Our Children's Trust
Youth v. Gov

OUR CHILDREN'S TRUST

OUR CHILDREN'S TRUST

Empowers youth to secure their rights to a life and liveable climate in courts around the world, enshrine the best science in law, and compel government action to protect their futures.

LIGHTHISER V. TRUMP

THE EXECUTIVE ORDERS BEING CHALLENGED

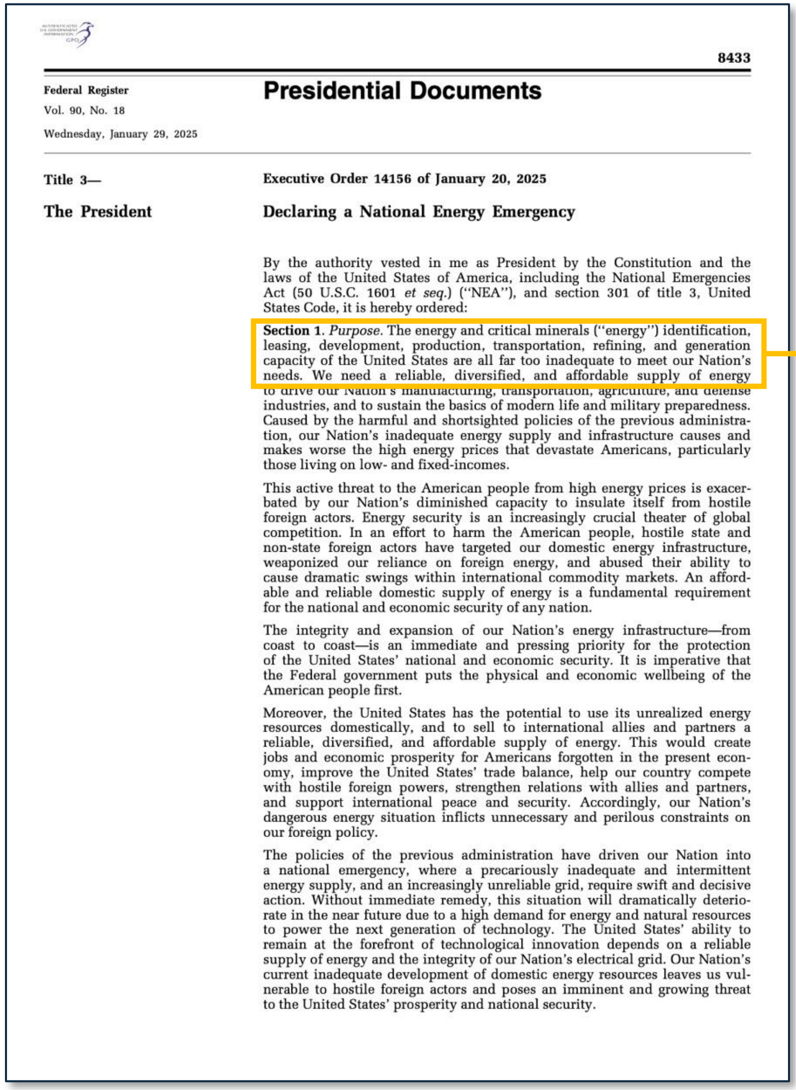
- EO 14154: “Unleashing American Energy”
- EO 14156: “Declaring a National Energy Emergency”
- EO 14261: “Reinvigorating America’s Beautiful Clean Coal Industry”

Directing:

- Emergency powers to unleash fossil fuels & reinvigorate coal
- Fast-tracking fossil fuel development on public lands
- Blocking clean energy infrastructure and programs
- Suppressing climate science and public access to data
- Bypassing Congress and overriding environmental laws

Defendants include President Donald Trump, the Executive Office of the President, and multiple federal agencies, including the EPA, DOE, DOT, DOI, NASA, NOAA, NIH, and others.

Executive Order 14156


8433

Federal Register
Vol. 90, No. 18
Wednesday, January 29, 2025

Presidential Documents

Title 3—

The President

Executive Order 14156 of January 20, 2025

Declaring a National Energy Emergency

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the National Emergencies Act (50 U.S.C. 1601 *et seq.*) (''NEA''), and section 301 of title 3, United States Code, it is hereby ordered:

Section 1. *Purpose*. The energy and critical minerals (''energy'') identification, leasing, development, production, transportation, refining, and generation capacity of the United States are all far too inadequate to meet our Nation's needs. We need a reliable, diversified, and affordable supply of energy to drive our Nation's manufacturing, transportation, agriculture, and defense industries, and to sustain the basics of modern life and military preparedness. Caused by the harmful and shortsighted policies of the previous administration, our Nation's inadequate energy supply and infrastructure causes and makes worse the high energy prices that devastate Americans, particularly those living on low- and fixed-incomes.

This active threat to the American people from high energy prices is exacerbated by our Nation's diminished capacity to insulate itself from hostile foreign actors. Energy security is an increasingly crucial theater of global competition. In an effort to harm the American people, hostile state and non-state foreign actors have targeted our domestic energy infrastructure, weaponized our reliance on foreign energy, and abused their ability to cause dramatic swings within international commodity markets. An affordable and reliable domestic supply of energy is a fundamental requirement for the national and economic security of any nation.

The integrity and expansion of our Nation's energy infrastructure—from coast to coast—is an immediate and pressing priority for the protection of the United States' national and economic security. It is imperative that the Federal government puts the physical and economic wellbeing of the American people first.

Moreover, the United States has the potential to use its unrealized energy resources domestically, and to sell to international allies and partners a reliable, diversified, and affordable supply of energy. This would create jobs and economic prosperity for Americans forgotten in the present economy, improve the United States' trade balance, help our country compete with hostile foreign powers, strengthen relations with allies and partners, and support international peace and security. Accordingly, our Nation's dangerous energy situation inflicts unnecessary and perilous constraints on our foreign policy.

The policies of the previous administration have driven our Nation into a national emergency, where a precariously inadequate and intermittent energy supply, and an increasingly unreliable grid, require swift and decisive action. Without immediate remedy, this situation will dramatically deteriorate in the near future due to a high demand for energy and natural resources to power the next generation of technology. The United States' ability to remain at the forefront of technological innovation depends on a reliable supply of energy and the integrity of our Nation's electrical grid. Our Nation's current inadequate development of domestic energy resources leaves us vulnerable to hostile foreign actors and poses an imminent and growing threat to the United States' prosperity and national security.

- The energy and critical minerals ("energy") identification, leasing, development, production, transportation, refining, and generation capacity of the United States are all far too inadequate to meet our Nation's needs.

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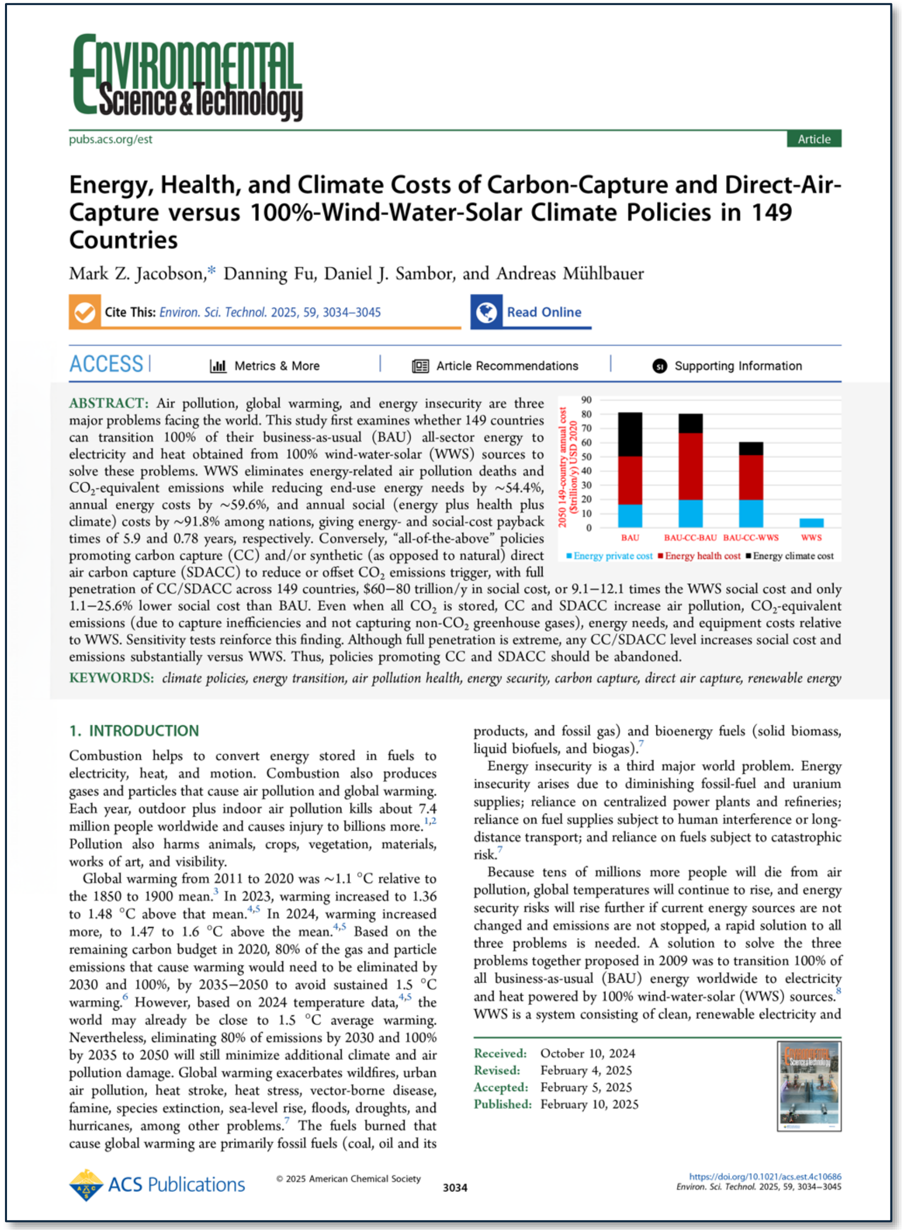
Doc. 1-2
Exhibit 8 p.19



Environmental Science & Technology

pubs.acs.org/est Article

Energy, Health, and Climate Costs of Carbon-Capture and Direct-Air-Capture versus 100%-Wind-Water-Solar Climate Policies in 149 Countries

Mark Z. Jacobson,* Danning Fu, Daniel J. Sambor, and Andreas Mühlbauer

Cite This: *Environ. Sci. Technol.* 2025, 59, 3034–3045

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ABSTRACT: Air pollution, global warming, and energy insecurity are three major problems facing the world. This study first examines whether 149 countries can transition 100% of their business-as-usual (BAU) all-sector energy to electricity and heat obtained from 100% wind-water-solar (WWS) sources to solve these problems. WWS eliminates energy-related air pollution deaths and CO_2-equivalent emissions while reducing end-use energy needs by ~54.4%, annual energy costs by ~59.6%, and annual social (energy plus health plus climate) costs by ~91.8% among nations, giving energy- and social-cost payback times of 5.9 and 0.78 years, respectively. Conversely, "all-of-the-above" policies promoting carbon capture (CC) and/or synthetic (as opposed to natural) direct air carbon capture (SDACC) to reduce or offset CO_2 emissions trigger, with full penetration of CC/SDACC across 149 countries, \$60−80 trillion/y in social cost, or 9.1−12.1 times the WWS social cost and only 1.1−25.6% lower social cost than BAU. Even when all CO_2 is stored, CC and SDACC increase air pollution, CO_2-equivalent emissions (due to capture inefficiencies and not capturing non-CO_2 greenhouse gases), energy needs, and equipment costs relative to WWS. Sensitivity tests reinforce this finding. Although full penetration is extreme, any CC/SDACC level increases social cost and emissions substantially versus WWS. Thus, policies promoting CC and SDACC should be abandoned.

KEYWORDS: *climate policies, energy transition, air pollution health, energy security, carbon capture, direct air capture, renewable energy*

1. INTRODUCTION

Combustion helps to convert energy stored in fuels to electricity, heat, and motion. Combustion also produces gases and particles that cause air pollution and global warming. Each year, outdoor plus indoor air pollution kills about 7.4 million people worldwide and causes injury to billions more.[1,2] Pollution also harms animals, crops, vegetation, materials, works of art, and visibility.

Global warming from 2011 to 2020 was ~1.1 °C relative to the 1850 to 1900 mean.[3] In 2023, warming increased to 1.36 to 1.48 °C above that mean.[4,5] In 2024, warming increased more, to 1.47 to 1.6 °C above the mean.[4,5] Based on the remaining carbon budget in 2020, 80% of the gas and particle emissions that cause warming would need to be eliminated by 2030 and 100%, by 2035−2050 to avoid sustained 1.5 °C warming.[6] However, based on 2024 temperature data,[4,5] the world may already be close to 1.5 °C average warming. Nevertheless, eliminating 80% of emissions by 2030 and 100% by 2035 to 2050 will still minimize additional climate and air pollution damage. Global warming exacerbates wildfires, urban air pollution, heat stroke, heat stress, vector-borne disease, famine, species extinction, sea-level rise, floods, droughts, and hurricanes, among other problems.[7] The fuels burned that cause global warming are primarily fossil fuels (coal, oil and its products, and fossil gas) and bioenergy fuels (solid biomass, liquid biofuels, and biogas).[7]

Energy insecurity is a third major world problem. Energy insecurity arises due to diminishing fossil-fuel and uranium supplies; reliance on centralized power plants and refineries; reliance on fuel supplies subject to human interference or long-distance transport; and reliance on fuels subject to catastrophic risk.[7]

Because tens of millions more people will die from air pollution, global temperatures will continue to rise, and energy security risks will rise further if current energy sources are not changed and emissions are not stopped, a rapid solution to all three problems is needed. A solution to solve the three problems together proposed in 2009 was to transition 100% of all business-as-usual (BAU) energy worldwide to electricity and heat powered by 100% wind-water-solar (WWS) sources.[8] WWS is a system consisting of clean, renewable electricity and

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Energy, Health, and Climate Costs of Carbon-Capture and Direct-Air-Capture versus 100%-Wind-Water-Solar Climate Policies in 149 Countries

Environmental Science & Technology (2025)

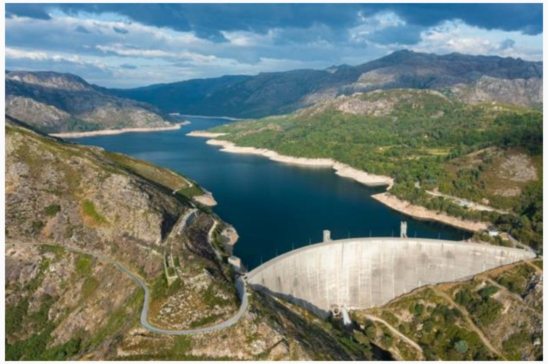
WWS System

Generation

Onshore/offshore wind

Solar photovoltaics

Storage



Hydropower reservoirs

Batteries

Equipment

Electric heat pumps

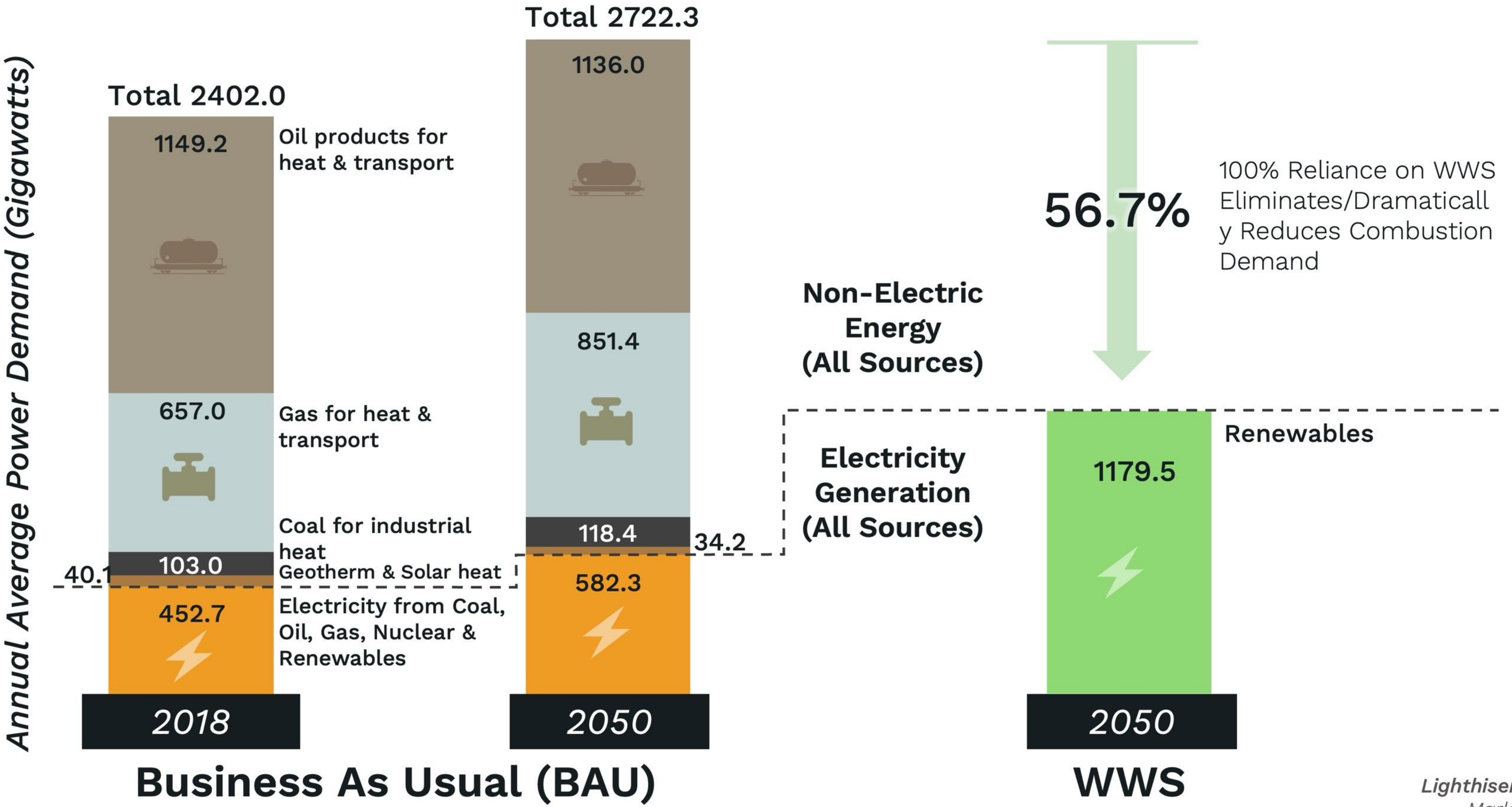
Electric induction cooktops

Grid

AC/HVAC/HVDC lines

Grid interconnection among WWS generators

Average U.S. Power Demand, 2018 and 2050



Lighthiser v. Trump
Mark Jacobson
https //web.stanford.edu/group/efmh/jacobson/Articles/I/21-USStates-PDFs/21-WWS-USATotal.pdf
Exhibit 8 p.9

U.S. Land Area for Wind Water & Solar vs Oil & Gas

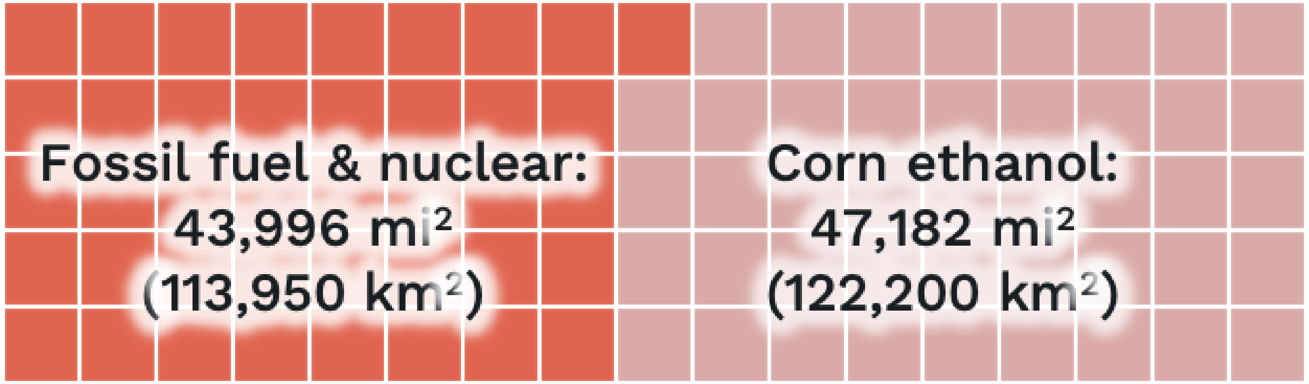
Total for WWS 2050:

29,891 mi^2 (77,418 km^2)

0.85% of U.S. Land

Spacing Area: 19,558 mi^2 (50,655 km^2)
(Between wind turbines)

New Footprint for Solar: 10,333 mi^2 (26,763 km^2) *(0.29% of U.S. Land)*



Fossil fuels & ethanol:

91,178 mi^2 (236,150 km^2)

2.4% of U.S. Land

- *1.24% of U.S. Land for Ethanol*
- *1.16% of U.S. Land for Fossil Fuels*

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Source of data - https //web.stanford.edu/group/efmh/jacobson/Articles/I/21-USStates-PDFs/21-WWS-USATotal.pdf; https //web.stanford.edu/group/efmh/jacobson/Articles/I/LandFossil.pdf
Exhibit 8 p.12

U.S. Premature Deaths from Fossil Fuel Pollution

ENVIRONMENTAL STUDIES

The health burden and racial-ethnic disparities of air pollution from the major oil and gas lifecycle stages in the United States

Karn Vohra[1]†, Eloise A. Marais[1]*, Ploy Achakulwisut[2], Susan Anenberg[3], Colin Harkins[4,5]

The United States has one of the world's largest oil and gas (O&G) industries, yet the health impacts and inequities from pollutants produced along the O&G lifecycle remain poorly characterized. Here, we model the contribution of major lifecycle stages (upstream, midstream, downstream, and end-use) to air pollution and estimate the associated chronic health outcomes and racial-ethnic disparities across the contiguous US in 2017. We estimate lifecycle annual burdens of 91,000 premature deaths attributable to fine particles ($PM_{2.5}$), nitrogen dioxide (NO_2), and ozone, 10,350 $PM_{2.5}$-attributable preterm births, 216,000 incidences of NO_2-attributable childhood-onset asthma, and 1610 lifetime cancers attributable to hazardous air pollutants (HAPs). Racial-ethnic minorities experience the greatest disparities in exposure and health burdens across almost all lifecycle stages. The greatest absolute disparities occur for Black and Asian populations from $PM_{2.5}$ and ozone, and the Asian population from NO_2 and HAPs. Relative inequities are most extreme from downstream activities, especially in Louisiana and Texas.

INTRODUCTION

The United States (US) is the world's largest oil and natural gas (O&G) producer (*1*). The O&G industry accounts for 8% of the US economy (*2*). Since around 2008, substantial expansion of O&G exploration and extraction and increasing consumption of O&G-derived products have been spurred by a combination of technological progress enabling the widespread production of unconventional O&G, cheaper O&G products, and decline in demand for coal (*3*, *4*). Yet, there is growing recognition of the need to phase out O&G to meet the Paris Agreement's temperature goal (*5*–*7*), as well as increasing concerns among the public, researchers, and policymakers over the local health impacts of air, water, and waste pollution from O&G activities in the US, particularly the disproportionate burden on marginalized groups (*8*–*11*).

The O&G lifecycle includes four major stages: "upstream" exploration and extraction; "midstream" storage and transmission; "downstream" alterations to the extracted material through processes like oil refining, gas processing, and synthesis of petrochemical products; and "end-use" activities that include additional storage and transmission to reach consumers and ultimate consumption of O&G products for energy and non-energy purposes. All these stages produce air pollutants that either directly harm public health or undergo reactions in the atmosphere to form additional health-damaging pollutants (*12*). Activities such as well drilling and completion, hydraulic fracturing, venting and flaring, oil refining, gas processing, and O&G combustion in the transportation and power sectors are all direct or precursor sources of fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), and ozone (O_3) (*13*–*19*). The O&G sector is the largest industrial source of volatile organic compounds (VOCs) in the US (*20*). O&G production also generates hazardous air pollutants (HAPs) and radioactive by-products, enhancing airborne radioactivity downwind of extraction sites (*21*, *22*). The health outcomes of concern from long-term exposure to air pollutants from the O&G lifecycle include, but are not limited to, multi-cause premature deaths (*23*–*25*) and preterm births (*26*) for $PM_{2.5}$, premature death from chronic respiratory diseases for O_3 (*27*), childhood-onset asthma for NO_2 (*28*), and cancers for HAPs (*29*). There are many more adverse health outcomes that have been attributed to specific O&G lifecycle stages that are more challenging to quantify, due to lack of robust information relating exposure to health risk. For upstream and midstream activities, these include migraines, fatigue, depression, high-risk pregnancy, gestational hypertension and eclampsia, sleeping disorders, and endocrine and developmental disruption such as neural tube and oral cleft defects (*30*–*38*). Downstream activities include low birth weight, spontaneous abortion, congenital malformations, and diseases of the kidney, liver, and thyroid (*39*). End-use activities include adverse reproductive outcomes and respiratory illnesses such as wheezing (*40*). It is also increasingly apparent that health risks linked to exposure to air pollutants from the O&G sector are most severe for marginalized ethnic communities in the US (*9*, *10*, *41*–*44*). Unequal exposure to air pollution has been identified for all O&G lifecycle stages, due to discriminatory siting of infrastructures such as upstream extraction wells, midstream pipelines and compressor stations (*10*, *11*), and downstream chemical manufacturing plants (*11*, *45*), and also from greater flaring intensity of natural gas close to marginalized ethnic communities (*10*). Disproportionate exposure to end-use sources like vehicle traffic results from historical redlining and related practices (*46*, *47*) that place marginalized communities closer to busy, dense road networks (*48*). Key among other influential factors synthesized and discussed by Banzhaf *et al.* (*49*) is community bargaining power that determines effective environmental regulation. Given this growing evidence, there is an urgent need for targeted studies that identify and quantify injustices in exposure to inform actions that alleviate the most burdened communities (*9*, *49*).

Past studies that have quantified total population health burdens attributable to exposure to outdoor air pollution from the O&G sector in the US have limited focus to a single lifecycle stage (*50*, *51*), a

[1]Department of Geography, University College London, London, UK. [2]Stockholm Environment Institute, Seattle, WA, USA. [3]Milken Institute School of Public Health, George Washington University, Washington, DC, USA. [4]Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder, Boulder, CO, USA. [5]NOAA Chemical Sciences Laboratory, Boulder, CO, USA.
*Corresponding author. Email: e.marais@ucl.ac.uk
†Present address: School of Geography, Earth and Environmental Sciences, University of Birmingham, Birmingham, UK.

- We estimate [oil & gas] lifecycle annual burdens of 91,000 premature deaths attributable to fine particles ($PM_{2.5}$), nitrogen dioxide (NO_2), and ozone

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https //www.science.org/doi/10.1126/sciadv.adu2241
Exhibit 8 p.24

WWS Reduces Annual U.S. Energy Costs Significantly

Business as Usual		Wind-Water-Solar
$2,513B/yr	ENERGY PRIVATE COST REDUCED by 63%	**$933B/yr**
$700.4B/yr	ENERGY-RELATED HEALTH COST REDUCED by 100%	**$0/yr**
$3,578B/yr	ENERGY-RELATED CLIMATE COST REDUCED by 100%	**$0/yr**
$6,791B/yr	**Total Social Energy Cost Reduced by 86%**	**$933B/yr**

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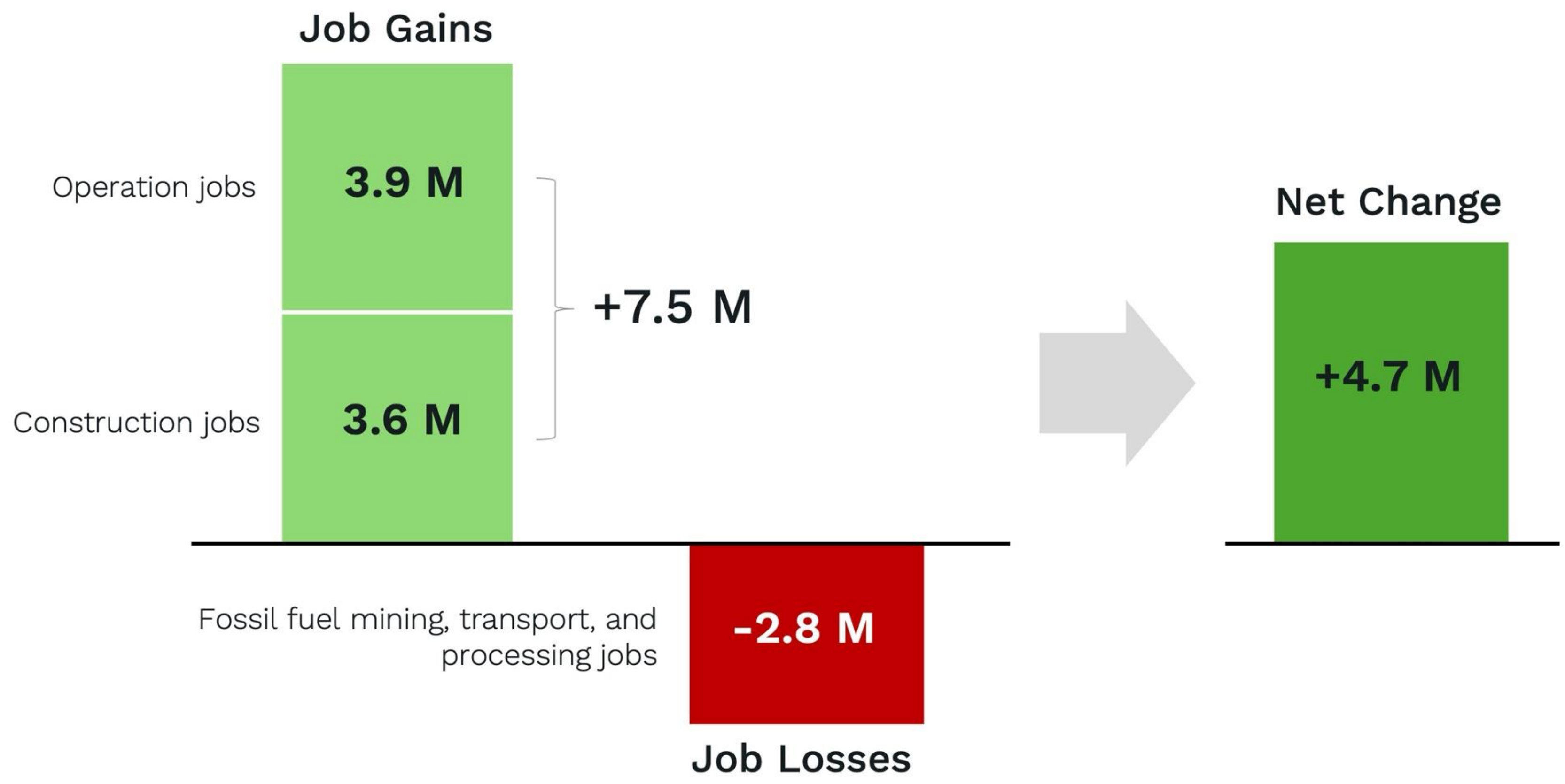
https //web.stanford.edu/group/efmh/jacobson/Articles/I/21-USStates-PDFs/21-WWS-USATotal.pdf
Exhibit 8 p.17

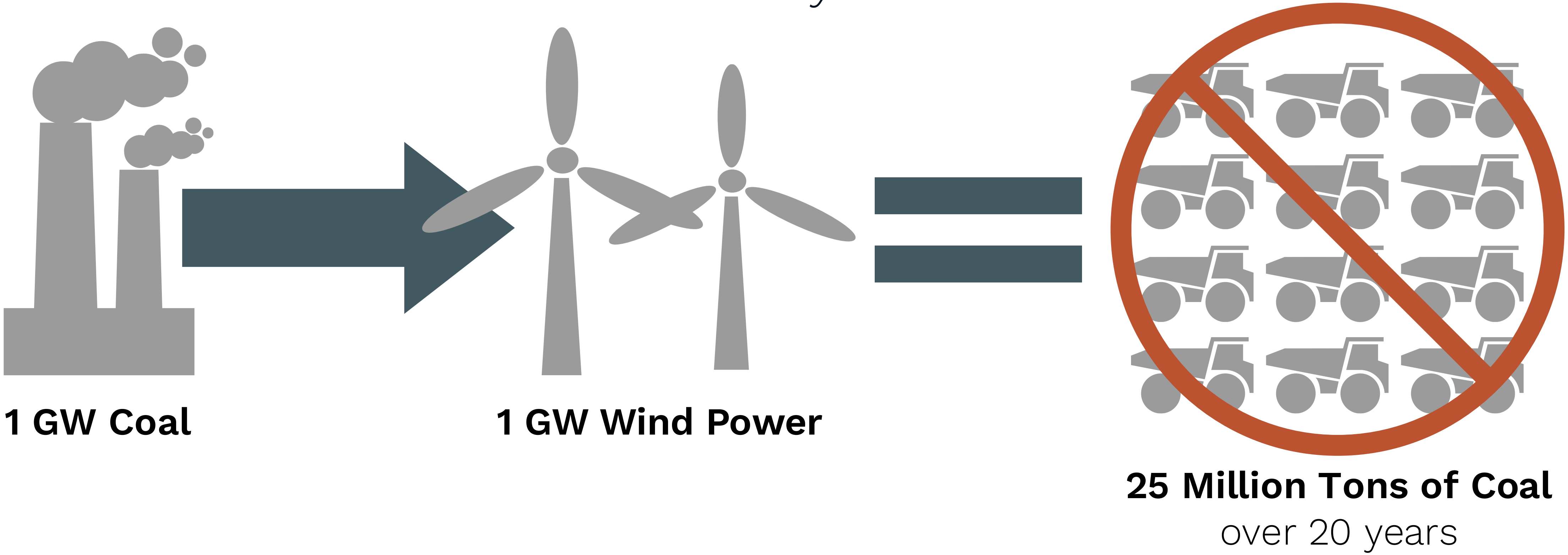
Net U.S. Job Gains Under 100% WWS by 2050



Mark Z. Jacobson et al., *Zero Air Pollution and Zero Carbon from All Energy at Low Cost and Without Blackouts in Variable Weather Throughout the U.S. with 100% Wind-Water-Solar and Storage*, 184 Renewable Energy 430 (2022).

Coal Mining Replaced by Transitioning to WWS

Replacing 1 GW of Coal with 1 GW of Wind saves 25M tons of coal over 20 years



Jim Krane & Robert Idel, *More Transitions, Less* Risk: How *Renewable Energy Reduces Risks from Mining, Trade and Political Dependence*, 82 Energy Rsch. & Soc. Sci. 102311 (2021).

Transition from Abandoned Wells to Wind

Lighthiser v. Trump

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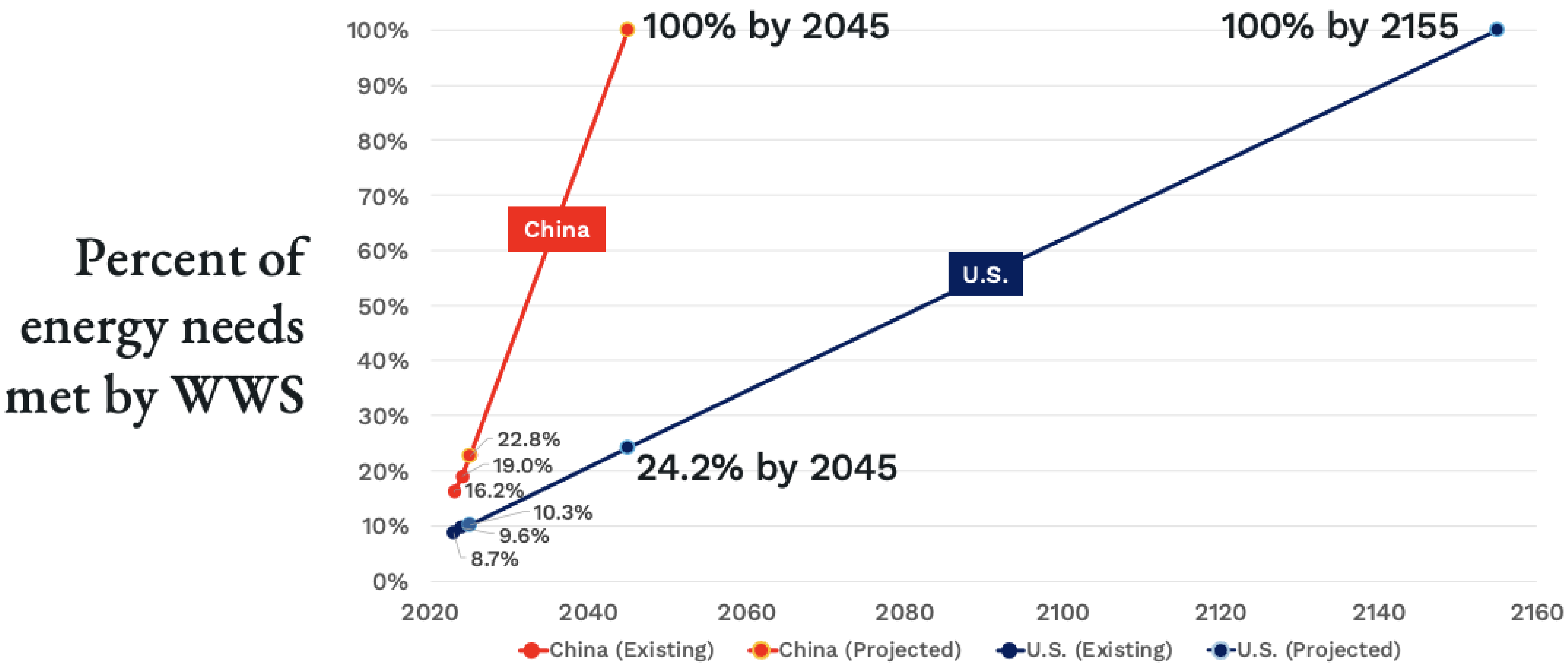
Image credit: https://nationalaglawcenter.org/cleanup-of-abandoned-oilfield-locations-who-is-responsible/

Exhibit 8 p.16

China is Projected to Reach 100% WWS 110 Years Before the U.S.



The 2050 estimates are from Jacobson et al. (ES&T 59, 3034-3045, 2025), which start with 2022 IEA data. The 2023, 2024, and 2025 estimates are based on actual nameplate capacities and estimated capacity factors from Jacobson et al. (2025).

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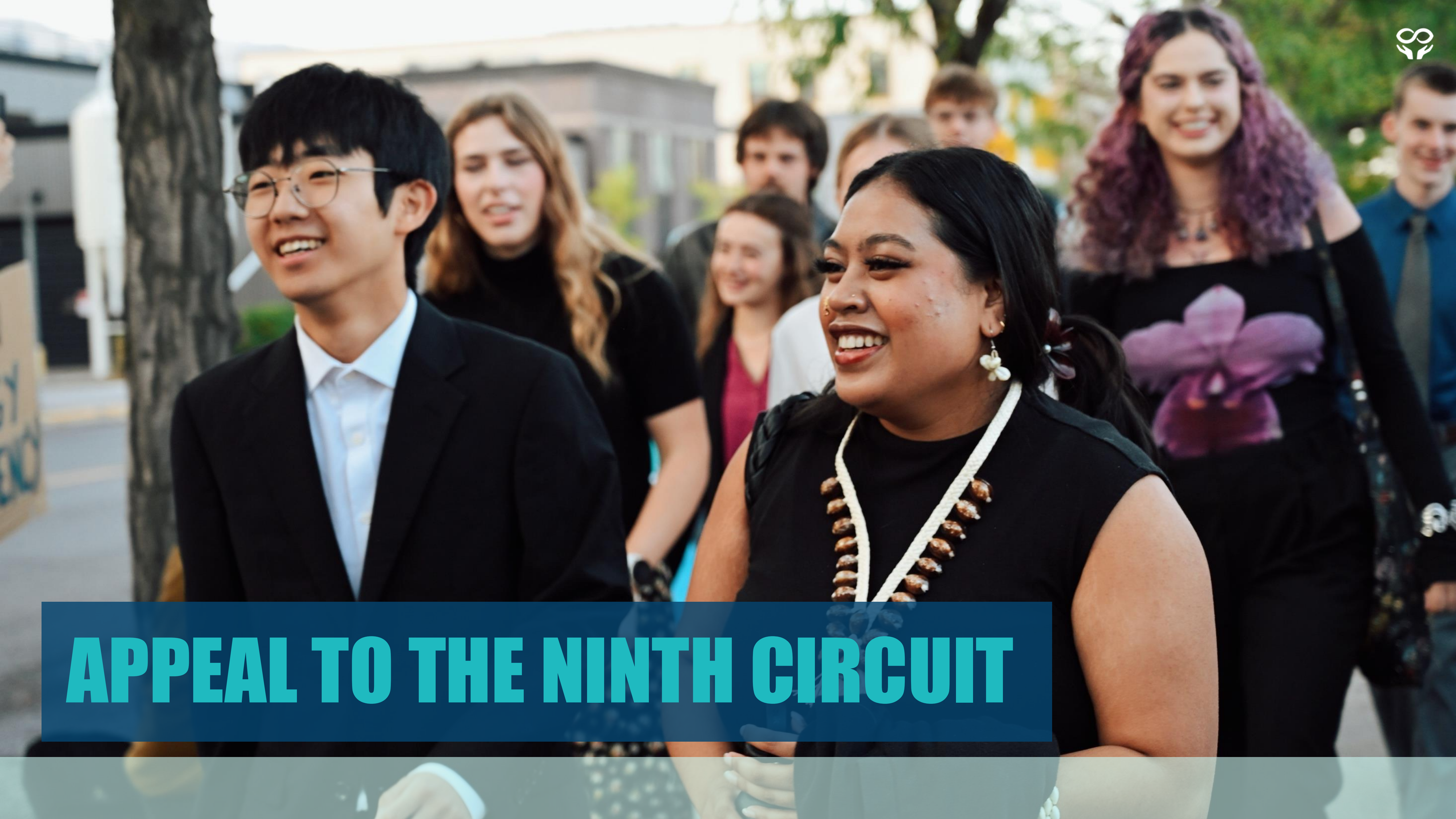
EXPERTS TESTIFY

"SO, BY SLOWING DOWN THE CONVERSION TO WIND AND SOLAR

In particular, which these executive orders are definitely doing, it's really preventing the ability of the U.S. to transition entirely to clean renewable energy; therefore, saving people huge amounts of money, saving land, jobs, and health and climate damage."

– Dr. Mark Jacobson



APPEAL TO THE NINTH CIRCUIT

HELD V. MONTANA

NAVAHINE + HAWAIʻI DOT

LA ROSE V. HIS MAJESTY THE KING

MCINTOSH V. PENNSYLVANIA DEP

THANK YOU!

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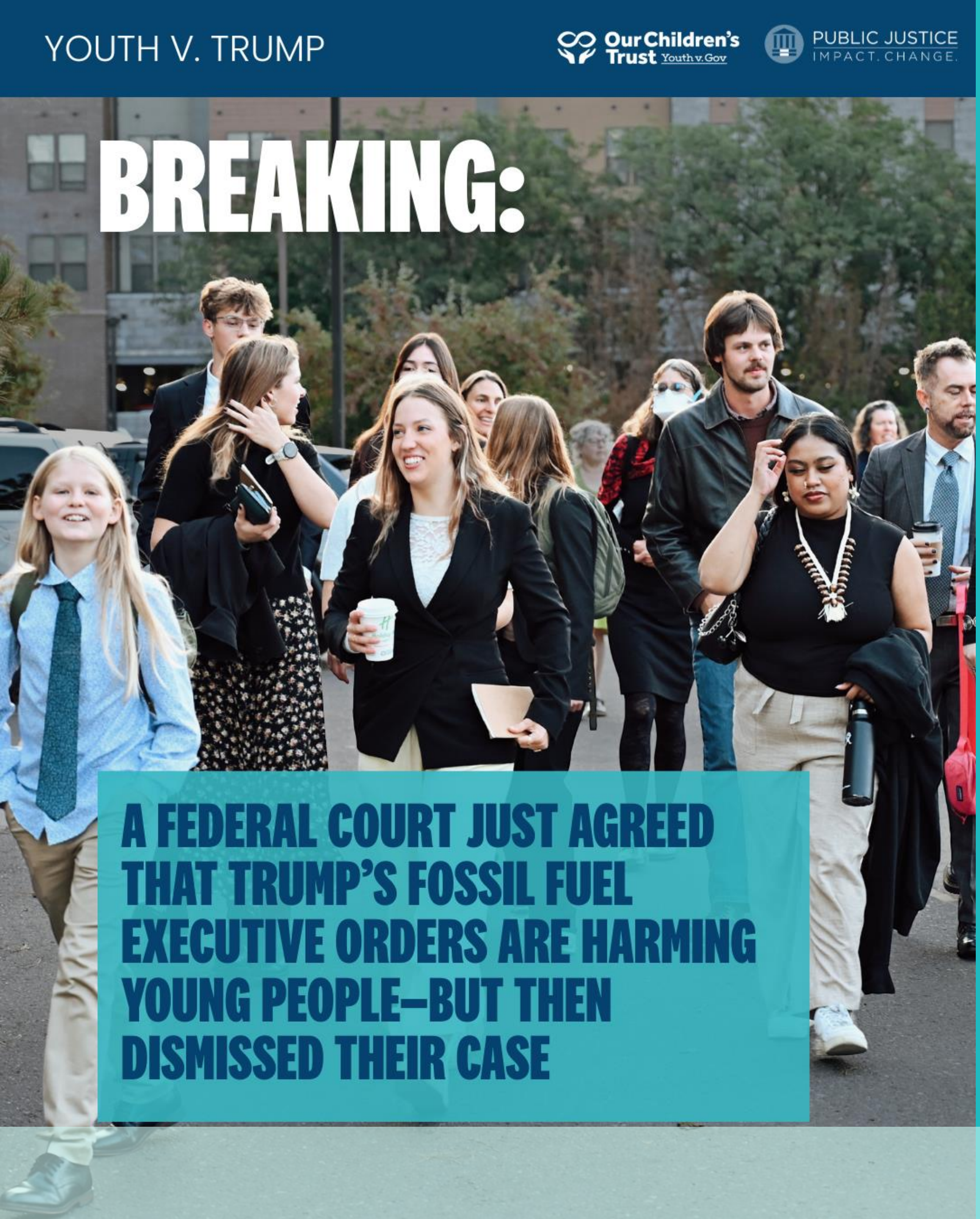

- "The Court finds Plaintiffs' experts sufficiently establish that the Challenged EOs will render a meaningful contribution to atmospheric carbon dioxide levels.

- "The record further demonstrates that climate change and the exposure from fossil fuels presents a children's health emergency.

HELD V. STATE OF MONTANA II

CHALLENGING AIR POLLUTION PERMIT FOR HOMER CITY REDEVELOPMENT PROJECT

On December 18, 2025, 15 youth—ages 2 months to 21 years old—filed an appeal with the Pennsylvania Environmental Hearing Board (EHB) challenging the Pennsylvania Department of Environmental Protection (DEP)'s issuance of a permit for the Homer City Redevelopment Project. The permit seeks to construct what would become the nation's largest gas-fired power plant on the site of what once was Pennsylvania's largest coal-fired power plant, solely to power a 3,200-acre data center.

The plant would emit over 17.5 million tons of greenhouse gases annually, worsening the climate crisis and threatening the health, safety, and lives of these young people.

CLAIMS UNDER PENNSYLVANIA CONSTITUTION:

- **Article I, Section 27:** “Environmental Rights Amendment”
- **Article I, Section 1:** Life, Liberty, Property and Pursuit of Happiness
- **Right to Stable Climate System** (under environmental rights amendment and due process)

WHAT THE YOUTH APPELLANTS ARE ASKING THE COURT TO DO

- **Vacate** the Homer City permit to prevent construction and operation of the Facility.

- **Ensure** Pennsylvania's government fulfills its constitutional duty to protect youth rights and public trust resources.

McIntosh v. Department of Environmental Protection is a direct request to the EHB for action stopping this unconstitutional permit.