

Strategic planning of energy landscapes:

Synergies and trade-offs in Parkstad Limburg

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Reflection

The relationship between research and design.

The research about the spatial component of the energy transition makes the project quite complicated. Parkstad Limburg is a place with extreme and contrasts, which means I have to be sensitive to those complexities on the research process. Before making use of advantages like the historical identity and unique geology in design, a lot of research works should be done. When energy is a tool to help improve the landscape value, it must be quantified, and the results will become more concrete. On research, I need to analysis the current energy production and consumption, and then decide which areas are more potential. After that, the capacity and efficiency should be considered. The research part helps to be aware of how to make clear what the spatial impact can be, and how they can be part of the design process. The design part is based on the outcome of the input of those statistics and makes them visible and acceptable.

The relationship between your graduation topic and the Lab topic.

Parkstad is described as a shrinking place; it is suffering from the aging population and losing job opportunities. This lab aims to revitalize the economy to attract young people to move in and work here. At the same time, I am giving this place a new identity apart from the historical mining area. Nevertheless, this region is determined to see the decline as an opportunity, and must develop a new "story". A promising direction is to use energy transition as an economic and spatial engine.

The region has traditionally been defined by energy transition - both the "highs" and the "lows" - energy and economy fit the area. My project aim is to follow the trend of the energy transition to improving the quality of the landscape in Parkstad, using this instrument to build more infrastructure and green spaces, to make this place become a real tourist destination and ideal home for local people.

Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.

The methodology of my research report includes the principles, theoretical backgrounds, framework, and criteria. To begin with, I use Rowe's modes of inquiry to elaborate the demands at the design proposal; they are deduction, induction and abduction. In this research paper, the logical deduction is applying energy-conscious urban design principles like from the energy potential map to the energy park hot point. Induction is to formulate the generally applicable design strategy based on case-studies and summarize it into three approaches: imbalanced, disconnected, and delaminated Parkstad. The third inquiry in my proposal is to translate the spatial energy application into the landscape language, to show the energy transition in this region. The third inquiry in my proposal is to translate the spatial energy application into the landscape language, to show the energy transition in this region. I am using the three strategies as guidance on the regional scale.

The methodology framework of my proposal is starting from the existing knowledge of landscape as process and energy transition as a language. Then according to the theoretical modes mentioned before to come up with the design principle: energy-conscious urban design. This principle leads to three different design strategies. These strategies interact with each other and effect to the design proposal.

As the energy-conscious design is related to practical approaches, there are four aspects of the technical energy criteria: sustainable technical, environmental, the economical, the socio-cultural criteria. A decent energy landscape design should meet these requirements.

Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.

The energy transition is a pathway toward a transformation of the global energy sector from fossil-based to zero-carbon by the second half of this century. At its heart is the need to reduce energy-related CO₂ emissions to limit climate change ("Energy Transition", 2019).

The European Commission calls for a climate-neutral Europe by 2050, which means a long-term vision should be considered when making the energy landscape proposal. There are already some incentive policies here; for example, the government in Parkstad encourages citizens to put solar panels on their roofs and gives them allowance and loads.

Some attempts, such as reusing abandoned mine water to heat and cold the houses.

The most efficient way to accommodate this change here is to strengthen the advantage of solar power and cooperate with other renewable energy like geothermal and biomass. Furthermore, building several districts by the demand and make it expand step by step. In this case, more job opportunities are available here, which give a reason for people to stay and even move in.

As my focus area is next to Brusummerheide, where is a silver mining area now, it is a terrain in between the nature area and urban structure. Since this area has a unique location, it can be seen as a gradation that emerges during the transition from green to gray. When it is proposed to be a stepping stone, it should have multiple identities and functions. As a city park, it is a recreational place gathering people who live nearby and tourists. However, as an energy landscape, it also has the characteristic of energy harvest and exhibition. The quantified energy shows the technical capacity and potential. And provide a possibility for the bigger area to become an energy supplier and make more jobs opportunities.

Discuss the ethical issues and dilemmas you may have encountered in doing the research, elaborating the design and potential applications of the results in practice.

First of all, it is a place consisting of eight municipalities, there is a fuzzy region on the boundaries, as each one is restricted to their policies and strategies. And this limitation impact on both research and design part, for example, the data source acquisition, it may be unmatched from the different municipality. Then the researchers need to tell the accuracy of them.

Another problem that may occur during the research or design part is about the local governments. On this case, the governments are willing to change the function of the quarry as the IBA has some plans for the whole Parkstad area. But if an energy-engined park is the best choice for them, how about the policies.

A possible challenge for the implementation is the emotional aspect of the residents and the stakeholders. The silver mine factory has a contract with Heerlen till 2020, but if it turns to the city park, the industry needs to close down or find another place to further their business. For the people who live nearby, if they want a park instead of it, especially for those who were working on the quarry now. The risk of change could be greater than leaving everything as it is (Schuler, 2019).

Perrotti D, Pouteau S (2013) *Nature urbaine en projets*. In: Chomarat-Ruiz C (ed) *Le vivant et son énergie: cultiver les paysages urbains de la sobriété*, 1st edn. Archibooks/Bookstorming, Paris *Energy Transition*. (2019). Retrieved from <https://www.irena.org/energytransition>

Schuler, A. (2019). Retrieved from https://www.schulersolutions.com/resistance_to_change.html