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Siemens will digitalize the Norwegian Railway infrastructure

- **Biggest rail infrastructure order in Siemens history**
- **Order worth around 800 million Euros**
- **Approximately 4,200 track kilometers and 375 stations**
- **Scheduled completion by 2034**
- **25 years of service starting with the commissioning of the first line**

Siemens is to equip the entire Norwegian railroad network of approximately 4,200 track kilometers with the European Train Control System (ETCS) Level 2 type Trainguard combined with the interlocking type Simis W and IP-based wayside network communication solution type Sinet. The order was placed by Bane NOR SF, the state-owned company responsible for the Norwegian national railway infrastructure responsible for owning, maintaining, operating and developing the Norwegian railway network. The new digital signaling system enhances safety, punctuality and capacity on the rail system and is planned to be completed in 2034. The contract also includes maintenance services for 25 years and is worth around 800 million euros in total.

“This marks the start of modernization of the railway network in Norway. Bane NOR is creating the railway of the future with one of Norway's largest digitization projects. We are confident, that Siemens, by winning the contract to provide a new digital signal system, will contribute significantly to our network's modernization,” says Sverre Kjenne, Bane NOR Executive Vice President.

“This project is a major step in signaling history - a technology step only comparable to the change from relay to electronic interlockings in the 80s. Together with Bane NOR Siemens will renew the complete Norwegian rail network into a full digital IP

based system - a real 'Internet of Things' system. This will save much hardware, allow for maximized capacity and provide the basis for data based minimized preventive maintenance. In the end it will allow to give passengers a far more efficient and reliable travel experience with far higher punctuality, increased capacity and throughput. All will be controlled via a central interlocking in Oslo, which gives the trains the authority to proceed via our ETCS Level 2 solution. The contract is not only the largest single delivery for Siemens in Norway, but also for the Siemens rail infrastructure business ever," says Michael Peter, CEO of the Mobility Division.

The investment in ETCS is a major step in a Norwegian railway revolution. Bane NOR will invest more than 2 billion euros in digitalization and automation of its railway network over a ten-year period. This will be done through Bane NOR's ERTMS (European Rail Traffic Management System) initiative, and will make Norway a pacesetter in using digital technology in the rail sector.

With the new ETCS technology, the Norwegian rail system's signaling system will be digitalized. The project's scope of delivery includes the complete signaling system with interlockings, ETCS Level 2 system, point machines, train detection systems, level crossings and associated infrastructure along the lines. Implementation will be carried out during ongoing operations. The first line to be equipped with the new signaling system will be the Nordlandsbanen and is scheduled to begin operation in 2022. The introduction of ETCS in the Oslo area is planned for 2026. Completion of the new interlocking and train control system is planned by 2034.

The Sinet distributed smart safety system is based on industry standard communication interfaces and includes functionality for cloud-based services. With the ETCS as a cab-signaling system, main signals are no longer required along the lines since signal aspects are directly transferred to the driver's cab. This will make railway operation more efficient.

The system is part of a European standard that will replace today's more than 20 different train management systems. With ETCS train interoperability, routing throughout Europe can be achieved. For example, a freight train can be driven from Italy up to Norway without having to change locomotives at borders. This will make the transportation of goods and passenger both quicker and cheaper than today.

Benefits: ETCS Level 2 not only reduces infrastructure costs to a significant extent, but also increases line capacity and reducing journey times.

This press release and for information are available at:

www.siemens.com/press/ERTMS-Norway

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