



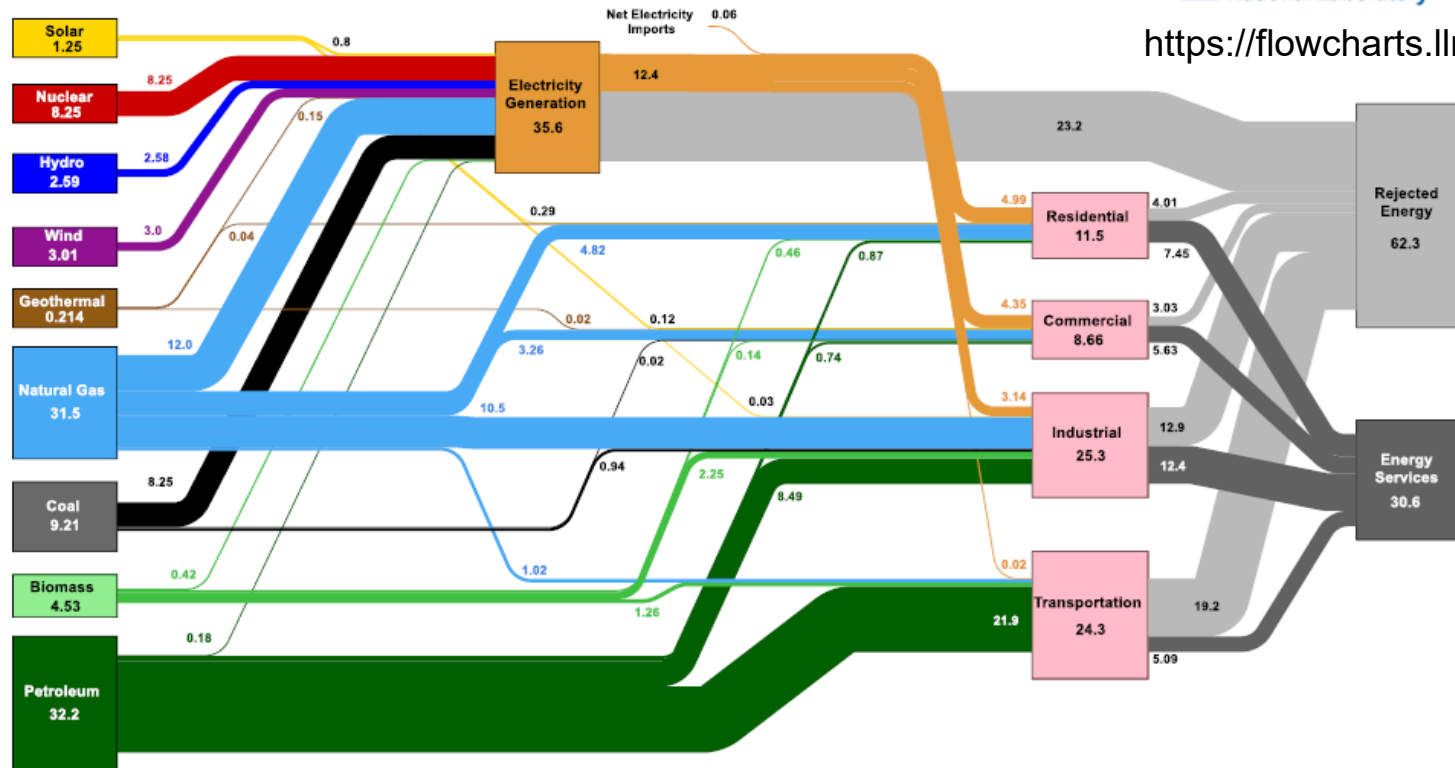
Background

U.S. Energy Sources & Uses

Estimated U.S. Energy Consumption in 2020: 92.9 Quads



<https://flowcharts.llnl.gov/>

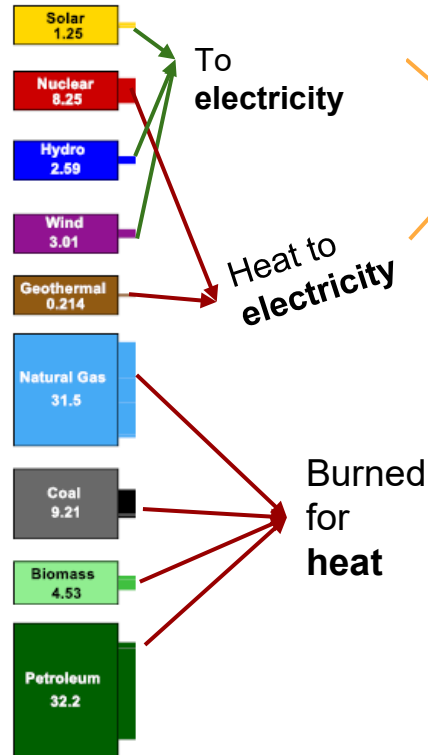




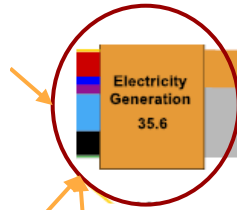
Heat and Electricity

Renewable Energy & Nuclear vs Combustion Sources

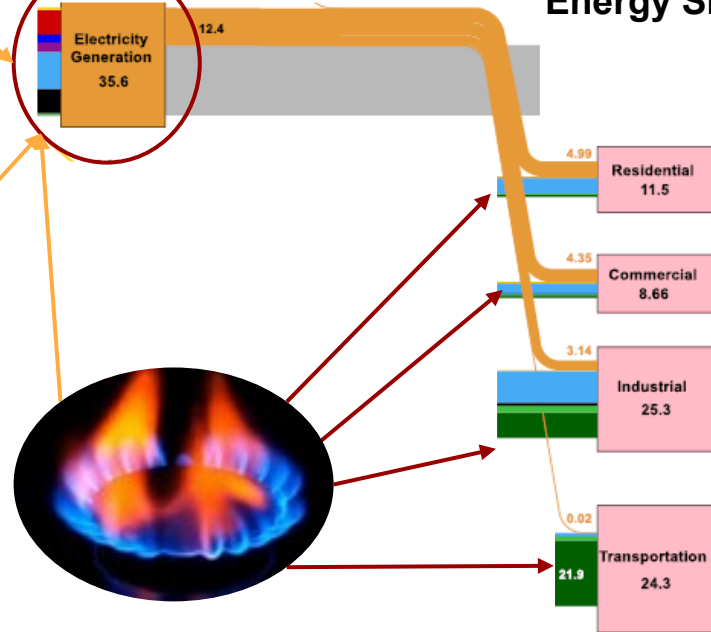
Energy Sources



Secondary



Energy Sinks



Energy Sources:
For Heat or
Electricity



**Reasons to
Transition directly
to
Clean Energy**

1. Climate Crisis
1. \$20+ Billion in direct subsidies & \$650+ Billion in indirect subsidies to FF annually
1. 7+ million people a year die globally from FF air pollution
1. People and \$\$ resources are limited

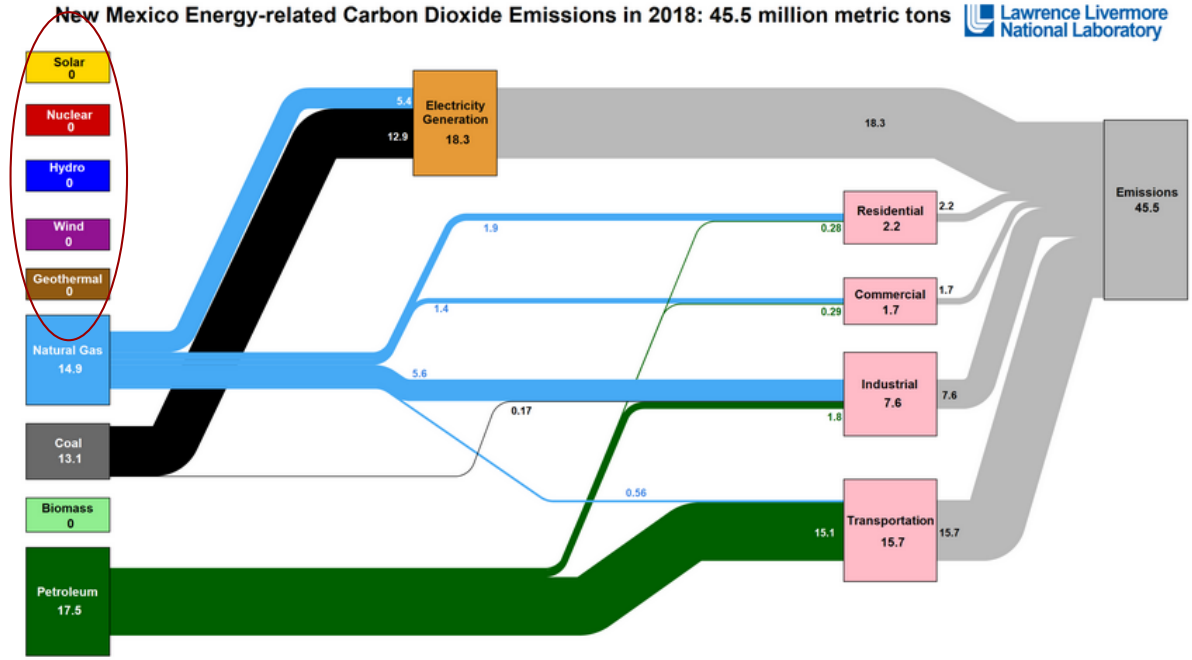
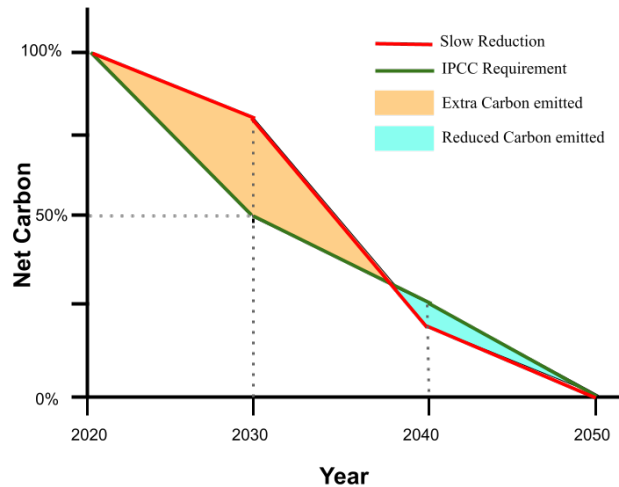


Problem

Carbon Dioxide & Methane Emissions

1. Cut Net Carbon 50% by 2030 per IPCC
1. For electricity, heat and kinetic energy
1. Waste Emissions absent & NW coal is methane coal

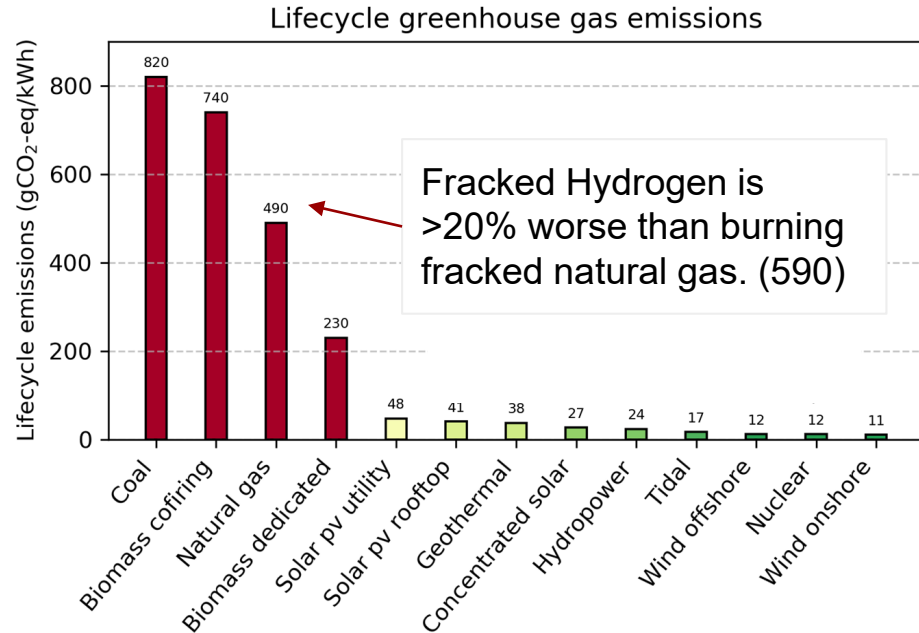
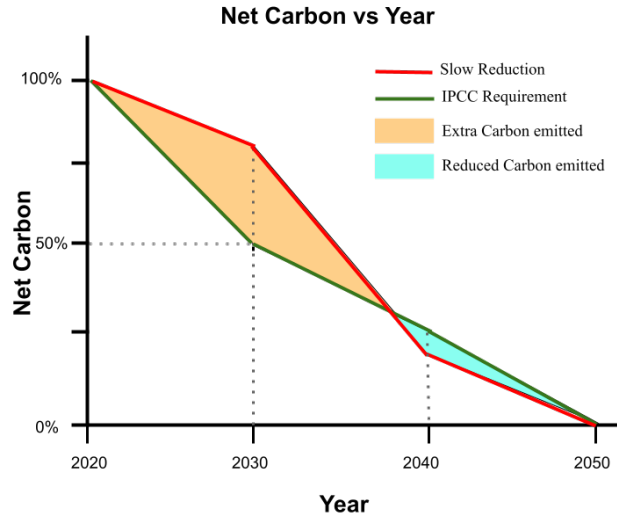
Net Carbon vs Year





Problem

Don't get Distracted by Fracked Hydrogen



Schlömer S., et al., 2014: Annex III: Technology-specific cost and performance parameters. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the IPCC (Table A.III.2, pg 1335). Plot by whatisnuclear.com.



Athena
Christodoulou

Clean Energy Storage

Hot Rocks COULD Save Humanity

Athena Christodoulou

Formerly CSolPower LLC, Albuquerque, NM
athenanmsea@gmail.com



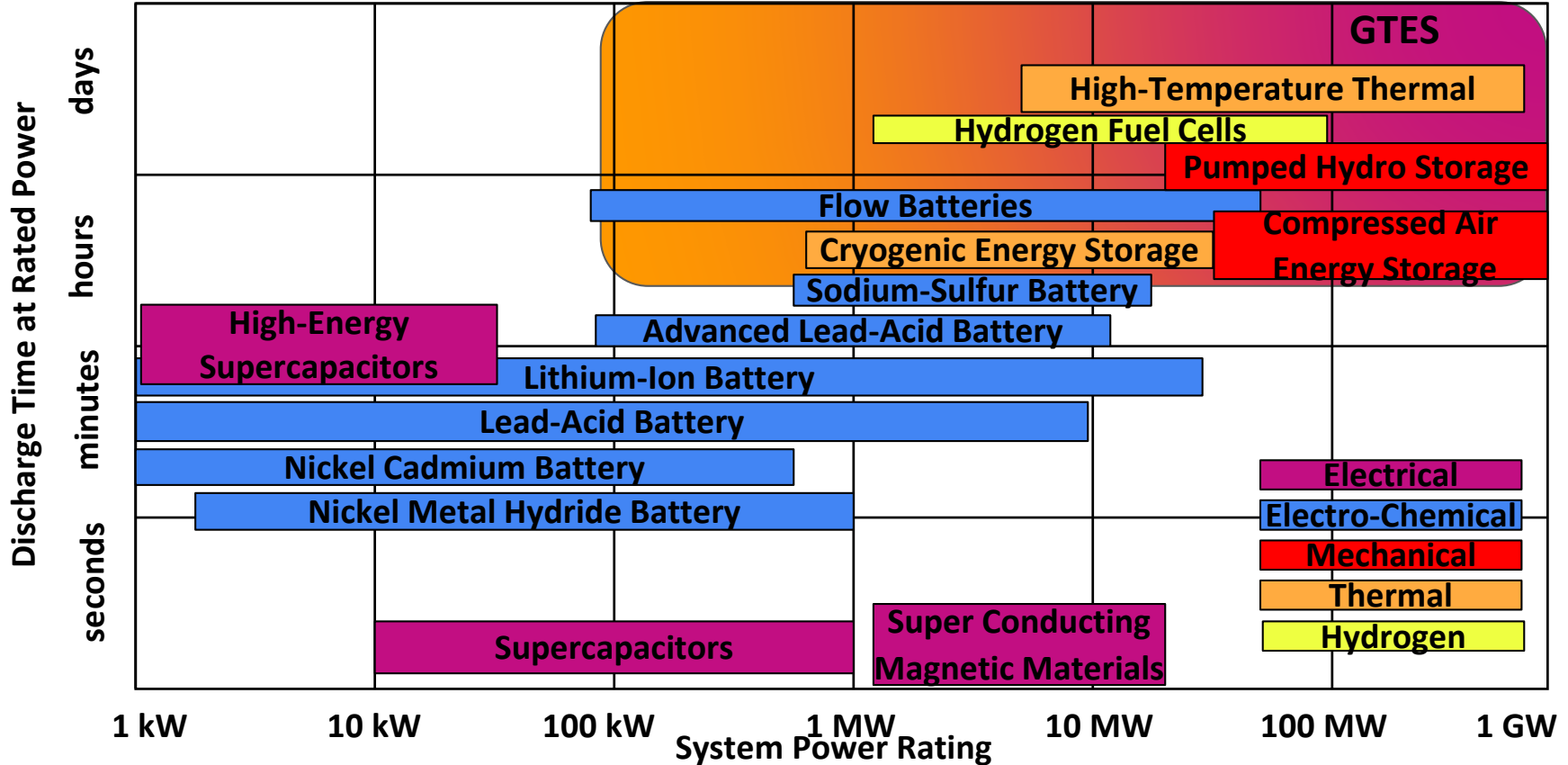
November 7, 2024

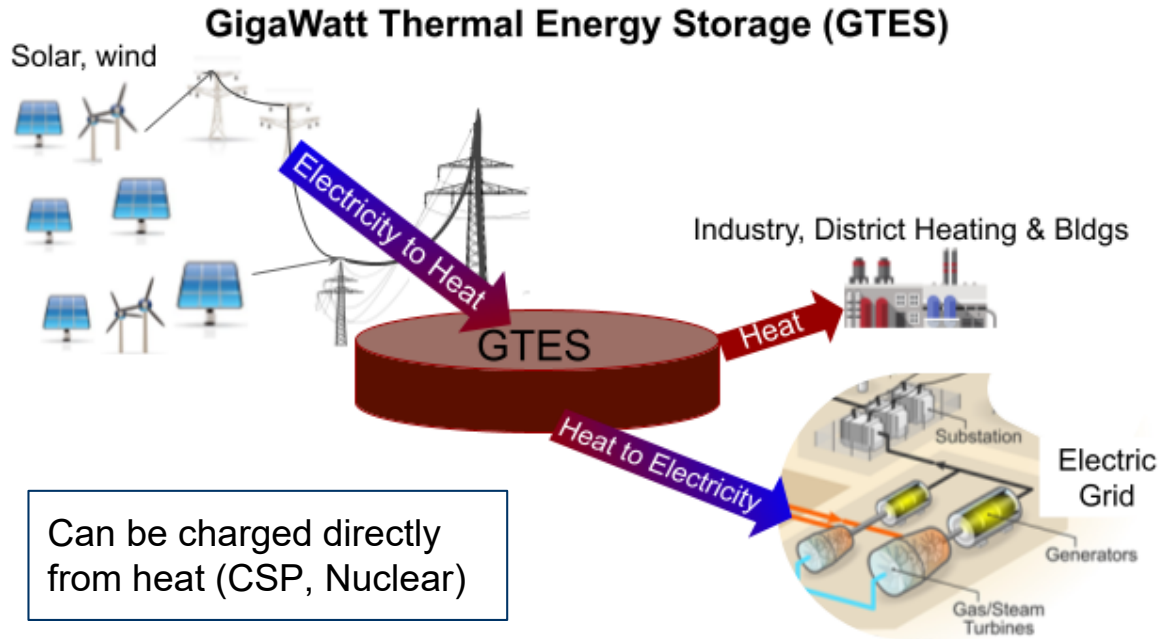




Renewables Require Storage

Medium to long term & Scalable



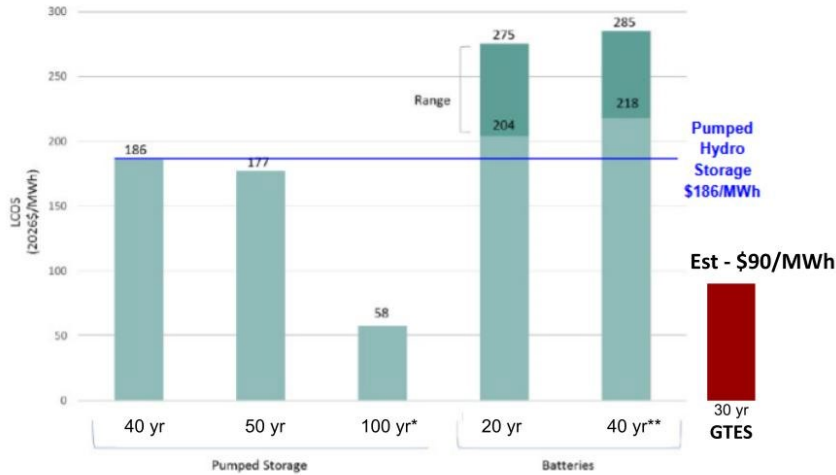


Energy Storage:

**For heat or
heat to electricity**



Levelized Cost of Storage



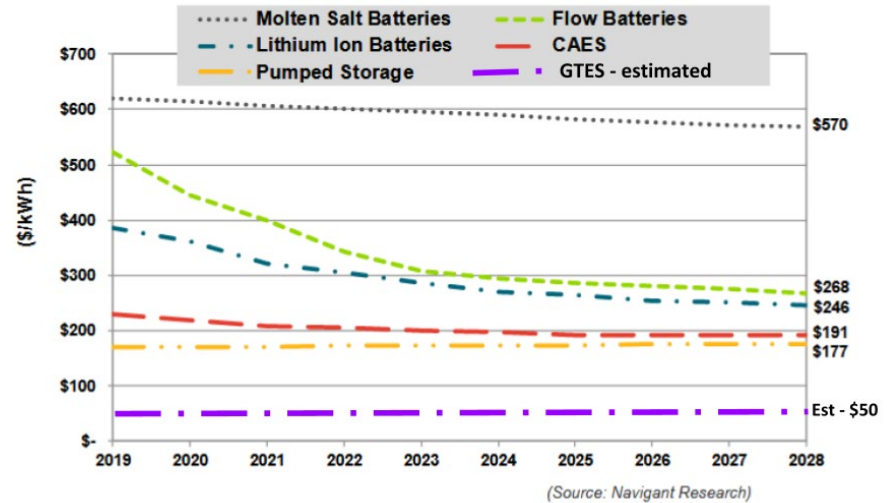
* 2nd 50 yrs

(Source: Lazard and San Diego County Water Authority)

** Lithium

GTES - 100 MW, 4 hr, w/ legacy gas plant, 200 discharges/yr

Capital Expenditures - CAPEX

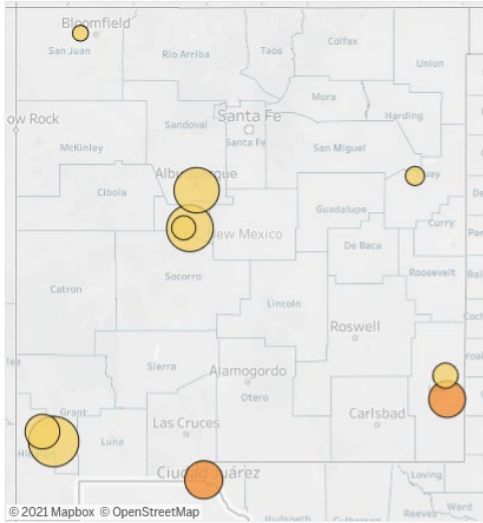


(Source: Navigant Research)

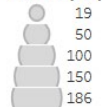
GTES - 100 MW, 4 hr, w/ legacy gas plant, 200 discharges/yr



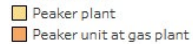
New Mexico Peakers



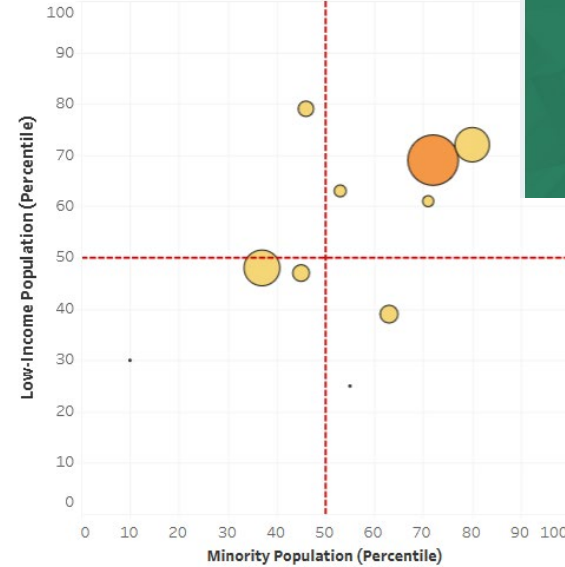
Capacity (MW)



Plant Unit Type



Demographics Near New Mexico Peakers



Population (in selected radius)



ENERGY.GOV

SCIENCE & INNOVATION

ENERGY ECONOMY

SECURITY & SAFETY

SAVE ENERGY, SAVE MONEY



Department of Energy

DOE Establishes New Office of Clean Energy Demonstrations Under the Bipartisan Infrastructure Law

DECEMBER 21, 2021

New Mexico: Solar/Wind + Storage + Community



Athena
Christodoulou

Hot Rocks COULD Save Humanity

with GigaWatt Thermal Energy Storage



For More Information
Athena Christodoulou
505-459-5875

or

Email - Athenanmsea@gmail.com ,