

The background is an aerial photograph of a sailboat with white sails and a blue stripe, sailing on clear turquoise water. In the top left corner, there is a decorative graphic consisting of a grid of thin, curved lines in a light blue color.

RWE

**Design of a Lake Landscape
in the Rhenish Lignite Area
due to the Earlier Closure of
Lignite Mines**

World Canals Conference Leipzig

May/June 2022

Rhenish Lignite

Historical landscape, post-mining farmlands and forestry

**Topsoil tipper
pit Neurath
(1941)**

Source: Historical Archive
Chamber of Agriculture NRW



**Recultivation
open-cast mine
Garzweiler
(2020)**

Source: RWE Power AG



**Open-cast mine
Hambach: former
Sophienhof
(1981)**

Source: RWE Power AG



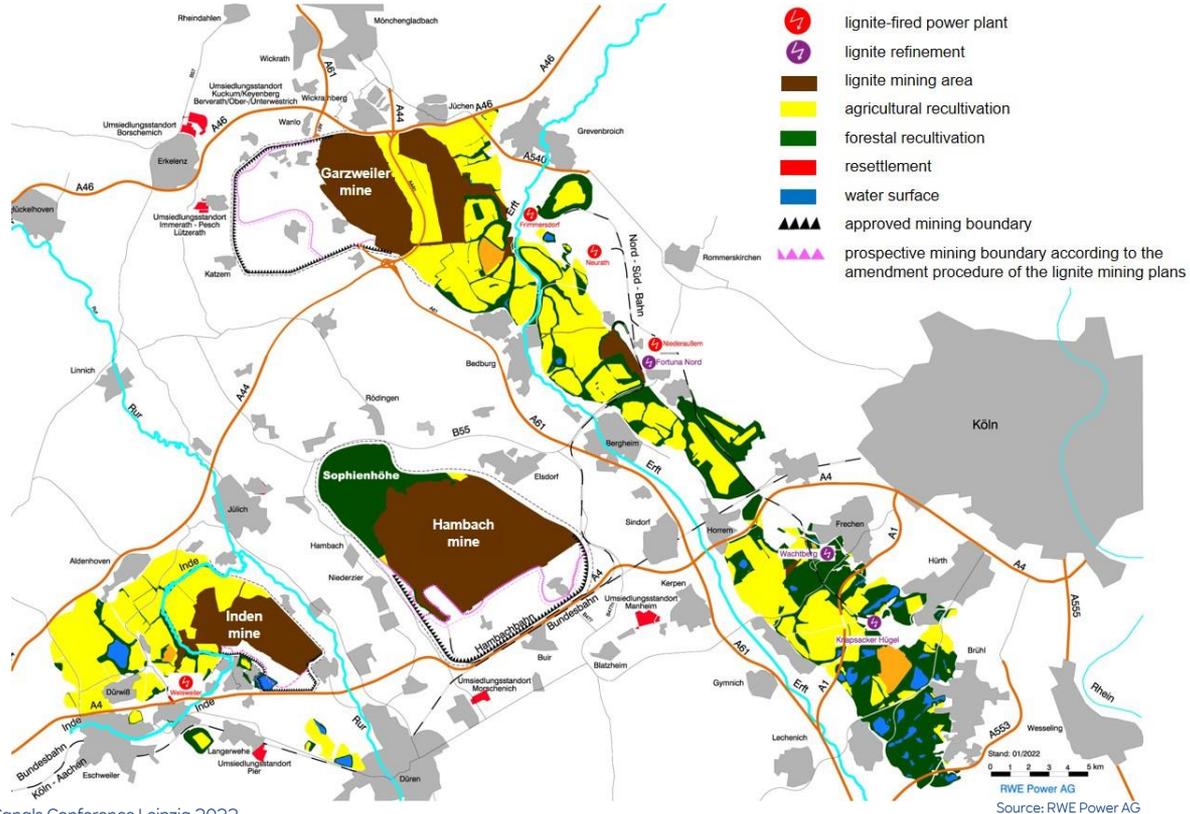
**Sophienhöhe
(2021)**

Source: RWE Power AG



Rhenish Lignite

Mining and power generation in a densely populated area



Rhenish Lignite Status early 2022



8 GW installed capacity

50 TWh p.a. power generation



3 open-cast mines Hambach, Inden & Garzweiler

65 Mio. t p.a. lignite production



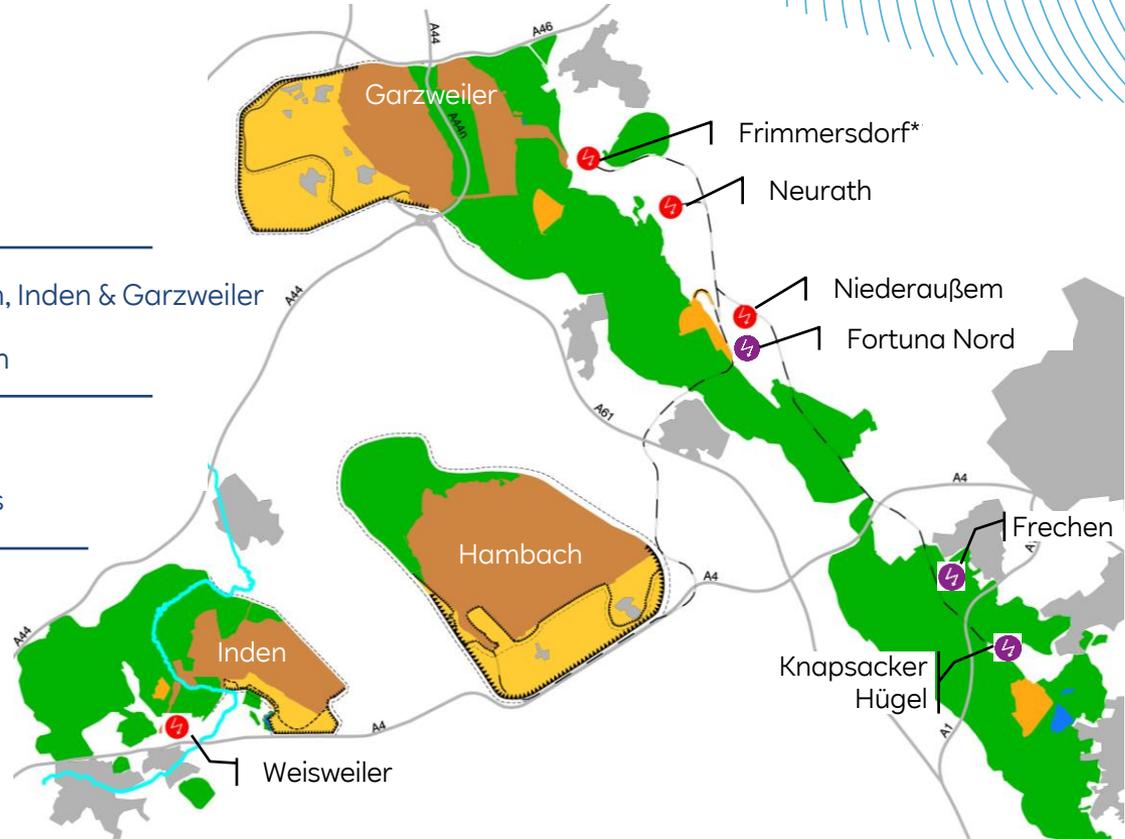
3 refining locations

5 Mio. t p.a. refining products



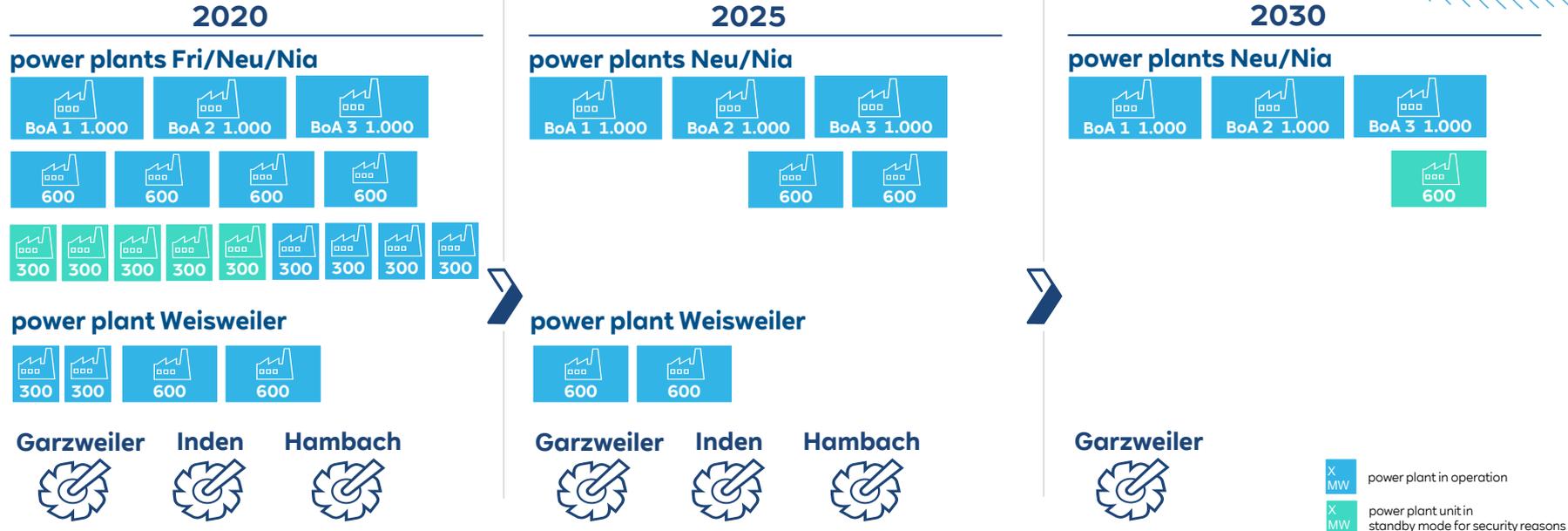
8.000 employees

*decommissioned since 30.09.2021



Rhenish Lignite

Implementation of an ambitious phasing out



➔ **Great changes in power plant size and scope of performance**

Guideline Ruling of the state of NRW 2021

Specifications and impacts on the open-cast mine Hambach



— new planned extraction boundary

Source: RWE Power AG; Status early 2022

- Continuation of the lignite mining until the end of 2029
- 1,1 billion tonnes lignite remain in the mine terrain
- Conservation of the forests Hambacher Forst, Merzenicher Erbwald as well as the forest areas west of the Steinheide
- Morschenich is not going to be resettled for the continuation of the mining process
- Since 2020 the open-cast mine has been geared to the design of the post-mining landscape including a large multifunctional lake

Massive modifications in the management of the open-cast mine Hambach are necessary.

Guideline Ruling of the state of NRW 2021

Specifications and impacts on the open-cast mine Garzweiler



— new planned extraction boundary

Source: RWE Power AG; Status early 2022

- Distance to the village borders (Kaulhausen, Kückhoven, Holzweiler): 500 m
- End of mining: 2038, potentially 2035
- From 2030 the only lignite-mining operation in the Rhenish area
- Remaining lignite capacity (as of 01.01.2021) of the mining plan:
approx. 580 million tonnes of lignite

Significant changes are necessary for the open-cast mine Garzweiler on the basis of the Guideline Ruling.

Guideline Ruling of the state of NRW 2021

Specifications and impacts on the open-cast mine Inden



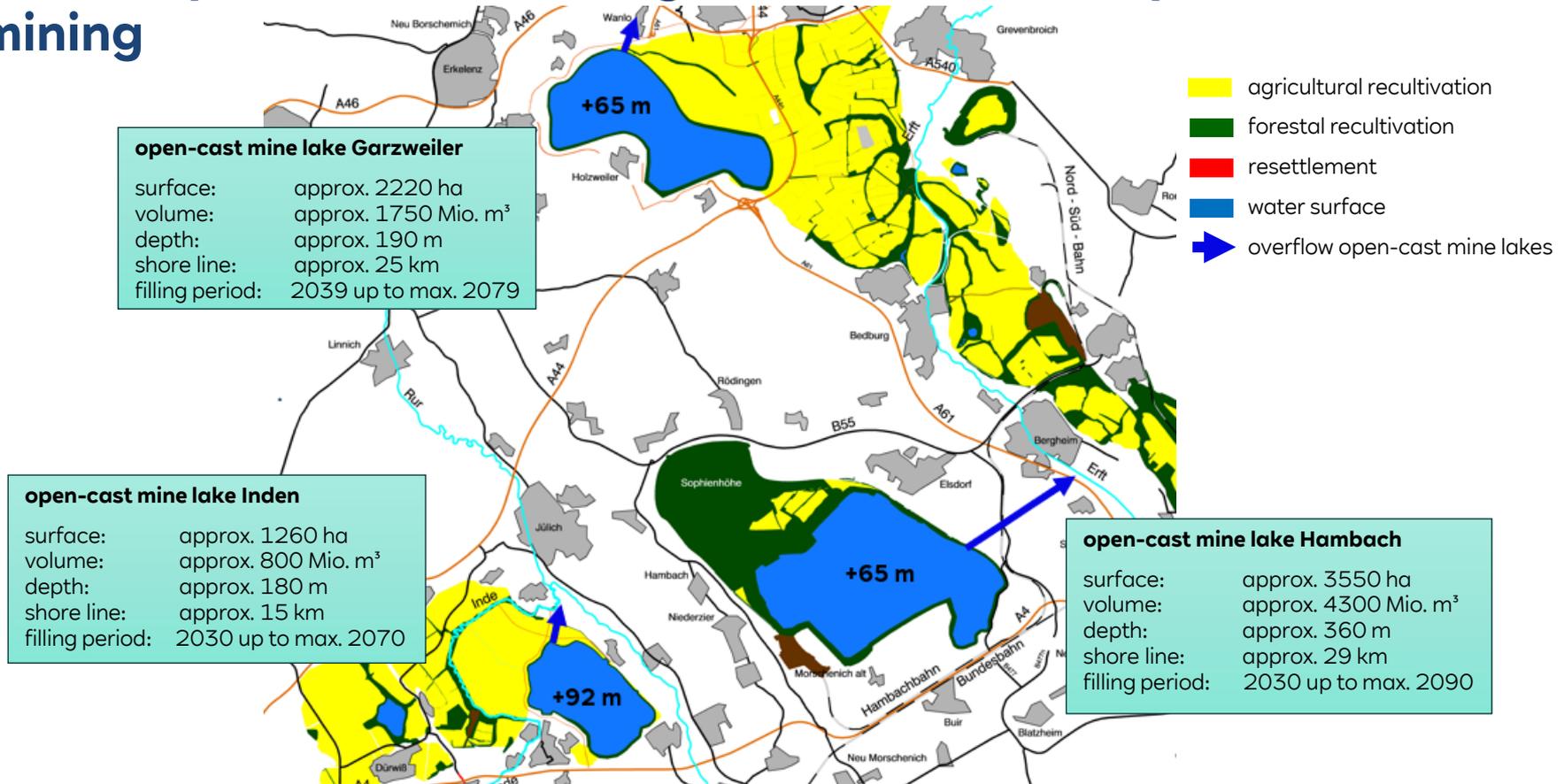
— new planned extraction boundary

Source: RWE Power AG; Status early 2022

- Continuation of lignite mining until the completion of coal-fired generation at the power plant Weisweiler in 2029
- About 190 ha area are not going to be used for lignite mining
- Filling of the lake will be completed around the year 2060
- More than 100 million tonnes lignite remain in the mine terrain

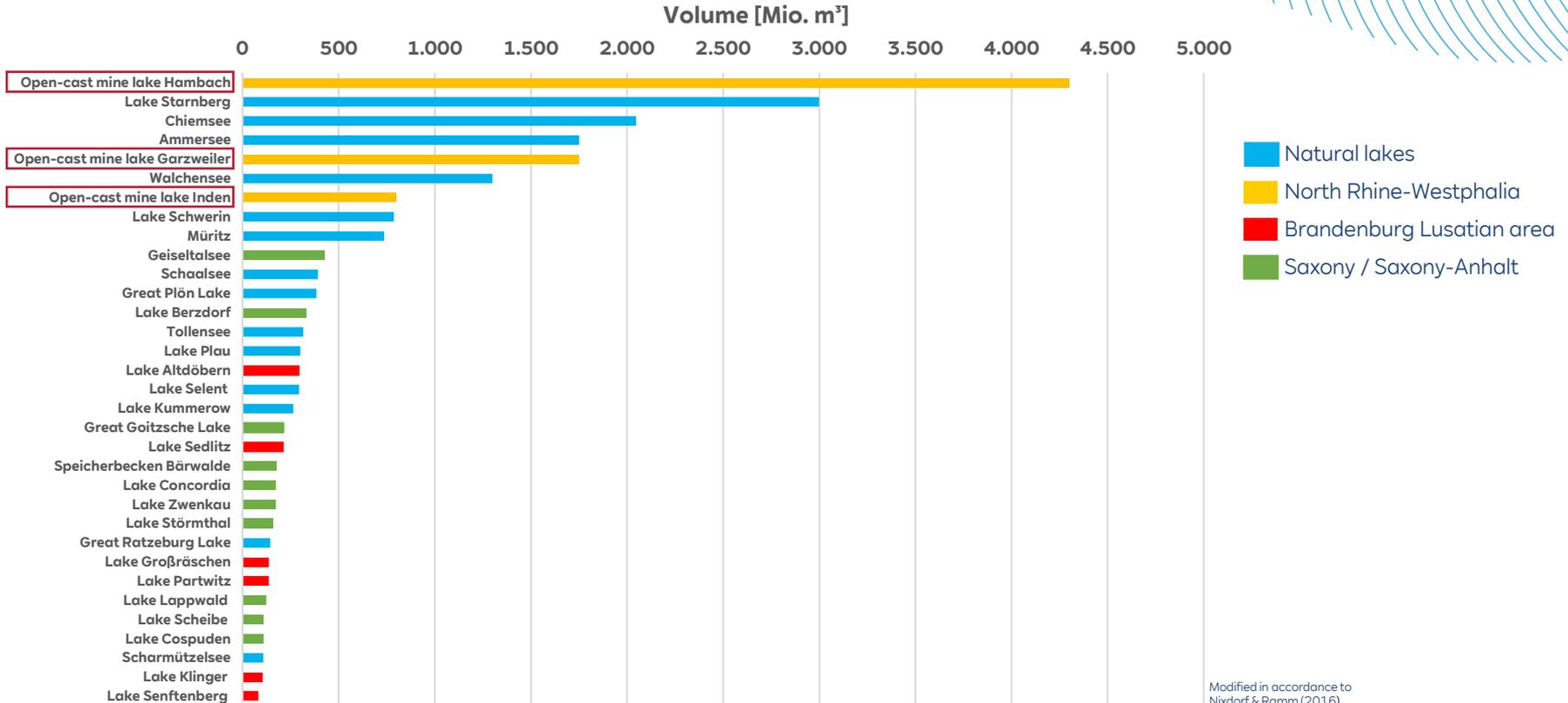
There are no fundamental changes for the open-cast mine Inden due to the Guideline Ruling.

Landscape in the Rhenish Lignite Area after completion of mining



Landscape in the Rhenish Lignite Area

Comparison to other lakes in Germany



Modified in accordance to
Nixdorf & Ramm (2016)

Pipeline between Rhine and the open-cast mines Garzweiler and Hambach

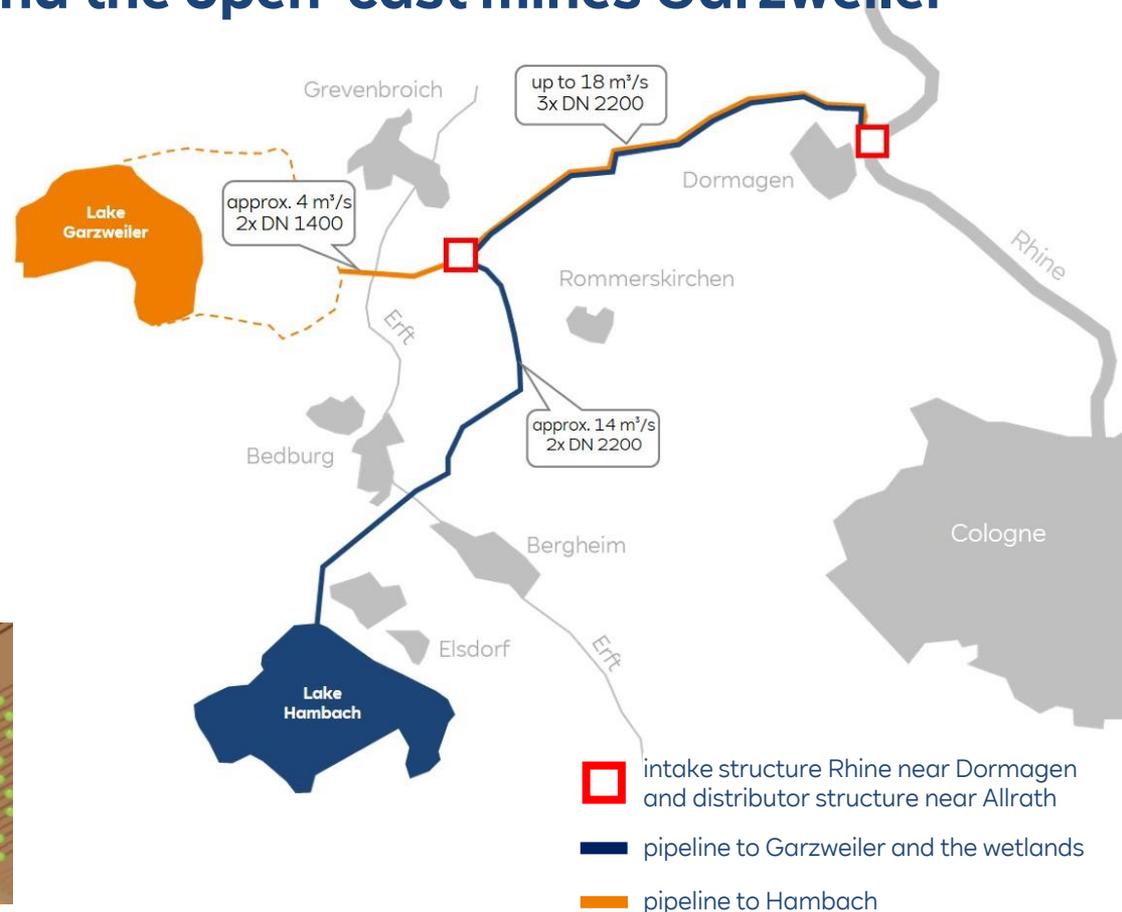
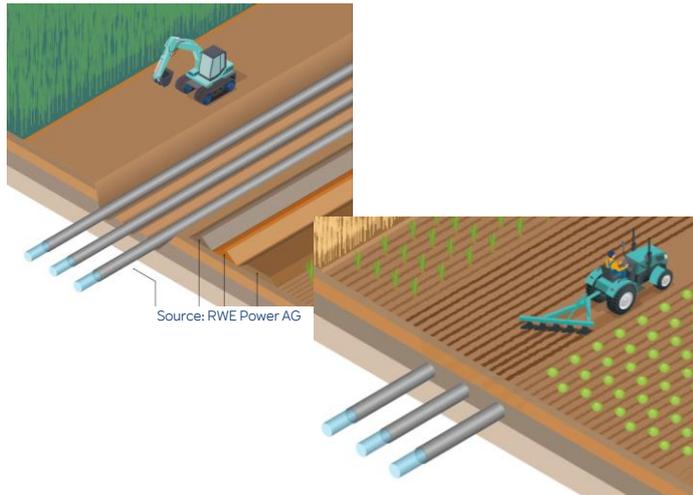
PROJECT

construction period: approx. 5 years

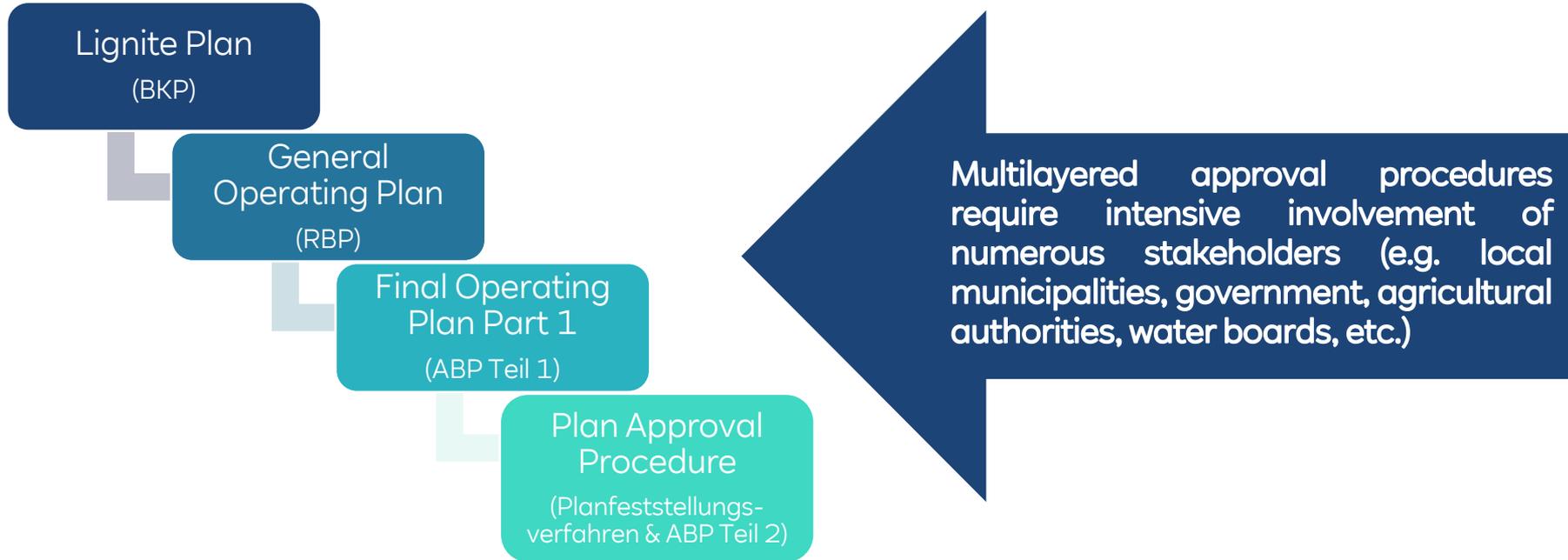
start of construction: 2025

total length: approx. 45 km

regular route width: approx. 70 m



Approval procedures For the creation of an open-cast mine lake



Regional stakeholder management



Source: RWE Power AG



Source: RWE Power AG



Source: www.rwe.com



Source: www.rwe.com



Source: indeland GmbH (Daniel Albrecht)



Source: RWE Power AG



Source: Neuland Hamburg



Source: indeland GmbH (Daniel Albrecht)



Source: RWE Power AG



Source: Neuland Hamburg



Source: de.123rf.com

Source: www.rwe.com

Summary and Outlook



Source: RWE Power AG



Source: RWE Power AG

- It is important to carry out the changes of the open-cast mines efficiently and in a legally correct manner
- In view of long filling periods, all open-cast mine lakes are to be used at an early stage
- The potential of the lakes (e.g. interim use while filling) is to be coordinated with the mining authority and the regional stakeholders
- The open-cast mine lakes will have good water qualities that will allow for a variety of uses
- The development of the areas around the lakes will also open up new economic and leisure potential
- All this will create a completely new and enhanced landscape in the Rhenish Area



Thank you for your attention.