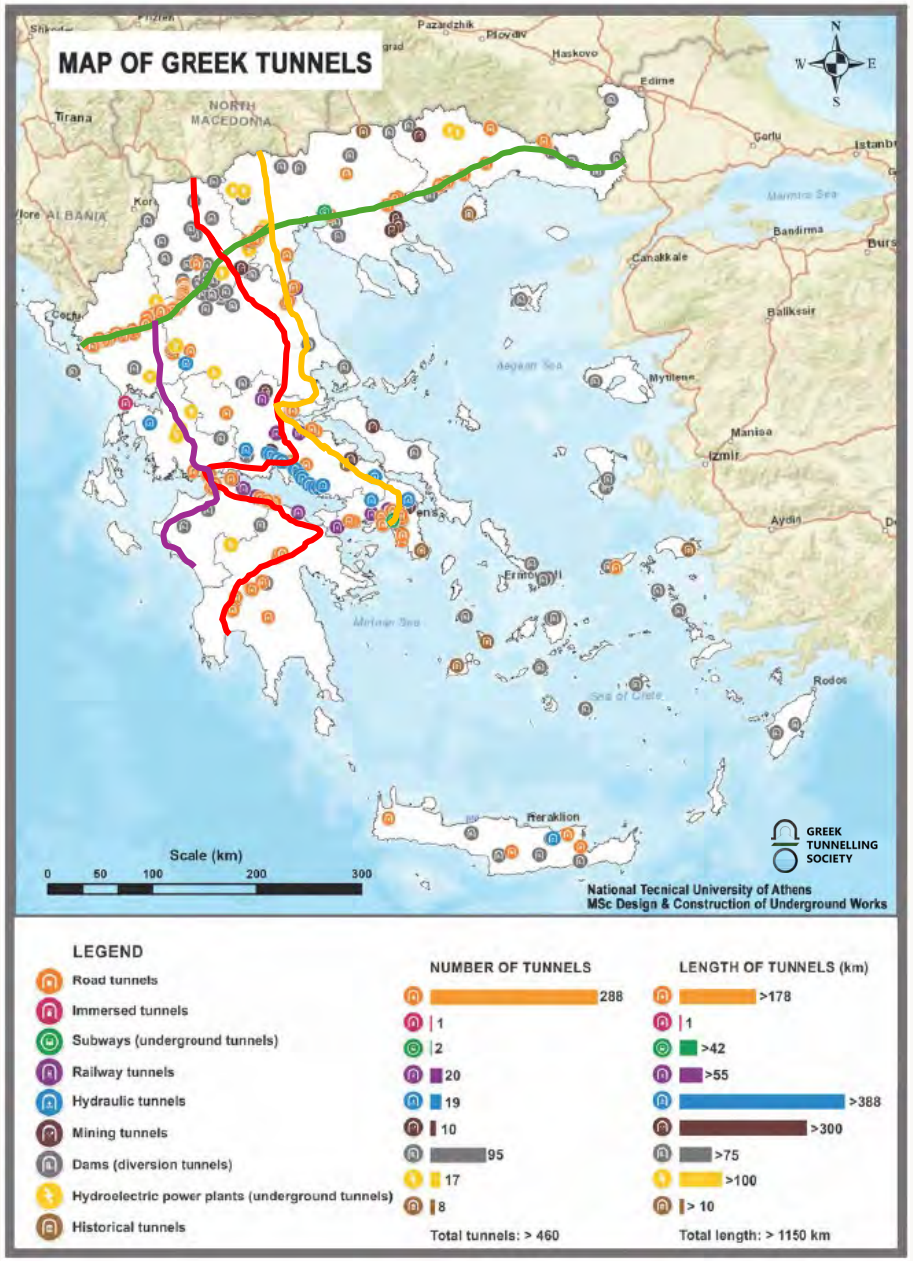
20 corporate members



Greek Tunnelling Society's website

ΕΛΛΗΝΙΚΟ ΜΕΤΡΟ Α.Ε. · TERNA · AKTOR · ΔΕΗ · ΕΔΑΦΟΣ · Omikron Kappa Consulting · PENETRON · roussos engineers · NAMA · fischer · utt MAPEI · HERACLES GROUP OF COMPANIES · Sika BUILDING TRUST · SOFiSTiK Hellas · HILTI · GRECIAN MAGNESITE ΕΛΛΗΝΙΚΟΙ ΛΕΥΚΟΛΙΘΟΙ · CHRYSO · ΕΛΤΕΡΓΑ ΕΛΛΗΝΙΚΑ ΤΕΧΝΙΚΑ ΕΡΓΑ Α.Ε. · geoMINE J&K · GR GEO

AFTES AFTES 2026 LILLE Grand Palais 12-14 octobre FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM



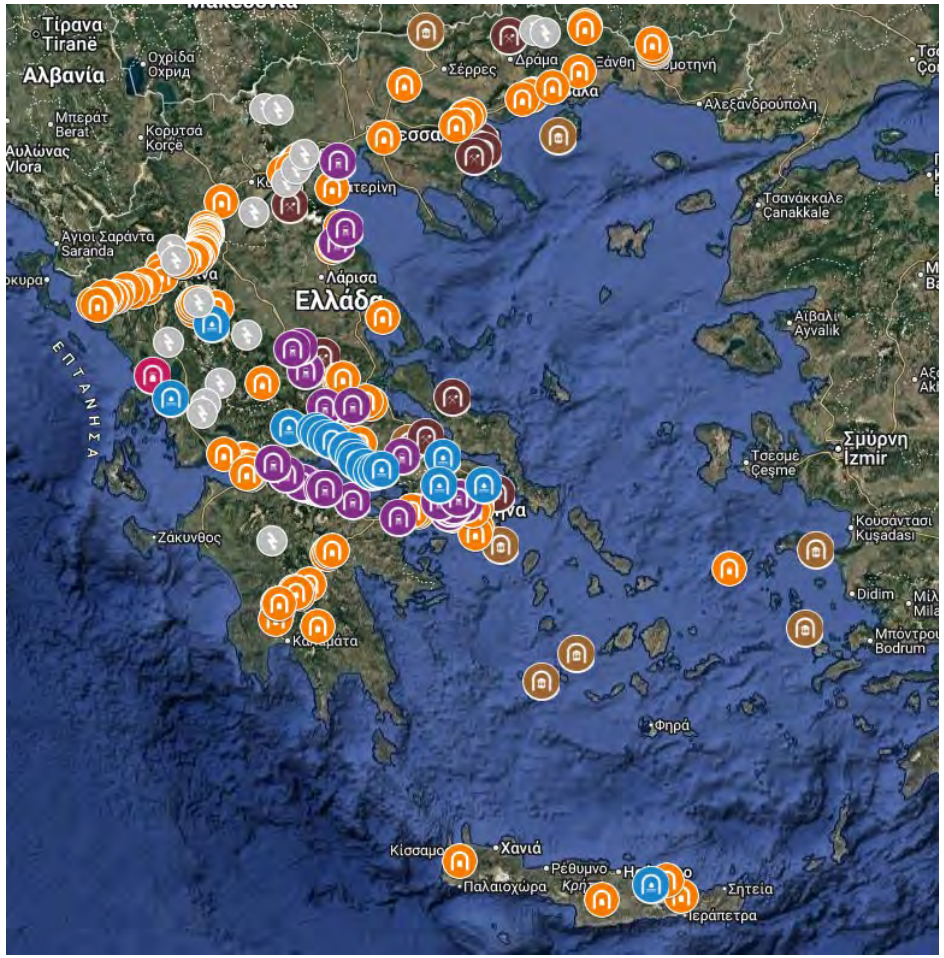
Greece's Underground Development:

Evolving Infrastructure from the 20th to the 21st Century

- Athens has the **2nd oldest underground/urban rail system in the world**, opening its first section in 1869, right after the London Underground.
- Underground projects were mainly related to hydroelectric projects in the 20th century.
- Frantic development of more than **1150 km** of tunnels (mainly road and railway), including 3 metro lines, since 1980.
- Among them, **Athens-Thessaloniki Highway**, **Athens-Patra Highway**, **Egnatia Odos** and the **E65 Highway (central Greece)** stand out, providing ease of access from east to west and from north to south.

Use the QR code to see interactive map registry

AFTES
AFTES 2026 LILLE Grand Palais 12-14 octobre
FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM



Greece's Underground Development:

Evolving Infrastructure from the 20th to the 21st Century

- Athens has the **2nd oldest underground/urban rail system in the world**, opening its first section in 1869, right after the London Underground.
- Underground projects were mainly related to hydroelectric projects in the 20th century.
- Frantic development of more than **1150 km** of tunnels (mainly road and railway), including 3 metro lines, since 1980.
- Among them, **Athens-Thessaloniki Highway**, **Athens-Patra Highway**, **Egnatia Odos** and the **E65 Highway (central Greece)** stand out, providing ease of access from east to west and from north to south.

Use the QR code to see interactive map registry

AFTES
AFTES 2026 LILLE Grand Palais 12-14 octobre
FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM

Urban Infrastructure:

The cases of Athens and Thessaloniki

As the nation's capital, having a metropolitan area of over 5 million inhabitants, **Athens** has constantly been in dire need of a robust and extensive subway system.

Since 1992, the **Athens' metro** has proceeded with the construction of Lines 2 and 3:

>90 km
of Railway Line

66
Stations Across 3 Lines

>240 million
Yearly Passengers

Likewise, as Greece's second largest city (800k inhabitants), **Thessaloniki's metro** has been officially inaugurated as of the end of 2024 while its 1st extension has been put in operation in August of 2026.

>9+5 km
of Railway Line

13+5
Stations Across the 1st line

>30 million
Yearly Passengers



Acropolis metro station, Athens Metro Line 3 (Elliniko Metro)


Venizelou metro station, Thessaloniki Metro Line 1 (Elliniko Metro)

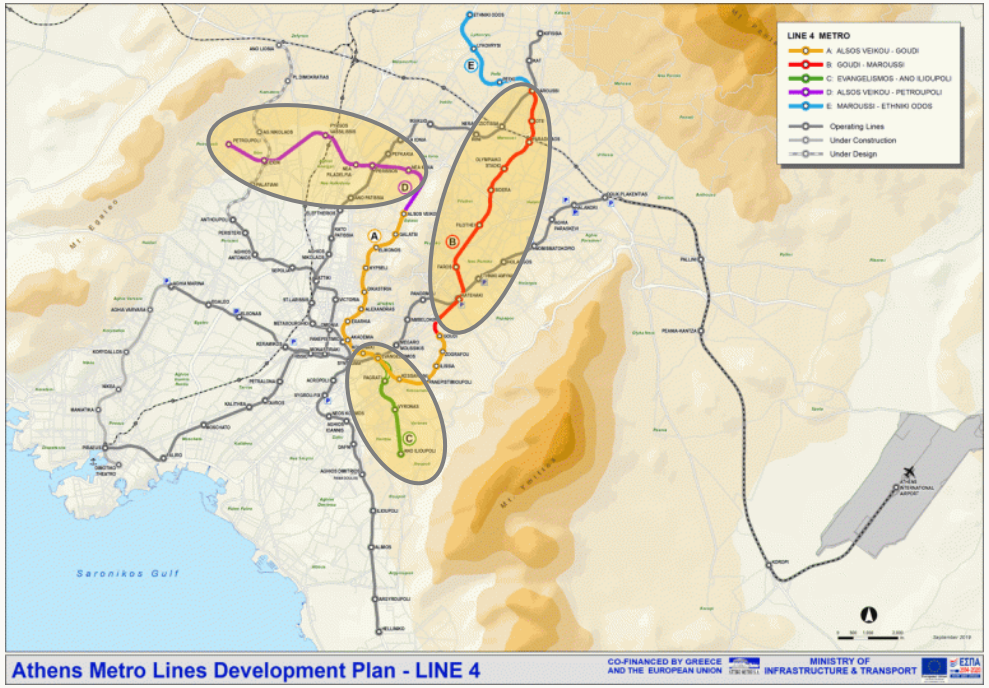
AFTES
AFTES 2026 LILLE Grand Palais 12-14 octobre
FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM

The future of the Athens and Thessaloniki subway systems

Regarding the Athens Metro, the new **Line 4** with a **total length of 38 km** and **35 new stations** is currently under development.

Specifically, **Section A** (Alsos Veikou – Goudi) of the new line 4 began construction in 2021, with **12.8 km of tunnels** and **15 stations** to be delivered in 2032. The section's budget exceeds **1.8 billion euro.**

Construction : AVAX – Ghella – ALSTOM Consortium



The Thessaloniki metro's first extension towards **Kalamaria** (Line 2) was completed in **August 2026**. It consists of **5 new stations** across **4.8 km** of railway lines.

The combined budget allocated for the first 2 lines of Thessaloniki's metro reaches **3 billion euro**.

Construction : AKTOR Group



AFTES
AFTES 2026 LILLE Grand Palais 12-14 octobre
FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM

Underground Solutions to Urban Problems: The case of Poseidonos Avenue

As part of the **Ellinikon Project**, a section of one of Athens' busiest highways will be moved underground

1.15 km long highway tunnel
Constructed using cut & cover method

3 lanes on each direction
6 lanes in total

Speed limit up to 70 km/hr

Construction has been undertaken by **AVAX.** Expected to be operational in **2028**, this new underground section will offer :

- **Unobstructed access** to the Athenian coastal front
- **Safer** and more controlled **traffic conditions** for drivers
- A direct **upgrade** to Athens' highway system



Future Trends in Greece's Urban Infrastructure:

Bypassing Dense Metropolitan Areas



Rising population and subsequent traffic is driving the need for more extensive highway networks.

Regarding Athens, authorities are looking into 2 prospective projects that will require expertise in **underground works**.

Oinofyta – Elefsina Bypass

A **45 km highway** through a highly **mountainous** landscape offering drivers a complete bypass of the Athens Metropolitan Area

This solution will offer a **direct connection** between the North and South of Greece without the need for transit through the capital's road network.

Katechaki – Vouliagmenis Tunnel

A **3 km tunnel** through a dense urban area connecting two of Athens' busiest road arteries. Proposed plans mention a section with 2 lanes per direction, bringing the tunnel's width to a total of **4 lanes**.

AFTES
AFTES 2026 LILLE Grand Palais 12-14 octobre
FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM

Overhauling the road network of Greece’s largest island :

Crete’s VOAK project (Northen Road Axis Network)

Crete is Greece’s **largest** and **most populated** island as well as a top travel destination. Yet it is plagued by an outdated road unfractured resulting to severe accidents and increased travel times.
The island’s new highway is one of Greece’s most anticipated construction projects with **extensive underground works**.

Construction is under way, divided between 3 of Greece’s largest contractors (TERNA, AKTOR, METKA).

With a total budget of about **2 billion euro**, the project is expected to be complete in **2031**, reducing in **half** the travel time to reach all major cities in the island.



Selinari Twin Tunnels Portals (AKTOR)

≈300 km
Total Length

21
NATM Tunnels

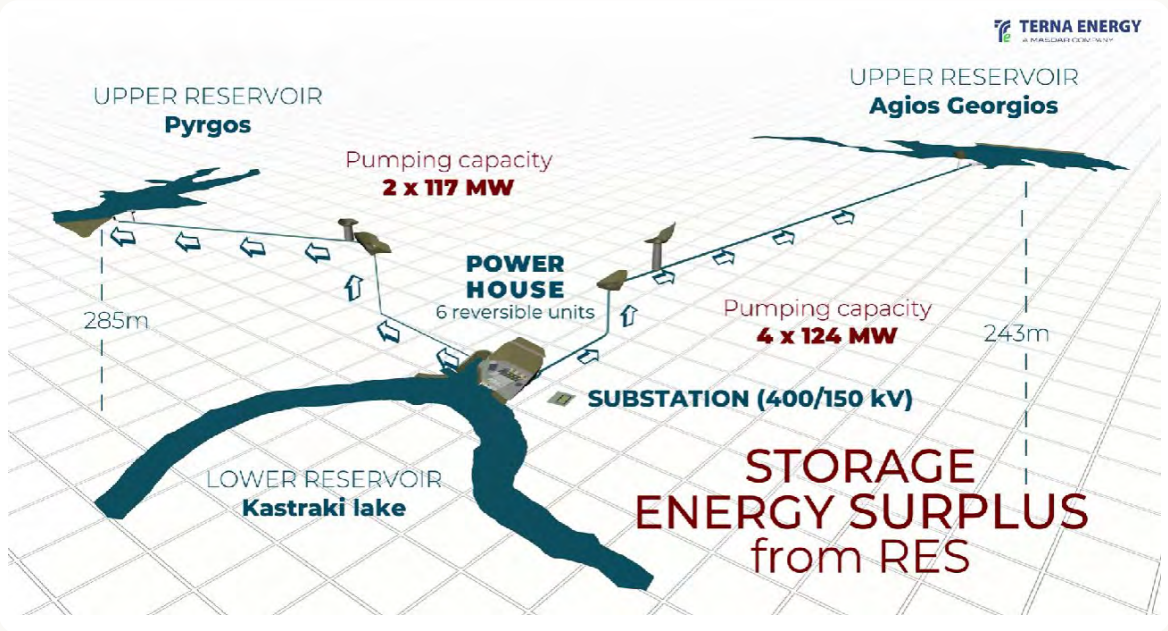
18
Cut & Cover Tunnels





Selinari Tunnels Construction (AKTOR)

AFTES
AFTES 2026 LILLE Grand Palais 12-14 octobre
FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM





Agios Georgios Reservoir Tunnel (Terna Energy)



Agios Georgios Surge Shaft (Terna Energy)

Clean Energy & Underground Works:

Pumped Hydro Storage in Amfilochia

Greece's underground development meets clean energy in a new **Pumped Hydro Storage** project in Amfilochia, Western Greece.

Developed by TERNA ENERGY, the project incorporates a plethora of underground facilities :

- **2 penstocks - water tunnels** with a total length of ≈4.4 km
- **6 shafts**, with the deepest reaching 230 m
- An **underground power station**, 40 m below the lower reservoir's water level

The project's **680 MW** production and **730 MW** pumping capacity will start offering **≈816 GWh** of renewable energy annually to the country's energy mix by **2027.**

With a budget that exceeds **600 million euro**, the current project is one of Greece's largest renewable energy endeavors to date.

AFTES
AFTES 2026 LILLE Grand Palais 12-14 octobre
FACE AUX DÉFIS, LES SOLUTIONS SOUTERRAINES
TEMPS FORT Sessions Europe Projets et Perspectives
EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM

French presence in the Greek infrastructure sector :

Major stakeholders showcasing long-lasting Greek-French bipartisanship

Motorway & Bridge Construction - Operation

Financing, construction and operation of major Greek infrastructure development projects

- **Olympia Odos (Athens-Corinth-Patra-Pyrgos)**
- **Aegean Motorway** (central Greece)
- **Gefyra** - Rio-Antirrio / Charilaos Trikoupis bridge (longest bridge of its kind, globally)

Metropolitan Railway Systems

Consortium member for

- **Athens Metro Line 3 -** Extension to Piraeus
- **Athens Metro Line 4A**

Significant contribution to the Greek capital's metro system

Operation & Maintenance for Urban Transport Projects

Strategic Partner of GEK TERNA in major concession road / transportation projects

- **New Egnatia Higway Operation** (O&M)
- **Attiki Odos / Attikes Diadromes** (O&M)

Conclusions

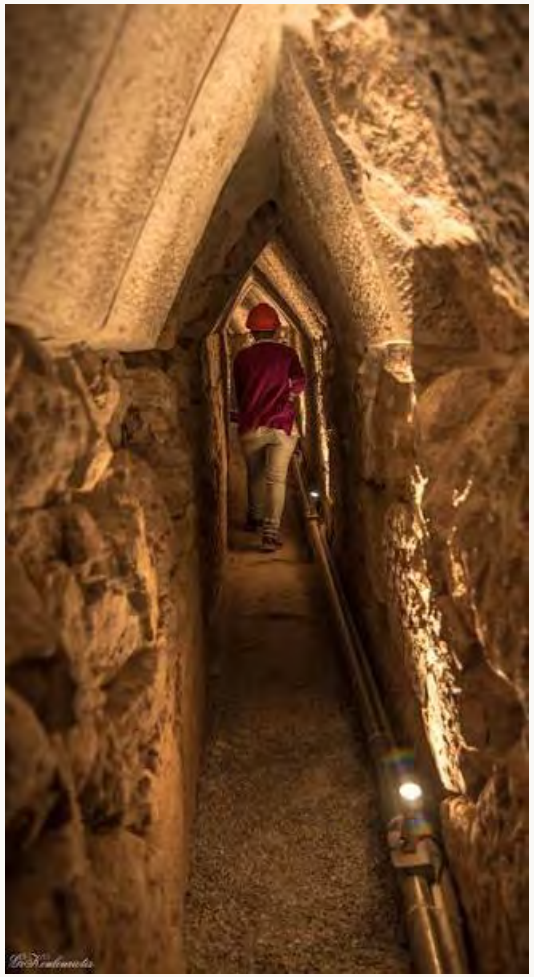
Greece is currently witnessing a surge in its construction industry with a heavy focus on **underground solutions**, covering the ground lost in the previous 15 years, as a result of the economic crisis.

The industry is currently focusing on certain key areas :

- **Urban Development** (metro and road tunnel projects)
- **Nationwide Infrastructure** (Highways, Railroads etc.)
- **Upgrading Energy Facilities** (e.g. Pumped Hydro)

The country's workforce and major industry stakeholders possess **significant knowledge** and **technical expertise** gained through **decades** of underground development.

Above all, our ambition remain strong to further utilize the underground space for the benefit of society.



The Eupalinos Tunnel, one of the oldest documented hydraulic tunnels (6th Century BC), situated in the island of Samos, Greece (G. Koulouriotis)



TBM Breakthrough at Evaggelismos shaft, Athens Metro Line 4A – February 2026 (AVAX)



THANK YOU!

Presenter:

Andreas Benardos

abenardos@metal.ntua.gr

GREEK TUNNELLING SOCIETY

EUTF EUROPEAN UNDERGROUND & TUNNEL FORUM
Austria · Belgium · France
Germany · Greece · Italy · Portugal
Netherlands · Spain · Switzerland

AFTES
ASSOCIATION FRANÇAISE DES TUNNELS ET DE L'ESPACE SOUTERRAIN