

EMPOWER ENERGYSCAPE

Integrating Landscape Quality into the Design of Energy Landscape in the Rotterdam-The Hague Metropolitan Area

Located in the large urban area named Randstad, the Rotterdam-The Hague metropolitan area (MRDH) has the largest European port and the majority of Dutch greenhouse sector residing within its borders. Accounted for only 2.7% of the area in the Netherlands, the MRDH consumes 17.3% of the total energy use. However, the MRDH is almost impoverished in terms of energy resources. Most of the fossil fuel energy used in the region is imported. Therefore, this energy intensive development model has also brought challenges from both climate change and fossil fuel depletion, resulting in multiple ecological, environmental, economic and social issues, which obstruct the further growth of the region. There has been an urgency in transforming traditional energy landscape to sustainable energy landscape.

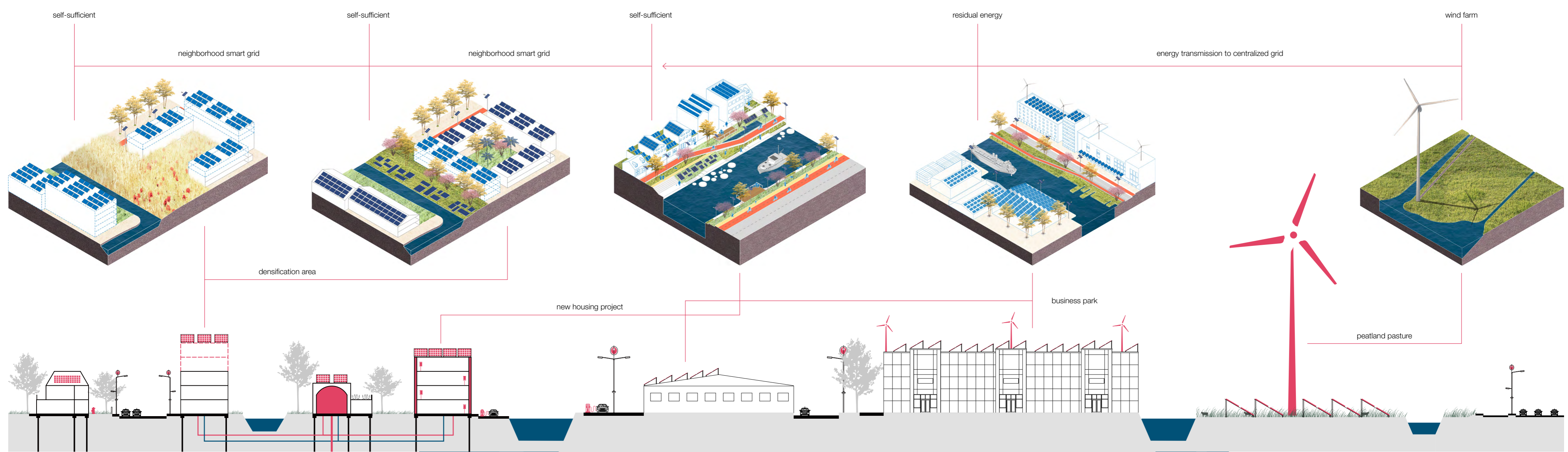
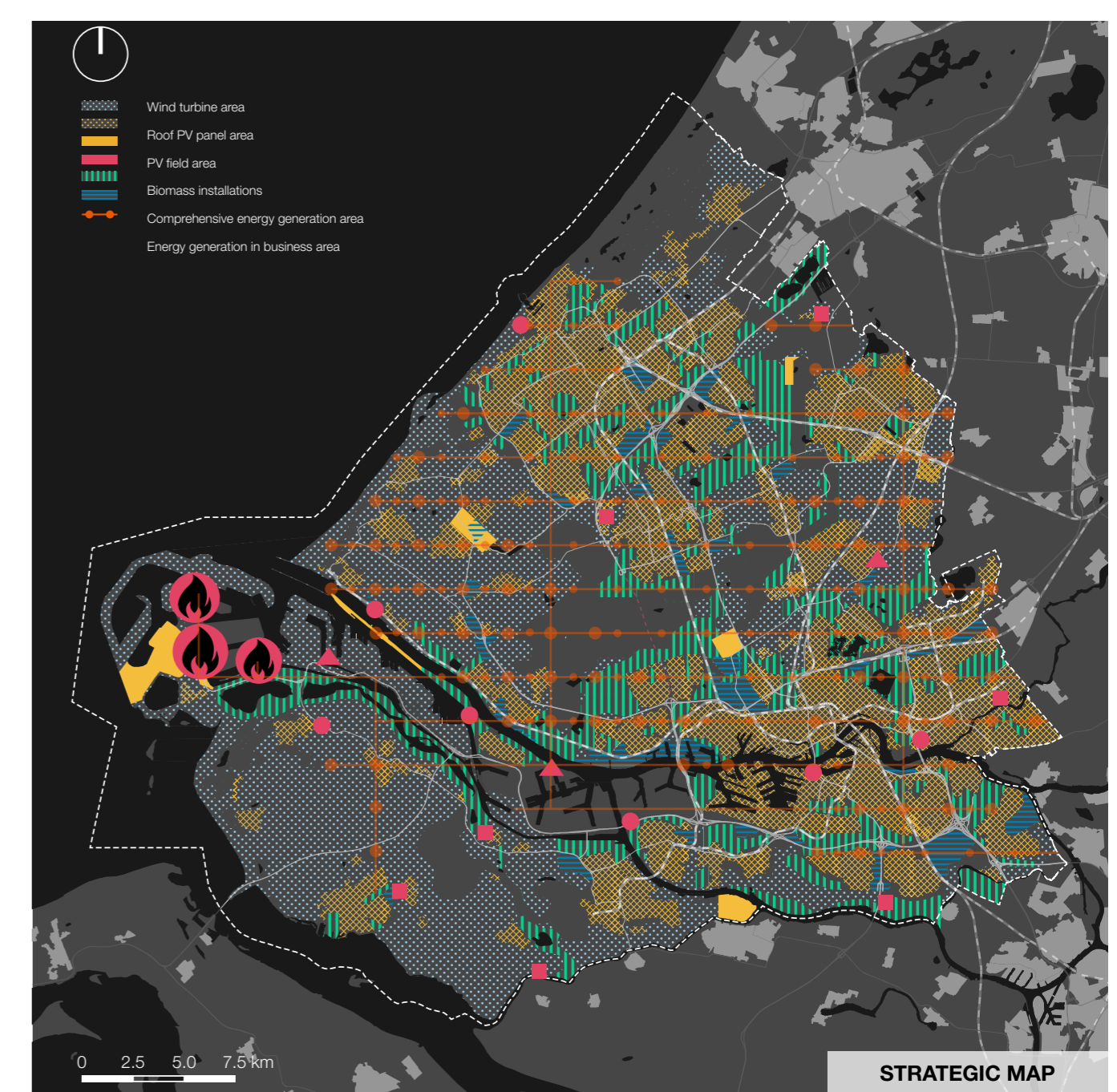
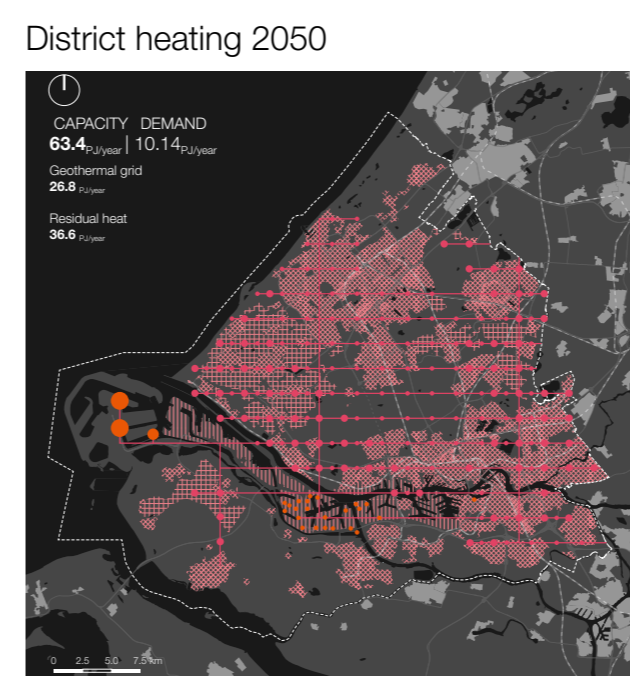
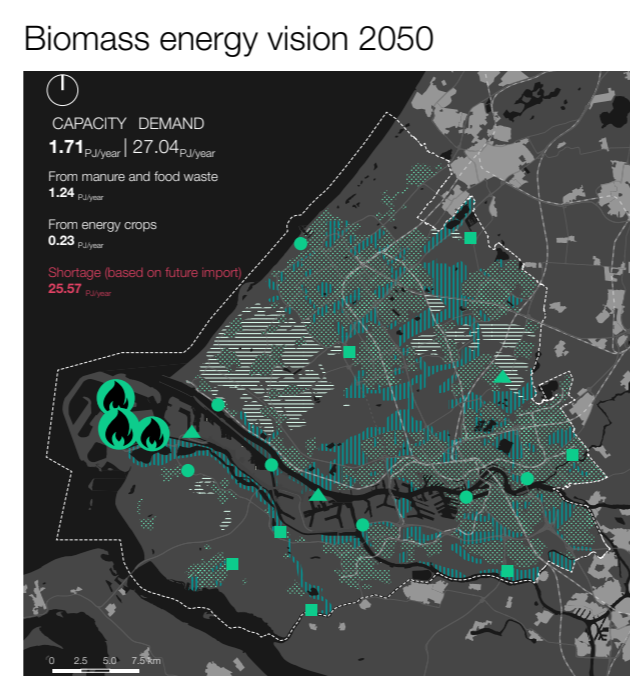
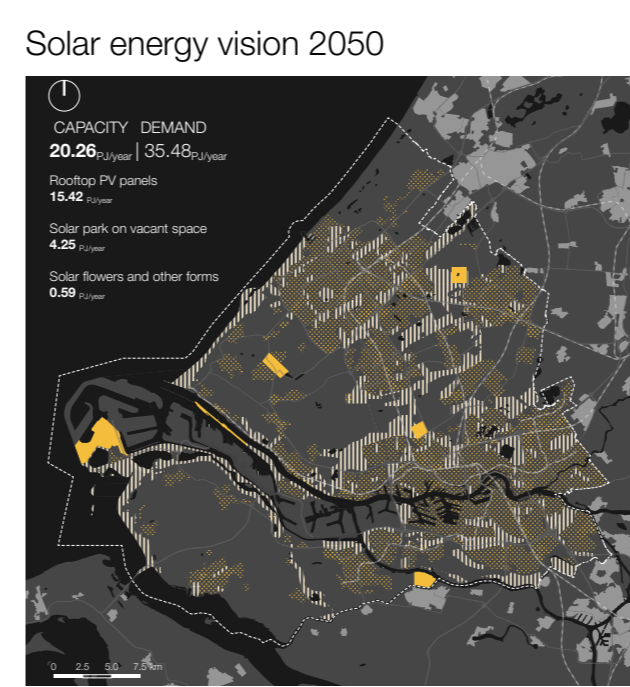
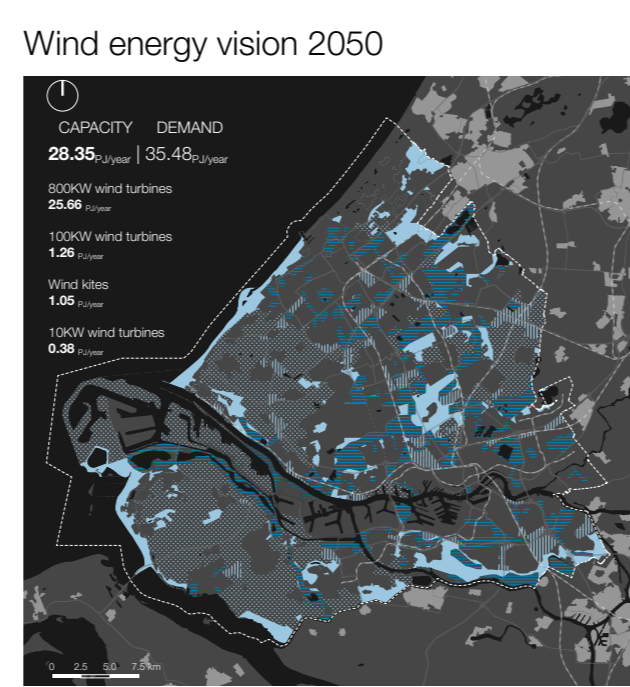
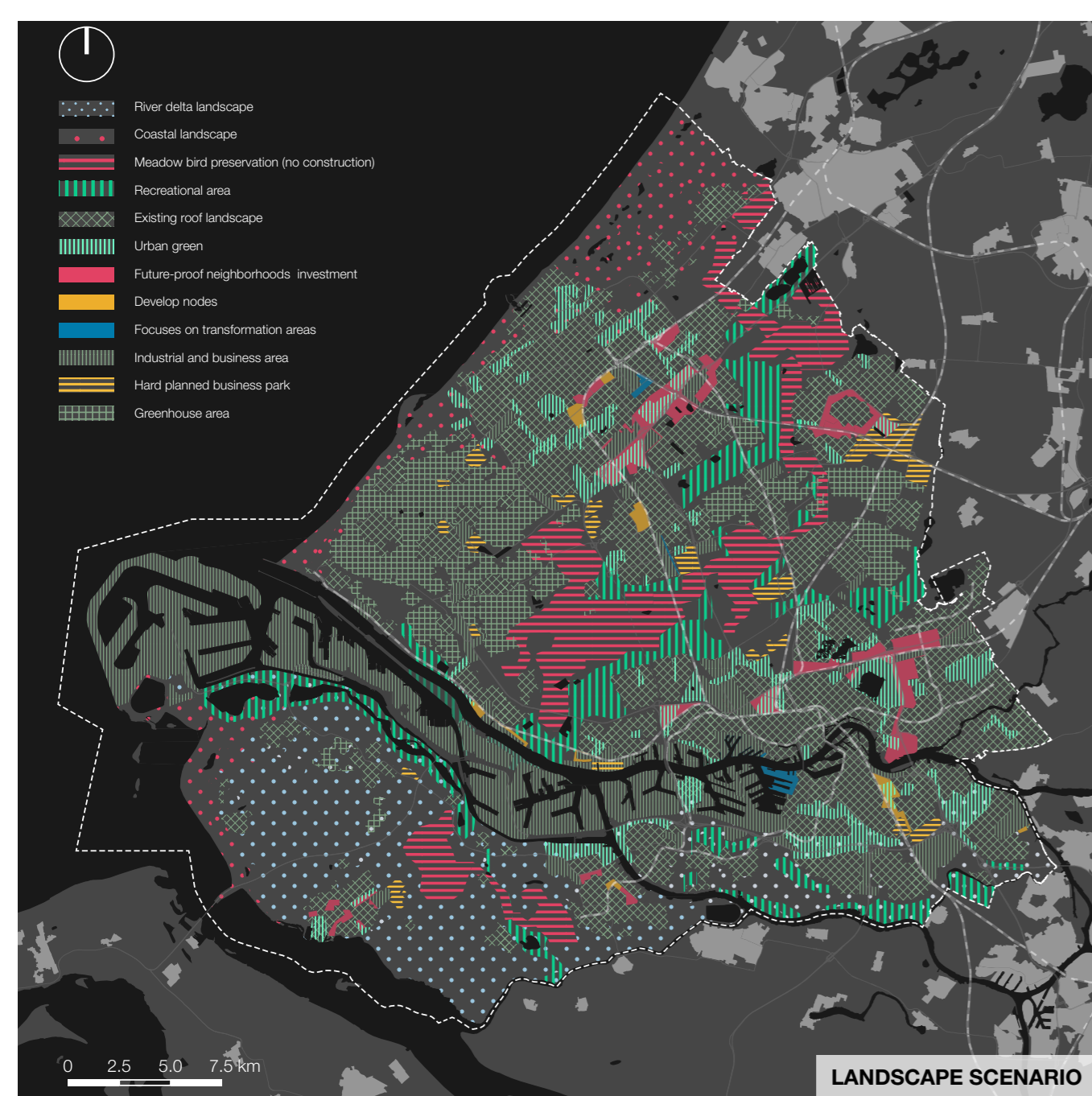
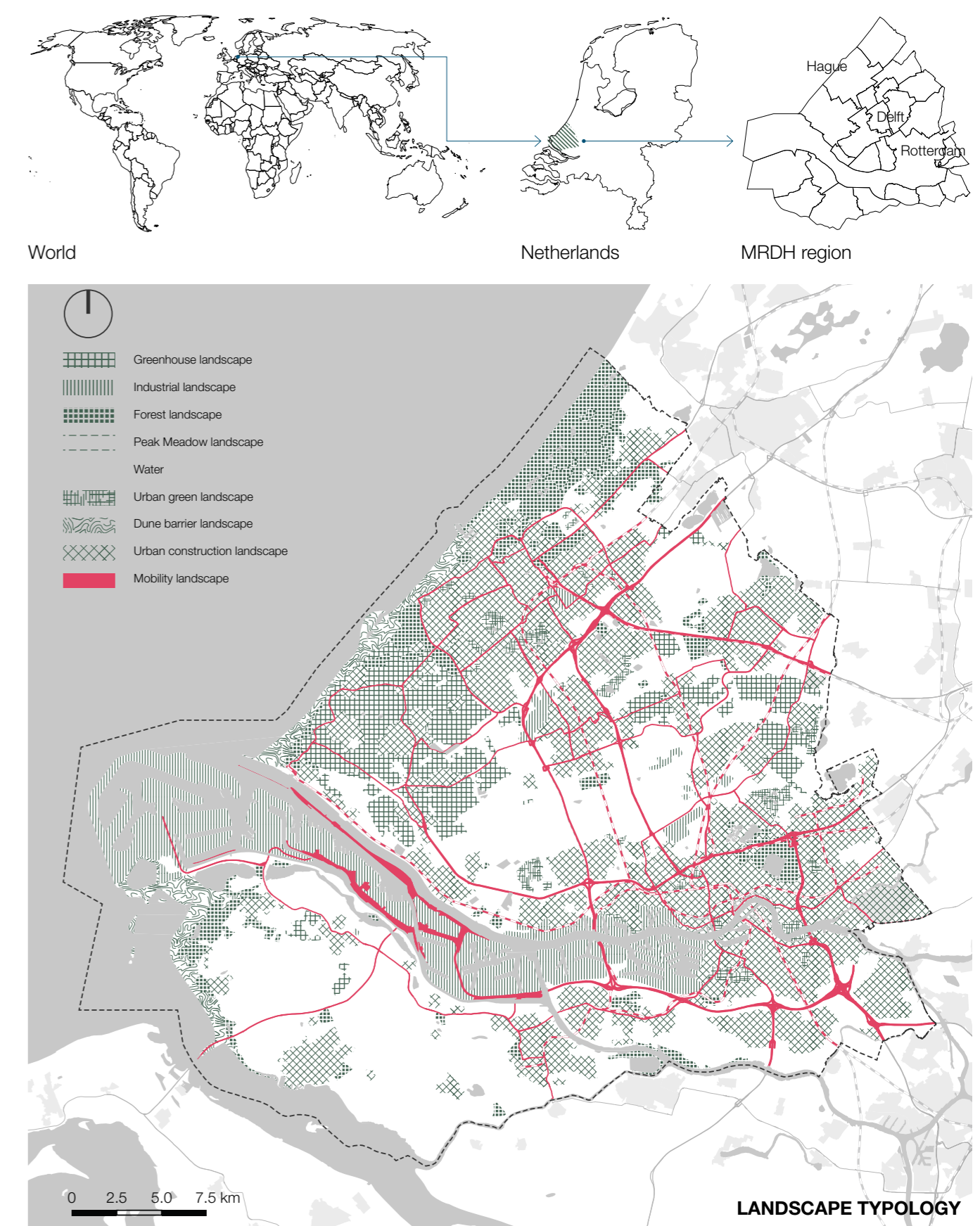
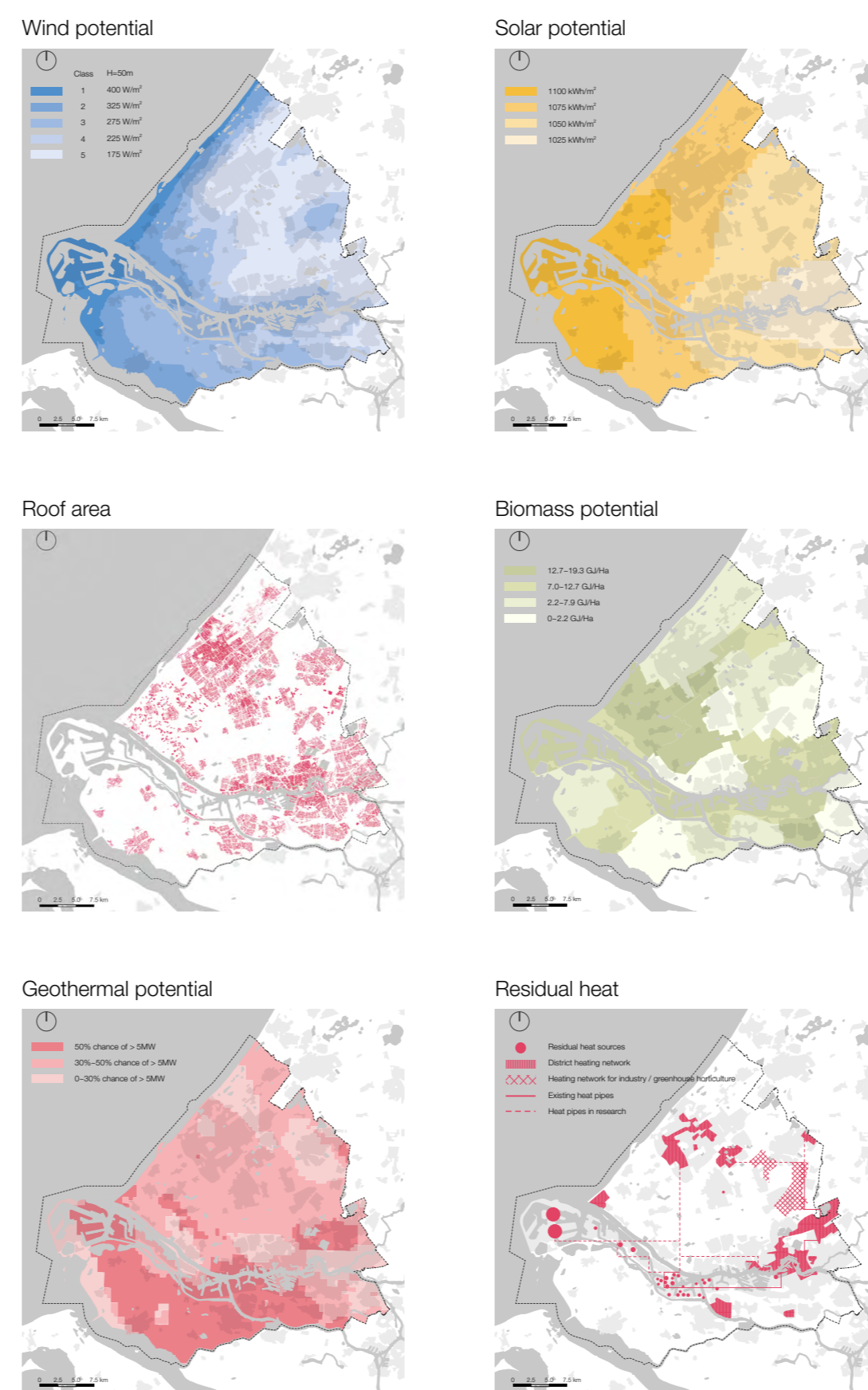
Although the Netherlands has released many policies and regulations on sustainable energy, the current approach is still far too slow. Only 6% of the energy used in the Netherlands comes from renewable sources in 2016. One of the reasons that can explain the slow approach is that the renewable energy technologies are facing public resistance. People keep holding protests because of the negative impacts on landscape. Thus, the practical gap within energy landscape which separates sustainable energy transition and landscape quality apart needs to be addressed. Energy transition and landscape quality have, to date, been treated as two separate conceptual domains. The deficiency in spatial planning and design has evoked the public resistance because people are more aware and concerned about the quality of living environment.

With the focus on sustainable energy landscape and landscape quality, this project gives a new insight on how spatial planning and design can improve the landscape quality of energy landscape, in order to increase public concern and supportiveness about sustainable energy transition, thus to contribute to creating a more sustainable, livable and resilient MRDH.

Main research question: *How to integrate landscape quality in the energy landscape which facilitates sustainable energy transition of the Metropolitan Area Rotterdam-The Hague (MRDH) through spatial planning and design?*

- With three descriptive sub questions:
1. How to map the potential of renewable energy in the region?
 2. What are the general spatial implications of renewable energy technologies?
 3. What's the current landscape quality?

- And three prescriptive sub questions:
4. How much renewable energy production is required in order to realize energy neutrality?
 5. What are the expected scenarios of landscape quality for different urban realm?
 6. How to integrate energy production and landscape quality in spatial interventions?



DENSIFICATION AREA	
Proponents	MRDH Municipality, residents
Opponents	/
Fence Sitters	housing cooperation, infrastructure sector

NEW HOUSING PROJECT	
Proponents	MRDH Municipality, residents
Opponents	/
Fence Sitters	real estate company

BUSINESS PARK	
Proponents	MRDH Municipality, company owners
Opponents	/
Fence Sitters	/

PEATLAND PASTURE	
Proponents	MRDH Municipality
Opponents	Natuurmonumenten, environmentalist
Fence Sitters	land owners, farmers