

Africa's first high speed line to open in mid-2018

After long delays, the Tanger – Kénitra high speed line is nearing completion with the head of steel advancing rapidly from two tracklaying sites, reports **Christian Scasso***.

Three years after the target date, the initial 200 km section of Morocco's first high speed line from Tanger to Kénitra is now scheduled to open in mid-2018. In the longer term, the line will eventually be extended by another 200 km to Casablanca.

Since France and Morocco signed an agreement to proceed with the new line on December 10 2010, the scale of work has ramped up to the point where 5 600 people are now employed on the project. As many as 146 companies are involved, 116 of them Moroccan, and all are now geared up to meet the revised completion deadline. Among them are names well known to readers: Thales, Egis Rail and Systra, for example.

National operator ONCF blames the delay in completing the first phase on problems with land acquisition, but other factors have also contributed. These include the selection of companies poorly qualified or even unable to carry out civil engineering work that was far more demanding than that required for a conventional railway. In the last few months, however, progress at worksites along the line has advanced rapidly as the construction teams strive to ensure that all is ready for the line to open next June — or at least shortly afterwards.

Today, ONCF estimates that about 90% of work on the initial section has been completed. Numerous structures are located along the alignment: there are 169 bridges over or under roads, 117 culverts or bridges over watercourses, plus 12 viaducts. With a combined length of 10 km, these include the 3.5 km El Hachef viaduct between Asillah and Tanger. Capitalising on the impressive scale of construction, ONCF assembled a three-part film for publication on the web: *Ligne à Grande Vitesse Tanger – Kénitra: at the heart of a gigantic project*.

With the civil works effectively finished, tracklaying is proceeding rapidly

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Track laying and electrification are proceeding apace on the Tanger – Kénitra high speed line.

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Photo: Jean-Michel Ruiz

from bases at Kénitra and Tnine Sidi El Yamani, which is located towards the northern end of the line. Lead contractor Colas Rail is achieving the remarkable feat of laying up to 3.5 km of track a day; this compares with a typical average rate of about 1 km a day. The company is claiming this as a world record.

One dozen TGVs

The €400m rolling stock contract was awarded to Alstom, which delivered the 12 trainsets in June and July 2016. They are based on SNCF's Duplex 2N2 design, adapted for operating in Moroccan conditions.

Apart from the 25 kV 50 Hz traction equipment for running on the high speed line, the fleet is able to take power at 3 kV DC on the rest of ONCF's network. Air-conditioning is more powerful than on French TGVs to cope with

Colas Rail is laying up to 3.5 km of track a day from two construction bases.

higher temperatures, and filters have been fitted to prevent sand and dust from penetrating the interior or damaging sensitive equipment. The trains are fitted with ETCS Level 2 as well as the standard Moroccan train control system.

Once safely arrived on Moroccan tracks, the trains underwent an initial series of tests on the conventional network. A 40 km section of the new line near Kénitra has been allocated for running trials; it was energised on January 27, allowing testing to begin on February 6. Some tests have already been completed at up to 160 km/h.

More recently, around 100 km of route has been cleared for ONCF and Alstom technicians to check the performance of both track and trains. The maximum speed in commercial service will be 320 km/h, but some time will elapse before this speed is

Below left: ONCF and SNCF have set up a jointly-owned company to maintain the high speed fleet in a depot at Tanger.

reached as the programme foresees the tests ramping up gradually over several months. It will probably be the end of the year before a train reaches the full line speed.

Technical assistance

SNCF has been working closely with ONCF since an 'assistance with project management' contract was signed in 2009. This was swiftly followed by a €90m deal covering 18 years of technical assistance with repairs, provision of spares, technical advice and fleet maintenance.

Visiting Morocco on December 29 2016, SNCF President Guillaume Pepy said that 2017 would be a year of 'general mobilisation'. 'If the high speed line is to be operational in mid-2018', he explained, 'the project works must be finished and tested, and for high speed operation everything must be checked down to the last millimetre. And most of all it is training, training, training. For railway staff accustomed to conventional railways, high speed is another world.'

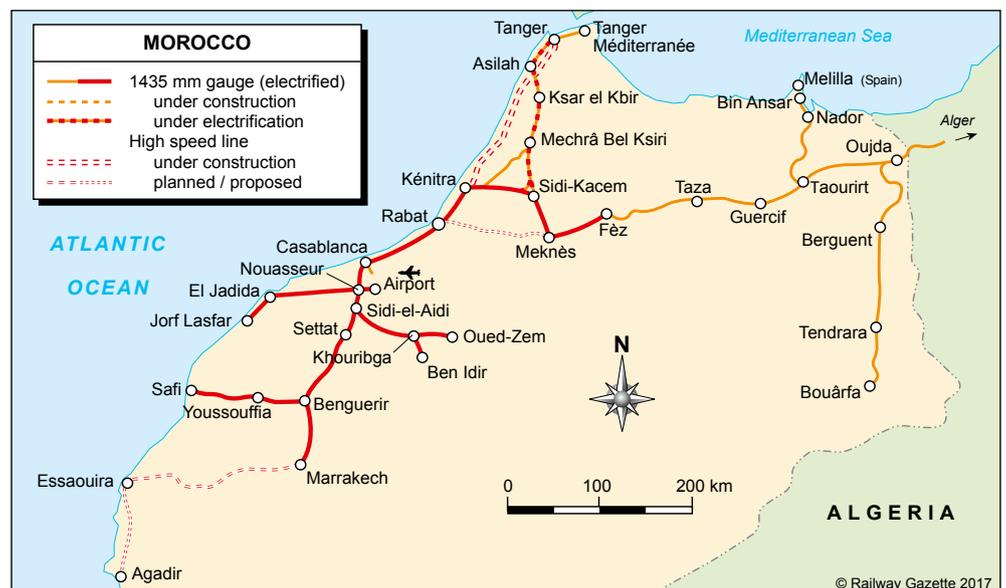
Commercial policy

Reservations for travel are due to open at the end of 2017, and local media are taking a great interest in ONCF's fares policy, noting that the country's GNP is hardly comparable with other nations that have introduced high speed rail.

For ONCF the question is how to attain the objective of carrying 6 million passengers a year on the LGV when the current railway only carries 3 million. ONCF Director General Mohamed Rabie Khlie confirmed in May that pricing would be based on yield management techniques. There will be standard fares at a fixed price, but there will also be fares with variable pricing



Photo: ONCF



according to the date of reservation, time of train and type of service — a formula well established by other high speed train operators.

Khlie said that attaining the 6 million target will require hourly departures between Tanger and Casablanca, assuming a 70% load factor. The proposed timetable envisages 15 departures a day in each direction once the line is fully operational, but there is so far no indication about the level of service to be provided at opening.

Anxious to reassure ONCF's existing passengers, Khlie insisted that 'there will be trains and periods during the day when prices will be similar to existing fares. The aim is to ensure that everyone can buy a ticket. Morocco's high speed line will have trains for Moroccan people, with fares matching their buying power. We don't want to run trains reserved for a high-end clientele, and that means we must control our costs.'

ONCF is in the position where it must produce traffic and revenue forecasts that show how sufficient income can be generated to cover operating costs — without losing sight of Morocco's level of economic development.

Building and maintaining a high speed line is expensive. The first part of what may one day be a network of high speed routes has an official price

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MOHAMED RABIE KHLIE DIRECTOR GENERAL, ONCF

'Morocco's high speed line will have trains for Moroccan people, with fares matching their buying power'

tag of 20bn dirhams. Half of this is accounted for by the infrastructure, while the railway systems element accounts for 5.6bn dirhams and the rolling stock the other 4.4bn dirhams. To this must be added 1.2bn dirhams for upgrading parts of the existing network to accept the new trains.

However, a recent study by Deloitte Touche Tohmatsu put the price of the first phase of the Tanger – Kénitra line at €3.8bn by mid-2018, equivalent to more than 40bn dirhams. In all probability, the true cost may never be known.

Moroccans can be certain, on the other hand, that journey times between Tanger, Kénitra, Casablanca and other cities will be dramatically shorter. A trip from Casablanca to Tanger will take 2 h 10 min, compared with 4 h 45 min at the moment, while the capital Rabat will be just 1 h 20 min away from the Mediterranean port.

320
km/h

MAXIMUM
COMMERCIAL
SERVICE SPEED
ON THE TANGER
– KÉNITRA HIGH
SPEED LINE

The new line has 12 viaducts totalling 10 km, including the 3.5 km long El Hachef viaduct near Asillah.

Not just a city

Tanger is no longer merely a city of about 1 million inhabitants. It has become the kingdom's second most important economic powerhouse, and it is only 24 km away from the Spanish coast. Every year about 1 million people pass through, and the port sees ferries departing regularly for Algeciras, Tarifa and Barcelona in Spain, for Sète and Port-Vendres in France, as well as Genova in Italy. A new ferry joined the Moroccan fleet in mid-May to handle growing demand for traffic to and from Spain.

The high speed line will have a direct impact on the port at Tanger Med, located about 40 km to the east of the city. Since May 2010 the port has become a maritime cargo hub, and capacity for more freight traffic on the existing railway from Tanger to Kénitra will be released by the high speed line. Beyond Kénitra work is currently in progress to



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lay a third track parallel to the existing double track line to Casablanca, so creating a high-capacity freight corridor to Tanger Med.

Record traffic

Similarly, the new line will have an impact across the whole of the ONCF network. The railway has been notching up record traffic for year after year, with a total of 220 million passengers carried in 2010-15, together with 212 million tonnes of freight. In 2016 alone ONCF handled 39 million passengers and moved 28 million tonnes of freight, and the operator's 2017 budget forecasts a 3.3% rise in passenger traffic and a 2.3% increase in freight.

ONCF can therefore hope that it is well on course to meet the targets set for the high speed line, the first on the African continent. Forecasts suggest that ONCF's passenger traffic will double in volume in seven to eight years, but in the meantime it is already so congested that service quality is starting to suffer.

This is one reason why plans have been drawn up for a 1500 km high speed network to be built by 2035. These include a line from Casablanca

The Alstom-built TGV Duplex trainsets began test running on the conventional network during 2016.



Photo: ONCF

to Oujda near the Moroccan border, with a projected journey time of 3 h. Another coastal line would link Casablanca with Agadir in the southwest, offering a 4 h timing from Tanger. Also proposed in the long term is a Casablanca – Marrakesh line, which could perhaps be built around the same time as a proposed fixed link across the Strait of Gibraltar. That would offer the prospect of a 4 h trip from Rabat to Madrid, with Paris reached in maybe 8 h. But all that lies far in the future as many decades will pass before such projects are completed.

More than 3000 students underwent courses at the training college last year.

Reorganisation

ONCF did not commit to a high speed project without considering the impact it would have on its own resources and organisation. During the 1990s, in the aftermath of a serious financial crisis, ONCF began a process of restructuring, supported by its shareholder, the government. This reorganisation stretched over the period from 1994 to 2002. A radical and comprehensive relaunch of the railway business was set in train, the aim being to return ONCF to financial health and to ensure

that costs were controlled and reduced. ONCF's management policy had to be reorientated from an engineering-led railway to a business in a deregulated transport market — a worldwide trend from which Morocco was not spared.

The commitment to build a high speed line demanded another fundamental change, with human and financial resources adapted to new technology, a new type of service and the unique demands of high speed operation.

Training college

Faced with this challenge, ONCF turned again to SNCF to gain access to its fund of knowledge and experience. On March 30 2015 the two operators opened a railway training institute in Rabat which is staffed by around 30 experts drawn from both organisations.

The establishment is open to students from parts of Africa and the Middle East, and the curriculum covers all types of railway career, including management and project management. During 2016 as many as 3347 students, 1138 of them from SNCF and 2209 from ONCF, underwent training courses at the institute.

In the first half of 2015 the two railways also set up a jointly owned company to maintain the Moroccan TGV fleet. At its heart is a 15-year contract worth €175m, which will also cover work for SNCF. The French operator says that the scope of the deal includes repairs, technical assistance, maintenance expertise and transport of spares between France and Morocco.

There is also an education and training element. SNCF staff will train ONCF personnel in the maintenance of the TGV fleet, with around 20 SNCF staff seconded to the business.

Morocco's high speed line is poised to bring about a profound transformation at ONCF, not just in terms of operating new services, but in the operator's approach to management. ONCF is aware of the huge potential that the project offers and hopes to be able to market its services to other countries in Africa and the Middle East. ■



Photos: ONCF