

Environment

In this section, we discuss the relationship of Alibaba to the physical world in which we operate. We are serious about minimizing our carbon footprint and applying innovation to environmental sustainability challenges.



Environment

A clean environment is the earth's scarce resource. Even though we are not an industrial manufacturing company with a significant environmental footprint, we recognize that every company, no matter what business it is in, has a responsibility to minimize its environmental impact.

We are driving environmental sustainability by innovating in the highest impact areas of our business. All the initiatives we undertake in environmental sustainability are fundamentally connected to our core business practices and help inform our long-term strategies to make sure our businesses and systems adapt to the future.



Environment *continued*

One of the most visible environmental effects of technology companies is the power consumption of their hardware infrastructure. Because we have a substantial cloud computing service business, we are taking on the power consumption of other enterprises as well as our own. We employ energy-efficient technology and methods in our data centers, with a focus on minimizing our energy consumption.

We run an e-commerce business where tens of millions of packages are generated for delivery on our shopping platforms. Therefore, we are mindful of the environmental effect of paper and plastic packaging as well as the carbon footprint of transport systems in logistics.

We provide daily services to hundreds of millions of consumers, mostly through our mobile app platforms. Thus, we believe that we have a responsibility to bring environmental awareness to our customers through our vast reach.

INVESTING IN ENERGY-EFFICIENT DATA CENTERS AND SERVERS

To reduce our carbon footprint and conserve energy, we focus on making pioneering changes to our infrastructure and buildings. We have been focusing on making our data centers more environmentally-friendly by switching to cooling and water-efficient systems supported by intelligent management technology and the use of renewable energy.

Qiandao Lake Data Center

The Qiandao Lake Data Center adopts a state-of-the-art deep lake water cooling system which saves 300 million kWh of electricity and reduces CO₂ emissions by 300,000 tons per year compared to other conventional data centers. The technology lowers its annual average Power Usage Effectiveness (PUE) to as low as 1.17, considerably lower than many leading Chinese data center companies. The system also reduces the annual average Water Usage Efficiency (WUE) to reach 0.197, which is also below China's industry average.

Cooling system



300_M
kWh of electricity saved by lake water cooling system per year



300_{K TONS}
reduced CO₂ emissions per year

Zhangbei Data Center

Located in Hebei province, in a naturally cool region with great access to wind power, the Zhangbei Data Center is powered 100% by renewable energy including solar and wind. This increases the data center's energy efficiency by more than 4% while reducing construction and maintenance costs. The technology reduces the temperature of its servers, which keeps its average PUE at only 1.25 and reduces the energy consumption typically used for cooling by 59%.

Renewable energy



100%
powered by renewable energy



4%
increase in the data center's energy efficiency per year

Case study

Environment *continued*

LIQUID IMMERSION COOLING TECHNOLOGY FOR ITS SERVERS

Alibaba Group launched an immersion liquid cooling technology that further enhances the energy efficiency of its servers. Using non-conductive cryogenic liquid to achieve a cooling effect, this technology brings the PUE close to 1.0.

GREENING THE LOGISTICS SYSTEM

Cainiao Network, our logistics business, is working towards a goal of replacing 50% of all packaging materials on Alibaba-related platforms with 100% eco-friendly or biodegradable packaging materials. We launched a “green packaging” program and pushed it to our courier service partners. Under the program, bio-degradable bags, tape-free boxes and package recycling bins are used. Using a packaging optimization algorithm, Cainiao Network matches packaging needs based on a parcel’s mass and volume, which on average reduces the use of packaging materials by approximately 15%. This technology was applied in over 250 million delivery boxes and courier bags in the fiscal year ended March 2018.

We have also invested significant resources in green warehouses powered by solar panels, and using green energy vehicles.

The effect of our initiatives is far-reaching for the China logistics industry, as the Alibaba China retail marketplace platforms generate a majority of all parcel deliveries annually. With Cainiao Network as the central information system and coordinator of our large logistics ecosystem, we are able to effectively implement our green philosophy and goals under our “Green Logistics Alliance” to 32 partner companies including courier service providers, warehouse operators and trucking firms. In addition, Cainiao Network teamed up with 500 global brands, including Kiehl’s, Wrigley Company, Mondelez International and Colgate-Palmolive, to establish the “Green Brand Alliance” that commits to using “green packaging”.

We integrate green building features into our logistics parks by using energy-saving materials to reduce energy consumption and greenhouse gas emissions. In 2016, the energy savings rate of Alibaba’s logistics parks reached 10% due to our optimization of energy use, our use of more energy-efficient equipment, and our promotion of paperless invoice and tracking systems.

Cainiao Network is in the process of building green logistics parks powered by solar energy which will avoid more than 1 million tons of carbon emissions annually.



Environment *continued*

Case
study



55_M

Trees planted on behalf
of Ant Financial's users

350_M

Users participated

Ant Forest

Through the Alipay mobile payment app operated by our affiliate Ant Financial, users can collect “green energy points” through low-carbon options in their daily lives such as using e-payments instead of paper invoices and choosing public transportation, biking or walking instead of driving to reduce vehicle emissions. These “green energy power points” can be donated by users toward planting of trees in Northwest China. Users can track the progress real-time using

their apps and share their progress via social media. Tapping into our digital platforms, we have created social games and features around the consciousness of carbon awareness for users, making tracking, sharing and contributing to a low-carbon lifestyle a part of people's daily lives. As of May 2018, 55 million trees have been planted on behalf of Ant Financial's users while 350 million users participated.