THE TRUE COST OF COAL EXPORTS

A REPORT BY THE WESTERN ORGANIZATION OF RESOURCE COUNCILS AND NORTHERN PLAINS RESOURCE COUNCIL
Coal companies have proposed building three new coal export terminals on the west coast of the United States and Canada. If successful, these proposals would vastly increase existing export capacity for coal from the Powder River Basin (a region in the West that includes southeast Montana and northeast Wyoming)—meaning that more coal could be mined from this region, shipped via train across the United States and parts of Canada, and sold on the global market.

Each step of the coal export process—mining coal, transporting coal by train, and sale of coal to Asia—has far-reaching implications for residents, communities, taxpayers, agricultural shippers, and passenger rail across Wyoming, Montana, Idaho, Washington, Oregon, and British Columbia. Coal mining and coal train transport pose serious threats to public health and safety, undermine local infrastructure, and negatively impact property values. Exporting coal to Asia, meanwhile, contributes to global carbon pollution, and subsidizes foreign energy development at the expense of American taxpayers and communities. In essence, the public pays, while private corporations—coal companies and railroads, in particular—reap the profits.

Currently, coal from the Powder River Basin in Montana and Wyoming is exported from one major west coast terminal: Westshore, near Vancouver, British Columbia. Westshore’s coal export capacity is 14.5 million tons per year, and the terminal may expand. If the three proposed new ports and expansion at Westshore go forward as planned, the total export capacity for Powder River Basin coal will add up to 128.4 million tons per year—or the equivalent of 47 coal trains per day, all of which would need to slice through 1,500 miles of American and Canadian cities, towns, and rural communities.

<table>
<thead>
<tr>
<th>EXPORT TERMINAL</th>
<th>PROJECTED EXPORT CAPACITY by 2018</th>
<th>PROJECTED EXPORT CAPACITY by 2023</th>
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</thead>
<tbody>
<tr>
<td>Westshore (BC)</td>
<td>14.6 million tons</td>
<td>18.2 million tons</td>
</tr>
<tr>
<td>Fraser Surrey Docks (BC) *</td>
<td>4.4 million tons</td>
<td>8.8 million tons</td>
</tr>
<tr>
<td>Gateway Pacific Terminal (WA) *</td>
<td>27.6 million tons</td>
<td>52.9 million tons</td>
</tr>
<tr>
<td>Millennium Bulk Terminal (WA) *</td>
<td>48.5 million tons</td>
<td>48.5 million tons</td>
</tr>
<tr>
<td>TOTAL</td>
<td>95.1 MILLION TONS</td>
<td>128.4 MILLION TONS</td>
</tr>
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* Terminals that are proposed, but not yet permitted.
Coal from the Powder River Basin is friable, meaning that it crumbles easily. As Powder River Basin coal disintegrates during transportation, it releases significant amounts of dust into the communities through which it passes. If the proposed export terminals were permitted and built, every community along the 1,500 mile transport route would experience the damaging health impacts of elevated levels of both coal dust and diesel particulates.

The health impacts of very fine dust are well documented, and the release of coal dust from rail cars is widely known. Very fine dust is a health hazard because it can be breathed deep into the lungs of both adults and children. While bigger particles may be filtered out, particulate matter (dust) that is 2.5 microns or smaller, referred to as PM$_{2.5}$, can embed deeply in the tiny air sacs, alveoli, that form the lungs. Over time, this reduces the organ’s function and causes inflammation, making it harder to breathe and leading to cardiovascular disease. In the most extreme cases, coal dust exposure leads to Black Lung Disease, a progressive and incurable disorder that leads to the death of hundreds of current and former underground coal miners each year. The health effects of smaller exposures from coal trains remain less studied, but health organizations such as the American Heart Association have stated that the available evidence demonstrates “a causal relationship between PM$_{2.5}$ exposure and cardiovascular morbidity and mortality,” reducing life expectancy by months to years.

Peer-reviewed research from scientists at the University of Washington has demonstrated that coal trains release nearly twice the amount of respirable particulate matter (PM$_{2.5}$) as typical freight trains. The study also found that one out of every twenty coal trains emits visible plumes of coal dust, which corresponded to the highest measurements of PM$_{2.5}$. With high winds, this number doubles to one out of every ten trains.

In sworn testimony before a federal court, Burlington Northern Santa Fe (BNSF)—one of the largest freight railroads in North America—estimated that a single coal rail car can lose between 500 pounds and one ton of coal dust during transport. The U.S. Department of Transportation has authorized measures to reduce this amount by 85%. If these methods work as intended, coal dust loss may be reduced to 75 to 300 pounds per car. There are 125 cars in a typical coal train, and proposed coal export terminal projects would bring 47 trains per day from the Powder River Basin. These trains would discharge as much as 1.8 million pounds of coal dust along the rail route each day.

<table>
<thead>
<tr>
<th>Washington State Proposed Coal Export Terminals</th>
<th>Tons of Coal Per Year</th>
<th>Trains Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway Pacific Terminal</td>
<td>52.9 million tons</td>
<td>19 trains</td>
</tr>
<tr>
<td>Millennium Bulk Terminal</td>
<td>48.5 million tons</td>
<td>18 trains</td>
</tr>
</tbody>
</table>
In a report prepared for Climate Solutions, Paul Zemsteff of Eastman Company Real Estate Appraisers estimated what the addition of just one major coal port—Gateway Pacific Terminal at Cherry Point, WA—would do to property values in five western Washington counties. The report found that properties along the coal train routes would experience a series of significant impacts, including increased traffic, noise, vibration, pollution, safety concerns, and stigma. It also projected that single family residences within 600 feet of the train routes could expect to see property values drop by 5 to 20%, while multi-family residences could expect a 5 to 15% drop. Commercial properties within the same 600-foot area, meanwhile, could also expect to see a 5 to 10% drop in property values, and industrial properties would fall by 5 to 8%.

According to this study, just a 1% drop in property values for those properties within 600 feet of the rail line in just the five counties studied would cost local and state governments $2.66 million in revenues, and shrink the state’s economy as a whole by $265 million. These are dramatic numbers, despite the fact that the study only focuses on the impacts from one proposed port. Multiple new coal ports and 47 coal trains per day would have exponentially larger impacts for property owners and public treasuries.

Even if just one major port is added, single family residences along the train routes could still expect to see property values drop by 5 to 20 percent.
The construction of three new ports for export would mean significant increases in coal train traffic. Over 125 million tons of coal would need to be hauled directly through cities, towns, and other metropolitan areas each year. Billings, MT, and Spokane, WA—with over a half a million in population between them—have rail lines running directly through city centers. Dozens of smaller towns and cities also sit directly on the rail line, and have already felt the burden of existing coal and oil train traffic.

Aside from the impacts on human health and property values, increased train traffic poses structural and logistical challenges for busy urban areas. Public infrastructure (overpasses, underpasses, etc.) is costly to build and maintain, and becomes significantly more so when accommodating large increases in train volume. Much of these costs would fall to local governments, whose coffers are already stretched. In addition, the passage of coal trains blocks essential city arteries, many of which link neighborhoods to key urban centers, downtown amenities, and emergency services. Train traffic can undermine revitalization of urban cores—a process well underway for many communities along the route—and interrupt commerce and emergency vehicles for hours each day.

### COMMUNITY

<table>
<thead>
<tr>
<th>Community</th>
<th>Estimated Costs Anticipated to Taxpayers, for Traffic Mitigation Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheridan, WY</td>
<td>$156-169 million</td>
</tr>
<tr>
<td>Billings, MT</td>
<td>$18-150 million</td>
</tr>
<tr>
<td>Spokane, WA</td>
<td>$71.6 million</td>
</tr>
<tr>
<td>Helena, MT</td>
<td>$13 million</td>
</tr>
<tr>
<td>Livingston, MT</td>
<td>$8.7 million</td>
</tr>
<tr>
<td>Edmonds, WA</td>
<td>$80 million</td>
</tr>
<tr>
<td>Longview, WA</td>
<td>$85 million</td>
</tr>
<tr>
<td>Seattle, WA</td>
<td>$100 million</td>
</tr>
<tr>
<td>Mt. Vernon, WA</td>
<td>$40 million</td>
</tr>
<tr>
<td>Marysville, WA</td>
<td>$92 million</td>
</tr>
</tbody>
</table>
So, who pays for these infrastructure upgrades?

The answer is not the railroads and not the coal shippers; maybe the federal government, but get your ticket and stand in a long line, and don't expect much help in the end. The bulk of the costs of dealing with increased rail traffic most likely will fall on local taxpayers. Commercial interests have no obligation to help bear the burden of building or maintaining costly infrastructure, despite the fact that such interests would be the primary beneficiaries of increased rail traffic volumes.

In 2014, the U.S. Government Accountability Office released “Freight Transportation: Developing National Strategy Would Benefit from Added Focus on Community Congestion Impacts.” The following key findings underscore the point that local taxpayers would carry the majority of these new costs.
The majority of highway-rail-crossing traffic congestion mitigation projects are primarily publicly funded, with limited private contributions. On average, railroad contributions account for less than 1% of total project costs. The rest is shouldered by local taxpayers.

Under the current framework of law, policy, and funding, there is little help to be gained from the federal government for local communities, as local traffic congestion impacts are not a clear priority for federal programs.

Due to the lack of funds available for collecting such data, communities often cannot quantify negative impacts of traffic congestion from railroad crossings, such as the number of vehicles delayed, the length of delays, or economic costs associated with such delays. State and local officials have stated that it is very difficult to get accurate information from railroad companies on train counts, timing, and speed of trains.

The average cost of the grade-separation projects reviewed by GAO was $37 million, yet most states receive less than $10 million from the U.S. Department of Transportation’s railway-highway crossings program annually, and 50% of a state’s funds must be spent on warning devices. As noted, traffic congestion is not a priority for these funds.
“Capacity issues and rail congestion funnels will inflict delays upon agricultural shippers, threatening their ability to deliver product on time.”
AGRICULTURAL SHIPPERS JEOPARDIZED BY COAL EXPORTS

The dramatic increases in traffic volume presented by both coal trains and oil trains from the Bakken pose serious impacts for the region’s historic economic base, agricultural shippers.

According to *Heavy Traffic Still Ahead*, a little under 40 million tons of agricultural commodities were exported from the Pacific Northwest in 2010. These grains typically include wheat, corn, soy beans and pulse crops, and are shipped from the Dakotas, Minnesota, Montana, Idaho, Washington and Oregon along the same routes that coal trains travel. Capacity issues and rail congestion funnels result in delays that threaten the marketability of these critical crops. Delays can seriously undermine the years-long work of developing markets for U.S. wheat shippers, which are competitive in part because they are timely and reliable. Furthermore, upgrading the rail system to expand capacity for the massive haul of coal and oil trains is enormously expensive and would be reflected in increased rates to all shippers, including the region’s wheat and grain shippers, whose profit margins are often miniscule.

In early 2014, the U.S. Department of Transportation issued a rare special order directing the Burlington Northern Santa Fe Railroad to ensure that fertilizer and seed reached farmers in time to plant that year’s grain crop in the Dakotas and Minnesota. Trains from the Bakken oilfields clogged the rails, displacing agricultural shipments. At that time, much of the 2013 crop remained in storage bins and open-air piles, awaiting trains for shipment.
Who owns the coal in the Powder River Basin? Around 80% is owned by taxpayers and managed by the federal government. No major mine in the Basin operates without acquiring a significant share of its reserves from the federal government. Federal coal managers have come under harsh scrutiny in recent years with a growing body of reports faulting management practices. These include the Department of Interior’s Office of Inspector General, the Government Accountability Office (GAO), as well as the Senate Energy and Natural Resources Committee. In 2012, the Institute for Energy Economics and Financial Analysis (IEEFA) released a sweeping indictment of federal coal leasing practices. This report, called The Great Giveaway, estimated that the public had lost over $28 billion due to the federal Bureau of Land Management’s failure to charge fair market value for taxpayer-owned coal. Cheap federal coal sold well below fair market value is a driver of coal export proposals. The GAO found that over 90% of federal coal lease sales since 1990 garnered only one bidder—yet these sales are referred to as a “competitive” leasing process.

Cloud Peak Energy, Inc. operates mines across the Basin, with more mines planned. It acquired federal coal at its Spring Creek Mine in southeastern Montana for 11¢ and 18¢ per ton in two lease sales. During much of 2012, Spring Creek coal sold on the export market for approximately $60/ton. Even with transportation costs, Cloud Peak raked in a hefty profit margin from that public coal. Besides the lack of competitive bidding for federal coal, the Office of Natural Resources Revenue recently proposed a reform to prohibit coal companies from shirking full royalty payments on federal coal. Half of federal royalties are sent to the state from which the coal was mined, and states typically pass on a portion to local communities to cover the costs of mining impacts. Representatives of Cloud Peak Energy have admitted in court to dodging full royalty payments by selling coal to affiliated companies below market price. After paying a small royalty, Cloud Peak re-sells the coal on the global market for a much higher price. Currently, a draft rule to close this loophole has been proposed but not yet finalized. In May 2015, members of the public sent over 200,000 comments in favor of closing the loophole.
In June 2015, the Western Organization of Resource Councils, National Wildlife Federation, and Natural Resources Defense Council issued an update on the progress of reclamation (mine clean-up) at large strip mines in Montana, Wyoming, and North Dakota, including Powder River Basin mines that would supply coal for export. The report found that:

Decades of mining have disturbed over 450 square miles of Montana, North Dakota, and Wyoming, but only 46 square miles has been fully reclaimed. This calls into question the mining industry’s prospects of successfully reclaiming the harsh, brittle, and semi-arid ecosystems of Western states.

The gap between acres of land disturbed by mining and acres released from performance bond continues to grow. Mining companies are required to post a performance bond with state agencies before mining to guarantee the availability of funds for reclamation, and can receive that money back as they reclaim. Some states such as Wyoming do not require a cash bond or third-party guarantee if a mining company
has a strong balance sheet, a practice known as “self-bonding.” There is a danger that reclamation of self-bonded mines will be left to taxpayers if the operator files for bankruptcy and cannot reorganize. In September 2015, the State of Wyoming cut a deal to allow bankrupt mining giant Alpha Natural Resources to continue mining, while providing only 15 cents on the dollar for its reclamation liabilities of $411 million.

Arch Coal, the country’s second largest mining company, filed for bankruptcy on January 11, 2016. Arch is a major backer of the Millennium Bulk Terminal in Longview, WA. The terminal permitting process is likely to continue as long as Washington state regulators receive payments to process the application. Arch has received court approval to set aside a mere $75 million dollars to satisfy potential claims from Wyoming regulators for reclamation liabilities totaling $485 million dollars. This could shortchange the general public out of 85% of a lawful obligation owed to public agencies.

A November 2015 study released by the National Wildlife Federation and the Natural Resources Defense Council found significant declines in several iconic, highly-prized big game species in the Powder River Basin region due to a combination of coal, oil and gas development. Pronghorn, mule deer and sage grouse populations all showed troubling declines.23 These big game wildlife are also an indicator for the health of non-game species, which are also becoming increasingly vulnerable to the effects of energy development.
COAL EXPORT MYTHS

Shouldn’t we export coal to meet the energy needs of the world’s poorest people?

While “energy poverty” is often cited as a barrier to developing economies, coal-fired electricity is not the answer. Electricity from coal is one of the most expensive sources in developing countries due to the high costs of building new power plants and extending limited electric grids beyond urban areas. In fact, most coal plants currently under construction in developing countries are being built where most people already have access to electricity.

Distributed solar is a much cheaper, safer, and more effective option to expand access to electricity. It can be deployed more quickly and less expensively into off-grid regions, and does not threaten human health with the noxious emissions and toxic ash waste pits associated with large coal-fired power plants. As the cost of off-grid renewable technologies like distributed solar continues to decline rapidly, several developing countries are positioned to “leapfrog” coal-fired electricity entirely. Developing off-grid energy solutions that provide cheap, renewable electricity to the rural poor is far better-suited to improving electricity access than coal-fired electricity.²⁴
Too Much Supply

Coal mining companies in the United States need high international coal prices to profit from selling coal overseas. They saw those prices fleetingly around 2011 and 2012, but the turnaround in global coal markets since then has been dramatic. In response to high international prices, many countries around the Pacific Rim ramped up coal production for export, including Australia, Indonesia, and Russia. The glut of export coal on the market led prices to crash from $130/ton to today’s level between $50 and $60/ton. Other countries have several key advantages over the U.S. when it comes to supplying Asian economies, including shorter shipping distances and favorable currency exchange rates. Abundant export coal from these countries would be less of a problem for U.S. exporters if there were still robust and growing Asian demand for coal, but there isn’t.

Not Enough Demand

China, Japan, India, and South Korea are the main buyers in Pacific Rim coal markets. Each is undergoing a transition in when they use coal and how much they use, making West Coast coal export terminals highly speculative.
China’s once-insatiable appetite for coal is waning, with profound consequences for would-be coal exporters. Recent data out of China shows declining coal imports and declining coal use for electricity. China’s coal imports between January and September 2015 fell nearly 30% from the same period in 2014. In addition, overall Chinese coal use is down 5.7% in the same period.

But isn’t China building one coal-fired power plant each week? Perhaps. China’s electricity market and financial system are geared to build more power plants than necessary, as state-owned companies typically have easy access to credit and guaranteed returns on investment. While new Chinese coal plants may be approved and built in record numbers, it does not mean that these plants will be used. Chinese government statistics show that the country’s utilization rate for coal plants during the first nine months of 2015 fell 7.5% from the same period the previous year. Currently sitting at 49.5%, over half of the total capacity of China’s fleet of coal-fired power plants sat unused for most of 2015. This is a significant decrease from 2013 (57.3%) and 2014 (53.7%).

China may still be building new coal-fired power plants, but chances are good that the new power plants are stranded assets and will burn little or no coal. Rampant air quality concerns and cheaper alternatives have led China to curtail coal use by law.25

India is opening its doors to a flood of renewable energy.26 Unexpectedly low solar energy contracts have undercut the need for coal imports as major solar energy companies commit large investments in the country.27 While coal will remain in the electricity mix, India’s Minister Piyush Goyal recently announced plans to eliminate coal imports by 2017.28 Poverty advocacy groups question the role of coal-fired electricity in alleviating energy poverty, as it is typically too expensive for many to

Japan used 3.3% less coal for power generation from January-July 2015 compared to the prior year period, according to government statistics.29 While several dozen new coal-fired power plants are under consideration, the plants are not a done deal: many are under challenge from officials at the highest levels of government.30 Even if built, many of the proposed plants are small, limiting potential demand for Powder River Basin coal.31

South Korea levied a tax on coal burned for electricity in 2014. Tax rates were subsequently increased 30% in 2015. The structure of the tax puts Southern Powder River Basin coal at a disadvantage due to its low heat content per weight. In addition, South Korean electricity companies axed four proposed coal plants in 2015.32
With domestic coal markets in dramatic and permanent decline, a rebound in the Asian market (and the accompanying export infrastructure) is the only hope for the proposed Otter Creek Mine in southeastern Montana. Otter Creek is the largest proposed new mine in the United States.

Currently, Otter Creek is a pristine agricultural valley between the pine-wooded hills of the Custer National Forest. It is an area extraordinarily rich in wildlife and Native American archaeological artifacts. Otter Creek’s productive agricultural economy depends on its alluvial valley floor for cattle ranching and alfalfa production. For the entire valley, this important and delicate hydrology is threatened by the prospect of a new 18,000-acre strip mine.

The proposed mine is far from existing rail access, and would require construction of up to 90 miles of new railroad. The Tongue River Railroad, if permitted, would use the power of federal eminent domain to condemn dozens of Montana farms and ranches for a private rail line. Once constructed, the rail line would disrupt all aspects of ranch management and livestock handling. Permitting and construction of the rail line would effectively prioritize profits of a private corporation over profits of dozens of existing agricultural producers, many of whom have ranched in southeast Montana for four or five generations.
The intention of Arch Coal, the sole owner of the proposed Otter Creek mine, to export coal from the mine to Asia has become increasingly evident in recent years. The coal cannot compete in a shrinking domestic market as it is of a low quality, with relatively low heat content and relatively high levels of sodium – which make Otter Creek coal expensive to move and problematic to burn. This makes domestic sale particularly unlikely at a time when U.S. coal-fired power plants are either shuttering or switching to natural gas generation. Tongue River Railroad Company underlined its plans to export Otter Creek coal to Asia in 2012, changing its “preferred alternative” for the line serving Otter Creek from a route pointing almost directly east to a route going directly west, toward proposed Pacific Northwest coal export terminals.
COAL EXPORT ROUTES IN THE PACIFIC NORTHWEST

Map courtesy of Power Past Coal / Shew Designs
1. This report uses short tons, not metric tons.
2. Western Organization of Resource Councils (WORC), *Heavy Traffic Still Ahead*, 2014, p. 23, Figure 8. Assuming 125-car trains, loaded plus empties.
8. The primary method is to spray each coal car with a “topper agent” that acts as a surfactant. http://www.bnsf.com/customers/what-can-i-ship/coal/coal-dust.html
12. WORC, *Heavy Traffic Still Ahead*, ibid, Figure 28, p. 55
13. The Otter Creek Mine, if opened, would be an exception to that rule, but only because the federal government already exchanged public coal at the proposed mine site to the state of Montana to protect land and water near the borders of Yellowstone National Park.
18. http://www.sightline.org/research_item/unfair-market-value/p.6
What does an increase in foreign coal exports from the Powder River Basin mean for Montana? Not much that’s good, unfortunately. Luckily, all across the state, Montanans are paying attention. Many of us are deeply concerned about more coal mining, more coal trains, and more costs for the public to pay. It’s now time for us to put that concern into action.

As you can see in this report, the costs of exporting coal are far reaching: compromising our health, tearing up our land, lowering our property values, delaying our emergency responders, costing us millions of tax dollars, endangering our wildlife, and harming our tourism and agricultural economies. Luckily, with the right information, we can all take part and help keep our communities safe, clean, and prosperous.

There are many opportunities in Montana for the public to make our voices heard on these issues, but they’re not always easy to find. To stay informed about opportunities for you to get involved, contact Northern Plains. If you aren’t a member, please consider joining us in our efforts to protect Montana’s farms, water, air, and unique quality of life.

Sincerely,

Kate French
Northern Plains Chair
2016 is a big year for the public to weigh in on coal exports. Grassroots citizens—homeowners, businesses, landowners, local officials, health professionals—are organizing all across the West, and gearing up to challenge proposed coal ports and coal train routes in their communities.

Key upcoming events and actions include: a comment period on the proposed Millennium Bulk Terminal, in Longview, Washington, a comment period on the proposed Gateway Pacific Terminal, in Cherry Point, Washington, and public hearings and peoples’ hearings all along the route from Billings to Bellingham, where citizens and leaders can make their voices heard!

**join with others! contact Northern Plains**

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