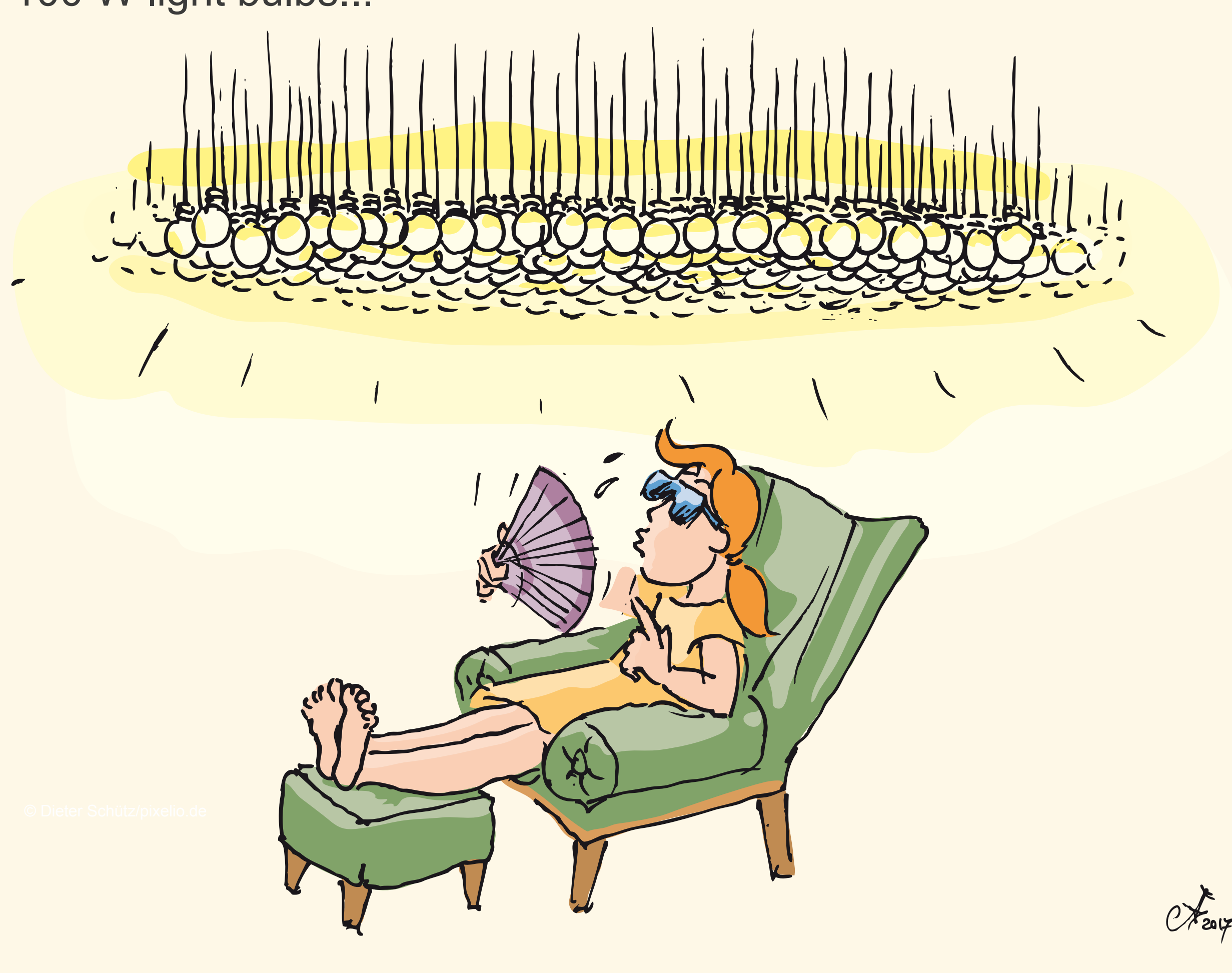


Collecting and storing solar heat



It is noon on a summer's day. The sun is shining with all its power and it's getting really hot. Here in Germany, we are talking about approximately 1000 watts per square meter (W/m^2). In a 25 m^2 lounge this corresponds to 250 bright and warm 100 W light bulbs...



Even on a clear winter day the sun manages 600 W/m^2 at noon. Anybody with a sun collector can use this energy to heat water for the radiator or the shower.

Long winter evenings

But of course the sun does not always shine this intensely. In the evenings it hangs low on the horizon, and often it is cloudy. Averaged over an entire year, only 120 W/m^2 reach the roof or the ground.

Warm water is needed at any time though. For a few days, a well-insulated tank in the cellar can maintain the warm water supply. But in winter, when the most energy is needed to keep the radiators running, the days are short and a lot less solar energy reaches us than in summer.

Solar heat as an exclusive heat supply?

Solar collectors that can meet the entire heat demand in winter as an exclusive energy source would have to cover a very large area. This is expensive, inefficient and not worth it. In the summer season, the system would generate much more hot water than one could use.



After the oil crisis in the late 1970s, young idealists created simple flat plate collectors. Several high-tech companies, still successful on the market today, emerged from such small start-ups.

The solar collectors are very worthwhile in a well-thought-out overall system, for example to save on fossil fuel to power the radiator, as one component of a passive house or in combination with a geothermal energy probe. The latter could even serve as a seasonal heat store.

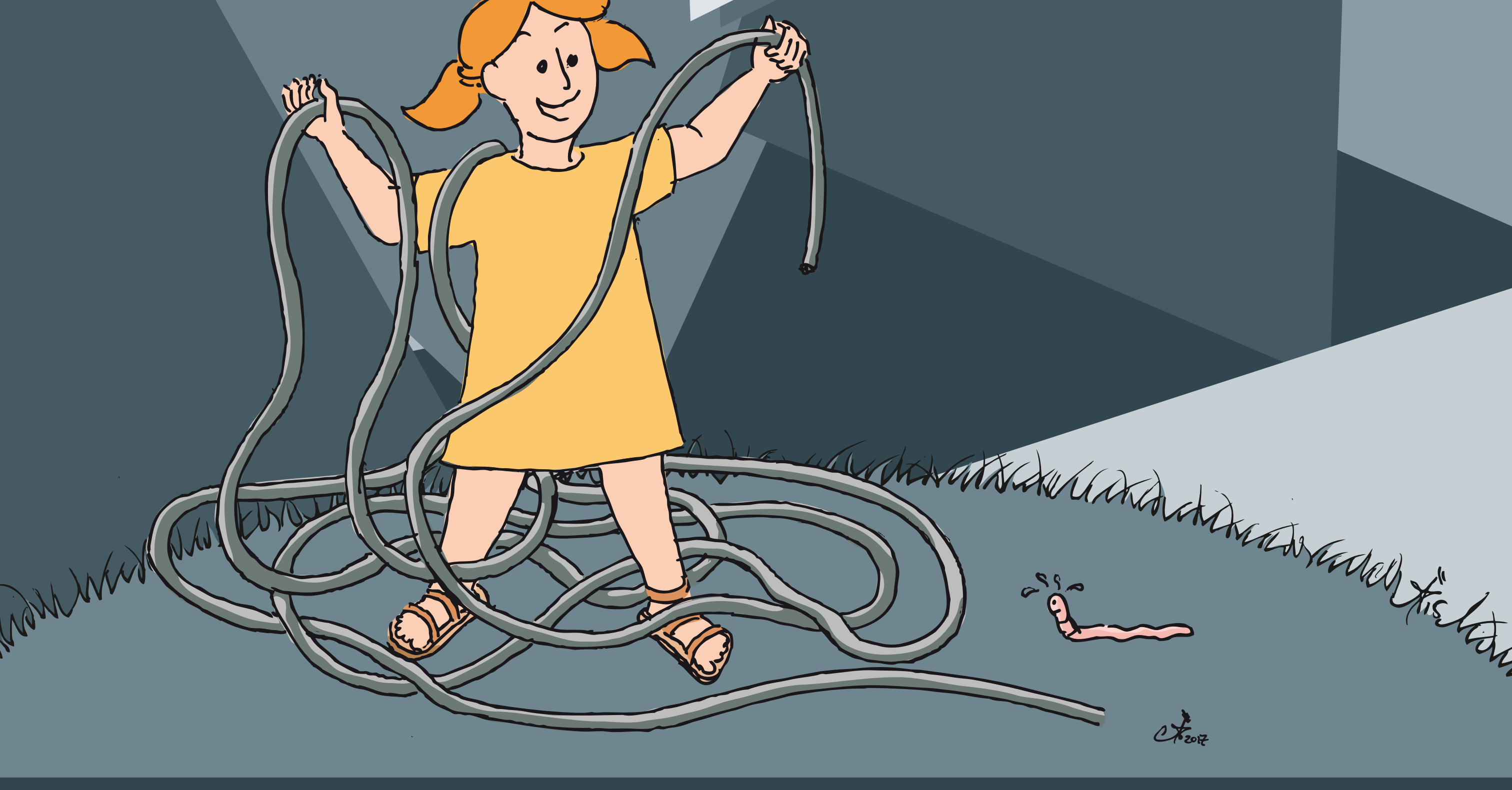
After a hot summer's day, a refreshing sprinkle from the hosepipe feels really good. But if the pipe has been lying in the sun all day, it will be a rather lukewarm shower at first.

By the way, a black hosepipe will heat up much quicker than a white one. But only if the sun is shining on it...

You can generate hot water for your home in the same way: with many pipes on the roof that are filled with water.

If the sun is shining brightly, you will have lots of warm water, which you can collect in a tank. But beware long cold or gray spells. You will either have to put up with a cold shower or find a different source to heat your water.

To fill my bath-tub, I need a very long hosepipe, in which the sun can heat the water.



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