

RESEARCH PEARLS | FEDU PEARL #7

In our series “Research Pearls” we are providing first-hand insights into our dynamic and powerful diaries research. In Pearl 5 we had a look at the most commonly used energy sources regarding lighting and cooking. In this edition we will highlight further results from the energy component of our research, more specifically on the reliability and availability of different energy sources.

Energy II

Reliability

In the baseline survey FEDU we investigated how reliable the various power sources (generator, grid, mini hydroelectric system/mini grid and solar) were. Generator has the highest combined percentage of respondents answering “good” and “excellent” reliability (combined almost 70%). Following with 60% is solar energy, mini grid with about 55%, and finally grid with almost 45%. Grid has a high percentage of “fair” reported reliability (30%), followed by mini grid and solar.

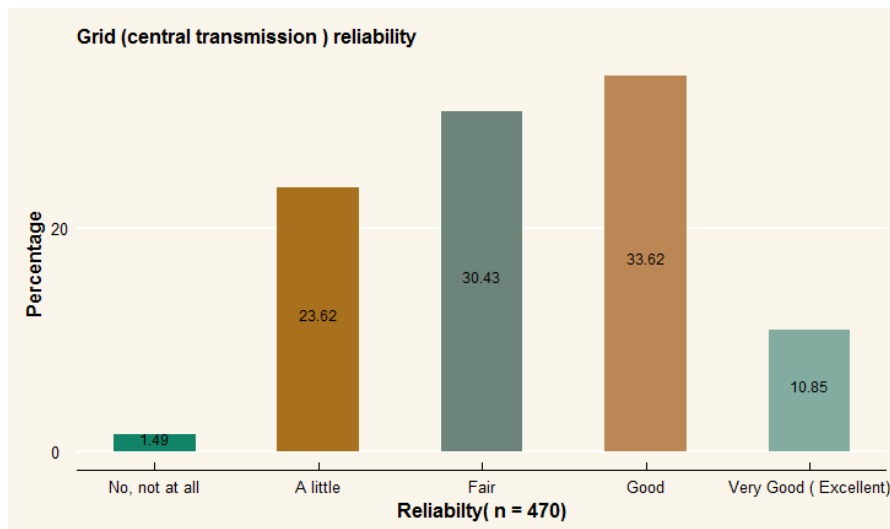


Figure 1: Reliability of grid

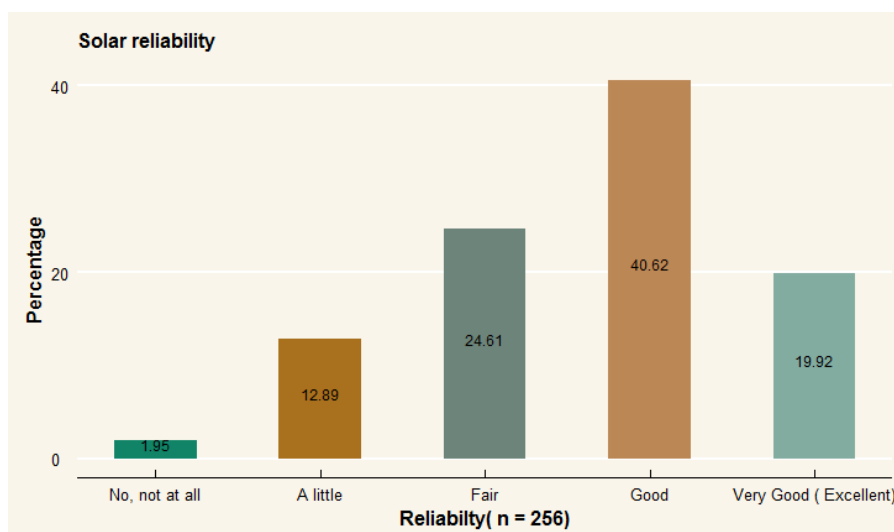


Figure 2: Reliability of solar

How many hours available of power

As seen in the graph below, grid has the highest percentage of population (more than 20%) reporting having between 16 – 24 hours of power a day. At the same time, grid has the highest percentage on not being sure about the hours of availability. Following, mini grid and solar both have similar responses (about 15%) of 16 – 24 hours, followed by a higher percentage of 11 – 15 hours of power a day. The fewest hours of power provided are reported on generator.

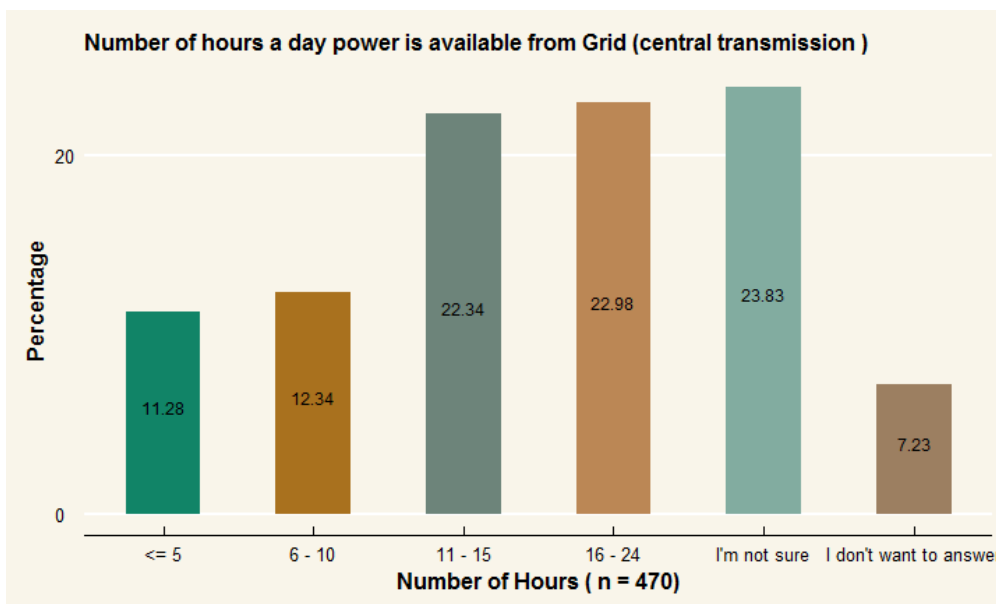


Figure 3: Availability of grid

Knowing with certainty the number of hours of availability

Respondents were asked if the certainty of hours of power supply from the different sources could be guessed. 60% of solar respondents reported that it could be guessed, followed closely by respondents with generator. In both the cases of grid and mini grid, most respondents answer that it cannot be guessed, more than 70%. The graphs for solar and grid are shown below.

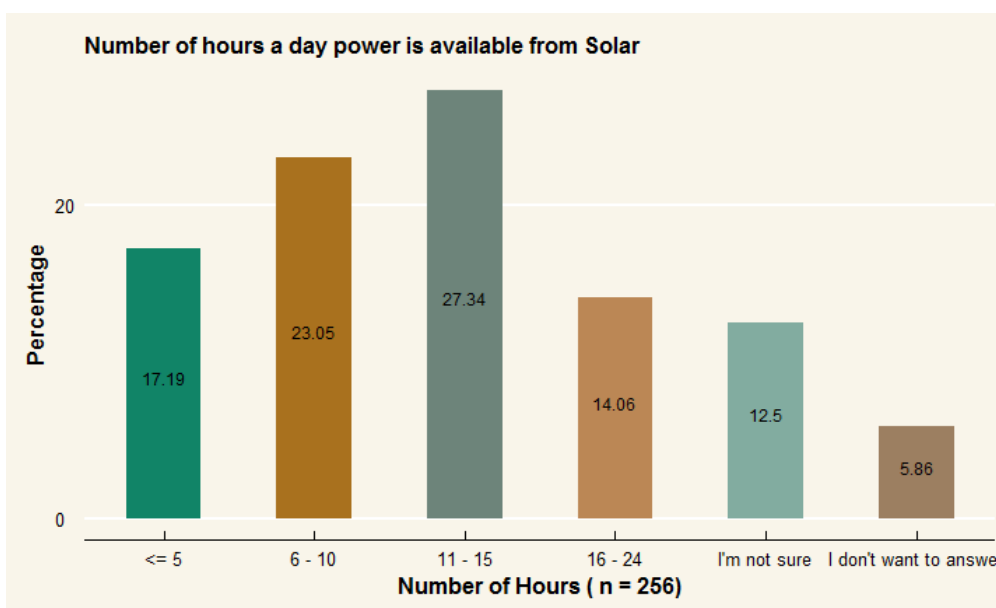


Figure 4: Power supply from solar

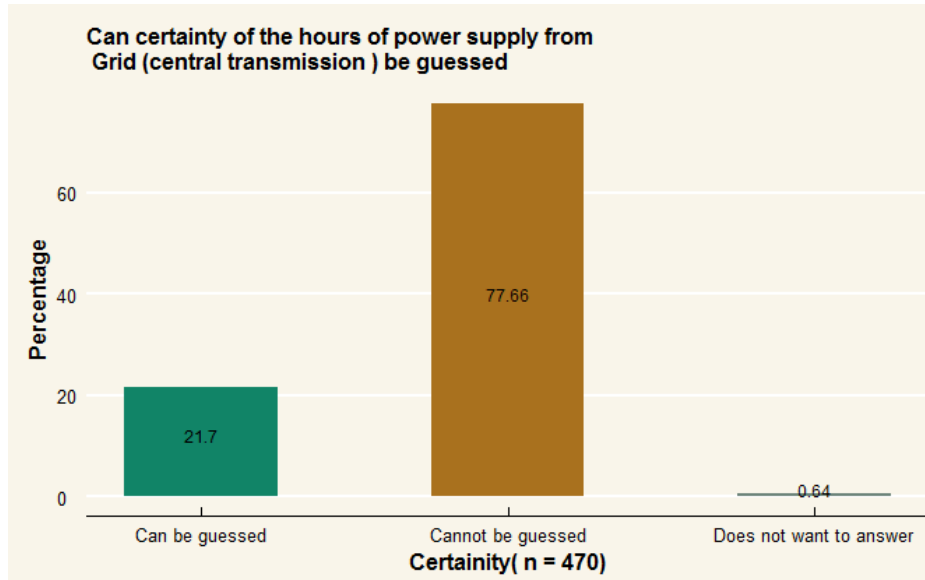


Figure 4: Power supply from grid

Time spent in darkness

When we asked the respondents if they spent any time in darkness the previous night against their will, both genders answered similarly: almost 25% of both answered that yes, they spent time in darkness the night before. There was no difference according to area of living. Respondents living in an urban or rural area answered similarly, each spending also almost 25% time in darkness against their will.

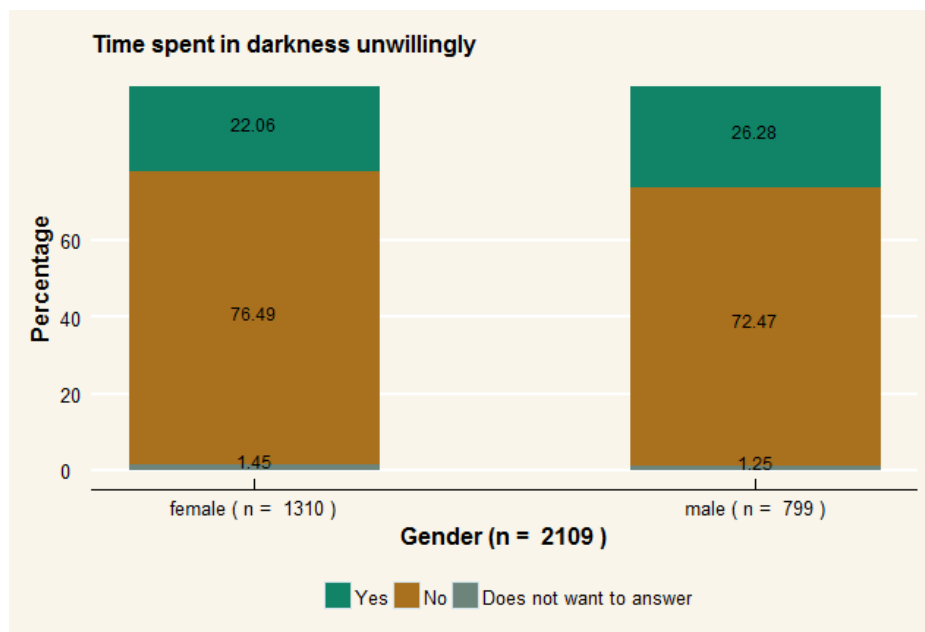


Figure 5: Time spent in darkness by gender

Finally, segmented by type of power connection, the highest percentage of respondents answering that they spent time in darkness were those connected to the generator (almost 40%), followed by both grid and mini grid (slightly more than 25%). Those respondents with solar spent least of their nights in darkness against their will

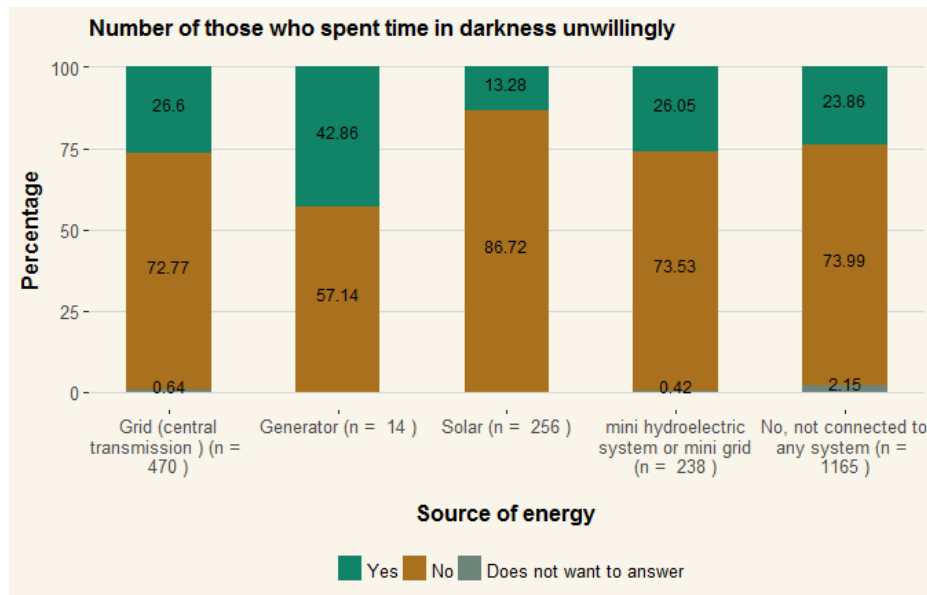


Figure 6: Time spent in darkness by energy source

Implications for service providers

These early findings on the different forms of energy sources provide the following important lessons for service providers:

- The grid in normal conditions provides the most hours of energy. However, the grid is considered least reliable, least likely to be predicted when there will be down time and those with grid are most likely to have spent time in darkness against their will the night before.
- All alternatives to the grid have a higher reliability, with generator getting the highest percentage of “good” and “excellent” reliability. On the other hand, the generator users reported least typical number of hours of energy per day.
- Altogether there is a trade-off between fewer hours and higher reliability of the energy source.

Service providers who offer alternatives to the grid may be able to use these findings to promote uptake of their services. Particularly the data on the amount of time people spend in darkness could be a convincing argument for people to adopt grid-alternatives.