## Underground Works in Greece in 2011

1.Athens Metro. Works are in progress in order to finalize and deliver six (6) new stations. On October 5th 2011, ATTIKO METRO S.A. proceeded to the unsealing of the Financial Offers for the Project concerning the extension of Metro Line 3 Aghia Marina to Piraeus, including 7.6 km long tunnels, with 6 modern Metro Stations, whose budget reaches the amount of EURO 515 million. Based on the Tender results, J\&P - AVAX AE - GHELLA SPA - ALSTOM TRANSPORT SA is the lowest-bidder of the Tender. $6,5 \mathrm{~km}$ of the tunnel of the extension will be constructed using the Tunnel Boring Machine, while the remaining parts at the beginning and at the end of the project will be constructed via the underground excavation method. 8 ventilation shafts in total shall be constructed along the new Line and two shafts for the TBM's entering/exiting.
2.Thessaloniki Metro. Works for the Thessaloniki metro are under progress involving 13 stations, 9.5 km of tunnels ( 7.7 km to be bored by two TBM and the rest using cut \& cover techniques) and a depot. The Civil Works have been completed by 41\% while $69 \%$ of the metro tunnels have been constructed until the end of November 2011.
3.Three twin bore highway tunnels (T1: $\sim 2 \mathrm{~km}, \mathrm{~T} 2: \sim 6 \mathrm{~km}$ and $\mathrm{T} 3: \sim 3 \mathrm{~km}$ ) with a total length of $\sim 22 \mathrm{~km}$, at the Tempi gorge along the Maliakos - Kleidi concession project are under suspension action status by mid-year.
4.Eight (8) twin bore highway tunnels for the Elefsis - Corinth - Patras - Pyrgos Tsakona concession project (J/V Olympia Odos) are under suspension action status by mid-year. These are the tunnels at Derveni ( $0.62+0.61 \mathrm{~km}$ ), Mavra Litharia ( $1.18+1.14 \mathrm{~km}$ ), Akrata ( $0.24+0.78 \mathrm{~km}$ ), Platanos ( $1.63+1.57 \mathrm{~km}$ ), Aghios Georgios, Koliri, Elia, Panagopoula ( 6 km ) and Xylokastro.
5.Along the Ionian Highway four (4) twin bore tunnels with a total length of 6 km (Klokova, Kalydona, Menidi and Skamia) are under suspension action status by midyear.
6.Along the Central Greece Highway, E65, six (6) twin bore tunnels with a total length (single bore) of $\sim 20 \mathrm{~km}$ are under suspension action status by mid-year.
7.Excavation and primary support for Achyra Dam Water transfer tunnel ( 2.4 km ) successfully completed by the end of the year 2011.
8.Call for tenders for the Aposelemis Dam Water transfer tunnel ( 3.5 km ).
9.Along the Kiato - Egion railway section, budget of 620 million Euros, there are 6 single bore double track tunnels under construction (Melissi, Derveni, Platanos, Trapeza and Egio) with total length of $12 \mathrm{~km}, 13$ cut\&cover structures with total length of 3.6 km and 8 escape tunnels with total length of 2.15 km . Civil works at Melissi and Derveni tunnels are temporarily suspended due to contractual and cashflow issues. Civil works at Trapeza ( 2.7 Km ) and Platanos ( 2.3 Km ) tunnels with 1 km escape tunnels are near completion ( $95 \%$ and $98 \%$ respectively) while at Egion
tunnel ( 3.3 Km ) they are completed.
10.Along the Egion - Patras railway section, initially budgeted at 685 million Euros, there is one 5 km single track twin bore tunnel in Panagopoula ready to be tendered in 2012 (budget 315 million Euros), as well as, long pile wall supported cuts, viaducts and cover \& cut structures for the alignment of the railway line in Aghios Vasileios to Rio ( $1 \mathrm{~km} \mathrm{U} / \mathrm{G}$ ) and Rio to Patras ( $3,5 \mathrm{Km} \mathrm{U/G}$ ) at final design completion - tender documents drafting and final design stage respectively.
11.Civil works at the 9 Km single track twin tube Mt Kallidromo tunnel recommenced after the approval of a contract extension and reached $93 \%$ of primary and $82 \%$ of final lining completion. This tunnel is part of the high speed railway link from Athens to Thessaloniki, including also 7 Cut \& cover tunnels with total length 1.080 m completed.
12.Along the Lianokladi - Domokos section under construction there are 3 small double track tunnels under construction with a total length of 1.62 km , the 6.4 km long single track twin bore tunnel of Mt Orthrys, including one access tunnel ( 1 Km long) and 10 double track small tunnels and C\&Cs are completed. Excavation in the former three is completed and final lining reached $50 \%$ completion, the rest is waiting retendering. Civil works in the Mt Orthrys have reached (excavation 70\% and final lining 50\%).

