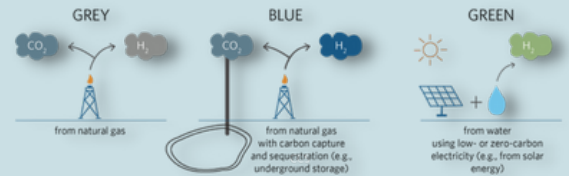


# HYDROGEN IS NOT CLEAN

OUR HOME IS BURNING - THERE IS NO TIME LEFT FOR FALSE SOLUTIONS

Since 2017 much of the push for using gray and blue hydrogen for energy has come from the Hydrogen Council, a group established by British Petroleum, Shell and other oil and gas majors specifically to promote hydrogen. **Why? because more than 99.8% of hydrogen is produced using enormous quantities of fracked gas**, including both "blue" hydrogen, in which carbon emissions from production processes are sequestered using carbon capture, and "grey" hydrogen, which results in more carbon emissions than actual hydrogen produced. **Grey hydrogen emissions are 38% greater than directly burning natural gas for heat, and blue hydrogen is not much better, resulting in 22% more emissions than gas.**

## UNDERSTANDING HYDROGEN PRODUCTION



Hydrogen burns clean but relies on fossil fuels for its production, threatening our Climate and Public Health.

## HYDROGEN DEVELOPMENT WILL SEND US SPRINTING

### TOWARDS CLIMATE CATASTROPHE BECAUSE:

#### 1. Grey and blue hydrogen have no environmental benefits. Hydrogen production from gas increases climate-warming emissions.

- Oil and gas companies produce 99.8% of the United States' hydrogen supply from gas. Globally, less than 1% of hydrogen is produced through electrolysis, and less than 0.02% is green (i.e., powered by renewable electricity).
- Grey hydrogen emissions are 38% greater than directly burning natural gas for heat, and blue hydrogen is not much better, resulting in 22% more emissions than gas.
- Green hydrogen production requires an enormous amount of fresh water and is not feasible for production in New Mexico.

#### 2. Grey and Blue Hydrogen will soon be obsolete and will result in stranded assets. There is no cost benefit to hydrogen as fuel.

- Green hydrogen is projected to become cheaper than grey and blue hydrogen within the next decade. Infrastructure built today will become obsolete within just a few years, resulting in millions of dollars in stranded assets and opportunity costs.
- Hydrogen-based electricity generation is more costly than solar + wind + battery storage.
- The electric transportation industry based on batteries is already dominant. With state, federal, and private investments, a robust network of EV charging stations is being developed to support trucking and private vehicles. Virtually no such investment has been made in hydrogen fueling stations. Hydrogen fuel cells will remain more expensive than simpler battery systems.

#### 3. Hydrogen is highly flammable; production and distribution will lead to cost overruns, failed projects and safety risks.

- Hydrogen is the smallest atom, highly reactive and difficult to contain. It embrittles pipelines, making it difficult and dangerous to transport and use without specialized technology.
- The presence of hydrogen in pipelines can increase the risk of flashback (flames moving upstream into the supply system) from combustion devices, including customer appliances, causing explosions and potential injury or death.

#### 4. "Clean" hydrogen viability depends on Carbon Capture and Storage (CCS) - a false climate solution based on unproven technology.

- CCS has repeatedly failed to achieve results, causing billions in losses. High profile examples include Petra Nova, shut down after receiving \$190M in public funds and capturing no CO<sub>2</sub> and the Kemper project shut down after spending \$270M in public dollars. **There is no single large carbon capture and storage project linked to fossil fuels in the world that had delivered on time, on budget, and captured the agreed amount of carbon.** Investment in CCS will result in stranded assets and millions of dollars wasted.

NEW MEXICO HAS A CLEAN ENERGY ALTERNATIVE WITH ENORMOUS ECONOMIC POTENTIAL --->



new energy economy  
Addressing the Climate Challenge  
With Bold Solutions



Indigenous Lifeways  
AIR WATER FIRE CARE



UNLEASH THE POWER OF THE NEW MEXICO SUN!

# THINKING SMALL IS A CURSE IMAGINE UNLIMITED NEAR-ZERO COST ENERGY

NEW RESEARCH CONFIRMS THAT A 100% RENEWABLE ENERGY ECONOMY IS POSSIBLE NOW. WITH THE RIGHT INVESTMENTS AND BUSINESS MODEL EXPONENTIAL ECONOMIC BENEFITS ARE POSSIBLE AS WE LOWER OUR ANNUAL ENERGY COSTS, REDUCE THE SOCIAL COSTS OF CLIMATE DISRUPTION, SAVE LIVES, AND GAIN A 23,500 NET INCREASE IN JOBS IN NM.

Stanford Professor Mark Jacobson and a team of researchers published a landmark study, updated in 2021, proving that the world's energy needs can be met using clean, renewable energy sources. Their analysis, calculated on a state by state basis, confirms that a transition to solar, wind and batteries in New Mexico:

- will result in **68.2% lower annual energy costs for New Mexicans** (from \$17.2 down to \$5.5 billion/yr)
- **reduce annual social costs (energy plus health plus climate costs) by about 90%** (from \$55 down to \$5.5 billion per year)
- **save 280 New Mexican lives annually** by reducing air pollution
- eliminate about 61M tonnes-CO2-equivalent per year in climate-affecting emissions
- **create a net increase of 23,500 more long-term, full-time jobs in the state**

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## RETHINKX CONFIRMS THOSE FINDINGS, PREDICTING EXPONENTIAL BENEFITS FROM A 100% SOLAR, WIND & BATTERY GRID

RethinkX is an independent think tank that analyzes and forecasts the speed and scale of technology-driven disruption and its implications across society.

### Key findings of the RethinkX 2020 energy report:

- **It is both physically possible and economically affordable to meet 100% of electricity demand with a combination of solar, wind, and batteries by 2030.**
- Just as the Internet disrupted many incumbent industries and created trillions of dollars of new value by reducing the marginal cost of information to near zero, **the solar, wind and battery disruption will have a similar impact by reducing the marginal cost of energy to near-zero for a substantial portion of the year.**
- The optimal lowest cost solar, wind and battery systems will produce surplus energy output (generating capacity that exceeds current electricity production). **Clean energy super-abundance of near-zero marginal cost energy will create new possibilities for transportation, housing, and novel products, services & industries.**
- **Combined with electric vehicles, a 100% solar, wind and battery system could eliminate all fossil fuel use and emissions** in both the electricity and road transportation sector simultaneously.

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## AN ECONOMIC ENGINE TO POWER NEW MEXICO'S FUTURE

New Mexico has the 2nd highest solar capacity and 11th highest wind capacity of any state in the nation. A 2022 report by the HBailey Group found that **these benefits would be maximized through a public ownership model - whereby cost-savings and revenue generation would benefit New Mexicans rather than private utility shareholders.** The report found that development of 16,700 to 23,500 MW of renewable energy above current production plans, to include transmission, **could generate energy export revenue for the state in excess of \$1 Billion annually.**

DEVELOPMENT OF 16,700 TO 23,500 MW OF RENEWABLE ENERGY ABOVE CURRENT PRODUCTION PLANS, TO INCLUDE TRANSMISSION, COULD GENERATE ENERGY EXPORT REVENUE FOR THE STATE IN EXCESS OF \$1 BILLION ANNUALLY