Fact Sheet

Sleeper on demand

VERSION: WINTER 2023



Illustrations Judith Montens



FACT SHEET SLEEPER ON DEMAND WINTER 2023

Foreword

The following information has been produced by Rebel to outline the potential opportunities in the market for the introduction of new sleeper train rolling stock. The information provided is sourced from both desktop research as well as Rebel's analysis and input.

INTRODUCTION

Following on from the rapid growth of low-cost airlines at the beginning of the millennium, sleeper train services across Europe have been through a period of decline. But in more recent years there has been a renaissance reflecting a drive for greener travel and the implementation of improved connections. New operators have come to the fore and reinstated historic, or introduced new, sleeper services.

However, there is still room for further growth in the market, a study by Greenpeace identified over 10 major travel routes across Europe without a direct sleeper service¹. In 2021, Steer also identified a total of 25 potential origin-destination pairs where there could be sufficient demand to support a sleeper train with the possibility of attracting a further 2-5 million passengers per year to rail – if operated daily, these routes would restore one-fifth of the volume of sleeper trains that had been lost since 2001².

We have assessed the current rolling stock market to understand the existing capacity and to identify if there is likely to be demand for new sleeper rolling stock. We have sought to identify if the recent increases in services and passenger numbers are likely to translate to long-term growth in the sector. Finally, we have considered ongoing rolling stock procurement and identified external supporting factors which will continue to drive the development of sleeper train services across Europe.



Image: Back-on-Track.eu, <u>link to the interactive map</u>

"In more recent years there has been a renaissance reflecting a drive for greener travel and the implementation of improved connections.

¹ https://greenpeace.at/uploads/2023/07/report-ticket-prices-of-planes-vs-trains-in-europe.pdf; page 16

² https://op.europa.eu/en/publication-detail/-/publication/34244751-6ea3-11ec-9136-01aa75ed71a1; page 21

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SLEEPER TRAIN OPERATORS IN EUROPE

In 2021 Steer undertook a report on behalf of the European Commission to assess long-distance cross-border passenger services in Europe³. We have used information from several areas within Steer's report as well as further desktop research to identify the key players in the current market and set out both existing arrangements and potential future growth.

There are a number of operators who run sleeper trains across Europe with ÖBB's NightJet brand the current market leader, running 20 services across 14 different countries. ÖBB also partners with national operators (such as CD in Czechia and MAV in Hungary) to operate sleeper services under the EuroNight brand. In addition to ÖBB, there are a number of other operators, including potential new market entrants, such as the start-up European Sleeper, and wellestablished national operators including SNCF, Renfe and Trenitalia.

There is limited publicly available information on the patronage, profitability or margin of sleeper train services as operators consolidate these figures into their full business annual accounts and reports. However, in the following sections of this report, we set out evidence of continued growth in both the number of sleeper services and the level of passenger numbers. The uptick in passenger numbers combined with both the introduction of new routes and the lack of withdrawal of any current services in recent years indicates a profitable sleeper train market.

PASSENGERS TRENDS IN EUROPE

Following the global pandemic and the renewed focus on climate change, sleeper trains are growing in popularity among travellers. The European Committee and other policymakers in Europe are promoting rail for sustainable travel, as new policies have been introduced to support a shift in travel mode. Belgium, for instance, has introduced an air tax of €10 for flights under 500km, and other countries, like Austria and France, are curtailing short-haul flights by banning domestic flights where there is a rail alternative⁴.

In addition, several sleeper train operators are seeing levels of passengers returning to pre-covid levels.

ÖBB reported that NightJet services are back at precovid levels with 1.5 million passengers annually using the sleeper service and passenger numbers are expected to continue to grow even further⁵. Anecdotally, ÖBB has publicly stated that it receives regular complaints from customers who assume their website is broken but in fact, where trains are actually completely sold out⁶. Caledonian Sleeper has also seen an increase in demand, with almost 0.3 million passenger journeys in 2022-2023, close to pre-covid levels⁷. Likewise, at the start of 2023, VR Group noted that the passenger demand for sleeper trains has grown by 17% compared to 2018⁸.

Historically, ticket prices have been perceived as a barrier to further sleeper train growth. However, airline tickets have risen sharply since the pandemic meaning that sleeper services are becoming increasingly attractive. A recent report has outlined that several routes are now competitive with airline prices, especially when airport costs and an additional night's accommodation at the destination are considered, further to this there are often improved economies of scale when travelling as a family on sleeper train services when compared to airlines⁹.

FUTURE MARKET DEVELOPMENTS

We have identified new government schemes to support future market shifts and proposed new routes and market entrants. At the start of 2023, the European Commission announced that it will support 10 new cross-border pilot rail projects across Europe of which 3 are sleeper services¹⁰. Despite the support of the European Commission, it should be noted that this only covers help with legislation and facilitating coordination, there is no guaranteed financial support at this point. The sleeper train pilot services of the European Commission are:

Stockholm →Copenhagen → Berlin (with the participation of SJ)

Paris → Milan → Venice (Midnight Trains)

Amsterdam → Barcelona (European Sleeper)

The European Commission also tabled a report in late 2022¹¹ with recommendations to boost long-distance and cross-border rail services. The report sought to encourage stakeholders to plan future procurement and delivery of rolling stock to support the renaissance

³ https://op.europa.eu/en/publication-detail/-/publication/34244751-6ea3-11ec-9136-01aa75ed71a1

⁴ https://www.oxera.com/insights/agenda/articles/grounded-the-environmental-implications-of-modal-shift-from-air-to-rail/

 $^{^{5}} https://presse.oebb.at/dam/jcr:c45d585a-35a5-41de-b2a2-43125d915b78/OEBB_GB2021_EN_web-mail.pdf and the property of the$

⁶ https://www.ft.com/content/c9d92684-8c0a-480c-9b95-d568551fc42d

 $^{^7\,}https:/\!/dataportal.orr.gov.uk/statistics/usage/passenger-rail-usage/$

⁸ https://www.vrgroup.fi/en/vrgroup/news/vr-procures-new-rolling-stock-for-night-train-traffic-from-koda-transtech-180120230900/

⁹ https://www.which.co.uk/news/article/sleeper-trains-vs-planes-which-is-cheaper-a7iD22q04uyK

¹⁰ https://transport.ec.europa.eu/news-events/news/connecting-europe-train-10-eu-pilot-services-boost-cross-border-rail-2023-01-31_en

¹¹ https://www.europarl.europa.eu/doceo/document/A-9-2022-0242_EN.docx

of sleeper services. The report also indicates an intention for further development to make sleeper trains as commercially attractive as possible such as dedicated infrastructure charges and a review of current provisions to maximise sleeper train potential. The Belgian government has gone even further and released a financial support scheme to incentivise sleeper train operators by covering track access charges and traction energy costs. With this scheme – which will be on a trial basis for two years - the Belgian government wants to take a leading role in developing additional and quicker international rail connections across Europe¹².

In addition to governments beginning to support the sleeper train market, we have also identified potential new market entrants. European Sleeper is a Dutch-Belgian private operator that aims to set up a network of night trains from the Netherlands and Belgium to relevant destinations in Europe. Through crowdfunding the company raised around 2.5 million and in May 2023 they started with their first sleeper service between Brussels and Berlin¹³. In 2025, another new French operator, Midnight Trains, is aiming to enter the market with the launch of a new 'hotel on wheels' service. The first sleeper train connection will likely be from Paris to Milan and Venice. However, Midnight Train's ambition is to go further and create a network from Paris to more than 10 destinations in Europe¹⁴.

Apart from a new entrant, also current operators are expanding their train network. ÖBB launched its NightJet sleeper service from Paris to Berlin in December 2023. This will be the second sleeper train option on the Paris-Berlin route next to European Sleeper. On top of that, NightJet is planning to also run a sleeper service between Zurich and Barcelona from 2024¹⁵. A combination of these new routes mean that ÖBB is hoping to double the number of NightJet passengers by 2030¹⁶.

CURRENT ROLLING STOCK MARKET

We have assessed the existing rolling stock market to better understand the existing availability of second-hand sleeper train rolling stock and whether any surplus rolling stock exists. We've considered the likelihood that demand is to continue to increase in the wider market in the coming years. Steer's report identified¹⁷ 1,467 dedicated rolling stock coaches for sleeper services in the market in 2021. This total included only 91 new coaches delivered between

2001 to 2017 mirroring the decline of sleeper trains over this period. If the introduction of new rolling stock was to continue at this rate it would take over 250 years to replace the 1,467 coaches identified in 2021 – far longer than the average lifespan of the current coaches which sits are c.35 years but which can be extended with an effective maintenance and renewals programme.

"Purchases of new night train rolling stock since 2001 have been limited, with 75 vehicles ordered in 2015 for the Caledonian Sleeper in the United Kingdom, and 91 vehicles on order by ÖBB to expand its Nightlet services. Recent proposals for night train services may mean obtaining second-hand stock and refurbishing it. One new entrant railway undertaking told us that demand for new rolling stock is high, and that it was no longer possible to buy second-hand stock for day trains.

Steer's report highlighted the limitation of available rolling stock as a key factor in the closure of sleeper train services from the beginning of the millennium. The report identifies that sleeper train rolling stock has also been used to extend day services meaning that the pool of dedicated sleeper train rolling stock saw continued decline until more recent years. We have only been able to identify one example of day coaches being converted into sleeper train coaches, where TUI/GreenCityTrip have converted a number of coaches purchased from NS¹⁹.



¹² https://www.railtech.com/policy/2022/11/17/belgium-to-encourage-night-trains-by-covering-energy-and-access-charges-in-european-first/

¹³ https://www.railwaygazette.com/business/european-sleeper-announces-third-funding-round/64284.article

¹⁴ https://www.midnight-trains.com/en/story

¹⁵ https://nl.backontrackbelgium.be/post/nog-dit-jaar-dagelijks-een-nightjet-van-naar-brussel

¹⁶ https://www.railtech.com/all/2023/09/06/obb-and-db-to-double-night-train-traffic-by-2030/?utm_source=newsletter&utm_medium=e mail&utm_campaign=Newsletter%20week%202023-36&gdpr=accept

¹⁷ https://op.europa.eu/en/publication-detail/-/publication/34244751-6ea3-11ec-9136-01aa75ed71a1; section M

¹⁹ https://www.treinreiziger.nl/greencitytrip-schaft-75-tot-250-ns-rijtuigen-aan/

The existing rolling stock as of 2021, identified by Steer, is broken down by operator in the following table:

OPERATOR	COMMERCIAL NAMES OR BRANDS	OPERATIONS	VEHICLES		
Total					
Trenitalia	Intercity Notte	Italy	264		
xPKP IC	Intercity	Poland	131		
ÖBB	NightJet	Germany, Austria, Belgium, Switzerland, Italy, Poland	129		
Renfe	Trenhotel	Spain, Portugal, France	100		
SNCF	Intercités de Nuit	de	93		
VR	Yöjunat	Finland	80		
Vy	Nattåg	Norway, Sweden	75		
Serco	Caledonian Sleeper	United Kingdom	75		
Urlaubs-Express	Urlaubs-Express	Germany, Austria, Switzerland, Italy	70		
RZD	Euronight	Russia, Poland, Germany, Austria, Italy, France	50		
ZSSK	Slovak Express	Slovakia	48		
Railroad Development Corporation (RDC)	Alpen-Sylt Nachtexpress, Autozug Sylt	Corporation	46		
SJ	Nattåg	Sweden	45		
MÁV-START	Euronight	Hungary	42		
ČD	Euronight	Czechia	39		
BDZ		Bulgaria	30		
HŽ	Euronight	Croatia, Austria, Switzerland	29		
TrainOSE	N/A	Greece	29		
CFR Călători	N/A	Romania	26		
Regiojet	N/A	Czechia	14		
Go-Ahead Norge	Go-Ahead Nordic	Norway	14		
Astra Trans Carpatic			10		
Transdev	Snälltåget	Sweden, Denmark, Germany	10		
Great Western Railway	Night Riviera Sleeper	United Kingdom	10		
Wagon service travel			8		

Table M.1, page 30918



These factors indicates a net reduction in the availability of second-hand rolling stock on the market which is challenging for any current operator to increase services or new entrants to join the market.

"Withdrawal of life-expired or un-refurbished vehicles may explain many of the night train closures between 2001 and 2019. In many countries, there has been a loss of carrier trains, formed of RIC conventional rolling stock, which allow portions of night trains to be added, at low cost, to other trains. In Denmark, France, Germany and Spain, conversion of day trains to fixed-formation trains has reduced the scope for night trains to share locomotives with day trains.

Additionally, any second-hand rolling stock which does exist may be of poor or mixed quality. For example, Steer's case study identified complaints about Renfe's low-floor Talgo rolling stock whereas it is commonly acknowledged that sleeper services in southeast Europe often fall below the quality of modern standards. Low quality existing rolling stock means that refurbishment is likely to be more extensive and with increased costs. The increased cost to refurbish existing rolling stock means there is less financial benefit when compared to purchasing new rolling stock. This view is supported by a piece from Railtech (itself quoting multiple sources) which outlines the low number of second-hand rolling stock in the market and the costly sums involved in

refurbishing these for passenger service – with both of these factors seen as hindering new entrants to the market²⁰.

Where there is suitable second-hand rolling stock there is also evidence of increasing competition in the market reflecting the increased passenger trends and sleeper train services identified in this report. An example of competing behaviours for future services is where CD and ÖBB were investigated as to whether the existing rolling stock was withheld from a new market entrant²¹, potentially in breach of competition laws.

Considering all of the above we believe that as operators continue to expand sleeper train services and new entrants enter the market, there is a heavily restricted pool of suitable and available second-hand sleeper rolling stock. The available rolling stock is likely to be of a lower standard needing extensive refurbishment and is likely to be subject to a high level of competition for purchase. Steer's report provided two key considerations specific to new market entrants or the expansion of new routes with regard to the rolling stock:

- Operators will usually test a new service with second-hand rolling stock to prove the business case before looking to purchase brand new rolling stock.
- Where second-hand rolling stock is unavailable, there can be issues in raising the finance required for new rolling stock without a proven business case.

A combination of these conclusions, means it is highly likely that there will be a high level of competition to secure the availability of any suitable rolling stock coming into the market in future years. Unsurprisingly, given the strain of the current market to service an increase in demand, there are several new rolling stock procurements underway and these are outlined in the next section.

"The uptick in passenger numbers combined with both the introduction of new routes and the lack of withdrawal of any current services indicates a profitable sleeper train market.

²⁰ https://www.railtech.com/rolling-stock/2022/06/28/rail-operators-want-to-run-more-international-trains-but-where-to-get-them/

²¹ https://s3.eu-central-1.amazonaws.com/uploads.mangoweb.org/allrait/prod/uploads/2020/03/2020-03-04_en_PRESS-RELEASE-Al leged-0%CC%88BB-C%CC%8CD-agreement-to-eliminate-new-entrants-access-to-rolling-stock.pdf



PROPOSED ROLLING STOCK DEALS

Noting the lack of existing rolling stock in the growing market for sleeper trains, this section sets out the currently proposed rolling stock deals in Europe. In order to increase capacity and run more sleeper trains, SNCF has started recycling its old rolling stock into sleeper trains. The 100 coaches were planned to be scrapped but after a transformation programme, they can now be reused²².

In 2021 ÖBB ordered 20 next-generation Nightlet trains from Siemens to expand its fleet; these trains will include 7 coaches and operate in Austria, Germany, Italy, Switzerland and the Netherlands by 2025. This is on top of an initial contract ÖBB signed with Siemens for the delivery of 13 Nightlet trains which entered into service in December 2023²³.

Along with the order for new rolling stock, ÖBB also signed a contract with Škoda Group to overhaul and modernise 6 couchette coaches of the existing Nightlet fleet. The contract also includes an option to modernise a further 28 coaches. The upgrade of the fleet is scheduled to be finished by 2024²⁴.

Moreover, VR Group, the operator in Finland, procured nine new sleeper trains from Škoda Transtech. The order also included eight car-carrier coaches, with an option to purchase 30 more sleeper and car-carrier coaches. Both types of coaches are planned to be in use by 20258.

Norske Tog, which is a Norwegian state-owned railway company, procures, owns and manages rolling stock for passenger trains and leases them to different rail operators in Norway. In 2023, they announced a new procurement contract of 17 long-distance trains with Stadler, that can be used for both day and sleeper services. The sleeper trains will offer seats that are adjustable on both sides and flexible sleeping compartments. The long-distance trains will be in use by the end of 2026 on the Berger line which is operated by Vy Tog²⁵.

Trenitalia announced a new contract to the consortium of Škoda Group and Titagarh Firema, to expand their fleet for their sleeper train service to Sicily. The framework agreement is worth 732.5 million euros and covers the supply of 370 new sleeping coaches with an initial order of 70 coaches. The contract is for a period of 4 years with the first coaches expected to be in service by 2024. Part of the new fleet is financed by funding Trenitalia received from the Italian government in 2021 to purchase new rolling stock²⁶.

We estimate, from publicly available information, that the increase in rolling stock shows there is an approximate introduction of 454 new coaches into the European market which is expected to be delivered over the next five years. This translates to an increase of 31%²⁷ compared to the 1,467 sleeper coaches identified in 2021 from Steer's report. Moreover, another 100 coaches are due to be refurbished at the same time meaning that the total position of new rolling stock to the market is expected to be 554, this could translate to an approximate increase of 38% depending on the number of refurbished coaches already in service and included in the 1,467.

Finally, although we have identified a number of proposed rolling stock deals we have not seen any issue in the availability of production capacity, with this view also supported by Back on Track's report sleeper trains²⁸. From 2011 to 2020 there has been an increase in locomotive/rolling stock manufacturers of 6% and the number of employees in the same area has gone up by 8%²⁹.

"We believe there is currently a buoyant market for sleeper rolling stock and all the indicators show that this is likely to be supported by continued future demand.

²² France Reveals New Sleeper Trains Built From Upcycled Carriages (touristmeetstraveler.com)

 $^{^{23}\} https://www.railtech.com/rolling-stock/2023/12/11/new-generation-nightjet-enters-passenger-service/2023/12/11/new-generation-night-enters-passenger-service/2023/12/11/new-generation-night-enters-passenger-service/2023/12/11/new-generation-night-enters-passenger-service/2023/12/11/new-generation-night-enters-passenger-service/2023/12/11/new-generation-night-enters-passenger-service/2023/12/11/new-generation-night-enters-passenger-service/2023/12/11/new-generation-night-enters-passenger-service/2023/12/11/new-generation-night-enters-passenger-service/2023/12/11/new-generation-night-enters-pas$

²⁴ https://press.siemens.com/global/en/pressrelease/ÖBB-orders-20-more-nightjets-siemens-mobility

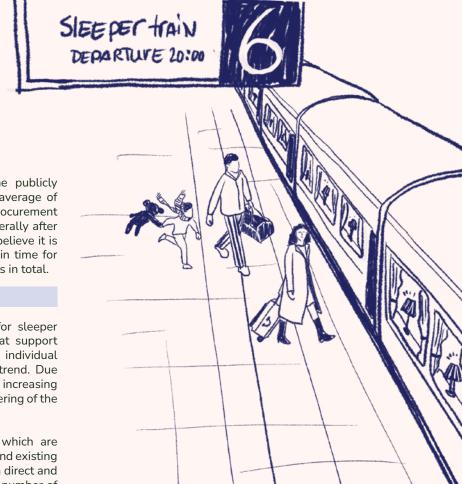
²⁵ https://www.norsketog.no/en/news/2023/signert-avtale-som-sikrer-fremtidens-togreiser-i-norge

²⁶ Trenitalia orders sleeping cars offering 'comfort, privacy and tranquillity' | News | Railway Gazette International

²⁷ This estimate does not consider any obsolete rolling stock removed over the same period

²⁸ https://back-on-track.eu/wp-content/uploads/2022/09/220915_B-o-T_GHG-Potential-1.pdf; page 31

²⁹ https://www.europarl.europa.eu/RegData/etudes/STUD/2023/747263/IPOL_STU(2023)747263_EN.pdf



In Annex A we have identified that the publicly stated lead-in in time is generally at an average of 3-5 years, given the likely stage in the procurement when these articles are published (i.e. generally after pre-procurement and design phases), we believe it is reasonable to assume that the total lead-in time for the procurement of a sleeper car is c.6 years in total.

CONCLUSION

Rebel believes that passenger demand for sleeper services is continuing to increase and that support from both the European Commission and individual governments will further encourage this trend. Due to the increase in demand, operators are increasing sleeper train services and improving the offering of the existing rolling stock options.

The current rolling stock procurements, which are outlined in Annex A, will service both new and existing routes which are set out in this report. Both direct and indirect evidence support that the existing number of rolling stock is unlikely to be appropriate to service the future market if the current growth continues. Even when considering the delivery of new rolling stock and subsequent increase in the availability of second-hand rolling stock, we expect the long lead-in times will mean that the supply of new sleeper train rolling stock is likely to lag behind the increase in passenger demand for the foreseeable period.

Other factors that support the idea of new rolling stock being accepted onto the market include:

- We have seen an introduction of policies/laws preventing short-distance flights where train connections are possible. We expect that these policies/laws will be replicated in more European countries over time as they come under pressure to meet sustainability targets;
- The European Union has a goal to materially reduce greenhouse gas emissions by 2030, train travel as opposed to air travel is a great enabler of this;
- In some countries, we have seen government funding to support the introduction of sleeper services or the financing of rolling stock;
- There is a lack of spare sleeper rolling stock meaning that customers are often downgraded if there are any operational rolling stock issues, operators will want to reduce this impact to ensure returning business; and
- The European Union is also looking to increase competition on the railways under its fourth railway package, this is likely to increase open access paths and cross-border services which will benefit further sleeper train expansion.

To conclude, Rebel believes there is currently a buoyant market for sleeper rolling stock and all the indicators show that this is likely to be supported by continued future demand, and there is still plenty of opportunity for further routes to be introduced across Europe. Therefore, should rolling stock enter the market and unexpectedly be available it is highly likely that it would be purchased by the existing and future market, with a low risk of any discount sale required. The biggest risk to this is that the configuration of sleeper coaches is often ordered to measure to fit a commercial model. However, we believe that it is likely that operators will consider this as a lesser impact given a much reduced lead-in time for rolling stock, which is often several years, or the cost to refurbish any second-hand rolling stock. Available new sleeper rolling stock would be a rare opportunity to act dynamically to meet the current market demand ahead of competitors.

"There is still plenty of opportunity for further routes to be introduced in Europe.

ANNEX A: SLEEPER TRAIN ROLLING STOCK COSTS

Table A.1 Fair value new rolling stock

OPERATOR	MANU-FACTURER	TOTAL ORDER	APPROX. LEAD TIME	AMOUNT OF COACHES PER TYPE	TOTAL ORDER (IN EUR)	AVERAGE PER SLEEPER COACH (IN EUR)
Vy Tog (Norske Tog) ³⁰	Stadler	17 trainsets (option up to 100)	3 years	136 (designed for day and sleeper use, 8 per trainset)	727 million	5.4 million
ÖBB (NightJet) ³¹	Siemens	13 sleeper trains and 8 day trains	3 years	91 sleeper coaches, 72 day coaches	454 million	n/a
VR Group9 ⁹	Škoda Transtech	17 coaches	2 years	9 sleeper coaches, 8 car-carrier coaches	50 million	n/a
Trenitalia ¹⁹	Škoda Transtech and Titagarh Firema	370 coaches		370	733 million	2.0 million
		Initial order: 70 coaches	3 years	22 DeLuxe, 44 Com- fort, 4 Economy	139 million	2.0 million
Caledonian Sleeper ³²	CAF	4 trainsets, 11 spare coaches	3 years	75 (16 per trainset)	251 million	3.3 million
Federal Railways of Kazakhstan (KTZ) ³³	Stadler	537 coaches, in- cluding a service agreement for 20 years and tech- nology transfers	8 years	234 with 40-seats, 35 with 18-seats, 233 sleeper, 35 ge- nerator coaches	2.3 billion	n/a
France ³⁴	n/a	Couchette car	n/a	239	412 million	1.7 million
		Sleeping car	n/a	156	359 million	2.3 million
		Reclining-seats car	n/a	183	253 million	1.4 million

Table A.1 shows the publicly stated price of new rolling stock. The table only contains newly manufactured rolling stock and excludes refurbished or second-hand rolling stock. The prices are gathered from public statements and indexed to price base 2023 where appropriate³⁵. The orders include estimated prices of rolling stock, however, we don't know if maintenance is included in these orders. The value of rolling stock and amount of coaches in France is based on an estimation of new coaches France would need to serve 30 new national and European routes. This amount would be comparable with the available fleet France had at the start of this century.

³⁰ 17 new sets of night trains for Norway – Back-on-Track

³¹ https://www.railwaygazette.com/traction-and-rolling-stock/%c3%b6bb-chooses-siemens-to-build-day-and-night-fleets/46845.article

³² https://railuk.com/rail-news/caf-signs-caledonian-sleeper-car-contract/amp/

³³ https://www.railtech.com/rolling-stock/2022/12/14/stadler-receives-major-night-train-rolling-stock-order-for-kazakhstan/

³⁴ https://drive.google.com/drive/folders/18cfyl4VGlGl1plUxBGz-0x7k23ydU8KC; page 18
35 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Consumer_prices_-_inflation and https://ec.europa.eu/eurostat/docu ments/2995521/17250642/2-31072023-AP-EN.pdf/15e48908-7c76-34f0-34c6-3067bb87be85

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