

ERTMS DEPLOYMENT IN TURKEY

MODERNISING SIGNALLING TO OPTIMISE TRAIN OPERATIONS



Historically, Turkey has always sat at the crossroads of trade between Europe, Asia and the Middle East, providing it with an enviable geographical location that offers high prospects for both freight and passenger transportation. In recent years, the country embarked into a major railway investment programme to seize this opportunity. ERTMS now plays an essential part in the modernisation of the rail network and the establishment of high-speed lines.

What are the status and plans of rail deployment in Turkey?

The first railway in Turkey was established in 1856 and linked Izmir to Aydin. Turkey experienced its railway golden age from 1923 to 1950 when over 3,700 km of new track was constructed. Unfortunately, this growth could not be maintained, and for the second half of the 20th century rail investment suffered at the expense of road transport. Between 1950-2003 only 945 kms of new railway were built. A radical change in Turkish transport policy put railways back at the forefront. Ambitious plans were put in place to rehabilitate existing lines, build a brand new High Speed network and develop an advanced railway industry. Just over a decade on, approx. €12billion investment provided for Turkish railways, so many of those plans have now become reality. Between 2004-2016; 1,805 kms of new railway were built.

Ambitious plans exist to invest over €28billion in the country's rail network by 2023, the 100th Anniversary of the establishment of the Republic of Turkey. This includes an additional 14,000 km of track, of which over 10,000 km will be high speed lines. By 2035 an additional 2,400 km will be built giving the country a network of virtually 28,000 km, hence ERTMS deployment is set to grow rapidly in the next two decades. Regarding to Turkish Governments 10th Development Plan, Vision 2023 and Vision 2035; it is planned to increase the total railways in Turkey to approx. 25,000 kms until 2023 and with additional 6,000 kms to 31,000 kms until 2035.

- 4,400 kms of conventional lines will be renewed; additional 1,000 kms of new conventional lines will be built.
- The high speed lines of Turkish railways will be increased from 1,213 km to 12,915 kms until 2023.
- From 2023 to 2035; additional 6,000 kms of HSLs will be built so that Turkish railways will reach in total 31,000 kms of railways until 2035.

In November 2019 the President's Office has published its 2020 strategic programme for railways which includes, amongst others, the following projects:

- 804 km of resignalling works to be completed
- New signalling on the Konya-Karaman line
- Modernisation of the Adana-Mersin line
- Commencing construction of the Aliaga-Candarli-Bergama line
- Tendering of the Osmaniye-Yenisehir-Bursa freight line
- Completion of the design for the modernisation and upgrade of the Izmir-Kemalpasas-Torbali line and the Eskisehir-Kutahya-Afyon-Burdur-Isparta line
- Completion of the design for the new lines connecting Kirikkale, Corum and Samsun as well as Bandirma and Bursa

What are the major rail investments going on?

As far as freight rail, the Logistics Centres Project (several regional logistics centres being established) has been launched to improve expedite freight transfers from road to rail. For passengers, investment has been equally ambitious, with major investments in mass transit and light rail systems (Istanbul's metro system first opened in 2000). Most important and significant of all and playing a key role in the development of Istanbul and the surrounding region as much as fostering economic exchange between Europe and Asia is the Marmaray Project which connects Gebze and Halkali by a seamless high capacity suburban railway system. This means that the tunnel will be equally used for local transport (metro), high-speed trains and even freight trains, setting a milestone for the re-establishment of a new "Silk Route", renamed as "Iron Silk Route". The importance of developing an inter-city high speed rail network is also recognised. With Ankara at its hub, three corridors are being built linking Istanbul-Ankara Sivas, Ankara-Afyon-Izmir and Ankara - Konya (already in service).

Is ERTMS part of this major investment programme?

Yes the first deployment of ERTMS in Turkey was completed in 2008 on a 196 km section of the Istanbul to Ankara High Speed line between Hasanbey and Esenkent, with 10 trains operating at 250 km/h under ERTMS Level 1 supervision and the construction of upgrade of line to ERTMS Level 2 is completed, test and commissioning still continues; while the most important milestone was set on 29 October 2013, on the occasion of the 90th anniversary of the Republic of Turkey, when the Marmaray tunnel was officially inaugurated. The second High Speed line entering into operation in August 2011 was the Ankara to Konya line, which added 212 km to the High Speed network under ERTMS Level 1 supervision, and at the end of 2017 ERTMS Level 2 has been putting into operation. Other notable projects are, the 419 km route linking Bogazkopru to Yenice and Mersin to Toprakkale, the 58 km Sincan to Esenkent and Hasanbey to Inonu extension, on which work started in 2009. More recently, contracts have been awarded on the 328 km long line, single track between Eskisehir-Balikesir, the 56 km route between Gebze and Kosekoy, the 310 km route, single track between Bandirma and Menemen. the 415 km, single track between Irmak and Zonguldak and the 70 km route linking Pamukova and Köseköy, 380 km Samsun – Kalin, 400 km Ankara – Sivas HSL. When the current set of projects is complete and in operational service, Turkey will enjoy over 250 ERTMS equipped vehicles operating on over 2,300 km of track, at speeds of up to 300 km/h.



On February 28, 2019 Turkey signed a project financing contract with the European Union in which the EU pledged a €275m grant for a section of the 230 km Halkali to Kapikule railway project linking Istanbul with the Romanian border at Kapikule. In this €1.2bn project, the existing railway line will be upgrade from single to double track and equipped with ERTMS Level 1 in two sections. The upgrade of the first section between Cerkezköy and Kapikule is planned to be completed in April 2022.

Level 1 ERTMS in Turkey belongs in the past?



Most of the lines were initially designed to operate at ERTMS Level 1 but ERTMS Level 2 has now been specified for the Ankara to Istanbul corridor, the Ankara to Konya line, the Ankara to Izmir line and the Ankara to Sivas high speed lines. For Eskisehir to Balikesir line and the Bandirma – Menemen line projects the ERTMS Level 1 and 2 are being introduced.

What are the benefits of ERTMS for the Turkish railways?

Not only does ERTMS deployment provide Turkey with a modern, safe and reliable railway network, but also the new High Speed lines will cut journey times dramatically between the major cities, providing a more convenient and efficient alternative to road and domestic air travel. For example, the journey time from Ankara to Konya has fallen to just 1 hour 15 minutes now that the new High Speed line is operational. Likewise the journey time of 12 hours and 25 minutes between Istanbul and Konya will decrease to just 4 hours and 27 minutes, significantly faster than both road and air on a city centre to city centre journey. In addition to this, as the new High Speed lines will be dedicated for passenger traffic only, capacity will therefore be freed up along the existing network, allowing for more local passenger and freight trains capacity. A new High Speed rail terminus station is being finished in Ankara as well as new stations across the network including Istanbul, Izmir and Sivas. By integrating the new High Speed network with the Marmaray Project, the country will be able to provide seamless passenger transport between Europe and Asia for the first time in history, carrying an estimated 17 million passengers a year (in 4 years in total 226 million passengers; so approx. 56.5 million passenger per year). This figure has to be added to the new commercial possibilities that the tunnel offers for seamless freight transport between both continents in the so called Iron Silk Route. Finally, the use of ERTMS will also make it possible to link the Turkish rail network with that of the EU and the Middle East.

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