# ERTMS Training for NSB

## Project
ERTMS Training

## Client
Norges Statsbaner AS (NSB)

## Location
Norway

## Start Date
June 2014

## End Date
June 2014

## Duration
2 days

## Contract Value
Commercially Confidential

## Network Rail Consulting's Role
Provision of training

## Background

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).

When completed there will be no trackside signals. 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.

It is envisaged that the introduction of a common European signalling system will help support:

▸ more efficient train services

▸ improved safety and reliability

▸ reduced maintenance and life cycle cost

▸ increases in cross-border train traffic

▸ environmental-friendly solutions.

## Scope of Works

The European Rail Traffic Management System (ERTMS) Early Deployment Scheme (EDS) on the Cambrian lines is the UK pilot project for Level 2 deployment to other parts of the UK Network.

Based on Network Rail's experience of this pilot, NSB commissioned Network Rail Consulting to provide an independent two day training course on the practical implementation of ERTMS with a focus on lessons learnt from the Cambrian pilot.

## Key Project Outputs

The training course covered the following content:

Introduction to ETCS (European Train Control System):

- ▸ the system end to end
- ▸ ERTMS or ETCS
- ▸ the ERTMS levels (0, 1, 2 and 3)
- ▸ modes
- ▸ the DMI (Driver Machine Interface).

What goes on the train:

- ▸ core equipment
- ▸ odometry equipment
- ▸ practical fitment issues
- ▸ integrating into cabs.

Infrastructure and Operations:

- ▸ Cambrian operations video
- ▸ changes to trackside equipment
- ▸ driver training and culture change
- ▸ signaller information
- ▸ operational rules and degraded situations.

Q&A session:

- ▸ odometry equipment
- ▸ odometry accuracy
- ▸ cryptographic key management
- ▸ driver ergonomics and cab design
- ▸ train data
- ▸ simple and complex train interfaces.