

Reflection - 4083202 - Maarten van der Kuur -19-04-2018

1. The relationship between research and design.

In this research ten technical configurations are designed for a renewable energy grid providing the heat demand of the buildings for selected urban blocks in the Netherlands. All the ten configurations are set up with different purposes/goals and are making use of different combinations of solar energy production and sensible thermal energy storage. The idea behind this research was not to only investigate what the best performing energy system is based on energy characteristics, but also to include the spatial influence on the existing built environment, the integration of such energy systems would have.

The early integration of spatial planning in energy transition projects was an already identified factor that is important to integrate early on in the process of such projects. But what the exact influence is on the energy characteristics & spatial impact of these energy systems was unknown territory for me. Using “design” as the tool to visualize the research results of different energy solutions, provided visualisations that could be compared to research the difference in spatial impact. This comparison added an extra dimension to the research that enables the possibility to perform a perceptual analysis. This perceptual analysis provides a different view on energy transition projects and their spatial integration in existing urban structures because it is based on the opinion of inhabitants. Personally I consider “design” the important method that integrates perception and numerical characteristics of energy solutions, resulting in a more in-depth analysis of the consequences the integration of energy solutions would have. I personally think these types of research, in the long term, could improve the project & process management of energy transition projects.

2. The relationship between the theme of the graduation lab and the subject/ case study.

Sustainable design is the theme of the Building technology graduation lab. Throughout the master programme sustainability played an important role in constructive, façade & climatological design projects. In almost all projects the scale of the design had the size of a single building. Using an urban scale for an energy transition project, I personally consider more interesting for research. Removing large quantities of fossil fuel in a short period of time, will mostly happen by worldwide transitioning large scale urban structures at once. Establishing a bridge of knowledge between urban design and the technical side of an energy transition is for me the most learning full method, providing the best starting position for a career in energy transition projects meeting my ambitions and goals. The used case study Ramplaankwartier in Haarlem provided the chance to integrate an energy transition project in an existing urban structure, that characterizes the typical urban structure of Dutch neighbourhoods.

3. The relationship between the methodical line of approach of the graduation lab and the method.

During the setup of the research outline & planning, the first concrete shaping of the research and the necessary products were documented. This step in the graduation process was the most difficult part in the whole graduation process and took a large share of the total used time for the project. Due to the urban scale, which is partly unknown territory in the BT master program, this inexperience let too a research outline that had to be adapted throughout the research. The demarcation of the research and the set-up of the assessment was different from the methodical approach of the BT master programme. In the BT master programme most research results & demarcations are assessed/set-up using a numerical

outline. In this graduation research a numerical method would have been insufficient because a perceptual analysis on the spatial/impact of the urban design is least as important as a numerical analysis. If going back in time was an option, this knowledge at the beginning of the graduation trajectory would have led to a more efficient use of time. Secondly the quality of the research framework could have been higher, using a more specific demarcation of the project, resulting in a more compact and efficient research. Learning from this process is the most valuable learning experience I could take away from this research.

4. The relationship between the project and the wider social context.

During my graduation project, earthquakes in the province Groningen massively increased the wishes from society, for a reduction in gas use for space heating and the large scale industry using gas. Climate change is worldwide the most heard argument for an energy transition but these concerns of Dutch inhabitants will accelerate the transition from gas to renewables even more in the Netherlands. The Netherlands are already struggling transitioning their energy supply to more sustainable solutions in the short time period that is agreed upon in the Paris agreement. Besides the costs & interest of actors, these transition projects are complex due to the urban structure with limited public areas. This research aimed to reduce the complexity of these projects, by providing new insights about the unavoidable spatial impact of energy solutions, the energy transition will cause.