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Coal For Thee, But Not For Me



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Energy

I write about the nexus of energy, the environment and the economy.



In a [Forbes article](#) earlier this month, I discussed the challenges facing efforts to boost coal-fired electric power in the U.S. A case in point is Arizona's Navajo Generating Station, the largest coal power plant in the western U.S., whose owners last month withdrew their efforts to sell the plant to investors who would keep it open for several more decades. The plant is now slated to close in 2019, despite various efforts by federal, state and tribal officials to keep it open. Even with last [week's announcement](#) that one of FirstEnergy's coal plants in West Virginia has postponed closure from 2019 until 2022, efforts by some parties, including the Trump Administration, to revive coal-powered generation face very

stiff headwinds. The high pressure behind these headwinds comes from a mix of market and policy factors – continued low natural gas prices, declining costs of renewable power such as wind and solar, state mandates and private company directives for renewable electricity.

This, of course, is not welcome news to U.S. coal-producers, who have been hard hit by the decline in coal used to generate electric power, which has fallen from 48 percent of the U.S. generation mix in 2008 to 28 percent today. U.S. coal production has dropped 35 percent in that same time period.

Recent Spike in U.S. Coal Exports Counters Decline in Domestic Coal Demand

But amid the slackening demand for domestic coal use in the U.S., there has been a recent and substantial uptick in the demand for exported coal.

After falling for years, U.S. coal exports have surged recently, [climbing 61% in 2017 and further expanding into 2018](#). Prior to last year, coal exports seemed as depressed as the domestic market. Between 2012 and 2016, coal exports fell by more than half. This was on top of export price declines of nearly 40 percent during that period. Together the domestic and export woes [hit coal-reliant states such as West Virginia](#) very hard, with a nearly one-half decline in coal-sector employment in four years. Thus in some corners of the Mountaineer State, the second largest coal producing state but by far the largest exporter, the export bump is seen as a ray of hope on an otherwise challenging landscape.

Why The Export Surge?

While Europe remains the largest customer for exported U.S. coal, an increase in demand from Asia has sparked the recent export surge. U.S.-mined coal is used both for thermo-electric power generation and for metallurgical purposes (coking in iron and steel production), but the swings have been driven more by the former.

What's going on in Asia? India has been building coal-fired power plants at a

brisk clip and can only meet part of its supply needs domestically because of the type of coal extracted there. Japan's increase in coal imports follows its movement away from nuclear power after the Fukushima disaster and South Korea is following suit. Together, U.S. exports to those two countries increased nearly five-fold in 2017. And weather conditions last year curtailed Chinese hydropower, further pushing out Asian coal demand, while also mitigating Australia's ability to respond to bump up coal supply to meet the growing regional demand.

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Will Coal Exports Revive the Long-term Prospects of the U.S Coal Industry?

The National Coal Council clearly hopes so. In a report entitled *Advancing U.S. Coal Exports*, they address a number of questions directed at them by Energy Secretary Rick Perry on ways in which the U.S. can capitalize on market opportunities, build infrastructure and clear regulatory hurdles seen to restrict exports. The report recommends establishing an Energy Department-led, government wide Coal Exports Task Force, which would in turn implement seven recommendations addressing demand and supply challenges.

One critical question is whether the recent growth in export demand is sustainable. The U.S. is a major exporter of metallurgical coal but is considered a "swing" supplier of coal for thermo-electric use. As one of many participants in a global market, the demand for U.S. coal exports depends not only on fluctuations in overall global demand, but on competition from other exporters and periodic supply shortages elsewhere. Exports are also affected macroeconomic factors such as currency exchange rates, and trade policy.

But things can get messy on the trade policy front. Metallurgical coal exports also went up substantially in 2017, but most of those exports went to countries that, in

turn use it to make steel that they export to the U.S. With the Trump Administration's recent steel import tariffs on several of those countries, this complicates matters for metallurgical coal exports considerably. Two of the countries that import U.S. coal and export steel to the U.S., Brazil and South Korea, have negotiated steel tariff exemptions, but three countries – Japan, Canada, and India – have not.

Long-term export demand for thermal coal will be influenced by what countries do about commitments made under the Paris Climate Agreement. Major emitting countries such as China and India are large users of thermal coal and that use is increasing for now, but will need to taper off and decline in the future if the Paris commitments are to be kept. Coal demand will also be affected by the pace at which low and zero-carbon alternatives become more economic and more reliable over time - a pace that has been rapid of late, but the future trajectory will be determined by an emerging mix of technological, market, and policy factors.

On the supply side, U.S. coal exports are limited more by infrastructure than the abundance of the resource itself. The National Coal Council report takes special note of export port and terminal capacity and the need for regular dredging, especially for east coast ports. West coast ports are deeper, closer to Asian markets, and closer to western U.S. producers, but so far state leaders in Washington, Oregon and California have turned down proposals for coal export terminals there.

What Does All This Mean?

While improving port export capabilities can lower transport costs, it seems likely that even with these improvements the U.S. would remain a swing supplier on world markets, with spikes in exports when global demand is up, major suppliers face periodic shortages, or the value of the dollar declines to more export-friendly levels. Of course, drops in export demand happen when the opposite occurs. For a country with historically large production and domestic use of coal, export markets are inherently more volatile than domestic ones. So if exports do rise in their relative importance for U.S. coal, producers will need to buckle up for the

roller coaster ride that comes with it.

[Will Niver of the Duke University Energy Initiative provided research assistance – and the catchy title - for this article]

I am Director of the Duke University Energy Initiative, a university-wide interdisciplinary hub for energy research, education and engagement, and research professor at Duke's Nicholas School of the Environment, where I teach courses in economics and energy systems transform... [MORE](#)

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The Best Museum Exhibits To See This Fall, Coast To Coast



Capital One **BRANDVOICE**

By Brian Sodoma

As the weather cools, indoor activities start to beckon. Here are six museum exhibits worth checking out this fall, from coast to coast.



If none of these museums are located near you and you can't hit the road to see them, check your local listings to find out what's close to home. GETTY CREATIVE

Explore Human Perception — And The Ocean Floor

“Our Senses” at the American Museum of Natural History in New York City is a fun and immersive [exhibit](#) that explores the limits and possibilities of human perception and how it affects our view of what's real. Visitors enter and explore 11 funhouse-like spaces that trigger the senses in amusing and sometimes confusing ways. The point is to educate us about how the brain collects and processes sensory information and uses it to shape how and what we see. You can visit “Our Senses” through Jan. 2, 2019.

“[Unseen Oceans](#),” also at the American Museum of Natural History, is open until Aug. 18, 2019. It showcases ocean-floor video and images to give visitors a glimpse of the fantastical creatures that make the ocean floor's lightless, alien habitats their homes. An immersive theater presentation will give you a sense of what it's like to descend in a submersible to those deep-ocean regions where no light shines. You'll also learn a lot about the current state of the art of oceanic

research.

Experience Navy Life On A Real Aircraft Carrier

The largest ship in the world when it was commissioned in the wake of World War II, the aircraft carrier USS Midway served in the Vietnam War and as flagship in Operation Desert Storm. Since its decommissioning in 1992, this floating city has functioned as [one of the world's great naval museums](#), offering an up-close look at what life is like at sea for Navy personnel.

Open year round, the USS Midway Museum reveals some of the most important U.S. naval actions of the last century, and you'll have the chance to enjoy the San Diego waterfront at its breezy best.

A Cutting-Edge Art Destination In Massachusetts

Head to a former factory town in the Bay State for “Thumbs Up For The Mothership,” a [multi-media collaboration](#) between New Orleans conceptual artist Dawn DeDeaux and Lonnie Holly, a self-taught sculptor and musician from Alabama. Now showing at the Massachusetts Museum of Contemporary Art (MASS MoCA), the show transforms discarded rocking chairs, old garden hoses, stray branches and other ephemera into art. The artists seek to make a point about society's relationship with the planet — the mothership of the show's title. This exhibit will be open through at least the rest of 2018.

Don't rush out of town after you've seen this show. North Adams, Massachusetts, has become a real destination for art enthusiasts since MoCA, the world's largest contemporary art museum, opened in a converted mill complex in 1999. You'll easily fill a weekend soaking in all the attractions, from lively eateries to smaller galleries featuring cutting-edge art.

Three Classic American Illustrators, In Context

“[Keepers of the Flame: Parrish, Wyeth, Rockwell and the Narrative Tradition](#)” delves into the work of the [legendary illustrators](#), exploring how their work

relates to the European realist tradition. Eighty-five works by Maxfield Parrish, N.C. Wyeth and Norman Rockwell are on display, including some of their best known. You'll also get to see works by the European masters who influenced this trio of quintessentially American artists. See them all at the Norman Rockwell Museum in the picturesque Berkshires town of Stockbridge, Massachusetts. But hurry, you have until only Oct. 28 to see this exhibit.

When Dinosaurs Roamed The South Pole

At Chicago's Field Museum, "[Antarctic Dinosaurs](#)" is on exhibit until Jan., 6, 2019. It explores the Antarctica of 255 million years ago, when it was still a lush forest habitat where gigantic reptiles roamed. Recently discovered fossils of a dinosaur species completely new to science are a highlight of the show.

The exhibit also chronicles crucial past and current expeditions, offering a glimpse into the challenges their members endured in order to shed light on the history of the Lost Continent.

The City Of Angels Through The Eyes Of Its Kids

["Unshuttered: Teens Reframing Life In Los Angeles"](#) spotlights the day-to-day reality of Los Angeles life as local teen photographers have captured it through their lenses. Twenty-three high school students from the SoCal megalopolis contributed to this show at Los Angeles's J. Paul Getty Museum, each exploring a social issue that he or she found personally important.

One photographer's work, for instance, examines the realities of vulnerable young people navigating the local foster child program. Another teen, the daughter of a street vendor, documents the lives of the city's undocumented women. The exhibit is on view through Jan. 20, 2019.

Big-Name Concerts At A Musical Museum

Collecting more than 6,800 instruments under its roof, the [Music Instrument Museum](#) in Phoenix, Arizona, boasts top pieces from around the globe, on display

year round. An added attraction is its fall 2018 concert calendar, which features 50 artists, including Stephen Stills, Judy Collins, Tower of Power, John Paul White and Bobby McFerrin.

This is just a tiny sample of what America's museums have to offer this fall. If none of these museums are located near you and you can't hit the road to see them, check your local listings to find out what's close to home.

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