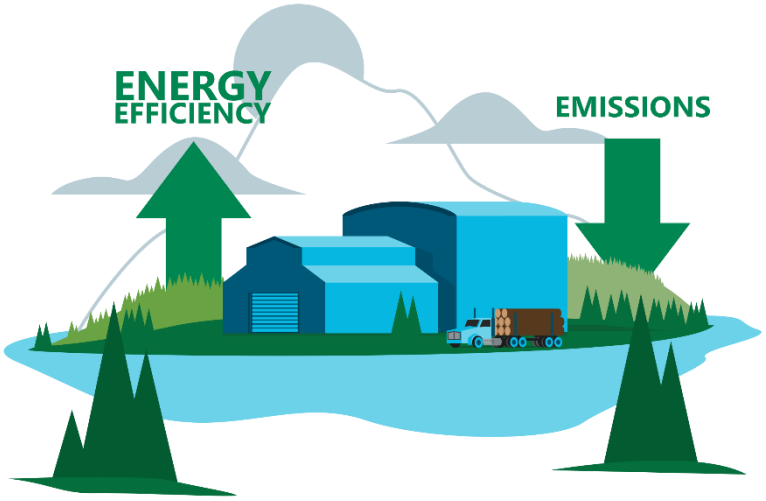
HOW WE DO IT: Energy Efficiency in Our Wood Products Business

Weyerhaeuser is one of the largest wood products manufacturers in North America, with 33 manufacturing and 21 distribution facilities spread across Canada and the United States that produce everything from dimensional lumber to panels and engineered wood products. Given the scale of our footprint, we understand the importance of carefully managing our energy usage and ensuring that we continually make efficiency improvements at every stage of production. That commitment includes our efforts to significantly cut our greenhouse gas emissions across our supply chain, and to pursue renewable energy sources whenever economically feasible. We view advancing energy efficiency in our operations as essential to our long-term success, and we will continue to explore and implement new technologies and strategies to minimize our environmental impact.



KEY POINTS

- **We set ambitious energy efficiency goals.**
  In partnership with the U.S. Department of Energy's Better Plants program, we've committed to a 10 percent improvement in our energy efficiency by 2030.

- **We set aggressive emissions-reduction goals.**
  In line with the Science Based Targets initiative[1] and the 2015 Paris Agreement to help limit global temperature increases to 1.5 degrees Celsius, by 2030, we will reduce our greenhouse gas emissions by 42 percent from a baseline year of 2020. Currently, our net climate impact is significantly carbon negative — we remove more than 3 times the amount of CO_2 than we emit in our operations each year[2] — and we are committed to deepening our impact.

- **We focus on process reliability as a primary lever to improve energy efficiency.**
  Our energy efficiency is a measure of how much energy we consume based on the amount of renewable products we produce. During a downtime incident, the machines are still running in some capacity even though no product is being produced while time is taken for removing obstructions from the production line or conducting breakdown repairs. By mitigating downtime incidents, we reduce the average energy needed for each unit of production.

- **We minimize energy waste in our operations.**
  From manufacturing to distribution, we focus on reducing energy waste throughout our operations, including by reducing wasted time or movement. For example, our distribution centers prioritize filling orders efficiently with the right, defect-free product every time, and we work to reduce gaps between logs being processed in our mills to ensure that machines are used as efficiently as possible.

[1] The Science Based Targets Initiative (SBTi) is a partnership between the CDP, the United Nations Global Compact, World Resources Institute and the World Wide Fund for Nature. The SBTi "drives ambitious climate action in the private sector by enabling organizations to set science-based emissions reduction targets." https://sciencebasedtargets.org/about-us

[2] https://www.weyerhaeuser.com/sustainability/printable-resources/#carbon-record

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KEY POINTS – *continued*

- **We educate and empower our people to pursue energy efficiency at every step.**
  By providing real-time feedback on energy use to our teams, they can identify opportunities for improvement and track the results. Seemingly small actions — such as finding and fixing air leaks, sharpening chipper knives to reduce motor amps, increasing the efficiency of forklift travel, or turning off equipment when not needed — can add up to create substantive reductions in energy use.

- **We utilize our on-site teams to proactively identify and make improvements.**
  By generating, developing and implementing ideas through CuttingEdge, our internal platform for advancing innovation, effective energy-saving strategies developed by local teams are shared and replicated companywide to increase their impact at other sites.

- **We ensure energy efficiency is built into equipment and process design.**
  We provide dedicated funding to invest in energy efficiency, and our energy strategy team reviews opportunities for capital projects, such as the replacement or modernization of large-scale machinery, to ensure that equipment updates balance improved production with increased reliability and efficient energy use. We understand that our biggest opportunity to influence the outcome of our manufacturing and distribution processes is at the design stage.

- **We leverage the expertise and resources of local utilities.**
  Whenever possible, we partner with local utilities to implement mutually beneficial energy-use upgrades. For example, we negotiated with a utility in Columbia Falls, Montana, to purchase renewable power. We have also taken advantage of local utility programs to upgrade lighting from incandescent to LED, install variable frequency drives and implement similar energy-efficiency improvements.

- **We pilot and deploy the latest proven technologies.**
  By evaluating and adopting innovative technologies,[3] we continue learning and remain at the forefront of energy efficient improvements. For example, we converted many of our batch kilns (used to remove moisture from lumber) to continuous drying kilns, which use 50 percent less energy.

RECENT RESULTS

- At our lumber mill in Millport, Alabama, we saw a 50 percent decrease in thermal energy use per thousand board feet of lumber after replacing two batch kilns with continuous drying kilns

- We received approval from the Canadian Federal Department of Environment and Climate Change to join Alberta's TIER (Technology Innovation and Emissions Reduction) program in 2021, which helps industry "find innovative ways to reduce emissions and invest in clean technology to stay competitive and save money." [4]

- Across our operational sites, staff have identified near-term energy efficiency and greenhouse gas emission reduction opportunities as part of their annual roadmap processes. These actions have been reviewed with management and are slated for implementation.

[3] We've implemented energy-saving technological updates both large and small. In addition to converting to continuous drying kilns and piloting non-heated wastewater evaporation units, we have also: converted incandescent bulbs to LED bulbs; installed motion sensors to turn on lights only when needed; converted hydraulic and pneumatic power to electric linear actuators; installed soft starts to electric motors; switched from v-belts to power bands; converted press roll infeed and outfeed positioning on curve gangs from air to hydraulic positioning and force control; piloted motors that use AC power to start and convert to DC power when needed for overall energy improvement; and much more.

[4] https://www.alberta.ca/technology-innovation-and-emissions-reduction-system.aspx

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FREQUENTLY ASKED QUESTIONS

How do you track energy use at your operations?

We have contracted a reputable third-party vendor to review, inspect for quality control, and convert the electricity and natural gas bills and consumption volumes from our sites into data for internal use. This process enables us to review high-level energy use trends, set appropriate benchmarks and goals, and identify location-specific energy-saving opportunities.

How do you track and report on the emissions from your operations

We report our yearly carbon emissions, removals, storage and future goals for reducing emissions in our *Carbon Record*.[5] We follow the Greenhouse Gas Protocol's Corporate Accounting and Reporting Standard and Corporate Value Chain Accounting and Reporting Standard, co-published by the World Resources Institute and World Business Council for Sustainable Development, to calculate our annual greenhouse gas emission inventory. We account for and report greenhouse gas emissions — direct (Scope 1), emissions from purchased energy (Scope 2) and value-chain emissions (Scope 3) — according to the equity-share approach. The complete methodology is available on our website.[6]

How do you set best practices for reductions in energy use?

In addition to setting internal benchmarks and sharing knowledge through our CuttingEdge innovation platform, we proactively engaged an external energy advisor to evaluate our company energy strategy. We also draw on resources and established best practices from the U.S. Department of Energy, refer to publications and studies produced by the National Council for Air and Stream Improvement,[7] and review technology improvements piloted or implemented by others in our industry.

Do you use renewable energy in your operations?

We meet more than two-thirds of the energy needs in our manufacturing facilities from renewable biomass by using harvest residuals from sustainably managed forests and mill by-products to create our own energy. This approach allows us to reduce our reliance on nonrenewable fossil fuels and purchased electricity, and we are looking for additional opportunities to utilize renewable energy at our operational sites.

How does Weyerhaeuser justify expenditures on energy improvements?

Energy improvement ideas are evaluated based on their alignment to our Wood Products strategy, energy strategy and site-specific improvements roadmap. Expenditures and investments are prioritized based on impact — operational and sustainability — and cost-effectiveness.

[5] https://www.weyerhaeuser.com/sustainability/printable-resources/#carbon-record
[6] https://wy.com/carbon-record/methodology
[7] https://www.ncasi.org/resource

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