The primary purpose of this brochure is to present the future contracts for the various projects. For this reason there is less emphasis on projects nearing the completion phase.

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Jernbaneverket projects

Jernbaneverket comprises a number of underlying units and departments. The different units are responsible for a broad range of tasks within their respective professional and geographical areas. In this context we will provide only a brief description to give a rough overview.

**Large projects**
Planning and development of the InterCity routes (Dovre, Vestfold, Østfold and Ringerik Line), Follo Line and Arna-Bergen are organised through separate project units led by the Assistant Director General of the Norwegian National Rail Administration.

**Infrastructure Division**
Planning and Technology are responsible for the planning of projects up to and including the detailed planning level. The projects then progress to the next level of the organisation. Scope and complexity are determining factors in respect of which unit will be responsible for ensuring that developer responsibilities are fulfilled.

Larger projects will generally be managed by Infrastructure Projects whereas smaller projects will be managed by the project department in one of the six geographically separate regions. This is in line with the assumption that the regions, in addition to everyday operations and maintenance, will primarily be responsible only for smaller investment projects in the existing infrastructure.

Additionally, the Infrastructure Division includes the nationwide units Transport, Energy and Signalling and Telecommunications, which are responsible for ERTMS and other projects.

In this brochure you will be able to find relevant information about assignments that will be added in the next couple of years. Please do not hesitate to get in touch with the listed contact persons for further details about the various projects and contracts.
Follo Line project - General information

The Follo Line project is the biggest public transport project in Norway in recent times, and will involve the longest railway tunnel in the Nordic region. This will be the first railway tunnel in Norway with two separate tunnel bores and the longest part of the tunnel driving will be performed using heading and cutting machines.

**Efficient transport**
The new double track line between Oslo Central Station and the Ski public transit hub will be the innermost part of the InterCity construction project running south-east from Oslo, and will be a safe, efficient and environmentally-friendly transport system. The Follo Line will link residential and commercial areas, and help boost development in the region. The current Østfold Line, which links Oslo and Ski has reached its capacity limit. Meanwhile, population growth of at least 30% is expected in this area by 2025.

**Better quality of life**
The new Follo Line will mean more passenger and goods trains, reliable timetables and halved travel time between Oslo Central station and the public transport hub at the new Ski station (from 22 to 11 minutes). The capacity between Oslo and Ski will be tripled.

With this project, Jernbaneverket will complete a four-track line system to Oslo Central station. Trains will run direct between Oslo and Ski on the new line. On the Østfold Line the trains will stop at local stations. The interaction between the Østfold Line and Follo Line will provide train passengers with a better service to and from the capital.

**A large-scale project**
There are engineering challenges involved in building the new tracks in a busy area around Oslo Central station. Much of the work must be performed without disrupting everyday traffic. The main work on the Follo Line project is under way, following the completion of the crucial preparation works. Ten contractors and around 50 subcontractors participated in the preparation works. Prime contracts have been entered into with Società Italiana per Condotte d’Acqua S.p.A. (EPC Tunnel D&B), the joint venture between Acciona Infraestructuras S.A. and Ghella S.p.A. (EPC Tunnel TBM) and Obrascón Huarte Lain S.A. (EPC Ski). The first two contractors, which signed in February and March 2015, have entered into contracts with a number of Norwegian companies in order to execute the work in Norway.

**Some facts about the project:**
- 22 km of new double track
- Total of 64 km of new railway track
- The longest railway tunnel in the Nordic region so far (20 km)
- The project involves building a new station at Ski, and
- Extensive work at Oslo Central station
- Østfold Line tracks must be relocated
- Designed for speeds of up to 250 km/h
- Predominantly prime contracts (EPC)
- Contract award for prime contracts in 2015 and 2016

Development scheduled for completion at the end of 2021.

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The Follo Line project comprises a total of five prime contracts as well as contracts for signalling. Major development work will be undertaken out towards Oslo Central station, in the development area at Åsland and near and in Ski.

**Oslo Central station**
The route runs from Oslo Central station to the tunnel opening under Ekebergåsen. Complex and extensive work will be conducted at Oslo Central station with the construction and relocation of new and old tracks. A 600-metre concrete tunnel will be constructed through parts of the protected Medieval Park. The ground above the tunnel will be landscaped and mass will be deposited down to water level. When the park development is landscaped, the size of the garden area could practically double.

**Tunnel TBM and tunnel Drill & Blast**
Nearly the entire new Follo Line will be laid in a tunnel and will cross through Ekebergåsen, where there already are road tunnels and a river course. The Follo Line tunnel will be driven using four heading and cutting machines (TBM) as the main method but will also be driven using drill & blast. For certain routes inside Ekebergåsen the project has chosen to use the especially gentle Drill & Split technology (without explosives). This work is now under way for the first time in a Norwegian tunnel. The tunnel work near Oslo also includes a new tunnel bore for the inbound Østfold Line. The tunnel system is designed for a minimum service life of 100 years and in accordance with European safety standards, including emergency exits at least every 500 metres.

**Ski station**
This part of the large project runs from the tunnel opening and stretches 3.5 km to Ski. Retaining walls and concrete walls will be built along a 1.5 km exposed stretch and the Østfold Line will be moved to ensure an efficient train service. The work at Ski also includes relaying and refurbishing the Østfold Line north of Ski station.

The new Ski station will be a modern and efficient public transport hub with six tracks and three central platforms. A new underpass will ensure access to all platforms and improved links between the new passenger squares on both sides of the station. A new road bridge with a footpath and cycle path will be built along Nordbyveien. Extensive preparatory work has been necessary to ensure ground stability, etc.

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InterCity project - General information

The National Transport Plan (NTP) for 2014-23 sets out that the InterCity route between Oslo and Seut near Fredrikstad on the Østfold Line, Hamar on the Dovre Line and Tønsberg on the Vestfold Line will be fully developed to include double tracks by 2024. The development will be continued to Sarpsborg and on shorter routes north of Hamar and south of Tønsberg in 2026. Completion will be scheduled for Halden, Lillehammer and Skien by 2030.

InterCity project
Jernbaneverket will be planning 230 kilometres of double track through 21 cities and villages in the InterCity network. The project will ensure rational planning of modern double tracks and hubs, which will include most options being decided upon uniformly and only once. To ensure that the hubs work well, the emphasis will be on reaching agreements with the other stakeholders with regard to the functions that need to be in place and who will be responsible for what. Positive collaboration with stakeholders and planners in general, as well as the local authorities as planning authorities, is especially important for ensuring contribution and progress.

The project has been organised using central units responsible for technological solutions in order to ensure that all infrastructure is in accordance with the train service that will be provided and the hub approach. The classification of plan routes follows the plan status and development dates set out in NTP.

Ringerike Line
Upon determination of the NTP, the Ministry of Transport and Communications decided that the Ringerike Line will be considered an InterCity route. Jernbaneverket and the Norwegian Public Roads Administration have conducted a joint investigation process for the Ringerike Line and E16 Skaret – Hønefoss. As part of the investigation work the authorities have provided their recommendations in respect of terraces, plan layout and organisation of the further planning process. Investigations have been submitted for local consultation and quality assurance.

The Norwegian Government earlier this year decided to prepare a central government zoning plan which comprises the Ringerike Line and E16 and facilitates construction work to commence in 2019.

The InterCity development will provide solutions that:
- facilitate the development of a train service in line with increased demand and population growth.
- provide short travel times, frequent departures and excellent regularity.
- contribute to the development of a multi-core structure along the routes and respite for the Oslo area.
- are developed with centrally located and well-working hubs and the collaboration with other stakeholders in the cities contributes to as many people as possible benefiting from the investment.
- improve railway goods capacity on the main goods routes in Norway.
- provide good social economics, i.e. high benefits and low investment, operation and maintenance costs.

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The map on the left shows the current status of the various routes and also specifies the next planning phase for sections that are in planning. The map on the right shows the development stages, including a specification of when each route will be completed in accordance with NTP.
Dovre Line

The Langset-Kleverud parcel (17 km) is under development as part of the Joint E6-Dovre Line project. The road was largely finished in December 2014 whereas the double track is due to open in November 2015. All contracts for ground work and technical railway work in the project have been included.

The status of the other sub-routes can be seen from the layouts (page 6).

Work on the development plans for the parcels Venjar – Eidsvoll – Langset (11 km) and Kleverud – Tangen – Sørli (16 km) is due to start in spring 2015. Here a new track will be developed alongside the existing track on the single track section of the Gardermoen Line from Venjar and Eidsvoll. A new double track will also be developed on the Dovre Line in accordance with the current municipal sub-plan from Eidsvoll to the southern end of the double track that is currently being developed from Langset to Kleverud. From Kleverud the double track will be laid, as shown in the municipal sub-plan, as a bridge across Tangenbukta via the new Tangen station to the west of the existing station to Sørli.

For the route Sørli – Hamar – Brumunddal the municipalities determined a plan programme for the work on the municipal sub-plan with an impact assessment for the route on 17/06/2015. Parallel work will be carried out on the municipal sub-plan, in which the terrace through Hamar remains a key subject and with a pilot study for the Brumunddal – Lillehammer route.

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Østfold Line

Sandbukta – Moss – Såstad (9 km) is the next development project in the Østfold Line after the Follo Line (see page 3-4) and a condition for the potential for improved local train service to be achieved. The plan programme for the development plan and impact assessment was adopted in spring 2014. The detailed and development planning work is aiming for a tunnel terrace that will take into account the weakness zones in the rock, curvature requirements and wish to establish stations as far to the north as possible. The hub with approaches and the correlation with the Rv19 plans, due for development after the line, are key subjects in the planning.

Further planning of the Østfold Line will begin with an extensive pilot study for the entire route from the end of the double track at Haug to the Swedish border. The development plan from Haug to Seut, north of Frederikstad and the municipal sub-plan for the Seut – Fredrikstad – Sarpsborg stretch will then be developed. Here there will be little space for the road and line to the new Frederikstad station at Grønli and one of the challenges is that the road and line projects have different development periods.

For information about the Follo Line from Oslo S to Ski, see page 3-4.

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Vestfold Line

The modernisation of the Vestfold Line will contribute to reduced travel time and increased capacity on a heavily trafficked route. The new double track will mean fewer delays and thus also a better and more predictable train service to and from and internally within the Vestfold and Grenland regions. On the Holm-Nykirke and Larvik-Porsgrunn routes, development is already under way (see project brief on pages 9-10).

**Drammen-Kobbervikdalen**
The municipal sub-plan work for the Drammen-Kobbervikdalen (8.5 km) route will start with a plan programme during the spring. In order to build a double track on the Vestfold Line from Drammen to Kobbervikdalen by 2024 it is necessary to plan Drammen station for trains going in all directions. The solution at Drammen station, a grade-separated branch for the Vestfold Line and a terrace between the station and tunnel opening is anticipated to be the biggest planning challenge.

**Nykirke-Barkåker**
For the Nykirke-Barkåker (13 km) route the plan programme for the municipal sub-plan and impact assessment was adopted in spring 2014. One of the three alternative terrace corridors will be chosen in the municipal sub-plan. One alternative has a station at Bakkenteigen and a long viaduct across Borreskåla, another has a station at Skoppum west and a shorter viaduct and one has a station at Skoppum east, closer to the E18.

**Tønsberg-Larvik and Porsgrunn-Skien**
The work on the pilot study for the entire Tønsberg – Larvik route started in spring 2015. Here it will be key to look at the terrace solution between Tønsberg and Stokke, where the recommendation from the concept assessment was an alternative that would include a tunnel under Vestfjorden. It will be just as important to consider a solution through Sandefjord and a terrace and station location in Larvik.

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Double track and new tunnel

The route between Arna and Bergen is heavily trafficked. The existing single track has inadequate capacity. The development of the double track on the route will improve the situation for both goods and passenger traffic.

Sub-project Arna station
The station will undergo extensive upgrades. A longer passing loop will help improve traffic management. New platforms will be built for local and regional trains. Measures will be implemented to improve accessibility for all user groups. The underpass under the tracks will be renewed and expanded and it will be opened up more in order to let in more light. Other passenger areas will be upgraded to include new benches, shelters, lighting, monitors, etc. The Storelva culvert will be upgraded to withstand a 200-year flood.

Ulriken tunnel
The new tunnel bore will more than double the capacity and provide the opportunity for increased speed and more flexible timetabling. The project will also facilitate more investment in public transport between Voss, Arna and Bergen, and encourage continued growth in goods traffic. The double track will also make a substantial contribution to efficient operations and maintenance on the route. To improve safety in the tunnel, 16 crosscuts will be established between the new and the old tunnel, which can be used in the event of evacuation. When the new tunnel is complete the existing tunnel will be renovated, including fire safety measures.

Bergen-Fløen
There will be a new double track from Ulriken to Bergen. Technical railway systems will be modernised. An interlocking system will be installed at Bergen station and will also be capable of controlling Arna station. Major requirements have been set out when it comes to the coordination of the works in order to achieve the most optimal traffic management during the development period.

Some facts about Arna - Bergen:
- 9.1 km of new double track (7.8 km in new tunnel through Ulriken) upgrade through the existing tunnel
- 16 crosscuts between the new and old tunnels
- new interlocking system at Bergen station
- extensive upgrade of Arna station
- construction is scheduled to commence in June 2014 and completion is scheduled for 2021
- budget NOK 3.25 billion

Assignments and contracts
During autumn/winter 2015/16, the project will advertise two preparatory contracts:


In spring 2016, the main contract for Arna station will be advertised, comprising the following works:
Ground contract: platform redevelopment, outdoor/landscaping works, water and sewage relocation, development of supply routes and cable relocation.
Structures: expansion of passenger and water culverts, development of technical structures, ramps and redevelopment of the station building.
Preparatory works for tracks and technical railway works.

Commencement of work: January 2017

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Twice as many trains, fewer delays and reduced travel time

Eidsvoll-Hamar is one of the most heavily trafficked singletrack railway sections in Norway. The development of a new continuous double track will lead to fewer delays and the travel time between Oslo and Hamar will be reduced to less than an hour.

It is currently not possible to run more trains during the periods with the greatest demand without affecting the punctuality and speed of the trains. The development includes both passenger trains and freight trains and the phased development allows the increased capacity to be put to use as and when new phases are completed.

**Framework conditions for the development**

The Eidsvoll-Hamar section is part of the development of the InterCity network in the Eastern Norway region. An assumption is made in the National Transport Plan (NTP) for the 2014-2023 period, adopted by the Norwegian parliament during the summer of 2013, that the continuous double track to Hamar will be complete in 2024 and that a double track to Lillehammer will be scheduled by 2030.

The Langset-Kleverud section (Joint Project E6-Dovre Line) is currently under development and the double track is due to open in November 2015. For the other sections, the priorities in the NTP indicate substantial planning activities during the 2015-2017 period. The assumption is that the development works for the new sections will be implemented from 2018.

During autumn 2015, Jernbaneverket will be working on the local development plans for the sections Venjar-Eidsvoll (4 km) and Eidsvoll-Langset (9 km). The aim is to obtain approval for the local development plans in 2016. Contracts are scheduled to be advertised for tender in 2017 and the commencement of work has been scheduled for 2018, although Jernbaneverket will be ready for earlier commencement if possible.

**Venjar - Eidsvoll stasjon**
- Situated along the Gardermoen line.
- The route was adopted by Eidsvoll municipal council in 2015.
- The single track section has been a bottleneck ever since the Gardermoen line opened in 1998.
- There will be expansion from one to two tracks on the eastern side of the existing track over a section of four kilometres. Additionally, adaptations will be made to Eidsvoll station.
- The route passes through challenging terrain in a hilly ravine landscape with loose masses and demanding ground conditions.
- A third of the section contains structures. Four railway bridges and a 480 metre long loose mass tunnel will be developed.

**Eidsvoll stasjon - Langset**
- Situated along the Dovre line.
- The previous railway opening took place when the Eidsvoll – Hamar line was completed in 1880.
- The route was adopted by Eidsvoll municipal council in 2015.
- Nine kilometres of double track are scheduled for completion in 2023. This will be developed in close proximity to the existing track for some of the section.
- It will include Norway’s second-longest railway bridge which will be 900 metres long and will cross Vorma near Minnesund.

**Kleverud - Sørli**
- Situated along the Dovre line.
- Here, 17 kilometres of new double track will be developed, including the Hestnes tunnel, of approximately three kilometres, and Norway’s longest railway bridge, of 1.2 kilometres, across Tangenbuuka.
- A new station will be built at Tangen, with side platforms for northbound and southbound tracks and a passing loop in the middle.
- Large parts of the section are situated in the exposed zone surrounded by unspoilt land.
- This will be linked to the existing railway at Sørli.

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New station - New double track

New double track from Sandbukta, just north of Moss, to Såstad in Rygge - scheduled for completion in 2023. The development, which will link the existing double track sections on the Østfold line, also includes a new station at Moss.

From the end of the current double track in Sandbukta, approximately 700 metres of exposed track will be developed before the route enters a 2.6 km long tunnel under the centre of Moss. For the final 400 metres of the tunnel in Nyquistbyen, a construction trench will be excavated and a concrete tunnel (culvert) will be cast before the ground is re-established.

New tracks through Moss
The tracks will split inside the concrete tunnel and the new Moss station will be built to the south of the opening, with four tracks to platforms. Tracks will also be developed for turning and stabling of trains in this area, as well as a connecting track to the port of Moss. The total length of the station will be approximately 1400 metres.

From the station, the double track continues in a tunnel of approximately two kilometres towards Carlberg. The final four kilometres will be exposed and will run to the link with the existing double track at Såstad.

Investigating possibilities
Jernbaneverket is working on a draft development plan for the project and this will be presented for consultation and resolution in the municipalities in the first half of 2016. According to the National Transport Plan, the development is scheduled to commence in 2018 and the announcement of the main contract(s) is likely to take place in the second half of 2017.

Jernbaneverket is investigating the possibility of performing some preparatory works in 2016 and 2017, predominantly the moving of existing technical railway systems.

Urban and hub developments
In the planning of the new Moss station, Jernbaneverket will emphasise urban and hub developments in consultation with the municipality of Moss and other stakeholders.

The station will be built in such a way that it will be possible to have four departures per hour for both local trains and InterCity trains in the future, as well as one freight train. The travel time to Oslo will be approximately 30 minutes for the fastest trains.
Hove stabling (Lillehammer)

Increased traffic on the Skien – Lillehammer route in future years will result in a need for additional stabling. Jernbaneverket will be constructing a new rail yard at Hove to increase capacity for stabling and turning of trains north of Lillehammer.

**Project scope**
- Ground work
- Most probably a new track to the rail yard
- Track for stabling of ten train sets plus spare capacity
- Signalling and interlocking system (Thales type)
- Overhead line
- Lighting
- Potential hall (under investigation)
- Possibility of easy corrective maintenance
- Service building
- Train washing facility
- New electro-technical structures
- Parking spaces for cars and bicycles
- Fencing and gardens

**Status and planned implementation**
Work is ongoing for the main plan. The development work is scheduled to commence in 2017 and will be complete in 2018.

**Costs**
The preliminary project cost is estimated at NOK 200 million (current main plan). The project budget may become substantially larger in the revised main plan.

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Skien stabling

Increased traffic on the Skien – Lillehammer route in future years will result in a need for additional stabling. Jernbaneverket will be constructing additional tracks at Skien rail yard to increase capacity for stabling and turning of trains.

**Project scope**
- Ground work
- Five new stabling tracks with enough space for 18 train sets, a new extraction track and a new access track.
- Overhead line
- Lighting
- Train washing facility
- Service building and service kiosks
- Train heating posts
- Parking spaces for cars
- Ramp for goods deliveries
- Fencing and gardens
- Noise screening

**Status and planned implementation**
Work on notes to the main plan is ongoing. Development work is scheduled to commence in 2016 and will be complete in 2017/2018.

**Costs**
NOK 210 million (current main plan) + unknown surcharge due to increased project scope (main plan notes).

**Contracts**
Announcement of contracts is scheduled for the middle of 2016.

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Illustrative photo: Installation of protection blocks. Photo: Jernbaneverket/Hilde Lillejord.
Heggedal station – concurrent entry

Jernbaneverket will facilitate concurrent entry to Heggedal station to ensure more resilient and flexible traffic management on the Spikkestad Line. Concurrent entry means that trains that will be crossing at the station can enter at the same time.

**Project scope**
- Extend and adapt the station platforms
- Close down level crossings
- Construct an extended passing loop with new switch point
- Signalling and interlocking work
- New overhead line work

**Status and planned implementation**

The main plan has been approved and the work on the detailed plan will be carried out in 2015. Main works in 2016 and completion of the project in 2017.

Announcement of contracts is scheduled for Q1 2016.

**Costs**

The project has a budget of approx. NOK 100 million (main plan).

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Heggedal station was upgraded in 2012. Jernbaneverket will now be facilitating concurrent entry to the station. Photo: Jernbaneverket/Hedda Nossen

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Sørumsand station

Jernbaneverket will upgrade Sørumsand station to improve safety and accessibility for passengers on the Kongsvinger Line.

**Project scope**
- Extend and raise the platform for track 1
- New side platform for track 3
- Disassemble the central platform and remove the level crossing
- Build a universally designed underpass with stairs and lift
- New overhead line, lighting
- Some signalling and track work
- Adaptations to the existing bus terminal
- Furnishing
- Speaker system, monitors and train indicators

**Status and planned implementation**
Work is ongoing on the detailed plan. So far a decision has not yet been made as to whether to announce a main contract or a prime contract. An announcement is scheduled for autumn 2015 (for a prime contract) or winter 2015/16 (for a main contract). The development works are scheduled to take place during 2016/2017.

**Costs**
The project budget is NOK 160 million (uncertainty analysis in accordance with the main schedule).

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Photo: Norwegian National Rail Administration/Njål Svingheim
Skarnes station

Jernbaneverket will upgrade Skarnes station to improve safety and accessibility for passengers on the Kongsvinger Line.

**Project scope**
- Two new tracks and one operation track
- Two new platforms
- Disassemble the central platform and remove the level crossing
- Build a universally designed underpass for pedestrians and cyclists
- New overhead line
- Lighting
- Signalling and interlocking system
  - Furnishings, speaker system, monitors and train indicators

**Status and planned implementation**
Work is ongoing for the main plan. The development works are scheduled to take place during 2016/2017.

**Costs**
The project has a budget of NOK 200 million (main plan).

Photo: Norwegian National Rail Administration/Njål Svingheim

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ERTMS – Procurement commencing in 2016

Norway’s first railway stretch with ERTMS (European Rail Traffic Management System) will open for ordinary train traffic in August 2015. The experiences from the eastbound Østfold Line will contribute to a more efficient implementation of the new signalling system across the rest of the railway network.

The implementation of ERTMS signals a technological turning point for train operations in Norway. The new system will contribute to reducing the number of technical faults in the railway, and will also allow for increased capacity and improved safety due to continuous speed monitoring.

During autumn 2015 the ERTMS national implementation project will be evaluated in an external quality assurance (KS2) procedure, ensuring that extensive government investment projects are completed at the right time, cost and quality.

**Procurements**

Jernbaneverket aims to initiate the formal ERTMS procurement process in 2016. Following the prequalification period the supplier market will compete for three large assignments: ERTMS systems along the railway, ERTMS installation on trains and a new nationwide system for traffic management (TMS – Traffic Management System).

**Necessary replacement**

There is a great need for replacing the current signalling system. The majority of the signalling technology that is currently in operation has reached or will soon reach the end of its technical service life. Combined with a noticeable increase in train traffic in recent years this is resulting in technical faults that affect the regularity and reliability of the railway.

With ERTMS the Norwegian railway will make the move from relay technologies to computer-based signalling systems. The modernisation of the current signalling system has been set down in Jernbaneverket’s national signalling plan, an overall renewal plan addressing current renewal needs, ongoing development projects and the scheduled growth in train traffic.

**Advantages of ERTMS**

- The speed and position of all trains are continuously monitored.
- The system continuously calculates the braking length based on speed, incline or curve.
- Railway accessibility is improved. There will be less equipment in the tracks that can fail and thus less time will be spent on troubleshooting.
Renewal of overhead line with automatic transformer system (AT)

Jernbaneverket has developed and customised a new concept for a new overhead line system with AT for an improved, stronger line power supply. The section between Egersund and Sandnes is adopted as the first section.

**Brief information on the project**

The project consists of renewing the overhead line system of 62 km of track, from Kjelland transformer station to Sandnes station. Overall, the project includes ten stations and two stops. A total of nine automatic transformers will be built, as well as 64 km of new overhead line system 20, approximately 50 km of blank high-voltage line (2 x 400 mm² AL for PL and NL to AT system) and approximately 6 km of high-voltage cables for PL and NL. The current status is that the AT system is operable in three of the six sub-sections. The final deadline for the contractor is September 2016.

**Brief information on the AT-concept**

The AT system concept is focused predominantly on the development of longitudinal high-voltage lines (PL and NL) with a voltage of 30 kV along the entire section. Automatic transformers will be placed in separate structures/kiosks at intervals of 10 km. The transformers will contribute to supplying power to the trains, which will run at 15 kV as before.

The overhead line system will be built as system 20 (ordinary standard in Norway). The overhead line will be divided into sections of a maximum of 6 km and will be supplied from the PL line so that each overhead line section is coordinated with the main signals in the section. PL and NL are normally routed as blank lines on the top of the KL masts but are laid in cables where there is no room for blank lines (in tunnels, under overpass bridges or other obstacles).

The AT system concept eliminates the need for suction transformers in the section and also make it possible to have a greater distance between transformer stations. Further development of the AT system will be determined based on the need for renewal of the overhead line system and the need for renewal of transformer stations.

**Substantial increase**

Jernbaneverket’s renewal plan for 2016-2027 outlines a substantial increase in the annual renewal of railway infrastructure. A substantial increase from current levels is planned for overhead lines. The over line/AT-project comprises all railway lines in Norway that runs on electricity (as seen on the map. For further details, please contact our Project Management.
Electrification of the Trønder Line and the Meråker Line

The electrification of the Trondheim-Steinkjer, Stavne-Leangen and Hell-Storlien routes is an important strategic measure to further develop the infrastructure and strengthen the competitiveness of the railway. This would allow for both passenger traffic in Trøndelag and goods traffic to and from Trøndelag to increase.

**Project scope**
The electrification of the routes will contribute to more efficient and flexible traffic management. It will also reduce greenhouse gas emissions and contribute to a more environmentally friendly railway.

The project will electrify more than 200 km of railway line. This will include, for example:
- New overhead line system (system 20) with automated transformers
- Two new transformer stations
- Converting the interlocking system of 18 stations and five block sections
- New interlocking system in the Meråker Line
- Profile expansions for tunnels, railway bridges, overpass bridges and embankments.

**Status and planned implementation**
According to the plan the project will enter into a contract with a consultant for the preparation of the detailed plan during the first half of 2015.

Preliminary progress schedule:
- Detailed planning - 2015
- Approval of detailed plan and KS2 - 2016
- Enter into contracts - 2016/2017
- Commencement of construction works - 2017
- Completion by the end of 2023 (according to NTP)

**Costs**
The budget for the project is approximately NOK 3 billion.

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The Trøndelag Line is currently used by diesel trains. The line will now be electrified. Photo: Jernbaneverket.
Customer information project

Jernbaneverket is actively working on the upgrades to the customer information system in order to provide better customer information to passengers. Following the timetable change in 2014 there are now 337 stations and stops for passenger trains. The customer information system has already been put into place at 101 stations and in the next couple of years a further 180 stations are scheduled for upgrades.

**Project scope**
Contracts include the construction of customer information systems, speakers and dynamic visual information (monitors and indicators) and the local technological equipment necessary for the operation of the systems at the stations. The scope for the contractor will be detailed project engineering of ground works, electrics and telecommunications, based on the framework provided by the project and construction and installation. Monitors, indicators, track signs, suspensions and speakers are equipment that will be supplied by the developer. Cables, coupling boxes, etc. are part of the contractor’s delivery.

**Costs**
The various sub-projects will vary substantially with regard to costs, scope and complexity. This is in part because the number of passengers and station design influence the scope of the customer information system. The complexity also varies greatly due to the differences in the existing infrastructure and work in close proximity to tracks. The anticipated budget is approximately NOK 270 million (main plan).

The contracts will be split into geographically separate sub-projects. Below you can find a preliminary overview of the various line sections.

- **Under development 2014-2015**
  - Drammen Line, Skøyen – Asker
  - Main Line/Gardermoen Line, Lillestrøm – Eidsvoll Verk
  - Østfold Line, Ski station
  - Voss Line, Voss – Bergen

- **Under development 2015-2016**
  - Oslo Central Station and Nationaltheatret
  - Jæren Line, Egersund - Stavanger
  - Dovre Line/Nordland Line, Støren – Trondheim – Steinkjer
  - Østfold Line eastbound/westbound, (Oslo Central station) – (Ski)
  - Kongsvinger Line, Nerdrum - Auli
  - Gjøvik Line, Grefsen – Gjøvik

- **Under development 2016-2017**
  - Røros Line, Løten – Røros – Ålen
  - Nordland Line, Snåsa – Bodø
  - Ofot Line, Narvik
  - Bergen Line, Hønefoss – Myrdal
  - Flåm Line, Flåm

- **Under development 2017**
  - Bratsberg Line, Notodden – Nordagutu
  - Sørland Line, Bø – Moi
  - Arendal Line, Arendal
  - Dovre Line, Ringebu – Dombås – Marienborg

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Geographical classification
The Northern Norway Region comprises the Nordland Line from Steinkjer to Bodø as well as the Ofoten Line from Narvik to the Swedish border. Projects totalling more than NOK 500 million have been planned for the region in 2015.

The project portfolio comprises everything from construction and civil engineering to purely technical railway contracts and the scope and complexity vary. Apart from two large passing loop projects (see separate pages in this brochure) a number of smaller maintenance and renewal projects will be implemented.

Extensive rehabilitation of concrete bridges and foundations will be carried out on the Nordland Line this year. This will include track works, removal and re-establishment, water chiselling and mechanical chiselling of concrete, concrete works, impervious membrane, railing works, etc. The scope and number of interventions will be clarified during February/March and will be specified in the tender documents.

Additionally, there is a major project concerning the replacement, upgrade and repair of culverts, rehabilitation of trenches and enclosed drainage and stability improvements for embankments.

There are also a number of minor maintenance and renewal projects on the Ofoten and Nordland lines in 2015. The amounts are estimated values.

- Drainage interventions, Nordland Line: NOK 20 million
- Bridge maintenance: NOK 25 million.

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Bridge work on the Nordland line Photo: Jernbaneverket.
Djupvik passing loop

It is necessary to increase capacity in the Ofoten Line to allow for more and longer ore trains. The passing loop at Djupvik will be extended so that it can handle 750 metre trains.

**Scope of the project**
The Djupvik passing loop will be built in a tunnel running in parallel with the existing track. The total length of the new track will be 1060 metres from centre to centre. The tunnel will be approximately 800 metres long and 100,000 cubic metres of solid rock will be removed.

**Status and planned implementation**
The tender specification for the construction works is expected to be complete during 2015 for publication in January 2016. Tunnel works and rock works will be carried out in 2016 whereas the technical railway contract is scheduled for execution in 2017.

**Costs**
The consultant contract has been estimated at NOK 5-7 million. The project has a budget of NOK 256 million.

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Track works on the Ofoten line. Photo: Jernbaneverket.
The Central Norway Region comprises the following line sections: parts of the Dovre line (Fåberg-Trondheim), Rauma line (Dombås-Åndalsnes), Røros line (Hamar-Støren), Solør line (Kongsvinger-Elverum), Meråker line (Hell-Storlien border) and the southern part of the Nordland line (Trondheim-Steinkjer).

Projects totalling nearly NOK 700 million have been planned for the region in 2015. The project portfolio comprises everything from construction and civil engineering to purely technical railway contracts. The size and complexity of the projects vary.

Tender competitions have already been announced for some of the projects whereas contracts have been entered into with suppliers for others. Existing framework agreements will be used for a number of projects.

Below you can find a selection of procurements that will be announced to the market in 2015 via either TransQ or Doffin. The amounts are estimated values.

- Bridge maintenance: NOK 15 billion.
- Rockfall and landslide prevention: NOK 10 billion.
- Track replacement: NOK 10 billion.
- Switch point replacement: NOK 5 billion.
- Preparatory ballast cleaning: NOK 10 billion.
- Substructure measures: NOK 40 billion.
- Platform and station measures: NOK 15 billion.
- Flood protection measures in rivers and tributaries: NOK 45 billion.
- Environmental measures: NOK 10 billion.
- Consultancy services: NOK 5 billion.
- Remediation and securing of level crossings: NOK 25 billion.

Track works. Photo: Jernbaneverket/Øystein Grue.

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The Western Norway Region operates and maintains the Bergen line from Hønefoss to Bergen, parts of the Randsfjord line (Hønefoss – Hokksund) and the Roa line (Roa – Hønefoss). The Western Norway Region also covers the Flåm Line, running from Myrdal to Flåm.

The Western Norway Region has an extensive project portfolio for 2015 and will implement projects exceeding NOK 400 million in total. The projects cover everything from the renovation of avalanche and landslide superstructures, landslide protection in side areas, renovation of drainage systems along tracks and side areas, development of flood protection for the renovation of station systems and renovation of tracks and overhead line systems.

The scope of the projects varies greatly and some of the projects will be implemented under existing contracts and framework agreements. There will also be some new invitations to tender within various disciplines during 2015 and a number of our framework agreements are due to be announced and renewed during the year or by 2016.

Below you can find a small selection of our projects for 2015. The amounts are estimated values.

- Drainage works, Bergen Line: NOK 45 billion.
- Rockfall and landslide prevention: NOK 50 billion.
- Flood protection: NOK 25 billion.
- Renewal of snow superstructure: NOK 15 billion.
- Track renewal: NOK 30 billion.
- Renewal of overhead lines: NOK 13 billion.
- Renewal and maintenance of bridges: NOK 18 billion.

Landslide protection on the Bergen line. Photo: Jernbaneverket.
The Southern Norway Region comprises the Sørland Line from Kongsberg to Stavanger, Bratsberg Line (Larvik-Nordagutu-Notodden) and Arendal Line (Nelaug-Arendal).

Projects totalling nearly NOK 57 million have been planned for the region in 2015. The project portfolio comprises everything from construction and civil engineering to purely technical railway contracts. Naturally, the scope and complexity of the projects vary.

Below you can find a small selection of the assignments we will have to offer during the year. The amounts are estimated values.

- Preparatory ballast cleaning: NOK 15 billion.
- Bridge maintenance: NOK 5 billion.
- Sleeper replacement: NOK 5 billion.
- Track replacement: NOK 7 billion.
- New platform, Klepp station: NOK 15 billion.
- New platform, Øksnevadporten stop: NOK 15 billion.

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Projects totalling nearly NOK 400 million have been planned for the region in 2015. The project portfolio comprises everything from construction and civil engineering to purely technical railway contracts.

Naturally the scope and complexity of the projects vary but we have emphasised the combination of assignments that naturally belong together into larger and hopefully more attractive package solutions when preparing the invitations to tender.

The project portfolio for the Eastern Norway Region is split into 23 different invitations to tender, which will be announced to the market early in 2016.

There will also be additional projects with investments in new road barrier systems and stations.

Below you can find a small selection of the assignments we will have to offer during the year. The amounts are estimated values.

- Drainage measures: NOK 25 billion.
- Preparatory ballast cleaning: NOK 40 billion.
- Bridge maintenance: NOK 10 billion.
- Rockfall and landslide prevention: NOK 20 billion.
- Sleeper/rail replacement: NOK 25 billion.
- Replacing points: NOK 25 billion.

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Greverud station on the Østfold line was upgraded in 2014.  
Photo: Jernbaneverket/Harry Korslund.
Oslo Corridor Region

The Oslo Corridor Region comprises the Main Line/Gardermoen Line (Oslo-Eidsvoll), southbound Dovre Line (Eidsvoll-Fåberg), Drammen Line (Oslo-Drammen), Asker Line (Lysaker-Asker), Spikkestad Line (Asker-Spikkestad), Vestfold Line (Drammen-Larvik) and parts of the Sørland Line (Drammen-Kongsberg).

Projects totalling nearly NOK 750 million have been planned for the region in 2016. The project portfolio comprises everything from construction and civil engineering to purely technical railway contracts.

Naturally the scope and complexity of the projects vary but we have emphasised the combination of assignments that naturally belong together into larger and hopefully more attractive package solutions when preparing the invitations to tender.

The overall project portfolio for the Oslo Corridor Region is split into more than forty invitations to tender, which will be announced to the market during the year. Some contracts have already been entered into, several invitations to tender have been issued and there are more to follow during 2016.

Below you can find a small selection of the assignments we will have to offer during the coming year. The amounts are estimated

- Renewal, Oslo Central Station: NOK 300 billion.
- Misc. renovation and renewal works, Oslo region: NOK 40 billion.
- Renovation and renewal work, Alnabru: NOK 30 billion.
- Renovation and renewal work, Loenga: NOK 10 billion.
- Renovation and renewal work, Asker-Larvik (Vestfold Line): NOK 46 billion.
- Renovation and renewal, Eidsvoll-Fåberg (Dovre Line): NOK 121 billion.
- New measures, Dovre Line (Eidsvoll-Fåberg): NOK 71 billion.

Capacity increase, Gardermoen station:
Immediate measures, Alnabru and measures for signalling system:
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