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	Anna Kalligeri Skentzou
Student number	5605180

Studio		
Name / Theme	Metropolitan Ecologies of Place	
Main mentor	Cecilia Furlan	Environmental Technology & Design
Second mentor	Marcin Dabrowski	Spatial Planning & Strategy
Argumentation of choice of the studio	The energy transition currently underway in Greece is resulting in the reconfiguration of the productive model of Western Macedonia, a region characterised as the “energy heart” of Greece, hosting the largest lignite mines in Eastern Europe. To fully comprehend the multifaceted character of this transition, the existing systems of land, energy, and their impact on landscape and people need to be researched and analysed. To this end, this thesis project's methodological and thematic approach aligns with the studio of Metropolitan Ecologies of Place. This thesis aims to investigate scenarios for the energy landscape of Western Macedonia to ensure an environmentally and socially just transition. By adopting principles of systemic and regenerative design, it is possible to propose new realities for the energy landscape that could address the socio-ecological regeneration of Western Macedonia.	

Graduation project	
Title of the graduation project	Landscape of Power Reconfiguring Energy Landscapes in the in Western Macedonia
Goal	

Location:	Eordaia basin, Western Macedonia, Greece

The posed problem,	The energy production system in Western Macedonia is based on the operationalisation of the Eordaia basin to exploit the available lignite resources for producing "cheap energy". The massive infrastructural network developed to extract this material has resulted in the deterioration of soils and the draining of groundwater. At the same time, the presence of this production system has resulted in the creation of a monoculture economy in the region, a demographic decline and high unemployment rates. The current global paradigm shift in energy production, along with European and national regulations, demands the reconfiguration of Western Macedonia's "energy landscape" and the structural change of its economic model within the next five years. However, as the Western Macedonia energy transition has significant spatial and social impacts, the issues associated with social and environmental justice of the transition arise. Within this context, a coherent plan that investigates the spatial and social impacts of the reconfiguration of the energy landscape of Western Macedonia is necessary.
research questions and	<u>Main Research Question</u> How can the re-configuration of the energy landscape of Western Macedonia establish a more environmentally and socially sustainable region while ensuring environmental and procedural Justice? <u>Sub Research Questions</u> *Analytical:* How did the increasing demand for energy supply shape the energy landscape of Western Macedonia? How was the land operationalised to sustain the energy system? What were the negative impacts on the social and ecological systems? What is the structure of the current governance mechanism of the energy transition, and what are the social institutional challenges that arise? *Projective*

	How can a transition from an extractive energy system to a sustainable energy system be successfully realized in a period of uncertainty? Which alternative scenarios could we envisioning and designing for this territory? How can regenerative design be utilised to address the socio-ecological urgencies and ensure a just transition?
design assignment in which these results.	The projective aim of this thesis is to construct a series of exploratory design scenarios. Each scenario aims to develop a regional visions and site specific interventions. Moreover each scenario investigates, compares and evaluates, different alternative energy landscapes in Western Macedonia, based on the appropriation of space.

[This should be formulated in such a way that the graduation project can answer these questions.
The definition of the problem has to be significant to a clearly defined area of research and design.]

Process

Method description

The following methods will be used in this thesis:

(1) Literature review –
Preliminary research through reading and reviewing scientific papers, reports, and articles in order to gather knowledge in the fields of energy, landscape and justice, eventually leading to the definition of the problem statement and the construction of the theoretical and conceptual frameworks.

(2) Documentary review
Collection, comparison and review of policy documents and reports, aimed to understand of current and future policies related to the energy transition in Greece, the Just Transition of WM and the governance structure.

(3) System Analysis
Identification and analysis of the system of energy production, aimed at understanding the metabolic nature of the territory.

(4) Stakeholder analysis –
Accumulation of a list of stakeholders operating on a national, regional, and local level aimed at creating a better understanding of the actors involved and affected by the energy transition.

(5) Site visit

Visiting sites in WM to gather visual documentation (photography, cinematography, drawings) related to the spatial impact of the transition, and conduct semi-structured interviews. The aim is to listen, observe and map how the process of the transition shapes the experiences of local communities and the perceived landscape.

(6) Semi-structured Interviews

Conduct interviews with members of a chosen group of critical stakeholders, in order to comprehend the issues related to procedural justice.

(7) Analytical Mapping

The construction of maps and other forms of visualization on different scales is aimed at gaining a better understanding of the systems and their spatial relations through scales.

(8) Scenario Construction

Definition of trends and uncertainties through the analysis of the region and construction of exploratory scenarios that reflect on different possible futures

Literature and general practical preference

In the following section, the key literature of the thesis id presented and grouped into themes. For the full list, please refer to the report.

Landscape

Dramstad, W., Olson, J. D., & Forman, R. T. T. (1996). Landscape Ecology Principles in Landscape Architecture and Land-Use Planning. Island Press.

Marot, N., & Harfst, J. (2021). Post-mining landscapes and their endogenous development potential for small- and medium-sized towns: Examples from Central Europe. The Extractive Industries and Society, 8(1), 168–175. https://doi.org/10.1016/j.exis.2020.07.002

Sijmons, D., Hugtenburg, J., & van Hoorn, A. (2014). Landscape and Energy: Designing Transition. Nai010 Publishers.

Energy

Brenner, N., & Katsikis, N. (2020). Operational Landscapes: Hinterlands of the Capitalocene. Architectural Design, 90(1), 22–31. https://doi.org/10.1002/ad.2521

Pasqualetti, M. J. (2011). Social Barriers to Renewable Energy Landscapes*. Geographical Review, 101(2), 201–223. https://doi.org/10.1111/j.1931-0846.2011.00087.x

Pasqualetti, M., & Stremke, S. (2018). Energy landscapes in a crowded world: A first typology of origins and expressions. Energy Research &Amp; Social Science, 36, 94–105. https://doi.org/10.1016/j.erss.2017.09.030

Justice

Topaloglou, L. (2020). Just Transition and Place-Based Policy in Coal-Dependent Areas. Business Management and Strategy, 12(1), 63. https://doi.org/10.5296/bms.v12i1.18211

Topaloglou, L., & Ioannidis, L. (2022). From transition management towards just transition and place-based governance. The case of Western Macedonia in Greece. Journal of Entrepreneurship, Management and Innovation, 18(3), 37–74. https://doi.org/10.7341/20221832

Petrakos, G., Topaloglou, L., Anagnostou, A., & Cupcea, V. (2021). Geographies of (in)justice and the (in)effectiveness of place-based policies in Greece. European Planning Studies, 30(5), 899–916. https://doi.org/10.1080/09654313.2021.1928050

Soja, E. W. (2010). Seeking spatial justice (Vol. 16): U of Minnesota Press.

Policy

Master Plan (Updated Master Plan for Fair Development Transition of lignite areas). (2020). Ministry of Environment and Energy Athens.

SDAM. (2020a). Just Transition Development Plan.

SDAM. (2020b). Just Transition Development Plan of lignite areas. https://www.sdam.gr/sites/default/files/consultation/Master_Plan_Public_Consultation_ENG.pdf

WWF. (2016). Roadmap for the Transition of the Western Macedonia Region to a Post-Lignite Era. Retrieved January 19, 2023, from https://coaltransitions.org/publications/roadmap-for-the-transition-of-the-western-macedonia-region-to-a-post-lignite-era/

Reflection

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

The topic of my graduation thesis centres on the currently unjust energy transition and investigates how that could possibly be altered by applying principles of regenerative design to achieve an environmentally and socially just transition that leads to a sustainable energy system in the region of WM. The topic of the studio Metropolitan Ecologies of Place -specifically the section Circular Urban and Territorial Metabolism- thematically encompasses issues such as resource scarcity and energy transition, aiming to utilize systemic design to establish regenerative interactions of people, and resource flows in urban centres and territories. Thereby, the topic and the main methodology applied in the thesis project directly links to the studio topic and approach.
In regards to the master track of urbanism, which traditionally tends to focus on the issues of the urban built space, the project looks at the opposite space, the impact of the process of urbanization, namely, the "operationalized landscapes" of "extended urbanization" process (Katsikis, 2020). As these spaces are shaped by urbanization processes, they should be a research object of the discipline of Urbanism. Finally, in regard to the overall MSc AUBS program of the Faculty of Architecture and the Built Environment, this master thesis aims to act as a producer of knowledge in order to present alternatives to an existing plan of "sustainable development", through utilizing research and design.

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

Scientific Relevance
As climate change accelerates, and the transition to renewables is becoming a reality, the scientific discourse and individuals are becoming increasingly concerned with the increasing footprint of anthropogenic activities, and the appropriation of nature and justice. Within this context, this thesis aims to add to the increasing body of knowledge of the energy transition while simultaneously developing scenarios that highlight social and environmental injustices that might be generated through the energy transition, and developing possible amelioration strategies.

Societal Relevance

The societal relevance of this master's thesis is associated with the current transition that the region of Western Macedonia is currently experiencing. The decarbonisation of the energy system in an era of energy crisis combined with institutional negligence in regard to the social-economic impacts of the transition are generating polarisation and conflict within different actors of the region. In this aspect, this master's thesis aims to investigate aspects of social injustice and shed light on some of the injustices experienced by local communities and attempt to provide solutions.

Professional Relevance

The role of the urbanist in the professional field is usually centred around the design and planning of urbanised areas. In my thesis, I hope/strive to illustrate that the application of the body of knowledge of urbanism could also have a meaningful impact on anthropogenic injustices that manifest in space outside the realm of strictly "urban".