# PARTICIPATORY POLICY OPTION GENERATION

FOR

# RENEWABLE ENERGY TRANSFORMATION

Policy brief based on the EU FP7 Research Project: COMPLEX

## Key Messages

Currently at least 14 municipalities in Overijssel have $CO_2$ or Energy neutrality goals. To overcome local mis-matches in space and demand, regional energy strategies are being developed to increase strategic placement of renewable energy. Understanding and supporting the local opportunities and obstacles are key to a strategic and resilient transition of the energy system.

## Issue at Stake

Municipalities find themselves in various situations in terms of the ratio of available land/space to implement Renewable Energy and the amount needed to be produced. While information related to zoning, infrastructure and suitability are understood by municipalities, the social element related to acceptance and willingness to participate are largely unknown.


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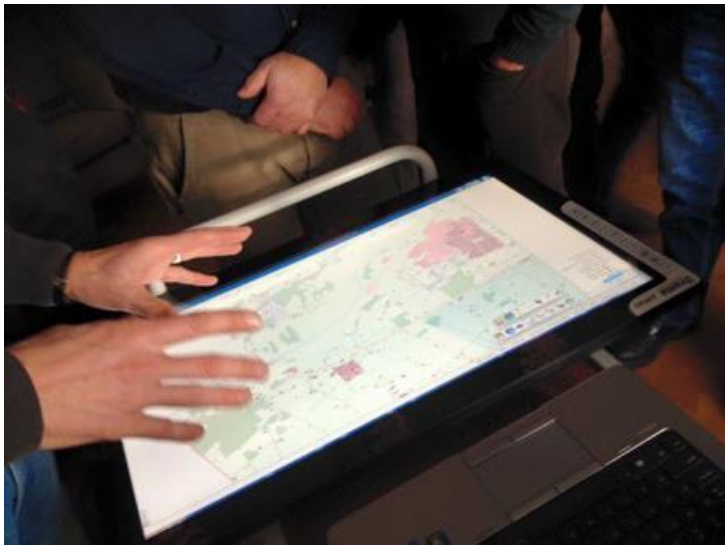

## Overview

Increasing the share of Renewable Energy in the Netherlands is a generally agreed upon necessity. However when it comes to deciding which land uses or values to substitute or give up in exchange for this goal - we run into problems. Implementation needs to be brought about by the people and has an inherent complexity, it is not as a choice between one thing or the other in an isolated box. In order to reduce the feeling of loss, helplessness we can bring the big picture to the stakeholders, make the pros and cons visible, and show how various scenarios are possible to achieve our targets.

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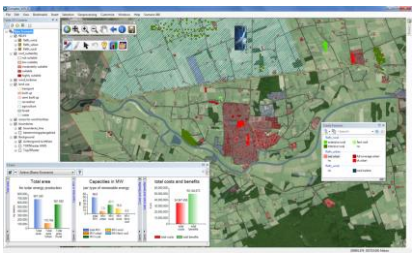
## Tools for discussing trade-offs and future scenarios

Coupling the technical and social information held by different stakeholders can be used to determine win-win options that overcome local obstacles and maximise the value added to the community.

The University of Twente and its partners (OCT) have developed tools to support this participatory process. COLLAGE is an interactive map based tool that allows stakeholders to co-develop knowledge related to the most suitable locations for renewable energy. They can either work towards achieving a pre-determined set of RE goals, to collectively determine what is feasible based on the interactions around the table. Further, given that many futures are possible, this information can be used with the APOLUS (Actor Policy and Land Use Simulator) model to support the development of different scenarios that will support further policy options for provincial and municipal governments.

Pilot projects have taken place in the Municipalities of Dalfsen and Enschede, and led to an increased understanding of the spatial opportunities and constraints at the municipal level.



## Background

Transitioning to a low carbon economy is a complex and urgent task. In the Netherlands, where land is intensively managed and highly valued, the provinces and localities are currently facing challenges in implementing the necessary landscape features. Solar farms and urban solar panels, as well as wind turbines demand a certain amount of space and are thus competing with other important current uses and values. Little research has been done in understanding the complex interactions between newly installed renewable energy technologies and the previous land uses and so local actors are experimenting and uncovering the impacts themselves.

Recent EU funded research by the University of Twente (Province of Overijssel) set out to understand these dynamics, from the perspectives of local, regional and provincial stakeholders. Our results show that the specific trade-offs related to the local dynamics (influenced by municipal, provincial and national policies) are key to overcoming the various obstacles in the transition. Aligning RE development plans to the local context is thus key to speeding up and increasing the efficiency with which RE will take its place in the urban and rural landscape.

This does not mean taking a hands off approach (decentralisation without support), but actively supporting the different needs of the communities with flexible yet intense policies and programs.

Building on the current national, provincial and local programs to support RE development, the process can be improved by making the location specific spatial trade-offs explicit and highlighting the intersection between different goals at various levels and from different stakeholders. There is no one size fits all strategy as context differs per region in terms of available land, energy demand, social acceptance and financial capacity. Local goals to achieve $CO_2$ or energy neutrality prove to be a good starting point to have a frank discussion about the future of land use in each of the various localities in the Netherlands. Following achievement of the low hanging (Renewable Energy related)

fruit, strategic and participatory multi-functionality and land use planning can be used to help achieve the lower carbon goals of the Netherlands and increase the energy security and sustainability of local communities.

## More Detailed Findings

In the process of undertaking this research we uncovered a number of helpful tips for undertaking a participatory process in the development of policy options and spaces for renewable entry development at the local level. In this section we provide a summarised list however more detailed work can be found in the official reports and publications found on the COMPLEX website:

http://owsgip.itc.utwente.nl/projects/complex/

### *Best practices:*

- Important information about land dynamics can be elicited from stakeholders. Using participatory methodologies allows us to predict or adapt to situations of policy implementation paralysis, since technological changes and natural resources management are strongly conditioned by power relationships.
- Knowledge co-development activities around Renewable Energy installations in the landscape are key to increasing support and overcoming problems
- Face-to-face interviews can be helpful in mapping the concerns, goals, interests and barriers that stakeholders are facing in their energy transition ambitions
- The historic Renewable Energy implementation trajectory is also important in determining the current situation
- Understanding the various power, motivations and resources of the stakeholders is important for determining the likelihood of successful Renewable Energy policy implementation.
- Determining the appropriate scale for action is essential: Municipal and regional collaborations for Renewable Energy development may be necessary due to diversity of opportunities and challenges related to achieving low carbon economy.
- Involve stakeholders in the problem definition as well as subsequent modelling steps to avoid detachment from final outcomes of the participatory process. However, be aware that there may be a cycle of alternating results, with different stakeholders involved at each phase.
- The participatory approach is cyclical, not unidirectional. The modelling chain's “end state” is nominal and related to real world considerations like the end of a research project.
- A well guided participatory process can help stakeholders to collaboratively define their expectations and goals related to the trade-offs they experienced between land use quality and

renewable energy development. This provides considerable opportunities for learning and knowledge transfer between researchers and other stakeholders

- Our participatory process enabled the integration of diverse types and sources of information, e.g. local knowledge of actor preferences and resources, geographical and technical characteristics, terrain suitability, land use data and scenario narratives. It further builds credibility among the stakeholder community and facilitates co-generation of knowledge and co-design of climate mitigation plans
- The mutual interaction between the stakeholders is considered an important contribution to the planning process as it provides insights related to barriers to implementation and new ideas for placement.
- The use of a "high-tech" tool was positive for increasing the interest of participation by our stakeholders.
- In some cases $CO_2$ savings need to be translated into a unit that is more tangible for stakeholders, such as money or energy saved/spent.

## *Potential Outcomes of the COLLAGE/APoLUS framework*

- Through using the COLLAGE mapping tool stakeholders are able to explain their motivations, perceptions and resources related to very concrete suggestions of land use change and researchers can then collect this information in a way that can be directly fed into the APoLUS model for developing policy options and scenarios.
- Sharing of and uncovering previously held beliefs was supported by the discussions around the map table. For example, there was generally agreement at the end of one session that there was more land needed for solar than most people had thought beforehand and that more efforts should be taken to reduce energy use, as a way to reduce the impact on the landscape.
- A map of preferred locations of various types of RE, which can be helpful for planners and policy makers.
- Uncover which types of renewable energy (RELF) stakeholders find to be compatible with different land use categories and how they perceived the trade-offs required between the land uses and renewable energy production to achieve their goals.
- Detailed understanding of the relationship between existing land uses, according to stakeholders' own classification, and Renewable Energy-related Landscape Features (RELF). This information enables land uses to be represented as layered "multifunctional" activity spaces rather than one dimensional single land uses in which RE installations can only replace existing uses.
- Previously unknown information related to the application of land use plans, zoning laws and how they affect implementation of Renewable Energy.
- Spatially explicit information about the pros and cons of different RELF types and the trade-offs associated with them.
- A collective product that outlines preferred pathways to achieving the CO2 or Energy Neutral goals of the municipality.

More information about the COLLAGE/APoLUS modelling framework can be found at: https://www.itc.nl/PGM