

= Oslo Commuter Rail =

Oslo Commuter Rail (Norwegian : NSB Lokaltog Østlandet) is a commuter rail centered in Oslo , Norway , connecting the capital to six counties in Eastern Norway . The system is operated by the Norwegian State Railways (NSB) and its subsidiary NSB Gjøvikbanen , using Class 69 and Class 72 electric multiple units (EMU) . The network spans eight routes and 128 stations , with Oslo Central Station (Oslo S) as the central hub . The trains run on 553 kilometers (344 mi) of electrified mainline railway owned by the Norwegian National Rail Administration . Deficits are financed by the Norwegian Ministry of Transport and Communications , although the network also has a ticketing cooperation with Ruter , the public transport authority in Oslo and Akershus . The network is the longest commuter rail network in the Nordic countries , and among top ten in Europe .

The commuter rail operates mainly within Greater Oslo and two of the lines only provide services within the urban area . Six of the lines span beyond the urban area , reaching the counties of Østfold , Hedmark , Oppland and Buskerud . The system is also an airport rail link to Oslo Airport , Gardermoen . West of Oslo , the system uses the Drammen , Asker , Spikkestad and Sørland lines , north of Oslo it uses the Gjøvik Line , east of Oslo it uses the Trunk , Gardermoen and Kongsvinger lines and south of Oslo it follows the Østfold and Eastern Østfold lines .

The system 's predecessors date back to the opening of the Trunk Line in 1854 . By 1902 , all the routes used by the present commuter rail had been taken into service . Electrification started in 1922 , and Class 62 EMUs were introduced in 1931 , followed by Class 65 units in 1936 and Class 67 in 1953 . Electrification was completed in 1963 . In 1980 , the Drammen Line was connected to the rest of the system and all trains started operating to the new Oslo S. The high @-@ speed Gardermoen Line opened in 1998 . In 2013 , new Stadler FLIRT units were taken into traffic , and the Asker Line was completed just before . By 2018 , the Follo Line is scheduled to open .

= = Network = =

The Oslo Commuter Rail runs entirely on mainline railways owned and maintained by the Norwegian National Rail Administration . The commuter rail uses ten lines , utilizing a line length of 553 kilometers (344 mi) . The lines are all electrified at 15 kV 16 2 ? 3 Hz AC and consists of 128 stations . The Asker , Drammen , Gardermoen and Østfold lines , and part of the Trunk Line , have double track , accounting for 204 kilometers (127 mi) , while the rest of the network has single track .

Oslo S is the central hub of the commuter rail . Located in the central business district of Oslo , all lines either terminate at , or run through the station . From Oslo S , there are four main corridors . All trains running through the West Corridor continue along either the North , South or East Corridor . Because there are more services in the latter three , some of these terminate at Oslo S.

= = = West = = =

Along the West Corridor , the Drammen Line runs straight into the Oslo Tunnel , which starts directly beneath Oslo S. Trains run through Nationaltheatret , Norway 's second @-@ largest station , while in the tunnel . Just after surfacing , trains halt at Skøyen . Four of the routes see their trains terminate at Skøyen , while the remaining four continue onwards to Lysaker . After Lysaker , Line 400 continues stopping at all nine stations serving suburbs in Bærum and Asker , before reaching Asker Station , which serves as the terminus for most Line 400 services . For Line 400 , Asker is 35 minutes and 24 kilometers (15 mi) from Oslo S.

Lines 440 , 450 and 550 only call at Sandvika before Asker , and use the Asker Line between the two stations . After Asker Station , Line 550 branches off along the Spikkestad Line and calls at seven stations in Asker and Røyken before terminating at Spikkestad Station . Spikkestad is 44 minutes and 37 kilometers (23 mi) from Oslo S. Lines 440 and 450 , and some Line 400 trains , continue through the Lieråsen Tunnel and make two more stops before reaching Drammen .

Drammen is 39 minutes and 42 kilometers (26 mi) from Oslo S. Only Line 450 continues , along the Sørland Line , calling at seven stops in Eiker and Kongsberg before terminating at Kongsberg Station . Kongsberg is 1 hour and 20 minutes , and 89 kilometers (55 mi) from Oslo S.

== = East = = =

Along the East Corridor , Line 400 follows the Trunk Line and makes eleven stops serving suburban areas in Oslo , Lørenskog and Skedsmo before reaching Lillestrøm Station , where the line terminates . For Line 400 , Lillestrøm is located 29 minutes and 21 kilometres (13 mi) from Oslo S. Lines 440 , 450 and 460 use the Gardermoen Line and the Romerike Tunnel to run directly to Lillestrøm . From there , lines 440 and 450 run along the Trunk Line , making four and two stops , respectively . After Kløfta Station , Line 440 continues along the Trunk Line , making three more stops until terminating at Dal Station . Dal is 34 minutes and 57 kilometers (35 mi) from Oslo S. Line 450 switches to the Gardermoen Line , and calls at Oslo Airport Station and Eidsvoll Verk Station before terminating at Eidsvoll Station . Eidsvoll is 51 minutes and 64 kilometers (40 mi) from Oslo S. Line 460 branches from Lillestrøm and operates along the Kongsvinger Line . It calls at eleven stations and enters Hedmark before Årnes Station , where most trains terminate . Årnes is 53 minutes and 58 kilometers (36 mi) from Oslo S. A limited number of trains make express services to Årnes , then call at up to five more stations before reaching Kongsvinger Station , which is 1 hour and 10 minutes , and 100 kilometers (62 mi) from Oslo S. Several of these Kongsvinger trains are actually Swedish inter @-@ city trains to Karlstad and two per day to Stockholm . These trains act like local trains in Norway and get financial support for that , needed to make them profitable .

== = South = = =

Along the South Corridor , three lines follow the Østfold Line . Line 500 makes 12 stops before terminating at Ski Station , which is 31 minutes and 24 kilometers (15 mi) from Oslo S. Line 550 and 560 make only one stop each , at Kolbotn and Holmlia , respectively , before Ski . Southwards , Line 550 follows the Western Østfold Line with four intermediate stops before Moss , which is 49 minutes and 60 kilometers (37 mi) from Oslo S. Line 560 runs along the Eastern Østfold Line with 11 intermediate stops before Mysen Station , which is 1 hour and 5 minutes and 63 kilometers (39 mi) from Oslo S. A limited number of services continue with two more stops before terminating at Rakkestad Station , which is 1 hour and 21 minutes , and 68 kilometers (42 mi) from Oslo S.

== = North = = =

North of Oslo , NSB Gjøvikbanen operates along the Gjøvik Line . Trains operate either to Hakadal Station , Jaren Station or Gjøvik Station . The line is the only one to enter Oppland and calls at 23 stations north of Oslo S. Hakadal is 43 minutes and 32 kilometers (20 mi) from Oslo S , while Jaren is 1 hour and 25 minutes , and 72 kilometers (45 mi) from Oslo S. Gjøvik is the station furthest from Oslo , located 123 kilometers (76 mi) and 1 hour and 55 minutes away .

From December 2012 , only the stretch between Oslo and Jaren are considered part of the commuter rail network , with 1 @-@ 2 local trains per hour per direction . Additionally , regional trains go to Gjøvik once per two hours , skipping 7 of the 11 stops closest to Oslo .

== Service ==

Seven of the lines are operated by the Norwegian State Railways , owned by the Norwegian Ministry of Transport and Communications , while the Gjøvik Line is operated by the NSB @-@ owned NSB Gjøvikbanen . The operating deficit is covered by the state for NSB 's lines , while NSB Gjøvikbanen 's routes are financed by a public service obligation . The trains have two sections , manned and unmanned . Validated ticket @-@ holders can travel in the unmanned section , which have orange doors . Manned sections , with gray doors , have a conductor and allow passengers to

purchase tickets . Tickets are available at ticket machines at stations ; if bought inboard , there is a 20 Norwegian krone (NOK) surcharge .

Two of the lines , 400 and 500 , are designated as providing inner services . These operate along the Drammen Line to Asker , along the Trunk Line to Lillestrøm and the Østfold Line to Ski , stopping at all stations . The six other line , which make up the outer services , only make occasional stops on these sections . The inner services operate with a normal headway of 30 minutes , with 15 minutes offered in one direction during rush hour . In late evening and parts of the weekend , this is further reduced to 60 minutes . NSB 's outer routes operate with a normal headway of 60 minutes , with rush @-@ hour services offered at 30 @-@ minute intervals and late evening service provided every 120 minutes . Services between Årnes and Kongsvinger is limited to five daily services , and from Mysen to Rakkestad with four daily services . The Gjøvik Line runs with a 40 @-@ minute headway , with three different stopping patterns . One calls at all stations until Hakadal , one calls at most stations until Jaren , while one is an express service that runs the line 's full length to Gjøvik .

Within Oslo and Akershus , NSB has an agreement with the public transport authority Ruter to use their fares and ticketing system to ease transfer between the commuter rail and other forms of public transport . Ruter makes use of a zone system , including a single @-@ zone fare within Oslo . From 2010 , the contactless ticket system Flexus is being introduced . In Oslo , there is transfer to the Oslo Metro at Oslo S (to Jernbanetorget) , at Nationaltheatret and at Grefsen (to Storo) . Transfer to the Oslo Tramway is possible from Oslo S , Nationaltheatret , Skøyen and Grefsen . At Moss , there is transfer to the Moss ? Horten Ferry . Line 450 provides connection to Norway 's main international airport , Oslo Airport , Gardermoen .

= = Rolling stock = =

NSB Class 69 is a series of 88 two and three @-@ car electric multiple units built by Strømmens Værksted between 1970 and 1993 . A motor car has a power output of 1 @, @ 188 kilowatts (1 @, @ 593 hp) , allowing a speed of 130 kilometers per hour (81 mph) . Each car is 24 @. @ 85 meters (81 @. @ 5 ft) long , with motor cars weighing 64 @. @ 0 to 53 @. @ 9 tonnes (63 @. @ 0 to 53 @. @ 0 long tons ; 70 @. @ 5 to 59 @. @ 4 short tons) and end cars weighing down to 28 @. @ 8 tonnes (28 @. @ 3 long tons ; 31 @. @ 7 short tons) . Typical seating capacity is 96 passengers in the motor cars and 112 passengers in the end cars . The class was delivered in four versions , named A through D. After the initial delivery of fifteen 69As in 1970 and 1971 , twenty 69Bs were delivered in 1974 and 1975 . These were designed to operate on longer sections and were equipped with only one door per car . This turned out to extend stopping time too much , and the C and D versions were delivered with two doors per car . From 1975 to 1977 , NSB took delivery of fourteen 69Cs and from 1983 to 1993 thirty @-@ nine 69Ds . The latter is distinguishable because of its different front . NSB operates both two- and three @-@ car sets , and up to three units can be run in multiple , allowing NSB to operate any train length from two to nine cars . Eighty @-@ two units remain in service , although some of those are used on the Bergen Commuter Rail and the Arendal Line .

NSB Class 72 is a series of 36 four @-@ car electric multiple units built by AnsaldoBreda . The units are permanently coupled together using Jacobs bogies . Each unit has a power output of 2 @, @ 550 kilowatts (3 @, @ 420 hp) , allowing a top speed of 160 kilometers per hour (99 mph) . The trains are 85 @. @ 57 metres (280 @. @ 7 ft) long and weigh 156 tonnes (154 long tons ; 172 short tons) , and have seating for 310 passengers and one toilet . The trains have better accessibility than Class 69 and unlike their predecessors are equipped with an electronic public information system . Some of the 36 units are used on the Jæren Commuter Rail .

42 new electric multiple units called Class 75 were delivered 2013 @-@ 2015 . Similar units called Class 74 adopted for regional rail were delivered in 2012 @-@ 2013 .

= = = Retired = = =

NSB Class 62 was a series of four multiple units built in 1931 and 1933 by Skabo

Jernbanevognfabrikk and Norsk Elektrisk & Brown Boveri (NEBB) . The units had a power output of 344 kilowatts (461 hp) , giving a top speed of 70 kilometers per hour (43 mph) . The motor cars were built in wood , were 20 @. @ 60 meters (67 @. @ 6 ft) long , weighed 43 @. @ 2 tonnes (42 @. @ 5 long tons ; 47 @. @ 6 short tons) and seated 73 passengers . They ran mostly on the Drammen Line and were in service around Oslo from 1931 to 1953 .

NSB Class 65 and NSB Class 67 were two similar series of electric multiple units , all built by Skabo and NEBB . Class 65 was delivered in three versions , named A through C. Class A and B were rebuilt passenger wagons . Fourteen units of Class 65A were built from 1936 to 1939 and had a wooden body . Thirteen units of Class 65B were delivered in 1941 and 1942 and was built with a steel frame . They were 22 centimeters (8 @. @ 7 in) longer than the A @- @ series . Twenty @- @ two Class 65C units were built from 1949 to 1952 . From 1949 to 1950 , 17 middle and end cars were delivered for the Class 65 units . Class 67 was a series of 18 units built from 1953 to 1955 . They had a slightly more advanced technological system , but were otherwise often run mixed with Class 65 units . The Class 65 motor cars had a power output of 464 kilowatts (622 hp) and a top speed of 70 kilometers per hour (43 mph) . They were 20 @. @ 70 meters (67 @. @ 9 ft) long , weighed 42 @. @ 5 to 46 @. @ 6 tonnes (41 @. @ 8 to 45 @. @ 9 long tons ; 46 @. @ 8 to 51 @. @ 4 short tons) and had a seating capacity for 66 passengers . Class 65 remained in service until 1993 and Class 67 until 1995 .

Many NSB Class 69 units were taken out from traffic in 2013 @- @ 2015 , replaced by Class 75 units .

= = History = =

The first part of what is now the Oslo Commuter Rail was the Trunk Line , which opened on 1 September 1854 between Oslo East Station (Oslo Ø , located at the same place as the current Oslo S) , and Eidsvoll . The line was at first private , although it was nationalized in 1926 . On 3 October 1862 , the Kongsvinger Line opened from Lillestrøm to Kongsvinger . The Østfold Line opened from Oslo Ø to Moss and onwards to Halden on 2 January 1879 , followed by the Eastern Østfold Line from Ski via Mysen to Sarpsborg on 24 November 1882 .

West of Oslo , the first part of the current commuter rail was the Randsfjord Line (parts of which have since become part of the Sørland Line) , which opened on 15 November 1866 between Drammen and Vikersund . The Sørland Line from Hokksund to Kongsberg opened on 10 November 1871 and connected to the Randsfjord Line . On 7 October 1872 , the Drammen Line opened from Oslo West Station (Oslo V) to Drammen . This line , along with the section from Drammen to Kongsberg , were built with 1 @, @ 067 mm (3 ft 6 in) narrow gauge and did not connect to the main station of Oslo Ø . The Gjøvik Line opened from Grefsen to Jaren on 20 December 1900 , and from Oslo Ø to Grefsen and from Jaren to Gjøvik on 28 November 1902 .

In 1903 and 1904 , the Trunk Line was upgraded to double track . The section from Drammen to Kongsberg was converted to standard gauge on 1 November 1909 . Between 1917 and 1920 , dual gauge was laid between Oslo V and Drammen , and from 13 November 1922 , the Drammen Line was entirely operated with standard gauge . The first electrification of NSB 's lines was put into service on 26 October 1922 on the Drammen Line between Oslo V and Brakerøya . The section from Oslo V to Sandvika was upgraded to double track on 26 November 1922 . From 1922 , NSB introduced El 1 @- @ hauled passenger trains on the Drammen Line , and later other lines .

The next electrification occurred on the Trunk Line from Oslo Ø to Lillestrøm on 1 September 1927 , the Randsfjord Line from Drammen to Kongsberg on 10 April 1929 and the Drammen Line from Drammen to Brakerøya on 6 May 1930 . El 5 locomotives were acquired for the Trunk Line . Electric multiple units were put into service in 1931 , with the delivery of four Class 62 units on the route from Oslo V to Sandvika . These proved not to be sufficiently powerful for the large traffic and were later moved to less used services from Oslo V to Asker or Heggedal . The class remained on the commuter rail service until 1953 .

From 1936 , NSB took delivery of Class 65 multiple units , replacing El 1 as the primary hauler on the electrified commuter rail network . Class 65 were the first that were optimized for local traffic ,

with wide doors and turnable seats . NSB took delivery of 49 units until 1952 , although they were also used outside the commuter rail network . The Østfold Line was upgraded to double track and put into service in four sections : from Bekkelaget to Ljan on 1 June 1924 , from Oslo Ø to Bekkelaget on 15 May 1929 , from Ljan to Kolbotn on 15 December 1936 and from Kolbotn to Ski on 14 May 1939 . The Østfold Line was also the next line to be electrified , which opened in sections between 1936 and 1940 . NSB took into use El 8 locomotives on the line .

On 15 June 1953 , the Trunk Line from Lillestrøm to Eidsvoll took electrification into use . Further upgrades on the Drammen Line installing double track were put into service on 24 July 1953 from Billingstad to Hvalstad , on 29 November 1955 from Hvalstad to Asker and on 9 November 1958 from Sandvika to Billingstad . Between 1953 and 1955 , NSB took delivery of 18 Class 67 multiple units . While visually similar to Class 65 , they had improved technology and reliability . On 1 February 1961 , the Gjøvik Line from Oslo Ø to Tøyen was put into service with double track and the line from Oslo Ø to Jaren put into service as electrified . Double track from Tøyen to Grefsen opened on 27 May 1962 and the sections from Jaren to Gjøvik was electrified in 1963 .

In the 1960s , NSB found the need for a new generation of trains . Class 69 was built in aluminum and were longer , allowing for more passengers per car . They had a maximum speed of 130 kilometres per hour (81 mph) ; this had a significant cost impact , as it allowed not only faster travel time , but allowed the services from Oslo Ø to Lillestrøm and Ski to run fast enough to dispense with one third of the previous number of units . Combined with the increased size , NSB could replace three three @-@ car trains with two two @-@ car trains . At the same time , some smaller stops were terminated to allow faster travel time . Eighty @-@ eight units were delivered in four series between 1970 and 1993 , with later series having a three @-@ car configuration . On 3 June 1973 , the 10 @.@ 7 @-@ kilometer (6 @.@ 6 mi) long Lieråsen Tunnel opened , shortening the Drammen Line by 11 @.@ 7 kilometers (7 @.@ 3 mi) . The 13 @.@ 7 @-@ kilometer (8 @.@ 5 mi) long section from Asker to Spikkestad was kept as a branch line , and named the Spikkestad Line , while the section from Spikkestad to Brakerøya was removed .

The Oslo Tunnel opened on 30 May 1980 , connecting the Drammen Line to Oslo Ø . Initially , only the Lillestrøm ? Drammen / Spikkestad lines used the tunnel , in addition to some services from Eidsvoll and Årnes to Skøyen . At the same time , Oslo Ø was rebuilt to the 19 @-@ platform Oslo S , which was put into service on 26 November 1986 . Oslo V was closed on 27 May 1989 .

In 1993 , NSB received a large delivery of middle cars for the majority of the Class 69 units , allowing NSB to operate them as three @-@ car trains . Between 1992 and 1996 , a new , upgraded double track was put into service between Ski and Moss . The section is capable of speeds from 160 to 200 kilometres per hour (99 to 124 mph) . The Gardermoen Line opened as Norway 's first high @-@ speed line on 8 October 1998 . The line runs parallel to the Trunk Line from Oslo S to Eidsvoll , via Oslo Airport , Gardermoen ? which opened the same day . The section from Oslo S to Lillestrøm , consisting mainly of the Romerike Tunnel , was delayed because of leaks in the tunnel , and opened on 22 August 1999 . In 1997 , NSB ordered 36 Class 72 multiple units to supplement and replace existing material . They were painted green and branded as part of the NSB Puls scheme , which was quickly abandoned . The four @-@ car units were taken into service in 2002 .

The ministry decided in the early 2000s to make the services on the Gjøvik Line subject to public service obligations , as a trial to privatize operation of all passenger train services in Norway . In the tender , NSB 's subsidiary , NSB Anbud (since renamed NSB Gjøvikbanen) won the ten @-@ year contract , after having underbid Veolia Transport Norge and DSB . Nine Class 69 trains were upgraded and designated 69G and will operate until 2015 on the Gjøvik Line . Because of a cabinet change in 2005 , the PSO contracting was terminated . On 27 August 2005 , the Asker Line opened between Sandvika and Asker , allowing trains to bypass the many local stations at 160 kilometres per hour (99 mph) .

In 2011 , the Asker Line from Lysaker to Sandvika , and a new Lysaker Station opened . This increased the capacity and regularity along the Drammen Line . The opening of four tracks at Lysaker will allow NSB to run all local trains that previously have run to Skøyen all the way to Lysaker . The closed Høvik Station will be used to turn trains . The Oslo Tunnel remains the bottleneck west of Oslo , so no more trains can run westwards , although more will be able to

continue past Skøyen .

In 2008 , NSB ordered 50 Stadler FLIRT multiple units , to be designated Class 74 and 75 , and later 16 more Class 75 . 42 of these , class 75 , have a commuter train configuration . NSB holds an option for an additional 84 units . The trains have a maximum speed of 200 kilometers per hour (120 mph) and a faster acceleration than the older classes . The combination of the Asker Line and more rolling stock allows NSB to operate a more aggressive service after a major restructuring of the lines in 2012 . In particular , there are between five and seven @-@ minute headway on the sections between Asker and Lillestrøm , and a twenty @-@ minute headway to Oslo Airport and Eidsvoll .

= = Future = =

The next larger railway construction around Oslo is scheduled to be the Follo Line , which will connect Oslo Central Station directly with Ski . The 22 @. @ 5 @-@ kilometer (14 @. @ 0 mi) long line is planned to be built nearly entirely in a single tunnel and will allow speeds at 200 kilometers per hour (120 mph) . It will allow higher speeds and capacity southwards for the lines to Moss and Rakkestad , as well as regional trains to Østfold and Sweden . The line is scheduled for completion in 2018 . Parliament has passed the Ringerike Line , which would run from Sandvika to Hønefoss Station on the Bergen Line . While mainly proposed as a shortening of the Bergen Line , the line would double up as a commuter train line , allowing Hønefoss and Ringerike significantly faster public transport to the capital area . The line would be 40 kilometers (25 mi) long and allow speeds of 200 kilometers per hour (120 mph) . However , no financing has been secured for the project .