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CONSEQUENCES OF AN UNSECURE ENERGY SUPPLY: ASPECTS OF DAMAGES DONE BY BLACKOUTS

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OVERVIEW

A secure energy supply is important for a modern society. There have been several scientific attempts in the past to quantify this importance economically by looking into the damages resulting from the lack of an unsecure supply of electricity, e.g. from blackouts. But the resulting values from these studies often vary strongly one from another. The distribution of the figures is visualized in the histogram below.

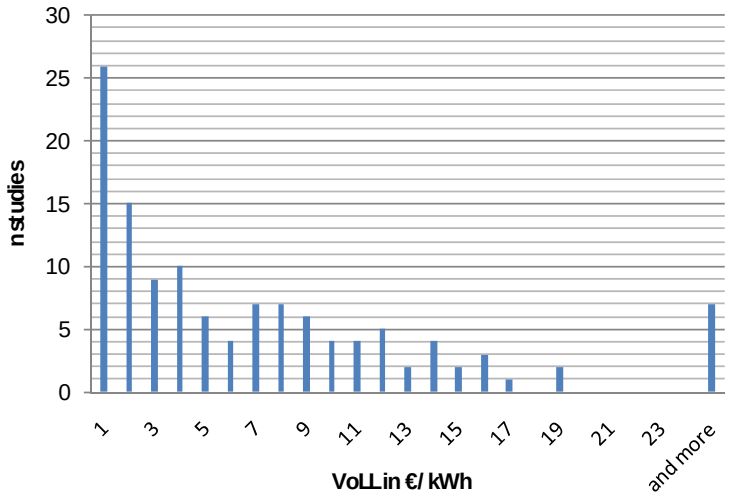

Fig. 1. Distribution of different studies on the Value of Lost Load

One possible explanation of this diversity may lie in the different focus of the term *damage* in these studies. The goal of this work is to give a further understanding of the different aspects in damages that may lead to different results in cost estimations of blackouts.

METHODS

Different aspects of economic damages caused by blackouts will be discussed by using a narrative case study to facilitate the overall understanding and to put figures into meaningful relations.

An example of such a narrative could be as follows. A three day long blackout occurs and the lights in a small community go out. As the traffic lights go out, a lethal car accident occurs leaving two deaths. One of them has a life insurance with 500000 Euros, the other doesn't. The local chemical company cannot maintain the necessary temperature for the storage of its product and a yearlong production worth 1 million Euros goes to waste. The company cannot recover from these costs and goes bankrupt dismissing 10 employees that stay unemployed for a whole year. But even since the chemical company is gone, health problems have lessened considerably. The steelwork on the other hand maintains its production for the first

day thanks to an auxiliary generator set but cannot produce for the next two days, while they usually generate a value added of 20000 Euros per day.

RESULTS

A loss of electricity can lead to direct and to indirect costs. Indirect costs represent opportunity costs due to the non-availability of electricity. Direct costs would be the spoilage of existing products such as food or chemicals that need to be kept at a certain temperature or the loss of computer data.

Also, an unsecure supply of electricity can cause damages as loss of assets, loss of production or income, an increase in expenses, health costs, loss of life, environmental losses but can also have positive effects in some ways.

CONCLUSIONS

There have been several attempts to quantify the economic value of a secure electricity supply. The results of these studies are broad.

As our modern society grew highly dependant on the availability of electricity, the sudden unforeseen loss in form of blackouts has in general serious consequences and impacts on the. Nevertheless, the estimation of the costs have proven to be be difficult which are shown by the significant diversity of results from earlier studies.

A blackout has unequal consequences due to the different circumstances of each individual, each electricity consumer. The figures from the earlier studies don’t have to be necessairily wrong even though they are different. It is highly probable that they just take different aspects and circumstances for a certain group of consumers into account and with that different aspects of *damage* done by blackouts.