Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	**Rik Ebbers**
Student number	5725607

Studio		
Name / Theme	Complex cities	
Main mentor	Marcin Dabrowski	Section Spatial Planning and Strategy
Second mentor	Ulf Hackauf	Section Environmental Technology & Design
Argumentation of choice of the studio	My interest is on multi-scalar project that cope with the impact of transitions, especially the energy transition. The studio Planning Complex Cities has this multi-level approach, with a mix of planning and design.	

Graduation project	
Title of the graduation project	**Forgotten Voices, a new narrative for Groningen.**
Goal	
Location:	Province of Groningen, The Netherlands
The posed problem,	The decarbonization of the energy sector is essential to achieving climate neutrality by 2050. Regions with a strong economical dependency on energy intensive industries or fossil extraction are vulnerable in this transition. To ensure a just transition for all, the Just Transition Fund was introduced by the EU as a part of the green deal. Groningen's economy is currently deeply dependent with fossil fuels, particularly gas extraction, impacting an estimated 20,000 jobs directly and indirectly. Additionally, does the province have underlying socio-economic vulnerabilities, such as a declining population due to aging and outmigration of young adults, and a relatively high (long-term) unemployment rate. Moreover, gas extraction has led to earthquakes and ground subsidence, causing

	damage to buildings and the cultural and natural landscape. The energy transition in Groningen will radically alter the landscape. Preservation of cultural and landscape qualities is paramount, with a balance to be struck between the need for economic development and the integration of renewable energy. A third crucial aspect is revitalizing natural and agricultural areas that have been affected by gas extraction. Finally, population shrinkage is putting pressure on the quality of villages.
research questions and	How can EU regions that are depended on carbon intensive industries, facilitate a just energy transition that combines spatial planning, heritage, and inclusion of the least engaged groups to achieve a multi-level just energy strategy for Groningen? **Sub questions:** 1. What is the Just Transition Fund and how can "types of regions (similar to Groningen)" be defined based on social, economic, and spatial elements? 2. What are the challenges for the province of Groningen in the energy transition? 3. What are the current strategies and policies for Groningen and what opportunities does it already offer? 4. How can the least engaged groups and stakeholders get a voice in just energy strategy? 5. How can local spatial qualities work as a vector of change for a just sustainability transition? 6. How can these local spatial qualities and local "voices" help to create a strategy and design for Groningen? 7. How can the Groningen strategy help formulate a strategy for similar European regions?
design assignment in which these result.	By using the problem statement, the research aim is the following: This thesis aims to research how to create a strategy for Groningen, envisioning the new energy landscape, while revitalizing and regenerating the natural and cultural areas. This is done within the context the economic and population shrinkage, where it is crucial to maintain a vital living and working environment. By constructing a series of explorative design scenarios, different development path for the future the Groningen nature and energy corridor can be explored. The scenarios will be evaluated on the socio-economic impact, natural,

	cultural and energy parameters. Based on the different scenarios with their own qualities and focus point a final territorial vision can be constructed using either the best scenario or combining qualities of the different scenarios. Within this scenario and design there should be special attention for the unseen groups that are often the most impacted by this big transition. My aim is to give these people platform, via an exposition/ photography/ a website to give these unheard people a voice, to create more attention for the needs of this groups for local people and policy makers. At the end of the thesis, there should be recommendations and strategy and approach for similar European areas that are also part of the Just transition fund.

Process

Method description

Literature review: to gather information for the theoretical and conceptual framework of the thesis. The papers should either contribute to technical understanding of a topic or help to understand a concept.
Policy review: Reviewing policies of the EU, Groningen and the municipality level give a better understanding of local challenges, and how these relate with one another. Recommendations in these documents can be used as a starting point for a research gap or design.
Analysis of the location: By mapping particular elements of the landscape, a better understanding of the landscape can be achieved. Together these maps should provide a coherent story of problems and opportunities within the area, ultimately creating a foundation for the scenario making and the design.
Fieldtrips: visiting the sites to gather documentation (photos and drawings), to get a better understanding of local circumstances, this can be done in combination with the analysis. Besides this does the project of DUST organize participation evenings, where I can also get an impression of local people.
Photography: To document local qualities that should be preserved, the photos should give a better understanding of the problem to "normal people". The photography is an integral part of the fieldtrips.
Stakeholder analysis: the stakeholder analysis should give insight in the power matrix and the involvement and power of involved parties.
Scenario making: By making scenarios different approaches and design opportunities can be explored, these scenarios are based the analysis outcome and bridge the gap between analysis and design.

Literature and general practical references

Commissie Bodemdaling door aardgaswinning. (n.d.). Retrieved 17 January 2024, from https://commissiebodemdaling.nl/

Dit is Groningen—Koersdocument Omgevingsvisie. (n.d.).

European Green Deal. (2023, November 10). https://www.consilium.europa.eu/en/policies/green-deal/

Gaswinning in Groningen leverde 428 miljard euro op. (2022, September 6). https://nos.nl/regio/groningen/artikel/303219-gaswinning-in-groningen-leverde-428-miljard-euro-op

Groningen gasfield | NLOG. (n.d.). Retrieved 17 January 2024, from https://www.nlog.nl/en/groningen-gasfield

IPCC. (2023). Synthesis Report of the IPCC Sixth Assessment Report (AR6). Islam, M. R., Mekhilef, S., & Saidur, R. (2013). Progress and recent trends of wind energy technology. Renewable and Sustainable Energy Reviews, 21, 456–468. Https://doi.org/10.1016/J.RSER.2013.01.007. (n.d.).

Janssen, J., Luiten, E., Renes, H., & Stegmeijer, E. (2017). Heritage as sector, factor and vector: Conceptualizing the shifting relationship between heritage management and spatial planning. European Planning Studies, 25(9), 1654–1672. https://doi.org/10.1080/09654313.2017.1329410

Kwaliteitsgids provincie Groningen. (n.d.). Retrieved 24 January 2024, from https://kwaliteitsgidsgroningen.nl/

McDowall, W., Reinauer, T., Fragkos, P., Miedzinski, M., & Cronin, J. (2023). Mapping regional vulnerability in Europe's energy transition: Development and application of an indicator to assess declining employment in four carbon-intensive industries. Climatic Change, 176(2), 7. https://doi.org/10.1007/s10584-022-03478-w

Ministerie van Algemene Zaken. (2023, June 23). Gaswinning Groningen stopt per 1 oktober 2023—Nieuwsbericht—Rijksoverheid.nl [Nieuwsbericht]. Ministerie van Algemene Zaken. https://www.rijksoverheid.nl/actueel/nieuws/2023/06/23/gaswinning-groningen-stopt-per-1-oktober-2023

Ministerie van Onderwijs, C. en W. (2019, January 31). Aardbevingen en erfgoed—Rijksdienst voor het Cultureel Erfgoed [Onderwerp]. Ministerie van Onderwijs, Cultuur en Wetenschap. https://www.cultureelerfgoed.nl/onderwerpen/aardbevingen-en-erfgoed

Open Data Portal for the European Structural Investment Funds—European Commission | Data | European Structural and Investment Funds. (n.d.). Tyler Data & Insights. Retrieved 20 December 2023, from https://cohesiondata.ec.europa.eu/funds/jtf/21-27

Sijmons, D. (2014). Landscape and Energy, Designing Transition.

Spisto, A., Gerbelova, H., Masera, M., & Barboni, M. (2020, June 8). The socio-economic impacts of the closure of the Groningen gas field. JRC Publications Repository. https://doi.org/10.2760/039540

Statistics | Eurostat. (n.d.). Retrieved 20 December 2023, from https://ec.europa.eu/eurostat/databrowser/view/DEMO_GIND__custom_7127262/default/table

The Paris Agreement | UNFCCC. (n.d.). Retrieved 21 December 2023, from https://unfccc.int/process-and-meetings/the-paris-agreement

What should we make of the Just Transition Mechanism put forward by the European Commission? (n.d.). Retrieved 15 November 2023, from https://www.robert-schuman.eu/en/european-

issues/0567-what-should-we-make-of-the-just-transition-mechanism-put-forward-by-the-european-commission

Policy documents:

- Res strategie Groningen (2021)
- Ruimtelijk economisch perspectief A7/N33 regio (2021)
- Atlas van brede welvaart Groningen (2022)
- Startdocument Nationaal programma Groningen (2018)
- Dit is Groningen Koersdocument omgevingsvisie (2022)
- Kwaliteitsgids Groningen

Datasets:

- Global Energy Monitor
- Corine landcover data
- PDOK
- Settlement layer dataset
- Geofarbic
- NLOG
- LULC-development potential (NASA)

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

My project explores a just sustainable energy transition for the province of Groningen and relate this to the other regions in EU. By making a strategy that combines socio-economical and spatial condition, on multiple scales (Province to local) my project fits within the studio of planning complex cities.

With this wide impact on the living environment the project interacts with the wider field of urbanism, architecture, and engineering. The placement the renewables, urban change and landscape changes have a major impact on the urban environment and influences architecture and engineering.

2. What is the relevance of your graduation work in the larger social, professional, and scientific framework.

Social relevance
The energy transition has an impact on the whole society, but mainly on the areas where the economy is heavily depended on fossil fuels. Besides the economic hardship of the fossil fuels does the renewables landscape change the spatial living landscape influencing our society.

Professional.

By integrating the social, economic, and natural/cultural challenges and opportunities of the energy transition does the project offer a new more integrated approach to the energy transition. The project can help to give a better understanding of the challenge Groningen has in the energy transition and how strategy and design can be combined in this transition.

Scientific relevance

1. This thesis should provide better insight in unseen groups and who these are within the de-carbonization of the energy sector.
2. The project addresses the spatial dimension of the energy transition that often not well addressed in the academic world. The project should create a framework through which this spatial dimension can be addressed.