This document shortly reports the results of the use of the LOGiC sizing tool. This introduction describes the input values used to perform the calculations.The system is assumed to be located at or close to dumadr.

Microgrids

In order to make this report comprehendable to the user the general properties of a microgrid are shortly discussed.
A microgrid is a local energy system that is capable of generating, storing and delivering energy locally. Microgrids can be both connected to the main grid (grid-connected microgrids) as well as being completely isolated (off-grid microgrids). The microgrid considered in this assessment is a off-grid microgrid. This means that the microgrid has to generate all electrical energy consumed in the grid locally and that no extra energy can be bought from external parties. Shortages are fulfilled by using a back-up diesel generator. There multpile possible reasons to apply a microgrid:

- No grid is available (remote location)
- There is a grid availble, but is is not reliable (enough)
- The wish to generate the own energy locally as a stakeholder or a community

In all cases renewable sources are often considered as a possible source of energy for the microgrid, either from an economic or a sustainable driver. In the case of this microgrid the following sources are considered: wind power, solar power and a back-up generator combined with a storage facility.

System sizing

The calculation described above has resulted in the following system:

Component	Capacity
Installed solar power	0.0
Installed wind power	21.26914
Installed storage capacity	8.27409
Power of storage facility	4.13705

Table 1: Sizing of the main components of the system

The system defined by the parameters above realises a levelised cost of electricity of €0.43 per kWh. the system does this at a renewable energy share of 0.01 %.

System economics

In order to assess the economics of the system the following economic parameters have been assumed:

Parameter	Value	Units

Table 2: Economic input variables

Based on these the investment costs of the main components of the system are estimated as:

Component	Investment cost
Solar modules	0.0
Wind turbines	53172.8595
Storage facility	2710.1694

Table 3: Investment cost of the system

The operational expenditure is estimated as:

Component	Annual pu OPEX	Units
Solar panels	25.0	kWp
Wind turbines	0.0	kW
Storage capacity	6.75	kWh
Storage power	0.0	kW

Table 4: Operational expenditure of the main components of the system

Societal environment

Apart from the quantitative factors tht determine the sizing of the system in the technical sense, there are also societal, quantitative factors that should be taken into account when making investment decisions regarding the installation of an (off-grid) microgrid. This section gives some important societal factors.

0.1 first

first societal factor

Conclusion

body text

Used input data and method

The timeseries used in and resulting from the calculations are listed on this page.

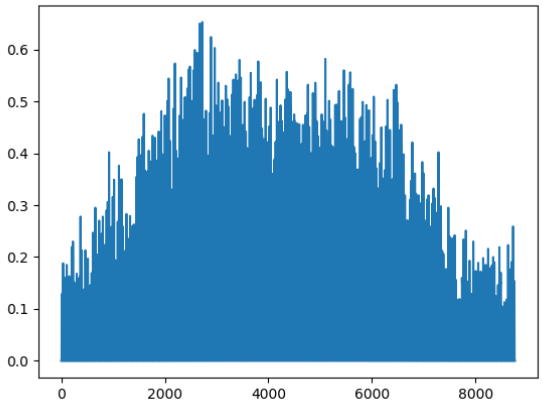

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Figure 1: Time series of the solar energy production in kW per kWp of installed solar power
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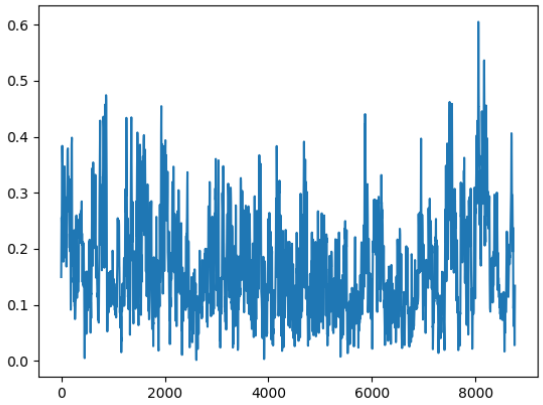

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Figure 2: Time series of the wind energy production in kW per kW of installed wind power
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