

## 3.5 Billion People Lack Reliable Power

The UN's Sustainable Development Goal 7 commits the world to ending energy poverty by “ensuring access to affordable, reliable, sustainable, and modern energy for all by 2030.” The dominant measurement of progress against SDG7 is the access rate, which measures the number of people with basic household electricity. There is no accepted international indicator for reliability. A new approach by Ayaburi et al. (2020) help to fill this gap.<sup>1</sup>

### Measuring access to “reasonably reliable” electricity services

To estimate the number of people without access to reliable energy, we:

1. **Aggregate available country data** on reliability from the World Bank's *Doing Business* and *Enterprise Surveys*. These data provide national average measures of both the duration and frequency of outages.<sup>2</sup>
2. **Define a “reasonably reliable” threshold** at an annual average of no more than one outage or one hour of outage per month.

According to the 2019 SDG report, the number of people without household access to electricity fell from 1.2 billion in 2010 to 789 million in 2018. But with our metric above, we calculate that the number of people without access to reliable electricity services is over 3.5 billion.

**45%**  
OF THE WORLD LIVES  
WITHOUT RELIABLE  
POWER

### What does this mean for energy policy?

Because standard metrics do not cover the qualitative aspects of modern energy services, the true number of people worldwide that are not yet reaching the aspiration of SDG7 is up to four times greater than commonly reported. Countries like Ghana, Kenya, Bangladesh, and India are rapidly approaching universal electrification, but still suffer from unreliable power systems. To better adjust to this reality:

1. **The UN should explicitly add reliability indicators** to the next iteration of global development goals. This will better align energy with anti-poverty objectives.
2. **Emerging market governments should better track and invest more in electricity quality.** Policies should encourage investments in systems that can reliably and cost-effectively power industry and commerce in a competitive marketplace.
3. **Lending institutions should align their metrics more closely with how electricity contributes to economic growth.** In addition to counting new connections, institutions such as the World Bank, USAID's Power Africa, or Britain's CDC Group could add reliability (and cost) as explicit performance indicators.

<sup>1</sup> John Ayaburi, Morgan Bazilian, Jacob Kincer, Todd Moss. “Measuring ‘Reasonably Reliable’ access to electricity services.” *The Electricity Journal*, Volume 33, Issue 7, 2020, 106828, ISSN 1040-6190, <https://doi.org/10.1016/j.tej.2020.106828>.

<sup>2</sup> Using System Average Interruption Duration Index (SAIDI) or System Average Interruption Frequency Index (SAIFI) or a similar proxy.

FIGURE 1: Map of Countries with Reliable and Unreliable Electricity Services

