

Q1 2021

ANSWERING AMERICA

**SHOULD WASHINGTON
DO MORE TO SAVE COAL?**



BUSINESSFORWARD
FOUNDATION

SHOULD WASHINGTON DO MORE TO SAVE COAL?

ANSWER: NO.

**TAXPAYERS ALREADY SPEND BILLIONS OF DOLLARS EACH YEAR
SUBSIDIZING COAL COMPANIES. AUTOMATION, SURFACE MINING,
AND NATURAL GAS ARE THE REAL THREAT TO THE COAL INDUSTRY.**



**THE
QUESTION**

THE
ARGUMENT

COAL
SUBSIDIES

ADDITIONAL
COSTS

AUTOMATION

SURFACE
MINING

NATURAL
GAS

COAL
JOBS

ASK THE
EXPERTS

CUTTING RENEWABLES
INVESTMENT

BUY LOCAL
OPPORTUNITY

ENDNOTES

THE ARGUMENT

1

Coal subsidies total \$4 billion per year, or about \$90,000 for every coal mining job in the U.S.

2

Automation has been killing coal jobs since the '50s, just as it has been in many other industries.

3

Surface mining started eliminating coal jobs in the '90s, because it's cheaper than underground mining and requires fewer miners.

4

Natural gas started replacing coal about 10 years ago because it's cheaper and cleaner, which means coal jobs in West Virginia are turning into gas jobs in Pennsylvania.

5

For Iowa, Michigan, Ohio, and Wisconsin, switching from fossil fuels to renewables could generate \$53 billion in local investment and jobs.

6

Doubling down on coal doesn't make sense today. With renewables generating two-thirds of global energy by 2050, relying on coal makes even less sense for the future.



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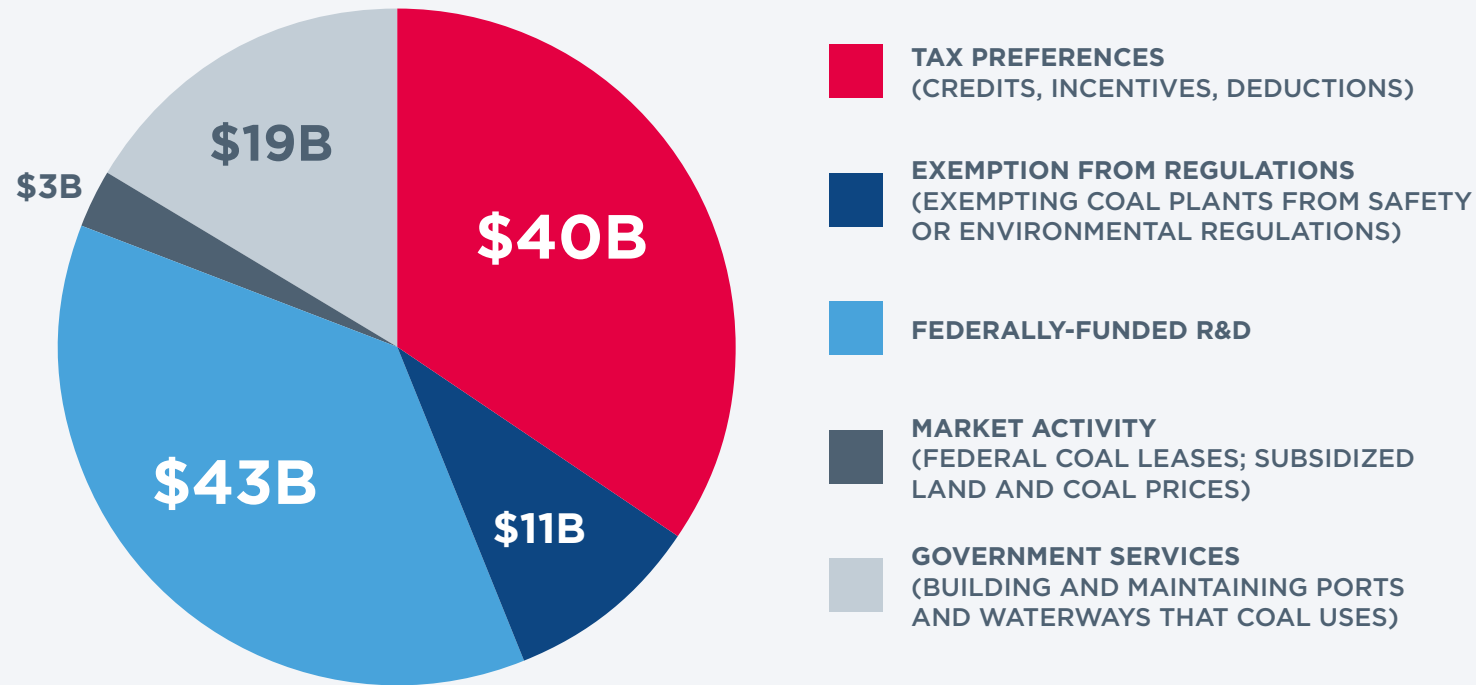
CUTTING RENEWABLES INVESTMENT

BUY LOCAL OPPORTUNITY

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TAXPAYERS HAVE SPENT \$120 BILLION SUBSIDIZING COAL COMPANIES SINCE WWII

TAXPAYER SUBSIDIES FOR COAL COMPANIES¹
(1950-2016, IN 2015 U.S. DOLLARS)



COST OF COAL SUBSIDIES TODAY²



\$4B
PER YEAR
OR
\$90K
PER JOB



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TAXPAYERS COVER OTHER COSTS FOR COAL COMPANIES

ABANDONED MINES

TAXPAYERS FACE AN \$11.7 BILLION CLEANUP BILL

The GAO found 215,000 abandoned hardrock mine features that pose either a physical safety or environmental risk. Agency officials estimate another 390,000 mines on federal land are unaccounted for.

Taxpayers spent \$2.9 billion from 2008 to 2017 addressing these sites, and agencies report it could cost more than \$11 billion to manage the remaining hazards.³



COAL COMPANIES UNDERFUNDED HEALTH CARE FOR MINERS — LEAVING SICK WORKERS AND THEIR FAMILIES TO FEND FOR THEMSELVES

Government fund for sick miners could exceed

**\$15
BILLION**
IN DEBT BY 2050⁵

CASE STUDY: COAL ASH CONTAMINATION

Utilities have been dangerously disposing of coal ash for decades, dumping it in unlined ponds and landfills.

In 2020, environmental law experts analyzed industry data and found that “more than 95% of the coal ash ponds in the United States are unlined.”



Of the 550 units (265 plants) that reported groundwater monitoring data,

91%

ARE CONTAMINATING GROUNDWATER WITH TOXIC SUBSTANCES AT LEVELS EXCEEDING EPA SAFETY STANDARDS⁶

FEBRUARY 20, 2019

U.S. MINING SITES DUMP 50 MILLION GALLONS OF FOULED WASTEWATER DAILY⁴

PBS NEWSHOUR



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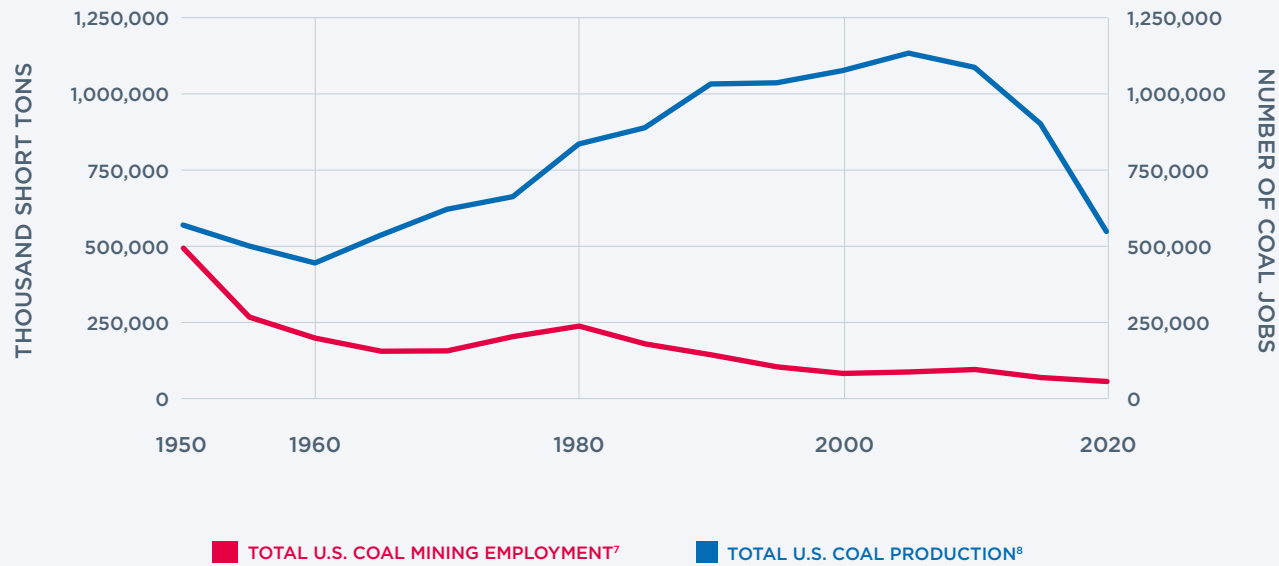
ENDNOTES

AUTOMATION HAS BEEN KILLING COAL JOBS SINCE THE '50S, EVEN AS PRODUCTION INCREASED

MORE TONS PER WORKER = FEWER COAL WORKERS

Increased productivity was already killing coal jobs.
The rapid drop in production is making it worse.

TOTAL U.S. COAL PRODUCTION AND MINING EMPLOYMENT



AUTOMATION'S IMPACT ON COAL IS MUCH LIKE ITS IMPACT ON EVERYTHING ELSE

2000-2017

5.5 million manufacturing jobs lost as manufacturing output increased 7%.⁹

2012-2017

226,000 administrative, bill collector, and bookkeeper jobs lost.¹⁰

2017-2030

Up to 33% of the U.S. workforce will need to learn new skills and work in new occupations.¹¹



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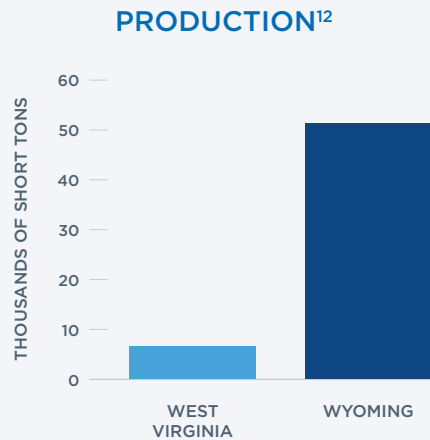
BUY LOCAL OPPORTUNITY

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SURFACE MINING OUT WEST HAS BEEN ELIMINATING COAL JOBS SINCE THE '90S, BECAUSE IT IS CHEAPER, SAFER, AND REQUIRES FEWER MINERS

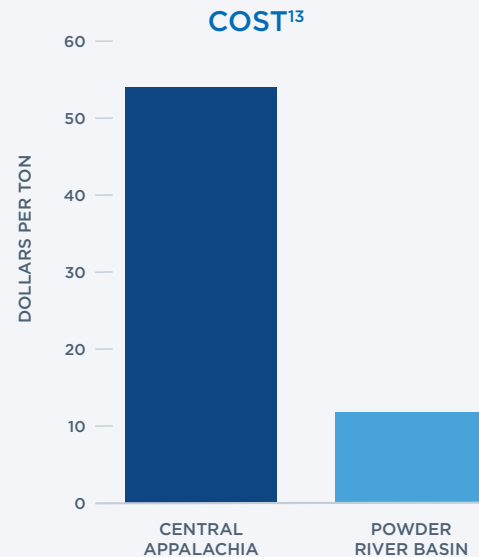
MINING IS EASIER OUT WEST...

WYOMING MINES PRODUCE **8X** MORE COAL PER WORKER THAN WEST VIRGINIA



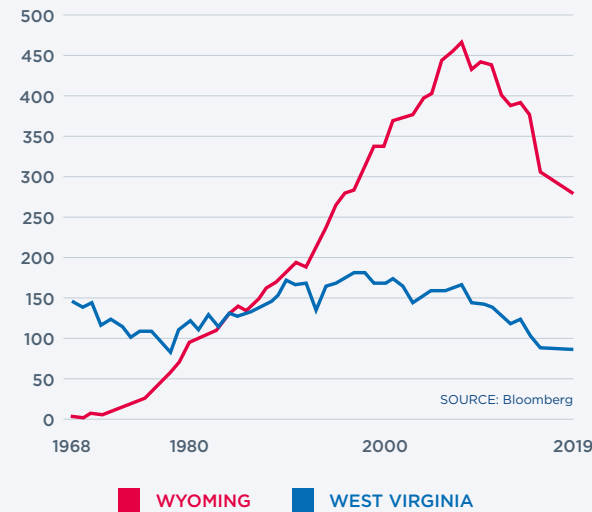
WHICH MAKES THE COAL CHEAPER...

WESTERN COAL IS **5X** CHEAPER THAN IN WEST VIRGINIA



AND EXPLAINS WHY UTILITIES SWITCH TO WESTERN COAL...

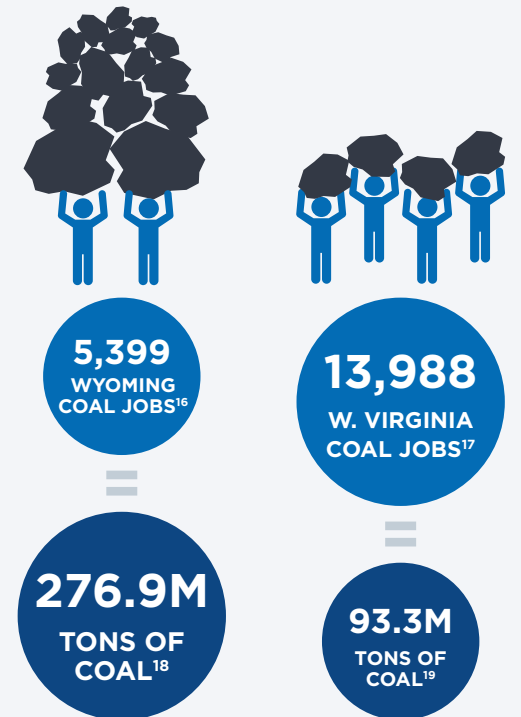
PRODUCTION^{14 15}
(THOUSAND SHORT TONS)



16 MINES IN THE POWDER RIVER BASIN PRODUCE **42%** OF U.S. COAL

THERE ARE 669 TOTAL COAL MINES IN THE UNITED STATES.

UNFORTUNATELY, WESTERN COAL MINES DON'T EMPLOY AS MANY WORKERS PER TON



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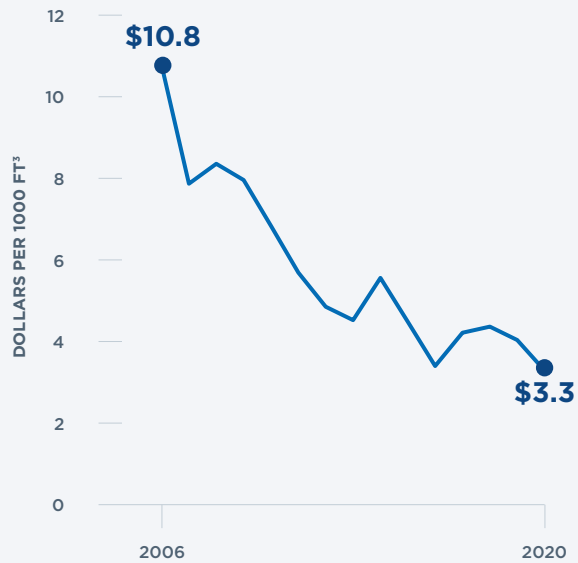
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NATURAL GAS HAS BEEN REPLACING COAL JOBS FOR ABOUT 10 YEARS BECAUSE IT'S CHEAPER AND CLEANER THAN COAL

NATURAL GAS PRICES KEEP FALLING

New fracking technology and horizontal drilling techniques reduced natural gas costs by two-thirds over the past 13 years.²⁰



COAL PLANTS CAN'T COMPETE

BY 2040

72%

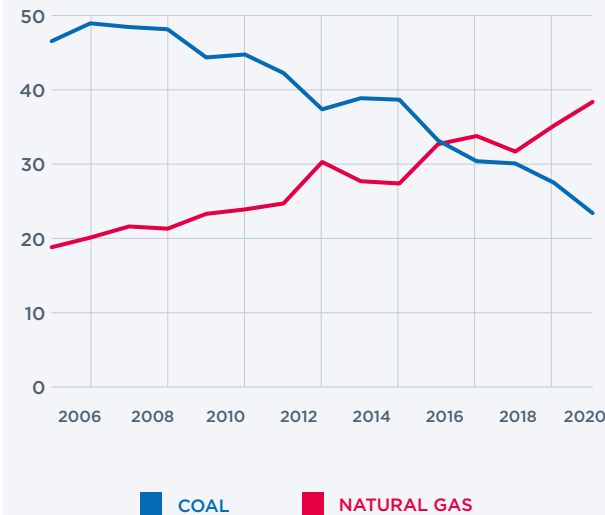
OF GLOBAL COAL PLANTS WILL NOT BE PROFITABLE²¹



U.S. COAL-FIRED ELECTRICITY GENERATION IN 2019 FALLS TO 42-YEAR LOW²²

AS COAL-FIRED PLANTS AGE, UTILITIES REPLACE THEM WITH NATURAL GAS

COAL AND NATURAL GAS MARKET SHARE^{23 24}

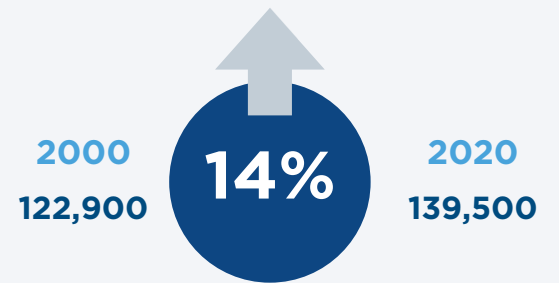


OIL AND GAS EMPLOYMENT RISES AS COAL EMPLOYMENT DROPS

COAL MINING JOBS²⁵



OIL AND GAS JOBS²⁶



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COAL EMPLOYS FEWER PEOPLE THAN YOU MIGHT THINK

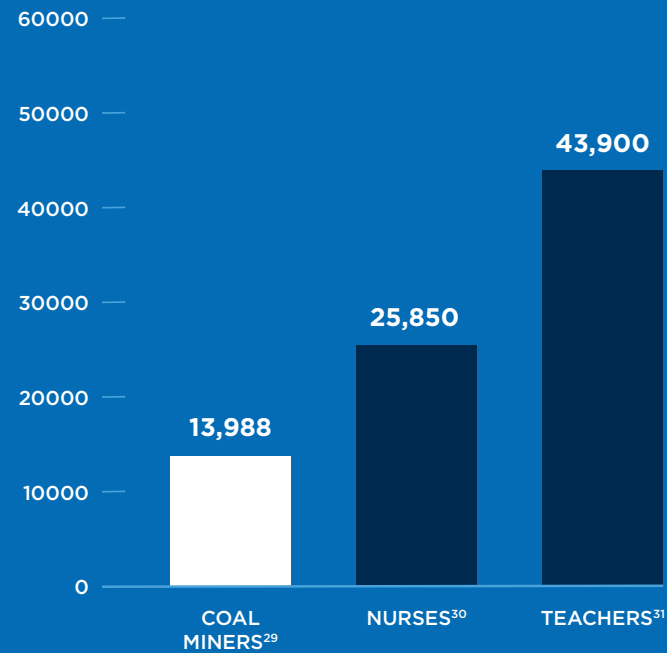
MORE AUTO JOBS IN ALABAMA
THAN COAL JOBS NATIONWIDE

42K
COAL MINING
JOBS IN U.S.²⁷

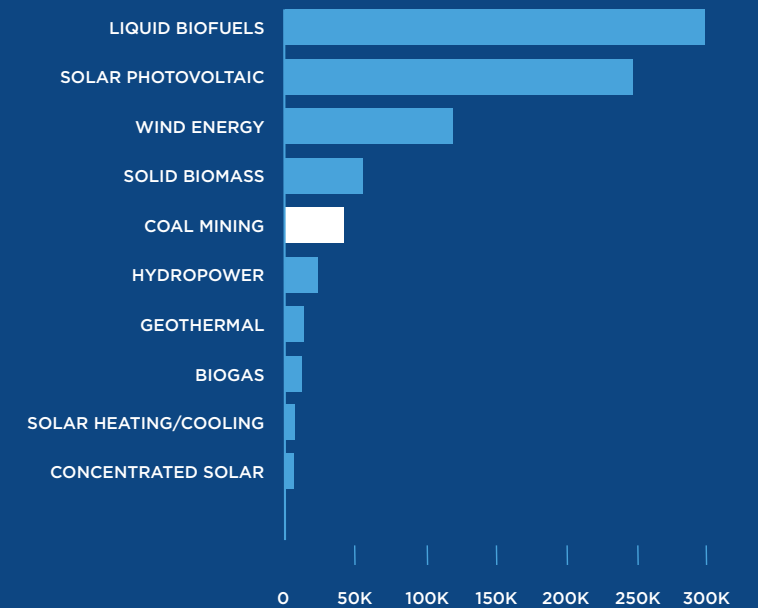
57K
AUTO JOBS
IN ALABAMA²⁸

MORE TEACHERS AND
NURSES IN WEST VIRGINIA
THAN COAL WORKERS

EMPLOYMENT IN WEST VIRGINIA



FOR EVERY COAL
MINING JOB IN THE U.S., 18
IN RENEWABLE ENERGY³²



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SKEPTICAL? ASK A COAL MINER OR ENERGY ANALYST

SEPTEMBER 6, 2019
KATE SULLIVAN³³

MINERS UNION PRESIDENT: 'COAL'S NOT BACK. NOBODY SAVED THE COAL INDUSTRY.'

"Cecil Roberts said at an event in Washington that his message to Trump and others running for president in 2020 is: 'Coal's not back. Nobody saved the coal industry.' He said coal-fired plants are closing all over the country, calling it a 'harsh reality'..."

"Roberts said Trump cutting back some of the Obama-era regulations that limited coal-fired power plant emissions 'perhaps kept the coal industry...in existence' but that plants are still closing 'dramatically,' and the market keeps shrinking."



JULY 10, 2019
TAYLOR KUYKENDALL³⁴

THE COAL SECTOR WILL CONTINUE TO STRUGGLE

"The new rule may result in a slower decline in coal-fired generation; however, it will not change the dynamics that have driven dramatic increases in both natural-gas fired and renewable generation."

- Fitch Ratings, June 25, 2019

S&P Global

JANUARY 26, 2021
STEPHEN BYRD³⁵

MORGAN STANLEY ANALYST: NEGATIVE EQUITY VALUE FOR COAL ASSETS 'ABSOLUTELY' REAL

"What's happened over the past 5 years and longer is as clean energy has gotten cheaper and cheaper, the competitive price of power has fallen and their coal plants have been obliterated. Today almost all of the competitive coal plants have been shut down... These coal plants today have no residual value. They're just... gone."

"The best thing you can try to do as a competitive power player is to pivot to renewables."



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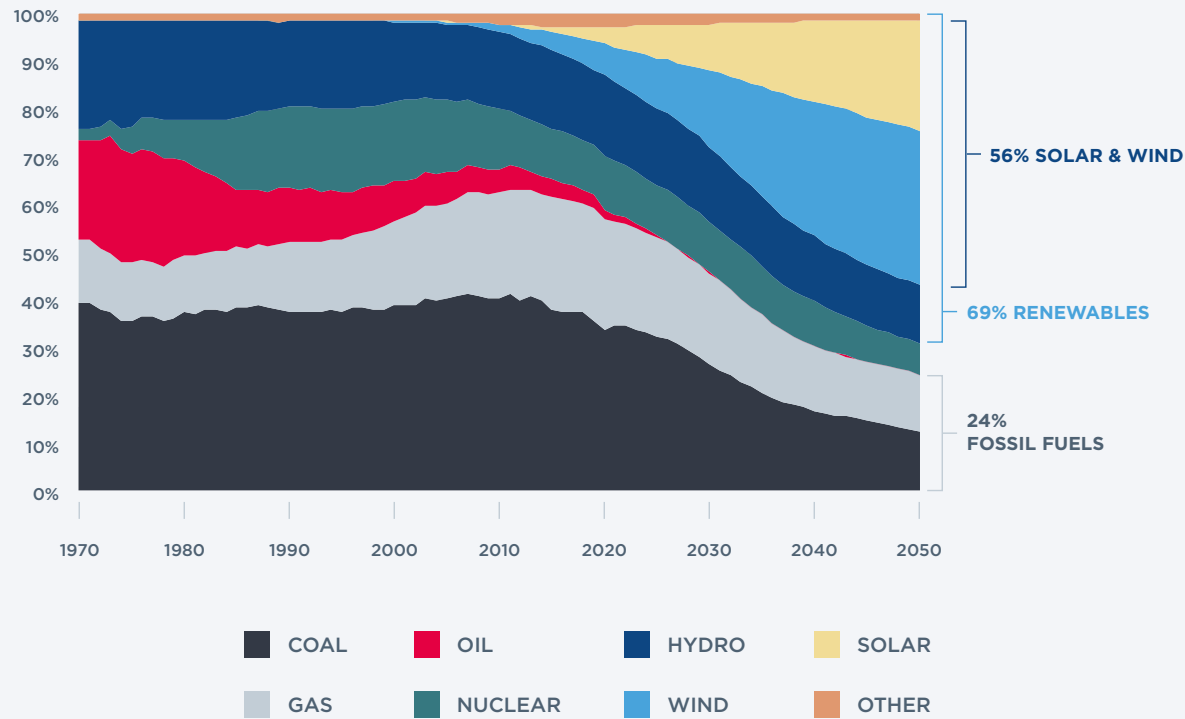
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“SAVING” COAL MEANS CUTTING BACK ON INVESTMENT IN RENEWABLES

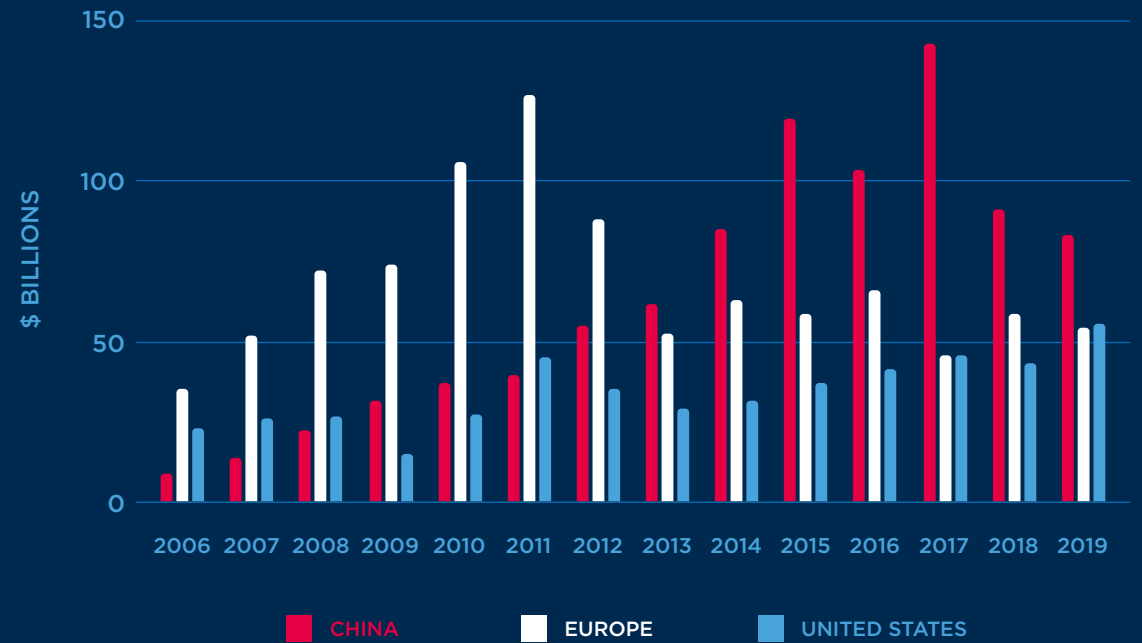
RENEWABLES COULD GENERATE 69% OF GLOBAL ENERGY BY 2050³⁶



SOURCE: Bloomberg New Energy Finance

BUT THE U.S. IS PLAYING CATCH-UP

GLOBAL TRENDS IN RENEWABLE ENERGY INVESTMENT³⁷



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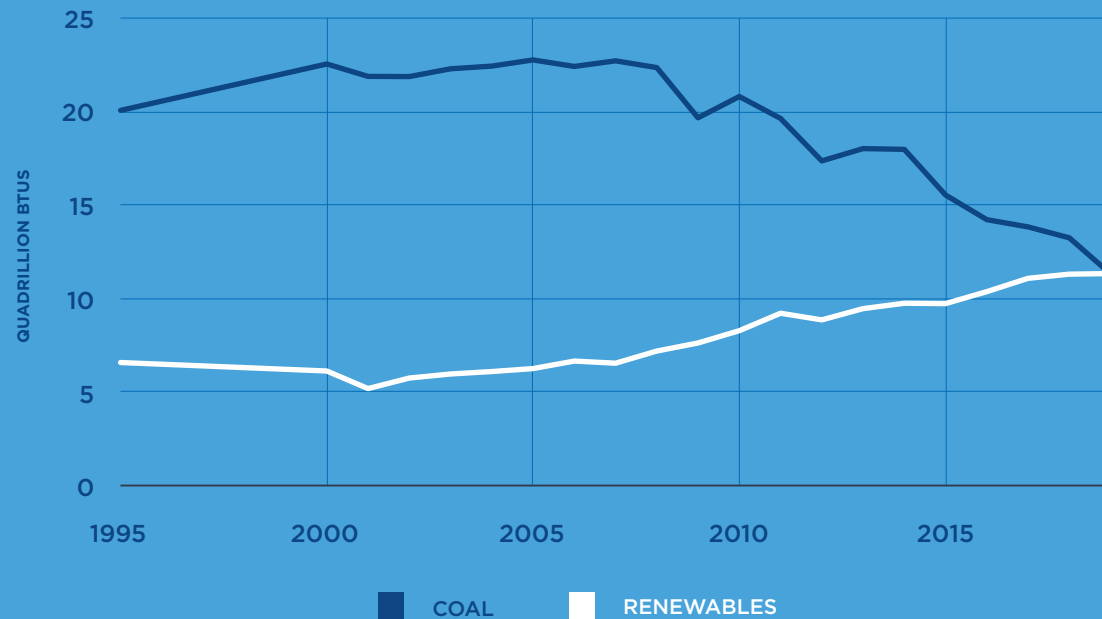
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ACROSS THE MIDWEST ALONE, SWITCHING FROM FOSSIL FUELS TO RENEWABLES = A \$53 BILLION “BUY LOCAL” OPPORTUNITY

CONSUMERS IN THE U.S. ARE ALREADY MAKING THE SWITCH

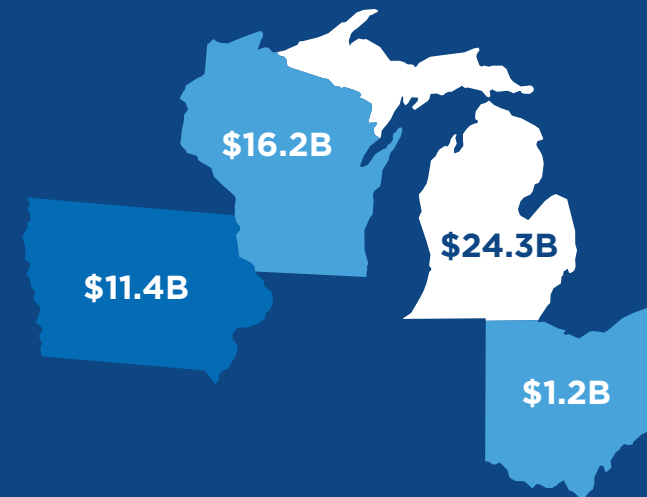
IN 2019, U.S. RENEWABLE ENERGY CONSUMPTION SURPASSED COAL FOR THE FIRST TIME IN MODERN HISTORY

U.S. COAL CONSUMPTION VS. U.S. RENEWABLE ENERGY³⁸



IF FULLY EMBRACED, THIS TREND COULD BE PARTICULARLY PROFITABLE IN THE MIDWEST

Iowa, Michigan, Ohio, and Wisconsin are net energy importers, due largely to their dependence on fossil fuels. Each has renewable energy capacity that could support local investment and jobs.



IF THESE STATES MOVED THEIR ENERGY IMPORTS TO RENEWABLE PRODUCTION AT HOME, \$53 BILLION AND NEW JOBS WOULD COME TO THE MIDWEST³⁹



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INFO@BUSINESSFWD.ORG

BUSINESSFWD.ORG

1155 CONNECTICUT AVENUE NW
SUITE 1000
WASHINGTON, D.C. 20036

202.861.1270

