

ARCHITECTURE OF  
TERRITORY  
New Ecologies  
Fall 2022

Semester  
Programme

# POWER TO THE PEOPLE

Energy and Territory  
in the Rheinland

# Colophon

Studio Series  
NEW ECOLOGIES

Fall Semester 2022

POWER TO THE PEOPLE  
Energy and Territory in the Rheinland

NEW ECOLOGIES is a studio series at Architecture of Territory dedicated to ecologising architecture. Ecological thinking, which foregrounds the interactions between organisms (or by extension between objects, or social and technical systems) and their environments, is applied in considering design practises in their social and environmental effects. The studio series is affiliated with the Future Cities Laboratory and the ETH EPFL Master of Advanced Studies MAS UTD. Citizens, experts, fellow designers and artists will accompany us in the process.

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# POWER TO THE PEOPLE Energy and Territory in the Rheinland

*The energy transition must be about new forms of collective commoning.*  
Ashley Dawson, 2020

Who owns and controls the energy we use? The energy crisis looming over Europe this fall as a consequence of the Ukraine war has made it clear that European geopolitics and power asymmetries have been built on fossil fuels. Yet the discussions around energy transition usually revolve around reducing carbon emissions through technofix solutions, without questioning the broader politics of energy. The promise of energy transition, that renewable energies could be decentral, ecological and above all democratic systems, is rarely explored. To understand the potentials of such transition, we need to approach energy as a vital agent producing the territory. Does energy production have to lead to ecosystem devastation and enhance social inequity, or can it unlock opportunities for a different future? Can architects and territorial designers envision and design a more democratic, equitable and ecological energy landscape?

There is probably no better place to understand energy and its impact on human life and environment than the Rheinland. Between Cologne and Aachen, the region also known as Rheinisches Revier, is an agro-industrial flatland, scarred through decades of coal mining, stripped of natural diversity and speckled with energy infrastructures, both fossil and renewable. High voltage powerlines, power plants' cooling towers, wind parks, huge bucket-wheel excavators, photovoltaic fields and biogas plants criss-cross the land and fill the horizon, creating an experience of a dehumanised territory. The need for energy, in particular coal, has massively altered this territory for already more than a century. Hambach, the region's largest brown coal open-pit mine, has a surface area of 85 square kilometres—equal to the city of Zurich. The volume of earth excavated every year in that mine equals four times the volume of earth moved to build the Panama Canal. The energy industry penetrates the ground and affects every aspect of life. Entire villages have been razed, heritage landscapes lost, communities resettled, primary forests cut, roads relocated and rivers rerouted.



The single main actor in charge is the energy corporation RWE. It has been criticised as top-down and profit-driven by climate activists and networks of resistance, which have formed in the region to struggle for greater democratic transparency and an ecological agenda by means of peaceful demonstrations and occupations of hamlets and infrastructures. In 2018, 50,000 people came together to celebrate the rescue of the Hambacher Forst that was saved from the expansion of the mine with the means of persistent activist protests.

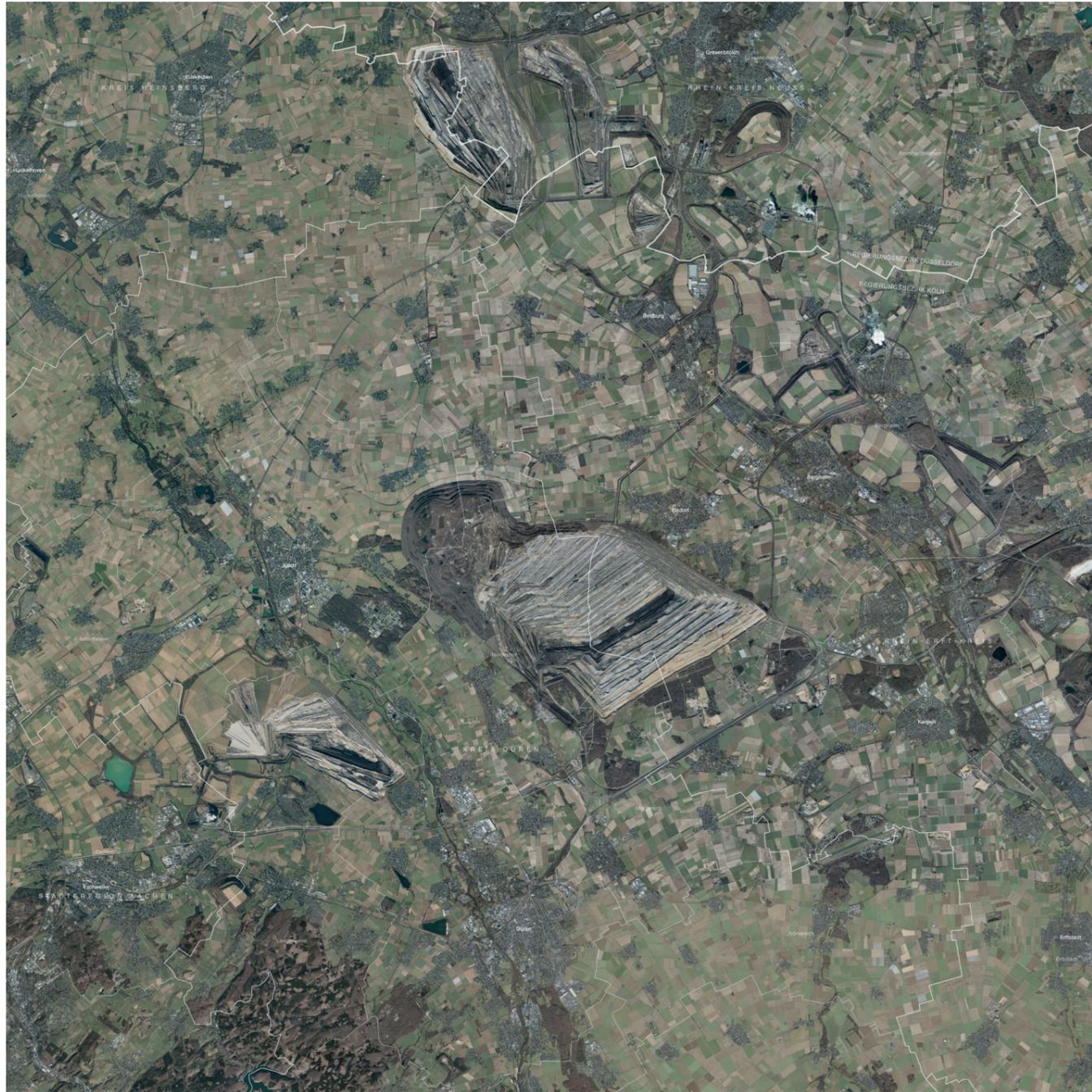
Germany's intended "coal exit"—Kohleausstieg—until 2038, will transform the Rheinland once again as mining operations are phased out in favour of landscapes of renewable energy and recreation. There is a danger herein that renewable energy farms will simply replace coal-fired power plants, while maintaining the same imperatives of increasing profits, growth and energy consumption that have characterised the production of coal (Dawson, 2020). With this mindset, we may be able to reduce carbon emissions, but the accompanying crises of increasing social polarisation, resource exhaustion and biodiversity loss will persist. Can we use the current momentum of energy transition to envision a meaningful change?

During the semester we will explore the Rheinische Revier to find out how energy production—from coal and gas to solar, wind and hydro—has formed this landscape in the past and present, and to learn from the precedents. Renewable energy has the potential to regenerate the social and the ecological fabric of territory. Can we imagine landscapes where energy is not a product, but a common good? Power to the people! The seminar week is at the core of the project. After dedicated field exploration, students will be asked to write their own project briefs and develop analysis and projects for energy landscape. Experts will work with us on GIS cartography, videography, architectural writing, website design and more. Students will deliver their results in the form of a web-based investigative reportage, meant to inform design practices and the public discourse.

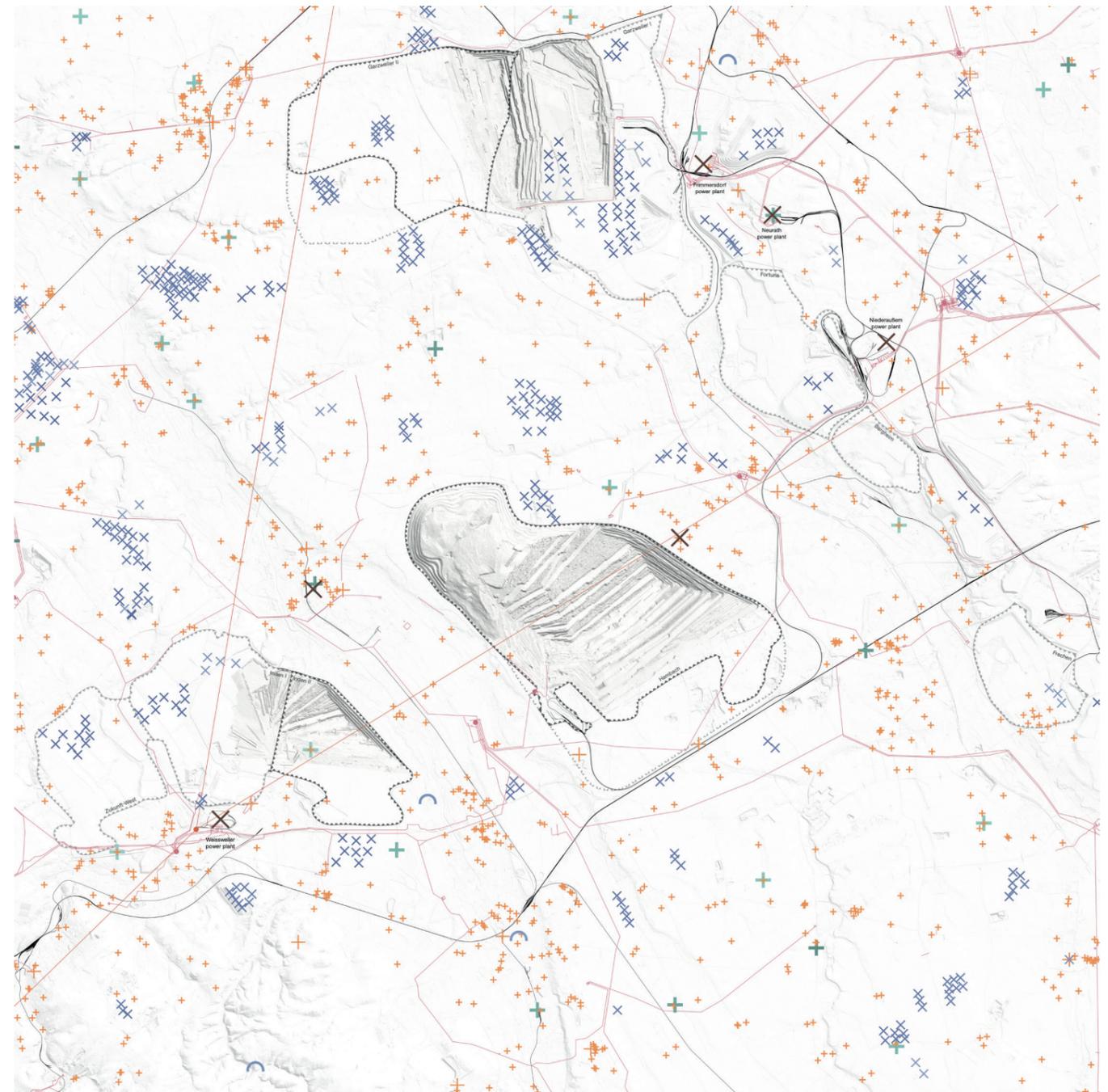
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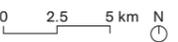
# Maps

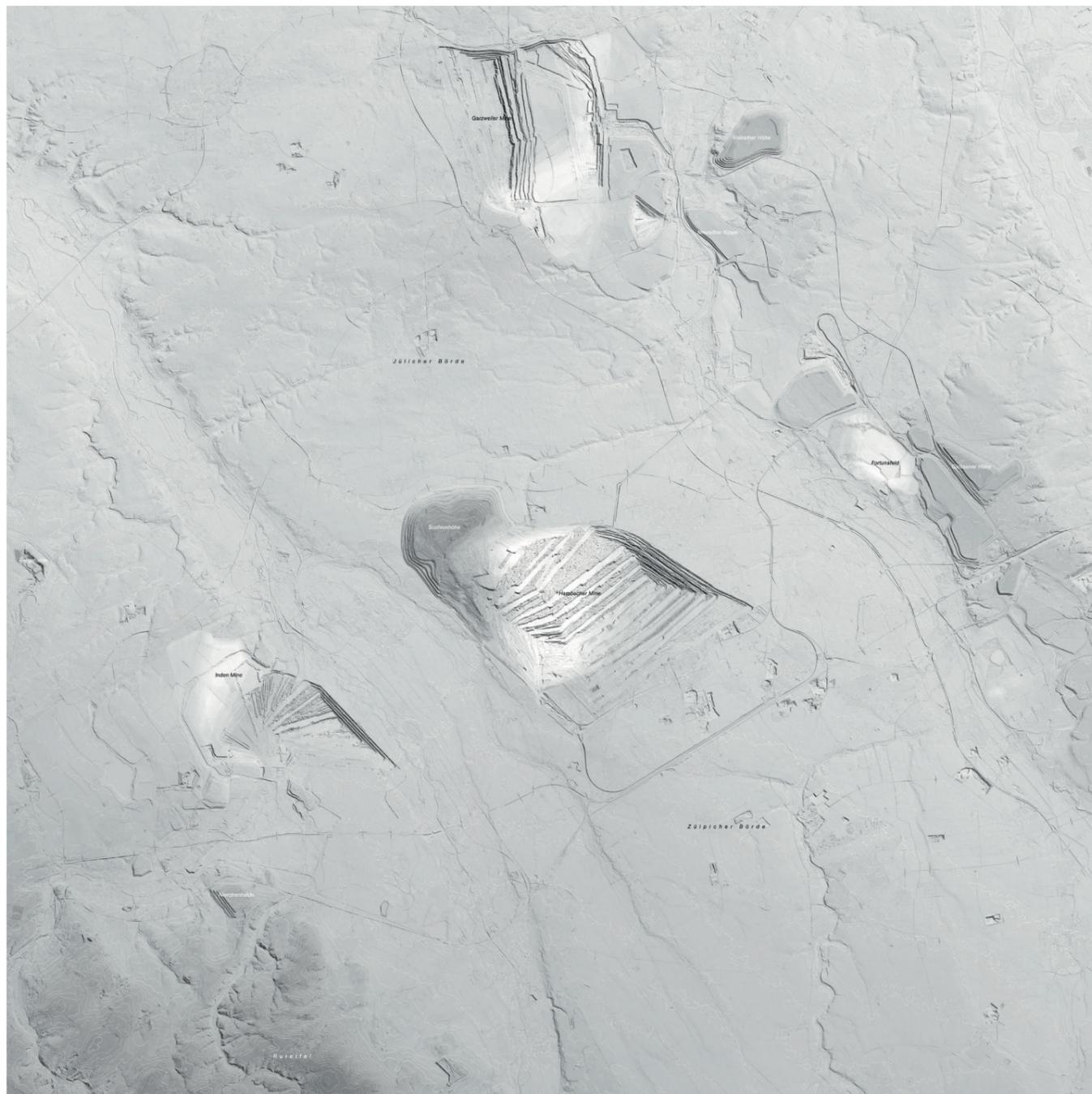


- District Border (Regierungsbezirk)
- County Border (Kreis)
- Commune Border (Gemeinde)

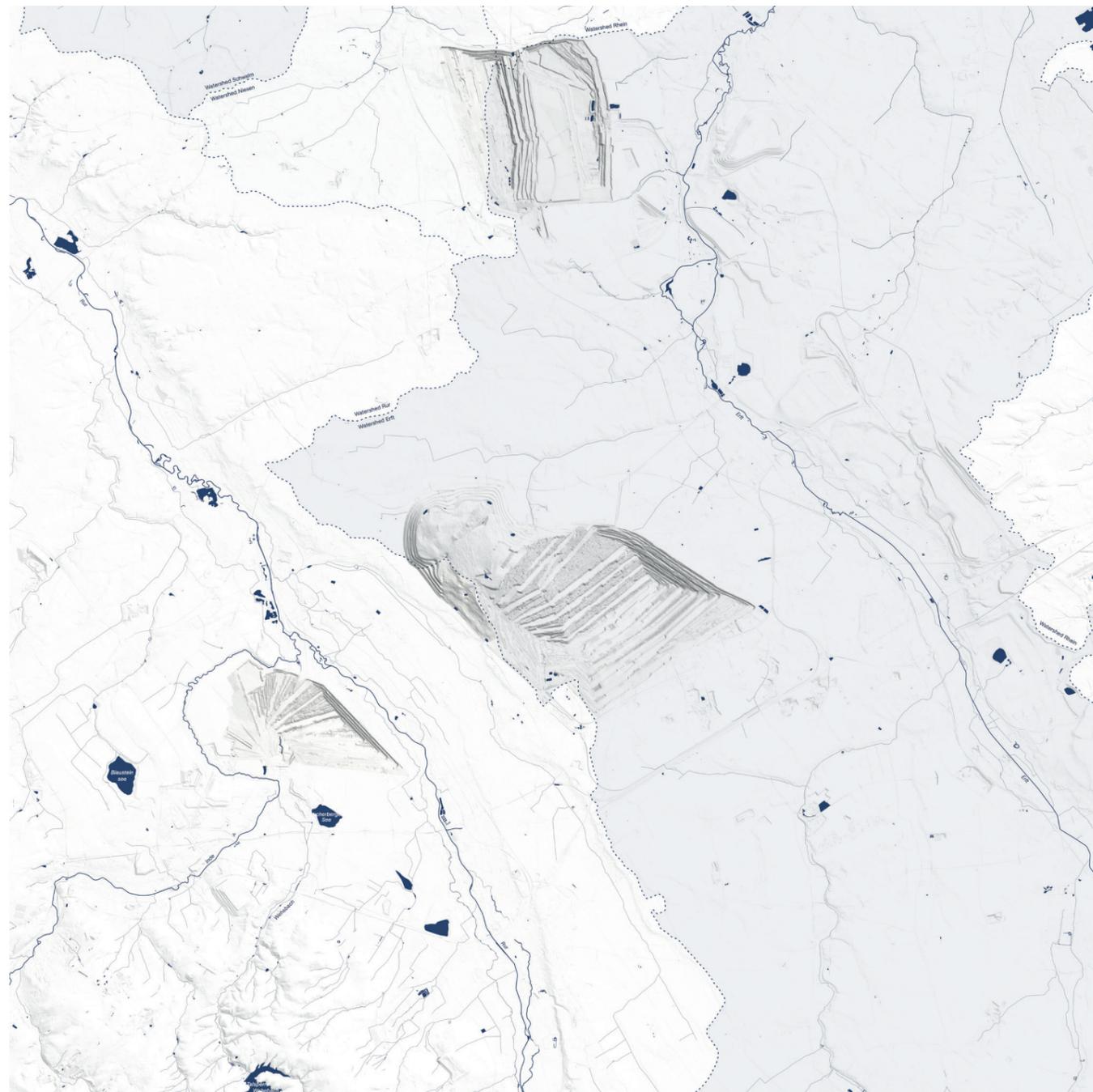
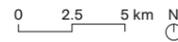


- |                                   |                           |                           |
|-----------------------------------|---------------------------|---------------------------|
| <b>Fossil Energies</b>            | <b>Renewable Energies</b> | <b>Energy Networks</b>    |
| — Brown Coal Mining Pit (open)    | + Solarpanels (roof)      | — High-Voltage Power Line |
| — Brown Coal Mining Pit (closed)  | + Solarpanels (land)      | ● Power Substation        |
| — Brown Coal Mining Pit (planned) | x Wind Turbine            | — Gas Pipeline            |
| x Brown Coal Powerplants          | + Biomass Plant           | ● Gas Node                |
|                                   | ⌒ Hydropower Plant        | — Railway Tracks          |

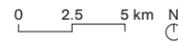


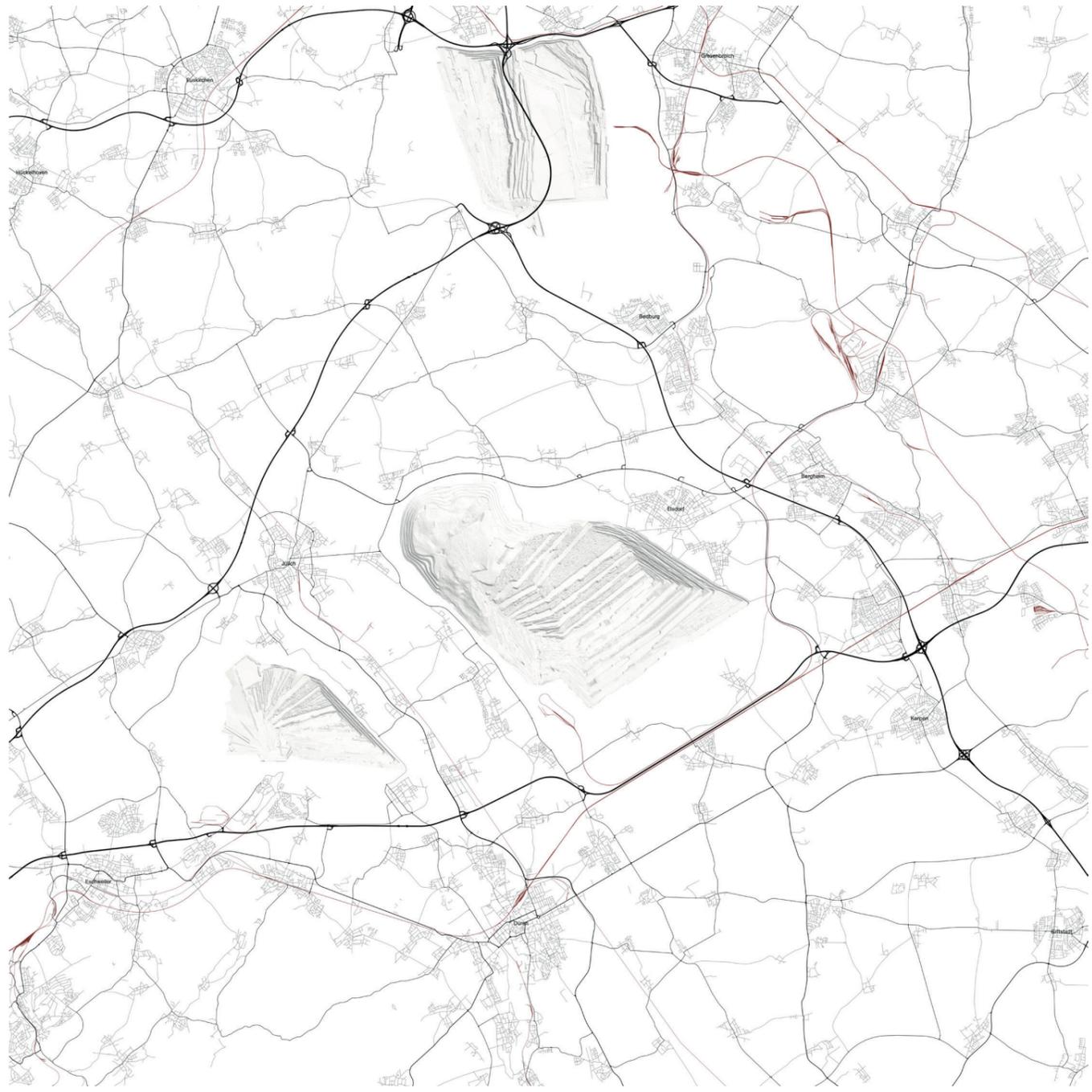


■ Altitude Contour 10m

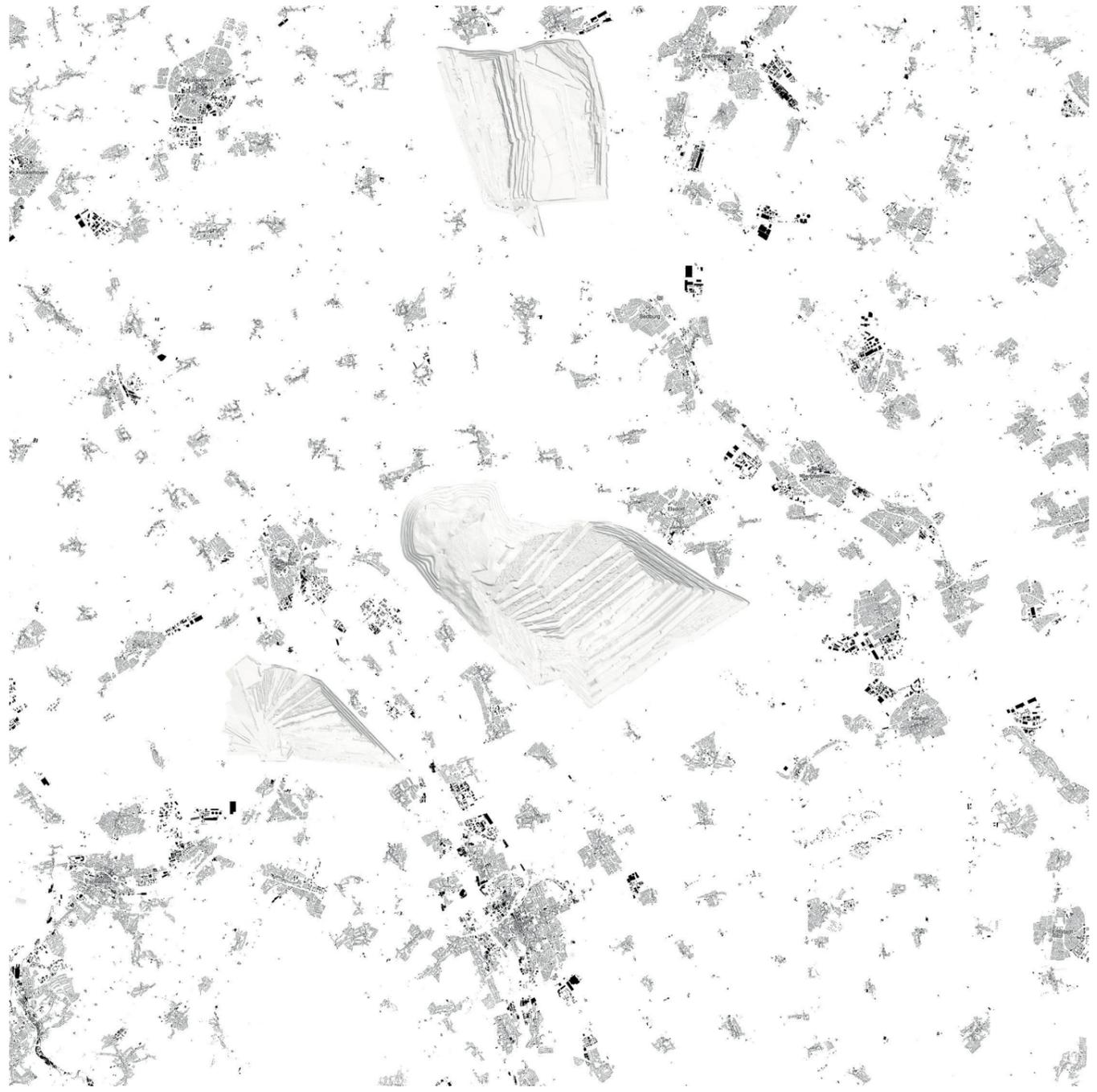


■ Lakes, Rivers and Streams  
 ■ Watershed  
 --- Watershed Boundary





— Highways  
— Roads  
— Railways



■ Buildings



# Studio Timeline

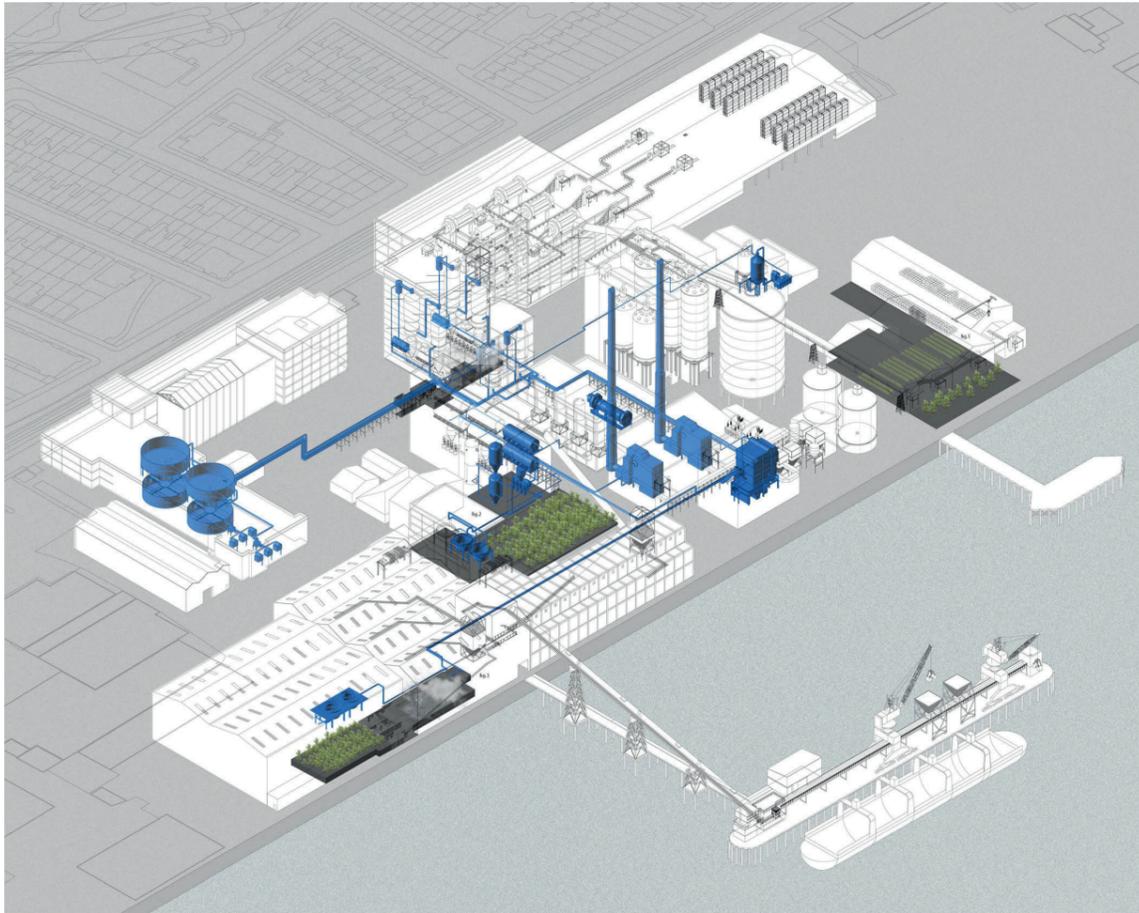
WEEK 1		WEEK 2		WEEK 3		WEEK 4		WEEK 5		WEEK 6		WEEK 7	
TUE 20.9	WED 21.9	TUE 27.9	WED 28.9	TUE 4.10	WED 5.10	TUE 11.10	WED 12.10	TUE 18.10	WED 19.10	SAT-FRI 22. – 28.10	TUE 1.11	WED 2.11	
9,30		Desk Crits		Desk Crits		Desk Crits		Desk Crits		Desk Crits		Desk Crits	
OPENING DAY I Introduction Studio & Film: Otzenrather 3° kälter		OPENING DAY II Inputs Software & Publishing & Film: Planet of the Humans		INPUT Data Visualisation w. Matthias Probst Desk Crits		Reading Session 2 Desk Crits		REVIEW I Energy Cartographies		WORKSHOP Videography w. Felix Hergert WORKSHOP Drone w. Dennis Häusler		Reading Session 3 Desk Crits	
18,00		Reading Session 1								SEMINAR WEEK Rheinisches Revier			

WEEK 8		WEEK 9		WEEK 10		WEEK 11		WEEK 12		WEEK 13		WEEK 14	
TUE 8.11	WED 9.11	TUE 15.11	WED 16.11	TUE 22.11	WED 23.11	TUE 29.11	WED 30.11	TUE 6.12	WED 7.12	TUE 13.12	WED 14.12	TUE 20.12	WED 21.12
Desk Crits		Desk Crits		Desk Crits		ADDITIONAL FIELDTRIP?		Desk Crits		Desk Crits		Desk Crits	
PIN-UP Research Findings		Reading Session 4 Desk Crits		REVIEW II Research and Design Project		ADDITIONAL FIELDTRIP?		WORKSHOP Writing w. Antje Stahl Desk Crits				FINAL REVIEW	



# First Task: Energy Cartographies

## Task, Methods & Topics



**Task** How do the different primary energy resources and impact the territory? In order to familiarise ourselves with the topic of energy production and with the territory of the Rheinland, we will investigate the region through a series of drawings and maps using axonometries, 3D modelling, and data visualisation.

The task consists of four parts: In the first part, we would like to understand what are existing infrastructure typologies for each given resource, how do they function and operate? We will then investigate the metabolic flows behind each resource to understand the dependencies and territorial impact behind extraction/production and transformation of materials into energy. In the third part, we will draw the infrastructure in their larger context by mapping all networks enabling its operation. The research will be presented in both printed and web format.

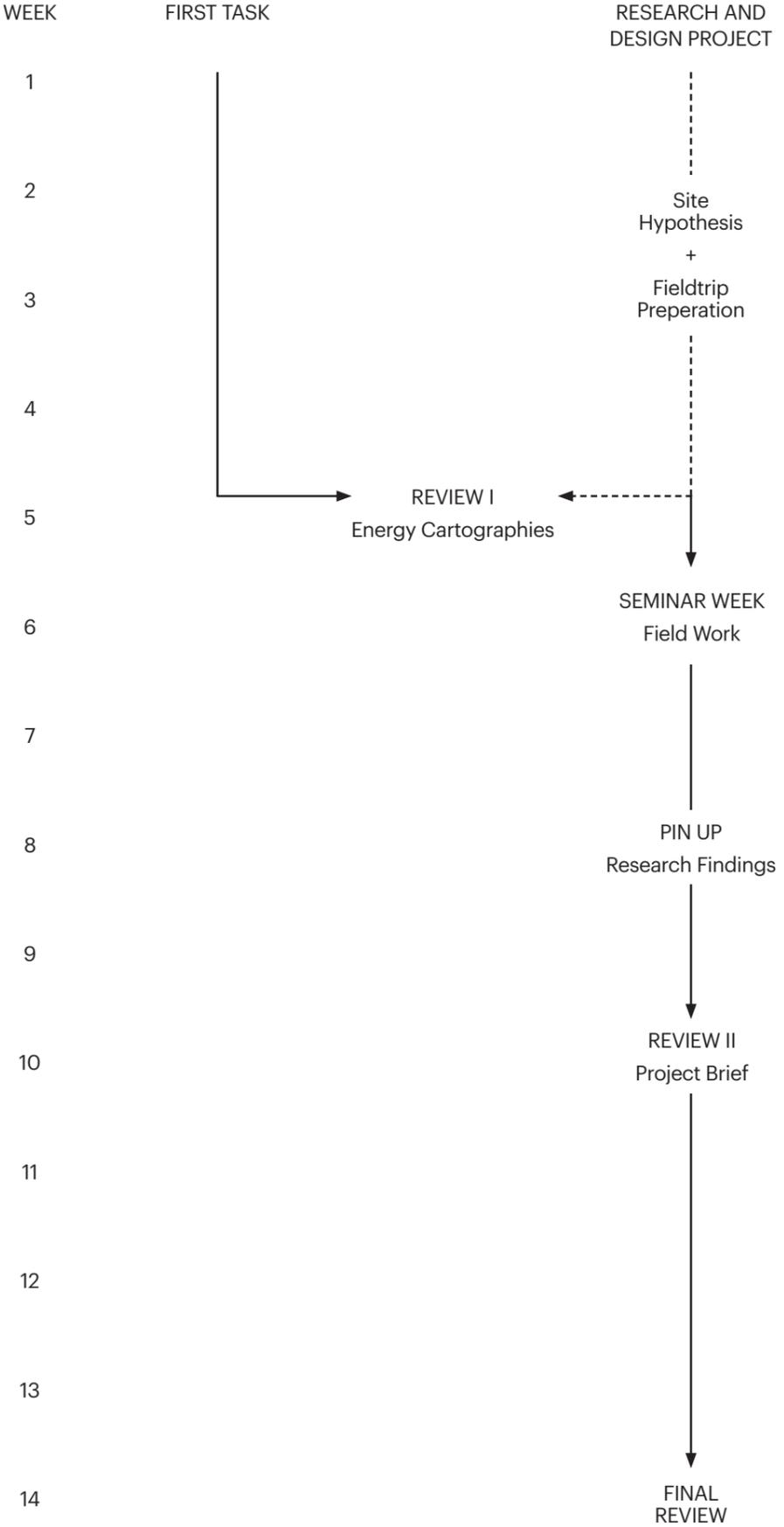
In the last part and as a preparation for the field trip, you will start with a first analysis of the geographical, historical and socio-economic context of your site, in order to draw and formulate your first site hypothesis. You will make first contacts with locals and experts that you want to meet, start to formulate your own research questions and plan your travel itinerary according to the relevant topics that are specific to your site and topic. The site hypothesis will be presented with printed drawings and a logbook.

- |               |   |            |   |                 |
|---------------|---|------------|---|-----------------|
| <b>Topics</b> | 1 | Brown Coal | 5 | Biomass         |
|               | 2 | Oil & Gas  | 6 | Hydro           |
|               | 3 | Wind       | 7 | Nuclear         |
|               | 4 | Solar      | 8 | Grid & Networks |

- Deliverables**
- 1.1 Infrastructure Typologies
- Collect data about the given infrastructures (plans, sections, data)
  - Draw the infrastructures in axo/perspective, name the different parts composing it
  - Explain how the infrastructure works to produce energy with the help of diagrams
- 1.2 Metabolism
- Reveal and understand the complex flows and networks of your resource
  - Connect the actors/protagonists behind each step
  - Put the resource and outputs in their wider context (regional, national, international)
- 1.3 Network Drawing
- Connect the infrastructure with their depending networks
  - Draw the footprints of the resources, extraction sites, networks and power plants
  - Explain the dependencies between the different infrastructures
- 2 Site Hypothesis
- Familiarise yourself with the geographical, historical and socio-economic context of your site
  - Highlight the conflicts surrounding your site and energy source
  - Include all elements of your reading in a comprehensive drawing and the logbook
  - Formulate a first hypothesis for your site and research topic

**Review** Tuesday, 18 October

# Research and Design Project: Tasks



Pin-Up and Review II

You will already start analysing your chosen site and prepare yourself for the field trip as part of the site hypothesis in the first few weeks. During the seminar week, you will gather a lot of additional material and make new and meaningful findings. After the trip, you will start to assemble and reflect on those new insights. You will decide how your research project will entail and what you think is the the main narrative and the most interesting key aspects of your topic. The pin-up in week eight is a crucial moment, where you present your conclusions and turn them into a concise and comprehensive narrative, a structured argument, including a qualitative main title and chapter titles. Ultimately this narrative and research conclusions will enable you to formulate a first project brief, a first design idea that you will present, together with your elaborated research in the Review II.

Date  
Pin-Up: Wednesday, 9 November  
Review II: Wednesday, 23 November

- Deliverables:
- Video
  - Oral presentation with slides (15min)
  - Updated logbook

Final Review

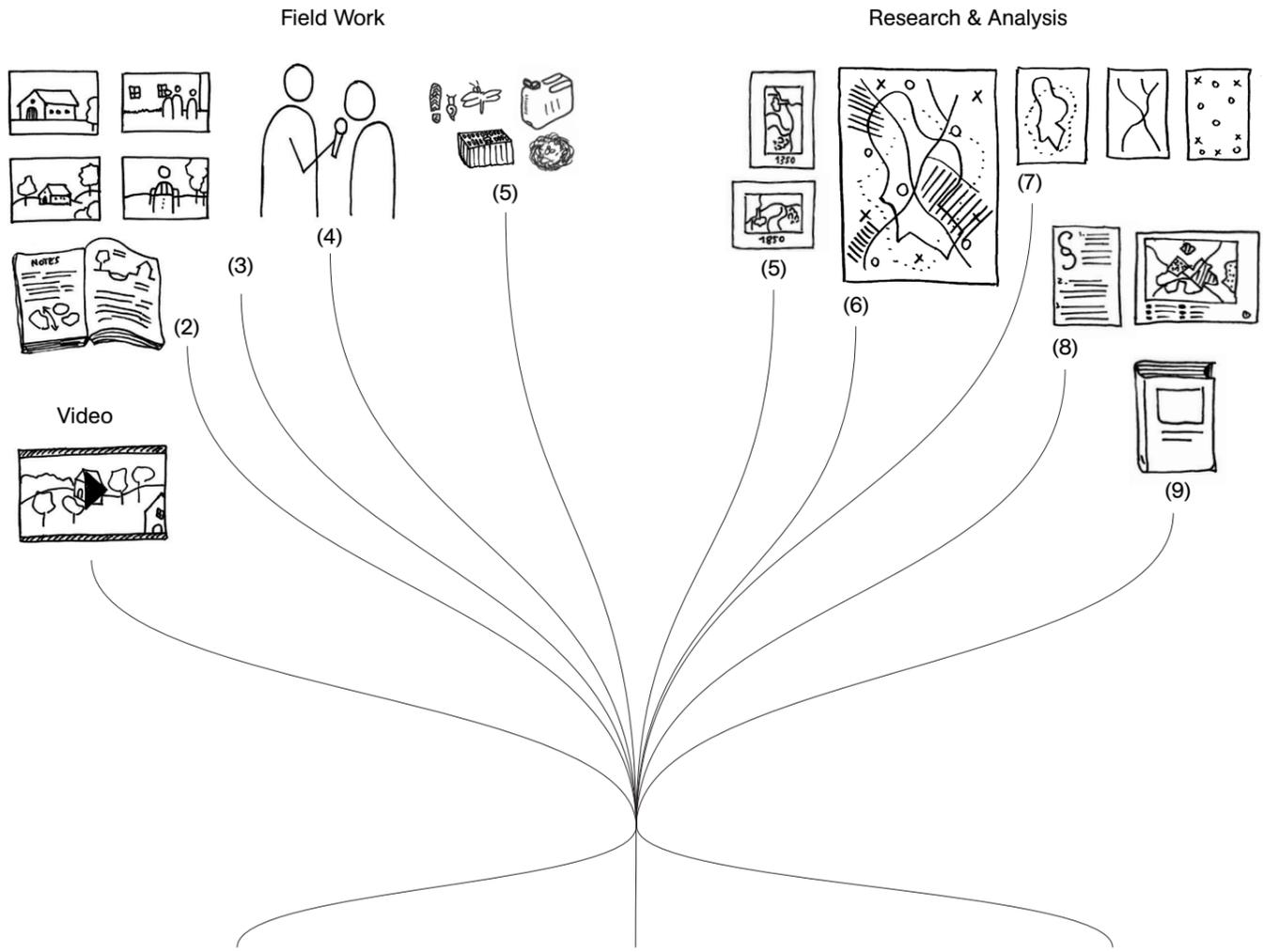
Until the final review you will continue working on your research and design project. You will deepen the research in certain aspects of your work and sharpen your narrative. Based on your project brief, you are asked to develop a design vision in regards to your topic and site.

During your work you should always keep these key questions in mind: Does energy production have to lead to ecosystem devastation and enhance social inequity, or can it unlock opportunities for a different future? Can we use the current momentum of energy transition to envision a meaningful change for our site? Can we imagine a landscape, a village or a social system that sees energy not as a product, but as a common good?

Date  
Wednesday, 21 December

- Deliverables
- Oral presentation with slides (20min)
  - Updated logbook
  - Online reportage with video
  - Exhibition

# Research and Design Project: Methods & Output



**Methods**

Field Work & Video

Working in the field will be an essential part of your work. As part of your field research you will film at least 3 video sequences (max. 5 minutes per sequence) that will become part of the online reportage. The videos can depict an event, a landscape, or an interview. Video is a powerful tool to show especially those things that are hard to depict in a static representation tool, such as movement and sound. You are asked to document your observations also by the means of: Taking meaningful photos, portraying your site (2), taking field notes and doing sketches (3), conducting and documenting interviews with locals and experts (4) and collecting relevant objects (5).

Research & Analysis

Back at your desk, you will reflect on your field findings and and deepen your research. For this we will introduce you to working with GIS and Adobe Software. The following list will give you an idea of what content we would like to see: Territorial and social history of your site, historic paintings and images (6) drawings of your site, including its wider context (7), drawings and maps, representing your site-specific topics (8), planning documents (9), literature, news paper articles (10), conclusive conceptual sketches and hand drawings and snippets from online video or sound material. Additionally you will create your own drawings, concept sketches and collages to visualise the synthesis of your findings and conclusions.

**Output**

Oral Presentation

Your work will be presented during the reviews as an oral presentation with a slide show, containing all sorts of mixed media. Selecting this media for the slide show and presenting it in a convincing way will be essential in creating your narrative. Your presentation should always contain a qualitative title and subtitles for your whole work and each chapter.

Online Reportage

We will teach you the basic skillset you need to create a website, essentially: to upload, create and edit content. It will allow you to present different media assembled and produced during the semester in a meaningful way—embed videos, image grids, image slideshow, text, headings and subheadings, footer with sources and acknowledgments, links. Your work will be accessible to the public online by the end of the studio in the form of the web-based investigative reportage.

Logbook

The logbook will be your tool to record events, observations, conversations, and ideas. It is meant to help you not only to document but also to navigate your research during the semester. The book will consist of three parts which reflect on the semester's structure: The field trip preparation logbook (1), the field trip findings logbook (2), and the research project logbook (3). It will consist of materials such as notes, sketches, drawings, photographs, newspaper articles, etc. The task includes not only the assembling of relevant material, but also the design of the 3-part logbook in A4 format (paper, cover, binding), which should be handy and beautiful at the same time.

Exhibition

Alongside your logbook you will show your most relevant research findings in the form of sketches, collages, photographs, drawings, printed out and arranged in form of a small exhibition at the final review.

# Seminar Week

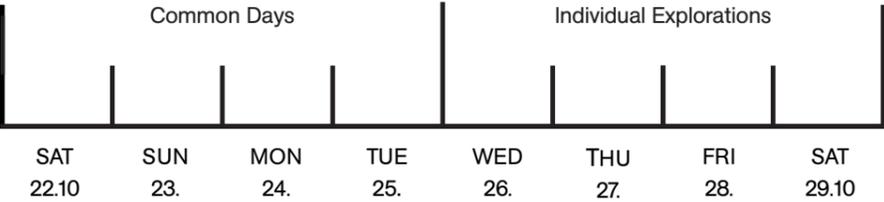
## An Investigative Journey



**Common Days** An investigative journey constitutes the core of the project. The seminar week will be dedicated to exploring the manifold facets of energy landscapes in the Rheinische Revier. With our guides we will traverse the territory, visit mining pits, old and new forests and villages and speak with locals, experts, activists and pioneers of energy transition.

**Trip Structure** The seminar week takes place from Saturday, 22.10 to Saturday, 29.10. The common days in the beginning are followed by a period dedicated to individual fieldwork in respective student teams. You will receive a separate field trip booklet with more information in the upcoming weeks.

**Preparation** It is essential that you prepare your individual fieldwork already in the weeks prior to the trip. This includes deciding which places you want to visit and explore, create and print maps, arrange interviews with experts in locals in advance and source the necessary equipment needed (photo and video camera, microphone, maps, sketchbook, adequate clothing and more).



# Reading Sessions

## Discussing Key Concepts



**Task** Over the course of the semester we will read and discuss academic texts and journalistic articles to explore ideas and key concepts around the topics of energy transition (1), energy and space (2), energy as a commodity (3), and the commons (4) in four sessions.

**Readings** 04 – Ashley Dawson, *People's Power: Reclaiming the Energy Commons* (New York/London: OR Books, 2020), pp. 1–22, pp. 163–201.

1 | On Energy Transition, 27.9.

– Graham Readfearn, “Once again Michael Moore stirs the environmental pot—but conservationists turn up the heat on him,” in *The Guardian*, 2.5.2020.  
– Ozzie Zehner, “Interview: Alternatives to Alternative Energy,” in *Bulletin of the Atomic Scientists* 68(5) (Thousand Oaks: Sage Publications, 2012), pp. 1–7.

2 | On Energy and Space, 5.10.

– Werner Onken, “Wem gehört die Erde? Zur Ideengeschichte von Boden, Ressourcen und Atmosphäre als gemeinsame Güter,” in *Architektur auf gemeinsamem Boden. Positionen und Modelle zur Bodenfrage*, edited by Florian Hertweck (Baden: Lars Müller Publishers, 2020), pp. 40–50.  
– Rania Ghosn, “Energy as a Spatial Project” in *New Geographies 02: Landscapes of Energy*, edited by Rania Ghosn (Hong Kong: Regal Printing, 2009), pp. 7–10.

3 | On Energy as a Commodity, 2.11.

– Max Ajl, *A People's Green New Deal* (London: Pluto Press, 2020), pp. 42–74.  
– Raj Patel and Jason W. Moore, “Cheap Energy” in *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet*, edited by Raj Patel and Jason W. Moore (Oakland: University of California Press, 2017), pp. 161–179.

4 | On Commons, 16.11.

– Elinor Ostrom, “Reflections on the Commons,” in *Governing the Commons: The Evolution of Institutions for Collective Action*, (Cambridge: Cambridge University Press, 1990), pp. 1–28.  
– David Harvey, “The Future of the Commons,” in *Radical History Review* Volume 2011, Issue 109, (Durham: Duke University Press, 2011), pp. 101–107.

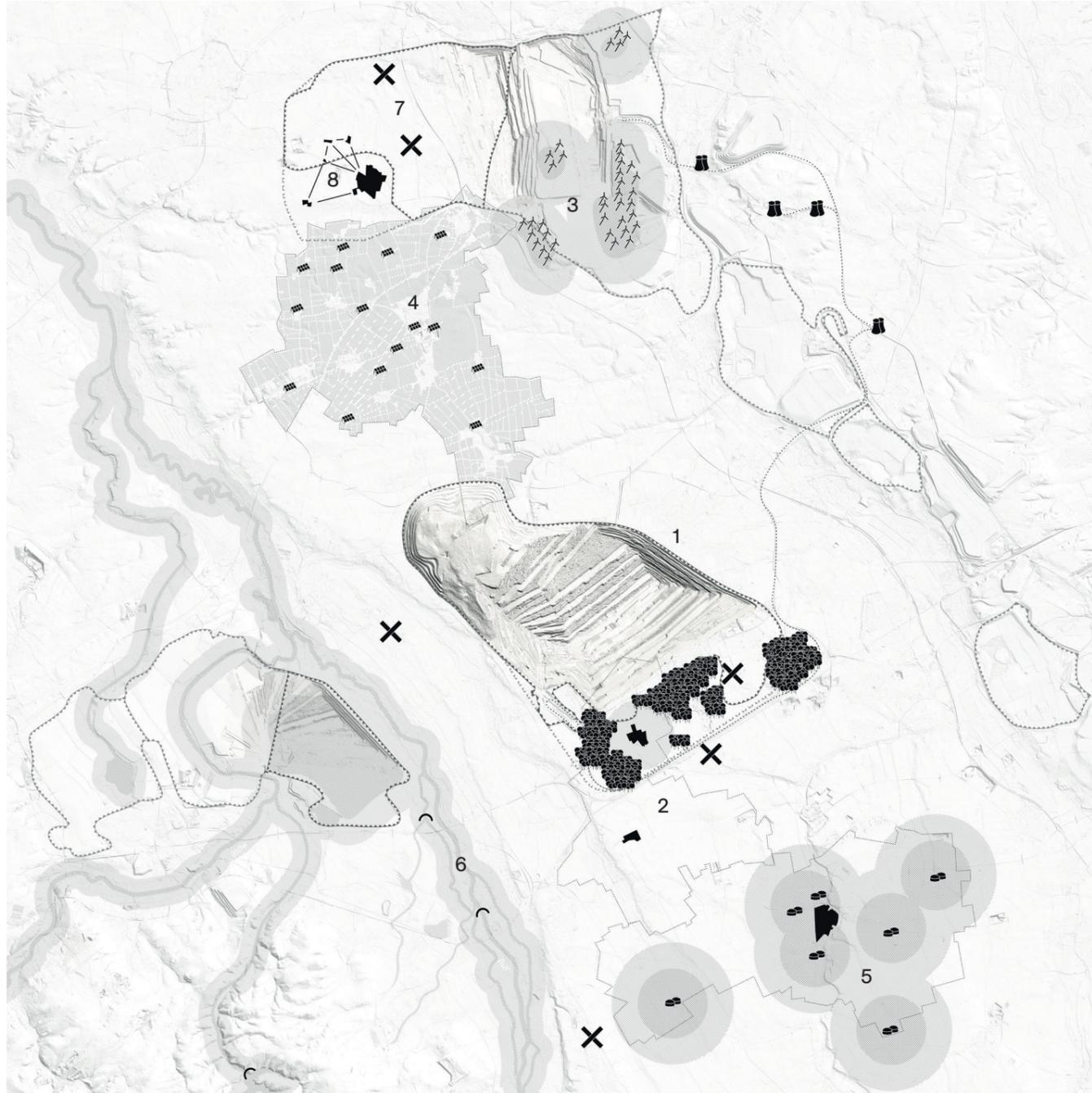
**Deliverables** Each text will be prepared and presented by 1 group of students with the help of printouts and will be followed by a common discussion. The printouts should at least include:

- 2 sketches revealing the key concepts of the text,
- 1 spread with a few insights into the context: who wrote the book, when, why?
- any relevant photographs

Each student is asked to upload 1 question per text in the shared google docs (to be shared via email). The questions will help the presenting student group to moderate the discussion.

**Submission** Please upload the printouts assembled in one PDF after each respective reading session to  
4\_SUBMISSIONS > 0\_READING SESSIONS

## Research Topics and Sites



- 1 *Hambach Open-Pit Mine*  
ENERGY AND LANDSCAPE REPAIR  
Futures of a Post-Mining Landscape
- 2 *Village of Morschenich*  
ENERGY AND HEATING  
Living and Consuming in the Countryside
- 3 *Königshovener Feld*  
ENERGY AND WIND  
Wind Shaping the Landscape
- 4 *Commune of Titz*  
ENERGY AND SUN  
Sun, Soil and the Question of Land-Use
- 5 *Commune of Nörvenich*  
ENERGY AND ORGANIC WASTE  
Flows of Organic Matter in the Territory
- 6 *Rur Watershed*  
ENERGY AND WATER  
Water as a Warrant for Stability
- 7 *Lützerath and Keyenberg*  
ENERGY AND ACTIVISM  
Networks and Landscapes of Resistance
- 8 *Village of Holzweiler*  
ENERGY AND COMMONS  
Energy Dependency and Autonomy



Open-pit brown coal mine Hambach, Photographer: Daniel Chatard, 2019.

# 1 *Hambach Open-Pit Mine* ENERGY AND LANDSCAPE REPAIR Futures of a Post-Mining Landscape

The Hambach open-pit mine, opened in 1978, is the largest of the three mines of the Rheinische Mining District and the biggest open-pit brown coal mine in Europe. It's sheer scale is hard to grasp and the volume of earth moved every day is so large that it exceeds our imagination. But the mining will come to an end, sooner or later. The current end of operations for Hambach is planned for 2030, although given the current energy crisis, political opinions might change again. So what comes after the mine? What are the futures for a post-mining landscape such as Hambach?

Currently there are many ideas, concepts and masterplans that can be found for the post-mining landscape. A huge new lake, recultivated farm land, agroforestry terraces, a pump-storage power plant, solar parks and wind farms are just some of the ideas. But the optimistic imaginaries that are visualised are only one side of the coin. In face of increasing droughts and floods it is unclear if a lake such as it is planned can even be accomplished. And questions of land ownership new infrastructures, ecological impact of the project and feasibility are seldomly explored.

For the research, we would ask you to understand and explain the processes of mining in the region, starting with its beginnings and its history. How and when did the extraction of coal begin? What is the current operating principle of the mine? How does it affect the soil, the ecology and the social fabric of the surrounding landscape? How are the edges defined? We ask you to strive towards an in-depth and comprehensive understanding of the site and its context. What are the different futures of the Hambach mine that are competing with each other? How can we compare them? What could be a future beyond cultivation and refilling that encompasses new ideas for energy production, ecology and recreation in that area? How could those massive, central infrastructures serve the local population, ecology and energy production in the post-mining era?

## 2 *Village of Morschenich* ENERGY AND HEATING Living and Consuming in the Countryside



Until mining operations of the Hambach mine started in 1978, Morschenich was a small village, surrounded on all sides by the vast forests of the Bürgewald, one of the oldest forests in Germany and the biggest in the region. For the village the forest was the key resource for its economy and used sustainably as a common. The wood was used for heating and construction and the forest as a space for animal farming. Already during the Second World War, the focus for heating shifted from wood to the "underground wood", brown coal, that together with gas became the dominant resource for heating in the region.

With the start of the mining operations it also became evident that Morschenich was one of the villages that was planned to be demolished for the mine and its inhabitants needed to be resettled. Only very recently, political decisions to end coal mining in the region earlier than foreseen and also because persistent protests fought to protect the Hambacher Forst, the village is now saved from destruction. Yet, a lot of its inhabitants have already moved away and resettled, many of them to the relocated village of Neu-Morschenich just 4km away. Ironically, for Neu-Morschenich a new heating plant was built that burns wood pellets to create district heat for the newly built houses of the community. Like that it references back to Morschenich's traditions of using wood for heating.

For the research, we would ask you to comprehensively analyse and visualise the history of heating on the example of Morschenich. What was the historical development of heating houses over the centuries? What does the current energy mix for heating look like, what role do gas, oil, brown coal, geothermal and district heating play? What are the most common technologies used? What are best practices and case studies that aim to replace gas and oil and reduce energy dependency on fossil sources? What are the social models behind it? Ultimately we want to ask you to explore the questions if we can relocalise the energy needed for heating from fossil sources back to more local sources like wood, solar or geothermal energy? Can forests help the energy transition, yet keeping them a valuable ecological habitat?

Stacked blocks of peat for heating, Germany, 20th century.

### 3 *Königshovener Feld* ENERGY AND WIND Wind Shaping the Landscape



The territory of the Königshovener Feld and its farms, hamlets and villages have been massively altered and affected through the mining operations of the Garzweiler mine. The area takes its name from the village of Königshoven, a village of around 1,000 inhabitants that was demolished and resettled in the course of mining. Although the landscape now appears very similar than the typical landscape of the Jülicher Börde, it has been completely built up from scratch after mining operations have filled it up succeedingly from the 1970s onward. The post-mining landscape, in German Bergbaufolgelandschaft, is a 100% human-made landscape. It has a similar plot structure and industrial crop cultivation is the main land use. It appears though, that the absence of any trees and large vegetation, in combination with the mining heaps (Halden) and the convenient ownership conditions (the main land owner is still RWE, the same company operating and owning the brown coal mines) are perfect conditions for large wind parks that are now dominating the landscape beyond anything else.

For the research, we would ask you to analyse and explore the history of the territory and its relation to wind. How did this territory transform during the last century? Who owns the land in this landscape now? How do the wind parks operate on it: Do the farmers own the land where the wind mills are placed or did they sell it? How do wind parks affect land prices and farming practices? What are conflicts and concerns that arise around wind farms in the region with nature and with the local population? How are local ecologies, especially wildlife affected?

When we focus on wind in that landscape, we would also like to explore questions around the aesthetics and the image of wind in that landscape. What is the potential of wind farming for designing new landscapes? Ultimately, can we design new models of ownership and farming, that together with a multi-layered land use approach could serve a local population and create a new, visually exciting and socially and ecologically sustainable energy landscape?

Single house in front of the wind park Königshovener Höhe, commune Bedburg, 2017.

## 4 Commune of Titz

### ENERGY AND SUN

#### Sun, Soil and the Question of Land-Use



Solar farming experiment near the Hambach mine, July 2022.

The commune of Titz lies in the Jülicher Börde, a landscape in-between the large mine of Garzweiler and the Sophienhöhe north of the Hambach mine. The commune itself is a paradigmatic case of an agricultural commune in the region of the Rheinische Revier. In fact, with 87% of the municipal area used for agriculture, Titz is the commune with the largest proportion of agricultural land in Nordrhein-Westfalen (NRW) and with less than 4% forest, also the commune with the smallest forest in NRW. Nearly all forests were cleared already as early as 1250 to make place for crop lands, that dominate the landscape still today. The reasons for this monofunctional land use lie in the communes' soil—a highly fertile loess soil—and in its flat topography, which enables the cultivation on large plots with heavy machinery. The dominant form of cultivation are staple crops, mainly sugar beet, wheat, corn and potatoes. The result is an agro-industrial landscape, speckled with many hamlets that often contain more than two to three farms.

In the face of energy transition, the question of land-use is one of the key questions that will be negotiated on all scales. How much space will we allocate to the production of renewable energies? And where will those spaces be? Who will own and operate them? These questions especially become relevant when talking about solar energy, as solar energy takes up a lot of space in regards to its energy output. Especially the question of solar panels on agricultural land is becoming more and more important and the commune of Titz offers a perfect case study to study the possibilities of solar energy production in combination with agriculture, ecology and social structures.

For the research, we would ask you to analyse and explore the commune of Titz and its territorial history. When did solar energy start to become relevant for the commune? How does energy production through solar technologies already play a role currently? Who produces it, who owns it and what is the limiting factor? Can solar energy and other forms of renewable energy production also enable more ecological and sustainable ways of farming? Can we design a multi-layered landscape where farming, ecology and energy production coexist?

## 5 Commune of Nörvenich

### ENERGY AND ORGANIC WASTE

#### Flows of Organic Matter in the Territory



Silage maize for biogas production at the Scheidtweilerhof in the commune of Nörvenich, 2020.

The commune of Nörvenich lies in the Zülpicher Börde, a flat landscape dominated by agricultural production. The agro-industrial landscape is dominated by crop cultivation. The reasons for this type of cultivation lie in the soil, a highly fertile loess soil. The dominant crops are staple crops, mainly sugar beet, wheat, corn and potatoes. All those crops are also highly suitable for the production of biogas, as leftovers from sugar beets and potatoes, silage corn, but also the waste of animal farming (chicken, cows and horses) can be used for biogas production. For that reason a lot of farms in the region of Nörvenich already use biogas production as part of their economic model. The biggest plant of the region, the biogas plant of Paeffgen, lies just outside of the town of Nörvenich and supplies the surrounding settlements with local energy and district heating. Biogas production also diversifies the economy of a farm, raising the question of who profits from this type of energy production?

The other type of organic matter that flows in the territory comes from humans. The organic waste that accumulates as a by-product in sewage treatment plants is called sewage sludge. As of right now, sewage sludge from all over the state, even from far away, is burned together with brown coal in the huge coal power plants, like Weissweiler or Neurath. But with the planned "coal exit" those power plants will be shut down eventually and the question of what will happen with all the sewage sludge is not answered yet. New technologies claim that this sludge can also be used for the production of biogas and heat.

For the research we would ask you to analyse and explore the commune of Nörvenich and its territorial history. What were the different models of farming in the region, how did they evolve? What role did organic matter play for producing fertiliser and later heat and energy? In what way is biomass and biogas production already part of the current farming economy and how does it change the landscape and the economy of a farm? Ultimately, what are the potentials of organic matter from human and non-humans, not seeing it as a waste product, but as a way to produce clean energy and empower the countryside as a major player in the energy transition. Can the processing of organic waste also help to make farming and living in the countryside more ecological and socially just?

## 6 ENERGY AND WATER

### Water as a Warrant for Stability



The Rur and its many tributaries form one of the most important water networks in the Rheinische Revier. Its source lies on a high plateau in the Eifel mountain range south of Düren. After meandering through the flat landscape of the Börde, it merges with the river Maas in the Netherlands. Water can be seen as a warrant for stability. The Rur and its tributaries are small streams, yet the watershed offers a total of nine water reservoirs and dams. The reservoirs were mainly built to control the flow of water and for storing drinking water, not to produce hydro energy. But controlling and managing the water flow has been essential for the region, as floods have been common and the rivers were accompanied by wide marshes and floodplains, making farming in those areas difficult. So stability came for the price of vanishing wetlands. With mining becoming more and more dominant in the region throughout the 20th century, the watershed of the Rur was also impacted in a major way. The lowering of the groundwater levels in the vicinity of the Inden mine has huge impacts on the local ecology and wildlife and is persistently criticised by environmental organisations. Additionally, the tributary river Inde had to be completely rerouted for a stretch of several kilometres as its original course lay in the path of the mine. As mining operations are planned to be ending in 2038, the current plans are to turn the mining pit into a large lake and water landscape. Reoccurring droughts question where the water for the new lake will be coming from, as using only groundwater will take an immense time. And the effects of such a huge project on the local ecology and water balance are also not certain.

Yet, for biodiversity, for soils and also for energy production water can act as a storage and buffer, when designed in the right way. Water batteries, pump water storages, hydro dams and run-of-the-river hydro plants also offer the possibility to create a constant energy production that can flatten and stabilise the high amplitudes of solar and wind energy. For the research we would ask you to analyse and explore the watershed of the Rur under the question of its potential for energy production and energy storage. What are potentials for hydro energy along the rivers of Rur and Inde? What are potentials of water/lakes as energy storage? How will climate change affect the watershed in the future? What are ecological consequences of the different types of energy infrastructure? Ultimately, can a landscape of water serve our energy needs and act as a sponge and habitat for ecological benefits as well? And can we steer the post-mining landscape into a landscape where energy-, ecology- and recreation needs coexist?

## 7 *Lützerath and Keyenberg* ENERGY AND ACTIVISM Networks and Landscapes of Resistance

The hamlet of Lützerath is undoubtedly one of the most symbolic places in the entire Rheinische Revier. Originally a typical small hamlet consisting of three farms in the Erkelenzer Börde landscape, it has become the symbol for resistance against brown coal mining during the last years. Since 2015, when the last farmers sold their farm, Lützerath has been occupied and became a hub for climate protests. Now that the hamlet is supposed to be demolished in order to ensure mining operations of the mine Garzweiler, activists call its occupation a „zone à défendre“, a place to be protected. What will happen in the upcoming months is completely uncertain.

Just next to Lützerath lies the village Keyenberg, a pitoresque quaint little village that origins date back over 1100 years. It is as well supposed to be demolished for mining operations in 2023; 60% of its inhabitants have already left. Yet, Keyenberg is a different example for resistance against mining. Here, the local population, not climate activists are dominant. They have become politicised and organised in groups such as „Alle Dörfer Bleiben“. Petitions were started, forest and village walks conducted, protests organised. But currently it seems that the protests might have had some impact on politics. The new government of NRW announced in June 2020 to preserve those five villages and hamlets. Next to Lützerath and Keyenberg, there are many other places, farms, villages and protest camps in the territory of the Rheinische Revier that together form large networks and a landscape of resistance.

For the research, we would ask you to analyse and explore these places, networks, actors and landscapes of resistance. What is the history of resistance, civil disobedience and protests against fossil energy production and resource extraction? Who are the current groups and communities? How have they formed and what is their agenda? What are their values and concrete goals? Ultimately we want to understand what those groups and strategies can offer for a new imaginary of the territory. What are their concrete visions, especially also on the question of energy production and energy transition? How could an alternative future energy landscape look like, that is based on ideas of democratic processes and ecological sustainability? How effective is activism in comparison to other forms of political engagement to achieve those visions? Can the politicisation of the local population in combination with activism lead to new concepts and imaginaries?



Activists in the Hambacher Forst, Photographer: Daniel Chatard, 2019.

## 8 *Village of Holzweiler* ENERGY AND COMMONS Energy Dependence and Autonomy



The village of Holzweiler lies in the Erkelenzer Börde landscape and has become a symbol of the energy transition. Originally planned to be demolished for the mine Garzweiler, an unexpected political decision in context of enforcing energy transition in 2014 was made to reduce the extent of the future mine. As a result, Holzweiler was preserved, albeit the adjoining heritage protected farms of Roitzerhof, Eggeratherhof and Weyerhof are still planned to be demolished. Holzweiler would be turning into a peninsula in the mine in the future. The village has around 1500 inhabitants, and is officially a district of the nearby town of Erkelenz since 1972, yet its village character and morphology is still clearly preserved. Holzweiler is known for an active and well-connected local population. There are several local associations, notably a community group called "Wir in Holzweiler" that is organised in individual project groups to bring life back to the village, there is a farmers market, a local café and more.

For the research we want you to take Holzweiler as a case study to study the questions of energy transition, energy dependency and the possibilities of energy autarky. The analysis of energy grids and network will inevitably lead you to questions of dependence and power relations between energy providers and energy consumers or the local population. On the case of Holzweiler we want you to understand and visualise those power relations of energy. Who produces the energy for Holzweiler, what kind of energy is consumed for what? What are current dependencies? What are possibilities for small communities to become more independent in their own supply for heat and electricity? How do alternative ideas of an energy grid and network look like, that works independently from the large actors like RWE? What are known case studies and best practices in Germany and beyond that can help you to understand how energy autonomy can be achieved? Ultimately you should ask: Can cooperation between villagers and a strong community-bond help to create a community where energy is thought not as a product but becomes a common?

# Digital Resources

## General GIS Data [Germany](#)

Bundesamt für Kartographie und Geodäsie (BKG)  
[gdz.bkg.bund.de/index.php/default/digitale-geodaten.html](http://gdz.bkg.bund.de/index.php/default/digitale-geodaten.html)

GOVData – Datenportal für Deutschland  
[govdata.de](http://govdata.de)

ESRI Deutschland Open Data Portal  
[opendata-esri-de.opendata.arcgis.com](http://opendata-esri-de.opendata.arcgis.com)

## [Nordrhein-Westfalen \(NRW\)](#)

GEOportal.NRW  
[geoportal.nrw/fachportale](http://geoportal.nrw/fachportale)

Geobasis NRW  
[bezreg-koeln.nrw.de/brk\\_internet/geobasis/index.html](http://bezreg-koeln.nrw.de/brk_internet/geobasis/index.html)

TIM-Online (Web GIS of GeoBasis NRW)  
[tim-online.nrw.de/tim-online2/](http://tim-online.nrw.de/tim-online2/)

WMS Data Links  
[bezreg-koeln.nrw.de/brk\\_internet/geobasis/webdienste/geodatendienste/](http://bezreg-koeln.nrw.de/brk_internet/geobasis/webdienste/geodatendienste/)

Open-Data Portal NRW  
[open.nrw](http://open.nrw)  
[opengeodata.nrw.de/produkte/](http://opengeodata.nrw.de/produkte/)

## Energy Data [Energydata.Info](#)

[energydata.info](http://energydata.info)

Global Wind Atlas  
[globalwindatlas.info](http://globalwindatlas.info)

Energieatlas NRW  
[energieatlas.nrw.de](http://energieatlas.nrw.de)

RWE Production  
[rwe-production-data.com/map/](http://rwe-production-data.com/map/)

GOVData  
[govdata.de/web/guest/suchen/-/searchresult/q/Kraftwerke/ff/groups%3Aener%2C/s/relevance\\_desc](http://govdata.de/web/guest/suchen/-/searchresult/q/Kraftwerke/ff/groups%3Aener%2C/s/relevance_desc)

OpenGeodata.NRW  
[opengeodata.nrw.de/produkte/umwelt\\_klima/klima/](http://opengeodata.nrw.de/produkte/umwelt_klima/klima/)  
[opengeodata.nrw.de/produkte/geologie/geologie/RK/](http://opengeodata.nrw.de/produkte/geologie/geologie/RK/)

Openmod Initiative  
[wiki.openmod-initiative.org/wiki/Main\\_Page](http://wiki.openmod-initiative.org/wiki/Main_Page)

SciGRID – Open Source Model of European Energy Networks  
[scigrid.de](http://scigrid.de)

Kohlenstatistik Deutschland  
[kohlenstatistik.de/downloads/braunkohle/](http://kohlenstatistik.de/downloads/braunkohle/)

## Historical Maps and Images

Old Maps Online  
[oldmapsonline.org](http://oldmapsonline.org)

Historische Topographische Karten NRW  
[bezreg-koeln.nrw.de/brk\\_internet/geobasis/topographische\\_karten/historisch/index.html](http://bezreg-koeln.nrw.de/brk_internet/geobasis/topographische_karten/historisch/index.html)

## Other Useful Data

Klimaatlas NRW  
[klimaatlas.nrw.de](http://klimaatlas.nrw.de)

Statistikatlas NRW  
[statistikatlas.nrw.de](http://statistikatlas.nrw.de)

Bodenatlas Deutschland  
[bodenatlas.de](http://bodenatlas.de)

Statista DE  
[de.statista.com](http://de.statista.com)

## Regional Planning Projects

REVIERa – Planning Theory & Urban Development, RWTH Aachen  
[pt.rwth-aachen.de/cms/PT/Forschung/Forschungsprojekte-aktuell/~doyit/REVIERa/?lidx=1](http://pt.rwth-aachen.de/cms/PT/Forschung/Forschungsprojekte-aktuell/~doyit/REVIERa/?lidx=1)

Revierknoten – Chair of Urban Design, RWTH Aachen  
[staedtebau.rwth-aachen.de/cms/Staedtebau/Forschung/Forschungsprojekte/~hbcmv/Rheinisches-Revier/](http://staedtebau.rwth-aachen.de/cms/Staedtebau/Forschung/Forschungsprojekte/~hbcmv/Rheinisches-Revier/)

Dazwischen – Chair of Urban Design, RWTH Aachen / Faculty of Spatial Planning, TU Dortmund  
[dazwischen.tu-dortmund.de](http://dazwischen.tu-dortmund.de)

Zukunftsagentur Rheinisches Revier  
[unser-zukunftsrevier.de](http://unser-zukunftsrevier.de)

RaumStrategie 2038+  
[raum-strategie.de](http://raum-strategie.de)  
[raum-labor.de/#map:raumlabor-2038](http://raum-labor.de/#map:raumlabor-2038)

# Server Structure

URL `smb://nas22.ethz.ch/arch_nsl_topalovic_student/`

GIS Library `.../0000_GIS-LIBRARY`

Studio Folder `.../2022_HS_POWER-TO-THE-PEOPLE/`

`.../1_SEMESTER INFO`

- Student Info
- Poster
- Semester Programme
- Reader
- Inputs (Introductions, Lectures, Tasks)
- Permission Letters

`.../2_RESOURCES`

- Fonts
- Templates
- Texts
- References
- Data for each Research Topic

`.../4_SUBMISSIONS`

- Reading Sessions
- Review I
- Review II
- Final Review

`.../6_STUDENT FOLDER`

- Personal exchange folder for group work

# Evaluation & Teaching Environment

Group work	<p>The evaluation is based on the process as well as on the final result of the group work and will be evaluated as a whole. That means all students from the same group will also receive the same grade. We believe that different standpoints and vivid discussions in the group are an important part of teamwork and ultimately lead to better projects. Nonetheless, if any unresolvable problems should arise inside your group, please contact us.</p>
Evaluation criteria	<p>We will evaluate the work by incorporating the following criteria:</p> <ul style="list-style-type: none"><li>– Rigour of field research and investigative analysis</li><li>– Clarity of argumentation and narrative structure</li><li>– Comprehensive conclusions and project brief</li><li>– Relevance and quality of project proposal</li></ul> <ul style="list-style-type: none"><li>– Independence &amp; self-initiative</li><li>– Creativity &amp; representation</li><li>– Participation &amp; team work</li></ul> <ul style="list-style-type: none"><li>– First task</li><li>– Oral presentation &amp; slides</li><li>– Logbook &amp; exhibition</li><li>– Online reportage &amp; video</li></ul>
Written statement	<p>After the semester, each student will receive a short qualitative written statement as a supplement to the grade.</p>
Teaching Environment	<p>We aim at mutual respect and responsible interaction with each other—regardless of origin, education, religion, ideology, physical abilities, gender, or sexual identity. If you observe or experience any type of harassment, discrimination, or mental/physical violence, please contact Evelyne Gordon (<a href="mailto:gordon@arch.ethz.ch">gordon@arch.ethz.ch</a>) from our chair or Elisabetta Giordano (<a href="mailto:giordano@arch.ethz.ch">giordano@arch.ethz.ch</a>), the official D-ARCH contact in case of inappropriate behaviour.</p>

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*Wenn Gäste kamen, ich weiß noch genau,  
Dann zeigten wir ihnen den Tagebau.  
Die Gäste fragten, was gibts hier zu sehen?  
Na der Krater da, wo die Bagger stehen!  
Jetzt wachsen da Pappeln und Eschen.  
Um Frechen.*

Rainald Grebe, Frechen

