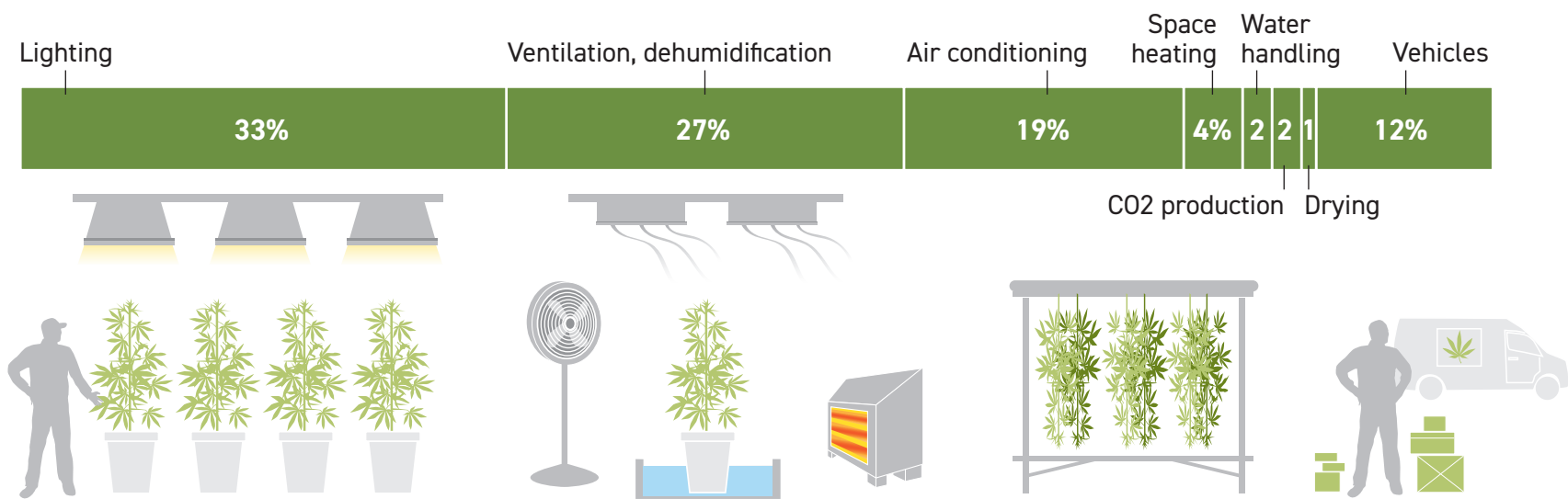


Indoor cannabis production’s big carbon footprint is difficult to measure

Because marijuana is banned under federal law, its cultivation can’t be regulated nor can its environmental effects be researched by the Environmental Protection Agency.

One estimate of the carbon footprint for indoor growing of cannabis found it can collectively consume 2,000 watts of electricity per square meter. Lettuce and other leafy greens, in comparison, need about 50 watts of electricity per square meter when grown indoors. The 2012 report by the Lawrence Berkeley National Laboratory, which is the most recent peer-reviewed data available, measured the energy required for an indoor grow operation’s equipment including grow lamps, fans, dehumidifiers, water purifiers, heaters and transport vehicles.

How those 2,000 watts per electricity per square meter break down



But the cannabis industry has grown a lot since 2012, and so has its carbon footprint. State-level legalization of medical and recreational marijuana use across the country has increased demand for electricity needed to cultivate it, especially among indoor operations.

A 2018 report by New Frontier Data looked at electricity-based carbon emissions of indoor, greenhouse and outdoor cannabis grow operations including lighting and systems that control temperature, humidity and ventilation.

Pounds of electricity-based carbon dioxide equivalent per gram of cannabis produced



Lawrence Berkeley National Laboratory methodology: Analysis is derived from a model of typical cannabis production and the associated energy use for cultivation and transportation based on market data and energy use simulations. Data sources include equipment manufacturer data, trade media, the open literature and interviews with horticultural equipment vendors.

New Frontier Data methodology: Total U.S. industry electricity-based carbon emissions were calculated by taking the total pounds of production required to support the demand in each state, allocating the pounds to each cultivation type, incorporating the electricity productivity for each cultivation type, adjusting by that state’s CO2e emissions factor and summing the values. Estimates do not include energy used for transportation, production of CO2 for carbon fertilization, production of extracts and derivatives or irrigation water production and treatment outside the facility.

Sources: Lawrence Berkeley National Laboratory report “The carbon footprint of cannabis production,” New Frontier Data “The 2018 Cannabis Energy Report,” POLITICO staff reports

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