



Northwest Pulp & Paper
ASSOCIATION

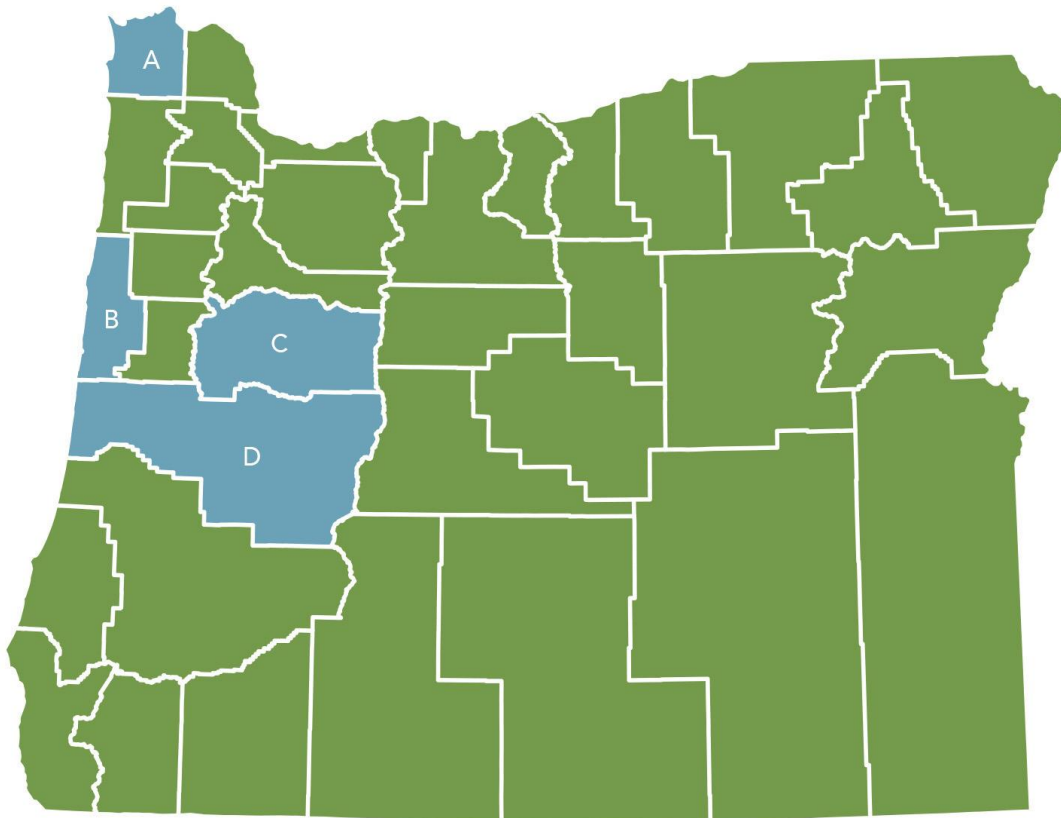
**Greenhouse Gas and Energy
Intensity/Trade Exposure (EITE)
Information for the Oregon
Pulp and Paper Sector**

Northwest Pulp & Paper Association

- 63 year-old regional trade association
- Represent 13 member companies and 16 mills in Oregon, Washington and Idaho
- Represent 3 companies and a total of 5 mills in Oregon
- Member mills produce over 8 millions tons of paper products each year
- Member mills provide approximately 10,000 predominantly union-backed, family wage jobs, paying an average of more than \$75,000/ year, plus benefits
- Oregon mills provide approximately 2000 of those jobs
- Member mills are located in economically stressed, rural communities and help sustain local economies by supporting 3 – 5 additional jobs for each mill job



Oregon pulp and paper mills are located in rural, forested parts of the state



A. CLATSOP COUNTY
Georgia Pacific employs 800 people in Wauna. It is the largest employer in Clatsop County.

B. LINCOLN COUNTY
Georgia Pacific is the largest employer in Lincoln County. The GP mill at Toledo employs 350 people.

C. LINN COUNTY
Georgia Pacific's mill in Halsey pays more than \$33 million annually in wages and benefits.

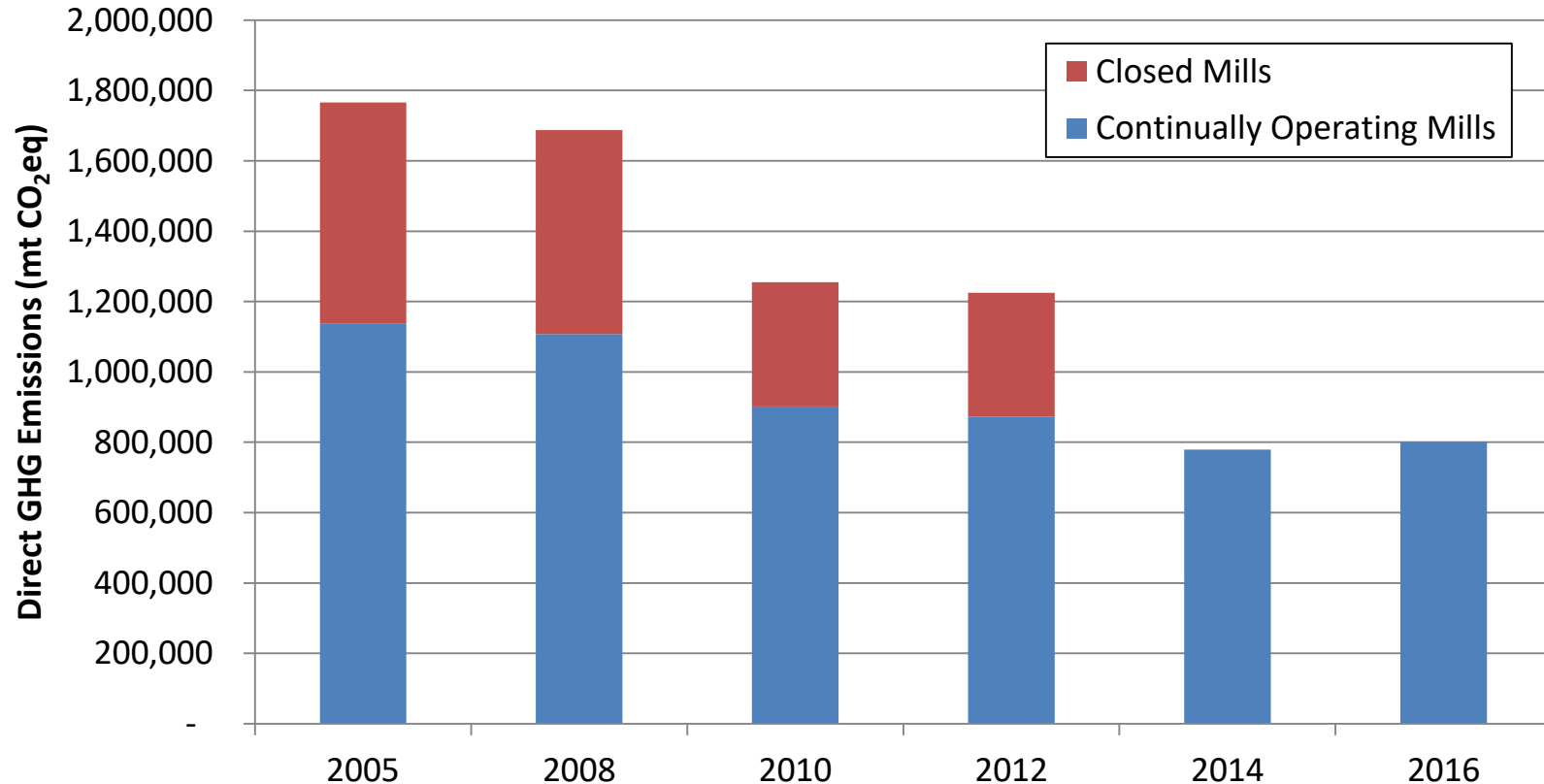
Cascade Pacific is one of the largest taxpayers in the county.

D. LANE COUNTY
International Paper is among the largest taxpayers in Lane County.



Direct GHG Emission Reductions for the Oregon Pulp and Paper Industry

Reduction of 55%

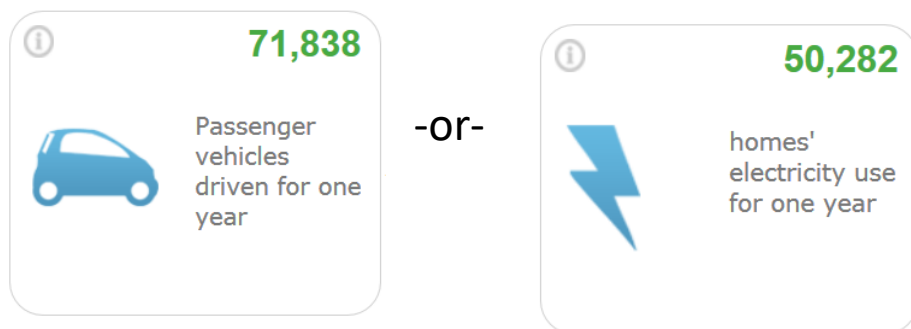


From: American Forest & Paper Association (AF&PA) Environmental, Health, and Safety (EHS) survey data and National Council for Air and Stream Improvement (NCASI) survey data

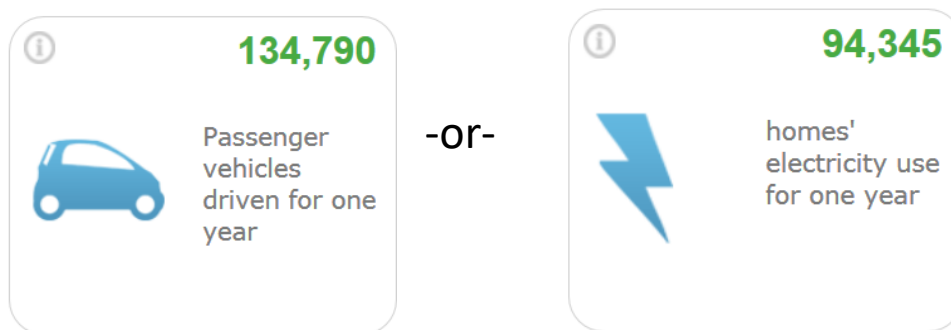


Direct GHG Emission Reductions for the Oregon Pulp and Paper Industry

- Approximately a million metric tons of reductions since 2005
- Reductions from continually operating mills equivalent to:



- Reductions from closed mills equivalent to:



Biomass, Combined Heat and Power and Hydropower

- Pulp and paper mills in Oregon utilize predominantly carbon-neutral, biomass-based CHP to efficiently generate electricity.
- 63% of onsite fuels used by the Oregon pulp and paper industry for energy generation are biomass based.
- Oregon's pulp and paper mills are served by consumer-owned utilities and utilize predominantly zero-carbon emitting hydropower.

Biomass statistics from: American Forest & Paper Association (AF&PA) Environmental, Health, and Safety (EHS) survey data and National Council for Air and Stream Improvement (NCASI) survey data

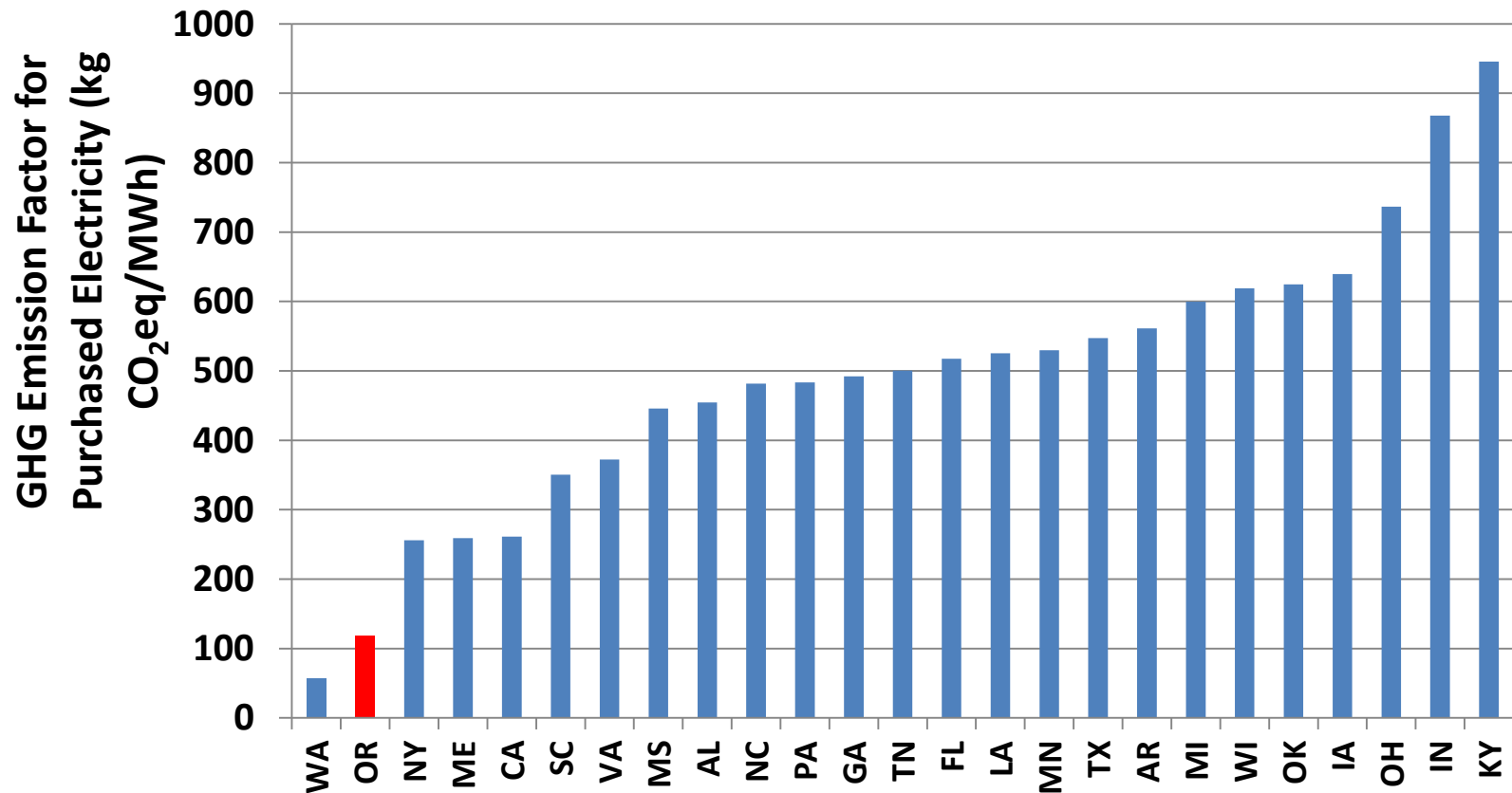


Energy Intensive, Trade Exposed (EITE) Production Leakage Summary

- Oregon is one of few locations in the world with significant forest resources AND access to low GHG emitting electricity
- Example: moving just 5% of the OR's P&P production would increase annual GHG emissions from purchased electricity by:
 - 8,000 mt CO_{2eq} (Canadian average)
 - 116,000 mt CO_{2eq} (Chinese average)



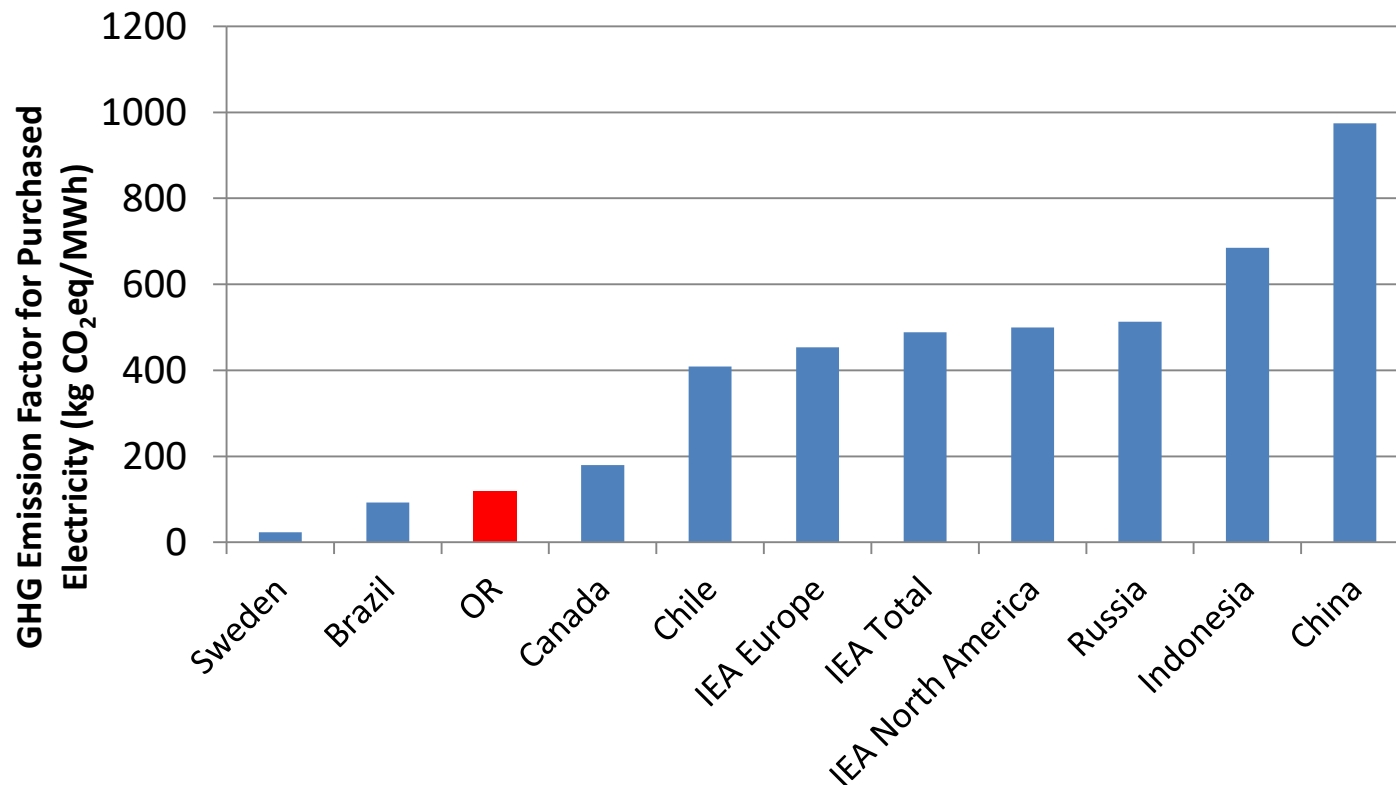
GHG Emission Factors for Purchased Electricity – Pulp/Paper Producing States



From US EPA eGRID 2012 <http://www.epa.gov/energy/egrid>



GHG Emission Factors for Purchased Electricity - Select Pulp and Paper Producing Countries with Export Potential



International Energy Agency (IEA) electricity emission factors from
Brander, M., Sood, A., Wylie, C., Haughton, A., Lovell, J. (2011). *Ecometrica*. Electricity-specific emission factors for grid electricity



Pacific Northwest Pulp and Paper Mill Closures; 1993 – present

- 1993 Alaska Pulp Corporation, Sitka, AK
- 1995 Pope & Talbot's Puget Mill Co. in Port Gamble, WA
- 1997 Ketchikan Pulp Company, Ketchikan, AK
- 1997 Rayonier in Port Angeles, WA
- 1999 International Paper, Reedsport, OR
- 2000 Abitibi in Steilacoom, WA
- 2002 Ponderosa Fibers in Wallula, WA
- 2003 Weyerhaeuser Pulp mill, North Bend, OR
- 2007 Georgia-Pacific in Bellingham, WA
- 2008 Boise Cascade/Boise Inc.'s pulp and paper mill, St. Helens, OR
- 2009 International Paper in Albany, OR
- 2011 Abitibi in Ponderay, WA
- 2011 Blue Heron in Oregon City, OR
- 2012 Kimberly Clarke in Everett, WA
- 2014 Harbor Paper/Gray's Harbor Paper in Hoquiam, WA
- 2015 SP Fiber Technologies in Newberg, OR
- 2016 Nippon Paper Industries in Port Angeles, WA (purchased by McKinley Paper Co. and was slated to re-open late 2018 or early 2019)
- 2017 West Linn Paper Co. in West Linn, OR
- 2017 Georgia-Pacific pulp mill in Camas, WA – 3Q 2018

- In Sept. 2017, Graphic Packaging closed its paperboard mill in Santa Barbara, CA. The last chemical pulp mill in the State of California closed in 2008. Since 2002, 16 mills have closed in California and current pulp and paper production is 44% of what it was in 2002.

