



# Gas-Electric Partnership

Houston TX

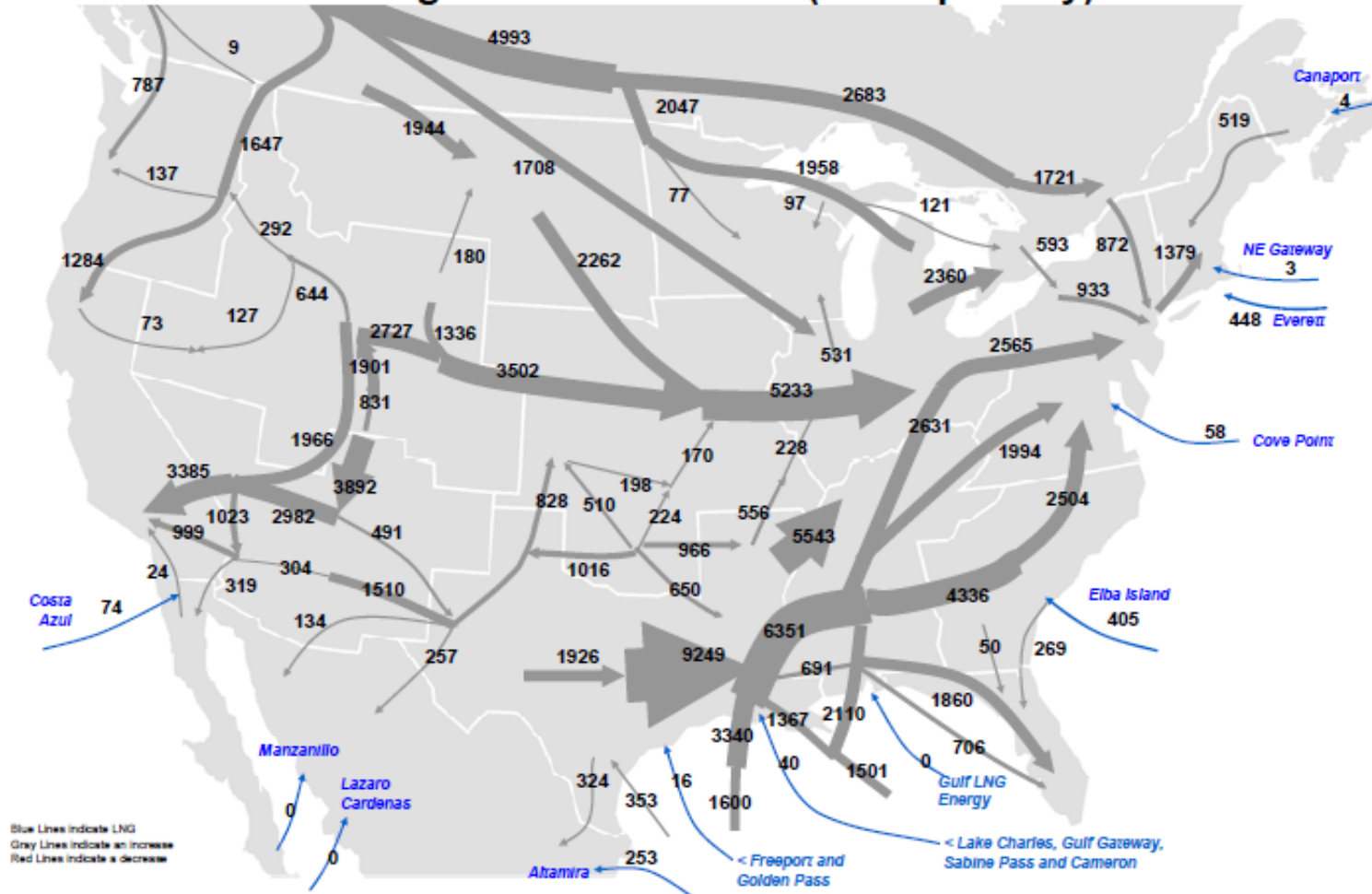
February 5<sup>th</sup>, 2020

# Natural Gas Storage Assets



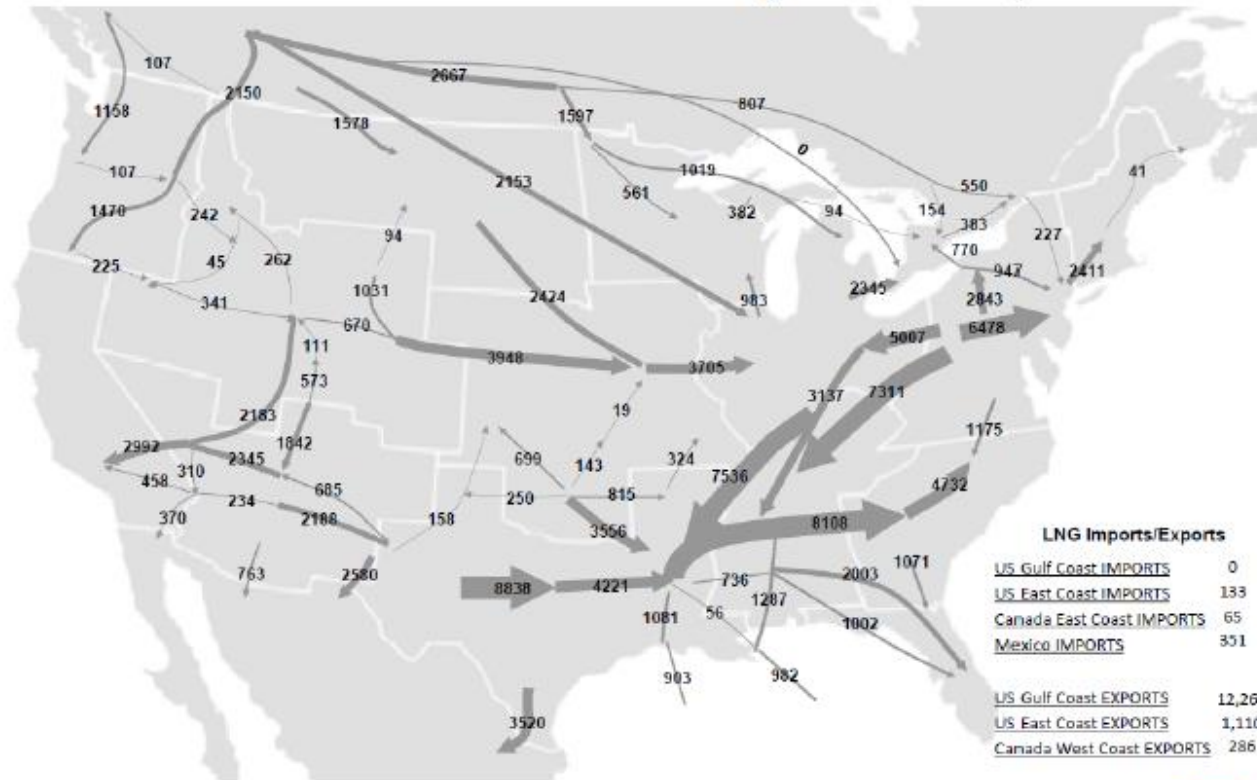
Sponsored by ArcLight Capital Partners and the largest privately owned gas storage company in the US.

## Interregional Flow in 2008 (MMcf per day)



Grid was designed to move gas south to north primarily

## Natural Gas Flows in 2035 (MMcfd)



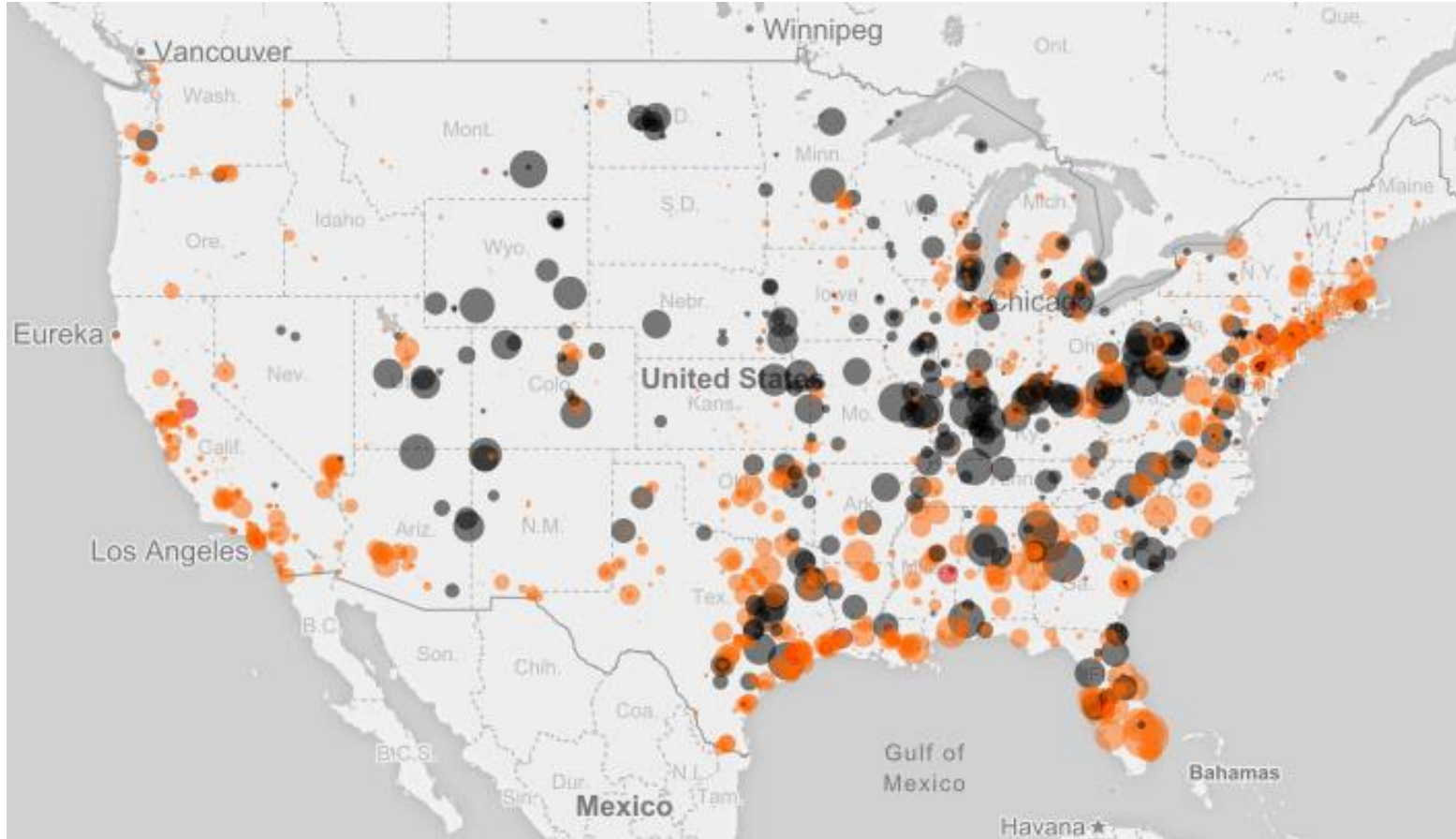
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The INGAA Foundation Inc.

Surging production has significantly disrupted gas flow patterns and traditional storage

# Map of Fossil Power Plants in US

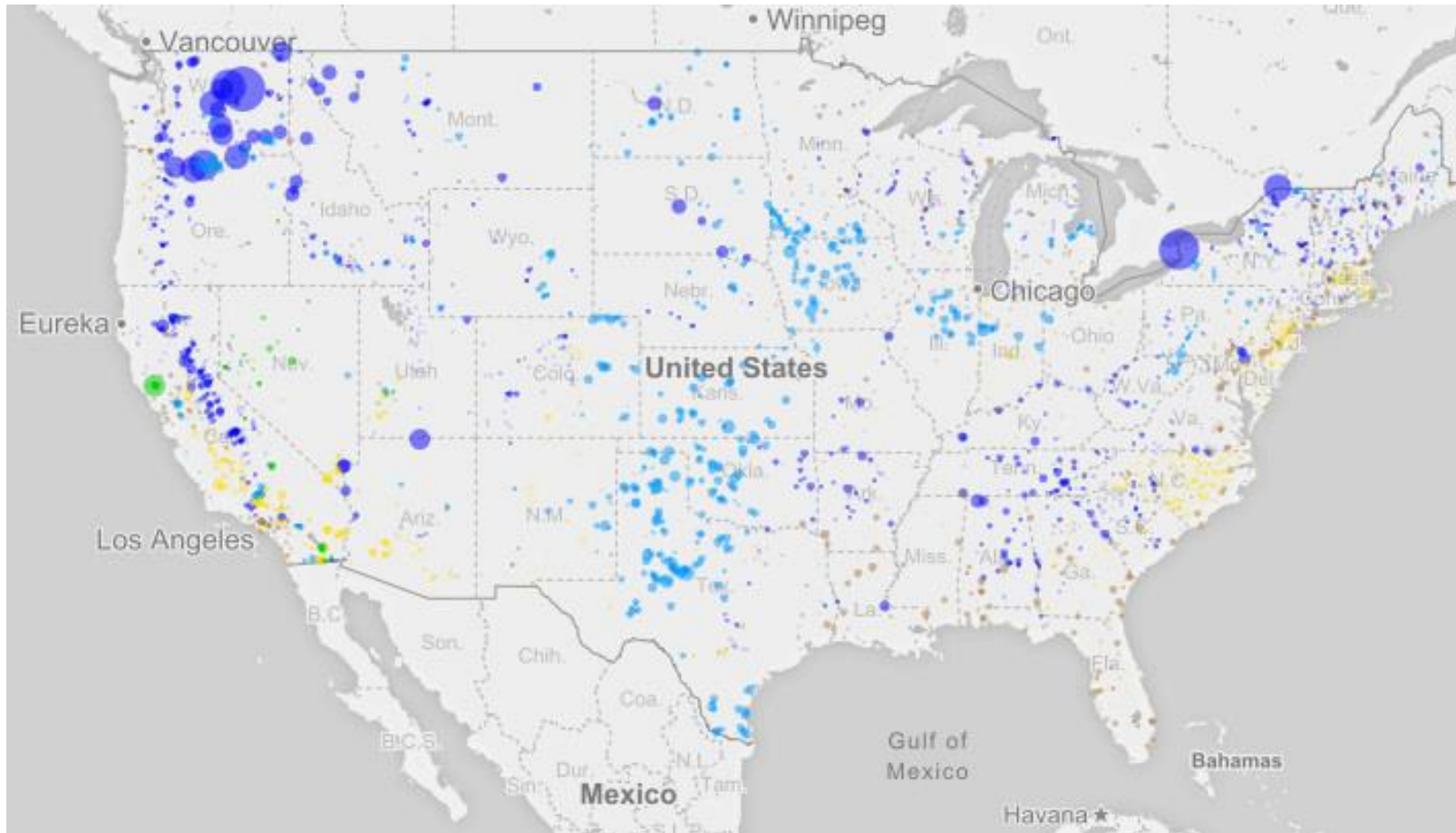


The two most prominent sources are coal (black) and natural gas (orange), and they combine to make up about 60% of total annual net generation.

**Coal plants will continue to be under pressure due to emissions and operating costs**



# Map of Renewable Power Plants in US



Hydro (dark blue), wind (light blue), solar (yellow), biomass (brown), and geothermal (green) all appear here.

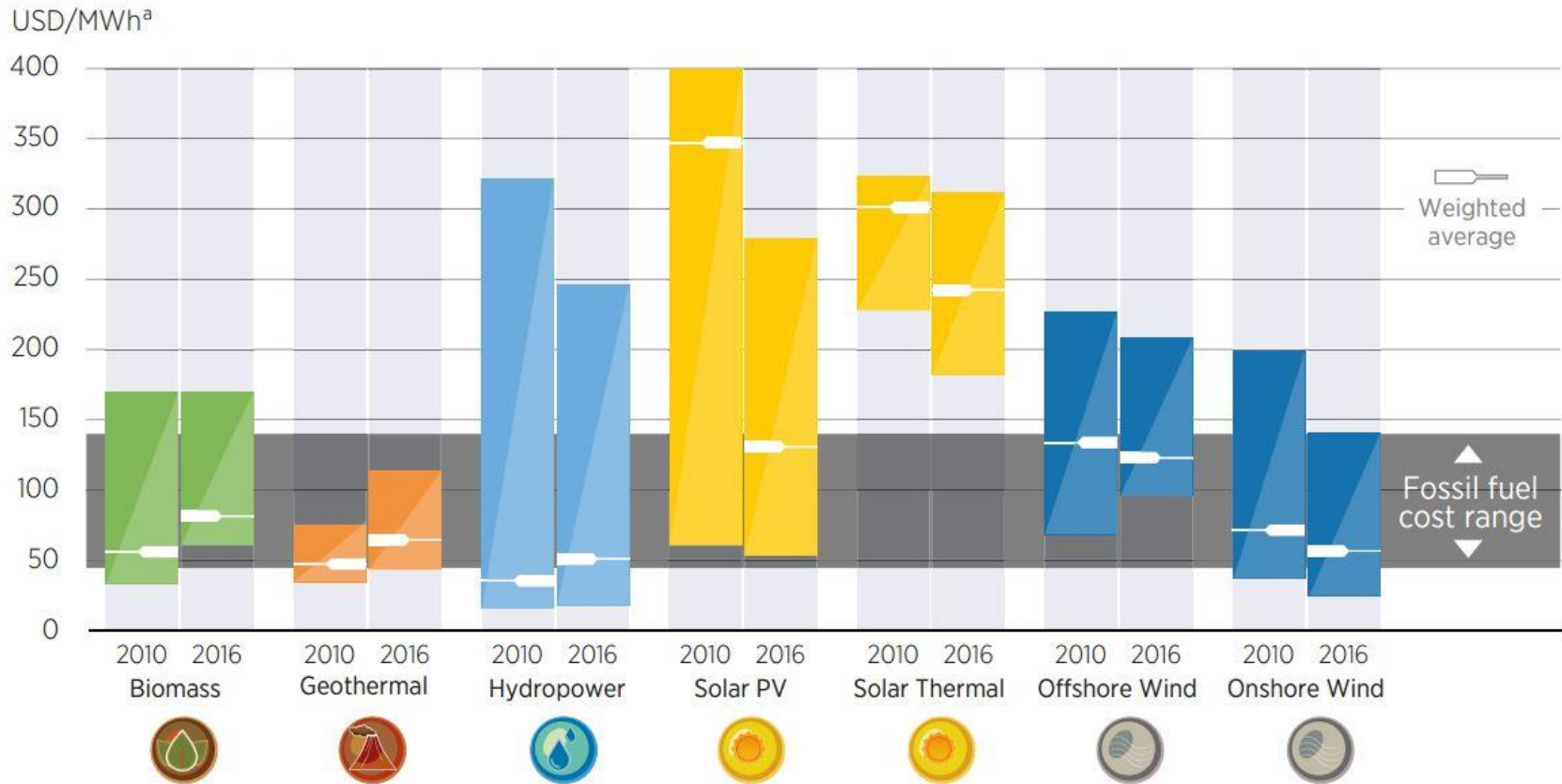
Renewables will be built but there are issues that the market may not fully recognize

# Renewables Impact on Gas Consumption



Renewables will increase intermittency on the grid

# Levelized Cost of Energy



Note: a) MWh: megawatt-hour

b) All costs are in 2016 USD. Weighted Average Cost of Capital is 7.5% for OECD and China and 10% for Rest of World

Fossil fuels are still the cheapest source of power but that is changing



# Power Storage Options

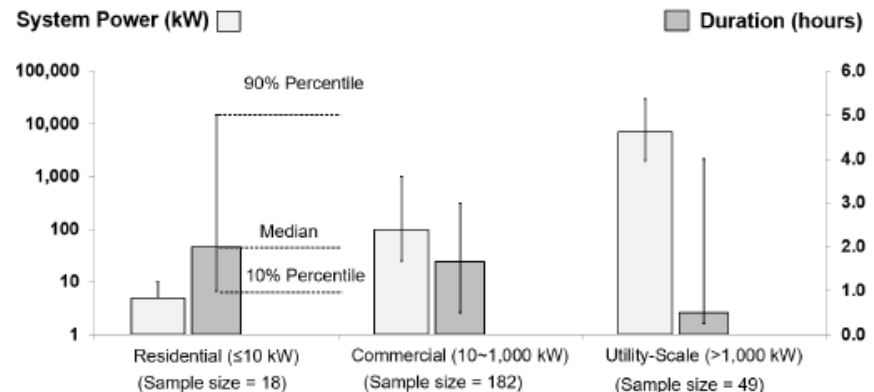
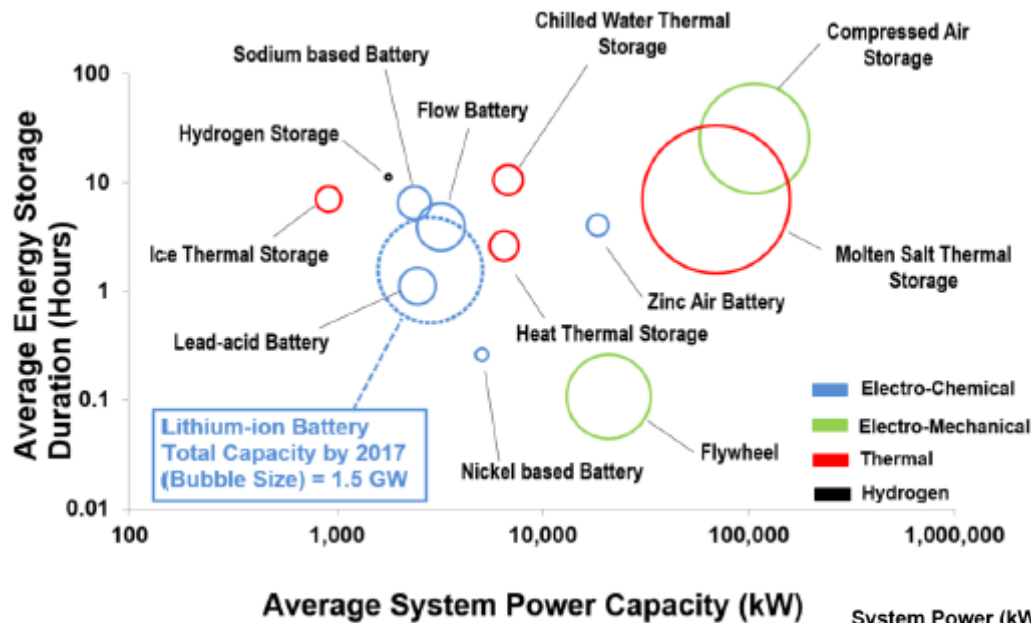
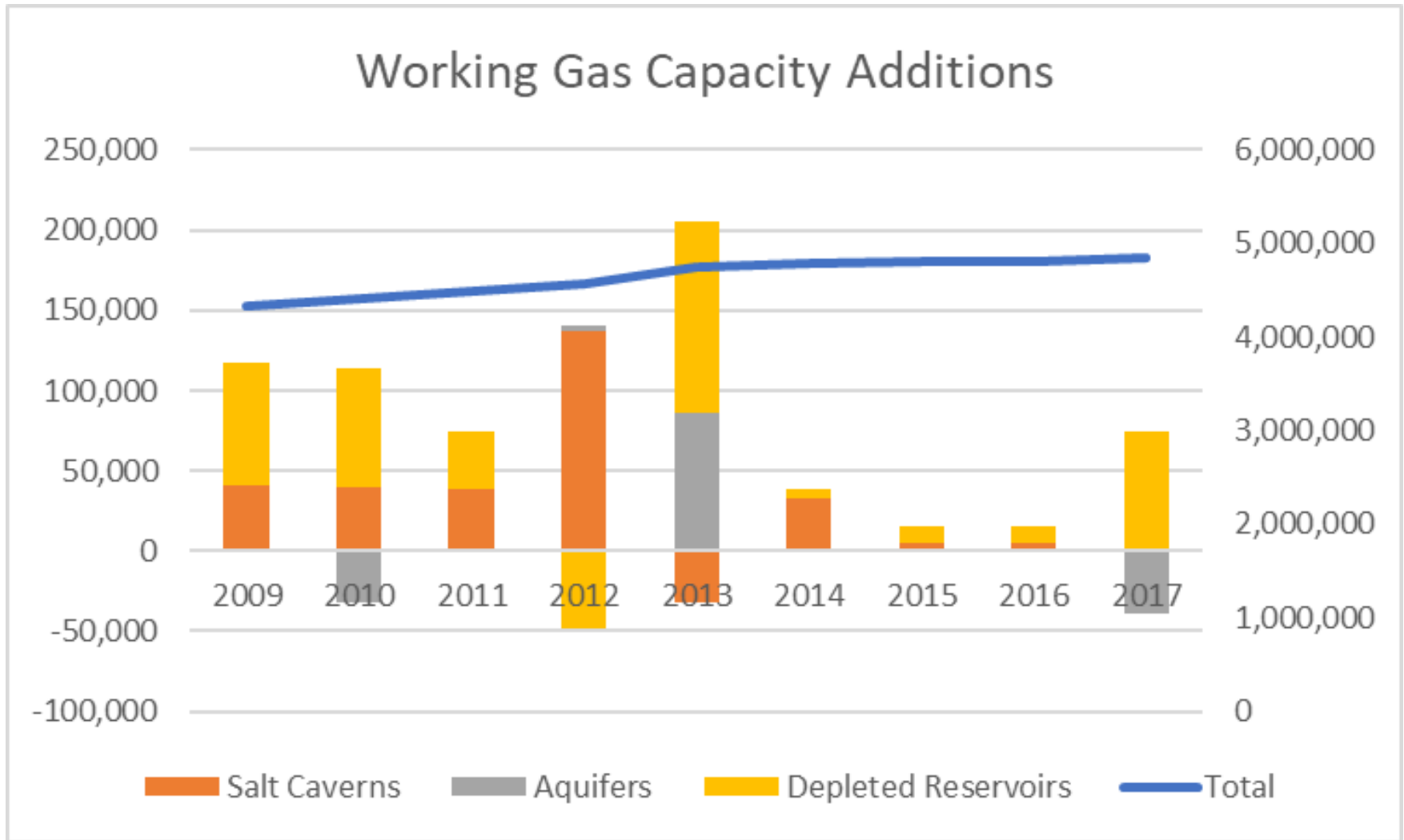


Figure 5. Distributions of U.S. Li-ion energy storage power and duration, by sector, 2008–2016 (DOE Energy Storage Database 2018)<sup>6</sup>

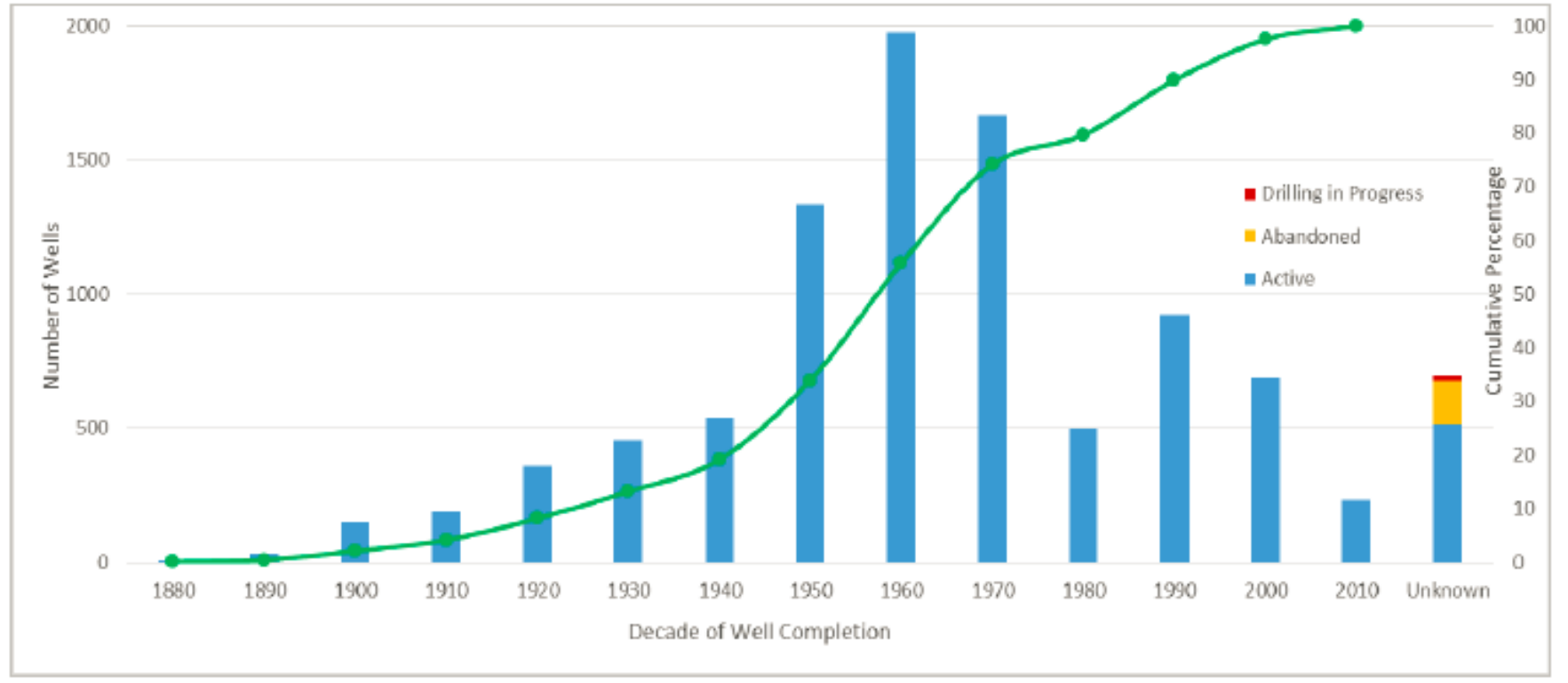
Storage options are available but industrial scale options are limited

# Working Gas Capacity Additions



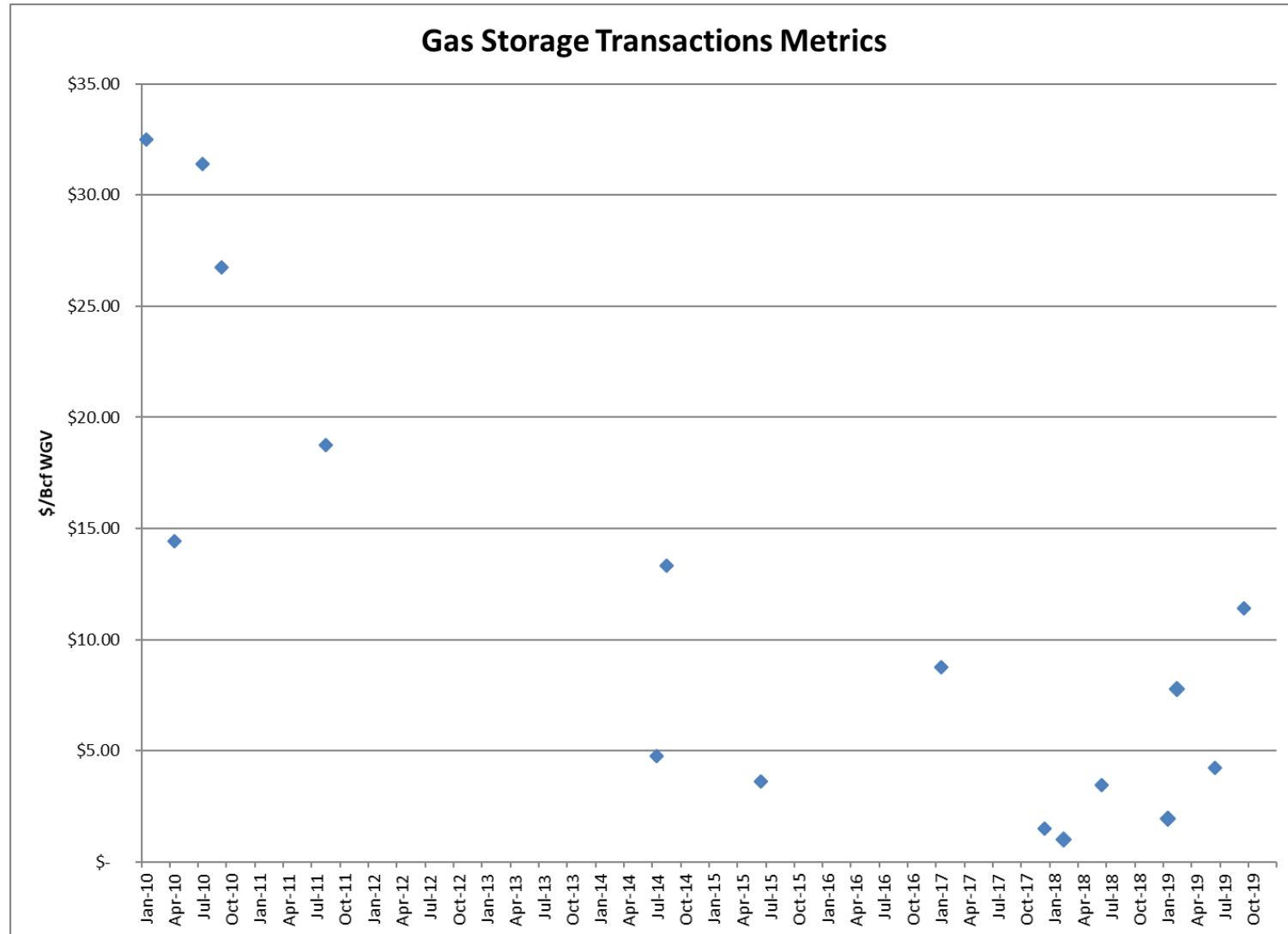
No significant storage adds in past five years and none projected

Figure 2. Natural gas storage wells by completion date



Assets are ageing and not being replaced

# Transaction Multiples



Transaction multiples have improved significantly over the past year