ERTMS implementation plan
Complete renewal of the Norwegian railway signalling infrastructure

Photo: Stig K. Opstad
In November 2012 the Norwegian Ministry of Transport and Communications announced its decision to renew the country’s railway signalling system by adopting the European Rail Traffic Management System (ERTMS).

“Modern signalling systems are necessary to reach a full effective utilisation and maintenance of the railway network. Without such modernisation, Norway’s railway network will not be able to reach its environmental goal of reducing the increase in traffic movement based on fossil fuels in the next decade”

(Norwegian Ministry of Transport on ERTMS, November 2012)

It is a significant step forward for a country that has 61 million passenger journeys per year and a 4230 kilometres long railway network spread along a vast geography with challenging landscape and weather conditions.

When completed there will be no trackside signals left anywhere in Norway. Instead all trains will have “in-cab” equipment giving driving permission and allowed speed, increasing safety for those on the train and track workers and reducing maintenance.

As much of the signalling systems in Norway has reached or is approaching its technical service life, failures have led train traffic reliability to drop. A total renewal of the signalling system will not only improve traffic management and train services; it will also reduce railway infrastructure’s life cycle cost, enable higher train speed and strengthen Norway’s expertise in a common European signalling system.

The Norwegian National Rail Administration (Jernbaneverket) has quickly responded to the government’s commitment by outlining an Implementation Plan that specifies both sequence and time schedule for the roll-out of ERTMS through the whole railway network.

Current signalling and ERTMS-benefits

The Norwegian railway network is equipped with traditional signalling systems. That includes colour light signalling and train detection based on track circuits. The signalling infrastructure has been constructed in a piecemeal fashion over the last 50 years or more, and has received inadequate investment for renewal.

Over the years much of the relay-based signalling systems have become difficult to modify or expand to match the increase in train traffic movements. Expertise on traditional signalling technology is lacking and production of spares has sometimes been phased out by manufacturers.

The Implementation Plan has concluded that ERTMS Level 2 is the most suitable solution for Norway based on safety, performance, availability and life cycle cost.

Into the future

Introducing a common European signalling system will enable:

- More efficient train services
- Higher safety and reliability
- Reduction in maintenance and life cycle cost
- Further increase in cross-border train traffic
- Environmental-friendly solutions

It is through Norway’s commitment with the European Economic Area (EEA) that ERTMS technology is being adopted in national regulations. However, the driving force for implementing ERTMS in Norway is the need for renewal of signalling systems more than the need for interoperability.

Scope and migration

Due to a rather long migration period (2015-2030), there are two possible strategies for implementing ERTMS: either trains or railway infrastructure must be equipped with both ERTMS and the national Class B system at the same time.

To facilitate a smooth migration, The Norwegian National Rail Administration has concluded that
the rolling stock having both signalling system installed (ERTMS and a Specific Transmission Module - STM) is the most suitable and efficient solution.

Approximately 600 vehicles of 83 types will be equipped with both systems, and this work will be coordinated with the implementation of ERTMS on the railway infrastructure.

The telecommunication system GSM-R is already installed and in operation on the Norwegian railway network.

**The ERTMS pilot line**
ERTMS is already installed and ready to be tested on a railway section south of Oslo. In November 2013, ERTMS test driving started at the 25 kilometres long line between Ise and Rakkestad.

ERTMS testing will go on through 2014 before the new signalling system goes in full operation on an 80 kilometres long railway section between Ski and Sarpsborg in 2015. Testing will provide valuable information on:

- System knowledge
- Management of interfaces
- Train operation with “in cab” signalling
- Identifying and evaluating particular Norwegian requirements
- Coordination with train operators
- Installation of “on board” equipment
- Adjustments in the scope of the country-wide Implementation Plan
Time schedule

**Projects and Completion Dates:**

- **ERTMS completed 2020**
- **Class B systems completed 2020**
- **ERTMS completed 2023**
- **Class B systems completed 2023**
- **ERTMS completed 2026**
- **ERTMS completed 2030**

**Contact:**

- **Project Manager**
  - ERTMS National Implementation
  - Eivind Skorstad
  - Phone: +47 991 68 610
  - E-mail: Eivind.Skorstad@jbv.no

- **Project Manager**
  - ERTMS pilot line
  - Jarle M. Rasmussen
  - Phone: +47 916 73 402
  - E-mail: Jarle.Rasmussen@jbv.no