RFC North Sea – Baltic Performance Monitoring Report 2022

Introduction

➢ A set of commonly applicable KPIs has been agreed by all Rail Freight Corridors and published on RailNetEurope's (RNE) website. The KPIs, their definition and source of data can be found in the RNE guidelines for KPIs of Rail Freight Corridors (Guidelines_KPIs_of_RFCs_V4.0.pdf (rne.eu).

➢ The results can be found in this Performance Monitoring Report, by which all our stakeholders are informed about the progress of the Corridor on a yearly basis and on the RNE website (RFC KPIS - Railnet Europe, Rail Net Europe (rne.eu).

 Some of the KPIs are also published in the Annual Report.

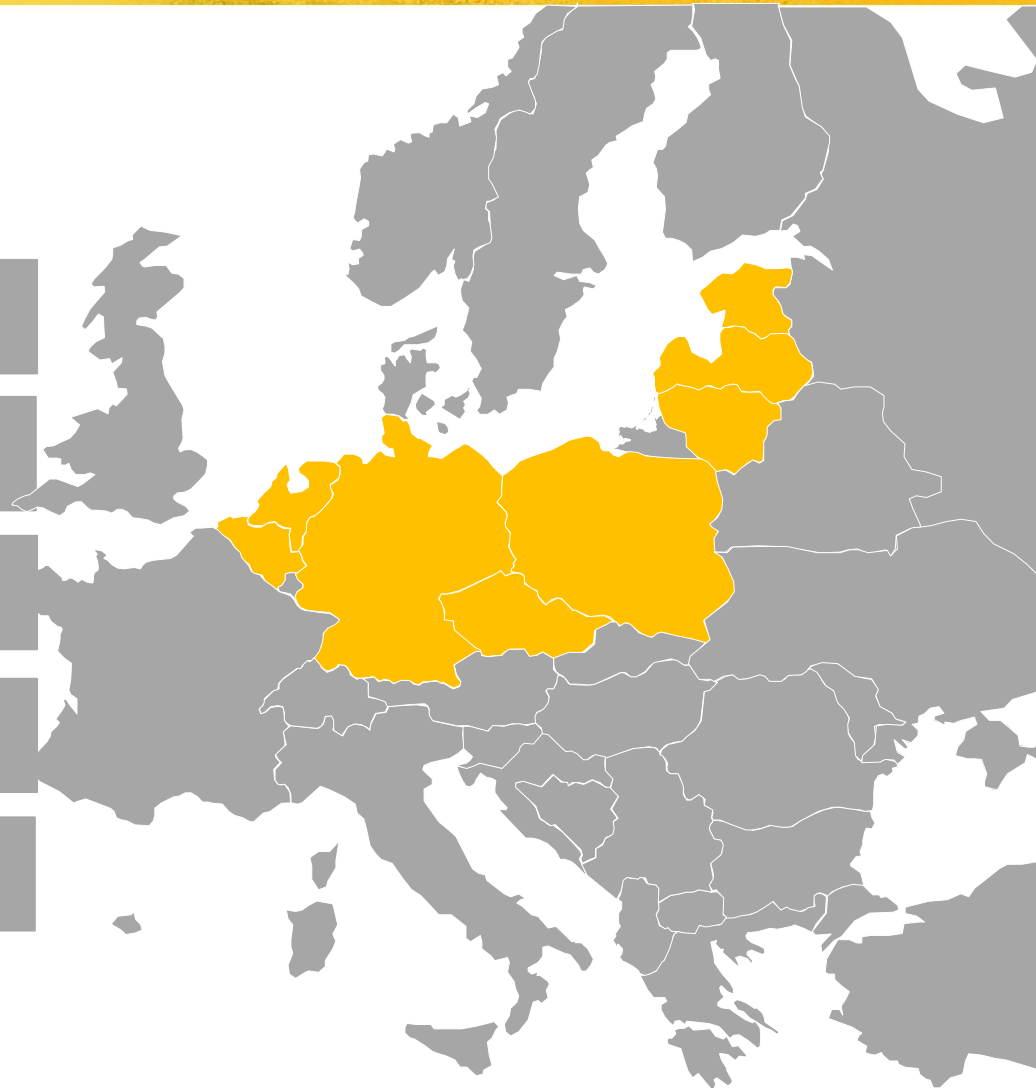➢ Capacity KPIs are also described in the Framework for Capacity Allocation on the Rail Freight Corridor North Sea–Baltic approved by the Executive Board.
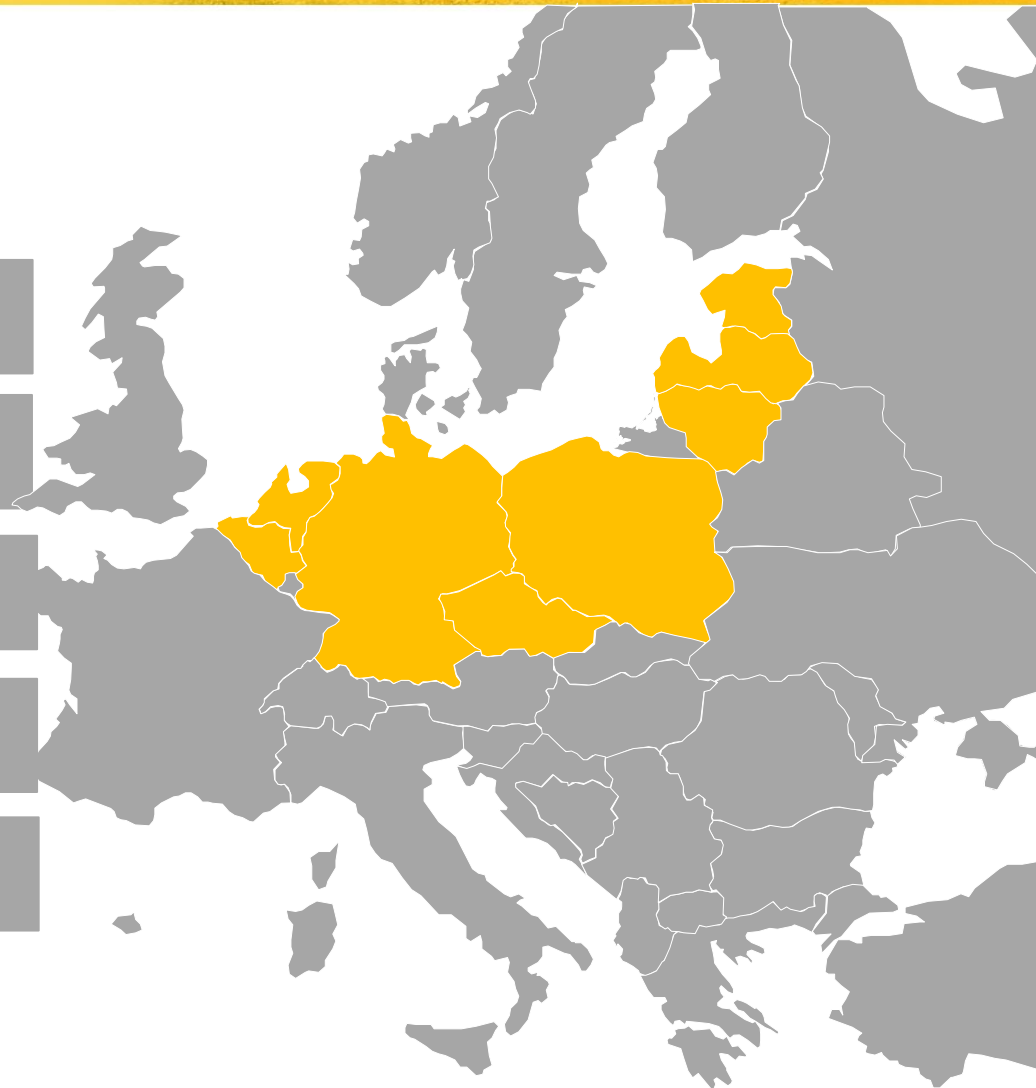
Introduction

Performance indicators

KPIs for Operations

KPIs for Capacity Management

KPIs for Market Development

Performance Indicators

The KPIs in this Performance Monitoring Report were chosen based on the following parameters:

- ✓ Measurability: performance should be measurable with the tools and resources available on the Corridor;
- ✓ Clarity: KPIs should be understandable to the public it is designed for;
- ✓ Comparability: KPIs should be comparable across time and region;
- ✓ Relevance and empowerment: KPIs should provide information on which project decisions can be based.

➢ To be able to easily understand the figures in this report, a clear explanation is provided on how the calculation was made and what is measured for each indicator.

➢ The indicators can be divided into three business fields: Operations, Capacity Management and Market Development.

Introduction

Performance indicators

KPIs for Operations

KPIs for Capacity Management

KPIs for Market Development

KPIs for Operations

In the category Operations the following KPIs are published:

- KPI 01: Number of trains crossing a border along the RFC

- KPI 02: Punctuality

The KPI 01, "Number of trains crossing a border along the RFC" displays the number of international trains running on RFC NS-B infrastructure.
The following criteria must be met for a train to be considered as a corridor train:
- International freight train;
- Crossing at least one border of the Corridor;
- Passing at least one pair of points defined in the basic point-list of RFC NS-B

The following slides regarding KPI01 and KPI 02 provide insight into the trains running on the Corridor. Punctuality is measured for reporting purposes at entry (origin) or exit (destination) of the Corridor. For both KPI's RFC North Sea-Baltic measures all international freight trains at specific chosen border points.

The data used to calculate KPI Operations comes from the international Train Information System (TIS) database, managed by RailNetEurope (RNE). More details on the calculation are given per KPI.

The WG PM&O is aware there are issues with the data in TIS due mainly to IM/RU operational behaviour and data quality issues. However, the group feels the figures reflect the real situation on the Corridor adequately to warrant their use in the yearly report.

Please note, information relevant for all graphs and data published for KPI Operations for RFC North Sea-Baltic:
1. From 2021 the figures do not include trains from Venlo-Kaldenkirchen as these no longer belong to RFC North Sea-Baltic
2. As Estonia and Latvia, who joined the Corridor starting from TT 2021, were not yet using TIS in 2022 their international trains are not included in the figures. This also applies for Lithuania and their border crossings with Latvia.

KPI 01: Number of trains crossing a border along the RFC

KPI 01 displays the number of all international trains crossing at least one border along RFC North Sea–Baltic

At present we are not able to differentiate between trains running on PaPs or trains running on a normal international timetable (TT). Therefore, we measure all international trains that are running on the corridor infrastructure. Trains that pass more than one border on the Corridor are counted only once, to do this each train gets a unique identifier.

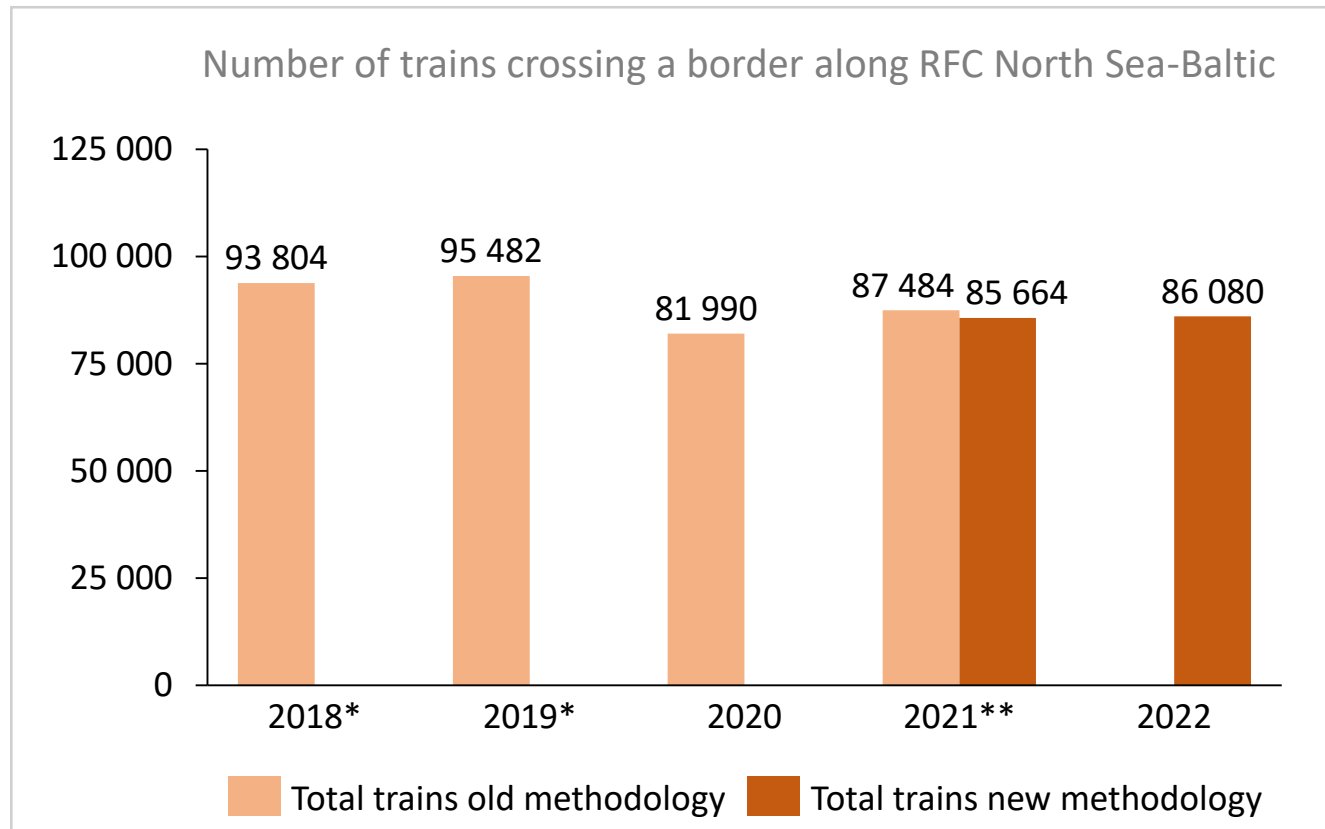The border crossings considered for this KPI are as follows:

- ➢ Montzen – Aachen
- ➢ Essen – Roosendaal
- ➢ Zevenaar – Emmerich
- ➢ Oldenzaal - Bad Bentheim
- ➢ Frankfurt Oderbrücke - Kunowice/Rzepin
- ➢ Węgliniec/Bielawa Dolna - Horka
- ➢ Bad Schandau - Děčín
- ➢ Trakiszki - Mockava*

* Trains are only measured at Trakiszki as Lithuania is not using TIS yet.

KPI 01: Number of trains crossing a border along the RFC

General evolution of the corridor traffic in detail is shown on the following slide

❑ The following graph gives an overview of the total number of trains for the last 5 years
Total amount of trains for 2022 is 86.080 which shows a small increase compared to 2021

Number of trains crossing a border along RFC North Sea-Baltic

Year	Total trains old methodology	Total trains new methodology
2018*	93 804	
2019*	95 482	
2020	81 990	
2021**	87 484	85 664
2022		86 080

Legend: ■ Total trains old methodology ■ Total trains new methodology

In 2022 RNE established a new methodology of measuring the trains in TIS. The difference in figures are shown here in the diagram:
- years 2018, 2019 and 2020 figures are calculated using the old methodology
- year 2021 has two sets of figures. They show the old and new methodology. This allows for 2021 to be comparable to all previous years shown and also with 2022 onwards
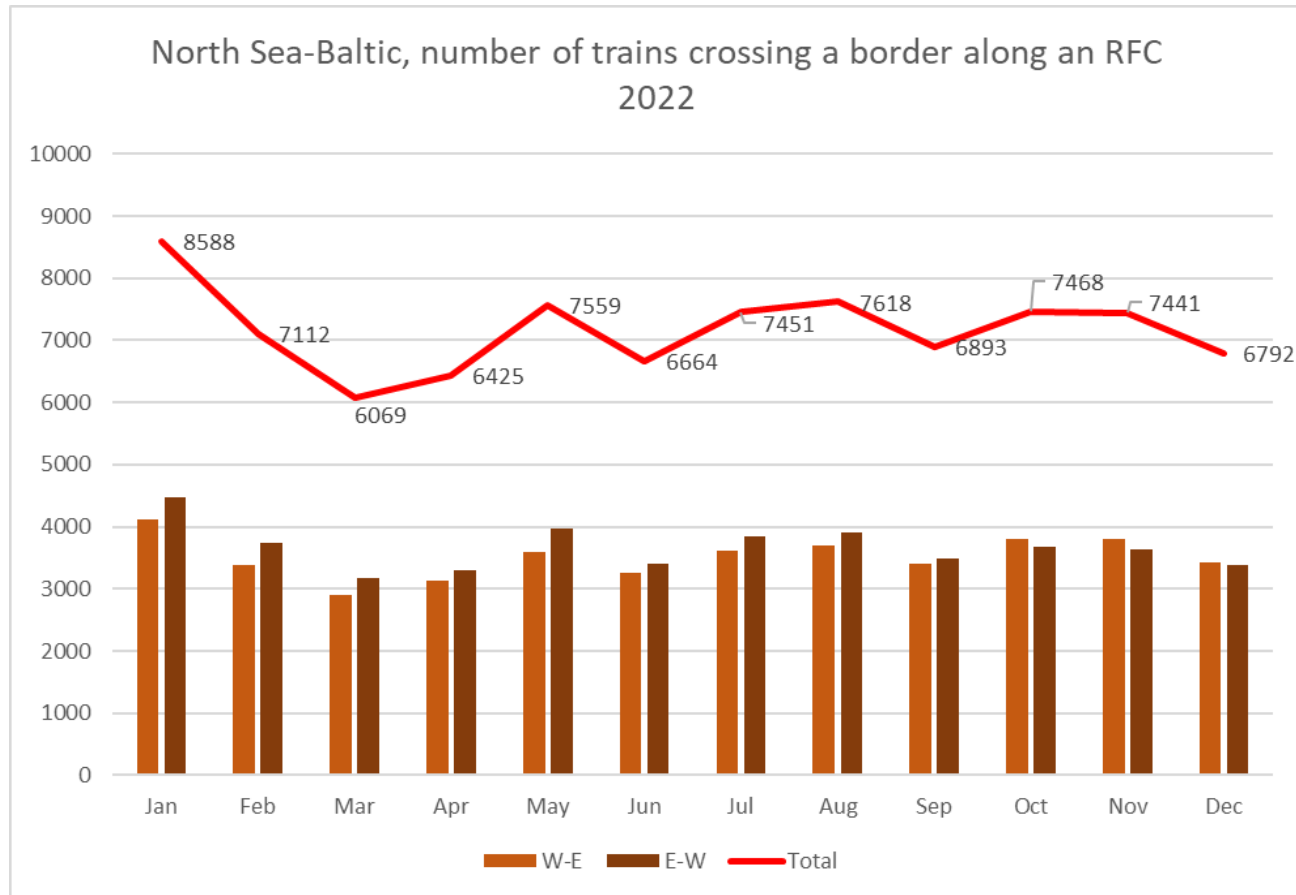
*2018 and 2019 calculated with TT year. From 2020 onwards calculated with calendar year
**2021, this year has two sets of figures due to the re-run of 2021 data

KPI 01: Number of trains crossing a border along the RFC

General evolution of the corridor traffic in detail is shown on the following slide

❑ The following graph gives an overview of the total number of trains in 2022, on a monthly basis
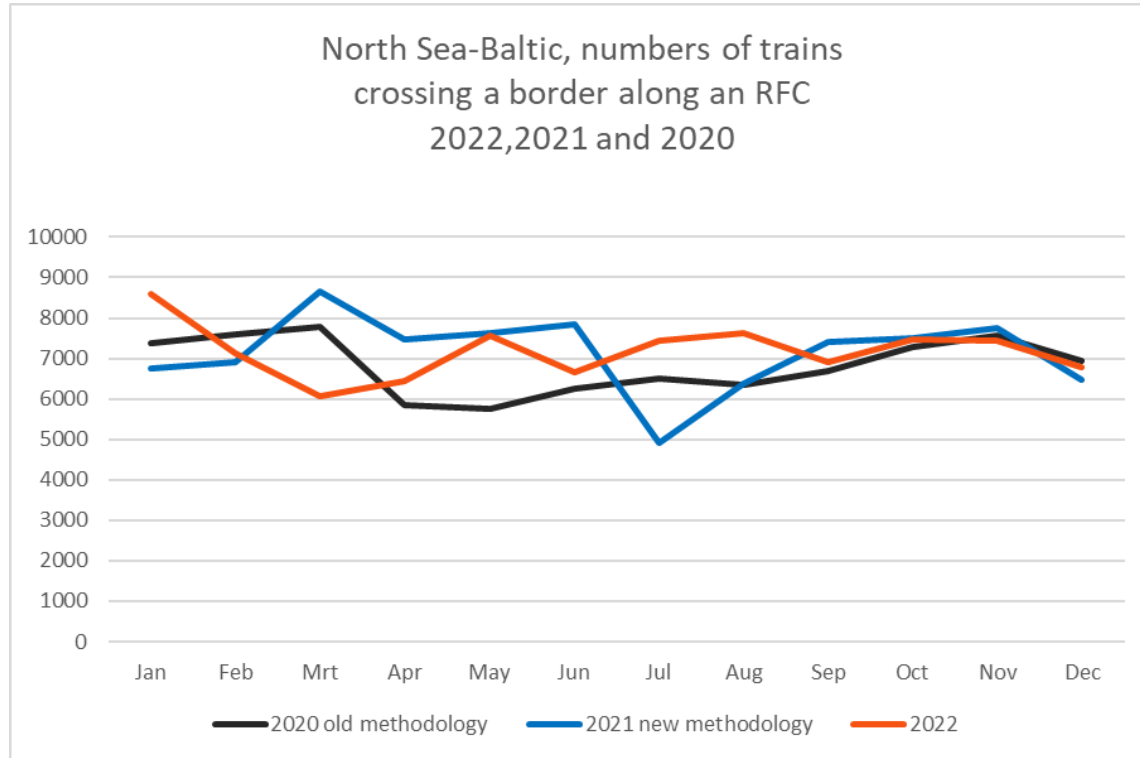

North Sea-Baltic, number of trains crossing a border along an RFC 2022

Legend: W-E, E-W, Total

2022
- **Fall in traffic in February and March several causes i.e. conflict in Ukraine; effect of Covid-19 in China on production and supply chain; storms in many parts of Europe**
- **Energy prices started rising from April 2022 and soared in June which possibly had an impact on the train traffic in this month**

KPI 01: Number of trains crossing a border along the RFC

❑ The following graph illustrates the evolution of the corridor traffic monthly for 2022, 2021 and 2020

North Sea-Baltic, numbers of trains crossing a border along an RFC 2022, 2021 and 2020

2022:
• Positive start in January followed by fall in figures in February, March and June as described in previous slide

2021:
• Rise in traffic in March, temporary recovery from Covid-19 situation.
• Fall in July, floods in Belgium, Germany and Czech Republic.

2020:
• General decrease in traffic due to impact of Covid-19 situation.

KPI 02: Punctuality

KPI 02 shows the average punctuality of trains running on the Corridor, measured at RFC Entry and RFC Exit.
- RFC Entry–first point in the train run, which belongs to chosen RFC.
- RFC Exit–last point in the train run, which belongs to chosen RFC.

The points shown on the detailed point-list define the chosen RFC. This point-list is a comprehensive overview of points found in TIS and registering where a train can enter/exit the corridor, on the network of one of the IMs of the RFC North Sea- Baltic. The graphs shown in the punctuality slides in the Performance Report indicate the punctuality measured at RFC entry/exit and are based on TIS data.

A corridor train is considered punctual when it has a delay of 30 minutes or less (≤30min). For KPI reporting purposes punctuality is also measured at a delay of 15 minutes or less (≤15min). As all international RFC's Working groups are publishing a 15-minute threshold for punctuality RFC North Sea-Baltic also followed this procedure starting from 2021.
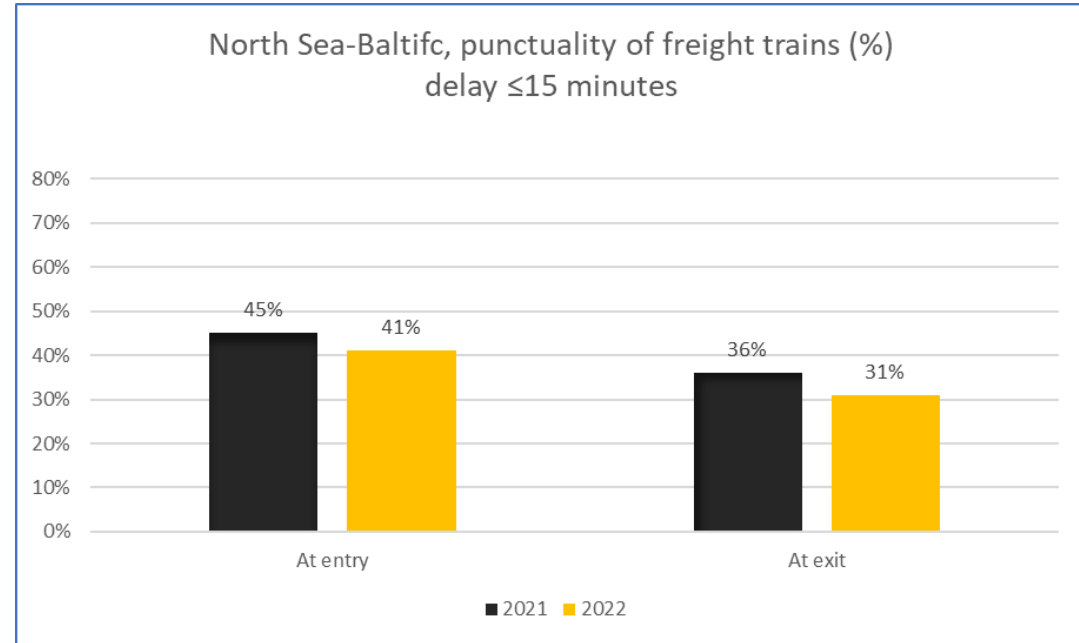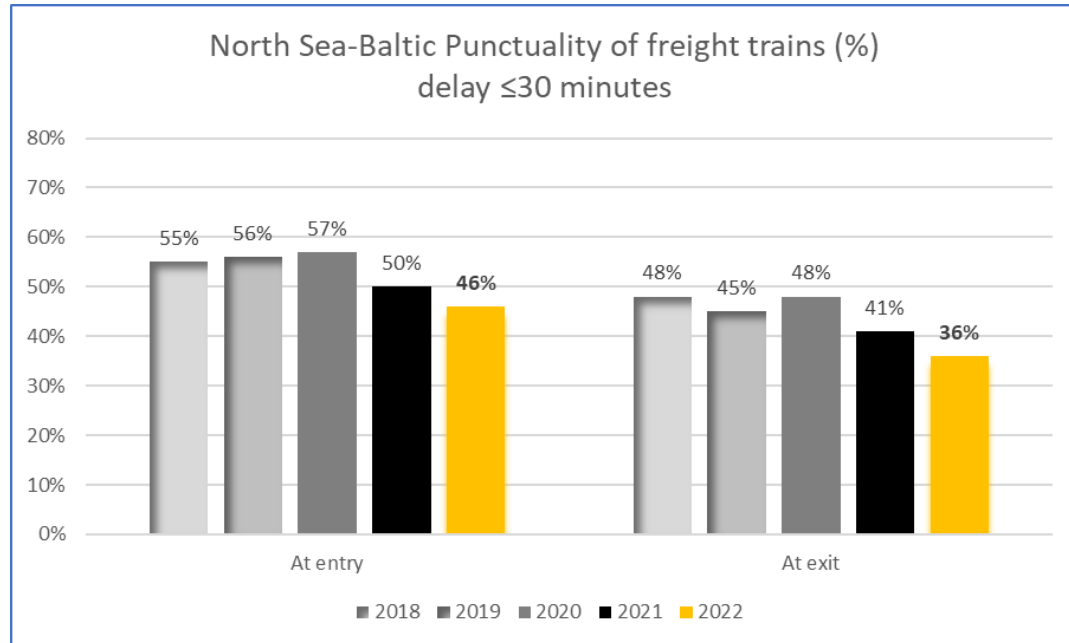
The use of the new RNE methodology from 2021 has not had an impact on the punctuality figures in 2021. Therefore, it is not necessary to create a double set of figures for this KPI

Trains considered for the measurement of punctuality must meet the following basic criteria:
- International freight train;
- At least one running advice in the whole train run
- Train must be passing at least one pair of points from the basic point list

Monthly train punctuality reports are generated from TIS data at RNE and are published on the RFC North Sea-Baltic website. Monitoring and follow-up of the punctuality reports is done by the Working Group Performance Management and Operations, during their regular meetings. Punctuality issues are discussed bilaterally with the WG and corridor users, on a case-by-case basis.

KPI 02 Punctuality – RFC Entry and Exit (30 min and 15 min)

North Sea-Baltic Punctuality of freight trains (%) delay ≤30 minutes

At entry: 2018 55%, 2019 56%, 2020 57%, 2021 50%, 2022 46%
At exit: 2018 48%, 2019 45%, 2020 48%, 2021 41%, 2022 36%

Legend: ■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

North Sea-Baltifc, punctuality of freight trains (%) delay ≤15 minutes

At entry: 2021 45%, 2022 41%
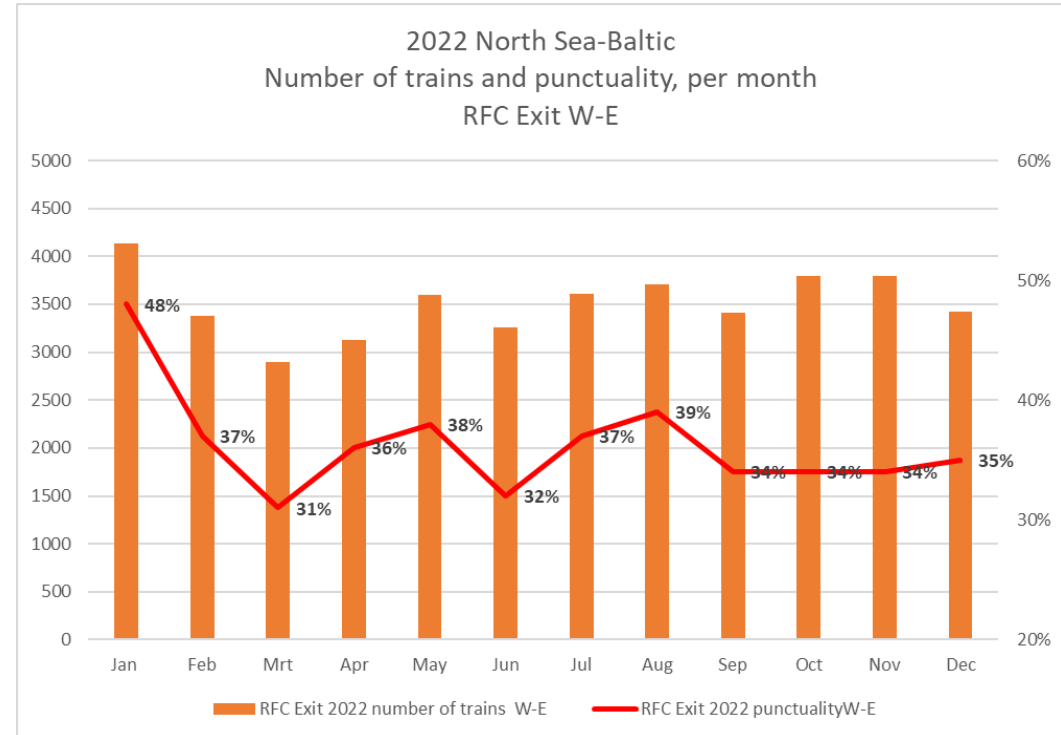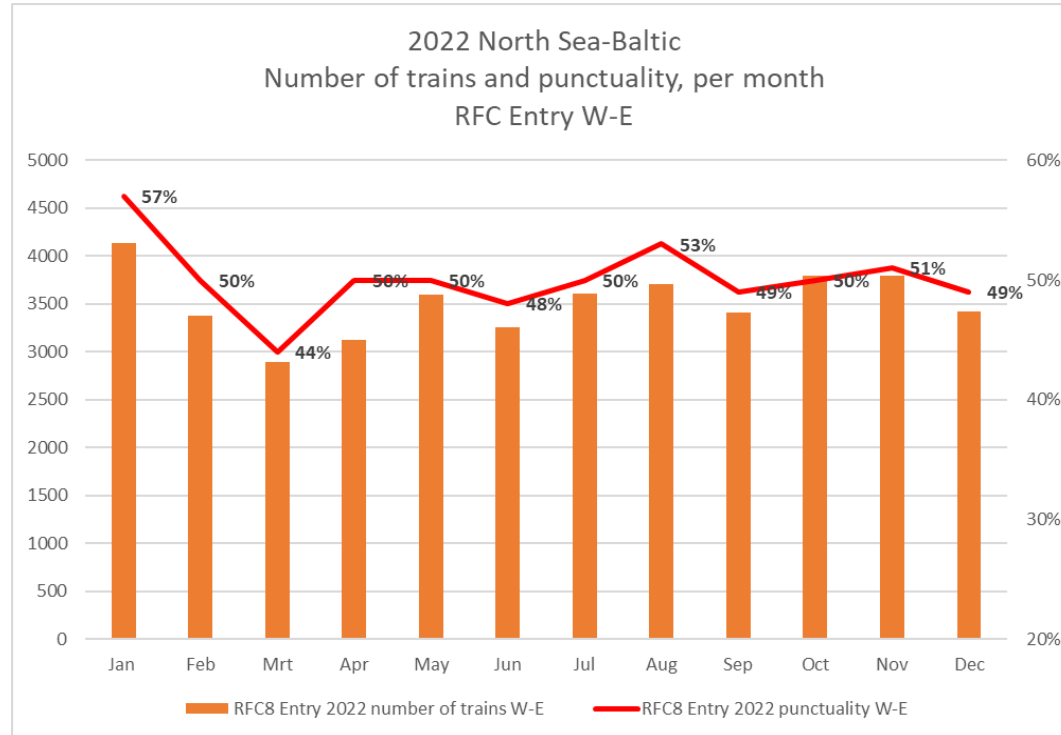At exit: 2021 36%, 2022 31%

Legend: ■ 2021 ■ 2022

- Punctuality ≤15min is not applicable to years before 2020 and is only published in yearly reports from 2021
- Only the punctuality threshold ≤30 minutes is considered in detail in the Performance Report 2022

2022 Punctuality ≤30 minutes:

The 2022 figures reflect a further decrease in departure punctuality compared to the previous years. Low entry punctuality normally results in a low exit punctuality. Another cause of the fall in punctuality is the impact of the (re-)growth of passenger train volumes in 2022. This created less capacity for the freight trains especially in the Western part of the Corridor.

However, when viewing the delta for punctuality RFC Entry (origin) and RFC Exit (destination) we see it has a total of 10% which is comparable to previous years

KPI 02 Punctuality – RFC Entry and Exit, punctuality 2022 + total amount of trains (West – East)

2022 North Sea-Baltic
Number of trains and punctuality, per month
RFC Entry W-E

2022 North Sea-Baltic
Number of trains and punctuality, per month
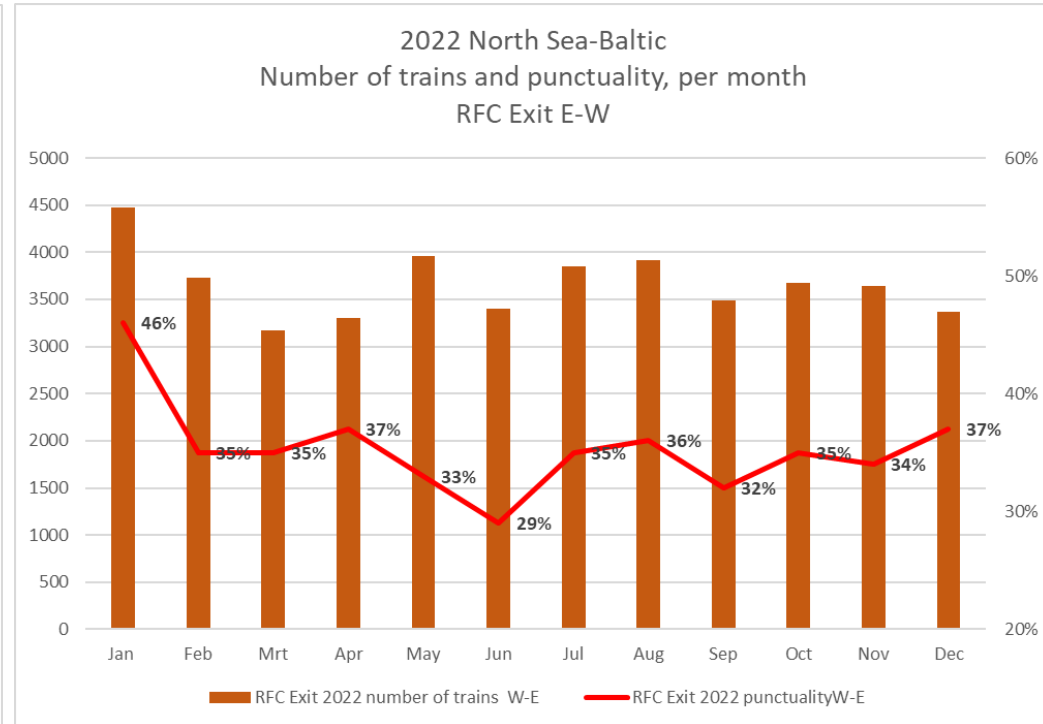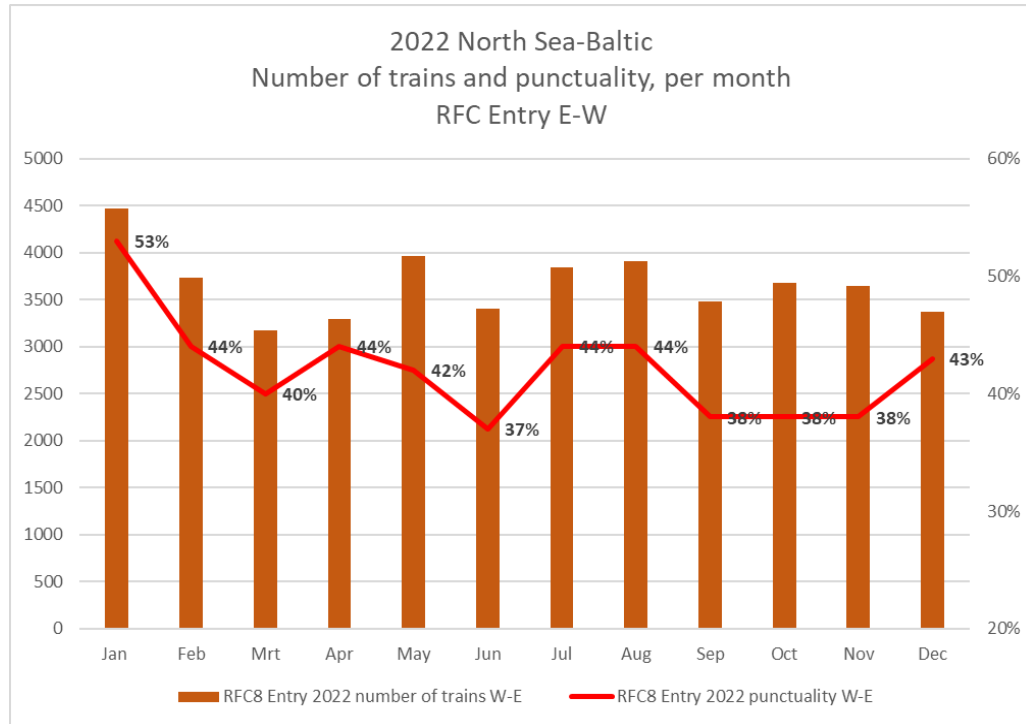RFC Exit W-E

West-East, calculation for punctuality is made with same number of trains at both RFC Entry and Exit

- RFC Entry (departure) punctuality average 50%, RFC Exit (arrival) punctuality average 37%
- RFC Exit (arrival) punctuality direction W-E is low

Delta W-E (difference from RFC Entry and RFC Exit) is 13%

KPI 02 Punctuality – RFC Entry and Exit, punctuality 2022 + total amount of trains (East-West)

2022 North Sea-Baltic
Number of trains and punctuality, per month
RFC Entry E-W

2022 North Sea-Baltic
Number of trains and punctuality, per month
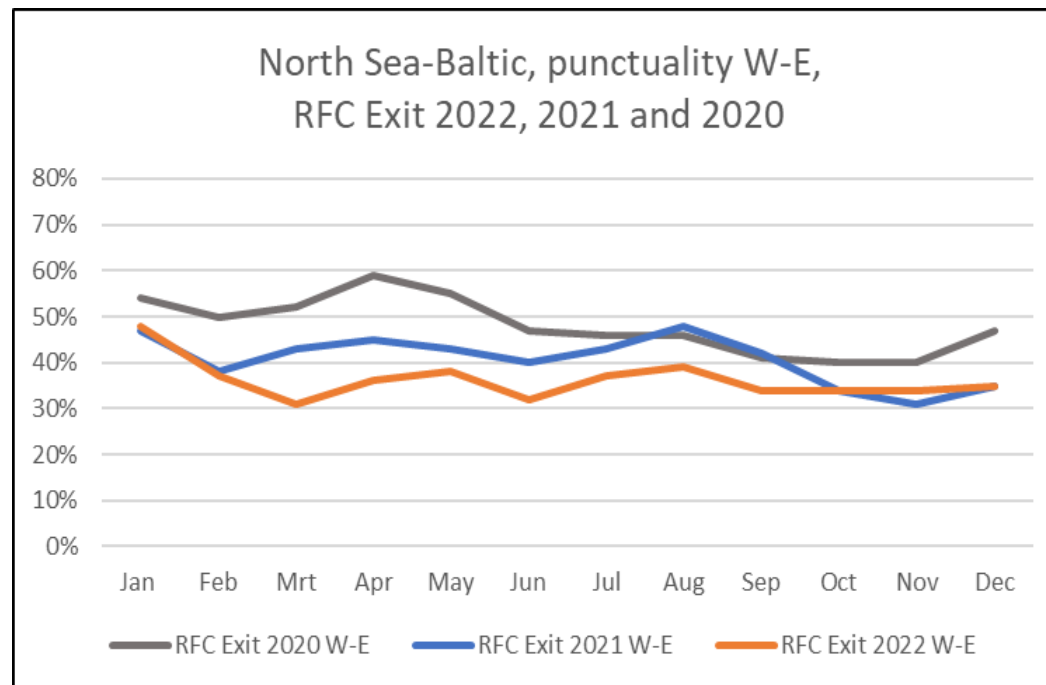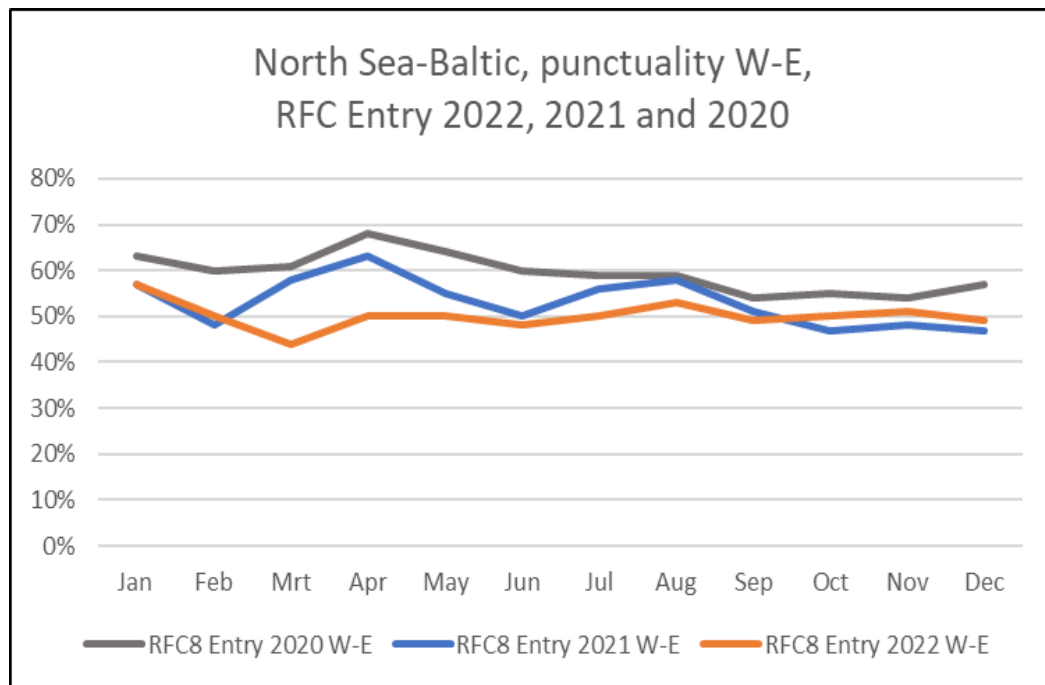RFC Exit E-W

East-West, calculation for punctuality is made with same number of trains at both RFC Entry and Exit

- RFC Entry (departure) punctuality average 42%, RFC Exit (arrival) punctuality average 36%
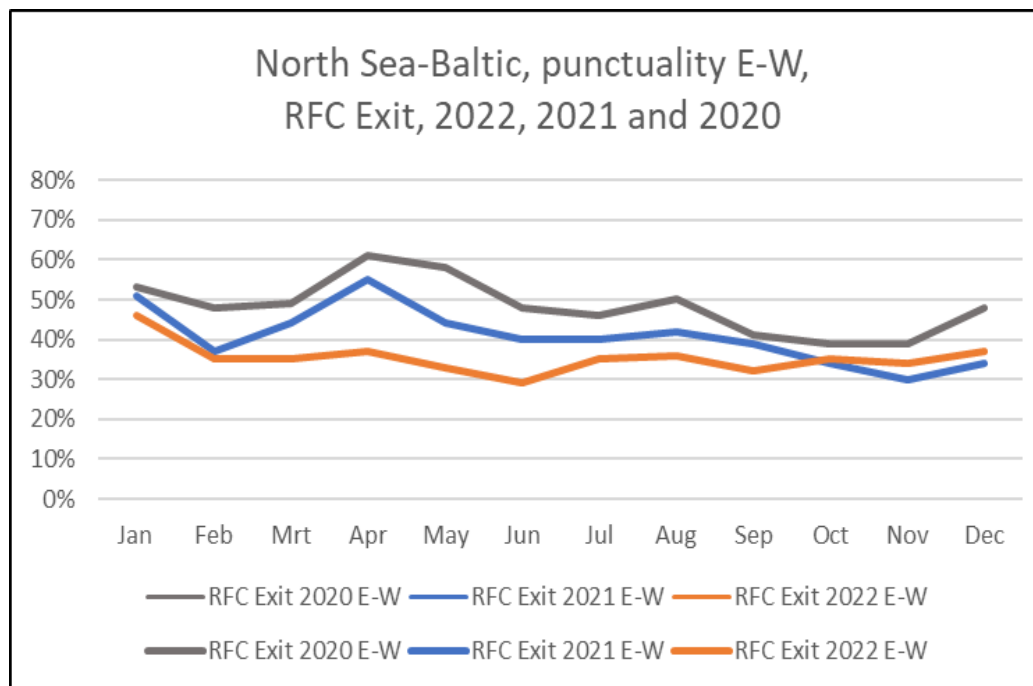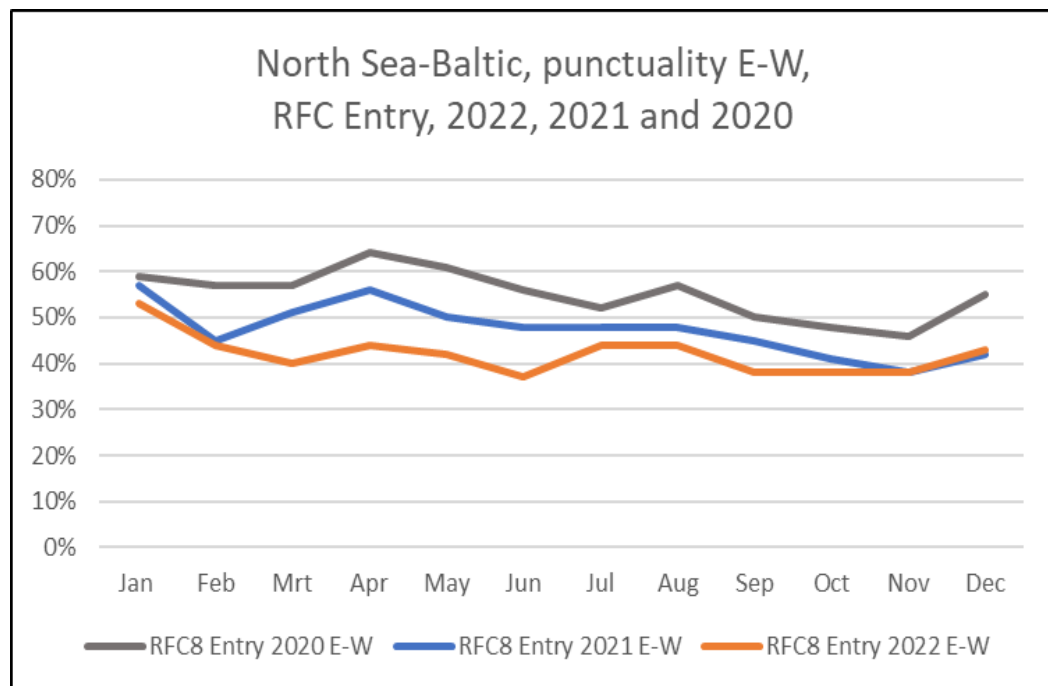- RFC Exit (arrival) punctuality is low in the direction East-West

Delta E-W (difference from RFC Entry and RFC Exit) is 6%

KPI 02 Punctuality – Entry and exit, per direction (West – East)

North Sea-Baltic, punctuality W-E,
RFC Entry 2022, 2021 and 2020

RFC8 Entry 2020 W-E — RFC8 Entry 2021 W-E — RFC8 Entry 2022 W-E

North Sea-Baltic, punctuality W-E,
RFC Exit 2022, 2021 and 2020

RFC Exit 2020 W-E — RFC Exit 2021 W-E — RFC Exit 2022 W-E

Avg. punctuality	2022	2021	2020
At entry W-E	50%	53%	59%
At exit W-E	37%	41%	48%

KPI 02 Punctuality, Entry and Exit, per direction (East – West)

North Sea-Baltic, punctuality E-W, RFC Entry, 2022, 2021 and 2020

North Sea-Baltic, punctuality E-W, RFC Exit, 2022, 2021 and 2020

Avg. punctuality	2022	2021	2020
At entry E-W	42%	47%	55%
At exit W-E	36%	41%	48%

Rail Freight Corridor
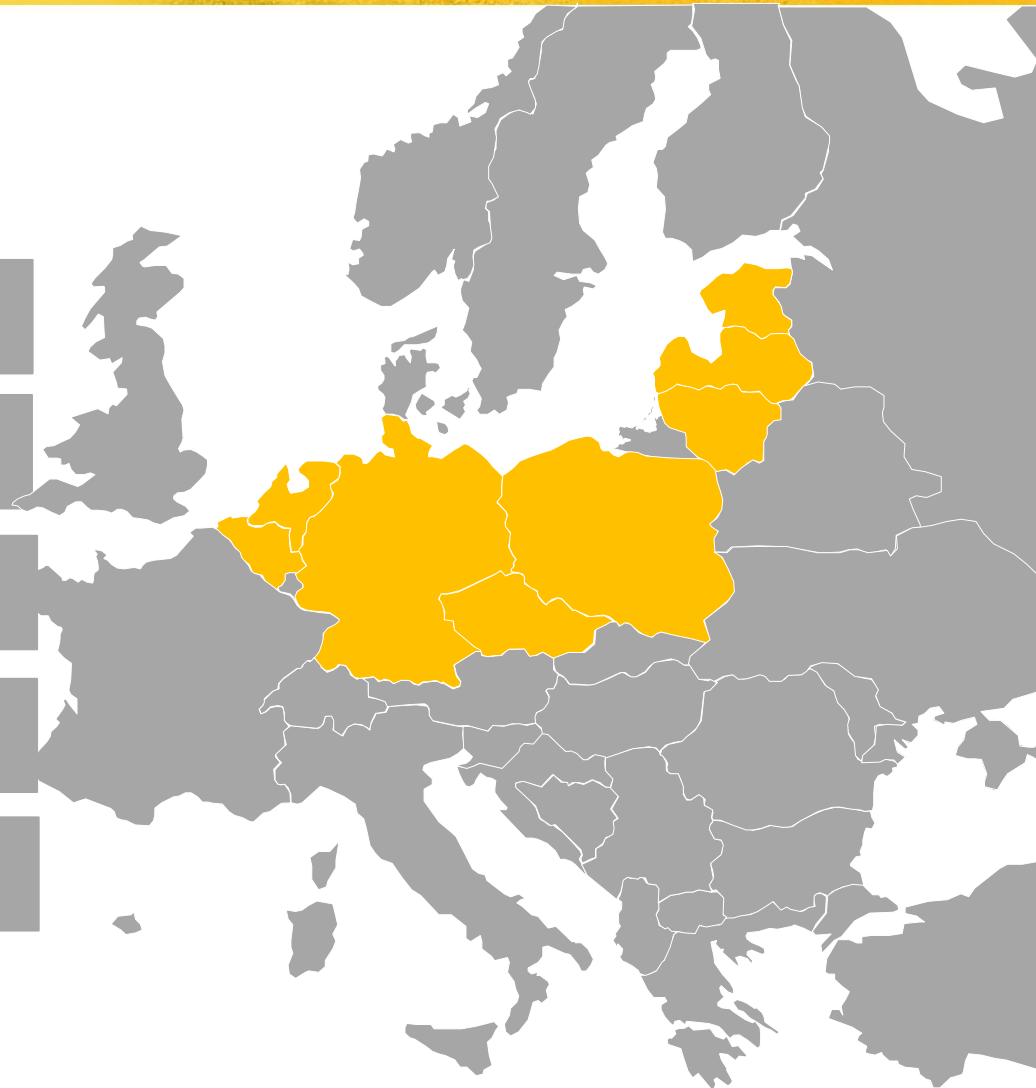North Sea – Baltic

Introduction

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KPIs for Operations

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KPIs for Market Development

KPIs for Capacity management

➤ To monitor the performance on the Corridor regarding capacity, a number of KPIs are described on the following slides which will provide insight into the capacity that has been offered, requested, allocated and monitored by the C-OSS.

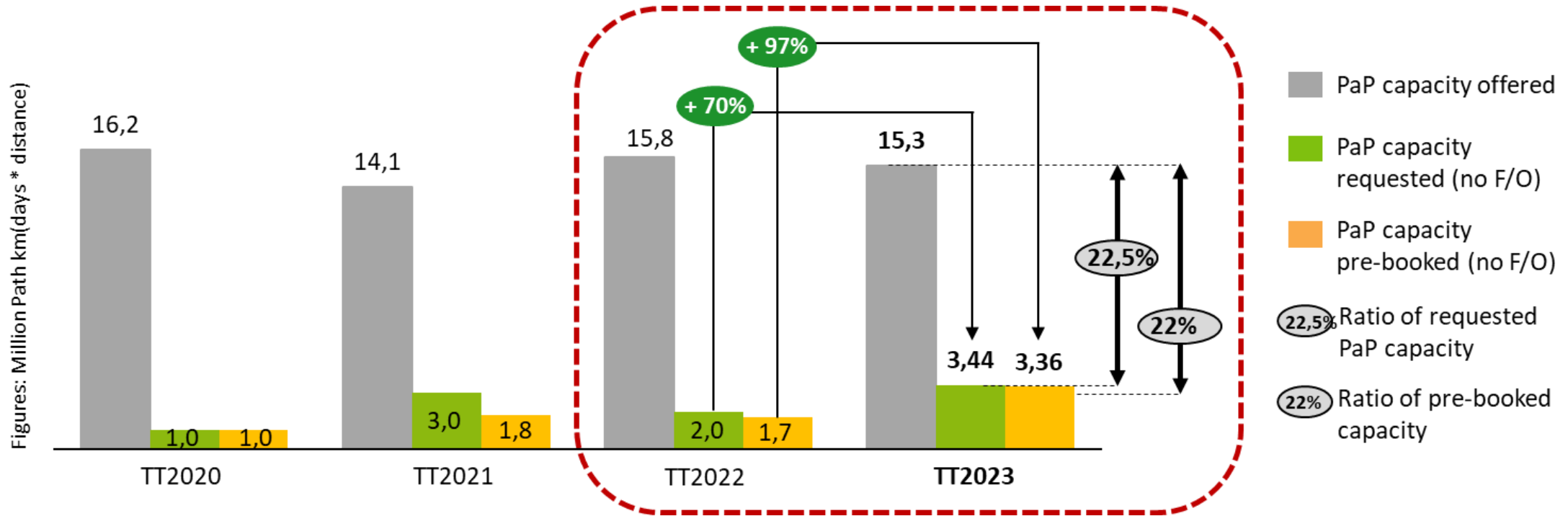**KPIs for Capacity Management (TT2023 offered in 2022):**

- KPI 01: Volume of offered capacity (PaPs)

- KPI 02: Volume of requested capacity (PaPs)

- KPI 03: Volume of pre-booked capacity (PaPs)

- KPI 04: Ratio of pre-booked capacity (PaPs)

- KPI 05: Number of requests (PaPs)

- KPI 06: Number of conflicts (PaPs)

- KPI 07: Volume of offered capacity (RC), Volume of requested capacity (RC), Number of requests (RC) (for TT2022 published in 2021)

- KPI 08: Average planned speed of PaPs (including figures for TT2024)

➤ Most of these KPIs stem from the Framework for Capacity Allocation (FCA). Others were commonly agreed and are described in the RNE KPI guidelines.

KPI 01: Volume of offered capacity (PaPs)
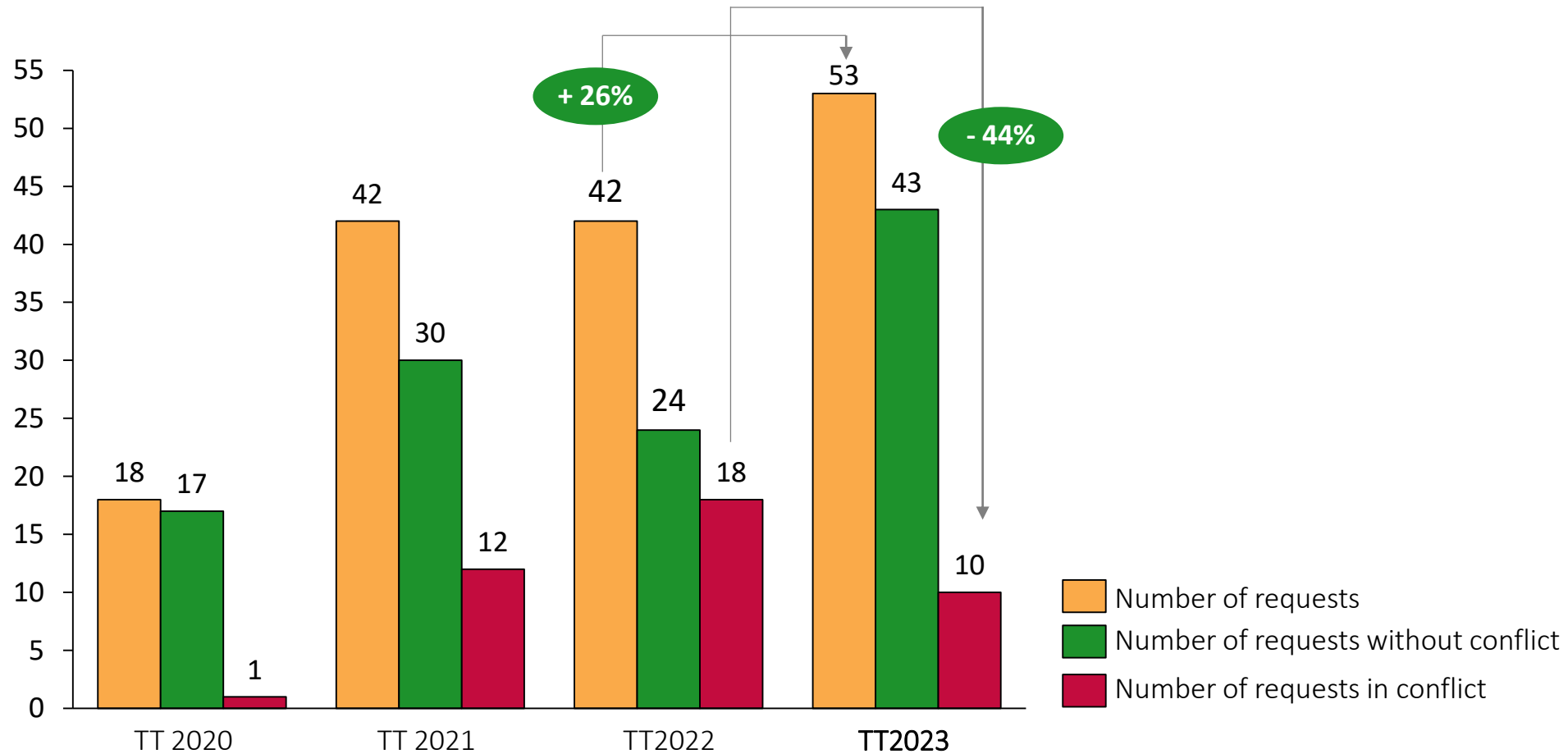**KPI 02: Volume of requested capacity (PaPs)**
KPI 03: Volume of pre-booked capacity (PaPs)
KPI 04: Ratio of pre-booked capacity (PaPs)

KPI 05: Number of requests (PaPs)
KPI 06: Number of conflicts (PaPs)

KPI 07: Volume of offered capacity (RC), Volume of requested capacity (RC), Number of requests (RC)

➢ Reserve Capacity for ad-hoc requests has been published by the C-OSS in October 2021, for the TT2022 starting in December 2021.

➢ Reserve Capacity is offered as a flexible approach, in the form of capacity slots per day and direction, requested until 30 days before the running day.

➢ The volume of offered Reserve Capacity remained relatively stable for TT2022 compared to the previous year.

➢ No Reserve Capacity was requested for TT2022.

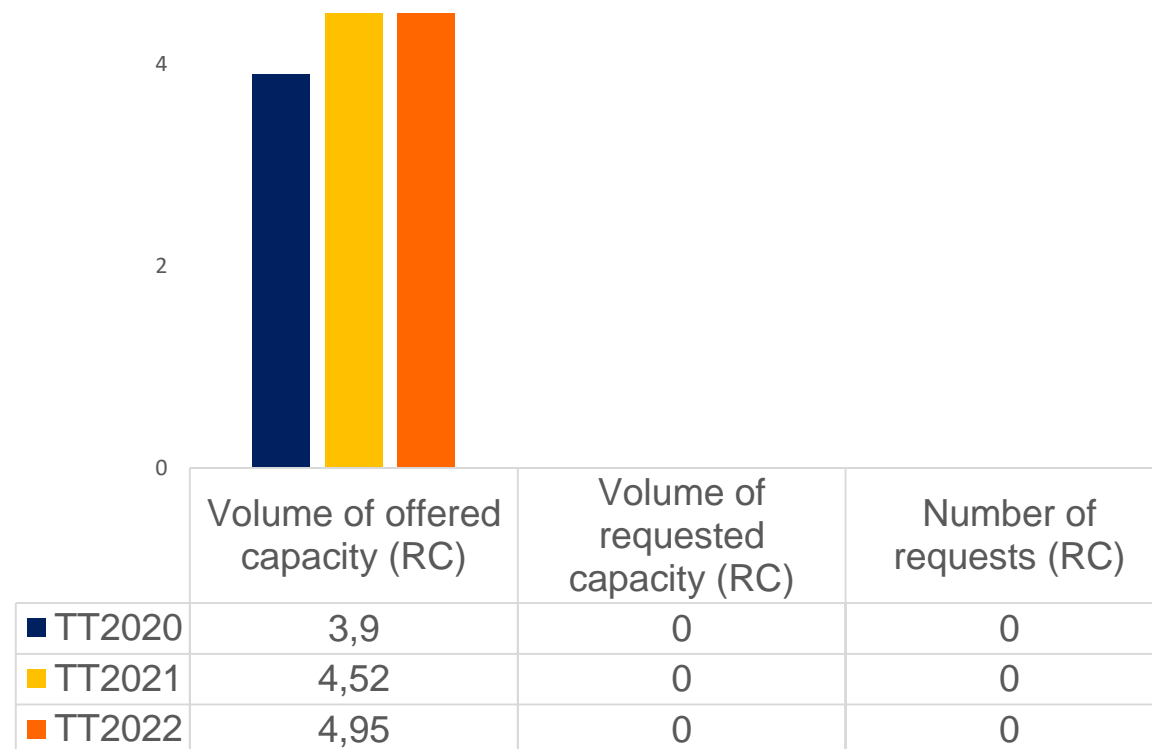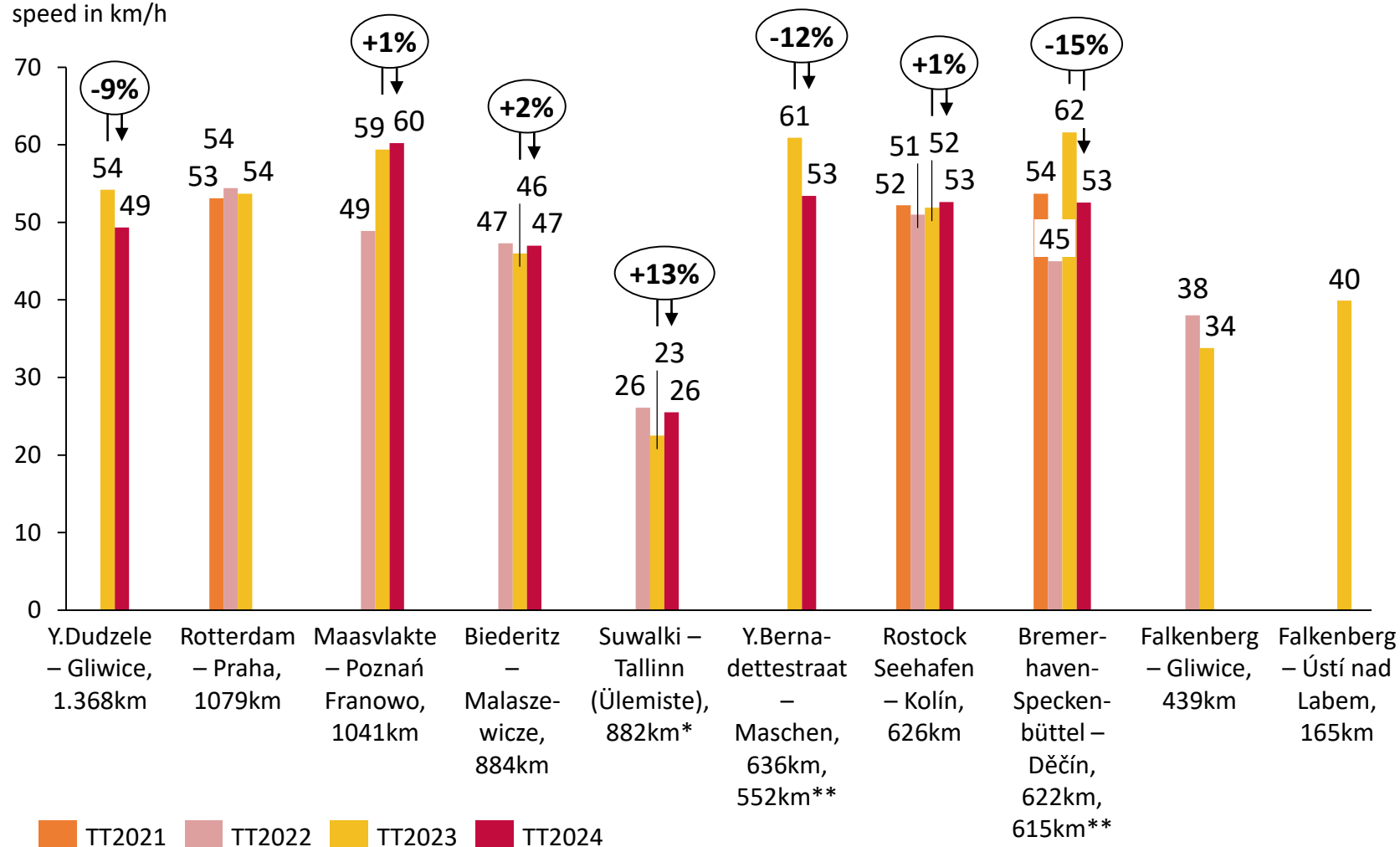|	Volume of offered capacity (RC)	Volume of requested capacity (RC)	Number of requests (RC)
■ TT2020	3,9	0	0
■ TT2021	4,52	0	0
■ TT2022	4,95	0	0

Figure Volume: Million path km (days*distance)

KPI 08: Average planned speed of PaPs

Average planned
speed in km/h

> This performance indicator shows the average of the planned speed of the PaPs on the Origin/Destination pair concerned per direction.

> O/D pairs were defined by the Corridor as the most important sections on the Corridor.

Chart categories (x-axis):
- Y.Dudzele – Gliwice, 1.368km: **-9%**, 54, 54, 49
- Rotterdam – Praha, 1079km: 53, 54, 54
- Maasvlakte – Poznań Franowo, 1041km: **+1%**, 49, 59, 60
- Biederitz – Malasze-wicze, 884km: **+2%**, 47, 46, 47
- Suwalki – Tallinn (Ülemiste), 882km*: **+13%**, 26, 23, 26
- Y.Berna-dettestraat – Maschen, 636km, 552km**: **-12%**, 61, 53
- Rostock Seehafen – Kolín, 626km: **+1%**, 52, 51, 52, 53
- Bremer-haven-Specken-büttel – Děčín, 622km, 615km**: **-15%**, 54, 45, 62, 53
- Falkenberg – Gliwice, 439km: 38, 34
- Falkenberg – Ústí nad Labem, 165km: 40

Legend: ■ TT2021 ■ TT2022 ■ TT2023 ■ TT2024

The KPI values include stopping times for selected O-D.
* Suwalki – Tallinn (Ülemiste) include the reloading time (~ 6 hours) in Palemonas. ** Two distances for W-E, E-W direction, varying per TT

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KPIs for Market Development

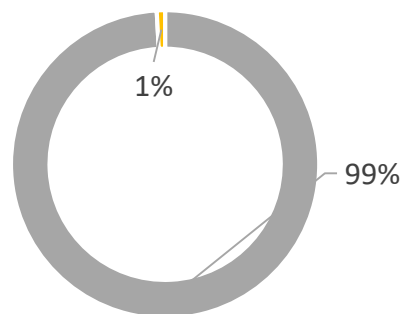In the category "Market development" the following KPIs are published:

- KPI 01: Ratio of the capacity allocated by the C-OSS to total allocated capacity TT2023

- KPI 02: Number of trains per border 2022

KPI 01: Ratio of the capacity allocated by the C-OSS to total allocated capacity TT2023

On the next slides KPI Ratio of the capacity allocated by the C-OSS to total allocated capacity is presented. This KPI displays the number of train runs allocated in the yearly timetable by the C-OSS per RFC border/the total number of allocated international freight train runs in the yearly timetable per RFC border. Source of data is PCS for RFC capacity and national IMs' tools for total allocated capacity.

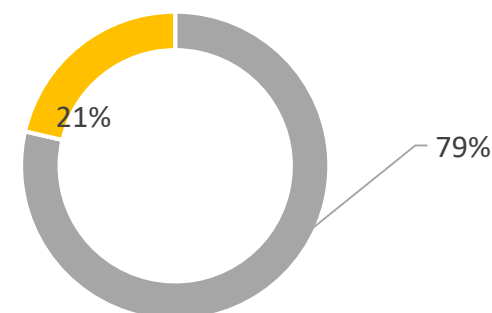# KPI 01: Ratio of the capacity allocated by the C-OSS to total allocated capacity TT2023

Montzen Frontiere / Aachen West Grenze

1%

99%

- ■ % Total allocated capacity IM (incl. RFC RALP)
- ■ % Total allocated capacity RFC NSB

Number of allocated international freight trains	
Total (incl. RFC RALP)	C-OSS RFC NSB
29.805	260

Oldenzaal Grens / Bad Bentheim Grenze
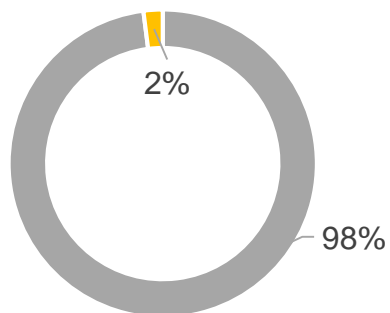
21%

79%

- ■ % Total allocated capacity IM
- ■ % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total	C-OSS RFC NSB
5.823	1.247

KPI 01: Ratio of the capacity allocated by the C-OSS to total allocated capacity TT2023
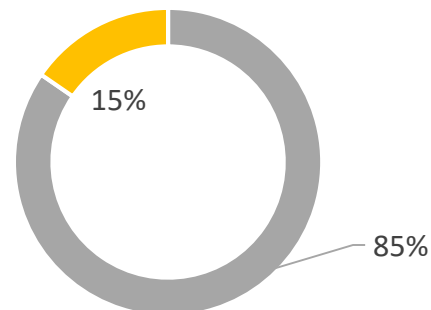
Zenvenaar Grens / Emmerich

2%

98%

- ■ % Total allocated capacity IM (incl. RFC RALP)
- ■ % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total (incl. RFC RALP)	C-OSS RFC NSB
43.961	884

Roosendaal Grens / Essen-Grens

15%

85%

- ■ % Total allocated capacity IM (incl. RFC NSM)
- ■ % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total (incl. RFC NSM)	C-OSS RFC NSB
11.135	1.715

KPI 01: Ratio of the capacity allocated by the C-OSS to total allocated capacity TT2023
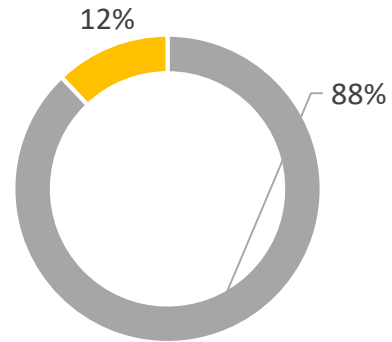
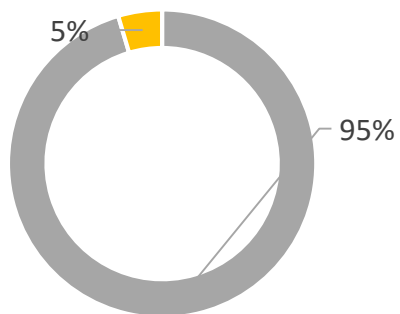**Bad Schandau Gr / Děčín st.hr.**

12%

88%

- ■ % Total allocated capacity IM (incl. OEM)
- ■ % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total (incl. RFC OEM)	C-OSS RFC NSB
49.693	6.010

KPI 01: Ratio of the capacity allocated by the C-OSS to total allocated capacity TT2023
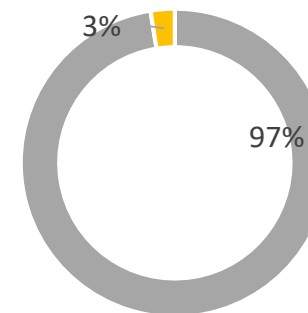
Horka / Węgliniec-Bielawa Dolna (Gr)

5%

95%

- % Total allocated capacity IM
- % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total	C-OSS RFC NSB
8.885	509

Frankfurt (Oder) Oderbrücke / Kunowice (Gr)

3%

97%

- % Total allocated capacity IM
- % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total	C-OSS RFC NSB
14.181	359

KPI 01: Ratio of the capacity allocated by the C-OSS to total allocated capacity TT2023

Trakiszki (Gr) / Mockava Pasienis

0%

100%

- % Total allocated capacity IM
- % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total	C-OSS RFC NSB
5.824	0

Joniškis Pasienis / Meitene-eksp. (State border)

0%

100%

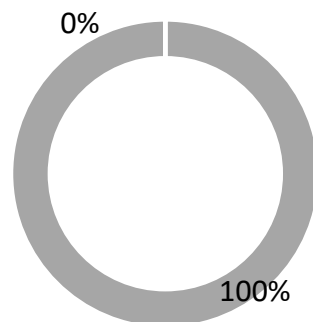- % Total allocated capacity IM
- % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total	C-OSS RFC NSB
2.912	0

KPI 01: Ratio of the capacity allocated by the C-OSS to total allocated capacity TT2023

**Lugaži-eksp. (State border) /
Valga state border**

0%

100%
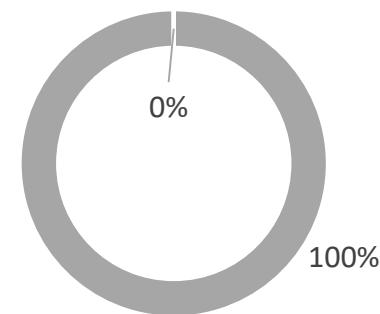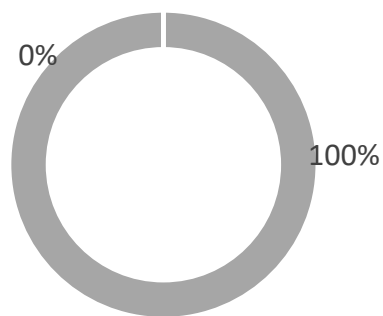
- ■ % Total allocated capacity IM
- ■ % Total allocated capacity RFC NS-B

Number of allocated international freight trains	
Total	C-OSS RFC NSB
1.585	0

KPI 02: Number of trains per border 2022

KPI 02: Number of trains per border presents the number of commercial freight trains crossing selected border points. The source of the data is the IM's national tools. KPI 02 displays corridor trains on RFC North Sea–Baltic, per border. Trains that pass more than one border are counted at each border

Border pairs taken into consideration for this KPI:

➢Montzen – Aachen

➢Essen – Roosendaal

➢Zevenaar – Emmerich

➢Oldenzaal - Bad Bentheim

➢Venlo – Kaldenkirchen *

➢Frankfurt Oderbrücke - Kunowice/Rzepin

➢Węgliniec/Bielawa Dolna – Horka

➢Bad Schandau - Děčín

➢Trakiszki-Mockava

➢Meitene-Joniskis

➢Kurcums-Turmantas

➢Lugazi-Valga

*Venlo- Kaldenkirchen borders are measured for this KPI as North Sea-Baltic trains can be re-routed using these border- pairs

KPI 02: Number of trains per border 2022

2022 Number of trains	Direction		Total trains		
Border pairs	**WEST-EAST**	**EAST-WEST**	**Total trains 2022**	**Total trains 2021**	**% 2022 compare to 2021**
Montzen-Aachen	10.965	10.812	21.777	23.446	-7,1%
Roosendaal-Essen	4.243	4.222	8.465	8.523	-0,7%
Zevenaar-Emmerich	13.776	13.202	26.978	23.582	14,4%
Oldenzaal-Bad Bentheim	2.997	3.040	6.037	7.616	-20,7%
Venlo-Kaldenkirchen	8.393	8.164	16.557	14.977	10,5%
Frankfurt- Kunowice/Rzepin	8. 336	8.330	16.666	17.757	-6,1%
Horka Wegliniec/Bielawa Dolna	5.499	5.363	10.862	9.598	13.2%
Bad Schandau-Decin	13.476	13.199	26.675	28.737	-7,2%
Trakiszki-Mockava	838	828	1.666	1.239	34,5%
Meitene-Joniskis	217	666	883	974	-9,3%
Kurcums-Turmantas	4	4	8	61	-87,0%
Lugazi-Valga	473	357	830	1.597	-48,0%

2022 information:

- Train traffic at the border-pairs between Estonia/Latvia and Latvia/Lithuania was seriously reduced in 2022 compared to 2021. This is due to the EU sanctions that have been implemented with Belarus and Russia during the Ukrainian conflict.
- Train traffic at the borders between Poland and Germany and Poland and Lithuania has increased. Reasons for this is a general increase of trains travelling via Poland due to the Ukranian conflict.
- Other large differences can be seen with the train totals of the various individual IM's that have multiple borders. Bad Bentheim- Oldenzaal (NL-DE), Zevenaar-Emmerich (NL-DE) and Venlo-Kaldenkirchen (NL-DE) as well as Frankfurt (Oder)-Rzepin (DE-PL) and Horka-Wegliniec/Bielawa Dolna (DE-PL). Works and re-routing require the trains to use an alternative border of the same IM, and this creates a fluctuation in the train totals at these borders

KPI 02: Number of trains per border 2022 (compared to 2021 and 2020)

Border pairs	Total trains				
	Total trains 2022	Total trains 2021	Total trains 2020	% 2022 compare to 2021	% 2022 compare to 2020
Montzen-Aachen	21.777	23.446	19.694	-7,1%	11,0%
Roosendaal-Essen	8.465	8.523	9.400	-0,7%	-11,0%
Zevenaar-Emmerich	26.978	23.582	20.985	14,4%	22,0%
Oldenzaal-Bad Bentheim	6.037	7.616	6.548	-20,7%	-8,0%
Venlo-Kaldenkirchen	16.557	14.977	16.013	10,5%	3,0%
Frankfurt- Kunowice/Rzepin	16.666	17.757	17.785	-6,1%	-7,0%
Horka Wegliniec/Bielawa Dolna	10.862	9.598	5.267	13.2%	106,0%
Bad Schandau-Decin	26.675	28.737	30.408	-7,2%	-14,0%
Trakiszki-Mockava	1.666	1.239	768	34,5%	117,0%
Meitene-Joniskis	883	974	n/a	-9,3%	n/a/
Kurcums-Turmantas	8	61	n/a	-87,0%	n/a/
Lugazi-Valga	830	1.597	n/a	-48,0%	n/a/

- 2022 compared to 2020: Horka-Wegliniec/Bielawa Dolna and Trakiszki-Mockava, large increase

Borders:

Structual loss of trains over the 3-year period:
- Essen-Roosendaal
- Oldenzaal-Bad Bentheim
- Frankfurt(Oder)- Rzepin
- Bad Schandau-Decin

Structual gain of trains over the 3-year period:
+ Zevenaar -Emmerich
+ Venlo-Kaldenkirchen
+ Horka-Wegliniec/Bielawa Dolna
+ Trakiszki-Mockava