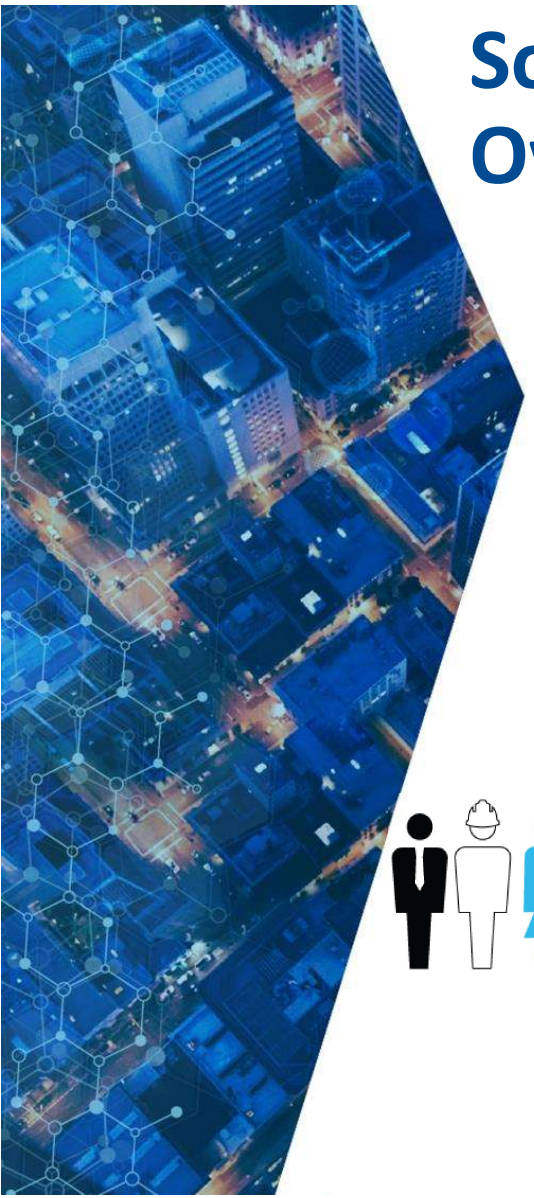
ENERGY STORAGE

THE ROLE OF HYDROGEN AND PIPELINE INFRASTRUCTURE IN ACHIEVING CALIFORNIA'S NET-ZERO CLIMATE GOAL

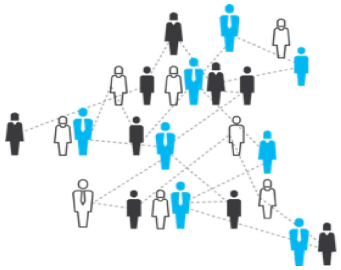
January 18th, 2024

SoCalGas



SoCalGas Overview

Delivering Energy to Southern and Central California for 150+ years

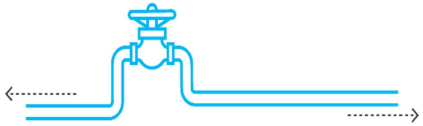


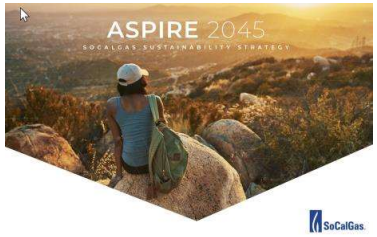
Largest natural gas distribution utility in country,[1] powering Southern California with increasingly clean, safe and reliable energy delivered to more than

21+ MILLION
CUSTOMERS

[1] based on number of customers and revenue

100,000 +
MILES
of pipelines





Supplying jobs to
8,700
employees
while supporting thousands more statewide

ASPIRE 2045

largest gas utility in North America to set a net zero target including scopes 1, 2 and 3 GHG emissions by 2045

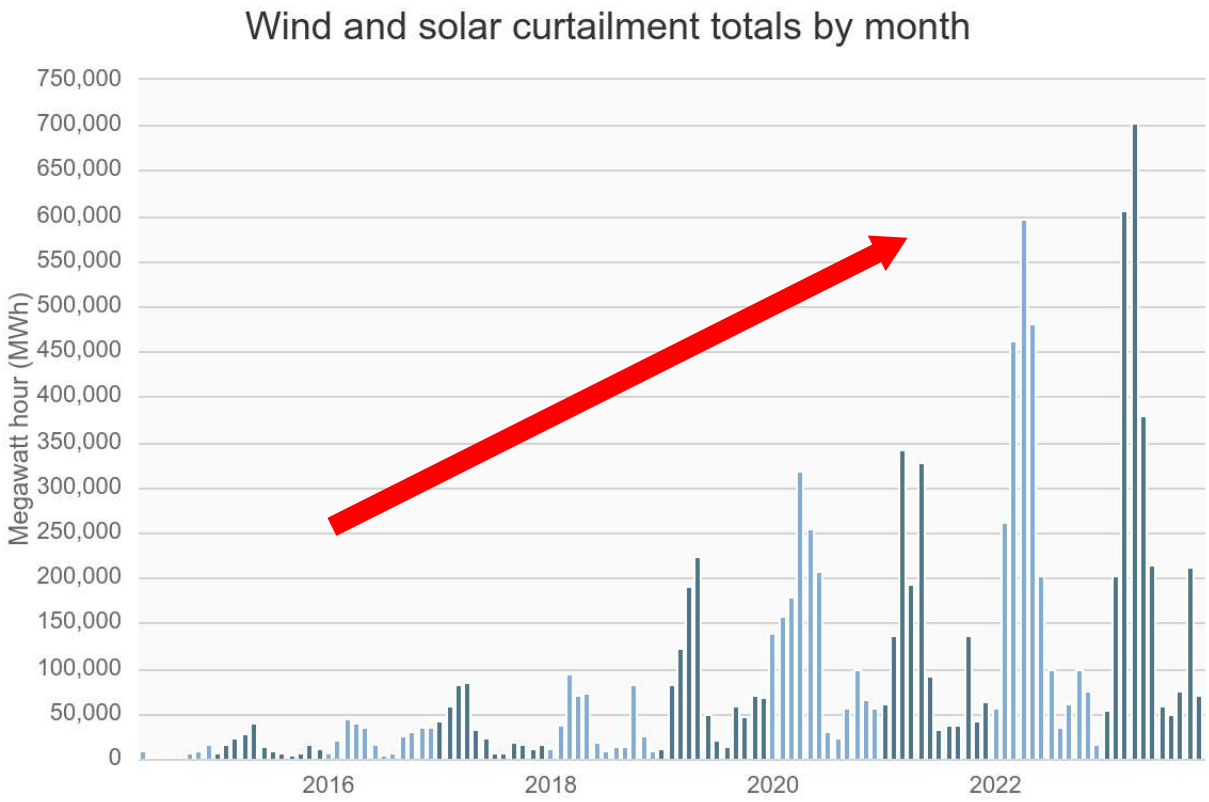
SoCalGas has among the strongest credit ratings of local distribution companies

A, A2 and A
WITH S&P, MOODY'S AND FITCH, respectively

SoCalGas Engagement

Renewable Energy Curtailment

- Curtailments of renewable power have been growing every year, driven by the time-of-day and seasonal mismatch of power supply and demand
- In 2023, without considering the month of December, renewable curtailment reached a record of 2.6 Terawatt-Hours (TWh)
- This is more than 1.5x that of 2021's annual curtailment and almost 14x that of 2015
- During the peak month of April, curtailment increased by almost 18% alone compared to the peak month in 2022.



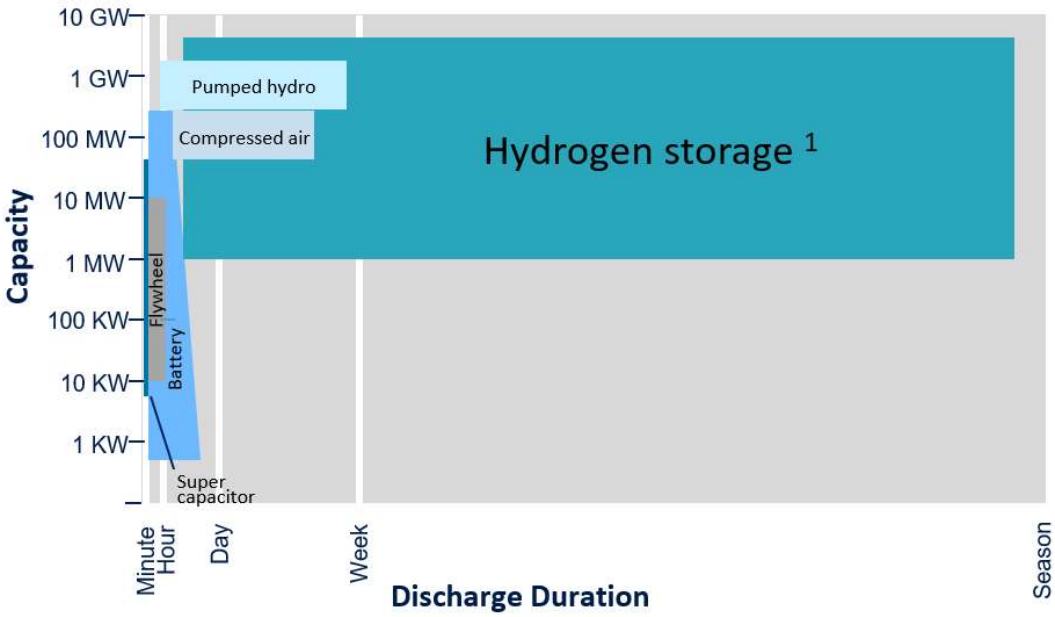
Source: California Independent System Operator oversupply and curtailments

Updated as of 12/14/2023

Hydrogen: Scalable Energy Storage Solution

- 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
  - Lithium-ion batteries are currently 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 and maintains its energy potential, irrespective of elapsed time.

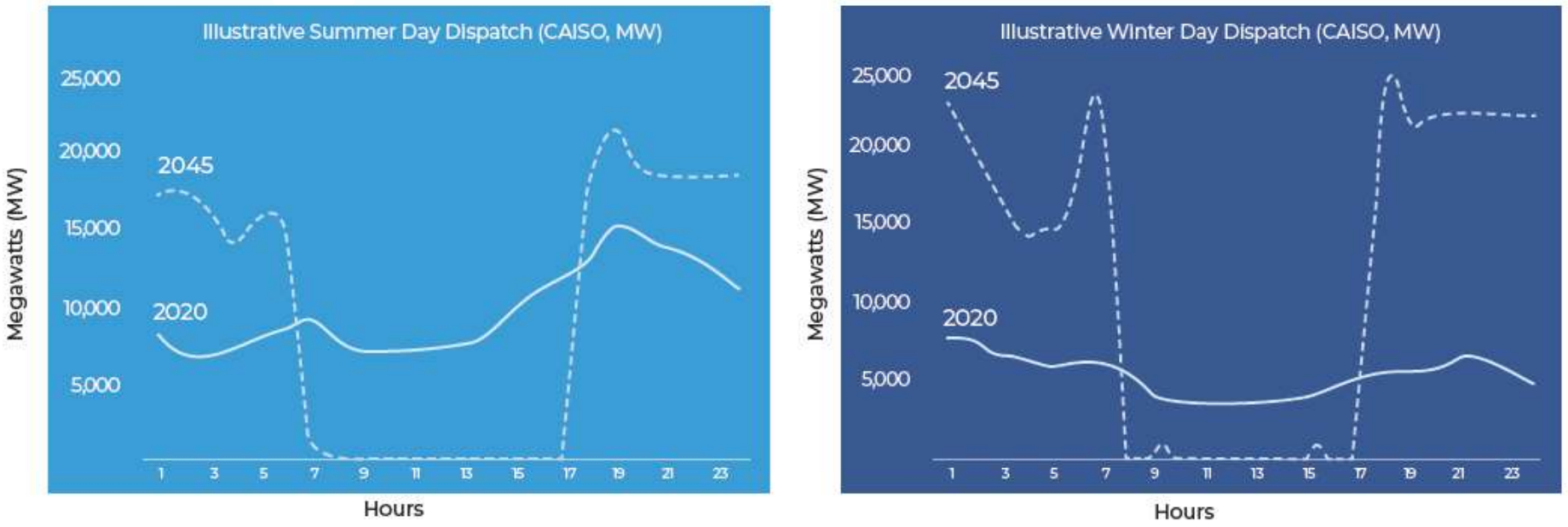
Comparison of Energy Storage Alternatives



[1] As hydrogen or synthetic methane
Source: IEA Energy Technology Roadmap, Hydrogen and Fuel Cells

Planning for Reliability

2045: Fuel Based Generation

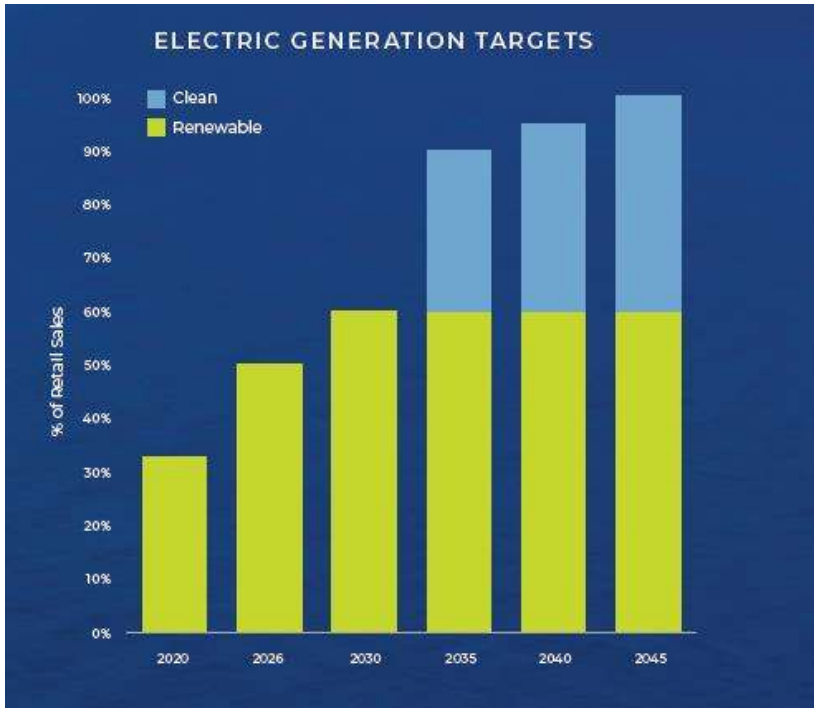


Source: SoCalGas Clean Fuels Reliability Analysis, July 2023

In the future, clean, dispatchable, and flexible generation will be critical for reliability.

Planning for Reliability

- Renewable generation combined with clean, dispatchable, fuel based generation could enable deep decarbonization while preserving reliability.
- In September 2022, SB1020 accelerated California's electric grid decarbonization goals established in SB100, targeting 60% renewable and 30% zero carbon electricity by 2035. It is imperative that the State plan for a diverse portfolio to balance growing renewable generation.
- Prioritizing the development of clean, flexible resources like hydrogen generation could advance the State's electric sector decarbonization goals while maintaining a reliable electric system.[1]



Source: SoCalGas Clean Fuels Reliability Analysis, July 2023

[1] 2014, CAISO's Flexible Capacity Proposal Approved by FERC, https://sustainableferc.org/caisos-flexible-capacity-proposal-approved-by-ferc/

Multiple Initiatives: Moving Forward

Angeles Link
- Phase One feasibility studies underway

[H2] Innovation Experience
- On-Going testing of new appliances

Joint Hydrogen Blending Injection Standard
- Application Submittal – Q1 2024

More Information…

» Angeles Link Application: Application
» Angeles Link – CPUC Final Decision: Final Decision

Angeles Link Website

Angeles Link Memorandum Accounting Filing Website

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