

Toward a world where everyone can use affordable, reliable and sustainable electricity

We aim to realize a society in which all people have stable access to affordable, clean energy and resources and can lead affluent lives.

JICA will build a sustainable electric utility system to reduce power outages that threaten the lives and populations without access to electricity, and to provide electricity at a price that everyone can afford. Furthermore, to address climate change, JICA will contribute to sustainable energy use and proper management of mineral resources in partner countries.



What are the "energy and mining" challenges facing the world?

A significant number of people in developing countries still do not have access to electricity

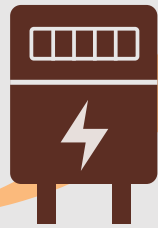
Although the global population electrification rate has improved from 83% in 2010 to 90% in 2019, about 750 million people still lack access to electricity, mainly in sub-Saharan Africa, which is located south of the Sahara Desert. Another 3.5 billion people, or about half of the world's population, are said to suffer from unstable electricity supply, including power outages.

In recent years, the increasing use of renewable energy sources such as solar power generation, whose output fluctuates with the weather, has led to an increasing instability in the power supply. Without access to stable and affordable electricity, the provision of quality educational and medical services and the development of commerce, industry, agriculture, and other industries will be greatly hindered.

Global energy consumption estimated to

double

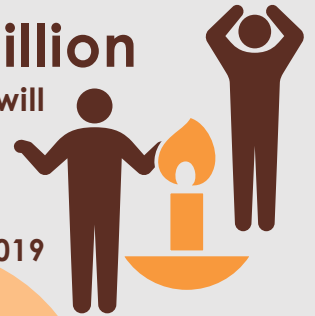
by 2050



Decarbonization
requires **\$5 trillion**
in energy-related
investments annually

Nearly **800 million** people worldwide will not have access

to electricity as of 2019



About half of the world's population suffers from **unstable** power supply, including **blackout**

About 70% of greenhouse gases that cause climate change come from human energy use

At the 2021 Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26), it was agreed to pursue "efforts to limit the temperature increase to 1.5°C above pre-industrial levels" under the Paris Agreement. However, about 70% of the current emissions come from energy use, and the demand for cheap and stable energy is expected to increase in the developing countries as their social and economic development progresses in the future. It is a big challenge to meet the demand without increasing greenhouse gas (GHG) emissions.

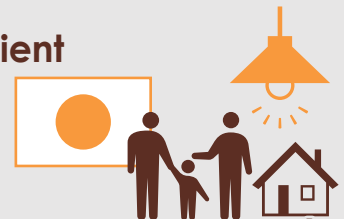
In addition, technologies essential for carbon neutrality require mineral resources such as critical minerals, and it is important to ensure a stable supply of these resources to the global market.

Why do Japan and JICA work on the issue?

JICA will contribute to the realization of stable and efficient energy supply and carbon neutrality by leveraging the expertise of the public and private sectors

Despite Japan's complex geography with many mountainous regions and islands, the private sector has promoted the development of electric power system, and from early on, achieved a 100% household electrification rate and a high-quality electric power supply with few power outages. The public and private sectors have been working together to ensure

energy security and energy efficiency promotion after the oil shocks in 1970s. For this reason, Japan has a wealth of policy and technical expertise regarding the stable and efficient supply of resources and energy. JICA will contribute to the realization of carbon neutrality in the world through further technological innovation and its diffusion.



Average annual power outage time in Japan is only about **20 minutes**

(one the least among the OECD countries)

Approach 1

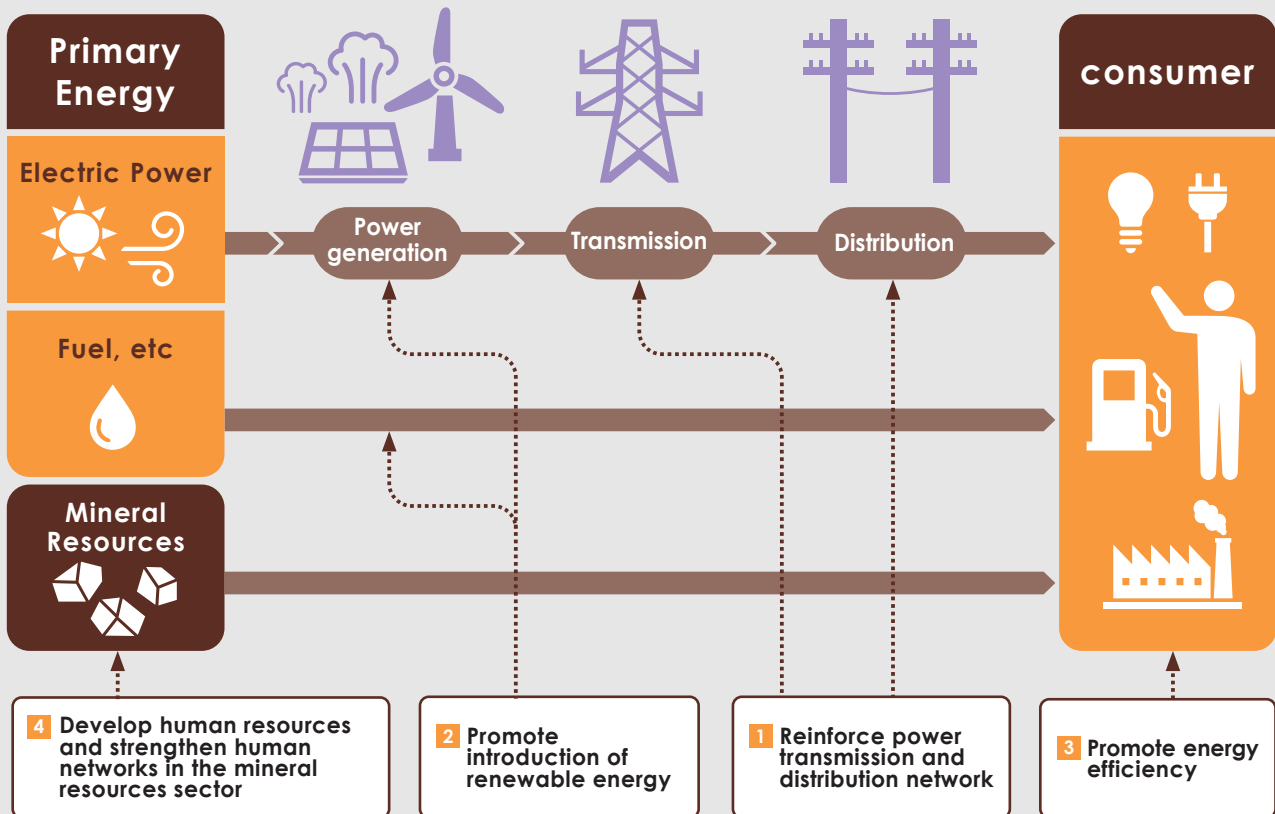
Strengthening the Electricity Transmission and Distribution Network

In the power generation sector of the electric utility system, privately financed facility expansion, especially the introduction of intermittent renewable energy sources, is spreading. In order to eliminate the un-electrified population and ensure a stable supply of electricity to consumers, transmission and distribution companies are required to properly operate and maintain their facilities and promote capital investment. To this end, JICA supports the establishment of a fair and transparent business environment which enables the utilities to make necessary investments in a sustainable manner. JICA also provides technical assistance for improving the utilities' operation and maintenance practice, and financial assistance for priority infrastructure development.

Approach 2

Promoting introduction of renewable energy

JICA supports partner countries in formulating long-term energy plans that aim for carbon neutrality while taking energy security and economic efficiency into consideration. JICA will facilitate decarbonization by promoting the introduction of renewable energy sources, such as solar, wind, and geothermal power generation, through public and private sector financing. JICA will also work on improving the policy and institutional environment in order to facilitate clean energy investments. Promotion of innovation in new technologies such as hydrogen and ammonia are another important areas of cooperation in view of achieving carbon neutrality by the middle of this century.



Approach 3

Promoting energy efficiency

By increasing the efficiency of energy use, JICA supports our partner countries' efforts to suppress drastic increases of energy demands due to their rapid economic growths. In particular, JICA focuses on improving energy efficiency in the industry sector which consumes relatively large amounts of energy. Along with the promotion of the introduction of renewable energy (Cooperation Policy 2), this Cooperation Policy is imperative for lowering and decarbonizing energy use.

Approach 4

Developing human resources and strengthening human networks in the mineral resources sector

Demand for critical minerals and other resources is expected to grow rapidly as the introduction of renewable energy expands. JICA will work on human resource development and network enhancement ("KIZUNA" program) so that countries with those mineral resources can realize high quality growth and stable supply of mineral resources to the global market through sustainable management of their own resources.

1 Supporting geothermal resource development in the Great Rift Valley of Eastern Africa

Geothermal power generation is a renewable energy source that provides a clean and stable supply of electricity. Kenya is blessed with abundant geothermal resources and has been developing geothermal resources since the 1980s, and currently more than 40% of the country's total electricity is generated from geothermal power. JICA's concessional loan assistance contributes to construction of about the half of the current capacity of geothermal power plants. JICA also has been working to develop human resources so that they can further promote the development of geothermal resources on their own. JICA is also supporting the development of geothermal resources in neighboring countries such as Djibouti and Ethiopia.



2 Supporting Pacific island countries with 100% renewable energy target

Many of the island countries scattered across the Pacific Ocean are not blessed with fossil fuel resources and have been importing diesel fuel from overseas to meet their electricity demands. The Pacific Island countries aim to accelerate introduction of renewable energy systems in order to reduce financial burdens of the fuel import and tackle the climate change. JICA has extended Grant Aid for the introduction of renewable energy systems, and also provides technical cooperation to ensure the stable power supply with increased share of intermittent renewable energy systems.

Working with Partners

Building a network between industry, academia, and government through human resource development under the "KIZUNA Program".

Launched in 2014 as a pioneer of JICA's international student program in collaboration with universities (Development Graduate School Collaboration), the "Kizuna Program" has accepted about 20 international students annually in the fields of mineral resources and geothermal energy to Japanese universities. While supporting personnel engaged in mining

administration and education/research institutions in resource-rich countries to obtain master's and doctoral degrees, JICA is working to engage Japanese public and private sectors in the respective fields through internships and special programs so that they can build strong networks ("KIZUNA") with these international students.



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Japan International Cooperation Agency (JICA) is an international cooperation organization that is centrally responsible for the implementation of bilateral assistance among Japan's Official Development Assistance. JICA cooperates with about 150 countries and regions around the world.

https://www.jica.go.jp/english/our_work/thematic_issues/index.html

What is JICA Global Agenda

JICA's cooperation strategies for global issues. JICA, with its partners, aims to show global impacts realizing the goals set under JICA Global Agenda. JICA Global Agenda and its goals will be shared among partner countries and various actors, enhancing dialogue and collaboration, therefore, maximizing the development impacts. Through these efforts, JICA will comprehensively contribute to the achievement of the SDGs by 2030 as well as realize Japan's Development Cooperation Charter which focus on "human security," "quality growth," and "addressing global challenges".

Cover Photo—People gather around fluorescent lights in a JICA-supported electrified house in Ghana
photo: JICA

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