



German Railway Link FBFL

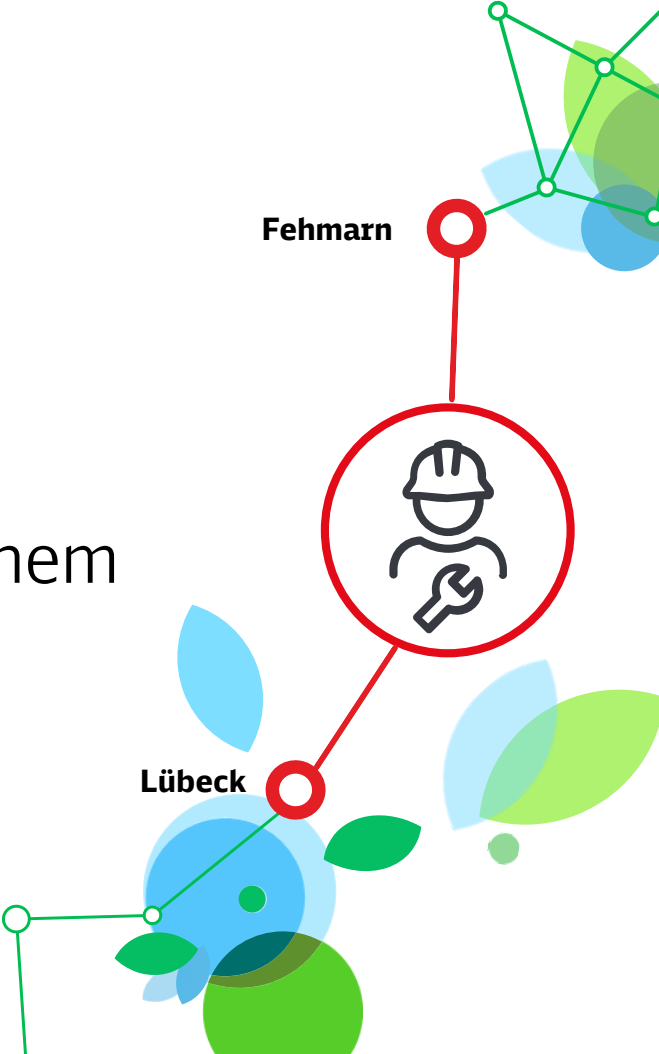
88 kilometers – 10 plan approval sections:
Technical & political challenges – and how we handle them



DB InfraGO | 23 September 2024



Co-funded by
the European Union



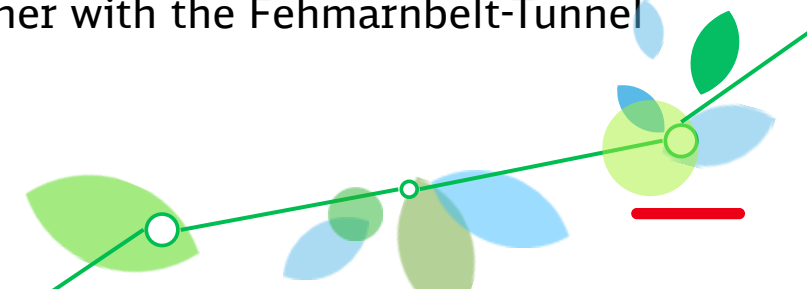
New connections between Denmark and Germany

The German rail link as part of a bigger picture



Source: Femern A/S

- In September 2008 Denmark and Germany signed a State Treaty to build a fixed link over the Fehmern Belt
 - Germany has pledged to provide an efficient road- and rail connection on the German side
- **Current situation between Lübeck and Puttgarden:**
 - 88 km, one track, not electrified
 - Maximum speed: 140 km/h
 - Average speed: ca. 100 km/h
- **Project scope:**
 - 2 tracks, electrified route with maximum speed of 200 km/h
 - 55 km new tracks
 - 10 sections
 - Opening together with the Fehmarnbelt-Tunnel



160 km of new tracks are just the beginning

Key figures of the construction project



More than **80 new bridges**



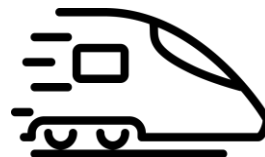
7 new railway stations



Adjustment and renewal of **5 motorway connections**



More than **40 km noise protection walls**



Equipped with **European Train Control System (ETCS)**



Extensive measures for **compensation, species conservation and environmental protection**

... und many more

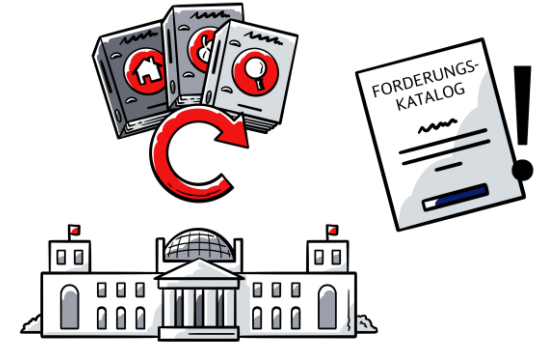


The long journey from the state treaty to construction start

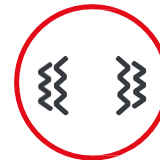
Now we are picking up speed!



- **2010-2014:** Result of regional planning procedure: 55 km newly build tracks, bypass Bay of Lübeck, Oldenburg i.H. and Großenbrode
 - **2013:** Extended project scope with commissioning of a new Fehmarnsound crossing based on heavy weight tests in 2010
 - **2020:** Immersed tunnel as the result of the comparison of variants in combination with the existing bridge for slow traffic
- 2017 – 2020:** Parliamentary consultation and resolution summing up to 232 Mio. Euros extra for designated measures
- **Since 2020:** Integration of the parliamentary resolution in the approval documents, incl. consultation with Eisenbahn-Bundesamt und hearing agency



Additional noise protection



Additional protection against vibration



Changes in alignment

Acceleration measures to stabilize the time schedule



Goal: Realization of all 10 sections by opening of the FBFL

- In December 2022, the Federal Ministry of Transport (BMDV) decided to accelerate the planning in certain sections of the project
- The measure is to compensate delays due to the later inclusion of a new Fehmarnsund crossing into the existing planning and necessary new planning, resulting from the Bundestag decision in 2020.

2 measures are therefore currently implemented in the project:

1) Railway Partnership Model (Partnerschaftsmodell Schiene)

- DB project team, planning and construction companies are brought together early and work together to ensure rapid implementation and efficient construction → resemblance with Design and Build approach

2) Optimized plan approval procedure

- Shared commitment with federal authority *Eisenbahn-Bundesamt* to cut the time in which approvals are issued in half



Six sections will be implemented in this model

Split up into two alliances



Alliance South:

Market dialogue took place on July 4th 2023; tendering took place, assessment centres currently running, contracts to be awarded in October

- Section Lübeck
- Section 1.1 Bad Schwartau,
- Section 1.2 Ratekau to Haffkrug,
- Section 2 Sierksdorf to Altenkrempe
- Section 3 Schashagen to Damlos

Alliance Fehmarnsund

Market dialogue took place on April 8th 2024, preparation of tender documents underway

- Section Fehmarnsund crossing

Moving forward: Status of the sections (September 2024)



- Section under construction
 - **6 (Fehmarn)**: Since December 2023
- Sections in approval procedure
 - **5.2 (Großenbrode)**: Hearing in June 2024, approval awaited in Q4 2024
 - **5.1 (Heringsdorf, Neukirchen)**: Hearing phase started on 9th September 2024
 - **4 (Oldenburg i.H. /Göhl)**: Hearing in November 2024
 - **3 (Altenkrempe, Lensahn)**: Second round of hearing phase in Q1 2025
 - **Lübeck**: Currently in hearing phase
- Sections in planning phase
 - **2 (Sierksdorf, Neustadt i.H.)**: Hearing phase starts in October 2024
 - **1.2 (Ratekau-Haffkrug)**: Hearing phase starts in Q1 2025
 - **1.1 (Bad Schwartau)**: Hearing phase starts in Q1 2025
 - **Fehmarnsund crossing**: Hearing phase starts in Q2 2025



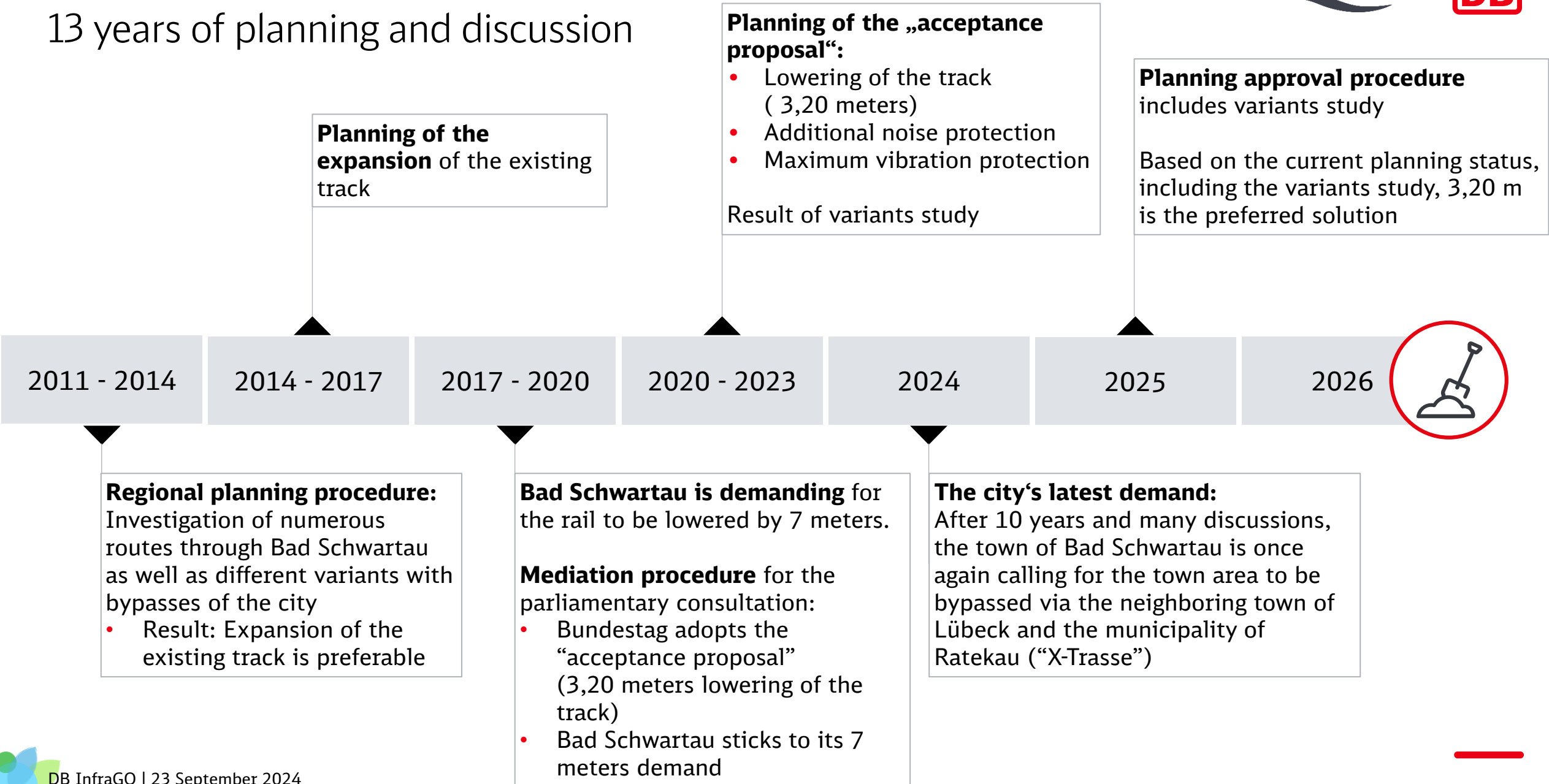
Focus topics

- Section 1.1 (Bad Schwartau)
- Section FSQ (Fehmarnsund crossing)



Section Bad Schwartau

13 years of planning and discussion



Regional planning procedure: Investigation of numerous routes through Bad Schwartau as well as different variants with bypasses of the city

- Result: Expansion of the existing track is preferable

Bad Schwartau is demanding for the rail to be lowered by 7 meters.

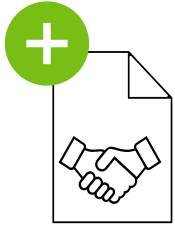
Mediation procedure for the parliamentary consultation:

- Bundestag adopts the “acceptance proposal” (3,20 meters lowering of the track)
- Bad Schwartau sticks to its 7 meters demand

The city’s latest demand: After 10 years and many discussions, the town of Bad Schwartau is once again calling for the town area to be bypassed via the neighboring town of Lübeck and the municipality of Ratekau (“X-Trasse”)



We can go beyond the legal requirements to protect people against noise and vibrations



Additional protective measures thanks to funding from the Bundestag



The required protective measures are met in Bad Schwartau



Noise

Additional noise protection resolves all cases of noise disturbance

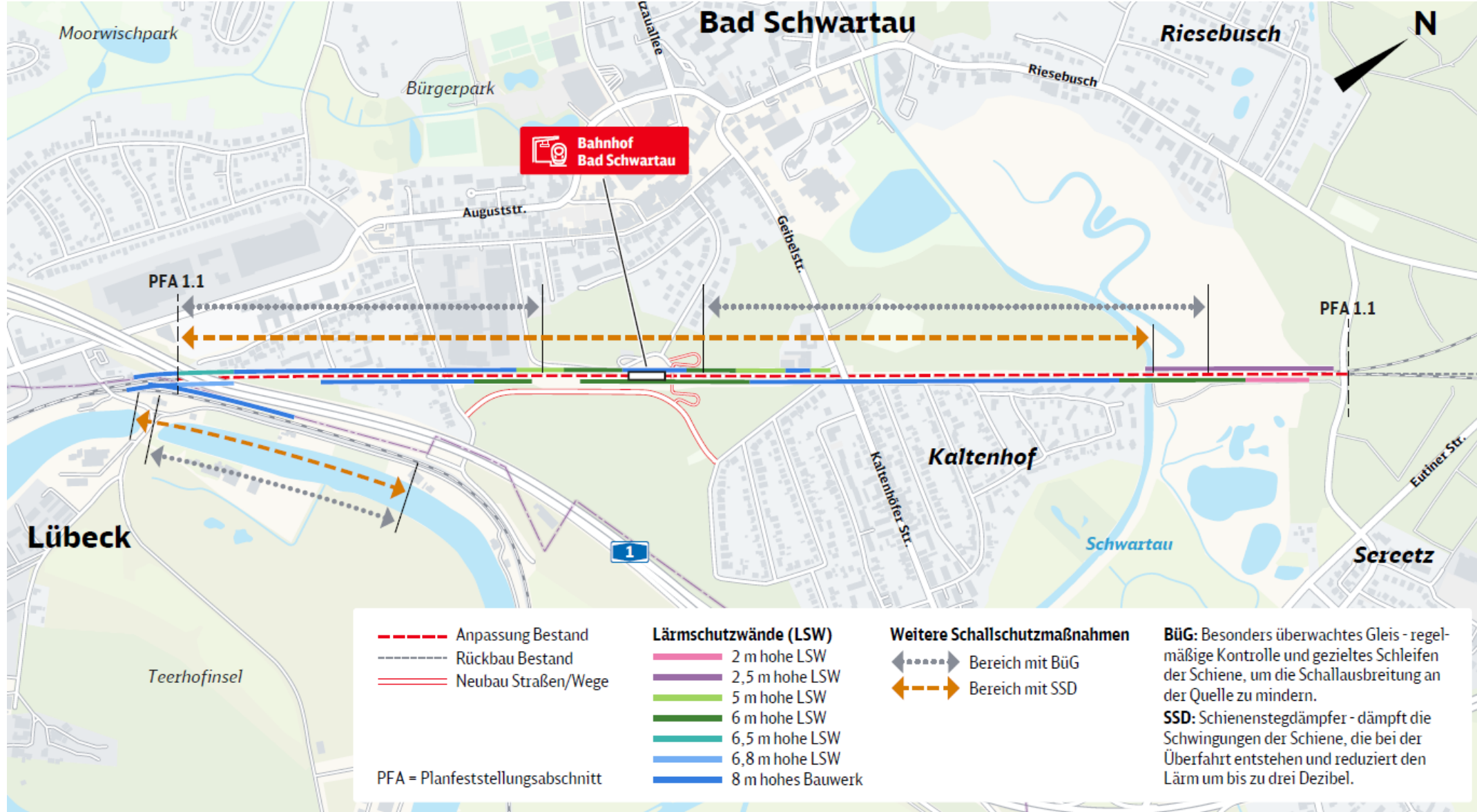


Vibration

Maximum vibration protection for residents



Additional noise protection



Without railroad barriers through Bad Schwartau



The new station



Noise protection for residents



Local industrial area

Elisabethstraße



Combined and immersed Fehmarnsound tunnel

Current state of planning



Preparatory measures

Precondition for the actual construction works



Main archaeological investigation

- Started in August 2024 on the mainland (carried out by the Archaeological State Office SH)

Relocation of further cables and lines by the local line operators

- Commencement of work: 3rd quarter 2024



Source: bildwerkeins paulwalther

Relocation of the 110 kV-line in the Fehmarnsund

- Works started in August 2024 by Fehmarn Netz GmbH

Explosive ordnance exploration and recovery in the Baltic Sea

- Commencement of work expected in 2025



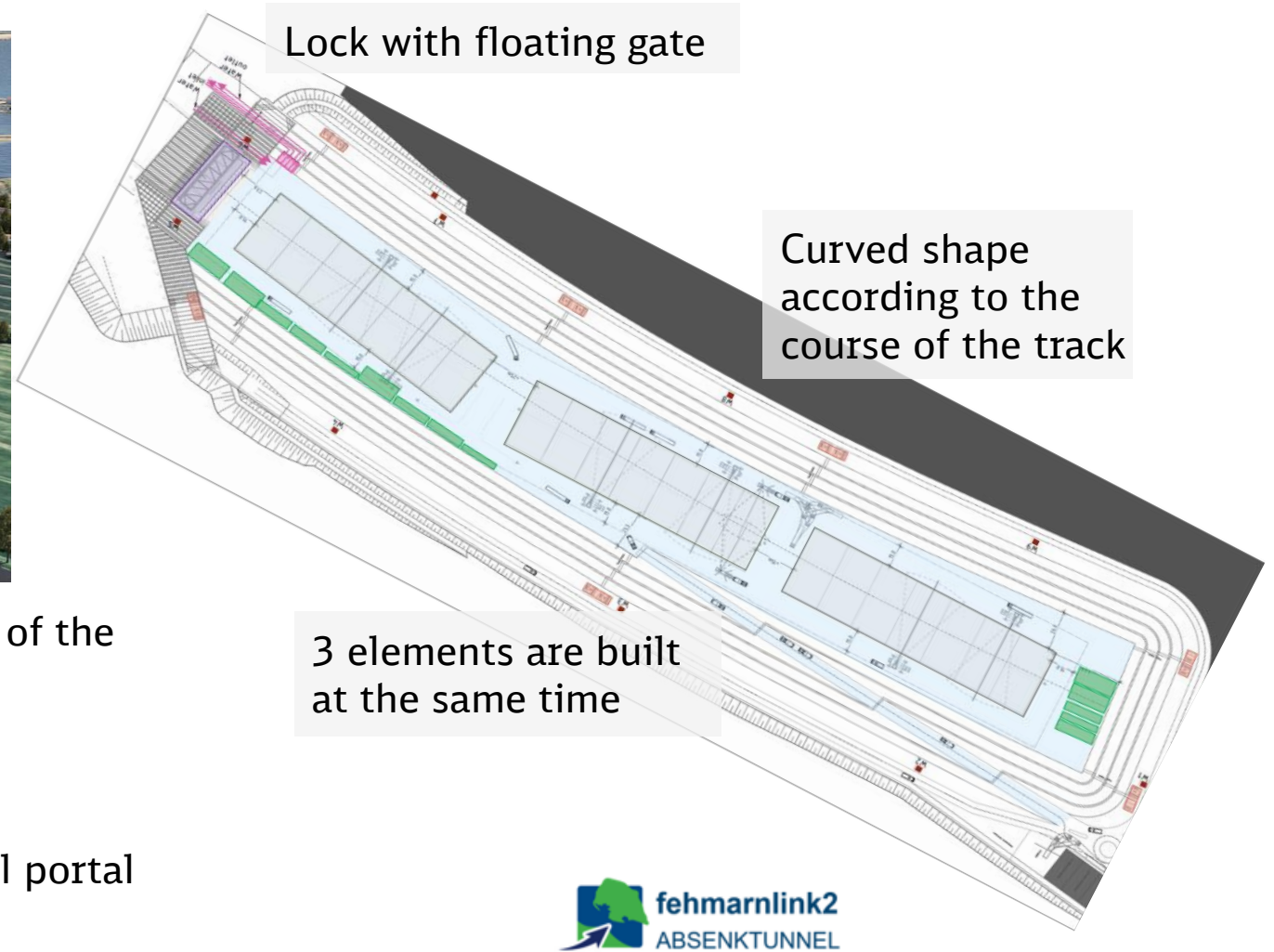
Source: Christian Howe, www.h2owe.de, Christian-Albrechts-Universität zu Kiel

How we build the tunnel elements

Production in dry dock on the mainland



- Construction of a dry dock on the mainland west of the Fehmarnsund bridge
- The 12 tunnel elements will be produced here
- The dry dock will later be converted into a tunnel portal (entrance and exit)
- This way, the required amount of land use is minimised



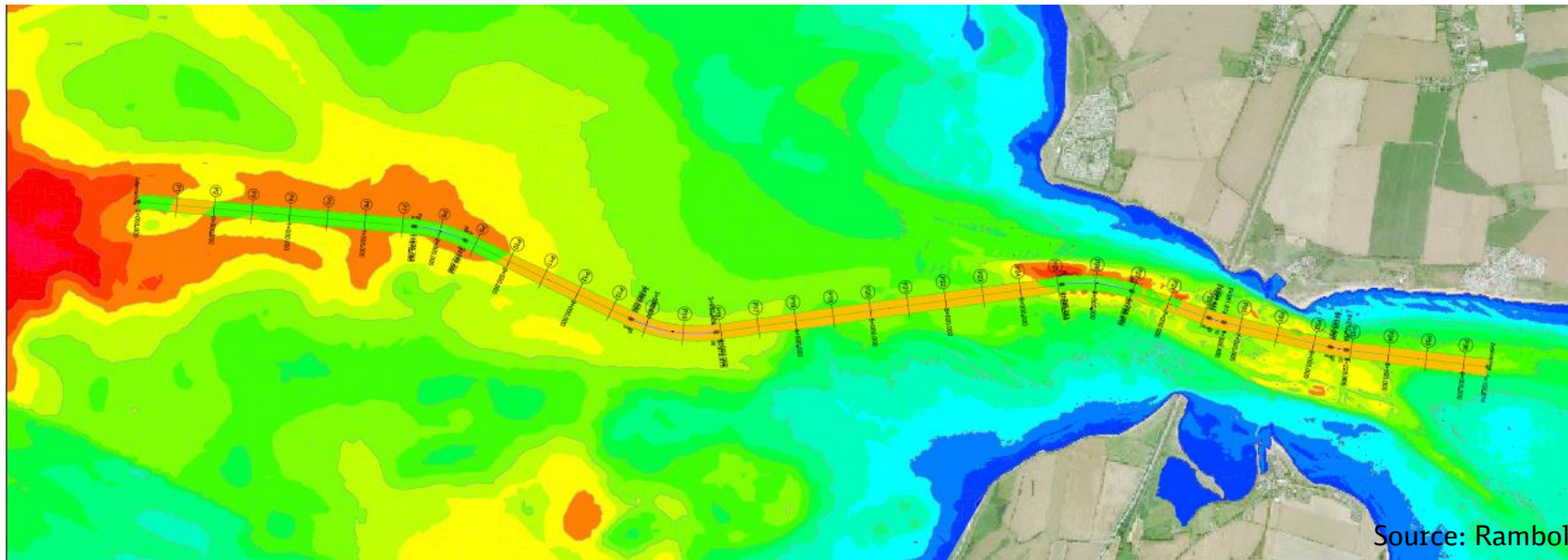
- Subject to alterations -

We produce our tunnel elements at the Sound



Swimming in involves exclusion criteria, e.g. major interventions in the FFH area

- A feasibility study is available for swimming in the tunnel elements, e.g. from Denmark
- Due to the shallow water depth in the Sound, swimming in requires excavation of the navigation channel
- The excavation is a major intervention in the FFH area in the Fehmarnsund and exceeds the limited excavation for the tunnel by a multiple
- As the production in the dry dock is an alternative to this intervention, the production outside the Fehmarnsund will not be approved by the authorities
- The production of the Sound elements in Rødbyhavn requires adjustments to the production facility
- Swimming in the tunnel elements also extends the construction time



Source: Ramboll

Höhentabelle			
Nummer	Min. Höhenwert	Max. Höhenwert	Farbe
1	-14.000	-13.000	Red
2	-13.000	-12.000	Red
3	-12.000	-11.000	Orange
4	-11.000	-10.000	Orange
5	-10.000	-9.000	Yellow
6	-9.000	-8.000	Yellow
7	-8.000	-7.000	Light Green
8	-7.000	-6.000	Light Green
9	-6.000	-5.000	Green
10	-5.000	-4.000	Green
11	-4.000	-3.000	Cyan
12	-3.000	-2.000	Cyan
13	-2.000	-1.000	Blue
14	-1.000	0.000	Blue
15	0.000	1.000	Blue
16	1.000	2.000	Blue

Outlook: Fehmarnsound crossing



- Implementation of the partnership model (“Partnerschaftsmodell”) for the Alliance Fehmarnsound for rail and road
- Submission of approval documents in Q1 2025
- All plans and measures by DB and DEGES are aimed at connecting the Fehmarnsound tunnel directly to the connection areas on Fehmarn and the mainland



Source: DB InfraGO/DEGES



Construction progress

- Section 6 (Fehmarn)



Overview of construction works on Fehmarn

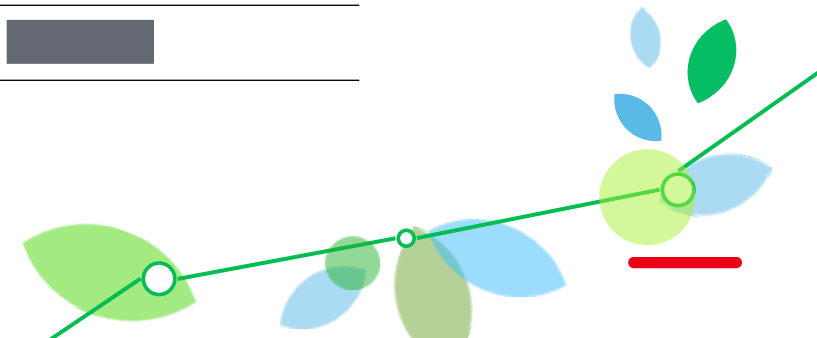
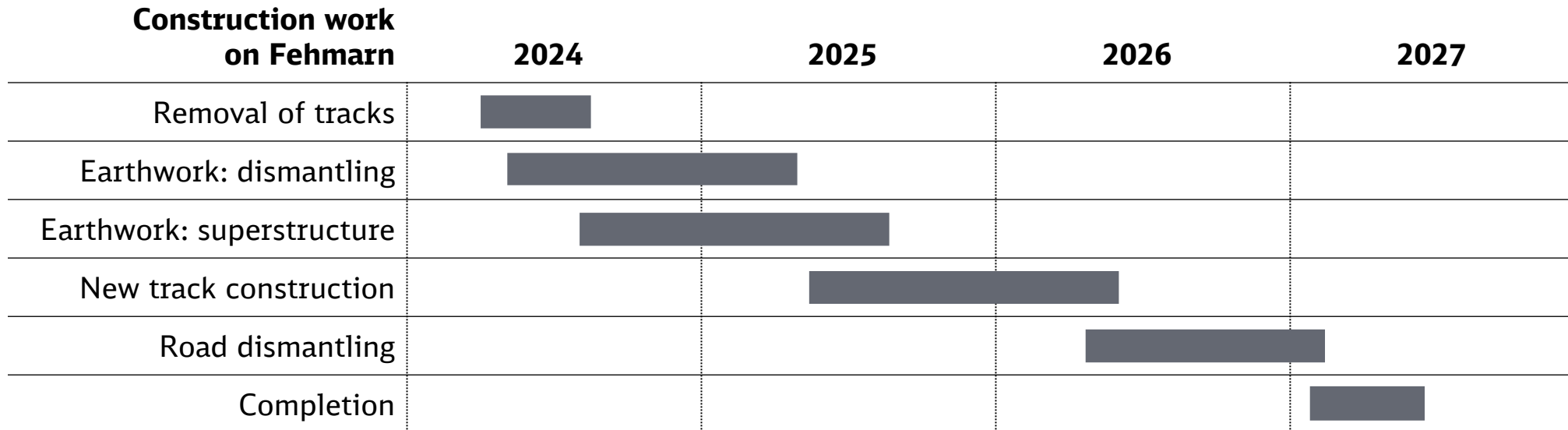
Scheduled to be completed in 2027



- Clearing (removing trees and bushes)
- Establishing construction roads (started in November 2023)



Main construction works/track superstructure construction section 6.1b-6.3:



Main works are progressing

Removal of tracks have been completed (bridge connection excluded)



Source: DB AG



Source: LN / Manuel Büchner



Source: DB AG



Source: DB AG

Communication during the construction phase

for the municipalities and ist citizens and visitors



Source: DB AG



- **Monthly meeting with city of Fehmarn about the construction works** since December 2023 together with the team for the maintenance of the Fehmarnsund bridge
- Information about start of main construction received by all households by mail on Fehmarn
- Regular **opening hours** in our info center: **Every Tuesday from 13:00 -16:00 h**
- Information about the main construction works at open house event „**Baustellen-Fest**“ on July 5th 2024
- Since December 2023: **Communication on construction activities:**
 - Construction-Blog
 - Newsletter-Sign-Up

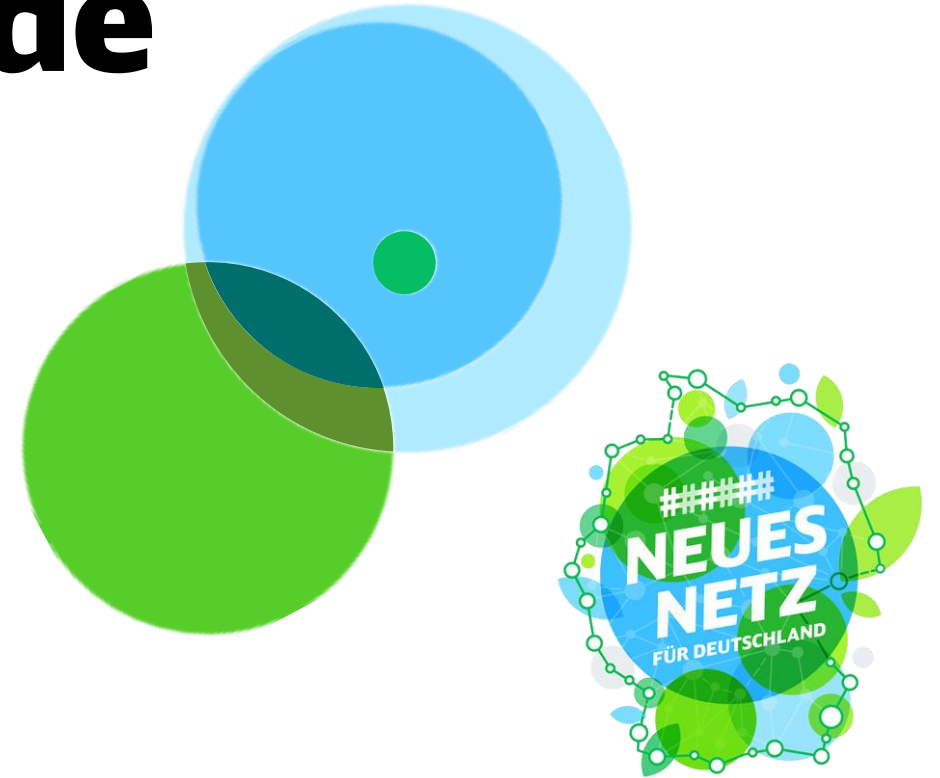
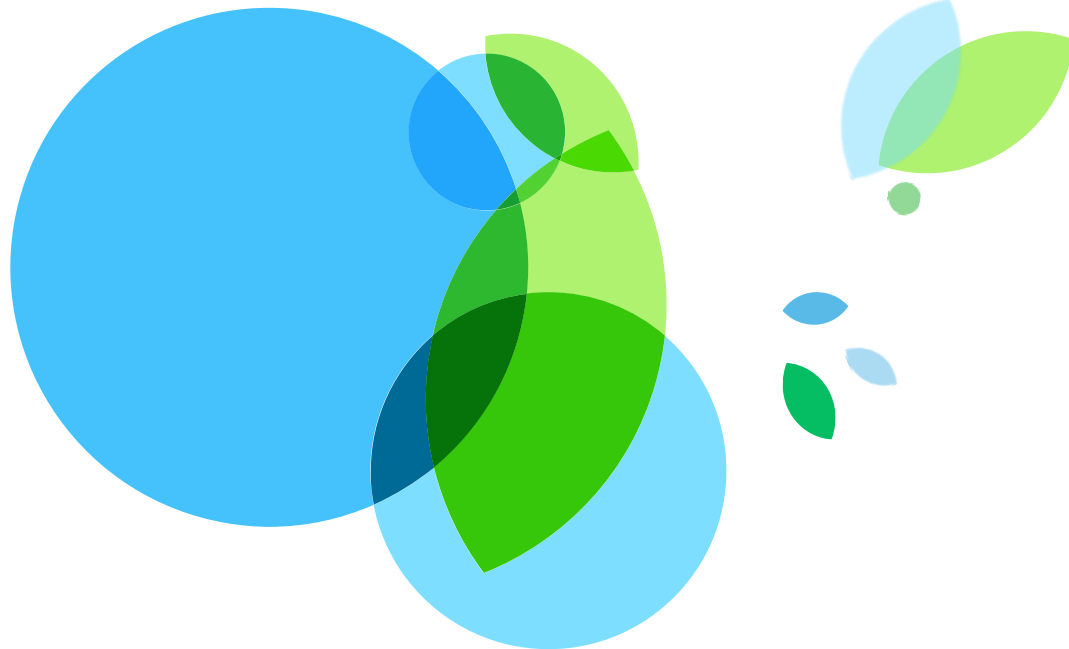




Das große Investitionsprogramm
für Mobilität und Klimawende.

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