

Ken Miller

Clean Energy Program Director
Snake River Alliance



Embracing Clean Energy

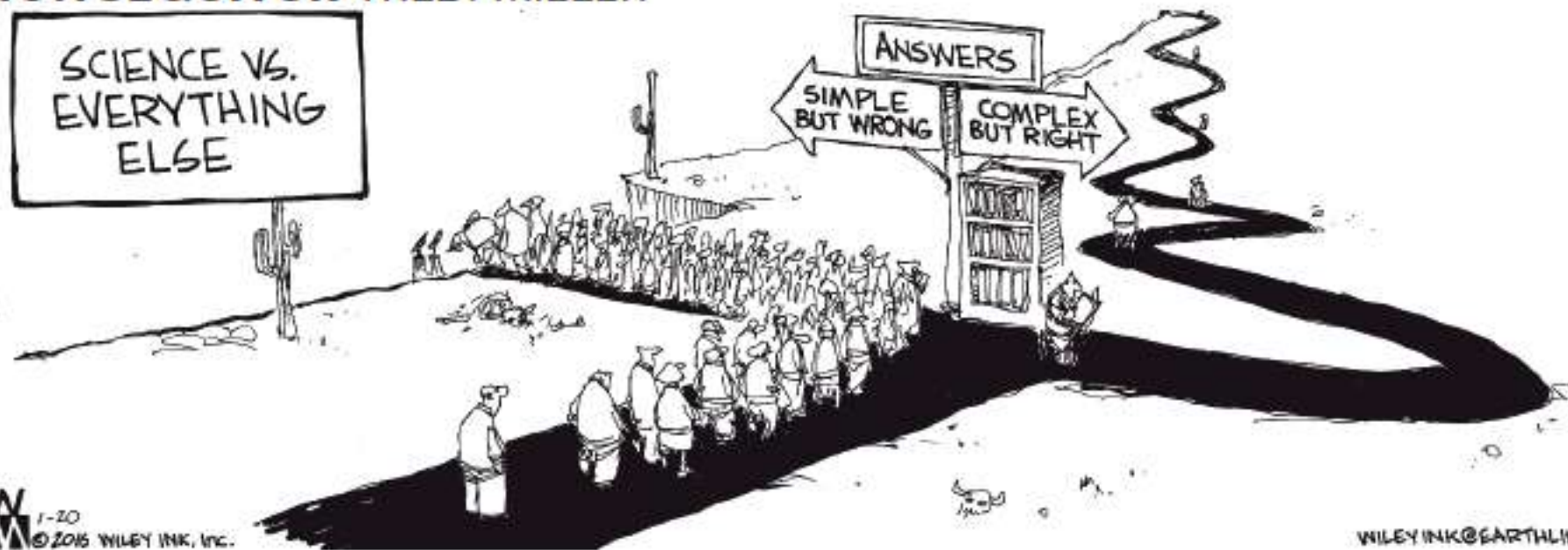
Idaho's Clean Energy Future

Energy & the Snake River Alliance

- Clean Energy Advocacy at Idaho PUC Commission
- 10 Years of Utility Integrated Resource Plan Development
- Member of Idaho Wind, Solar PV, & Geothermal Working Groups
- Participated in development of Idaho Energy Plan
- Litigated Idaho Power's Coal Plant Upgrades at PUC
- State and Regional Transmission and Resource Planning

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SCIENCE VS.
EVERYTHING
ELSE



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Idaho's Hydropower Legacy

Hells Canyon – 391MW



Swan Falls – 27MW



Idaho's Dirty Energy Today

Boardman OR- 64MW



Valmy NV – 283MW



Jim Bridger, Rock Springs – 770MW



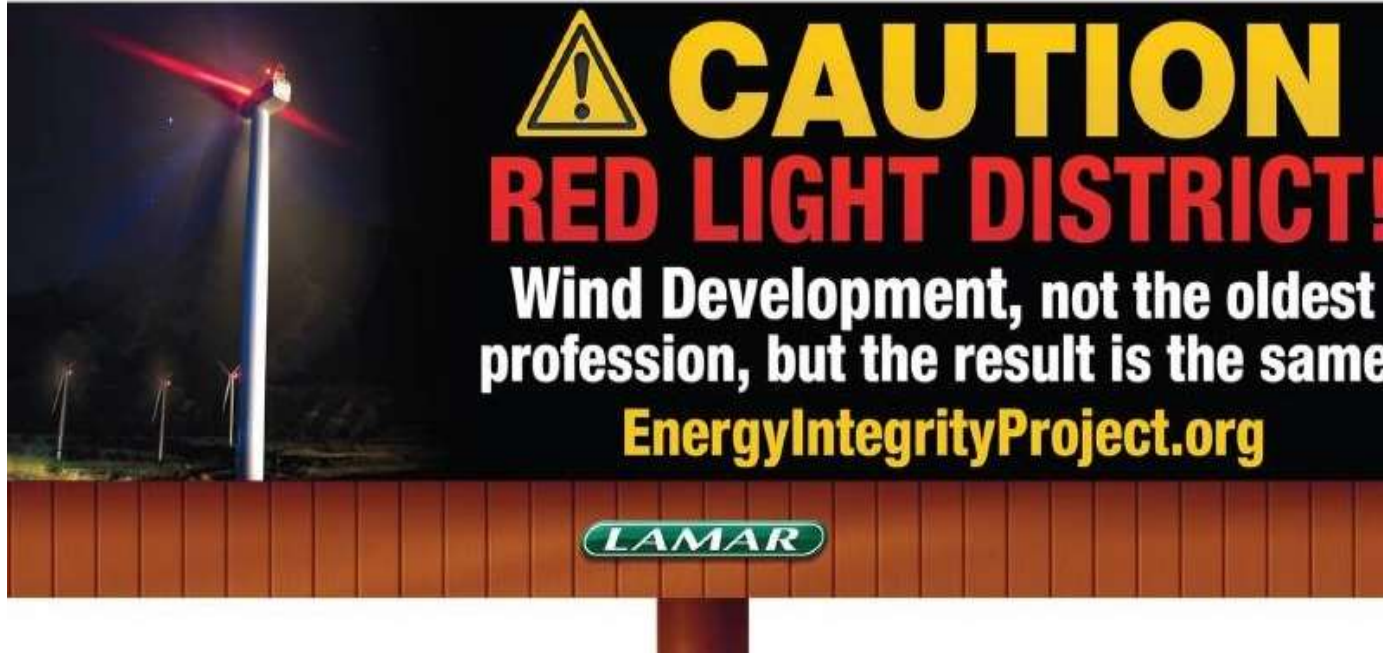
Idaho's Coal Conundrum

- State has no utility coal plants
- Coal accounts for 40-50 percent of Idaho's electricity portfolio
- 3 investor owned utilities (Idaho Power, Avista, PacifiCorp) own or partly own 29 coal plants in 7 western states
- Idaho "exports" its coal emissions to neighboring states, creating illusion of low-carbon energy portfolio
- Idaho has highest electricity-related CO2 emissions in the Northwest



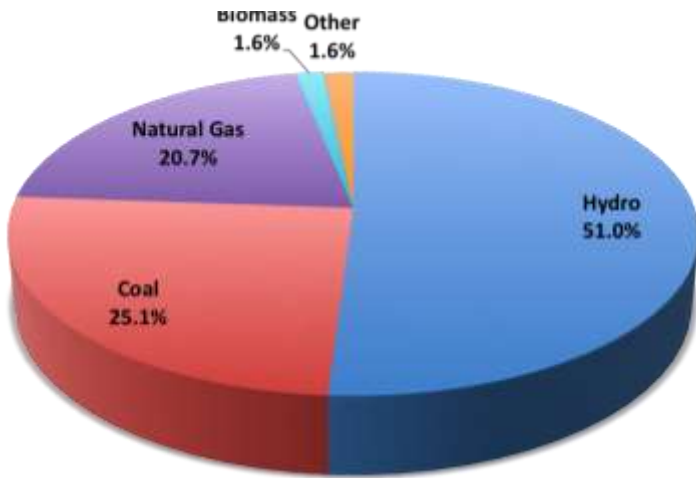
Coal plants serving Idaho load



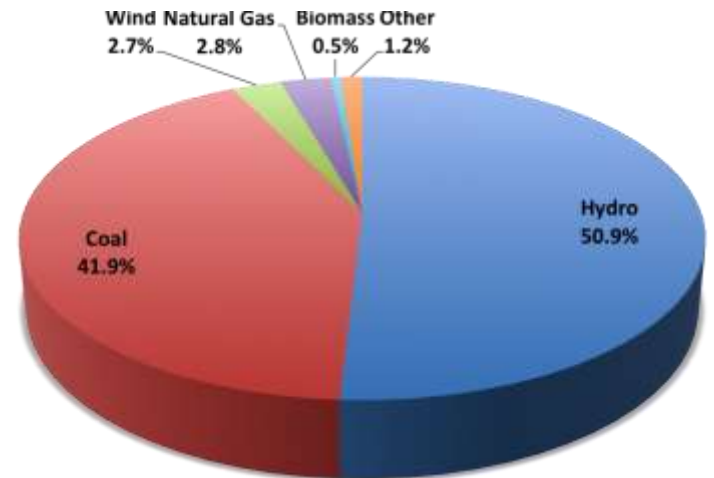


Unrolling the Wind Welcome Mat

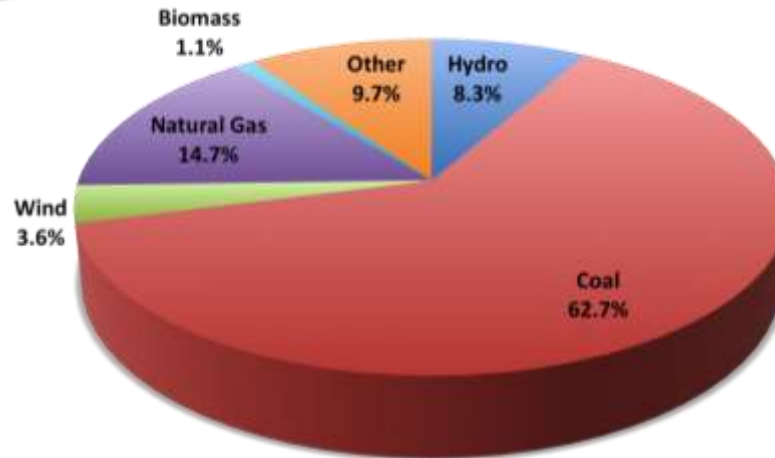
Idaho Power, Eastern Idaho Wind Critics
Wage Statewide Campaign Against Wind



Avista



Idaho Power



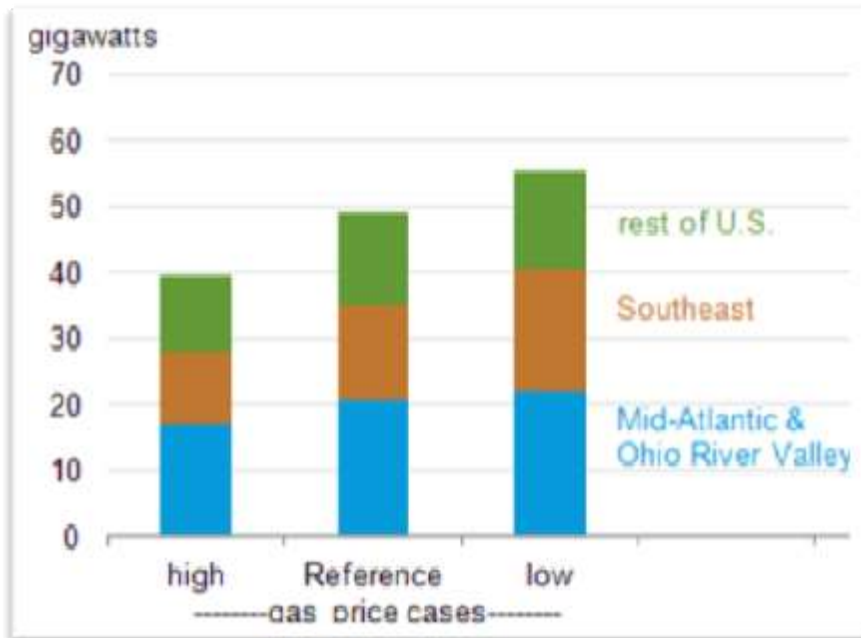
PacifiCorp

Typical Utility Resource Mixes

Investor-Owned Utilities Serving Idaho Customers

Bucking Regional, National Trends

Projected retirements of coal-fired generators through 2020 – U.S. EIA



- Pacific Northwest's 2 utility coal plants (Boardman & Centralia) set for early retirement in 2020-2025
- Nation's largest electric utilities planning more plant retirements—Southern, Duke, American Electric Power, Amaren, Progress, FirstEnergy, Xcel, Exelon, Dominion, TVA
- Early retirements driven by reduced natural gas prices, anticipated state and federal environmental regs, carbon constraints, and soaring costs for required antipollution retrofits.

Coal-Heavy Utilities Face Greater Risk

- Wall Street is rewarding utilities that are shedding coal assets while punishing those retaining coal in their portfolios
- Rating agencies are downgrading coal utilities from historic solid ratings to near junk status, making borrowing much more expensive at a time utilities are embarking on major capital programs
- Shareholders are striking back at coal utilities. In the past 2 years, Ceres reports, shareholders of 24 electric power companies brought resolutions on climate risk, greenhouse gas emissions and related matters



- PacifiCorp anticipates \$4.2 billion in upgrades to a \$3.8 billion coal fleet

Coal Plants in the Northwest



The Challenge in Replacing Idaho Coal

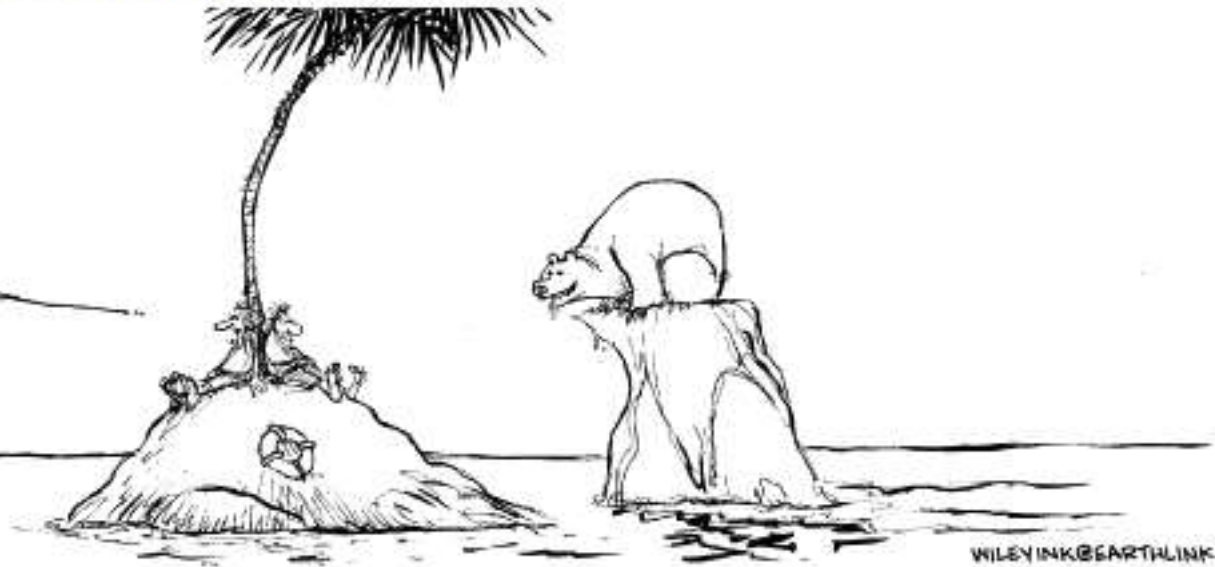
- Utilities serving Idaho load import approximately **1,500 megawatts** of coal-fired generation, with Idaho Power having access to 1,100MW nameplate
 - Applying an 85 percent capacity factor, the number is reduced to **1,275MW**
 - But the coal plants are dispatched with less frequency due to competition from gas and other factors, making the actual amount of energy needing to be replaced more like **700MW**



- That's about the equivalent of a typical coal plant or two gas turbines that must be replaced

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OK...THE GOOD NEWS IS YOU'VE COME AROUND TO AGREE WITH ME ABOUT THE REALITY OF CLIMATE CHANGE.
SO WHAT'S THE BAD NEWS?



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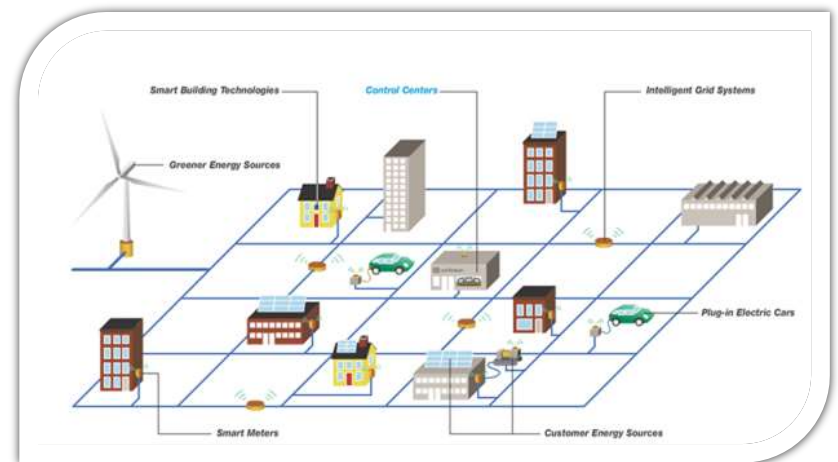
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Efficiency Steps Up for Heavy Lifting

- Northwest leads nation in efficiency savings. Since 1980, half of region's demand growth has been met with efficiency. Since 2008, PNW has saved 4,000 aMW
- NW Power & Conservation Council's 7th Plan says all of our new load can be met with efficiency
- The average cost of DSM measures is significantly lower than the cost of any supply side resource



- Measures such as decoupling and rate changes must remove efficiency disincentives. Efficiency costs should be capitalized so utilities can earn a return on them, as they do power plants

Renewables Pitch In, But With Limits

- Wind is Idaho's dominant renewable resource today, but its generation profile doesn't make it a suitable replacement by itself
- Solar's profile closely matches southern Idaho's peak needs
- Geothermal, co-gen, small hydro, biomass will likely play a role
- More gas is possible – maybe likely – for near-term balancing of renewables



Idaho's Renewable Generation

- Wind: 972.5 megawatts
- Solar PV: 1 MW
- Geothermal: 15.8 MW
- Biomass: 145 MW
- Hydropower: 3,674MW

Renewables Displace Coal...





Neal Hot Springs, Oregon 22MW

Malheur County, OR, Idaho Power 2012 Contract

Idaho's First Utility Solar Farm



SRA's "Solarize the Valley" – April 2016



Electrifying Our Transportation Fleet



IDAHO COMPANIES

A post-coal, post-gasoline future

CEO Darrel T. Anderson says Idaho Power's use of renewables is among top in the nation

The company sees opportunity in EVs running on the equivalent of 95 cents a gallon

Statesman Staff

As it turns 100 this year, Idaho Power and its 520,000 customers rely increasingly upon power from the sun, wind and natural gas. The company is intrigued by the prospect of powering electric cars like those planned by Tesla.

CEO Darrel T. Anderson spoke in December to a Boise Metro Chamber of Commerce audience about his company's evolution, its carbon footprint, its new use of drones and the possibility of vehicle-charging stations.

His comments are condensed from a transcript prepared by the chamber's public relations director, Caroline Merritt.

THE ROOTS OF TODAY'S COMPANY

The first electric lights were in Hailey. It wasn't really until July 4, 1887, that lights showed up in Boise. Once that showed up, what you saw is a whole lot of entrepreneurs saying, "Hey, I think I want to get a piece of this business. This looks like it's going to take off."

There wasn't really regulation at the time. There were about 50 companies trying to provide electric service to a small number of customers in what is now our geographic footprint. Over the years, that shrank to 19, because a lot of those companies ended up falling upon some financial hardships, and because everyone was trying to string power

poles. You had power poles running everywhere.

About 1915, five companies that were sort of waning started talking about "How can we put this business together and make it go?" By 1916, Idaho Power was formed, the consolidation of these five.

Swan Falls, outside of Kuna, was the first Idaho electric facility along the Snake River, in 1901. It was built to supply energy to the mines in Silver City. [It became] the nexus of our water rights today that allow us to continue hydro generation on the Snake.

In the '20s, '30s, and '40s, the sense was, "The area is starting to grow, and we need a new generating source." The leadership then at Idaho Power started looking at developing resources. What you ended up with is a three-dam complex down in Hells Canyon area that provides about 1,200 megawatts today,



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Darrel T. Anderson, president and CEO of Idaho Power and its parent, Idacorp, spoke at the Boise Metro Chamber of Commerce's CEO Speaker Series at the Boise Centre. "Everybody in this room is a customer of ours," he said.

which helps keep the prices for our customers down. We're in the process of relicensing that project.

After Hells Canyon, the economy continued to grow, irrigation continued to grow, so we need a new resource. The fuel, at the time, of choice was coal. There was a battle royale with respect to a coal plant just south of Boise in the 1970s called the Pioneer Plant.

The company lost that battle in a big way. There was a three-

county vote. Elmore County voted something like 80 percent down. Ada County and Canyon County voted like 50 to 60 percent against that project.

The company ended up partnering with some others with respect to power plants in Wyoming, Nevada and Oregon.

Fast-forward to now. In 2012, we christened Langley Gulch, by New Plymouth. If you follow natural gas prices, you know the timing actually couldn't have been

better. It's been a great project.

Some of you probably know there has been some exploration out in western Idaho, and they found some natural gas reserves out there. Alta Mesa's been producing that gas. It's not a lot now, but it's some, and we have the opportunity to take that gas into the pipeline. It's located really close to that plant.

WE WANT RENEWABLES, BUT

We've also seen an



Snake River Alliance

IDAHO'S NUCLEAR WATCHDOG & CLEAN ENERGY ADVOCATE

Stay In Touch!

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report on our website!*

