



A  Semptra Energy utility®

Statewide Energy Efficiency Forum

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Southern California Gas Company



- **Largest natural gas distribution utility in US**
- **Service territory of 20,000 square miles**
- **Serving 20.9 million consumers through 5.8 million meters in more than 500 communities**
- **Workforce of 8,500 employees**

Providing Access to Customer Information

Energy Data Request Program

Publicly available **reports**
posted **online** on a quarterly
basis

Streamlined data request
intake and request **tracking**
process

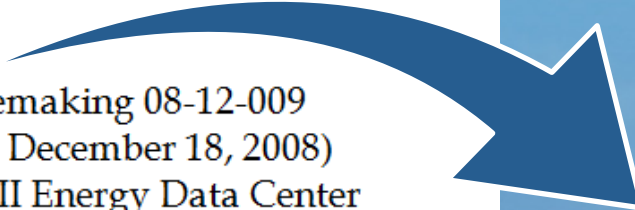
Why is this change happening?

Decision 14-05-016 May 1, 2014

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Consider Smart Grid Technologies Pursuant to Federal Legislation and on the Commission's own Motion to Actively Guide Policy in California's Development of a Smart Grid System.

Rulemaking 08-12-009
(Filed December 18, 2008)
Phase III Energy Data Center



**DECISION ADOPTING RULES TO PROVIDE ACCESS TO ENERGY USAGE
AND USAGE-RELATED DATA WHILE PROTECTING PRIVACY OF
PERSONAL DATA**

**Protect privacy of
personal data**

**Implement formal
process for data
requests from
select third parties**

Who is eligible?

State and federal agencies



Local government entities



Academic researchers



Community services & development





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<https://energydatarequest.socalgas.com/>

Successful Go-Live December 1, 2014

Energy Data Request Program

This page contains reports of quarterly gas usage in our service territory by zip code. SoCalGas® can also supply more specific reports to qualifying academic researchers, local government entities or state and federal agencies. [Click here for more information.](#)



Quarterly Gas Usage by ZIP Code

Quarterly reports on gas usage by ZIP are available below. Each report includes number of customers, therms billed and average therms per customer by ZIP Code. Click a link below to download the quarterly report.

| 2014 | 2013 |
|--------------------------------------|--------------------------------------|
| Q4: Oct – Dec 2014 » | Q4: Oct – Dec 2013 » |
| Q3: Jul – Sep 2014 » | |
| Q2: Apr – Jun 2014 » | |
| Q1: Jan – Mar 2014 » | |



Submit a Request

Local governments, academic researchers and state and federal agencies may request energy usage data from SoCalGas.

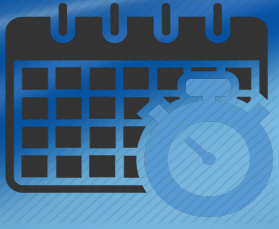
[Request a Custom Report »](#)



Data Request Log

See energy data requests submitted to SoCalGas.

[View Requests »](#)



New Response Time Boxes

Maximum 7 Business Days

Respond to requestor if the data request is complete.

Maximum 15 Business Days

Respond to requestor if the request can be granted and provide a proposed schedule. Notify the Executive Director of the Commission.

Mandatory 4 Weeks

Data can be released no earlier 4 weeks from the date the Executive Director of the Commission is notified

Requests Not Supported by EDRP

Emergency
Response

Under existing
partnership or
agreement

Regulatory
(Direct from CPUC)

**Energy Data
Request Program**

Subpoenas

Requests
authorized by the
customer of
record

Readily
available
reports
online

Streamlined,
single point
of contact

New
processing
time frames

Value for our Customers

Consistent
data security
policies

California
Public
Utilities
Commission
oversight

Technology Strategies Create New Transportation Pathways

- **Natural Gas Transportation Pathway** focuses on natural gas vehicles in heavy duty sectors, which represent the largest share of both ozone/greenhouse gas problem. Technology transferrable to other sectors:



Transit/Fleet
Vehicles



Heavy Duty
Trucks
Short/Long
Haul



Cargo Handling
Equipment



Locomotives
Short/Long
Haul



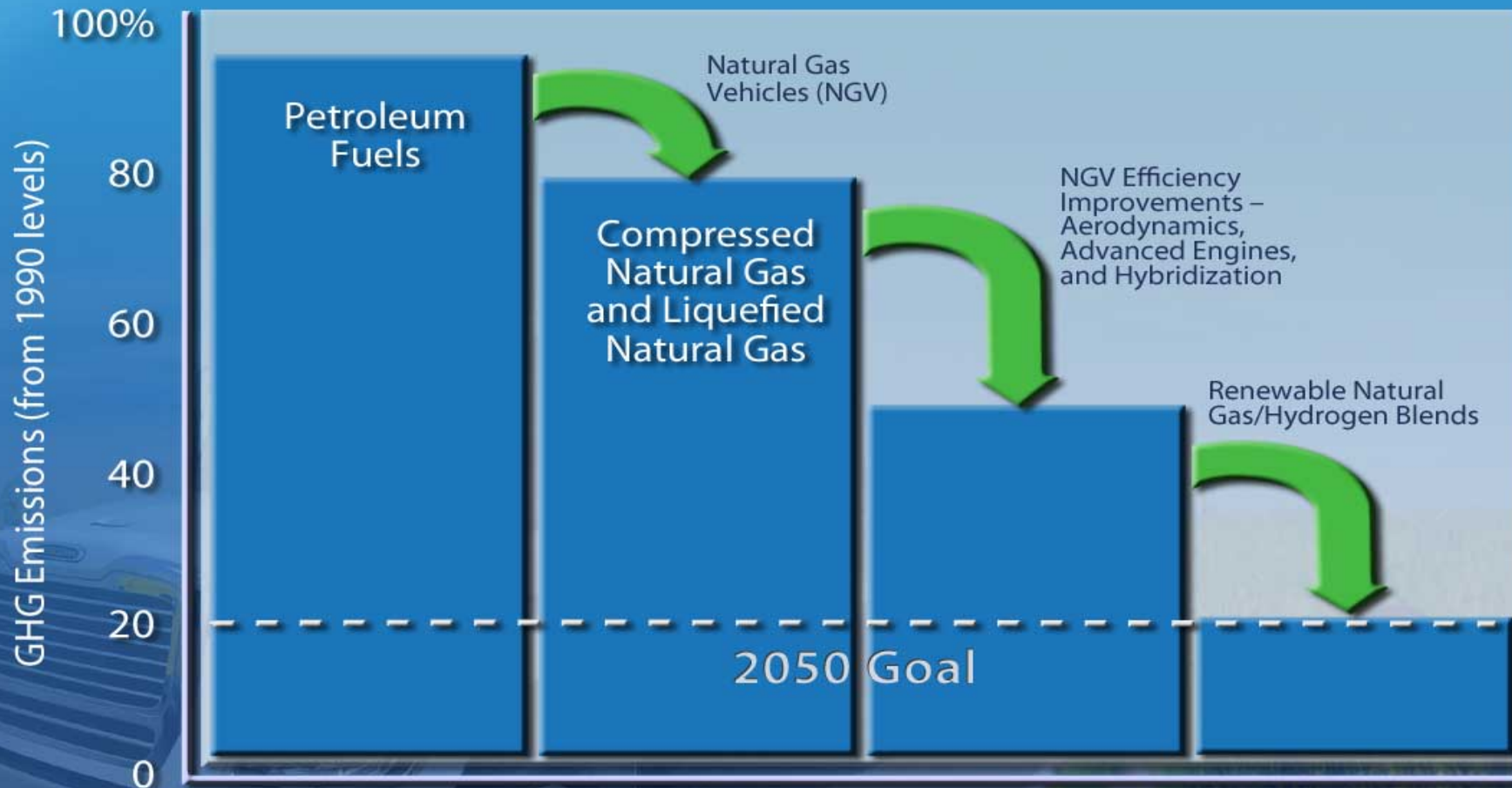
Marine Vessels

Five Technology Strategies Reduce NGV Trucks NOx and GHG Emissions



Five Technology Strategies Also Address GHG Goals

Efficiency Improvements & Renewables Availability Increase Over Time



Transportation Pathways

Reducing Emissions and Growing the Market with Natural Gas Vehicles

- **Foundational Fuel Strategy** focuses on natural gas vehicles in heavy duty sectors, which represent a large portion of ozone/greenhouse gas problem and help **grow our market**.



Fleet Vehicles



Heavy Duty
Trucks



Cargo Handling
Equipment

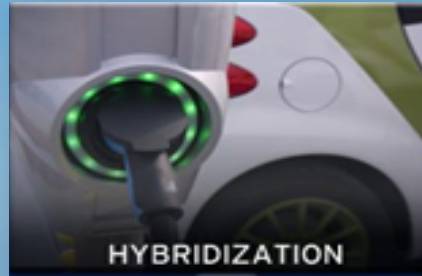


Locomotives



Marine Vessels

Technology Strategies For Natural Gas Vehicles

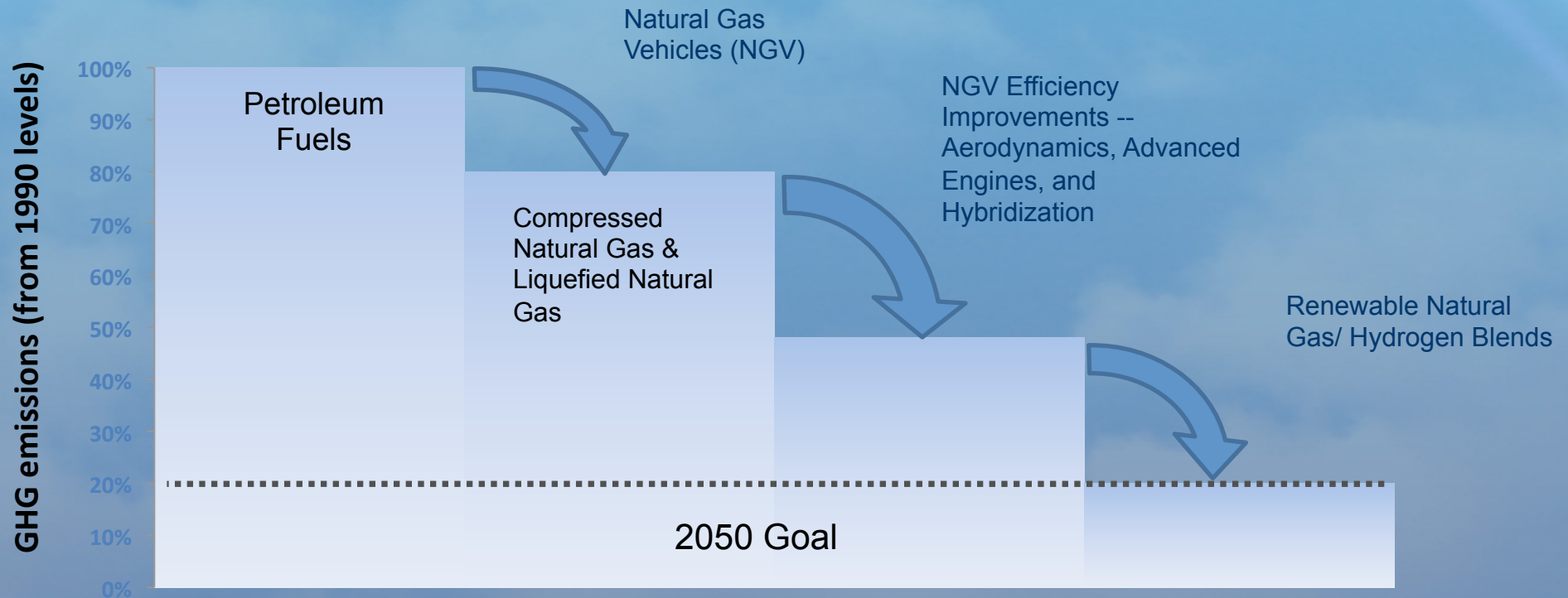


Technologies Also Address Greenhouse Gas (GHG) Goals



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Efficiency Improvements & Renewables Availability Increase Over Time



Natural Gas as a Transportation Fuel

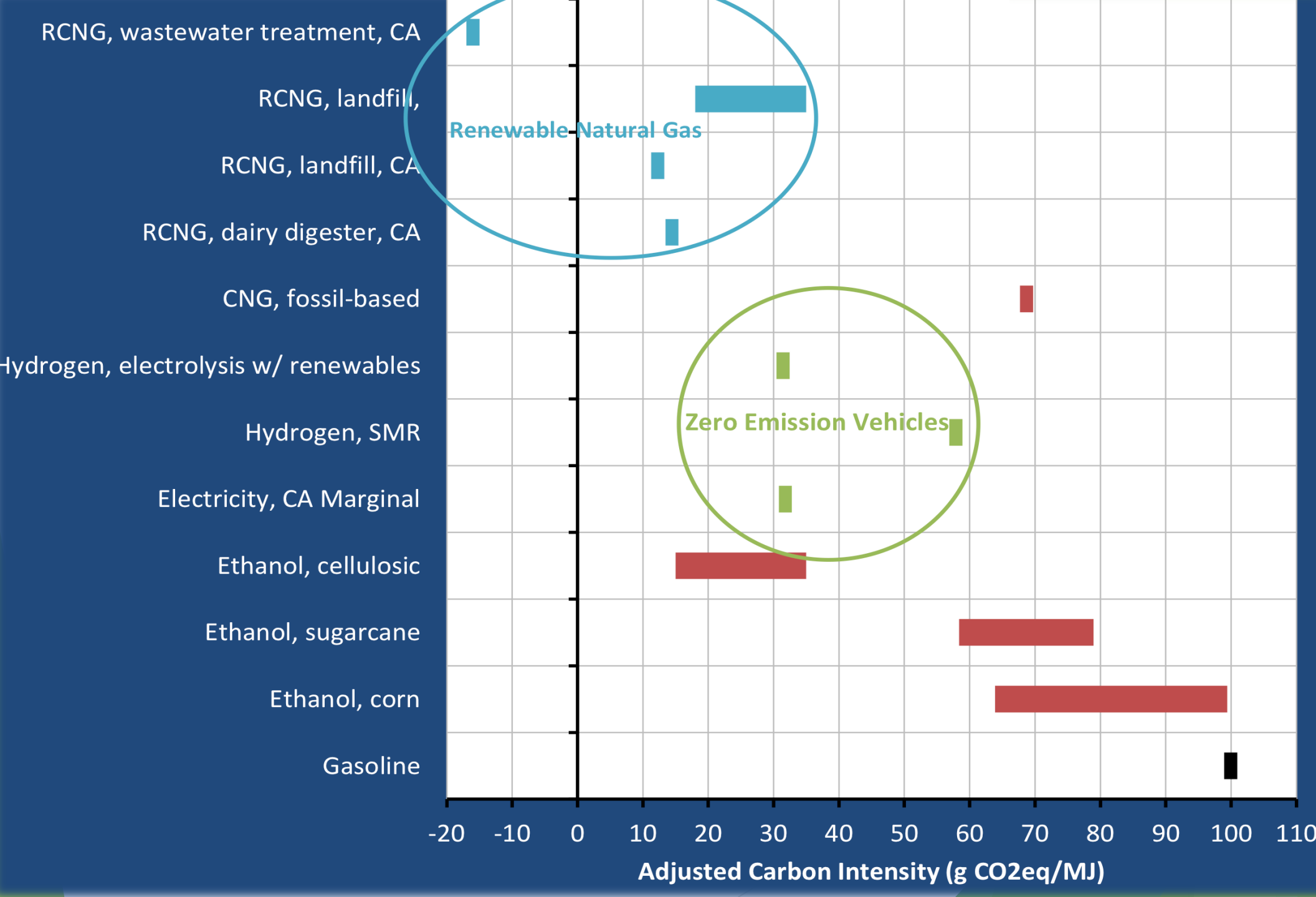
- Vehicles are among the largest sources of both NOx and GHG emissions in California
- LA Metro (By switching to CNG, Metro has reduced cancer-causing particulates from the bus fleet by 98 percent, carbon monoxide by 80 percent and greenhouse gases by about 150 tons per day.)
- Offering Compression Services Tariff to facilitate development of NGV market by providing natural gas at higher pressure to enable fueling

From Organic Waste to Renewable Natural Gas: De-Carbonizing the Pipeline



Biogas

- Renewable Natural Gas/Biogas will help lower the greenhouse gas profile of all natural gas uses
 - Agricultural waste
 - Wastewater treatment facilities
 - Landfills
- Offering Biogas Conditioning Services Tariff to facilitate development of renewable natural gas market by providing a means to clean biogas so it can be injected into our pipelines



RCNG, wastewater treatment, CA

RCNG, landfill, CA

RCNG, landfill, CA

RCNG, dairy digester, CA

CNG, fossil-based

Hydrogen, electrolysis w/ renewables

Hydrogen, SMR

Electricity, CA Marginal

Ethanol, cellulosic

Ethanol, sugarcane

Ethanol, corn

Gasoline

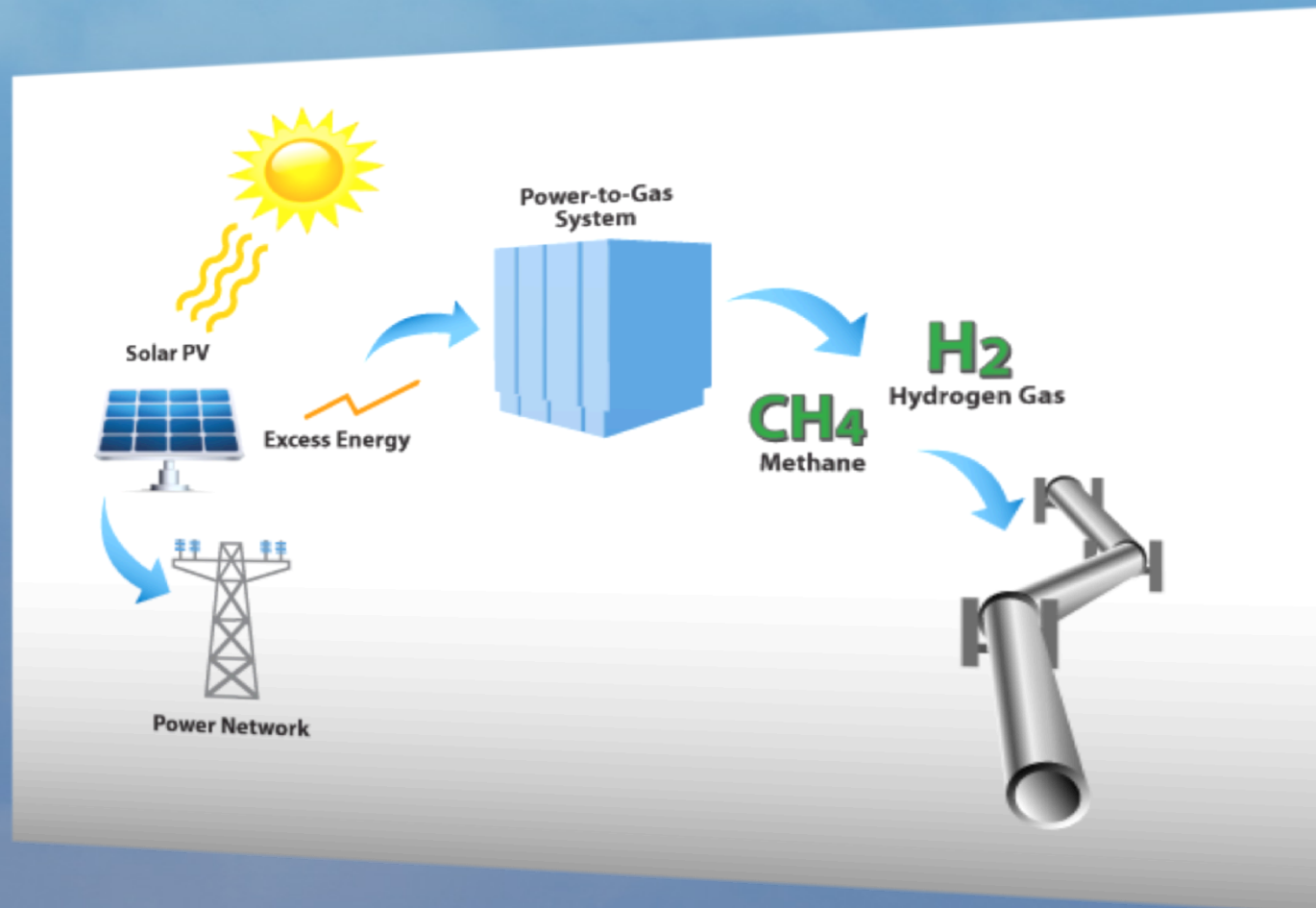
-20 -10 0 10 20 30 40 50 60 70 80 90 100 110

Adjusted Carbon Intensity (g CO₂eq/MJ)

Renewable Natural Gas

Zero Emission Vehicles

From Renewable Power-to-Gas: De-Carbonizing the Pipeline



Hyrogenics Plant (Stuttgart, Germany) Power-to-Gas Example

- Nearby renewable energy powers an electrolyzer to produce H₂ from water
- Uses CO₂ from biogas plant
- Produces methane, which is injected into pipeline



Stuttgart, Germany Methanation process

OBJECTIVES

- Demonstrate the PtG (Power to Gas) solution using methane.
- Produce H₂ from the surplus of electricity and combine it with CO₂ from a biogas plant to produce methane → 4H₂ + CO₂ → CH₄ + H₂O.

SOLUTION:

- HySTAT® 60 Outdoor with all peripherals to produce 60Nm³/h H₂.
- The electrolyser combined with a methanation process produces bio-methane.
- Bio-methane is injected in the gas grid, leading to a carbon neutral process.

SoCalGas/UC Irvine Project

Purpose:

Develop a deep understanding of the physical, chemical and energy dynamic attributes of H2 blending necessary to achieve commercial P2G deployments for storage and distribution of excess wind and solar energy

- This is logical next step from SoCalGas/NREL that focuses on P2G grid integration

Deliverables:

Design, build, install and test systems for:

- PV and electrolysis integration
- H2 blending and pipeline injection

Determine impacts of H2 injection on natural gas system components

P2G Solar Energy Storage & Distribution RD&D

| | |
|-------------------------------|---------------|
| Collaboration Partners | UCI/SoCalGas |
| Location | UCI - NFCRC |
| Duration | 18 Months |
| Start Date | Dec-14 |
| Planned End Date | Jun-16 |
| Electrolyzer Size | 60kW |
| Budget - Hydrogen Only | \$2.5 Million |
| Phase II* | TBD |



Massive Energy Storage

- Hydrogen energy can successfully store energy
- Where can we store the gas?
 - Why not use the natural gas infrastructure?
- Southern California Gas Company Storage
- Alison Canyon (2,435,262,000 m³)
- Honor Rancho (685,271,400 m³)
- La Goleta (608,815,500 m³)
- Playa del Rey (67,960,800 m³)

Summary and Conclusions

- Energy transport and storage is increasingly important
- Existing natural gas infrastructure offers a high transport and storage capacity
- Power to hydrogen and injection in the gas grid is attractive, especially if the local power grid capacity is insufficient
- Many types of power generation is already connected to the gas grid (fuel cells, CHP)
- Interaction between gas grids and power grids will increase
- Smart communication and control systems are mandatory to create smart grids