# The potential for Renewable Energy

Short Paper – Overview

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*Abstract*: In this work it presented an overview in how to make best use out of the available land to fulfill the whole energy demand in the Netherlands with renewable energy. It was used the model proposed by [Denholm 2009] [Grassi 2014] [Hoogwijk 2004] , considering evaluation of land use, direct impact area and indirect impact area. The potential of wind energy available in each grid cell of a map, using mathematical functions of many factor to simulate the potential. The cost of the system and the best allocation of the system.

After reading the articles and being introduced to different approaches we decided to evaluate on which energy source could be used best to satisfy the energy demand in the Netherlands. Our first research question in this approach was to evaluate the methods used to analyze the area. Considering quality and completeness, and applying the same principal in Netherlands area.

The second step in the process of answering the research question one would have to properly define the needs in the certain areas of the Netherlands considering the accuracy and completeness of the available data (Energy demand until 2030).

The third step is to model all this inputs in one single table and map to visualize the final model and made our final conclusion.

**Main research question:**

How to make best use out of the available land to fulfill the whole energy demand in the Netherlands with renewable energy. (Focus on land use not water & deciding between wind and solar power for each area)

**Keywords**: renewable energy, land use, cost of energy

1. **Introduction**
2. **Motivation and literature review**
3. **Proposal**

**Units of measurement:**

* Land using cost
* Producing cost
* Urban Cells comparison: rooftops
* What is the reason to affect the result
  + Building material
  + Building age
  + Surface
  + Is suitable to install solar system?
  + New urban vs Old Urban
  1. Result table

As a output of it work, are presented a resulting table, considering many different energy sources, and the main questions:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Wind | Solar | water | bio |
| Cost (EUR / km2) | 100 | 200 | 50 | 60 |
| Power (kWhr / km2) | 200 | 800 | 150 | 120 |
| CP | 2 | 4 | 3 | 2 |

**Table 1.** Summary of results

* 1. Map result:

As a output of analysis we proposed a single map showing all the layers involved in our research, like wind potential, solar potential, area of study (Netherlands), land use available and proposed, cost by area, etc..

1. **Conclusion**

**Literature**

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