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# The Nuts & Bolts of Natural Gas

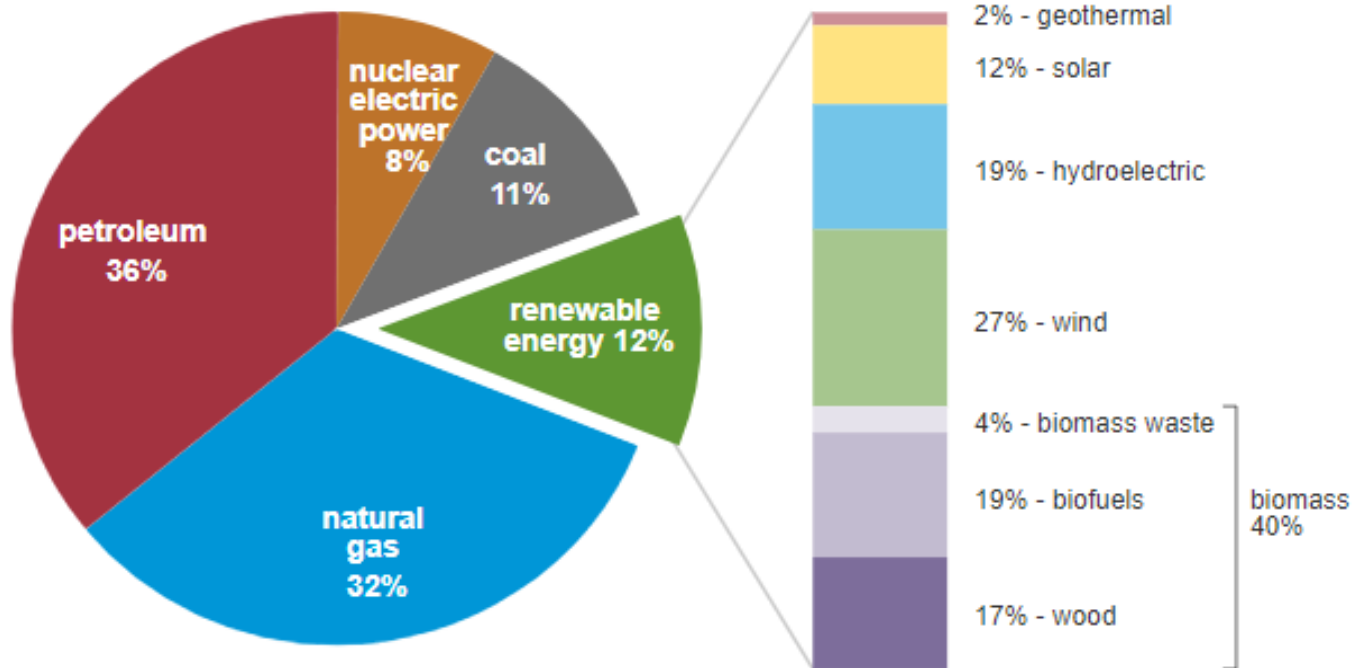
New Orleans October 12, 2022



# USA Energy Consumption (EIA, 2021)

total = 97.33 quadrillion  
British thermal units (Btu)

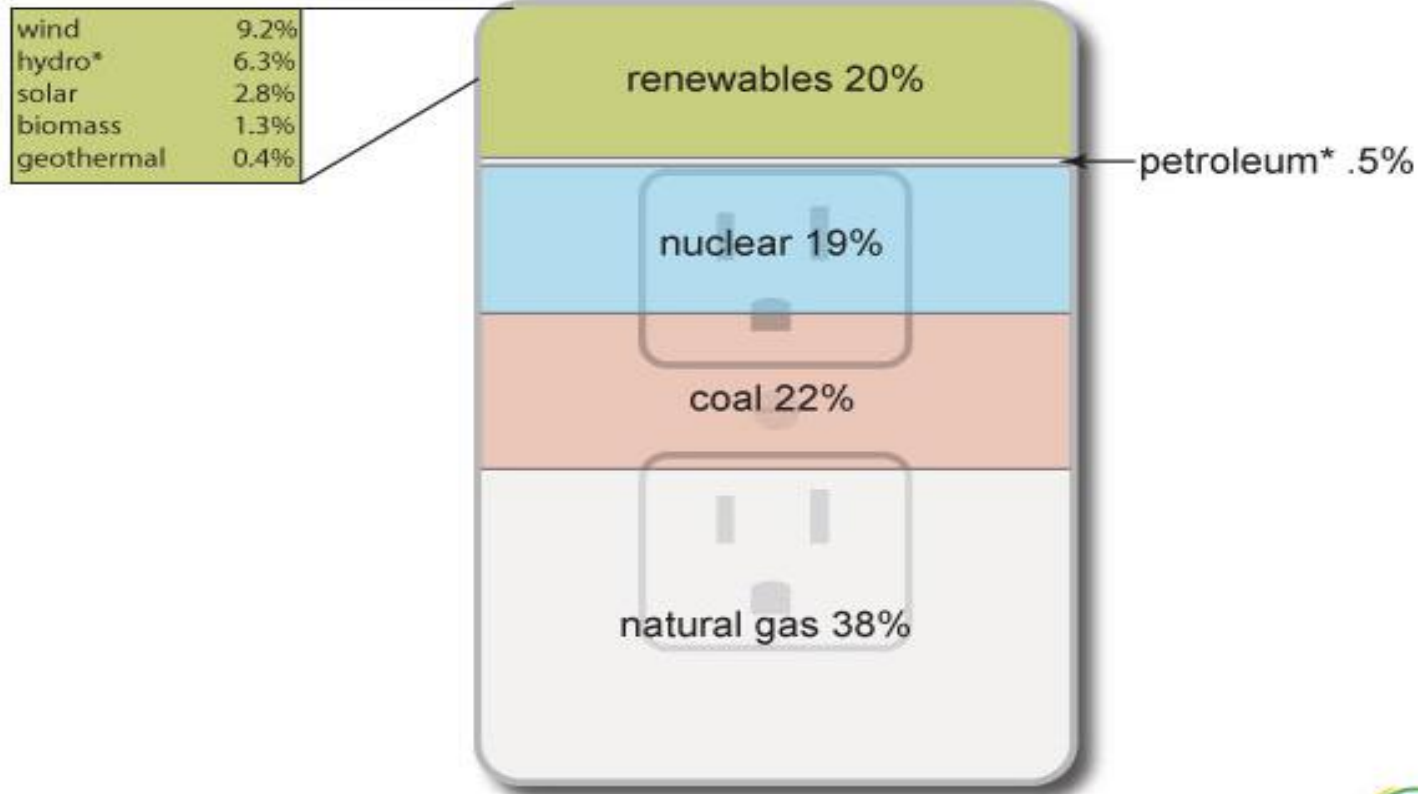
total = 12.16 quadrillion Btu





# USA Sources of Electricity (EIA, 2021)

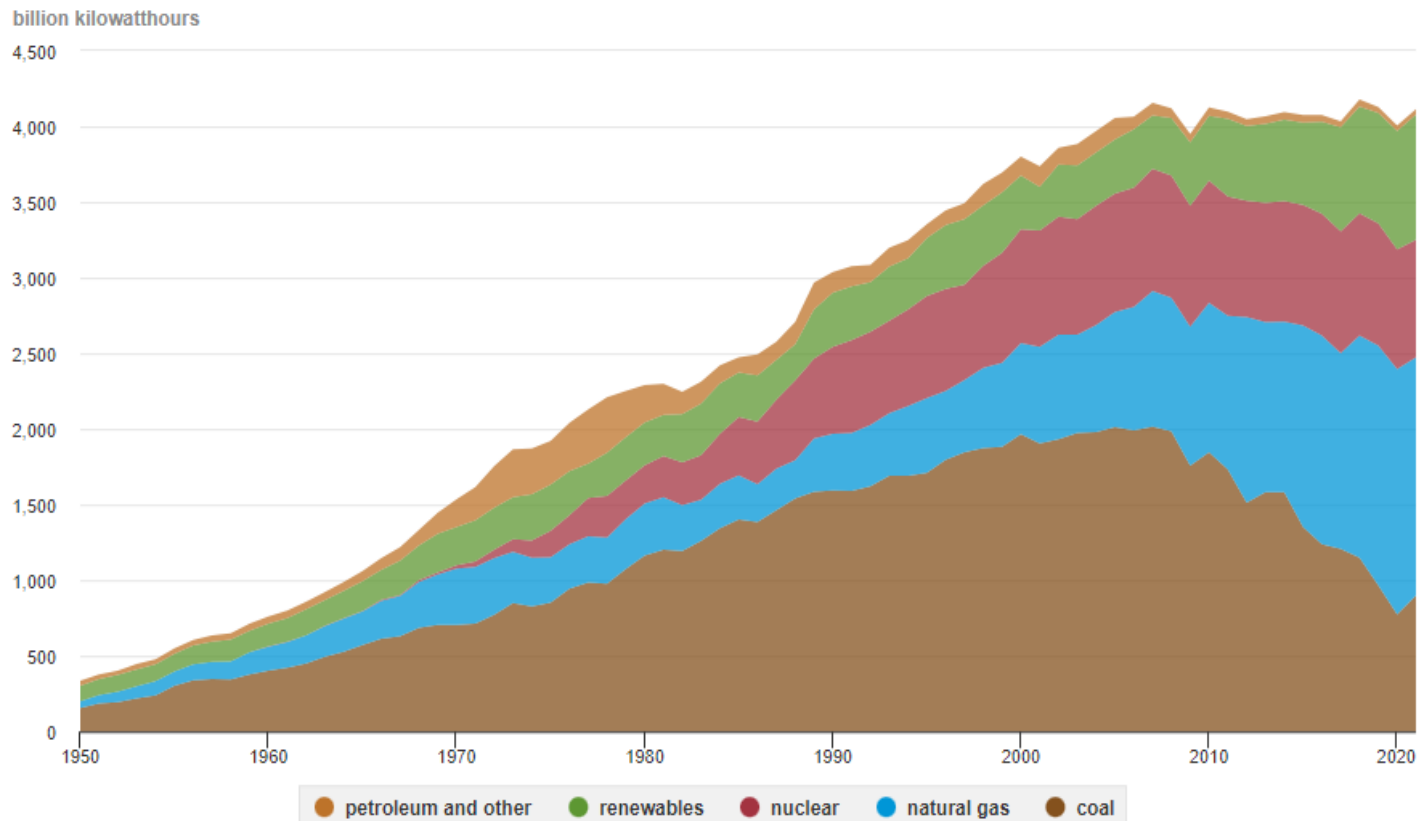
Total = 4.12 trillion kilowatthours





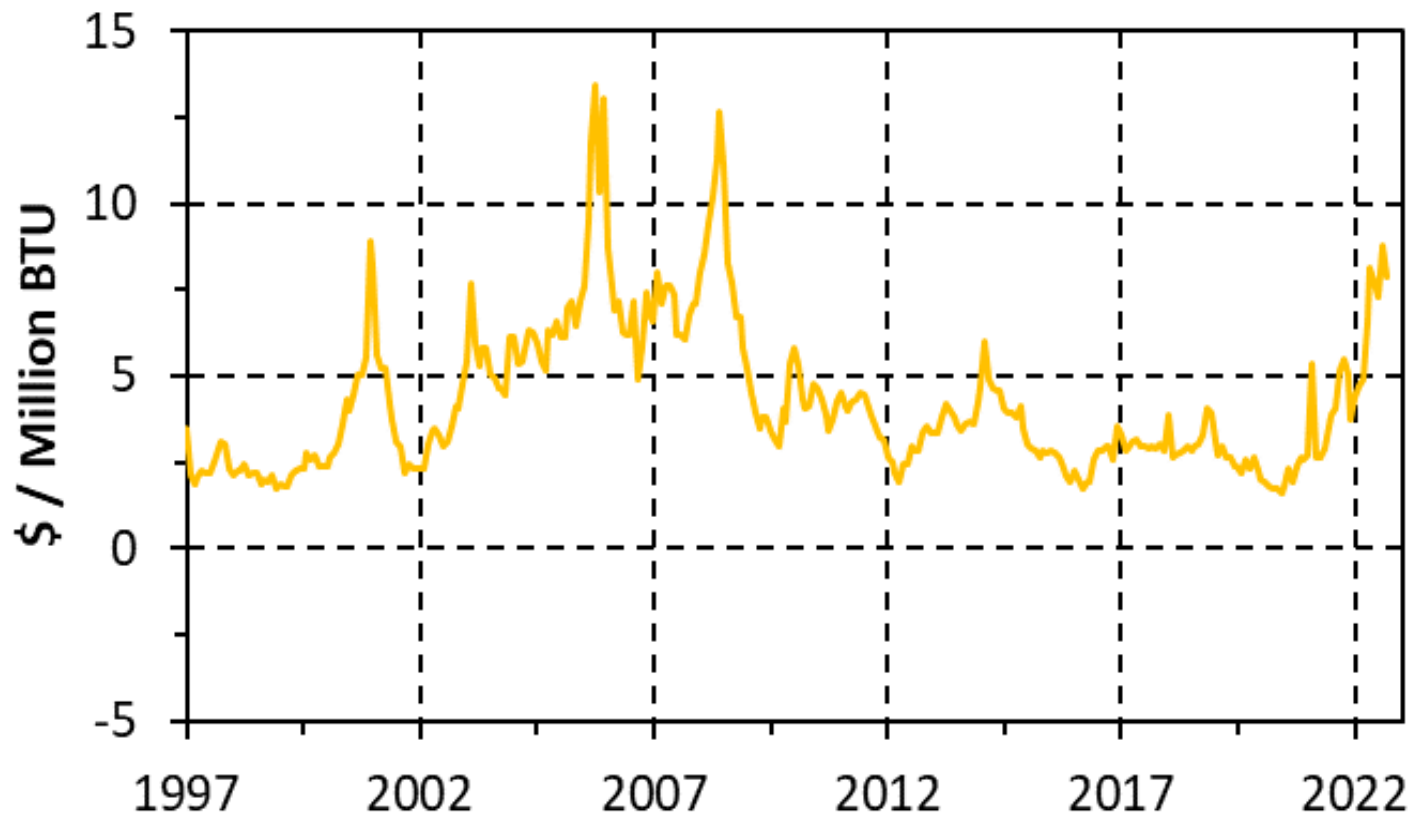


# USA Sources of Electricity (EIA, 2021)



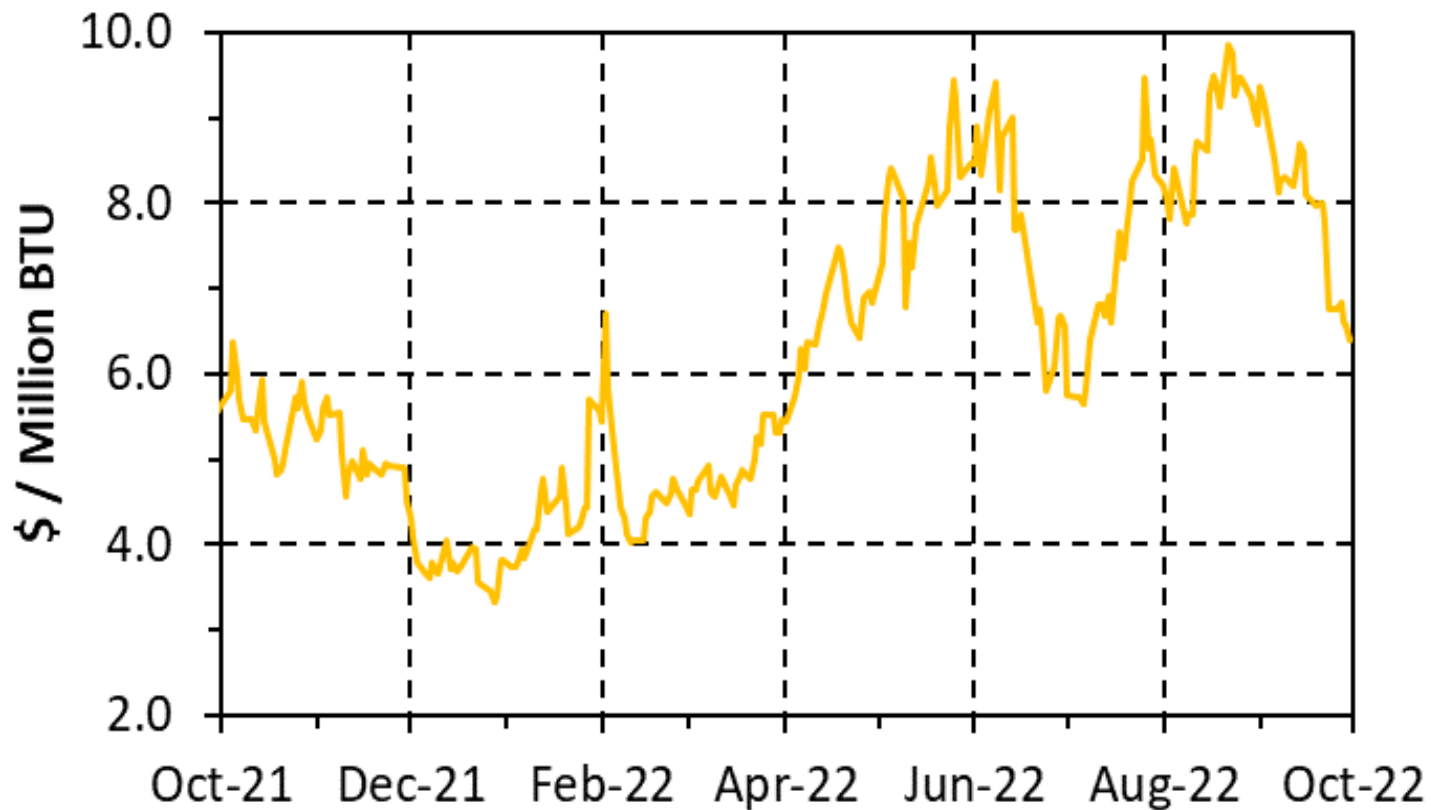


# Henry Hub Nat Gas 1997 - 2022





# Henry Hub Nat Gas One - Year





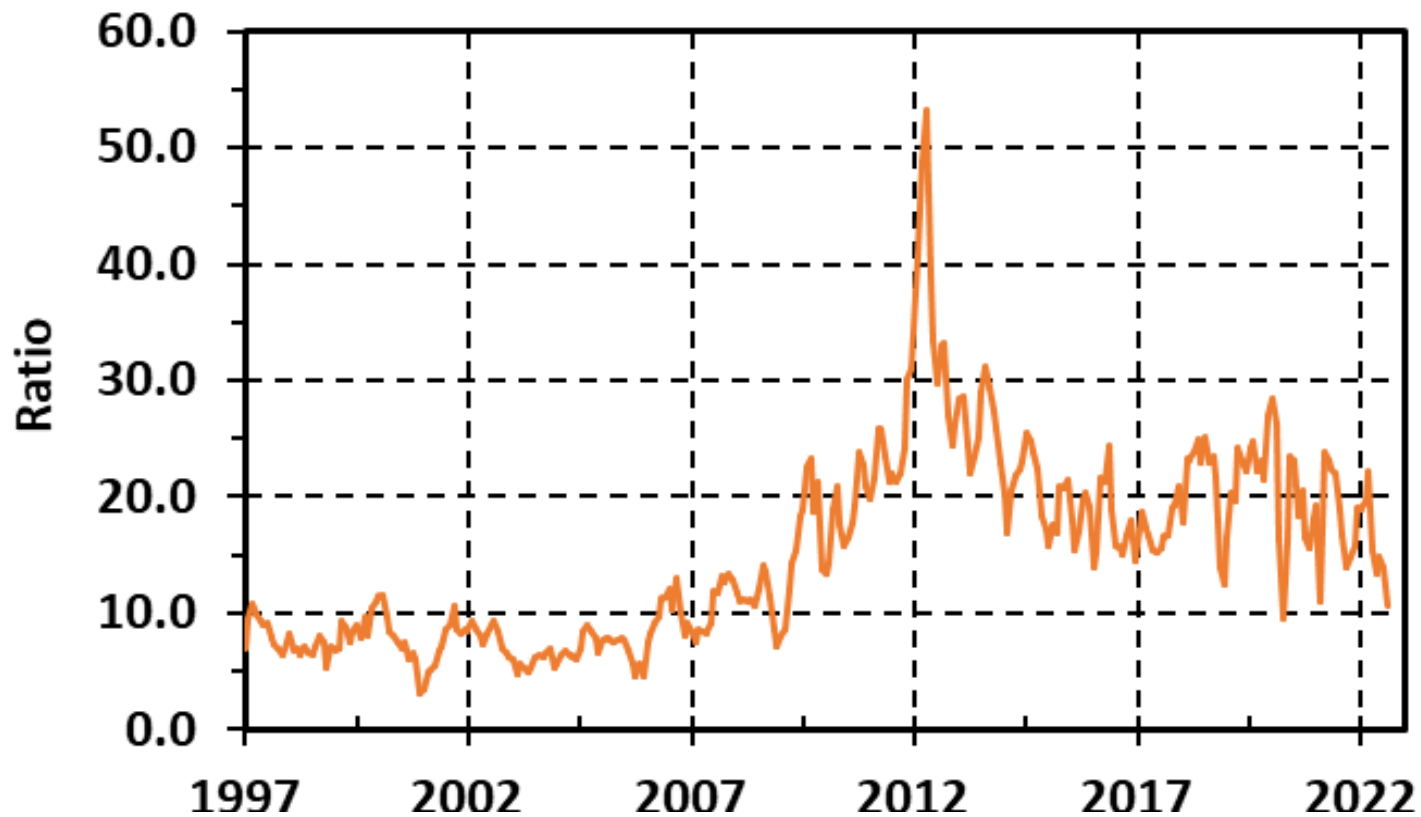


## Oil versus Nat Gas : Energy Produced

- 1 Barrel of Oil = 5.6 Mcf of Natural Gas
- Oil & Gas Reserves = Barrel Oil Equivalent
- BOE for Financial Statements & Resources :
  - IRS = 5.8
  - USGS = 6.0

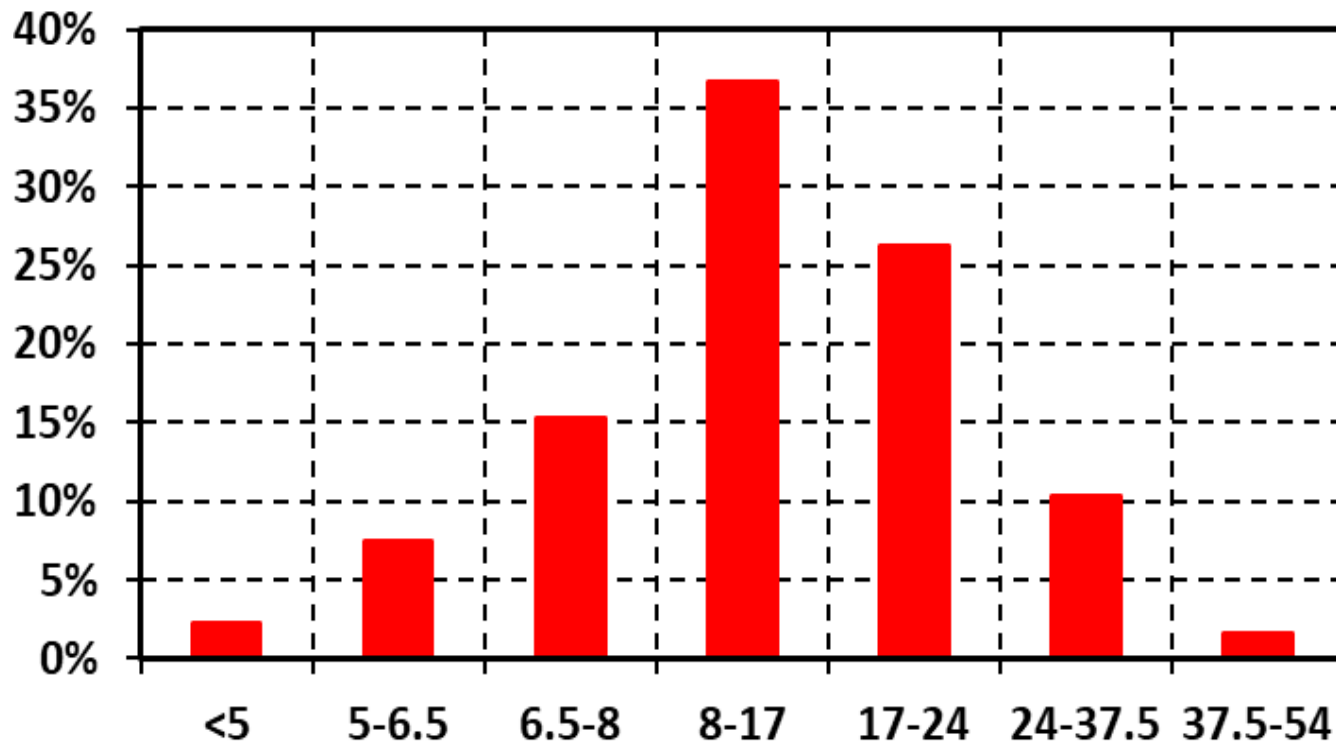


## WTI : HH Ratio 25 - Year





# WTI : HH 25 - Yr Ratio Distribution



Ratio %	Frequency
<5	2.3%
5-6.5	7.5%
6.5-8	15.3%
8-17	36.7%
17-24	26.3%
24-37.5	10.4%
37.5-54	1.6%
Average	Median
15.04	13.87



## Why Are Nat Gas Prices Depressed ?

- Low Risk / Higher Reward for Light Shale Oil
- Shale Oil Success = > Natural Gas Supply
- Transportation Infrastructure : **Pipelines**
- Gulf Coast Storage / Processing Capacity
- Nat Gas Uneconomic = Flaring



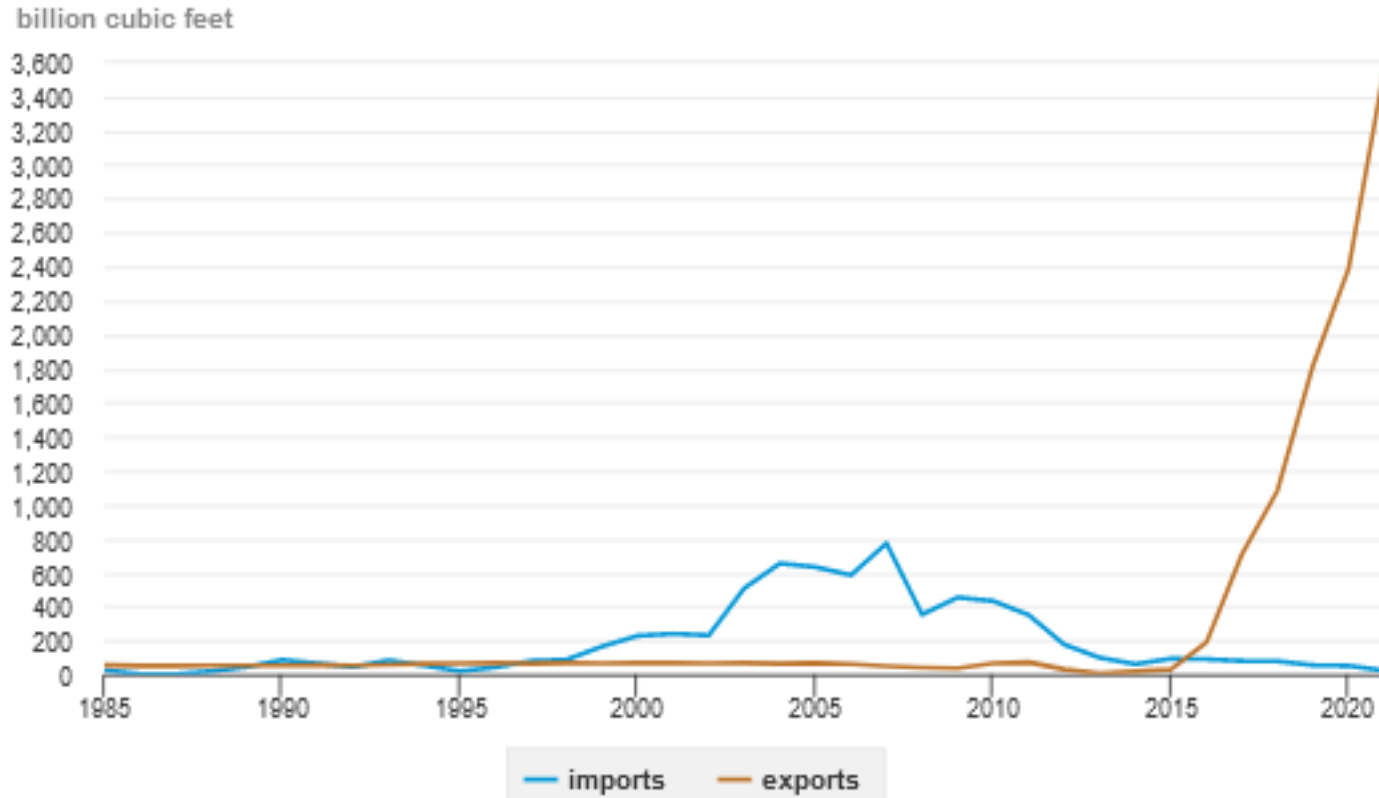
# Why Are Nat Gas Prices Depressed ?

- Environmental Opposition : NE USA
- State Fracking Bans : New York
- Federal Land Access, Lease Bans, > Royalties
- New Regulations & Bureaucratic Delays
- Investment Funds & Big Bank ESG Programs



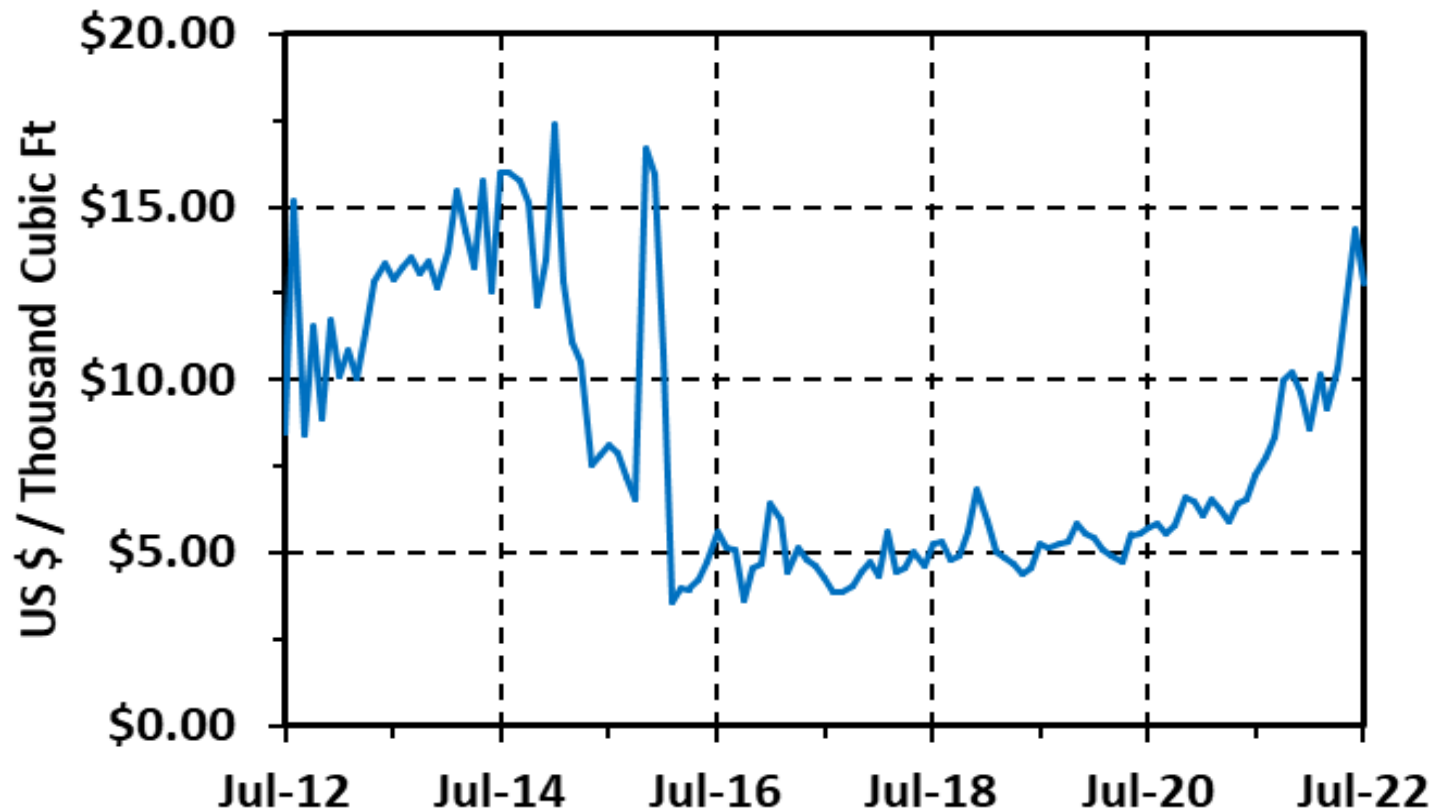


# USA LNG 1985 -2021



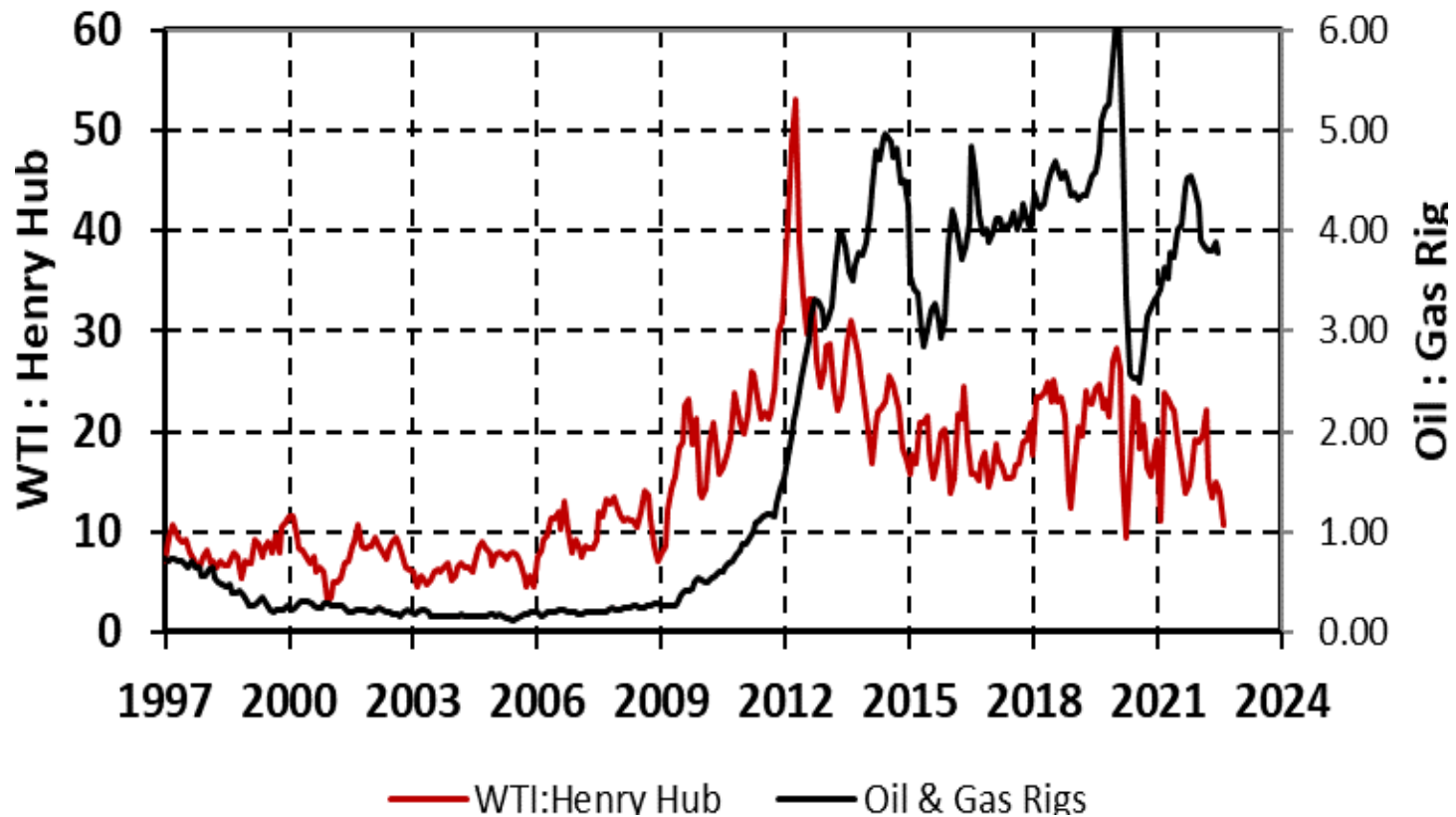


## Five - Year LNG Export Price

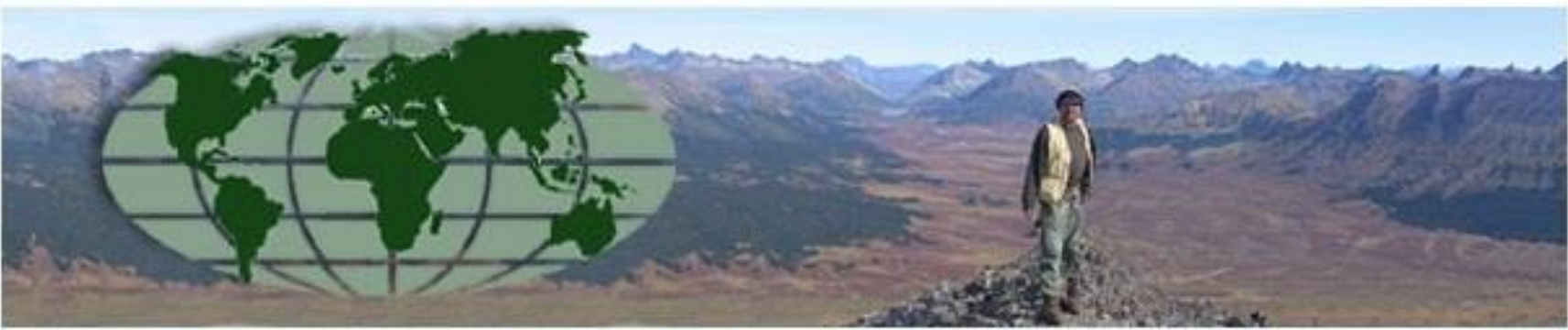




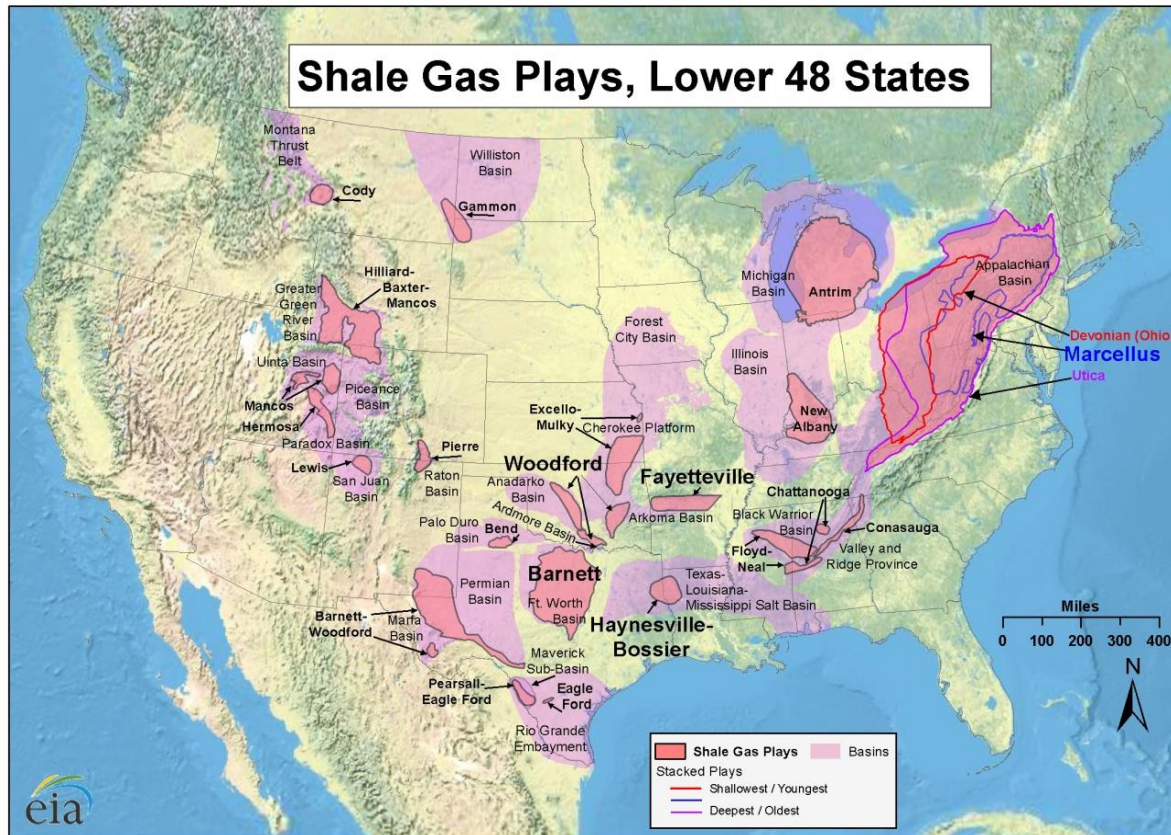
# Oil : Gas Price & Drill Rig Ratios







# USA Shale Gas Basins

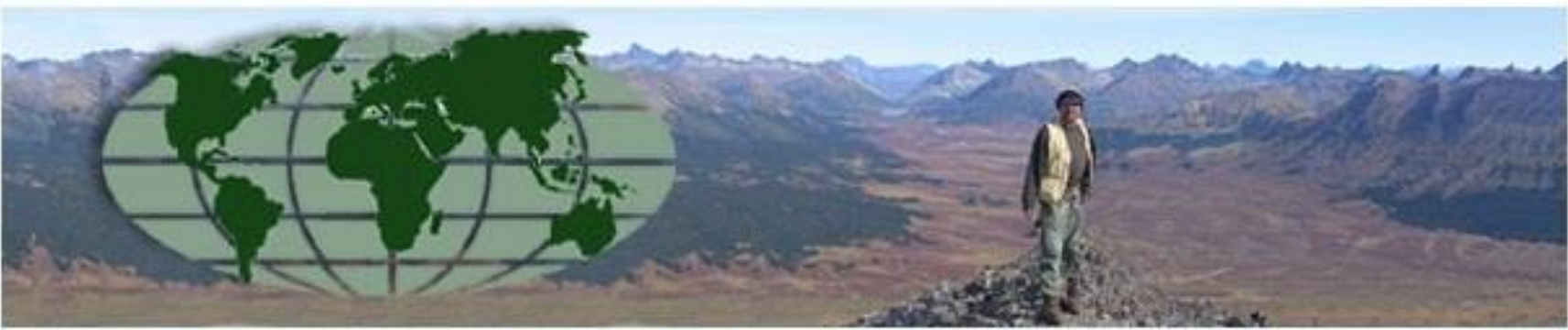




# USA Natural Gas Resources

- World's Largest Gas Producer / Exporter
- World's Largest Reserves
- 110 Yrs of Resources : USA Projected Demand
- Infrastructure Required : Permian & Gulf Coast

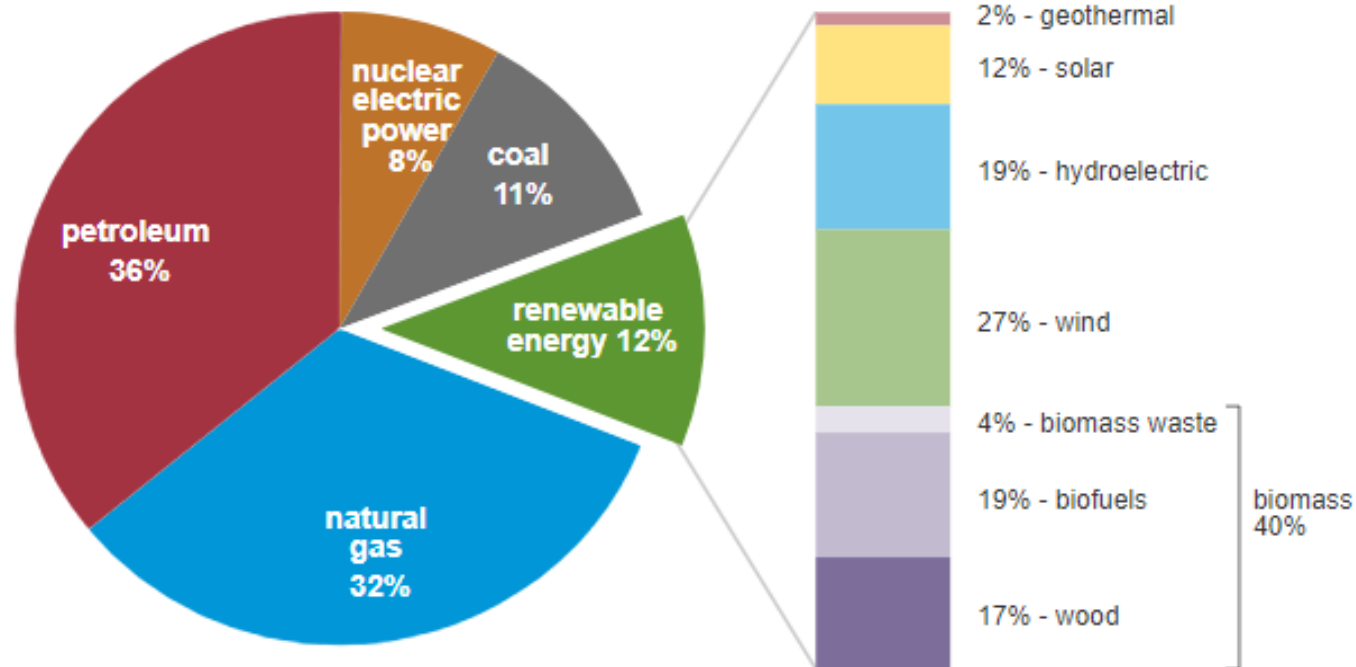




# USA Energy Consumption (EIA, 2021)

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## USA Natural Gas Prices ?

- Weather : Winter - Heating ; Summer - Cooling
- Shale Oil / Gas Supplies ; Fracking & Rigs
- NE US : Demand vs Local / Regional Supply
- Thermal Coal Prices
- Permian Basin : Transportation Issues
- LNG : Asian / European Demand



## USA Energy Independence ?

- Oil
- Natural Gas
- Coal
- Uranium < 1% Domestic Production
- Renewables = Zero Base Load (except Hydro)
- 40 % of Renewables = Polluting Bio-Mass







# Monday Morning Musings from Mickey the Mercenary Geologist







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