



The Morrow Pacific Project:

Ambre coal terminal burdened with high costs

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Executive Summary

The Morrow Pacific project, a coal export venture being pursued by Australian firm Ambre Energy, aims to ship coal by rail to Oregon's Port of Morrow on the Columbia River, barge it downstream to a second port, and load it onto cargo ships bound for Asia. Recent financial disclosures suggest that the project would face unusually high costs in three separate areas:

High handling costs. Unlike conventional export projects that would handle coal at a single location, the Morrow Pacific project would transfer coal twice—first from rail cars to barges, and later from barges to ocean-going vessels. The extra step boosts coal handling costs.

High transportation costs. Based on Ambre's projections, barging the coal 150 miles downstream would likely cost more than shipping coal directly by rail.

High capital costs. Morrow Pacific would require 36 custom-designed barges, as well as costly coal loading equipment for two separate sites, giving the project higher capital costs per ton than its competitors.

If built, Morrow Pacific would have the highest costs of any terminal in the Pacific Northwest, facing cost disadvantages of roughly \$5 to \$11 per ton* of coal compared with its likely rivals. The project's high cost structure would likely curtail profits, erode revenues, and even turn Morrow Pacific into a terminal of last resort, used only in the event of exceptionally high overseas demand. Careful investors would be wise to compare Morrow Pacific's costs with the costs faced by rival terminals before committing funds to the project.

* Throughout this report, the word "ton" refers to a short ton (2,000 pounds), rather than a metric ton (1,000 kg).

Introduction: The Morrow Pacific Project

Powder River Basin coal sells cheap; prices have hovered around \$10 per ton for most of the past year.¹ But transporting coal is expensive. Moving coal from the mine mouth onto rail cars, shipping the commodity by rail to port terminals, transferring it onto ocean-going ships, and transporting it across the Pacific can cost more than six times as much as the coal itself. Coal export proposals therefore live and die on shipping and handling expenditures: projects with steep costs may find profits elusive, and could lose business to competitors with lower expenses.

The Morrow Pacific project would have the highest costs of any coal terminal in the Pacific Northwest.

In May 2011, Australian energy startup Ambre Energy announced plans for a complex coal export venture, dubbed the Morrow Pacific project, at two sites along the Columbia River. While most coal export projects ship coal by rail directly to deep water ports, Ambre planned to ship coal by rail to a river port on the Columbia River upstream from Portland, Oregon; barge the coal some 150 miles downstream to a deep water facility at Port Westward, Oregon; and then move it onto Asian-bound bulk cargo vessels.

Ambre may have designed the project's unusual two-step coal handling process to minimize the community opposition and regulatory delays that had plagued some of the company's other endeavors.² The company's executives may have thought that the use of barges to avoid rail traffic through densely populated areas would reduce the community opposition and regulatory obstacles.

But Morrow Pacific's unusual logistics ultimately may not work to the project's advantage. In 2012, Ambre commissioned Portland-based economics consulting firm ECONorthwest to estimate the economic impacts of the Morrow Pacific project.³ That report reveals that the Morrow Pacific project would have the highest handling, transportation, and capital costs of any coal terminal in the Pacific Northwest, either existing or proposed.

High Handling Costs

The Morrow Pacific coal export project faces two established coal terminal competitors in British Columbia. Ridley Terminals, located in remote Prince Rupert, shipped more than 10 million tons of coal in 2011, and is in the process of expanding its annual capacity to 27.5 million tons. Westshore Terminals, near Vancouver, BC, shipped nearly 29 million tons in 2012. Both terminals have handled some Powder River Basin coal in the past few years.

Morrow Pacific's operating costs would dwarf both Ridley's and Westshore's. Over the last four years, the Ridley terminal has moved coal at an average cost of \$3.41 per ton, while Westshore's costs have averaged \$4.25 per ton.⁴ During its initial phase, however, Ambre estimates that

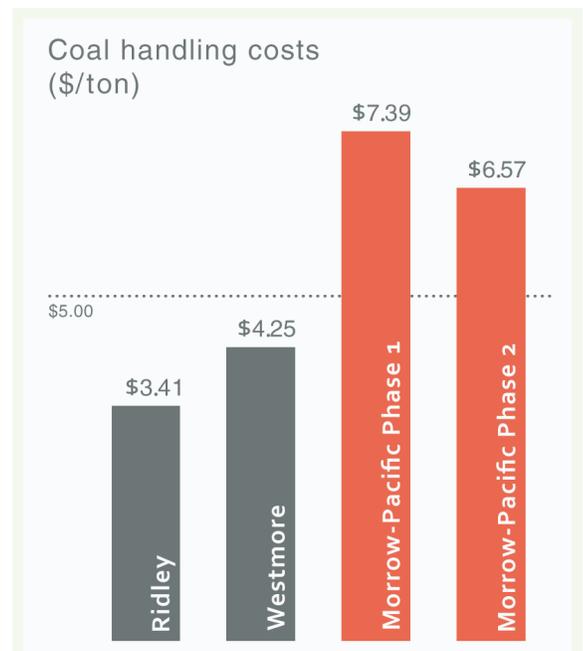


Figure 1. Morrow Pacific's complex logistics give it higher handling costs than competing coal export terminals.

Morrow Pacific coal handling costs will average \$7.39 per ton—more than twice Ridley’s, and 73 percent higher Westshore’s. Even at full build-out, Morrow Pacific’s anticipated coal handling costs would exceed Westshore’s by more than 50 percent. (See Figure 1.)

Besides Ridley and Westshore, two other proposed coal terminals in Washington State could compete with Morrow Pacific for business if they are built. These projects are still in the permitting phase, so their handling costs remain unknown. Yet both of those projects would have similar logistics to the Westshore and Ridley terminals, and would likely have far lower operating costs than Morrow Pacific.

High Transportation Costs

Most coal export projects ship the material by rail directly to a deep water port. The Morrow Pacific project, however, would first ship coal by rail to an upstream port, and then barge the coal downstream to an export facility that can service ocean-going vessels.

Although the Morrow Pacific project’s transportation plan would shorten rail shipping distances, it would still lead to higher transportation costs overall. ECONorthwest’s analysis shows that it will cost \$7.50 per ton to move coal by barge; shipping the coal an equivalent distance by rail would cost only about \$3 per ton.⁵ In addition, shipping Powder River Basin coal via the Port of Morrow would require that coal trains be switched from rail lines owned by the Burlington Northern Santa Fe (BNSF) railroad to ones owned by Union Pacific (UP), at an estimated cost of \$0.77 to \$1.60 cents per ton of coal.⁶

Counting all coal transportation costs from Spokane, Washington—through which all Powder River Basin coal destined for export would travel, and where coal destined for the Port of Morrow can be transferred from BNSF to UP—the Morrow Pacific project racks up higher transportation costs than any of the other coal terminals in the region, either existing or proposed. In fact, at a mid-point estimate of 1.5 cents per ton mile to ship coal by rail, it would cost less to transport coal by rail all the way to the Westshore terminal in British Columbia than it would to ship coal by a combination of rail and barge via the Morrow Pacific project. (See Figure 2.)

High Capital Costs

Building the Morrow Pacific project will require substantial up-front capital investments. The project would require: 36 custom-built barges costing \$3.5 million each, for a total of \$126 million; specialized coal loading

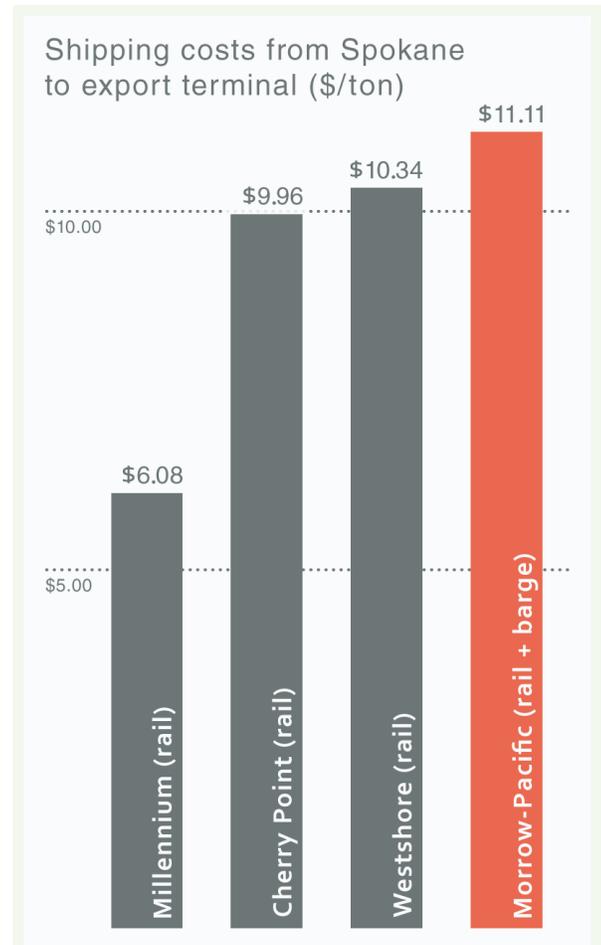


Figure 2. Morrow Pacific’s high transportation costs put it at a disadvantage to potential rivals.

equipment from Sweden, at a total cost of \$40 million; and an additional \$76 million in construction outlays at the two ports. These capital costs would total \$152 million by the end of the project's initial phase, and \$242 million at full build-out.

Ambre's most recent financial statements show that it recently borrowed money at an interest rate of 12 percent per year.⁷ Even assuming that Ambre could obtain a loan with an interest rate of 8 percent, and that its creditors would expect to be fully repaid within 15 years, Ambre would need to recoup an additional \$27.8 million each year to repay the company's loan obligations. At these terms, financing costs could exceed \$4.50 per ton of coal shipped during its initial phase, and \$3.16 per ton at full build-out.

Ambre has not yet received financing for Morrow Pacific, so the project's financing terms remain a matter of speculation. Yet on a per-ton basis, Morrow Pacific's financing costs will almost certainly exceed those of competing ports. For example, the proposed Millennium Bulk Terminals project in Longview, Washington, reportedly would cost two and a half times as much as Morrow Pacific, but move six times as much coal per year⁸—giving the Millennium terminal a capital cost advantage of nearly \$2 per ton, assuming the same financing terms as the Morrow Pacific project.

Conclusion: A Terminal of Last Resort?

Combining outlays for handling, transportation, and capital, the Morrow Pacific project would likely face internal costs of more than \$19 per ton of coal in the project's first phase, and slightly over \$17 per ton after completion of the project's second phase. Given these costs, we expect that the Westshore terminal in southwest Canada would have a cost advantage of roughly \$4.60 and \$6.90 per ton over Morrow Pacific. Westshore would also offer other distinct advantages for exporters, such as a shorter distance for cargo ships traveling to Asian markets and the ability to handle larger, more cost-efficient cargo vessels.

But Westshore may be the least of Morrow Pacific's worries. If other coal terminals proposed for Washington or Oregon were to proceed through the permitting process to final construction, they could undercut Morrow Pacific by as much as \$11 per ton, due to a combination of lower costs for handling, transportation, and capital.

The Morrow Pacific Project presents a conundrum for any potential coal terminal investor. Although the project still faces considerable permitting hurdles, many industry observers think that it could be on a faster timetable than other, larger coal export projects currently on the drawing board. Yet Morrow Pacific's high cost structure could negate any potential advantage as the "first mover" among the proposed coal terminal projects. If other terminals follow in Morrow Pacific's footsteps, investors may find that the project is used as the terminal of last resort, and that it often remains idle except when international coal prices are exceptionally high and all competing terminals are used to full capacity. Careful investors would be wise to take a wait-and-see attitude towards Morrow Pacific, and closely examine the risks before committing resources to the project.

About the Author

Clark Williams-Derry directs research and communications for Sightline Institute. His research and writing over a 20 year career has spanned climate and energy policy, sustainable transportation, sprawl and smart growth, voting theory, agricultural policy, and wetlands preservation.

Sightline Institute is a not-for-profit research and communications center—a think tank—based in Seattle. Sightline’s mission is to make the Northwest a global model of sustainability—strong communities, a green economy, and a healthy environment.

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Notes and Sources

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2. Sightline Institute, “Ambre Energy: Caveat Investor,” February 2013, <http://www.sightline.org/research/ambre-energy-caveat-investor/>.
3. ECONorthwest, “The Economic Impacts of Proposed Coal Barging Operations,” May 2012, http://morrowpacific.com/wp-content/uploads/2012/06/Ambre_Econ_Impact_Study_Final.pdf.
4. Westshore Terminals Investment Corporation, “Annual Report 2012,” <http://www.westshore.com/annual.html>. Ridley Terminals, Inc., annual and quarterly reports available at <http://www.rti.ca/financials>. Cost figures cited in this report represent both operations and administrative costs.
5. Neither rail operators nor coal companies publicly disclose the cost of moving coal by rail. Many analysts peg the price of moving Powder River Basic coal by rail at between 1 and 2 cents per ton per mile. The US Energy Information Administration’s most recent assessment suggests that western rail companies charged about 1 cent per ton-mile to move coal by rail; see <http://www.eia.gov/coal/transportationrates/pdf/waybill.pdf>. A widely cited coal export cost study estimates future coal shipping will cost 1.5 cents per ton-mile in the western US; see http://www.powereconconsulting.com/news/data/upimages/GHG%20Impact%20PRB%20Coal%20Export%20Power%20Consulting%204-3-2013_Final_Power%20Consulting%20web.pdf. A briefing paper for the Western Interstate Energy Board cites 1.54 cents per ton-mile for freight from Wyoming to Longview, Washington, a figure apparently obtained directly from BNSF; see <http://www.westgov.org/wieb/coalports/cpBP.pdf>. A national study by a coal industry consulting firm estimates PRB rail costs at 2.1 cents per ton mile – a figure that apparently includes both lower-cost Western rail routes and more congested, higher-cost rail lines in the central and eastern US; see <http://www.jacksonkelly.com/jk/pdf/USCoalMarketsHeller.pdf>. Sightline’s analysis assumes rail shipping costs of 1.5 cents per ton mile.
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Appendix 1. Ambre's Morrow Pacific project would impose handling and barging costs of at least \$14 per ton.

	Phase 1 costs (initial build out)	Phase 2 costs (add. development)	Total Morrow Pacific costs
TONS OF COAL PER YEAR	3,850,000	4,950,000	8,800,000
CAPITAL INVESTMENT			
Construction	\$ 42,343,376	\$ 33,644,918	\$ 75,988,294
Barges	\$ 70,000,000	\$ 56,000,000	\$ 126,000,000
Coal unloader	\$ 40,000,000	\$ -	\$ 40,000,000
TOTAL INVESTMENTS	\$152,343,376	\$ 86,644,918	\$241,988,294
ANNUAL OPERATING & PROPERTY TAX COSTS			
Ocean-going vessel fuel costs	\$ 43,640,675	\$ 56,109,375	\$ 57,837,750
Barging costs	\$ 28,875,000	\$ 37,125,000	\$ 99,750,000
Handling costs	\$ 28,441,870	\$ 29,395,880	\$ 66,000,000
TOTAL COSTS	\$100,957,495	\$122,630,255	\$223,587,750
BARGING AND HANDLING COSTS PER TON			
Barging costs per ton	\$7.50		\$7.50
Handling costs per ton	\$7.39		\$6.57
TOTAL COSTS PER TON	\$14.89		\$14.07