

A photograph of the San Francisco City Hall at night. The building is illuminated with warm lights, and its iconic dome is visible against a dark blue sky. The text is overlaid on the upper half of the image.

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PPHB

WHAT'S NEXT FOR CRUDE OIL & NATURAL GAS?

Forces Shaping Energy
Through 2040

POLITICS, POLICY & ENERGY

How Government Decisions Are Reshaping Global Trade, Supply Chains & Economic Growth

Government now influences markets through:

- Tariffs
- Tax policy
- Environmental regulation
- Industrial policy
- Export controls
- Investment incentives
- National security

COMPLETELY BINARY

When does the Strait Open?

Got a coin in your pocket?

Today, Tomorrow or the Future?

Focus on action: Since you do not know what happens next, your choices shape what comes.

Build readiness: Making smart plans today helps you stay safe if things change.

Accept surprise: Life moves fast, so staying flexible works better than guessing.

KEY QUESTIONS TO CONSIDER

- Ten years from now, will the world need more Oil and Natural Gas—or less?
- Ten years from now, will the Strait of Hormuz dictate Oil and Natural Gas prices?
- Will EVs, Renewables and Climate Policy Rule the Day?

YES, NO and NO

FIVE FORCES SHAPING ENERGY THROUGH 2040

- Geopolitics
- AI
- LNG
- Electricity
- Capital Discipline

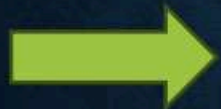
It is no longer just an Oil market

WE ARE IN THE 4TH ENERGY ERA

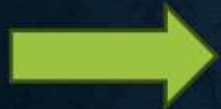
We have moved from - Coal



To Oil



To Global LNG



To AI + Electricity + National Security

Energy has become strategic infrastructure.

FIVE MEGATRENDS DRIVING THE INDUSTRY

- 1. Politics over economics
- 2. AI driving electricity demand
- 3. LNG globalizing natural gas
- 4. Capital discipline
- 5. Technology transforming operations

THE KEY? AI IS DRIVING EVERYTHING NOW

Growing electricity demand from:

- Data centers
- Manufacturing
- Electrification

Reliable power requires:

- Natural gas
- Nuclear
- Renewables
- Storage

NOT JUST HERE BUT EVERYWHERE

- 5,000 New AI Data Centers Globally
- 125-195 Gigawatts of power
- That is 22-24 Bcf/day of Natural Gas
- Or 150 nuclear reactors
- Total Power is Key

**Only Natural gas provides the flexibility
needed to support rapid load growth.**

NATURAL GAS IS BECOMING THE WORLD'S FUEL

Growth drivers:

- LNG exports
- Asia
- India
- Southeast Asia
- Europe replacing Russian gas

**Natural gas becomes the bridge between
affordability and decarbonization.**

OIL DEMAND ISN'T DISAPPEARING

Crude Oil is Still Essential for:

- Transportation
- Petrochemicals
- Aviation
- Shipping
- Defense
- Mining

Demand plateaus gradually—but not anytime soon

THINGS MADE FROM OIL & GAS

Adhesive	Clothesline	Faucet washers	iPad/iPhone	Pillow filling	Sunglasses
Air mattresses	Clothing	Fertilizers	Kayaks	Plastic toys	Surf boards
Ammonia	Coffee makers	Fishing boots	Laptops	Plastics	Swimming pools
Antifreeze	Cold cream	Fishing lures	Life jackets	Plywood adhesive	Synthetic rubber
Antihistamines	Combs	Floor wax	Light-weight aircraft	Propane	Telephones
Antiseptics	Computer keyboards	Food preservatives	Lipstick	Purses	Tennis rackets
Artificial limbs	Computer monitors	Footballs	Loudspeakers	Putty	Tents Tires
Artificial turf	Cortisone	Fuel tanks	Lubricants	Refrigerants	Tool boxes
Asphalt	Crayons	Glue	Luggage	Refrigerator linings	Tool racks
Aspirin	Credit cards	Glycerin	Model cars	Roller skate wheels	Toothbrushes
Awnings	Curtains	Golf bags	Mops	Roofing	Toothpaste
Backpacks	Dashboards	Golf balls	Motorcycle helmets	Rubber cement	Transparent tape
Balloons	Denture adhesives	Guitar strings	Movie film	Rubbing alcohol	Trash bags
Ballpoint pens	Dentures	Hair coloring	Nail polish	Safety glasses	Truck/car parts
Bandages	Deodorant	Hair curlers	Noise insulation	Shampoo	Tubing
Beach umbrellas	Detergent	Hand lotion	Nylon rope	Shaving cream	TV cabinets
Boats	Dice	Hearing aids	Oil filters	Shoe polish	Umbrellas
Cameras	Dishwashing liquid	Heart valves	Packaging	Shoes/sandals	Unbreakable dishes
Candies and gum	Dog collars	House paint	Paint brushes	Shower curtains	Upholstery
Candles	Drinking cups	Hula hoops	Paint roller	Skateboards	Vaporizers
Car battery cases	Dyes	Ice buckets	Pajamas	Skis	Vinyl flooring
Car enamel	Electric blankets	Ice chests	Panty hose	Soap dishes	Vitamin capsules
Cassettes	Electrical tape	Ice cube trays	Parachutes	Soft contact lenses	Water pipes
Caulking	Enamel	Ink	Perfumes	Solar panels	Wind turbine blades
CDs/computer disk	Epoxy paint	Insect repellent	Permanent press	Solvents	Yarn
Cell phones	Eyeglasses	Insecticides	Petroleum jelly	Spacesuits	
Clothes	Fan belts	Insulation	Pharmaceuticals	Sports car bodies	

THE INVESTMENT MODEL HAS CHANGED

The Old Model:

- Grow production. That was all.

New model:

- Generate cash
- Higher ROIC
- Higher dividends
- Buybacks
- Lower leverage

Investors now reward returns instead of volume growth

WHO WINS THE NEXT DECADE?

- **Integrated Oil** – Chemicals, Refining, Vertical
- **LNG** – Powering the World
- **Pipelines** – Most Critical Transportation
- **Compression** – Produce More Gas
- **Gas Turbines** – Power the World
- **Power Generation** – Generating Electrons
- **Oilfield Services** – Keep Oil & Gas Flowing
- **Engineering** – AI-Assisted Efficiencies
- **AI Infrastructure** – An Entire Value Chain

CHALLENGES STILL EXIST

- Permitting
- Grid Bottlenecks
- Trade Barriers
- Water Availability
- Workforce Shortages
- Political Uncertainty
- Commodity Volatility

Political, Economic, Policy

WHAT WILL MATTER MOST?

- Demand continues to grow.
- Electricity changes everything.
- Natural gas becomes increasingly strategic.

The next energy transition will not replace oil and gas—it will depend on them.

WHO WILL BE THE LOSERS?

- Highly leveraged producers
- Marginal acreage holders
- Companies with short drilling inventories
- Low ROIC

The Natural Gas producer only wins if pipelines exist to move the gas. (Appalachia)

A high national gas price does not guarantee a high local realized price when a basin is constrained (Think Waha)

WHAT IS IDEAL FOR AI DATA CENTERS?

The ideal outcome is:

- cheap natural gas
- moderate wholesale electricity prices
- abundant grid capacity
- predictable regulation
- rapidly available turbines and transformers

**Since AI is driving so much Power demand growth, driving Natural Gas growth, it matters.
A Lot.**

ARE HIGH OIL AND HIGH GAS PRICES IDEAL?

Winners:

- Diversified producers.
- Oilfield service companies.
- Drillers and frac companies.
- Pipelines and storage.Independent generators.
- Turbine and electrical-equipment manufacturers.

Losers:

- Data-center developers.
- Energy-intensive manufacturers.
- Residential utility customers.
- Merchant LNG exporters
- Regulated utilities.

AND FROM HERE?

Strategic Questions for Suppliers:

- Are our suppliers geographically diversified?
- Can we manufacture closer to our customers?
- How exposed are we to changing trade policies?
- Which products become more valuable in a world focused on energy security?

The next decade's winners will be suppliers that combine technical excellence, resilient supply chains, regulatory awareness, and geopolitical adaptability.

SUPPLY CHAINS HAVE BECOME STRATEGIC

- **Just-in-Time** ↓ **Just-in-Case** – minimize the chances of running out of something
- **Friend-shoring** - prioritizing supply chains in countries that share political, economic, and regulatory alignment with your home market,
- **Near-shoring** - where companies partner with suppliers, manufacturers, or service providers in a neighboring country
- **Domestic production**

NO LONGER OIL AND GAS

- We are a part of **ENERGY** and **POWER**
- The **GOAL** for the industry is to be in the supply chain of generating electrons
- Growth in Electricity Generation is **NEEDED** from **all forms** of contribution– wind, solar, fossil, thermal and hydro.
- Electricity Demand is growing faster than in decades and is set to **continue for several more** years at least
- Generation will have a difficult time accommodating demand due to the cost and time of additional capacity adds
- We need more starting **NOW**
- Bottom Line: Be somewhere in the Supply Chain

WHAT IS ENERGY?

- Energy is 3.3% of the S&P500 capitalization today
 - Historical peak: ~30% in 1980-2008
 - Commodity peak: ~16%
 - 2020 low: ~2.5%
- The sector carries outsized strategic importance — shaping inflation, industrial activity, geopolitics, and equity market rotations as seen today.
- It includes 22 S&P 500 constituents, spanning very different business models that behave distinctly across market cycles
- It has a 7% free cash flow yield — nearly double the broader market's ~4% — and disproportionate profitability relative to their market-cap representation.

ENERGY & POWER

- We are a sub-set of Energy & Power, feeding up primarily to produce more electricity.
- Increased demand for electricity will be met almost exclusively by **Natural Gas** over the next 5-7 years at least.
- Smaller, modular **nuclear reactors** are expected to reach commerciality in the next 7-8 years.
- **Coal** use is at records but has a limited acceptance life longer term, and will be the first source replaced.
- **Wind, Solar and Geothermal** will all be additive to the system and is enhanced by the re-emergence of battery use.
- Transportation still relies on refined **crude oil**.

WHAT DO INVESTORS WANT??

1. Return on invested capital. ROIC.
2. Make money and give some back.
3. Spend within cash flow, avoid debt.
4. Losing money for some future benefit no longer works.
5. In a mature, slower growth market, efficiency is paramount.
6. Scale and depth are both highly beneficial.

We lost investor money for years and losing money causes
long memories

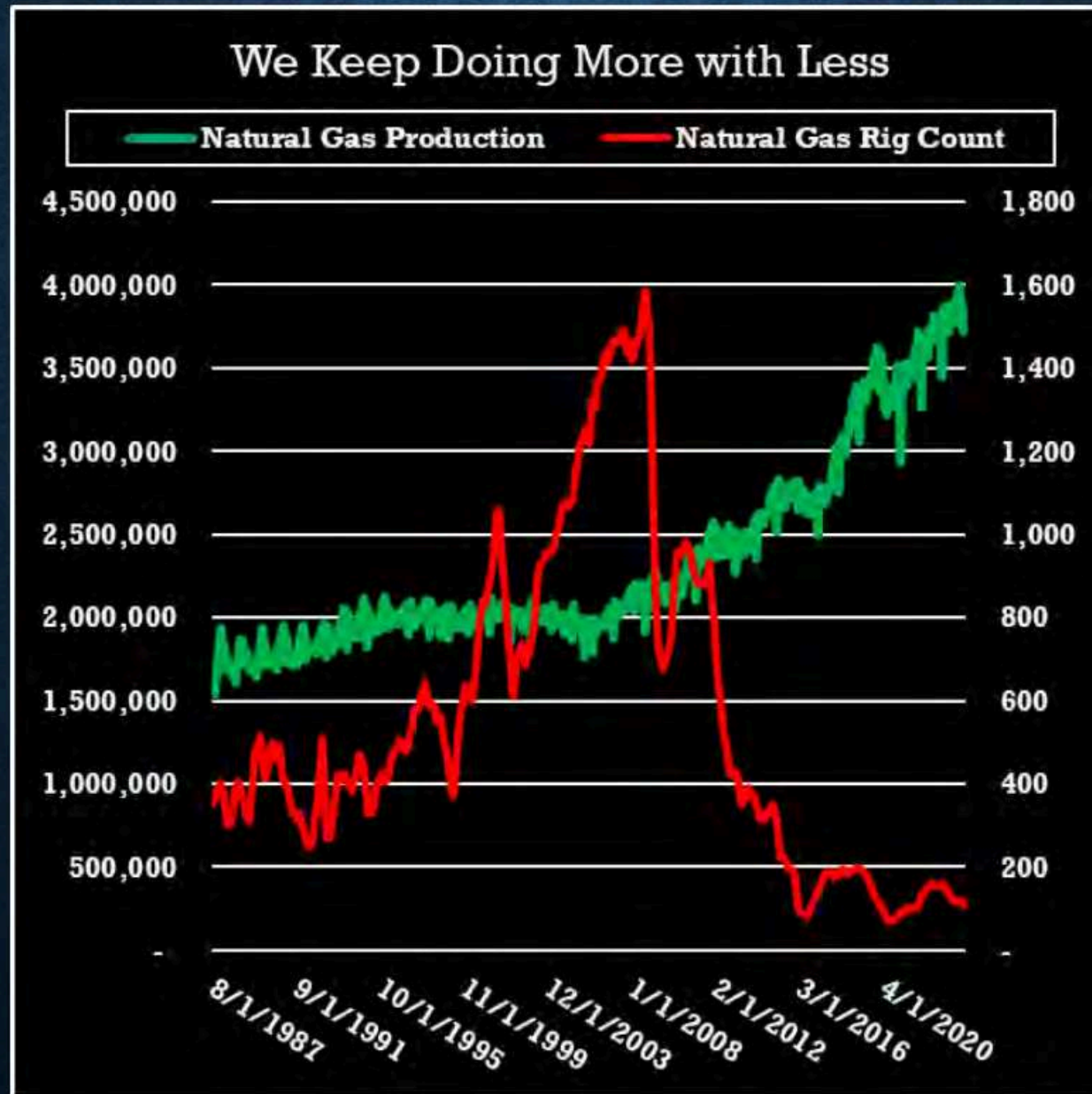
Consistent Performance Over Time

GLOBAL WINNERS

<u>Energy Source</u>	<u>Annual Gen (TWh)</u>	<u>Share of Global Electricity</u>
Coal	~10,000	~32%
Natural Gas	~7,000	~23%
Hydroelectric	~4,400	~14%
Nuclear	~2,800	~9%
Wind	~2,600	~8%
Solar	~2,200	~7%
Oil	~800	~3%
Biomass	~700	~2%
Geothermal	~100	<1%

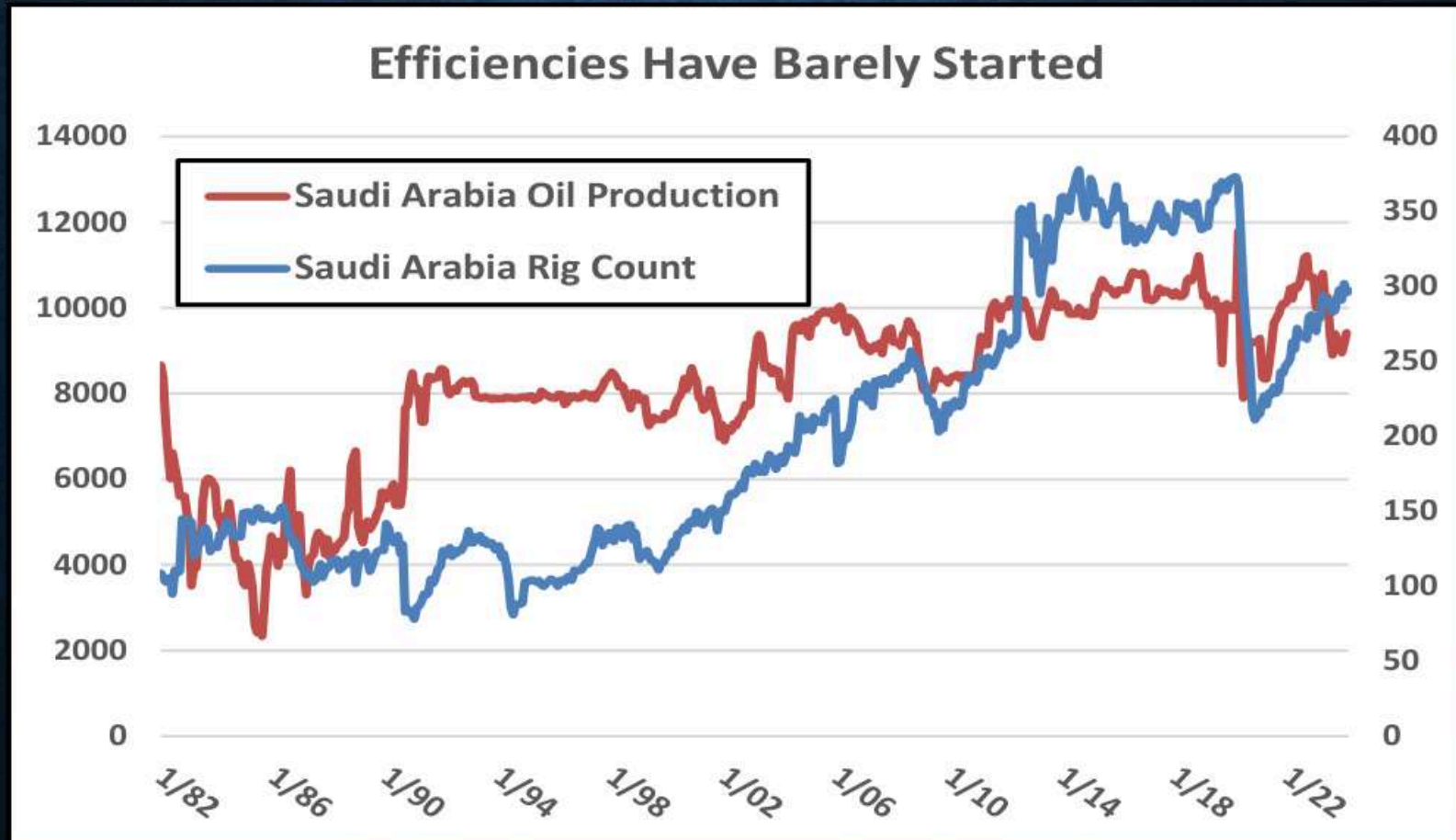
Global electricity generation is roughly 31,000 TWh per year.

BOTTOM LINE



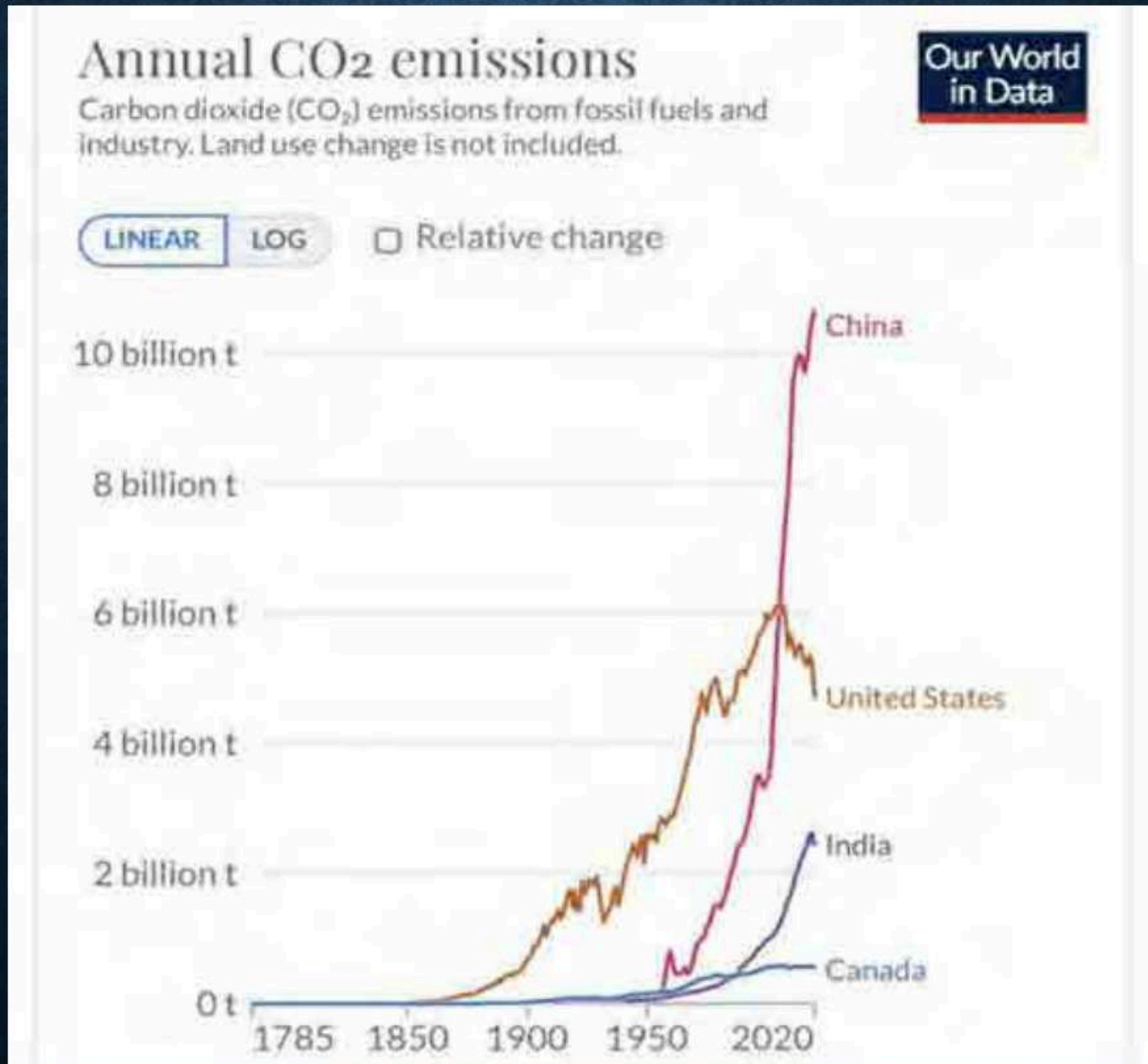
GLOBAL EMBRACING OF US EFFICIENCIES IS NEXT

Movement of modern shale rig and completion technology and equipment has only recently begun to impact international activity but is happening quickly now.



CO2 STATE OF PLAY

WHO CATCHES ALL THE GRIEF?!?



WHO IS GOUGING WHO

<u>Company</u>	<u>TTM ROIC</u>	<u>5-Year Avg ROIC</u>
NVIDIA	~70–72%	~45–50%
Alphabet	~28–30%	~25–27%
Microsoft	~22%	~27–28%
ExxonMobil	~7–8%	~9–10%
Chevron	~6–8%	~8–10%
BP	~5–7%	~6–8%

*“Prediction is very difficult,
especially if it’s about the future.”*

- Niels Bohr (physicist)