

## ERTMS DEPLOYMENT IN THE MIDDLE EAST

### ERTMS THE GATEWAY TO ASIA

The importance of the Middle East as a crossroads between Europe, Asia and Africa is being emphasized by the relocation of and the rapid development of major business and transport hubs in the region which are providing better and faster links than ever before for their people and their produce – and the latest developments in railway technology are set to accelerate this process.

#### *What is the status of rail deployment in the Middle East?*

As befits its key geographical position, Saudi Arabia is one of the main drivers of rail expansion in the region. It currently operates a 1,380km network comprising a 449km passenger railway from Riyadh to Dammam, a 556km freight route from Riyadh to Dammam and around 373km of industrial branches. This existing network is set to grow extensively with one of the most ambitious rail expansion plans in the world – an expansion plan which will have impacts far beyond the Kingdom's borders.

#### *Are freight rail services important in the Middle East?*

The 950km, approx. EUR 5.5 billion Land Bridge project linking the Red Sea port of Jeddah with Riyadh with a further 115km extension between Dammam and Jubail will allow onward journeys on existing routes to the Arabian Gulf Port of Dammam avoiding the need for goods to make lengthy sea voyages around the Arabian Peninsula or arduous journeys by road across the desert. Journey time savings for freight could be significant compared with the alternatives, thereby opening up new markets for high value and perishable goods.

#### *Can rail passenger transport be an option in the Middle East?*

Passenger services haven't been forgotten either, with journey times from Jeddah to Riyadh of six hours becoming half of the current bus journey. If the Land Bridge demonstrates the potential of rail to improve logistics in the Middle East, the 360km/h Haramain railway proves how a well planned and considered passenger route can help provide a massive boost to capacity in response to growing demand.

The holy cities of Makkah and Madinah attract millions of pilgrims every year and neither currently have good public transport systems. With visitor numbers to Makkah forecast to rise by almost 10 million over the next 25 years, improvements are considered vital. This high-speed railway will cut journey times between Jeddah and Makkah to 30 minutes and between Makkah and Madinah to two hours. New trains will offer a modern passenger experience and transform the ease of travel to some of the holiest sites in the world.

Perhaps most impressive of all is the 2,400km North-South Railway from Riyadh to the Al Haditha in the North West of Saudi Arabia, with extensions to Hazm Al-Jalamid for bauxite, Al-Zubayrah for phosphate and the port of Ras Al-Zour on the Persian Gulf. Around 4 million tonnes of minerals per year are expected to be carried, helping to make Saudi Arabia the world's second largest exporter of such minerals: it is hardly surprising that it has been given priority status. Although primarily envisaged for heavy haul freight operation, passenger services are planned too, and given Al-Haditha's location near the Jordanian border, it would be surprising if in time trains did not run across national borders and with demand expected to be around 2 million passengers per year, it is clearly a genuinely mixed use railway.

## *What are the benefits of ERTMS?*

Saudi Railways Organisation's decision to deploy ERTMS in its most advanced Level 2 version is a compelling statement of its intent to strengthen connections across the Middle East by deploying the most advanced and capable technology available. The projects are impressive individually but it is only when they are connected together that the true scale of the opportunities emerges. It is doubtful whether the interoperability and capacity optimisation required would be possible without ERTMS.

## *Is ERTMS the preferred solution also outside Europe due to its interoperability capabilities?*

This matters greatly because other countries in the Middle East are investing in rail too. Indeed, neighboring United Arab Emirates is already constructing sections of its long awaited Etihad rail, a 1,200 km new rail network connecting all main UAE cities and linking the North of the country with Saudi Arabia via Ghweifat and the South with Oman via Al Ain. Etihad rail foresees mixed traffic (freight and passengers) and will also be equipped with ERTMS allowing for seamless cross-border services.

Likewise, a bit further away, Turkey is also pushing ahead rapidly with new railways and ERTMS installations to provide better links with Europe. New High Speed Level 1 and Level 2 ERTMS lines radiating from Ankara are under rapid development. Turkey has also seen the development associated with the Marmaray Tunnel project now completed for commercial passenger service from October 2013, mixing both ERTMS with CBTC technology and providing a vital commercial and touristic link for Europe and Asia – and is in it's own right a major engineering feat. The route is 74km with a 1.4 km "immersed or submerged" tunnel design.

With a straight line distance from Al Haditha to Turkey less than that from Jeddah to Riyadh, the obstacles to a through route from Arabia to Europe becomes political and financial rather than technical. The strategic, social and economic gains to be made from rail improvements in the Middle East have been unlocked by the capability of ERTMS to lower development, installation and operating costs of signalling systems in the longer term, allowing a massively capable traffic management system on routes in which conventional track circuit block signalling would have been prohibitively expensive and difficult to deploy.

## *Can ERTMS be a facilitator to increase the rail traffic between Europe and Asia?*

ERTMS has opened up the prospect of genuinely efficient mixed mode operation on both the North-South Railway and Land Bridge, enhancing their economic and social viability dramatically. Furthermore, route upgrades - already provided for by the decision to build formations suitable for double tracks in the future - are made simpler, cheaper and less disruptive should traffic volumes increase ahead of expectations.

It all adds up to an exciting future for railways in the Middle East. The potential for increased traffic, seamless cross-border connections, greatly improved safety and economic growth is vast. And ERTMS is a fundamental building block in this process.

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