Tracking Access to Electricity

Why is this issue important?

Electrification yields significant social and economic returns

Access to electricity in flexible, reliable, and sustainable forms brings a range of social and economic benefits, enabling people to leap from poverty to a better future, enhancing the quality of household life, and stimulating the broader economy. Modern energy is essential for the provision of health care; clean water and sanitation; and reliable and efficient lighting, heating, cooking, mechanical power, transportation, and telecommunications.

Achieving universal access to modern energy services is one of the three complementary objectives of the Sustainable Energy for All (SE4ALL) initiative. Formally launched in the UN General Assembly in September 2012 and co-chaired by the president of the World Bank Group and the UN Secretary-General, SE4ALL calls governments, businesses, and civil society to address urgent energy challenges by 2030 (SE4ALL 2012).

To support the achievement of these goals, a starting point must be set, indicators developed, and a framework established to track those indicators until 2030. The World Bank and International Energy Agency have led a consortium of 15 international agencies to produce data on access to electricity for the SE4ALL Global Tracking Framework. Launched in 2013, the framework defines electricity access as the presence of an electricity connection in the household as typically reported through household surveys. The report is underpinned by several databases, including the World Bank Electrification Database (box 1).

THE BOTTOM LINE

Between 1990 and 2010, 1.7 billion people gained access to electricity, while the global population expanded by 1.6 billion. Most of the incremental electrification occurred in urban areas. Regionally, Sub-Saharan Africa was an exception. There, growth in the electrified population was slower than growth in population. Worldwide, 1.2 billion people—17 percent of the global population—still lacked access to electricity in 2010. About 85 percent of those without access live in rural areas; 87 percent are found in Sub-Saharan Africa and Southern Asia.

Box 1. Assembling the data on access to electricity

Various household sources were leveraged to establish a historical series of data on electrification in 212 countries between 1990 and 2010. Data were collected from various sources and nationally representative household surveys (including national censuses). Survey sources included Demographic and Health Surveys (DHS) and Living Standards Measurement Surveys (LSMS), Multi-Indicator Cluster Surveys (MICS), the World Health Survey (WHS), other nationally developed and implemented surveys, and data from various government agencies (for example, ministries of energy and utilities)—all captured in the World Bank Global Electrification Database. While utility data are a valuable complement to household survey data, they provide a different (supply side) perspective on access and cannot be expected to yield the same results as demand-side data. In particular, utility data may fail to capture (i) highly decentralized forms of electrification in rural areas and (ii) illegal access to electricity in urban areas.

Surveys such as the DHS and the LSMS/income-expenditure surveys are typically conducted every 3–4 years, whereas most censuses are held every 10 years. Thus, some countries have gaps in available data in any given year. There are 42 countries with no data points; for those countries, the weighted regional average was used as an estimate for access to electricity in each of the data periods. For the 170 countries with between one and three data points, missing data were estimated using a model with region, country, and time variables.
What is the current level of access?

**Three-quarters of the global access deficit was located in 20 countries in 2010**

In 2010, 1.2 billion people—17 percent of the global population—still lacked access to electricity. About 85 percent of those without access to electricity live in rural areas; 87 percent are found in Sub-Saharan Africa and Southern Asia (figure 1).

Sub-Saharan Africa and Oceania are the only world regions where most of the population remains nonelectrified. Urban areas have achieved more than a 90 percent electrification rate in every region except Sub-Saharan Africa (63 percent of the urban population) and Oceania (65 percent). Rural areas have achieved more than 60 percent electrification in all regions except these two, where only 14 percent of the rural population is electrified. Thus, the electrification challenge remains concentrated in rural areas and in Sub-Saharan Africa and Oceania.

The top 20 countries with the greatest access deficits measured in absolute terms are home to 889 million people who lack access to electricity (figure 2a), more than two-thirds of the global total. Eight

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**Figure 1.** The electricity access deficit in 2010 (in millions)

- **With access, 5.7 billion, 83%**
- **Without access, 1.17 billion, 17%**
- **SSA 590**
- **Other 157**
- **SA 418**
- **Urban 173**
- **Rural 993**


**Note:** The regional groupings used in this figure, and in the note generally, are those used by the United Nations: Australia and New Zealand are included in the developed countries group (and not in Oceania); CCA = Caucasus and Central Asia; DEV = industrialized world; EA = Eastern Asia; LAC = Latin America and the Caribbean; NA = Northern Africa; SEA = Southeastern Asia; SA = Southern Asia; SSA = Sub-Saharan Africa; WA = Western Asia.

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**Figure 2a.** Top 20 access-deficit countries: home to 889 million of the 1.2 billion people in the world who lack access to electricity

- **India** 306.2
- **Nigeria** 28.5
- **Bangladesh** 19.9
- **Ethiopia** 18.5
- **Congo, DR** 18.0
- **Tanzania** 17.8
- **Kenya** 17.6
- **Sudan** 15.6
- **Uganda** 15.0
- **Myanmar** 14.3
- **Afghanistan** 14.1
- **Korea DPR** 14.0
- **Madagascar** 13.6
- **Pakistan** 13.2
- **Mozambique** 12.1
- **Afghanistan** 10.8
- **Democratic People’s Republic of Korea** 9.3
- **Uganda** 9.2
- **Burkina Faso** 8.7
- **Democratic People’s Republic of Korea** 8.5


**Figure 2b.** The 20 countries with the lowest rates of access to electricity

- **Zambia** 18.5
- **Mauritania** 18.2
- **Lesotho** 16.2
- **Mali** 15.2
- **Congo, DR** 15.0
- **Mozambique** 14.8
- **Tanzania** 14.6
- **Uganda** 14.5
- **PNG** 14.3
- **Madagascar** 13.1
- **Burkina Faso** 12.1
- **Sierra Leone** 10.8
- **Rwanda** 9.5
- **CAR** 8.9
- **Niger** 7.3
- **Malawi** 6.7
- **Burundi** 6.0
- **Liberia** 4.1
- **Chad** 3.5
- **South Sudan** 1.5


**Note:** Congo, DR = Democratic Republic of Congo; Korea, DPR = Democratic People’s Republic of Korea; PNG = Papua New Guinea; CAR = Central African Republic.
are in Asia and twelve in Africa. India’s share is the largest—India’s nonelectrified population is equivalent to the total population of the United States. Of the 20 countries with the lowest electrification rates, 19 are in Sub-Saharan Africa (figure 2b). Moreover, half of the globe’s rural dwellers without access to electricity are found in Sub-Saharan Africa. Across the subcontinent, 28 countries have access rates of less than 30 percent. In seven, the rate is lower than 10 percent.

How has access evolved historically?

Growth in access to electricity has slightly exceeded population growth

The share of the global population with access to electricity rose from 76 percent (3.9 billion people) in 1990 to approximately 83 percent (5.7 billion people) in 2010. Southern Asia and Southeast Asia all witnessed dramatic progress, registering increases of 24 and 17 percentage points, respectively, over the two decades. Sub-Saharan Africa followed far behind, with an increase from 23 to 32 percent during the same period (table 1).

Although the absolute number of people with access to electricity increased by 1.7 billion between 1990 and 2010, the global population grew by 1.6 billion, holding back the increase in the share of the population with access, which rose from 76 to 83 percent during the period.

Most of the incremental electrification over the period 1990–2010 occurred in urban areas, where electrification grew by 1.7 percent of the population annually, about twice the rate in rural areas (0.8). However, even with this significant expansion, electrification only just kept pace with rapid urbanization, so that the overall urban electrification rate remained relatively stable, growing from 94 to 95 percent over the period. By contrast, more modest growth in rural populations allowed the rural electrification rate to increase more steeply, from 61 to 70 percent, despite a much lower overall level of electrification in the rural space (figure 3).

The 20 countries that made the most progress between 1990 and 2010 provided electricity to an additional 1.3 billion people. India made particularly rapid progress, electrifying an average of 24 million people annually since 1990, with an annual growth rate of 1.9 percent. The global annual average increase in access was 1.3 percent (figure 4). However, even among the fastest-moving countries, none has been able to increase electrification by more than about three percentage points of the population each year.

What will access look like in 2030?

Population growth and urbanization will continue to shape the evolution of access to electricity

The future is increasingly urban. The world population is expected to increase by 2.3 billion between 2011 and 2050, reaching 9 billion in 2050. By then, about 6.3 billion people will live in urban areas. The rural population is expected to start slowing in about a decade, and by 2030 there will be fewer people living in rural areas than today. The urban populations of Asia and Africa will increase dramatically—by 1.6 billion and 0.9 billion, respectively (UN 2011). As a result, it will become increasingly important to support urban electrification with new and innovative solutions.

**Table 1. Rate of electrification, by region, 1990–2010**

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<th>Region</th>
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<th>2010</th>
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“Although the absolute number of people with access to electricity increased by 1.7 billion between 1990 and 2010, the global population grew by 1.6 billion, holding back the increase in the share of the population with access.”

Figure 3. Global and regional progress in access to electricity, 1990–2010


Note: SA = Southern Asia; EA = East Asia; DEV = Industrialized world; SSA = Sub-Saharan Africa; SEA = Southeast Asia; LAC = Latin America and Caribbean; WA = Western Asia; NA = Northern Africa; CCA = Caucasus and Central Asia.

Figure 4. The 20 countries with the greatest annual increases in access to electricity, 1990–2010

The number of people lacking access to electricity around the world will decline to just over 990 million in 2030, around 12 percent of the global population at that time under the assumptions of the IEA New Policies Scenario, which anticipates the continuation and implementation of currently announced policies. About 1.7 billion people will gain access to electricity by 2030, but that achievement will be diluted, to a large extent, by global population growth (figure 5). Whereas urban residents without electricity will be a very small proportion of the total urban population in 2030, rural electrification is likely to proceed much more slowly. Access to electricity will improve in relative terms in all regions except Sub-Saharan Africa, where the current trend will worsen over time. Sub-Saharan Africa is projected to overtake developing Asia in a few years as the region with the largest population without access to electricity.

**References**


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