



The path less sustainable

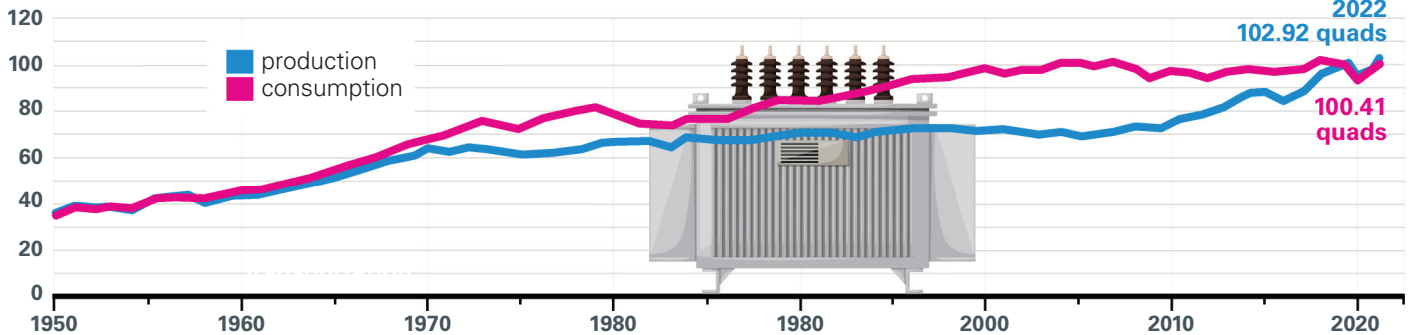
In May Environmental Protection Agency (EPA) Administrator Michael S. Regan released a 681-page Emissions Program for comment. If implemented, the plan will significantly increase costs for **62 percent** of the U.S. electrical supply at a time when demand should be ramping up for EVs, gas-to-electricity conversions and other planned electrification. This will further destabilize the U.S. power grid including 77 percent of the nation's on-demand electricity. The basis for this retrofit requirement is the categorization of CO₂ as a **harmful pollutant**.



U.S. total energy production and consumption (1950-2022)

All production from domestic sources and all domestic consumption

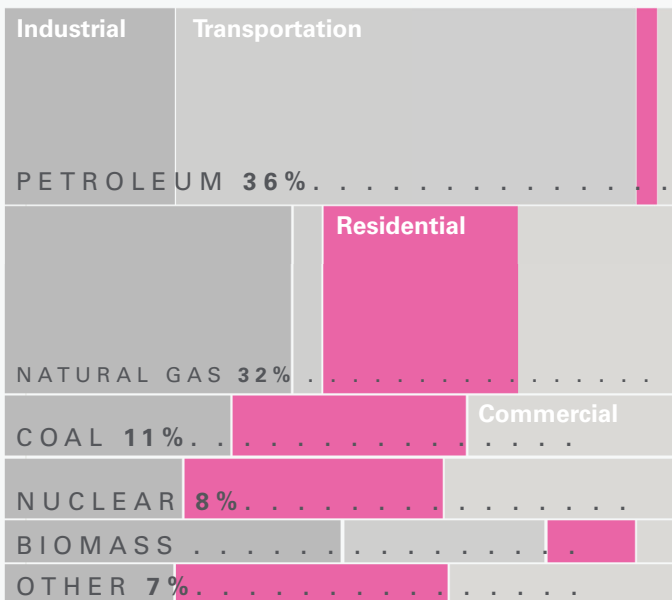
quadrillion British thermal units (quads)



Energy consumption (2021)

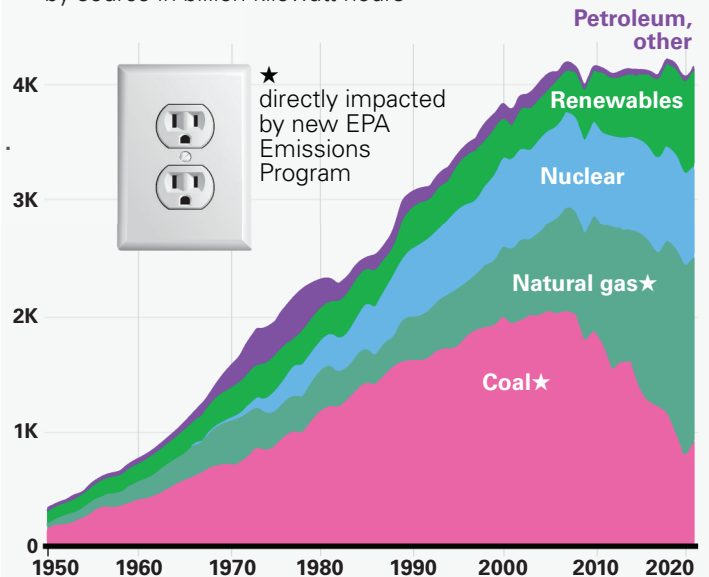
by source and end-use sector

percentage



The majority of the electricity generated in the U.S. comes from fossil fuels

Annual net electricity generation by source in billion kilowatt hours



SOURCE: ENERGY INFORMATION ADMINISTRATION (EIA); ANNUAL NET ELECTRICITY GENERATION; U.S. ENERGY DEPARTMENT, CONGRESSIONAL BUDGET OFFICE; DAVE WALSH, FORMER PRESIDENT OF MITSUBISHI POWER SYSTEMS; WHAT IS HYDROGEN, AND CAN IT REALLY BECOME A CLIMATE CHANGE SOLUTION, HANNES VAN DER WATT, RESEARCH ASSISTANT PROFESSOR, UNIVERSITY OF NORTH DAKOTA; INTL ENERGY AGENCY DATA; SCIENCE AND PUBLIC POLICY INSTITUTE; DRS. C. D. AND S. B. IDSO; U.S. CENSUS BUREAU; REDFIN DATA CENTER

Net zero
at any cost



EPA has used the Clean Air Act to form this program in a work-around to a Supreme Court ruling. It ruled the agency cannot impose a system-wide shift from fossil fuels to renewable energy. Instead, the court ruled EPA may mandate emissions cuts based on technology that could be deployed "within the fence line" of power facilities.

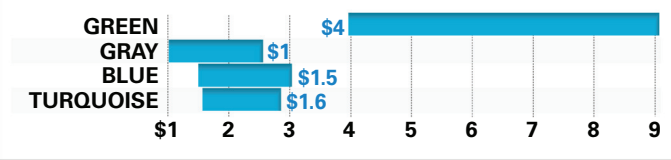


EPA's proposal hits natural gas and coal power plants hard. The rule mandates extremely expensive, unvetted carbon capture technology—not yet commercially available. **This program** was already attempted under Obama and failed due to poor technology and prohibitive cost.

There's an alternative to EPA's rule. While EPA gives an alternate to carbon capture retrofits—i.e. converting power plants to hydrogen—over 95 percent of the H₂ produced in the U.S. is gray hydrogen **made with natural gas, which the EPA contemporaneously wants to halt.** Aside from being produced by carbon fuel, retrofitting to **hydrogen by 2035** is financially, operationally and physically impossible.

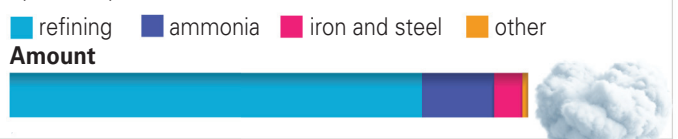


Levelized cost of H₂ production
in U.S. dollars per kilogram



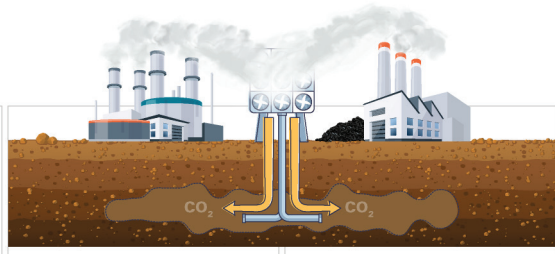
Global hydrogen demand

How the majority of hydrogen produced in 2021 was used by industry



\$10B

EPA's estimated cost to the power industry (utilities, independent power producers, private sector)

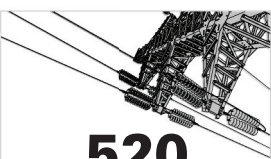


\$372M

Cost per unit to retrofit an existing commercial-scale 300-megawatt **natural-gas plant** with carbon capture

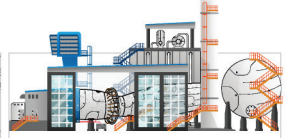
\$600M

Cost per unit to retrofit an existing commercial-scale 1,000-megawatt **coal plant** with carbon capture



520

number of major power plants producing 1,000 megawatts, which are the backbone of the U.S. energy system



250

new gas-fired power plants added to infrastructure since 2001 (most only 5-7 years old) yielding tremendous efficiency and mathematically low pollutant output

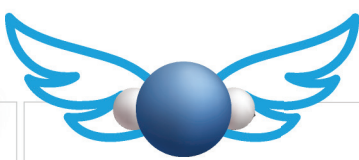


No financial model? kWh

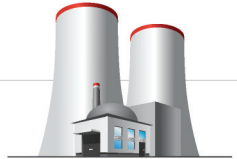
Apartment owners/operators work from pay-off models. Analysts say this rule will quintuple energy prices and cause shortages as power plants unable to comply will go offline adding to the nation's electricity shortage, even as they push to electrify home heating/cooking and to expand EVs.



California, Texas, Colorado, Minnesota, Carolinas have already experienced power shortages as traditional power plants are retired faster than they can be replaced.



Increased CO₂ is associated with greater crop productivity, increased carbon sequestration, longer life expectancies and 52 other benefits according to the Science and Public Policy Institute. While categorized as a harmful pollutant by EPA, atmospheric CO₂ is necessary for life on earth.



50 percent more continuous-duty and base load cycle plants are needed to massively convert the country to electric power. Large, sustained outages have occurred with greater frequency over the past two decades as the aging grid becomes more vulnerable.

What does it all mean?

If enacted, the EPA rule will have a devastating effect on energy providers and the apartment operations who rely on them to keep **44 million rental households energized.** But that's only the beginning of the impact.



1

compromised national security

The hallmarks of a secure energy strategy are a diverse fuel supply and energy independence.



2

radical restructuring of world's top industrial economy

The national business model is predicated on reliable and inexpensive energy. Already entering a lost decade of growth (1 to 1.5 percent GDP) means lower tax revenues, less upward mobility, less opportunity and the loss of the nation's fiscal engine (energy production and distribution).



key takeaway

The Emissions Program is currently out for comment. Make your voice heard. See link to EPA's comment procedure and the full emissions plan at **yieldpro.com**