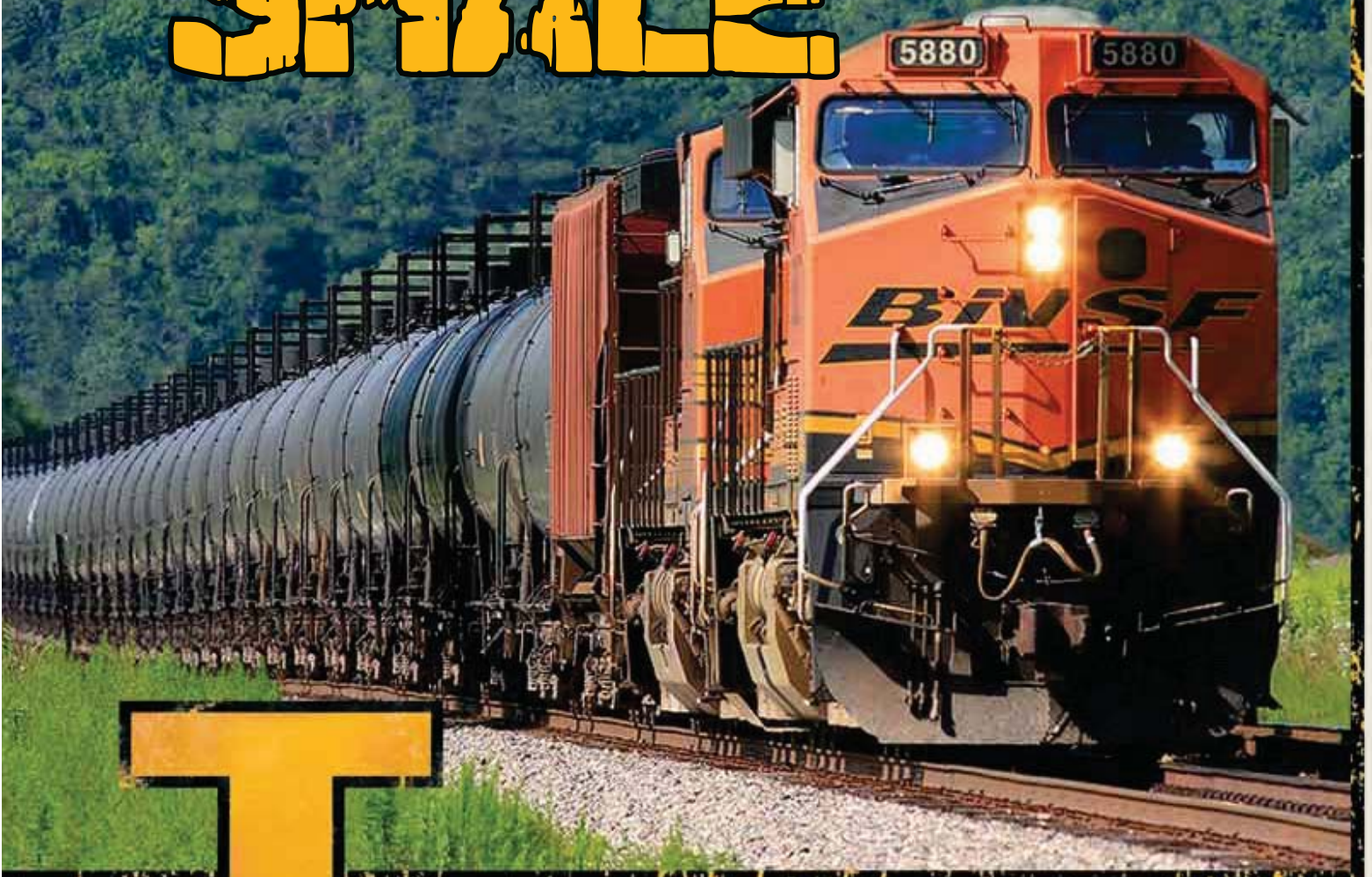


ALL HAIL THE SHALE



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ransporting Bakken crude on our network is one of several growth opportunities at BNSF. From the time the crude is pumped to the time it goes into the pipeline, this valued commodity needs to quickly make its way into the nation's oil supply, serving as an important domestic source for a product that helps fuel our economy. In recent months, BNSF has developed and increased volumes in emerging oil, gas, coal and wind energy sectors. (See related stories.)



At Stanley, N.D., transloading a 100-car unit train full of crude oil – 14 cars at a time – takes less than 24 hours, thanks to efficiencies built into the facility before it went on line in 2009. Once topped off, the train will journey to Stroud, Okla., where about 70,000 barrels of oil will be off-loaded into a 17-mile pipeline to Cushing, Okla., serving multiple markets.

From the time the first unit oil train moved on Dec. 31, 2009, volumes have steadily increased. Since mid-2010, BNSF has seen a 100-percent increase, and is now shipping approximately 52,000 barrels of crude each day in combined unit train and manifest train service from multiple origins and destinations. (Those 52,000 barrels – once refined – provide enough fuel to fill the gas tanks of about 66,000 automobiles each day.)

NOT YOUR GRANDFATHER'S SPINDLETOP

A few years ago, a land rush of development began in the Bakken Shale in eastern Montana, western North Dakota and across the border in Saskatchewan, Canada. The rush was the result of newer horizontal drilling technology that made harvesting the reserve more economical, given the shale's projected reserves of about 4.3 billion recoverable barrels of oil. Today, some 380,000 barrels of oil a day are being produced from across 200,000 square miles.

In addition to crude oil, the U.S. Geological Survey estimates that the Bakken has 1.85 trillion cubic feet of natural gas as well as 148 million barrels of natural gas liquids.

The Bakken Shale's output is exceeding capacities of traditional transport via pipeline. This opens the door for moving crude by rail, which doesn't require the lengthy start-up time and capital and offers flexibility to serve different markets. With 1,000 miles of trackage slicing through the northern and southern sectors of the shale, BNSF – working in some cases with short line partners – is in an ideal position to provide this rail service.

"If you overlap the Bakken over our network, you see that we line up very well," says Michael Bruce, director of business development, Industrial Products, noting that BNSF touches 16 of the top 19 oil-producing counties in North Dakota.



For now, the pipeline network isn't growing fast enough to move crude out of the Bakken. New rail markets like St. James, La., and locations in California that have limited pipeline access are emerging and using rail to receive crude.

"Our success has really been our ability to go into a market that primarily used one form of transportation – a pipeline – and demonstrate the value that rail can provide," Bruce says. "The pipeline industry is now talking about how rail will supplement their services. Rail has made tremendous progress over the last several years."

The outbound crude is not the only related commodity that means growth for BNSF. On the inbound side, materials to support drilling activities, like pipe and sand, are in demand as well. In fact, high demand for frac sand – used to open the fractures and allow oil and gas to rise to the surface – has led to discussions for using unit trains to keep job sites in steady supply. In June, BNSF held its first Sand Symposium with more than 80 shippers, receivers, transloaders and short line representatives to discuss this challenge.

"We know we have to collectively change this supply chain model," says Group Vice President Industrial Products Dave Garin. "Growth is happening so fast that we have to find a way to increase our delivery capacity."

RAMPING UP

To help ramp up for growth on delivery of crude, BNSF is adding more unit-train crude destination and origination facilities, like the one at Stanley. By the end of 2012, four such facilities will come on line and another five will be added by 2013.

"There are more than a dozen unit-train unloading facilities in various stages of development on BNSF, plus the two currently operating," says Teresa Perkins, general director, Industrial Products. "We have a plan to eventually handle 730,000 barrels – or nine unit trains – of Bakken crude every day as the new loading facilities come on line."

Tempering the growth news, however, is recent flooding in Minot, N.D., which presented a number of challenges for moving crude. Because tracks were washed out, trains to Cushing were rerouted west to Glendive, Mont., instead of through typical lanes to Galesburg, Ill., and Willmar, Minn. "Despite the challenges the floods created, our crude oil customers were very appreciative of how good a job we did keeping their shipments moving. The Operations team did an outstanding job of rerouting trains to accommodate them," says Perkins.

Despite the rerouting that continues, Bakken growth is anticipated to continue long term. In addition to expanding facilities, BNSF has been hiring in North Dakota and Montana in part to gear up for continued strength in Bakken volumes; through May, nearly 400 new hires joined BNSF in this region, some due to attrition and some due to increased business.

TEXAS TEA

Heading south, the Eagle Ford Shale Play is less developed than the Bakken oil and gas field, but it has received a lot of attention recently. Leasing and drilling activity have increased, with a number of horizontal wells believed to be in the thick of the corridor.

Named for a nearby town, the Eagle Ford Shale is located in south Texas and is ripe for

producing long term. The fourth-largest play in the U.S., the formation produces between 4,000 and 12,000 feet and is desirable because it has no natural fracturing within the formation. The formation also has high yields of liquids throughout – attractive traits of plays that have longer life spans.

Current production is noteworthy; producing gas wells more than doubled to 158 from 2009 to 2010, and active oil wells surged from 40 to 72 in the same period, according to the Texas Railroad Commission. For its part, BNSF has been entrenched in a campaign to build a presence at Eagle Ford as a hauler of inbound frac sand and outbound crude.

“The reality is that BNSF doesn’t have as large a footprint into the Eagle Ford Shale, so we are working really hard to connect with partners and players there to make sure they know that BNSF is in the game,” says Diana Hill, general director, Gulf Product Sales.

So far so good. BNSF has experienced monthly increases since summer 2010.

Inbound sand volumes to facilities in Hondo, Port San Antonio and Corpus Christi, Texas, as well as those originated to other locations, nearly topped 700 carloads in May, almost double the output from January.

A bright spot has been the Hondo facility served by the Hondo Railway, which interchanges with BNSF. Volumes of sand have increased significantly since BNSF initiated manifest service and began hauling a few dozen cars into Hondo in November. Outbound crude also has picked up. In June, BNSF experienced its highest-volume hauling month, with 200 cars of sand into Hondo and 53 cars of crude outbound from Hondo.

“That’s pretty incredible,” Hill says. “That’s been a major growth area for us. And we’re talking with additional customers about other potential opportunities for both unit and manifest of inbound sand and outbound crude.”

No matter the name – black gold, Texas tea, sweet or sour – the crude oil business is one future on which BNSF is counting. 🚂

Wind business picking up



As wind power evolves in response to Department of Energy (DOE) mandates for electricity generation by 2030, BNSF’s energy portfolio is picking up as well.

Unit trains of 89-foot flat cars are used to transport wind tower blades, which average 45 meters.

BNSF serves much of U.S. wind-generation territory and is supplying wind farms with needed components like blades, towers, nacelles (that house the turbine’s generators) and other dimensional cargo.

Government tax credits that give U.S. wind companies a boost in development are making wind’s cost per kilowatt hour now comparable with that of coal and natural gas. In fact, wind is becoming one of the most commercially viable sources of alternative energy for electrical generation.

In the last four years alone, the U.S. wind industry has added more than 35 percent of all new generating capacity, second only to natural gas, and more than nuclear and coal combined. Today, U.S. wind power capacity represents more than 20 percent of the world’s installed wind power.

BNSF has kept stride, and is participating in the development of the largest U.S. wind facilities, recently constructed at Pasco, Wash. BNSF made a significant investment last year by leasing a 34-acre parcel of land. The transload center is providing service to wind turbine manufacturers who ship components from their facilities across the country to Pasco for storage and loading to trucks for final delivery to wind farm projects.

“This investment gives us a strong foothold in the wind business in this region,” says Teresa Perkins, general director, Industrial Products. “The facility also helps us serve other customers in the Pacific Northwest as well.”

Pasco, which has barge access, is one of two ideal development sites, according to Manager of Business Development Jane Halvorson. Another is Casper, Wyo.

Like Pasco, Casper's track arrangements are conducive to shipping, as there is ample land for oversized components. Both sites can also handle unit trains.

Since wind farms are project-based, the challenge is coordinating and balancing the carloads and unit trains to the sites. Once wind developers finish building at a site, they have little need to transport additional components or other materials there.

Currently, across the country, about 400 wind installation projects are under way, and many of these BNSF can serve either directly or through interchange. Published wind energy zones for the entire U.S. help the wind team anticipate the next project.

"We do a lot of research on growth areas and where the next wind farms are

expected to go. It can be a bit unpredictable, given all the factors that go into wind farm development, including funding, government incentives, grid capacity and community support," says Halvorson. "Then, of course, sometimes the projects can get canceled."

Halvorson says developers are currently accelerating plans to capitalize and complete projects before tax incentives expire (although they are expected to be renewed). In addition to Washington, Oregon and Iowa have been very supportive of wind development because they have set high renewable energy commitments, she says.

Looking ahead, developers will try to reach atmospheric wind levels previously untapped. To get there, the industry will

need larger blades – up to 60 meters (196 feet) from current 45 meters – and taller towers, which means shipping logistics must be re-examined. Currently, unit trains of 89-foot flat cars are used to transport up to 7,000 feet of blades.

So how will BNSF haul the bigger blades and longer towers?

To find a solution, Halvorson says BNSF is working closely with manufacturers and developers on component size, shipping logistics and equipment options.

"As components are getting bigger, wider and longer, we ask that they work with us so we can continue to move their components by rail," she says.

And that's not just a bunch of wind. 🌪️

COAL STILL KING

As efforts persist to find alternative forms of electrical generation, coal, a longtime friend of the rail industry, keeps burning bright.

Consider these stats:

■ In 2010, coal provided 45 percent of U.S. electrical generation, topping natural gas, nuclear power, hydro-electric generation and all other renewable energy.



PRB coal will continue to be important to both the U.S. electricity grid and BNSF.

- Most of the coal used to keep power plants humming came from the Powder River Basin, the largest reserve of low-cost hydrocarbons in the country, and a key player for BNSF. (More than 90 percent of the coal BNSF hauls originates from the PRB.)
- While electrical generation from coal dipped slightly since 2006, PRB production has held its ground and even ticked upward last year. The PRB accounted for 468 million short tons of production, up 1 percent to 43 percent of the nation's total coal production.
- BNSF, which has maintained a strong PRB presence since the 1970s, had the lion's share of coal tonnage from the region at 60 percent in 2010. More than 272.2 million tons – or nearly 51 BNSF trains per day – originated from mines in southwest Montana and northeast Wyoming.

Despite a slowing economy and challenges that include legislative pressures, PRB coal has long-term importance with its cleaner, low-sulfur content and estimated reserves of more than 200 years.

"Coal is important to our energy mix," says George Duggan, vice president, Coal Marketing. "The reserves are large, with low and stable mining costs. Therefore, coal will continue to be important to both the U.S. electricity grid and BNSF for some time to come."

Recent demand for PRB exports is creating new opportunities, as well as continued expansion of PRB use to the eastern United States, replacing Central Appalachian coal, Duggan says.

Last year, 6.4 million PRB tons were sent via BNSF to the Pacific Rim, compared with 1.3 million tons in 2008.

Such growth positions coal to remain a valuable piece of BNSF's business.

"Even with growing use of natural gas, nuclear, hydro and the renewables, coal will fuel a large portion of electricity generation," Duggan adds. "Coal is important and will continue to be important to BNSF and to the U.S. economy." 🌪️