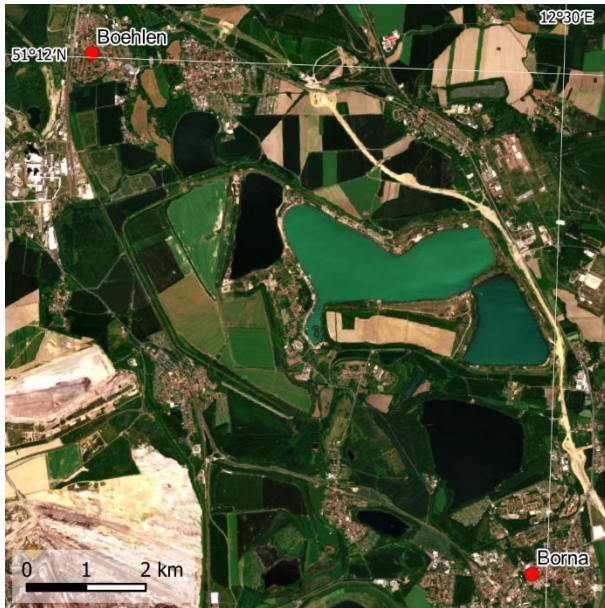




Abandoned and active lignite mines near Böhlen, Germany. Data: Sentinel-2, 2017-05-27.



Abandoned and active lignite mines near Böhlen, Germany. Data: Sentinel-2, 2024-01-28.

The lignite mines near Böhlen, located near Leipzig, Germany, were part of the Central German lignite mining district, a major source of energy for the region throughout the 20th century. The mines began operations in the 1920s, extracting lignite (brown coal), which was used primarily for power generation and industrial purposes. At its peak, the open-cast mines covered a vast area and significantly altered the landscape, with deep pits and displaced earth creating an industrial wasteland.

By the 1990s, environmental concerns and a shift away from coal as a primary energy source led to the mine's closure. In 1999, mining operations in the Zwenkau mine ceased, leaving behind a heavily scarred and barren landscape. However, in the years following the mine's abandonment, extensive efforts were made to rehabilitate the area.

One of the most significant transformations involved flooding the former mine pits to create lakes such as the Hainer See and the Kahnsdorfer See, a process that began in the early 2000s. The lakes now cover a significant part of the surface. They have become a popular destination for recreation, offering activities such as sailing, fishing, and swimming.

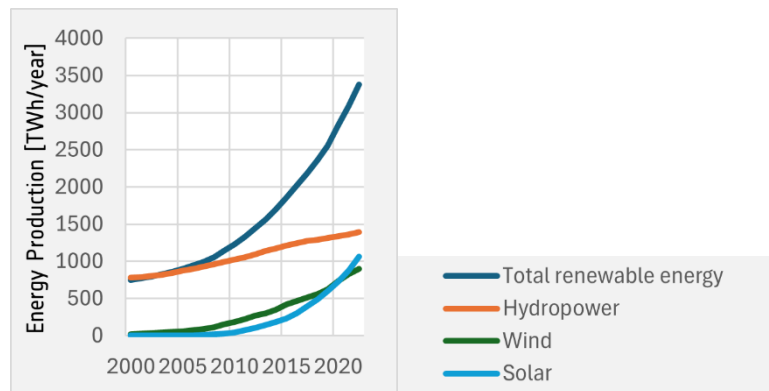
A part of the surrounding land has also been converted to produce renewable energies. One example is the solar power plant "Energiepark Witznitz", which covers about 5 km² of former lignite mine areas. With its energy production capacity of about 650 Megawatts it is one of Europe's largest solar power plants and a symbol of the so-called Energiewende (Energy transition), the political decision to move from fossil to renewable energy sources.



Exercises

- What can you see in the satellite image? Describe the surface structures.
- Describe the different landcover and land-use zones visible in the satellite images. Identify natural and man-made structures. Where can you see active lignite mines?
- What was the landcover of the area of the solar power plant in 2017? Try to find reasons for this selection of the location.
- Give an estimation of the area covered by the solar power plant.
- Can you identify disadvantages of the location of the solar power plant at the abandoned mine?
- Compare the colours of the two satellite images and describe your findings. Take the season of the respective acquisition dates into account.

Additional Material



Development of the global renewable energy production from different sources

Links and Sources:

- <https://earthobservatory.nasa.gov/images/146374/the-largest-solar-power-plant-in-europe-for-now> - NASA image of another large European solar power plant in Spain

