

NATURAL GAS & WATER HEATING

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A  Semptra Energy utility

A little bit about **SO CAL GAS**



- » Delivering clean, safe and reliable natural gas to our customers for more than 145 years.
- » The nation's largest natural gas distribution utility, providing energy to 21.6 million consumers through 5.9 million meters in more than 500 communities.
- » Service territory of approximately 20,000 square miles
- » Workforce of 8,300+ employees

The benefits of natural gas

WATER HEATING

- » Abundant and Efficient
- » Affordable
- » Reliable
- » Renewable future



NATURAL GAS

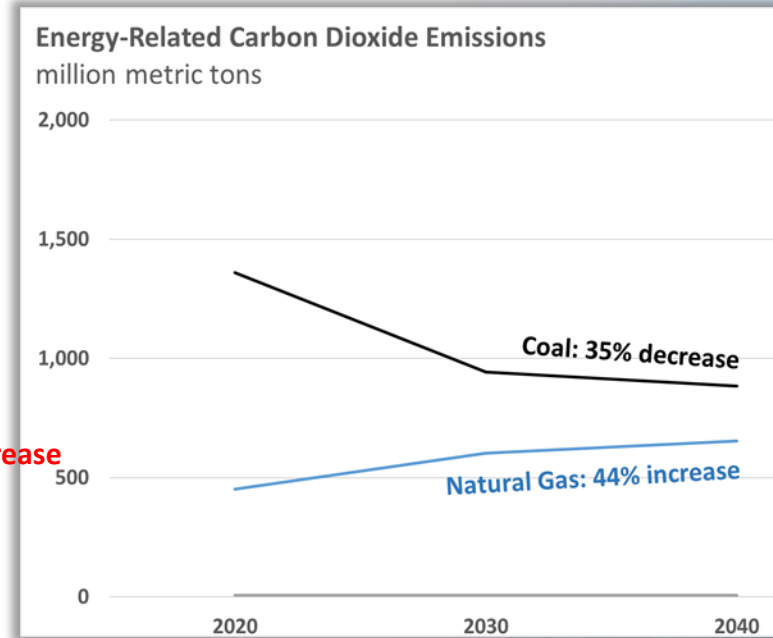
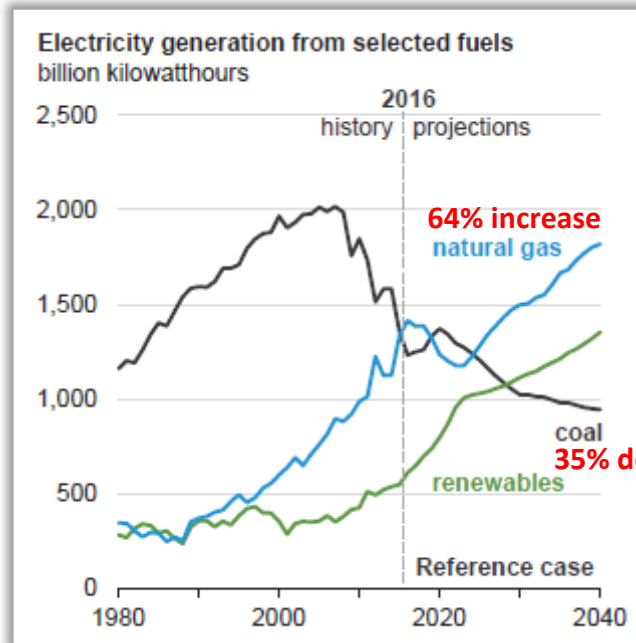
is an abundant & efficient energy source

- » The U.S. is the world's largest natural gas producer
 - » Estimated 40 trillion cubic feet annual production by 2040.
 - » Supports nearly 3 million jobs and \$385 billion to the national economy annually.
- » Power plants are moving towards cleaner electric generation.
 - » Solution: less carbon-intensive fuel source
 - » Use of natural gas increases as emissions decreases
 - » Positive contribution to environmental & energy sustainability goals



NATURAL GAS

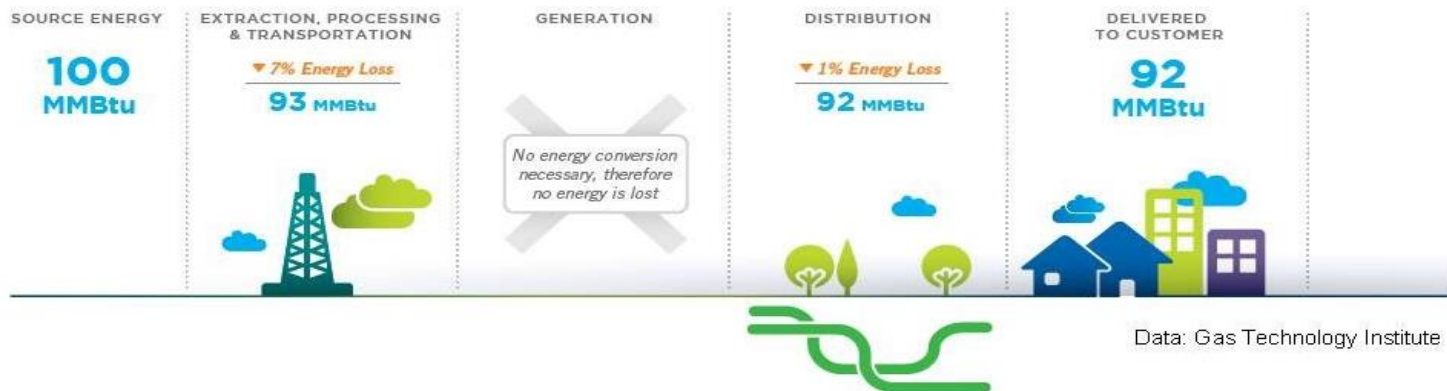
is an abundant & efficient energy source



“In electric power sector, coal-fired plants are replaced primarily with new natural gas, solar, and wind capacity, which reduces electricity-related CO2 emissions.” – AEO 2016

Source Energy EFFICIENCY

Natural Gas



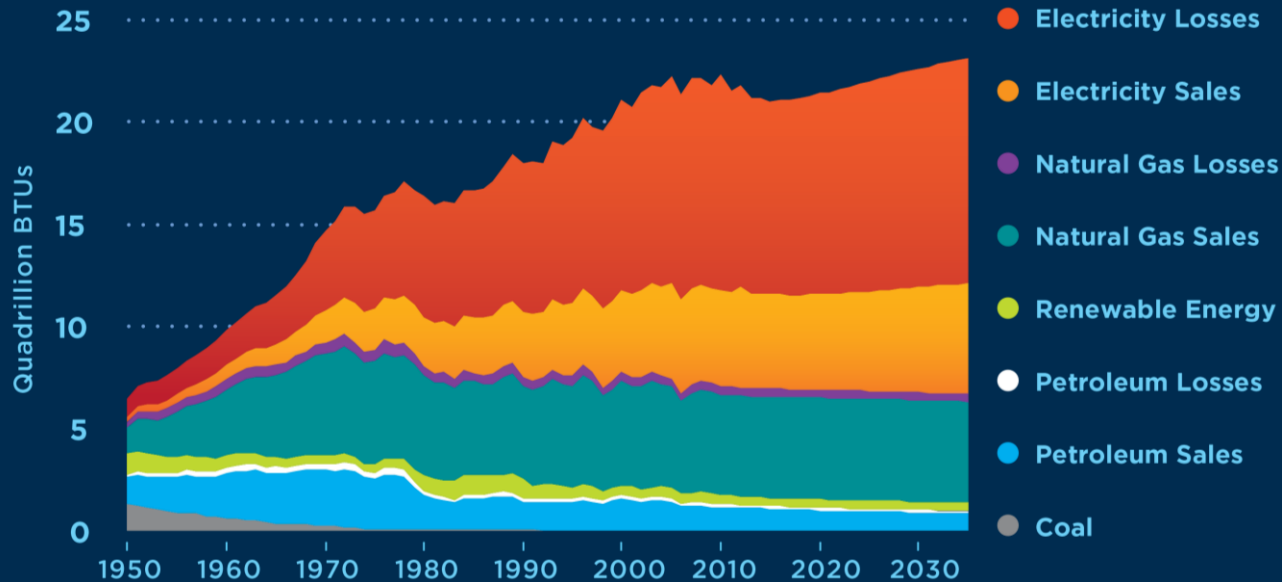
Electricity



NATURAL GAS

is the efficient energy source

- » Electric system losses account for half the energy consumed in the U.S. residential sector.



Source: U.S. Department of Energy Energy Information Administration

Combined Heat & Power **OVERVIEW**

Gas Engines



Gas Turbines



Fuel Cells



Microturbines

COMBINED HEAT & POWER
Over

82 GW

of installed CHP units in 4,000 facilities

Avoids

1.8 QUADS

of fuel consumption annually

Avoids

241 MILLION

metric tons of CO₂ when compared to
traditional production.

NATURAL GAS

is an affordable and equitable fuel source

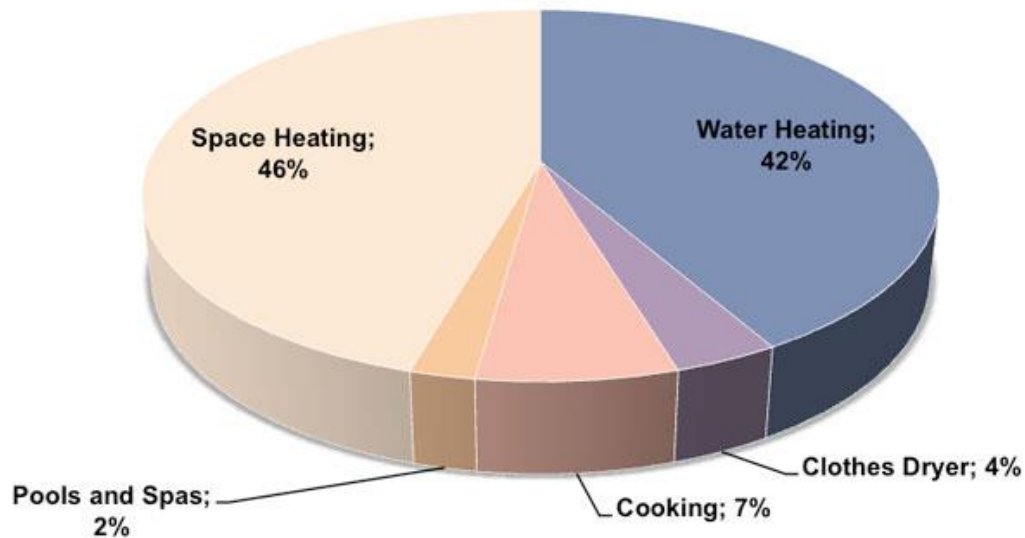
	Natural Gas Options					Electric Options		
	0.67 EF Storage Water Heater	0.82 EF Tankless Water Heater	0.96 EF Storage Water Heater	0.96 Tankless Water Heater	Solar Thermal w/ 0.62 EF Storage Water Heater	Electric Storage Water Heater	Electric Heat Pump Water Heater	Solar Thermal w/ Electric Storage Water Heater
Installed Cost (\$ 2016)	\$1,448	\$4,049	\$6,104	\$4,497	\$11,448	\$3,281	\$5,457	\$13,281
Useful Life (Years)	13	13	13	13	13	13	13	13
Annual Natural Gas Consumption (Therms)	200	172	154	156	120	0	0	0
Annual Electricity Consumption (kWh)	0	0	0	0	0	2,380	974	1,428
Annual Operating Cost (\$/Year)	\$221	\$190	\$170	\$172	\$132	\$405	\$166	\$243
Total Cost of Ownership:	\$4,318	\$6,517	\$8,314	\$6,735	\$13,170	\$8,547	\$7,612	\$16,441
Estimated Annual Cost:	\$332	\$501	\$640	\$518	\$1,013	\$657	\$586	\$1,265

*values are rounded



Natural gas applications are **RELIABLE**

CALIFORNIA (CA) RESIDENTIAL NATURAL GAS CONSUMPTION



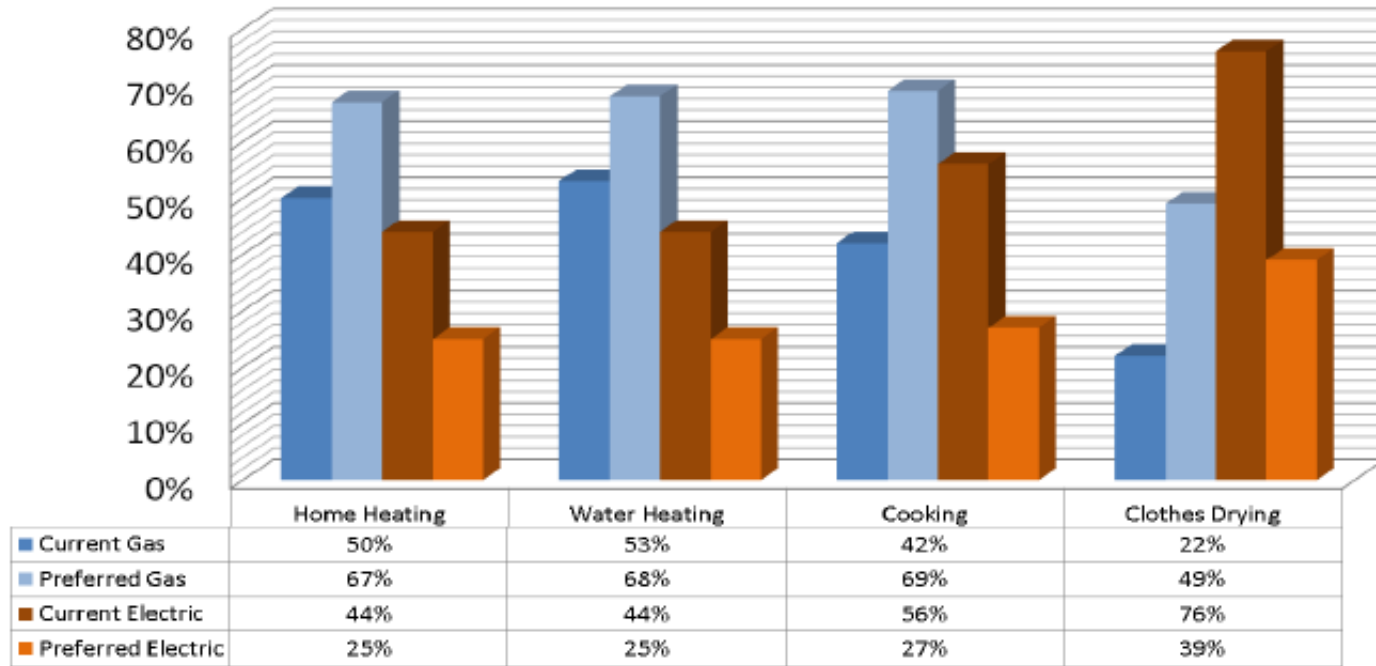
Water heaters are the
SECOND
largest energy user in homes in CA.

Natural gas accounts for
21%
of CA residential energy consumption

NATURAL GAS
is used in 61 million residential across
the U.S.

Nationally, natural gas is the **PREFERRED CHOICE**

National: Current vs. Preferred Energy Source

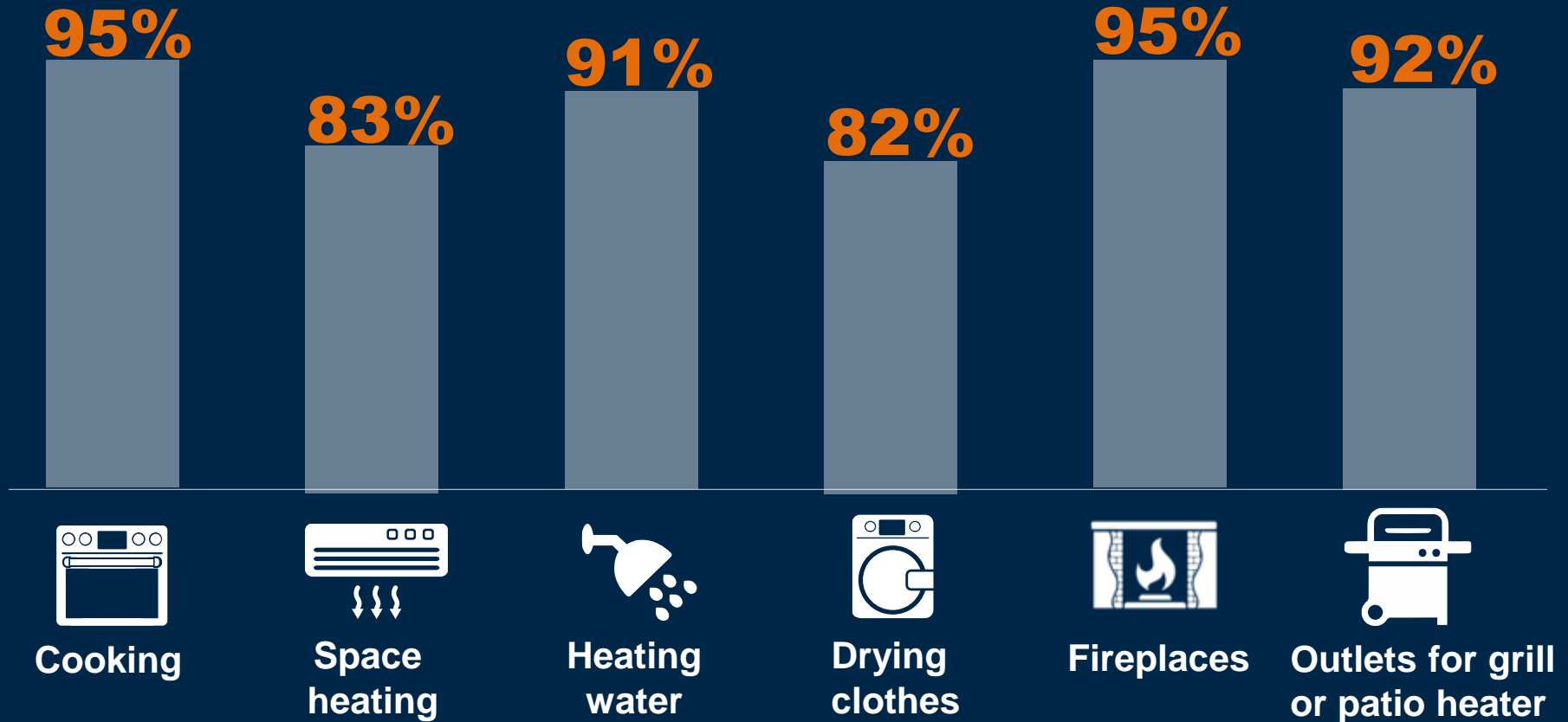


From Energy Solutions Center Report:

“New Homeowner Energy Preference Survey Closings March 2015 through February 2016”

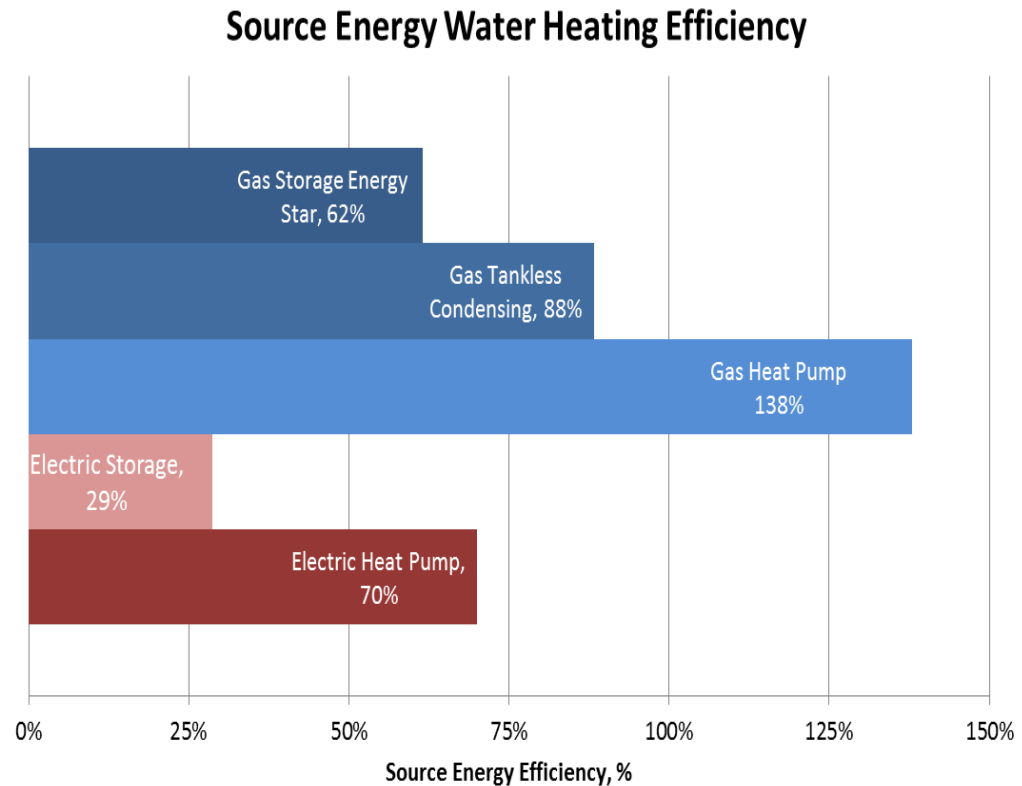


In California, natural gas continues to be the **PREFERRED CHOICE**



High Efficiency Natural Gas **HEAT PUMPS**

- » Multiple efforts to develop next-generation gas heat pump solutions for space heating and water heating
 - Near-term and longer-term options
 - Targeting use in residential and light-commercial applications
- » Hold the potential to substantially raise efficiency levels compared to current consumer choices
- » Doubling efficiency of storage water heaters



Source: GTI (source to site, natural gas source to site: 91.9%, electric : 31.8%)



THE FUTURE



RENEWABLE

Natural gas

WHAT'S POSSIBLE

POWER

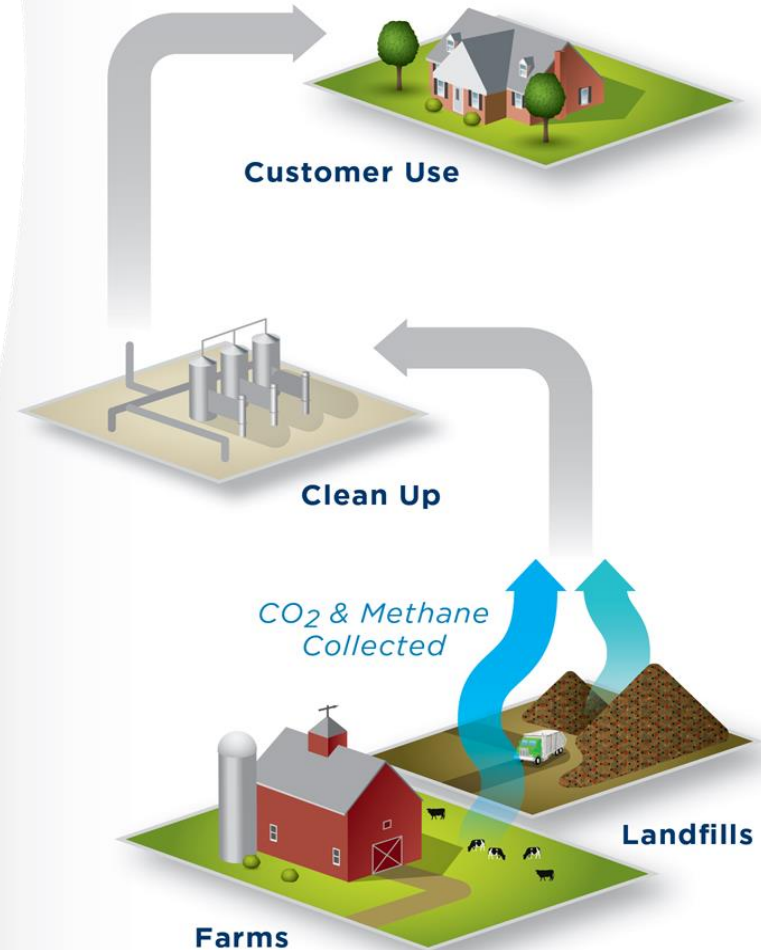
2-3 million homes

REPLACE

75% of all diesel
used by CA vehicles

When used for transportation,
Biogas from food and green waste
can actually

REMOVE GHGs
from the atmosphere



SoCalGas and CR&R demonstrating **RENEWABLE NG**

RENEWABLE NATURAL GAS

Project will replace

1.4 MILES

of pipeline for anaerobic digestion

Utilizing source-separated

ORGANIC

waste to produce renewable methane

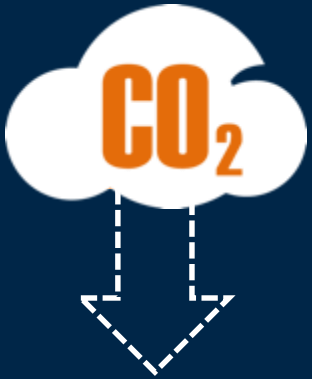
Designed to power fleet of

900

waste hauling trucks



STRIVING TOWARDS THE SAME GOALS



REDUCE

GHG emissions and
the carbon content of
home fuels



IMPROVE

the efficiency of
buildings in a cost-
effective manner



SUPPORT

with reliable, reasonable,
affordable and equitable
solutions for all Californians

THANK YOU!

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