



Energy for All

Asia's Night Skies Reveal Growth and Gaps in Electrification

Eight hundred million people in Asia and the Pacific have no access to modern electricity. Though rapid development has lit up cities and industrial centers, many areas still remain in the dark.



The following images compare and contrast night sky views of Asia and the Pacific from 1992 and 2009—a 17-year span. As modern energy powers development and economic growth, the expansion of brightly lit areas and the increased brightness of existing areas show how access to electricity has increased across Asia and the Pacific. Conversely, there are areas that remain dark, despite the fact that they contain substantial populations.



1992 2009

Central and West Asia
The eastern cities of Pakistan—notably the Islamabad–Lahore area—are brighter, but the country’s western portion remains dark. Nearly 70 million Pakistan people have no access to electricity. Afghanistan, riven by years of conflict, has the subregion’s lowest electrification rate of about 15%. Other countries in the region face deteriorating quality of electricity services, as aged infrastructure reaches its limits.



1992 2009

East Asia
The People’s Republic of China is Asia’s economic powerhouse. Massive investments in energy infrastructure have lit up the entire eastern seaboard, most impressively from Beijing to Shanghai. At 99.4% electrification, the government’s focus is now on last mile connections in the rural interior. Mongolia may be sparsely populated, but Ulaanbaatar, the capital, is dim.



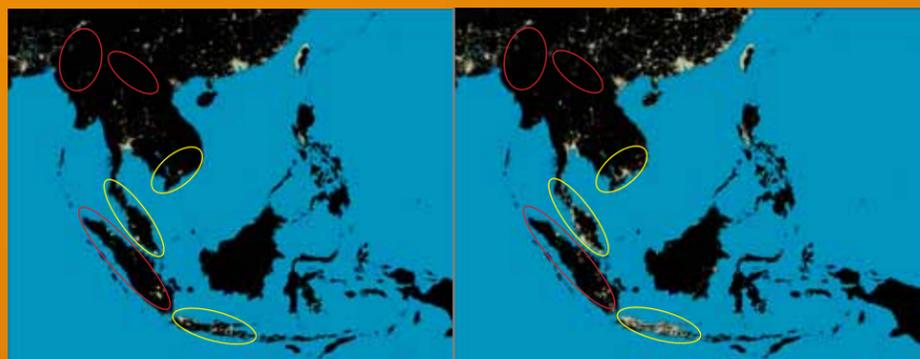
1992 2009

South Asia
In the upper left, New Delhi marks the brightest part of this map, while the growth of India’s coastal cities is clear. Yet South Asia is home to 42% of the world’s energy poor, with over 400 million people in India and over 90 million people in Bangladesh having no access to electricity. The dark area in the upper right would be Nepal and Bhutan, where electricity grids are limited by the rugged landscape.



1992 2009

Pacific
The Pacific region has low population density, yet the lights of few major cities are visible, and entire areas, most notably Papua New Guinea (7% electrification), remain dark. The United Nations Development Program estimates that the entire Pacific subregion has an electrification rate of only 19%. With a population scattered across islands, the Pacific is one area where innovative off-grid energy solutions would greatly benefit human development.



1992 2009

Southeast Asia
Southeast Asia’s cities show impressive growth. Malaysia is nearing 100% electrification. Yet in neighboring Indonesia, 80 million people have no access to electricity and Sumatra remains relatively dark. Viet Nam (95% electrified) shows remarkable progress, in contrast with Cambodia (24% electrified) and Lao People’s Democratic Republic (55% electrified). The Philippines (90% electrified) is another country which must make an effort to extend electricity to rural areas.

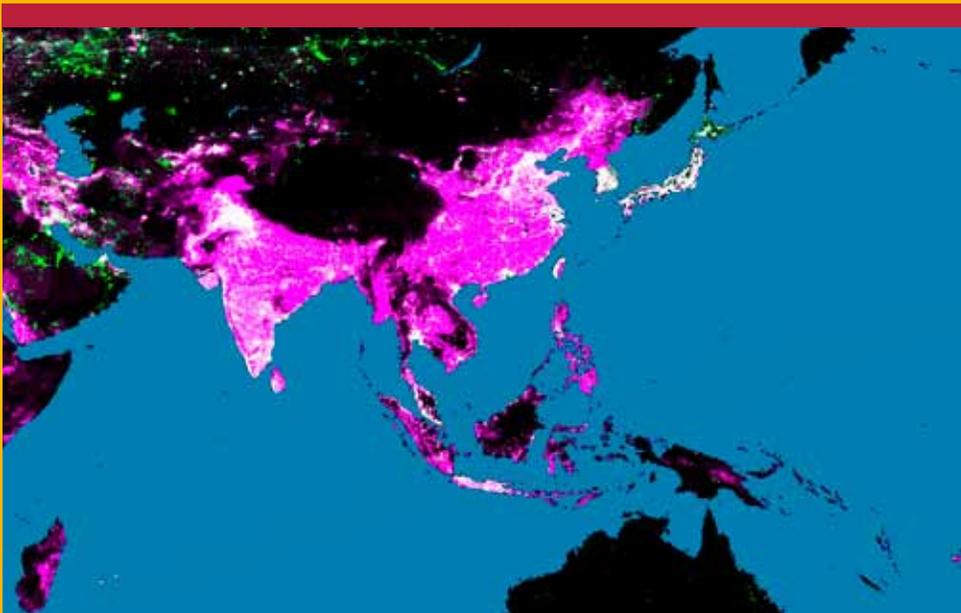
The International Energy Agency has stated that an individual’s access to electricity is one of the most clear and undistorted indications of a country’s energy poverty status (IEA, 2010). While its economic growth over the past few decades has been truly impressive, Asia remains energy poor. Addressing this energy poverty must be a priority if Asia and the Pacific seek an inclusive, equitable future.

The Energy for All Initiative of the Asian Development Bank (ADB), formed to combat energy poverty in Asia and the Pacific, is the expression of ADB’s policy to ensure access to energy for all, especially the rural poor.

Modern energy makes development possible, creates opportunity, supports new livelihoods and education, allows for modern health services, and empowers women by freeing them of the time-intensive work of securing a household’s energy supply.

Energy for All supports greater energy access, through grid extensions and off-grid solutions for communities that are too remote or distant to be connected to the national grid. Renewable energy systems have proven to be among the most effective off-grid energy solutions—allowing communities to tap local resources (solar, hydro, or wind)—to power their progress.

Areas highlighted in **YELLOW** mark an improvement. Those in **RED** need further development.



Asian levels of night brightness compared to population density (2005)

- White:** Large population density, bright night light
- Pink:** Large population density, dark night light
- Green:** Small population density, bright night light
- Black:** Small population density, dark night light

The image above illustrates the global energy access situation in Asia and the Pacific by comparing population to brightness. It shows that much of the region is still dark (see pink area). However, large-scale efforts to combat energy poverty are underway, and the United Nations (UN) Secretary General has declared 2012 to be the Year of Sustainable Energy for All. A global campaign for universal energy access,

coordinated by UN agencies, seeks to take significant steps to end energy poverty by working with governments, the private sector, communities, and other stakeholders to provide reliable, affordable, modern energy to the billions who still need it. ADB, through its Energy for All Partnership—the regional scale approach of the Energy for All Initiative—is involved with the campaign.

Credits

Night view images: Image and data processing by the United States National Oceanic and Atmospheric Administration's National Geophysical Data Center. Defense Meteorological Satellite Program data collected by the United States Air Force Weather Agency.

Population density grid: Center for International Earth Science Information Network (CIESIN), Columbia University; and Centro Internacional de Agricultura Tropical (CIAT). 2005. Gridded Population of the World Version 3 (GPWv3): Population Density Grids. Palisades, NY: Socioeconomic Data and Applications Center (SEDAC), Columbia University. Available online at <http://sedac.ciesin.columbia.edu/gpw/> (accessed on September 2011).

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Space Technology to Assist Sustainable Development

ADB promotes the use of space technology applications to enhance the effectiveness of development activities. For example, ADB supports the use of satellite imagery in Indonesia to monitor the secular change of land use, and the use of precipitation and geographic data from satellites in Bangladesh and Viet Nam to improve flood prediction.

This flyer was made with the night views taken by the United States Defense Meteorological Satellite Program satellites, whose Operational Linescan System has a unique capability to detect low levels of visible and near infrared radiance at night, to remove clouds with its thermal infrared band data.

