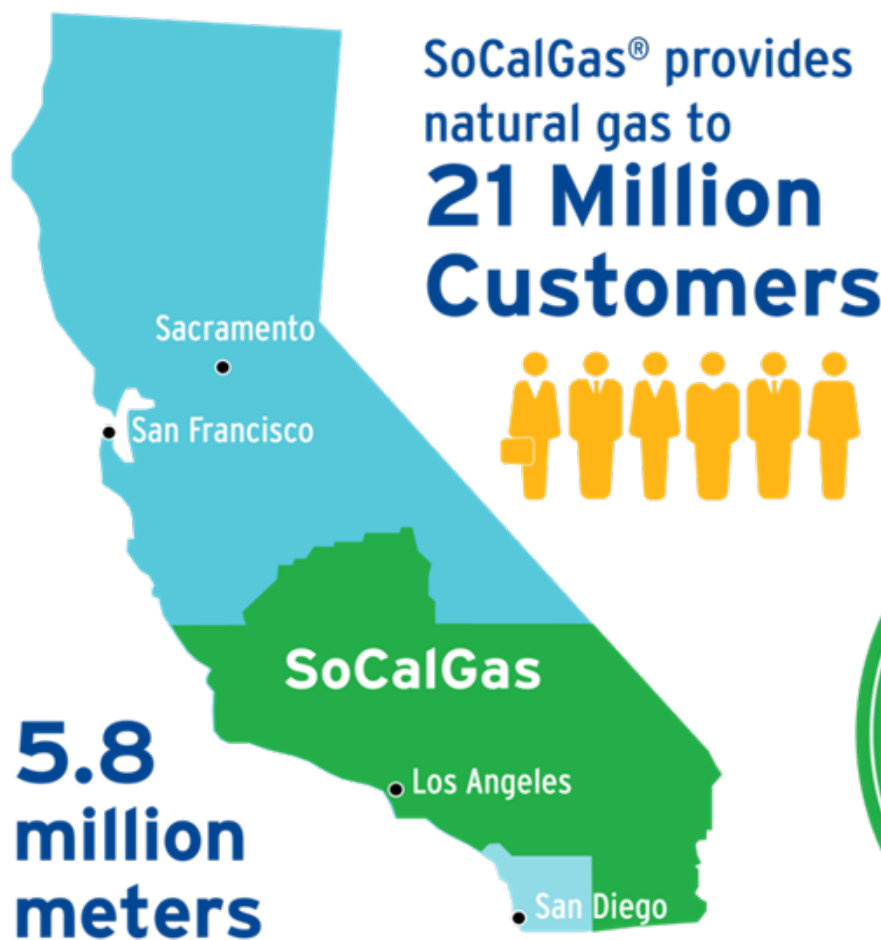


SoCalGas



1 Trillion
cubic feet (Tcf)
of natural gas
delivered
annually

5%
of US gas
deliveries

135 Billion
cubic feet (Bcf)
of natural gas
storage
capacity

3%
of US storage
capacity

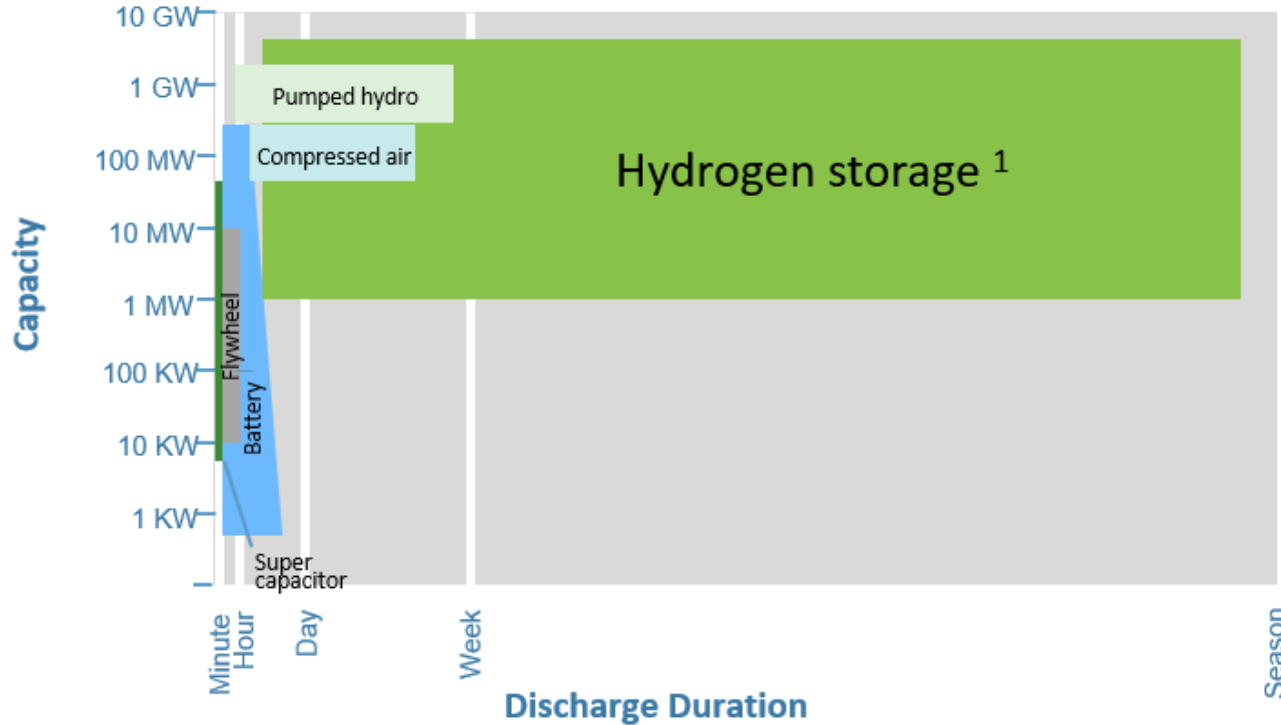
Serving
customers
for over
140
Years

Nearly
100,000
Miles
of distributions
mains and
service lines

Over
3,500
Miles
of natural gas
transmission
lines

Why Store Hydrogen?

Comparison of Energy Storage Alternatives



¹ As hydrogen or synthetic methane

Source: IEA Energy Technology Roadmap, Hydrogen and Fuel Cells

Energy storage is emerging as a critical element of transition to low-carbon energy mix:

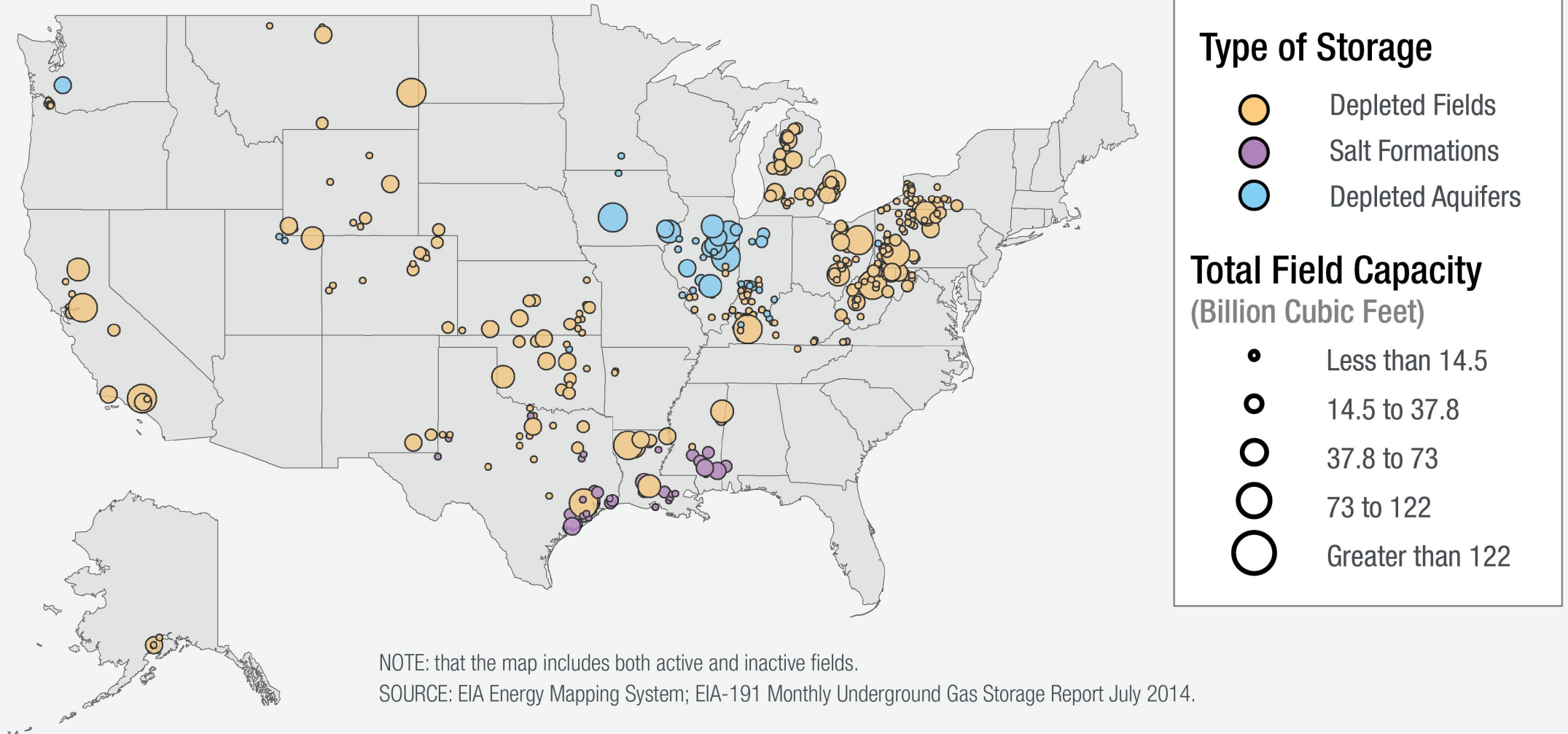
- Provides grid stability
- Avoids economic disruption of power market
- Provides benefits to rate- and taxpayers

Hydrogen may be the only scalable solution to address long-term energy storage need

- Batteries are mostly limited to duration of four hours
- Pumped hydro lacks scalability due to shortage of suitable sites and environmental permitting challenges
- Storing energy in chemical form as hydrogen or synthetic methane is scalable

Where Natural Gas Underground Storage Fields are Located

Type of Storage and Total Field Capacity, July 2014



Geologic Storage Options for Hydrogen

Salt Caverns

- Already used for underground hydrogen storage
- Geographically limited

Depleted Oil & Gas Reservoirs

- Geographically well-dispersed
- Residual fluids will remain

Aquifers

- Large volumes
- Potential migration

Hard Rock

- High Cost
- Can store ammonia

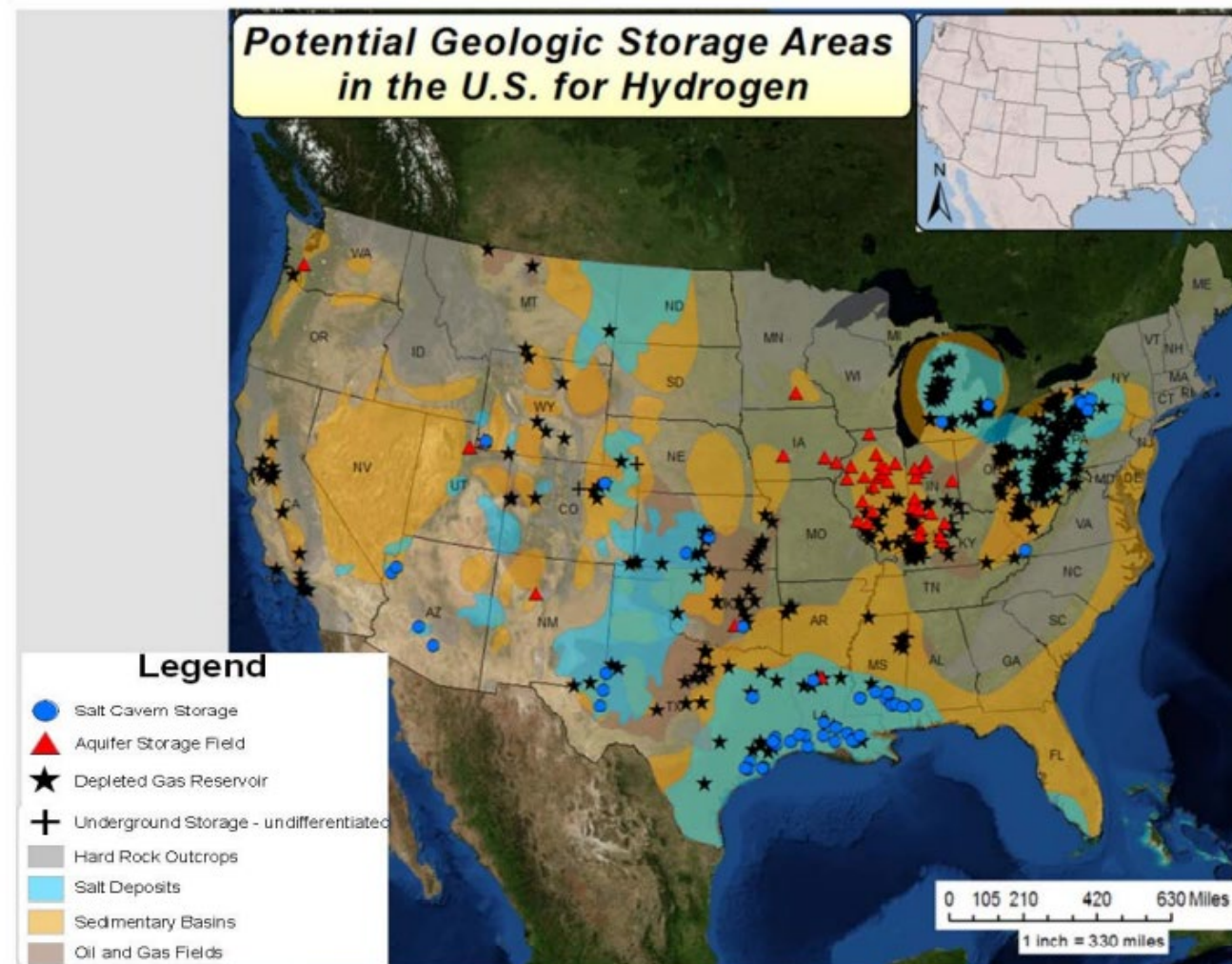
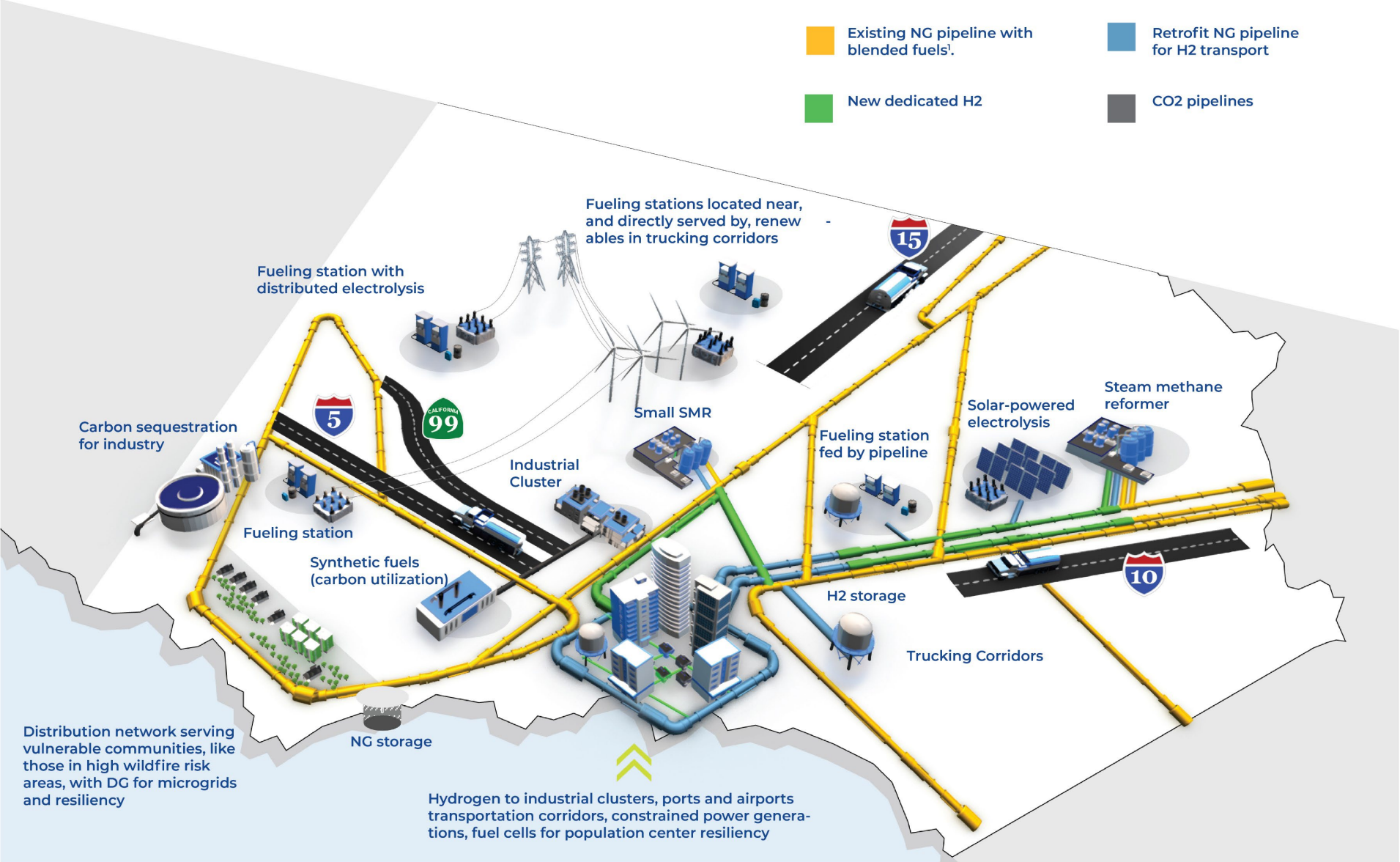


Figure 4. ArcReader map displaying U.S. geology that may have potential as underground storage as well as existing natural gas geologic storage facilities.

From Sandia National Laboratories “A Life Cycle Cost Analysis Framework for Geologic Storage of Hydrogen: A User’s Tool” Anna S. Lord, Peter H. Kobos, Geoffrey T. Klise, and David J. Borns

Exhibit 4.1. Illustrative Vision of a Potential Clean Fuels Network in Southern California



1. Pipelines containing a blend of fossil natural gas offset by CCUS; biogas; hydrogen up to safe blending standards

To refuel fuel cell electric vehicles or store energy locally.

