

# ILL WIND

The climate crisis has created a necessity for renewable energy, but the boom of wind turbines has come at the well documented and ignored expense of wild balsa forests and Indigenous communities in Ecuador. While the majority of balsa is exported to China, the U.S. market and companies like GE Vernova are also complicit in the violation of Indigenous rights and the degradation of Ecuador's ecosystem due to sourcing practices.

## UNITED STATES

In addition to factories in China, EIA's investigation identified two additional major manufacturing sites for GE-branded wind blades serving the U.S. in Juárez, Mexico and Newton, Iowa.

## ECUADOR

Ecuador is the world's premier source and exporter of balsa. Its industry is highly decentralized, with hundreds of companies and informal players involved in the plantation and trade of this valuable species. The rush for balsa has led to exploitation of the Amazon rainforest region, resulting in a disproportionate footprint on pristine wild forest and violation of the rights of Indigenous peoples and local communities.

## PERU

According to EIA's investigation, many Ecuadorian plantation owners said they blend wild balsa from Peru into their own yields. The harvested logs are typically trafficked across the border to Ecuador, unchecked by customs agencies on either side, wreaking havoc on the Indigenous lands, such as the Wampis regions, where it grows.

# CHINA

China leads in annual new installation and accumulated total capacity of wind energy, absorbing over 75 percent of balsa exports from Ecuador. Any abrupt demand change originating from China will have a huge impact on Ecuador, such as the tripling of imports from 2019-2020.

# BALSA,

a rapidly growing tree species, is renowned for its lightweight, yet robust, nature. As the wind energy sector has begun to soar in recent decades, balsa has emerged as the preferred core material for wind turbine blades.

Wild balsa is often logged in Ecuador's Amazonian heartland, much of it spanning the territories of Indigenous communities, or smuggled from Peru.

Most balsa exported from Ecuador is in the form of blocks or panels.

These are processed into specific core structures known as "kits," tailored to meet the requirements of blade manufacturing clients, which are then assembled into wind blades at specialized factories.

The finished blades are typically transported separately to wind project sites, where they are attached to the rotor, nacelle, and tower to complete the wind turbines for power generation.

GE Renewable Energy has three blade factories in China. Trade records show that LM-China has shipped more than 1000 wind blade sets to GE's U.S. market between 2020 and 2022.

More than **90%** of global balsa wood production originates from Ecuador

## MIXED UP



Optimal density of the balsa element of the finished wind turbine falls between 120-150 kg/m<sup>3</sup>. According to EIA's investigation, the only way to achieve optimal density is by mixing balsa from Ecuador's plantations (usually capped at 100 kg/m<sup>3</sup>) and natural forests, often from Indigenous lands, in Ecuador and Peru. Multiple exporters corroborated this reliance on wild balsa to bridge the gap, with blending ratios oscillating between 50-50 to 70-30.