



Public Service Commission of Utah

Observations on unregulated CNG dispensing monopolies in various markets

In the Matter of the Investigation of Questar Gas Company's Services
Associated with Natural Gas Vehicles

DOCKET NO. 08-057-21

November 3, 2009

Presented by CNGchat.com moderator: [Lee K. Shuster](#)



What is CNG Chat ?

<http://www.cngchat.com>

- A NGV Owners Group with over 7,700 members nationally – providing a broad perspective
- Over 1,800 stakeholders residing in Utah
- Founded in 2007, CNG Chat provides an online community for supporting NGV-related issues and concerns
- During summer of 2008, site logged 28,000 visits per day
- This presenter participates as one of several active CNGchat site moderators






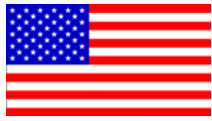
Purpose of Presentation

- Provide factual background on deregulation of CNG refueling markets beyond Utah
- Understanding and defining the challenges
- AFV Market Success Factors:
 - Public Policy
 - Alternative Fuel Vehicles (NGVs)
 - CNG Refueling Infrastructure
- Lessons learned from deregulated AFV markets
- Brief historical overview of AFVs and NGVs
- *Note: The presentation focuses on Compressed Natural Gas (CNG), not Liquefied Natural Gas (LNG) for refueling Natural Gas Vehicles.*



Drivers for Sustainable Mobility

- **The Critical Drivers:**
- **The 3-E's all contribute societal benefits:**
 - **E**nergy Policy (Petroleum Reduction) 
 - Secure, Abundant, and American
 - **E**conomically Viable 
 - Affordable and compelling
 - **E**nvironmentally Sound 
 - Help provide Cleaner Air and reduce harmful emissions and pollution (per National Ambient Air Quality Standards, - especially helpful in PM2.5 and Ozone non-attainment areas)

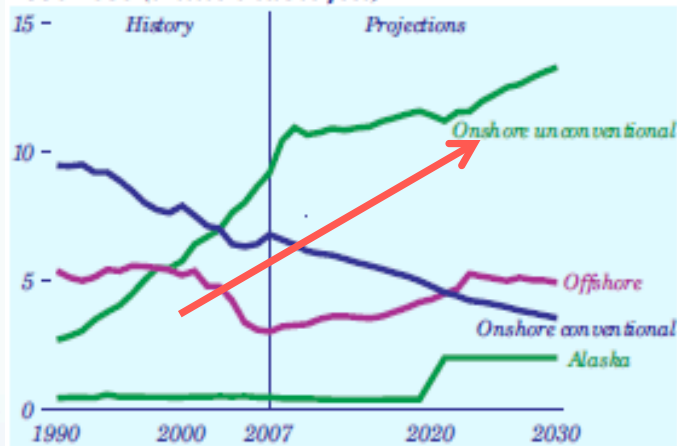


E1: Abundant, American Supply of Natural Gas

DOE/EIA Annual Energy Outlook,
March 2009 Production Forecast

Potential Gas Committee
March 2009 reserve Forecast

Figure 66. Natural gas production by source, 1990-2030 (trillion cubic feet)



<http://www.eia.doe.gov/oiaf/aeo/gas.html>

Natural Gas Resource Assessment of the
Potential Gas Committee, 2008 (mean values)

Traditional Resources	1,673.4 Tcf
Coalbed Gas Resources	163.0 Tcf
Total U.S. Resources	1,836.4 Tcf
Proved Reserves (EIA)	237.7 Tcf
Future Supply	2,074.1 Tcf



POTENTIAL GAS AGENCY
COLORADO SCHOOL OF MINES

<http://www.rpsea.org/en/art/207/>

- ✓ Technology improvements driving unconventional gas supply growth
- ✓ Highest resource evaluation in Potential Gas Committee's 44-year history
- ✓ 2008 Study by Navigant Consulting, shows that North America has at least a 120-year supply of natural gas



\$\$ E2: Natural Gas is Affordable



REGION	Natural Gas (CNG) Information Reported by Clean Cities (\$/dge)		Diesel Information Reported by Clean Cities (\$/gal)	
	Average Price / Standard Deviation of Price	Number of Data Points	Average Price / Standard Deviation of Price	Number of Data Points
New England	\$2.17 / 0.52	13	\$2.64 / 0.27	31
Central Atlantic	\$2.17 / 0.34	56	\$2.62 / 0.12	13
Lower Atlantic	\$1.85 / 0.38	6	\$2.45 / 0.09	36
Midwest	\$1.81 / 0.50	27	\$2.50 / 0.22	62
Gulf Coast	\$2.14 / 0.21	19	\$2.41 / 0.11	17
Rocky Mountain	\$1.42 / 0.35	102	\$2.49 / 0.19	22
West Coast	\$2.25 / 0.26	109	\$2.66 / 0.29	29
National Average	\$1.93 / 0.56	332	\$2.54 / 0.19	210

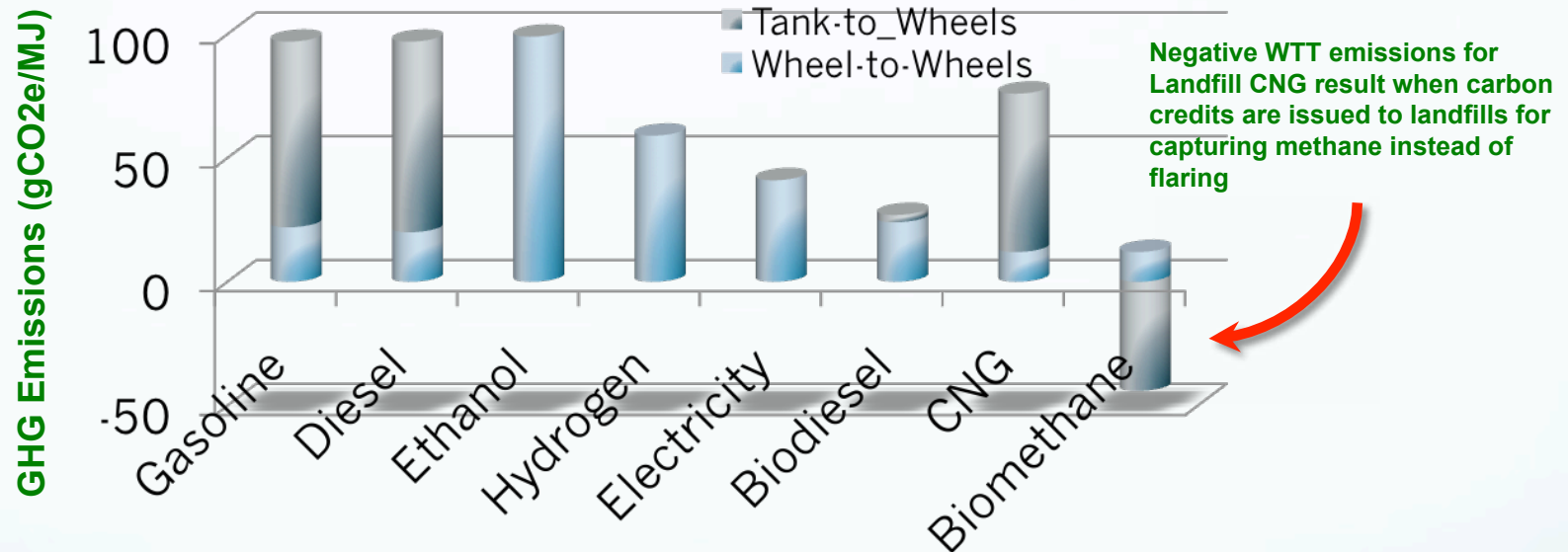
Clean Cities Alternative Fuel Price Report, July 2009

http://www.afdc.energy.gov/afdc/price_report.html



E3: CNG Delivers Carbon Reduction

http://www.cleanvehicleexpo.com/presentations/081014Tuesday/Jennifer_Pont_presentation_EXPO_2008.pdf



NEWS FLASH – Oct 19, 2009: Recent National Academy of Sciences Report ranks CNG as “least damaging” of all current (2005) and future (2030) transportation fuels and technologies using full Life Cycle Analysis

Title: *Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use*

ISBN: 0-309-14641-0

466 pages, 6 x 9, (2009)

<http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=12794>



*Boyd's Law of Alternative Fuels

**Public Policy & Incentives
\$\$\$**

<http://www.nga.org/Files/pdf/0712ALTERNATIVEFUELSBOYD.PDF>

**CNG Refueling
Infrastructure**

**Natural Gas
Vehicles**

* James D. Boyd, Vice Chair, California Energy Commission

PP&I+ NGV + CNG = SUCCESS!

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Public Policy & Incentives

Public Policy & Incentives \$\$\$

Refueling
Infrastructure

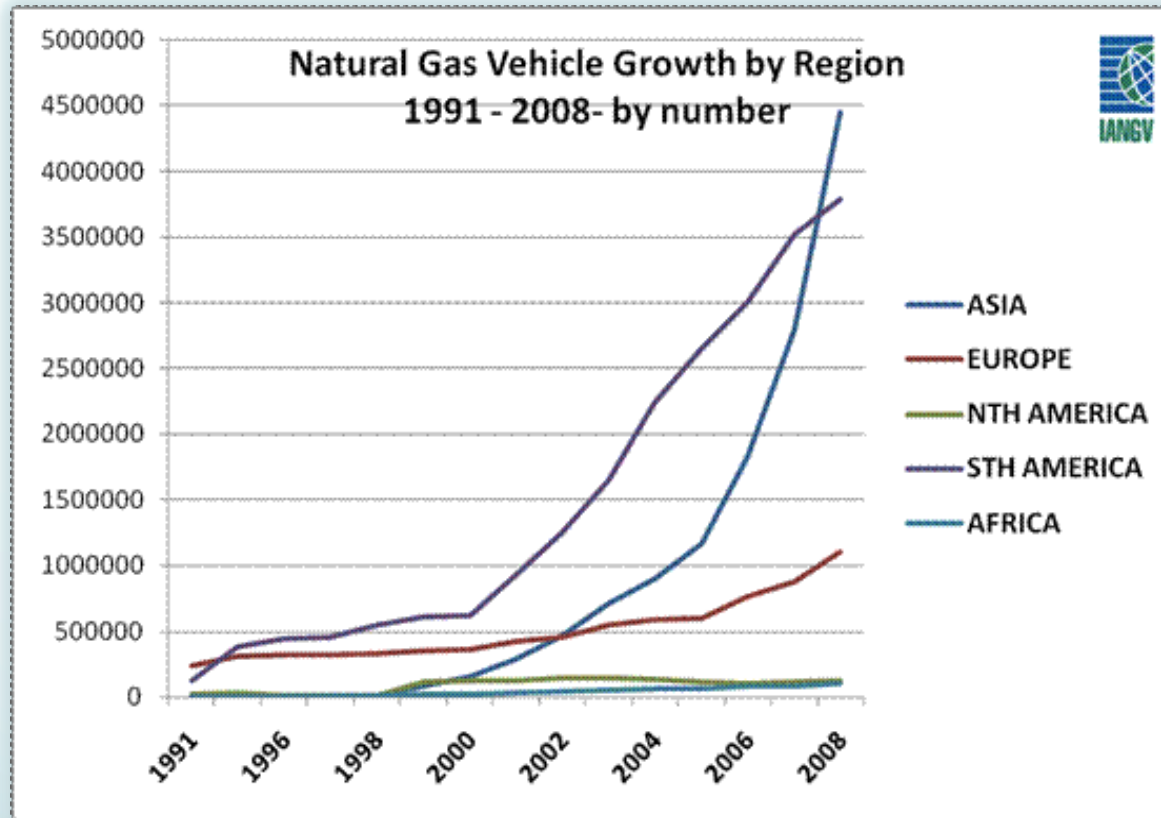
Vehicles

- ✓ **Utah Clean Cities Grants (\$14.9 Million)**
- ✓ **Alternative Fuel Vehicle (AFV) and Fueling Infrastructure Grants and Loans (\$ 500,000 /yr.)**
- ✓ **Clean Fuel Vehicle Tax Credits
(State: \$7.7 million)**
- ✓ **Alternative Fuel Vehicle (AFV) Parking Incentive
Salt Lake City**
- ✓ **Public Access to State-operated Compressed
Natural Gas (CNG) Fueling Stations**
- ✓ **High Occupancy Vehicle (HOV) Lane Exemption
(single occupant)**
- ✓ **Natural Gas Vehicle Fuel Rate Authorization
House Bill 392 and Utah Code 54-4-13.1
Keeps an estimated \$7.5 Million in Utah**

http://www.afdc.energy.gov/afdc/progs/view_all.php/UT/0



Worldwide NGV Growth: US Policymakers “Must do More”



World Region	Average % Growth of NGV Since 2000
Asia	53.4 %
Europe	15.4 %
North America	0.4%
South America	25.9 %
Africa	19.3 %
WORLD TOTAL	30.2 %

http://www.iangv.org/stats/NGV_Statistics.htm

- ✓ Petroleum prices higher overseas
- ✓ Foreign Governments do more to support NGV than USA
- ✓ OEM's build more NGV's for overseas markets



Natural Gas Vehicles

Public Policy & Incentives
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CNG Refueling
Infrastructure

**Natural Gas
Vehicles**

- ✓ **Light Duty** < 8500 #
- ✓ **Medium Duty** > 8500 # & < 14000 #
- ✓ **Heavy Duty** > 14000 #
- ✓ **Market-Ready, Qualified Conversions from several SVM's**
- ✓ **Performance and reliability equals or exceeds comparable gasoline and diesel vehicles**
- ✓ **Life-cycle cost advantages**
- ✓ **AQ and 2010 EPA HDV NOx, standards -- NGV's are inherently cleaner (ILEV)**



CNG Refueling Infrastructure

Public Policy & Incentives
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**CNG Refueling
Infrastructure**

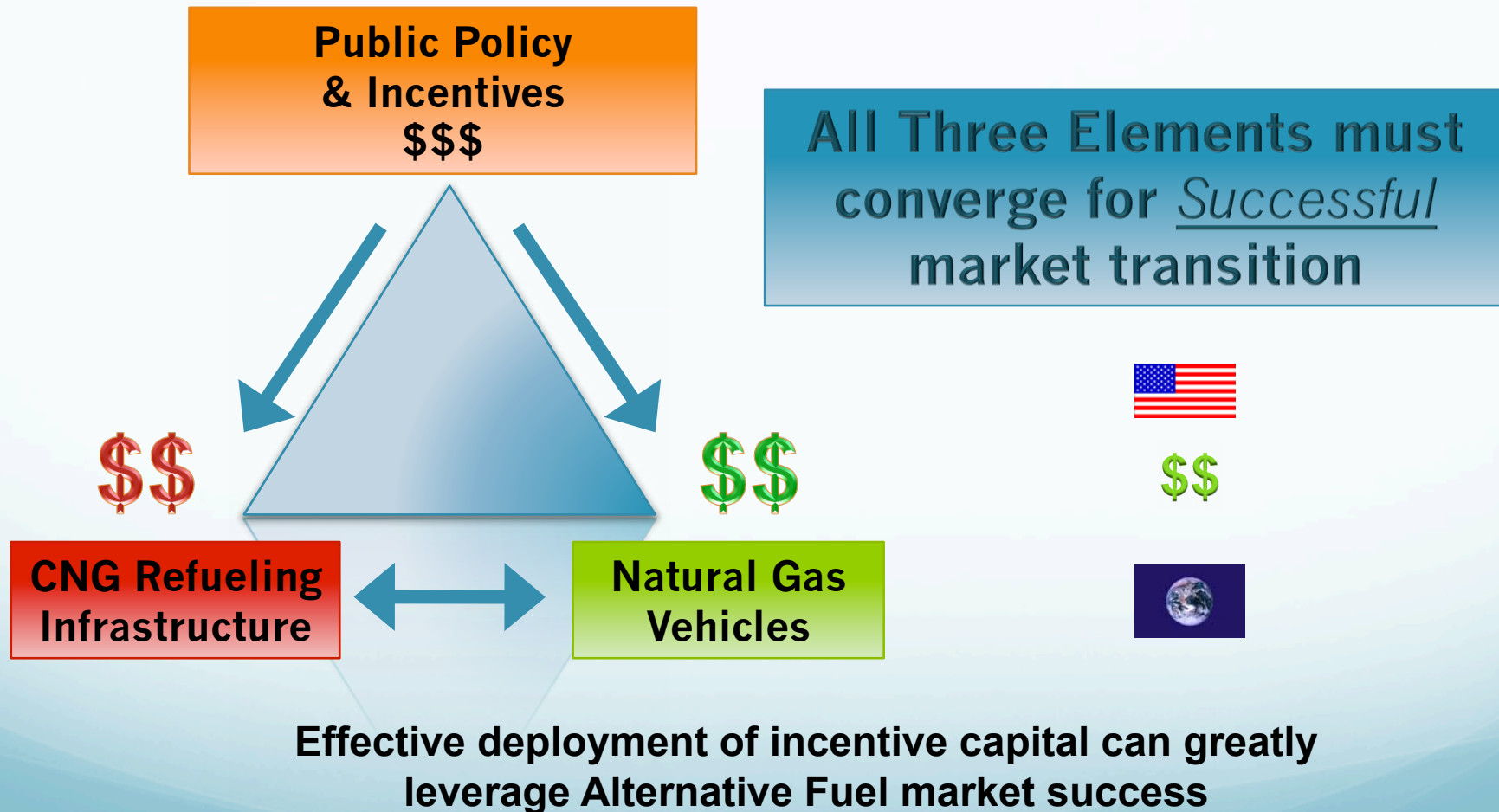
Natural Gas
Vehicles

- ✓ Infrastructure incentives add considerable value
- ✓ Motor Fuels Excise Tax Credit for Alternative Fuels (VEETC) (\$.50 per gge of CNG paid to the seller – can be passed along)
- ✓ Federal Excise Tax on CNG of \$.183 per gge
Utah State Fuel Tax of \$.085 per gge
- ✓ Federal Fuel Station Tax Credits
- ✓ Public Access to State of Utah Compressed Natural Gas (CNG) Fuel Network
- ✓ Aging Infrastructure needs capacity upgrades



Conclusions on *Boyd's Law of Alternative Fuels

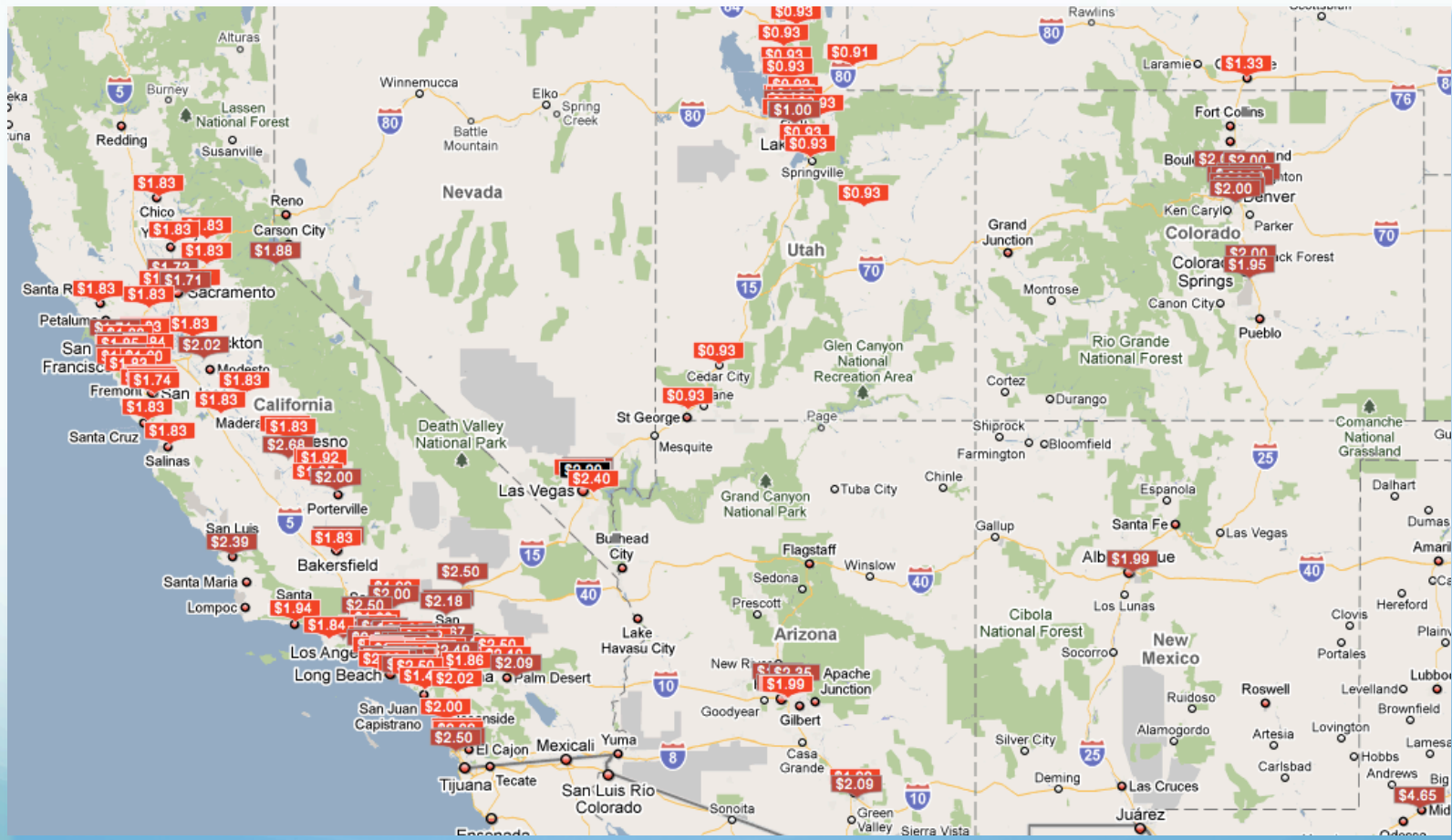
* James D. Boyd, Vice Chair, California Energy Commission





NGV Roadmap: Western USA CNG Prices

<http://www.cngprices.com>



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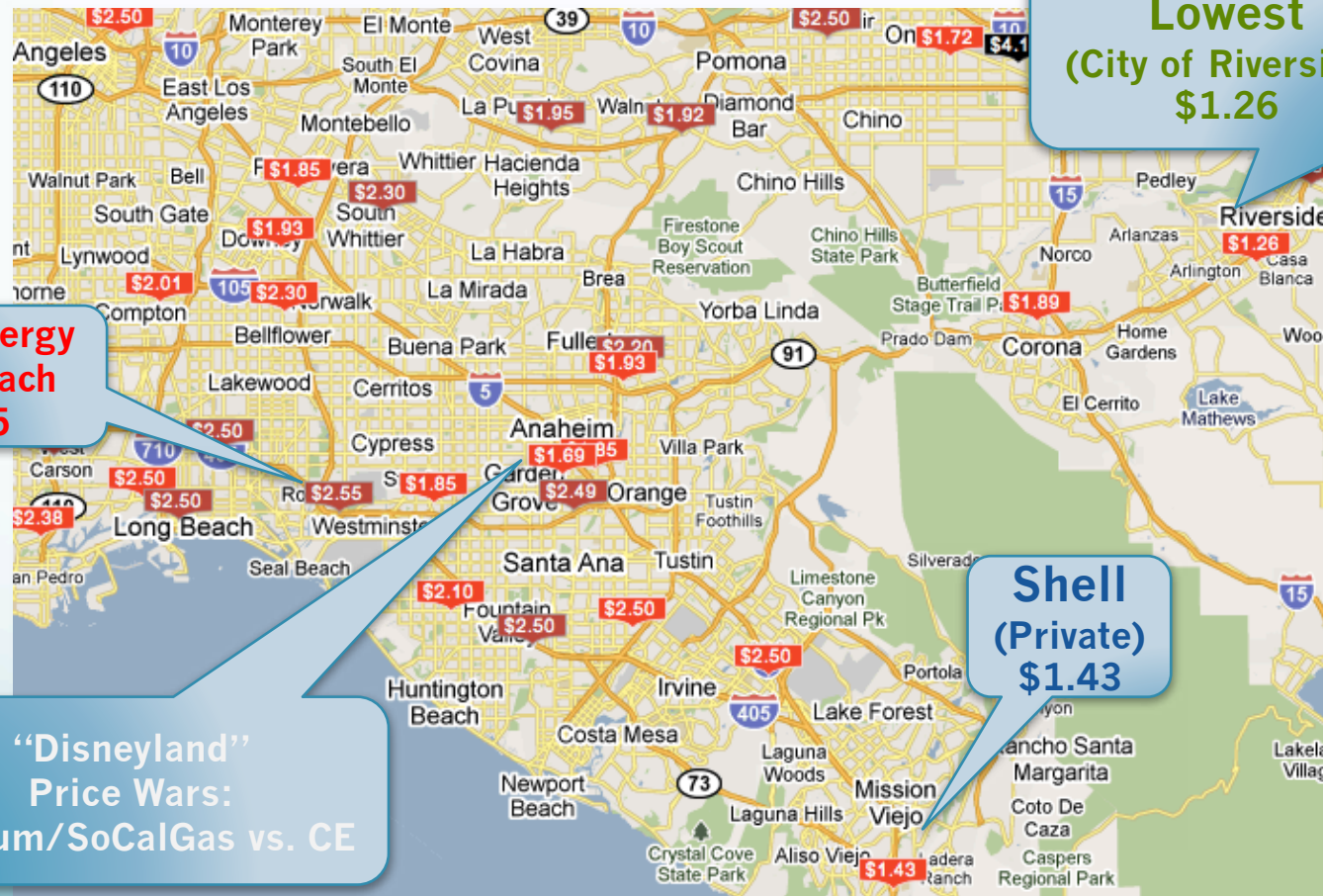
NGV Roadmap: California

- During the 1980's to mid-1990's the major California LDC's (PG&E, SDG&E, and SoCalGas) developed successful private and public access CNG programs with transportation refueling infrastructure.
 - The California Public Utilities Commission (CPUC) *deregulated* California's CNG refueling market when the Western States Petroleum Association challenged the utilities' role in the transportation energy market
- As a result: The LDC's were forced to dispose of their public CNG infrastructure for "pennies on the dollar." In-house AFV marketing and support staff were drastically curtailed, as a direct result of the CPUC decision.
 - Much of the CNG infrastructure was acquired by Pickens Fuel Corporation, which later became Clean Energy Fuels Corporation. Clean Energy significantly increased public CNG fuel prices and shutdown unprofitable CNG refueling stations, as the deregulated NGV monopoly market "adjusted."
 - The "corrected" NGV market-demand for LDVs decreased and emphasis shifted to MDV-HDV applications – Over 30,000+ NGVs -- Excellent incentives – many mandates – presently 186 CNG stations in California



NGV Roadmap: S. California CNG Prices

<http://www.cngprices.com>

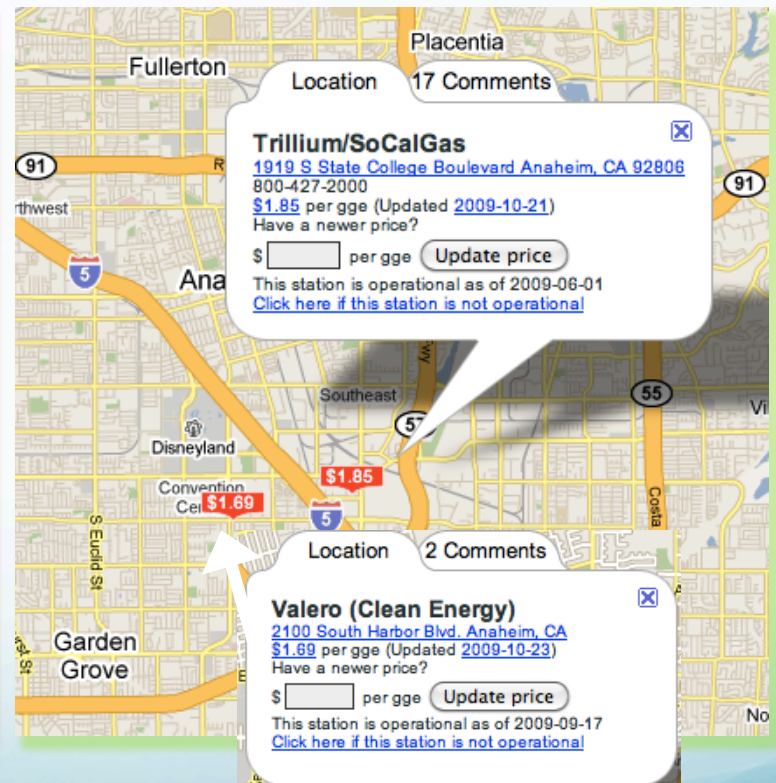
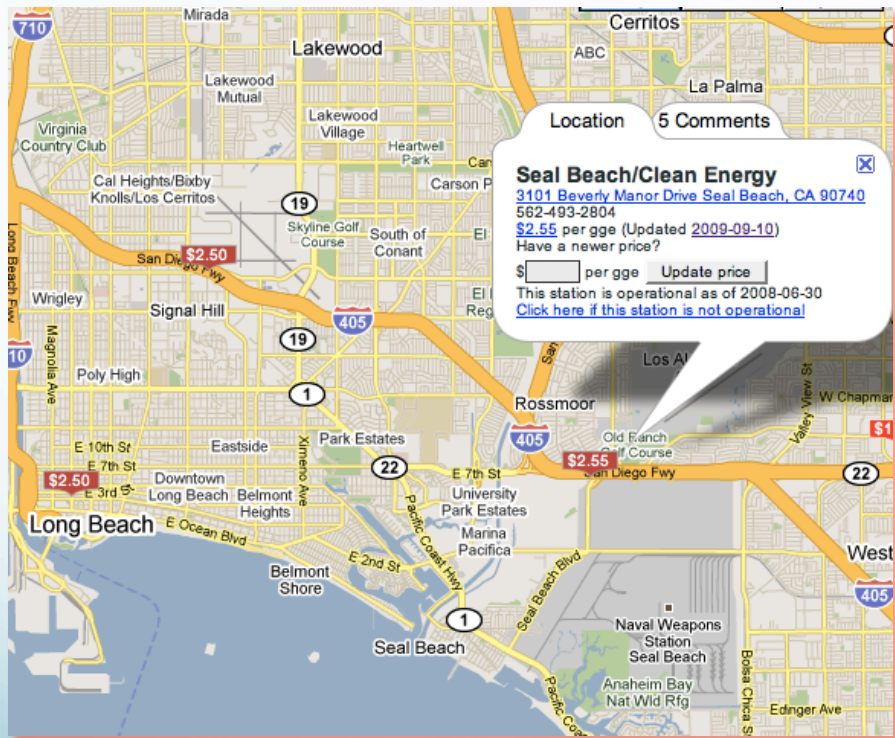


“Disneyland”
Price Wars:
Trillium/SoCalGas vs. CE



NGV Roadmap: S. California Comparison

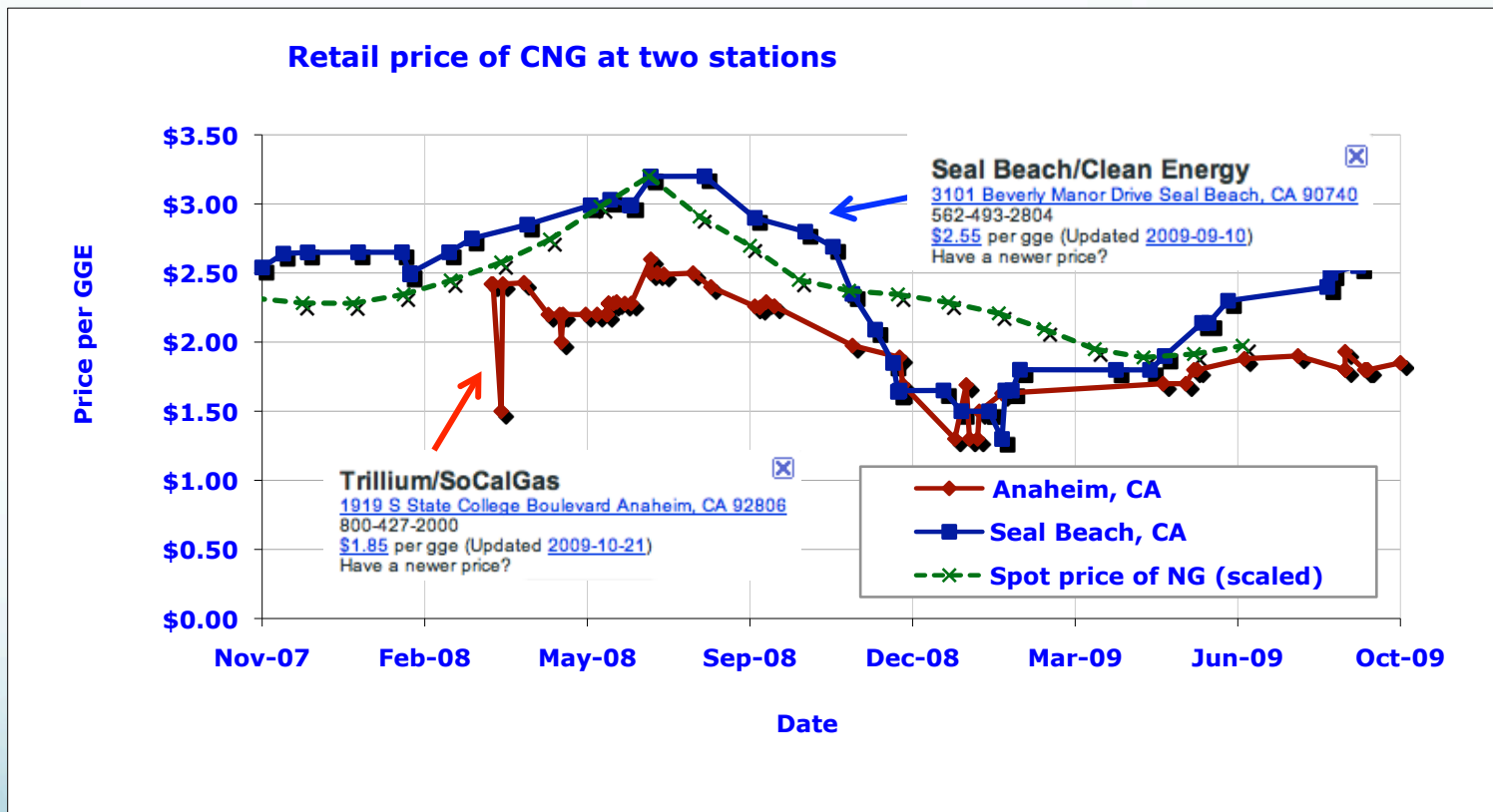
<http://www.cngprices.com>





NGV Roadmap: S. CA CNG Comparison

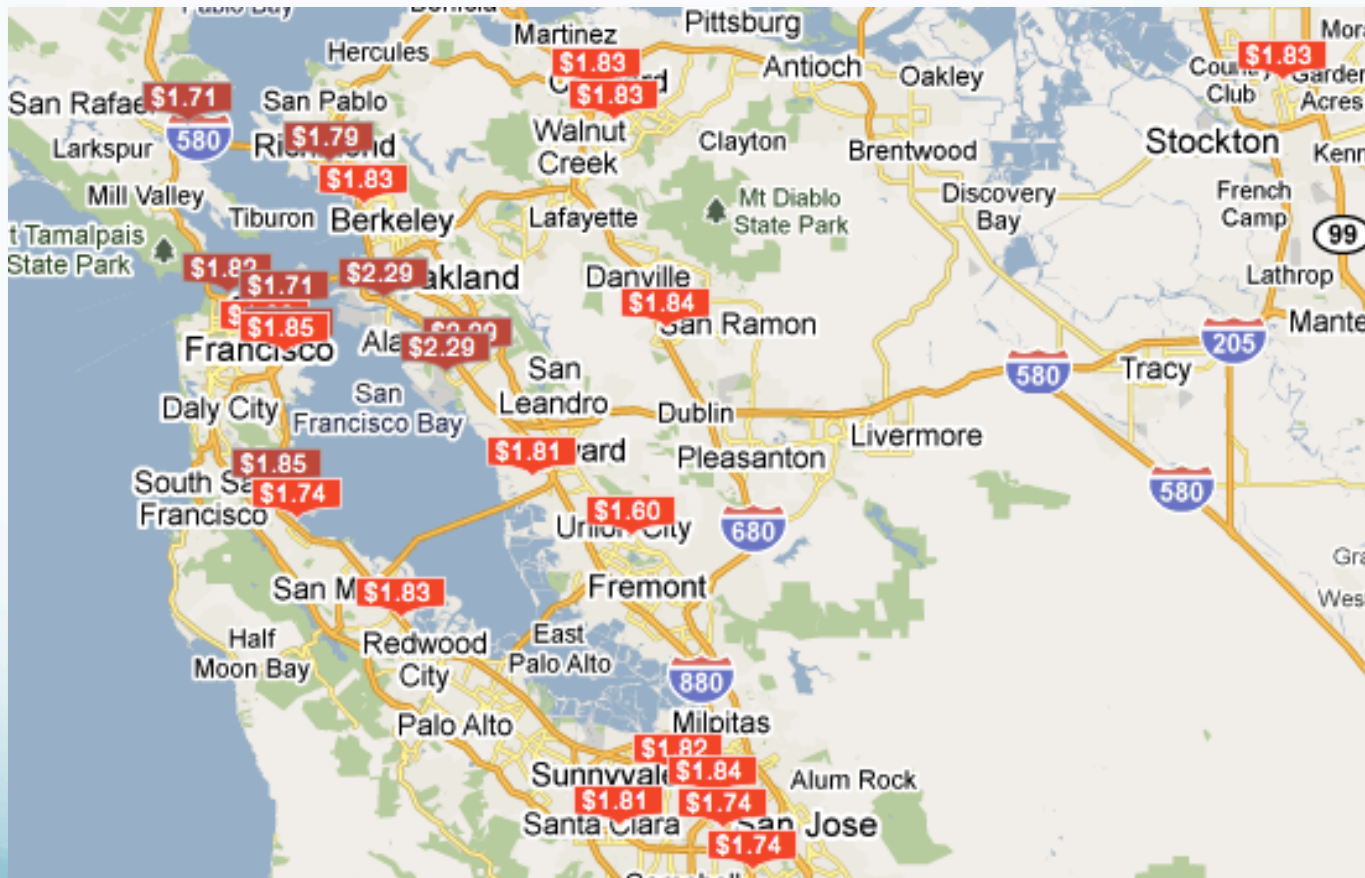
<http://www.cngprices.com>





NGV Roadmap: N. California CNG Prices

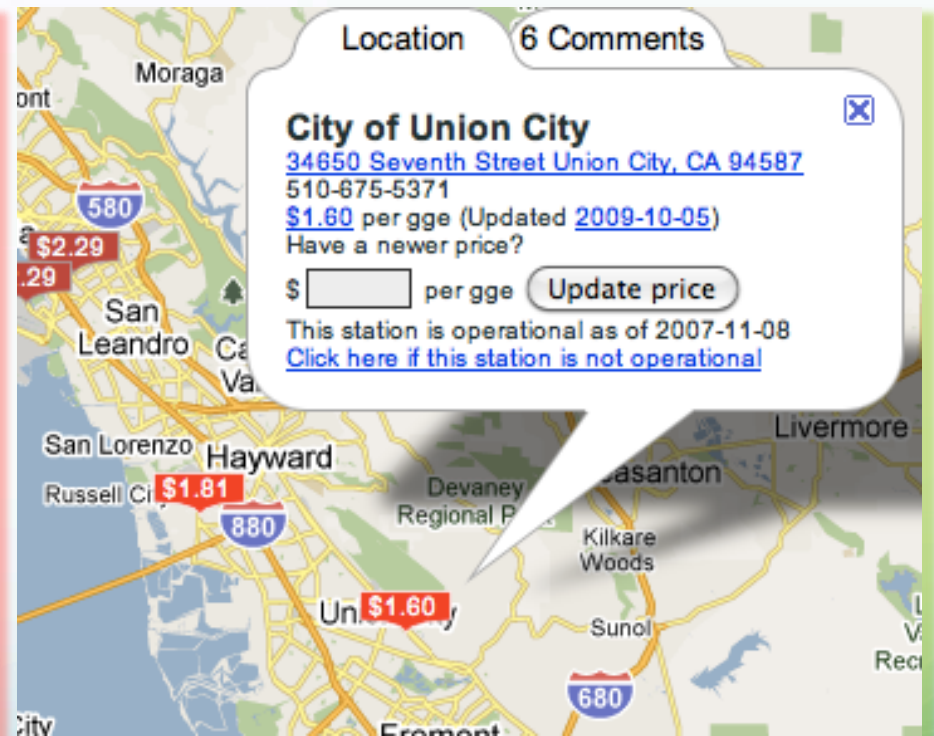
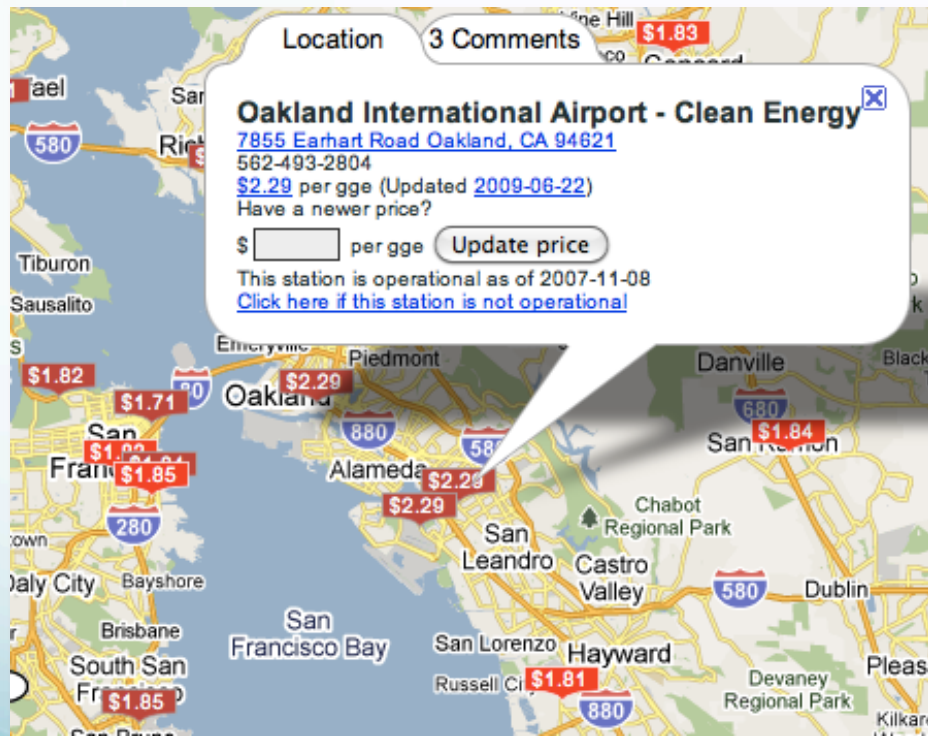
<http://www.cngprices.com>





NGV Roadmap: N. California Comparison

<http://www.cngprices.com>



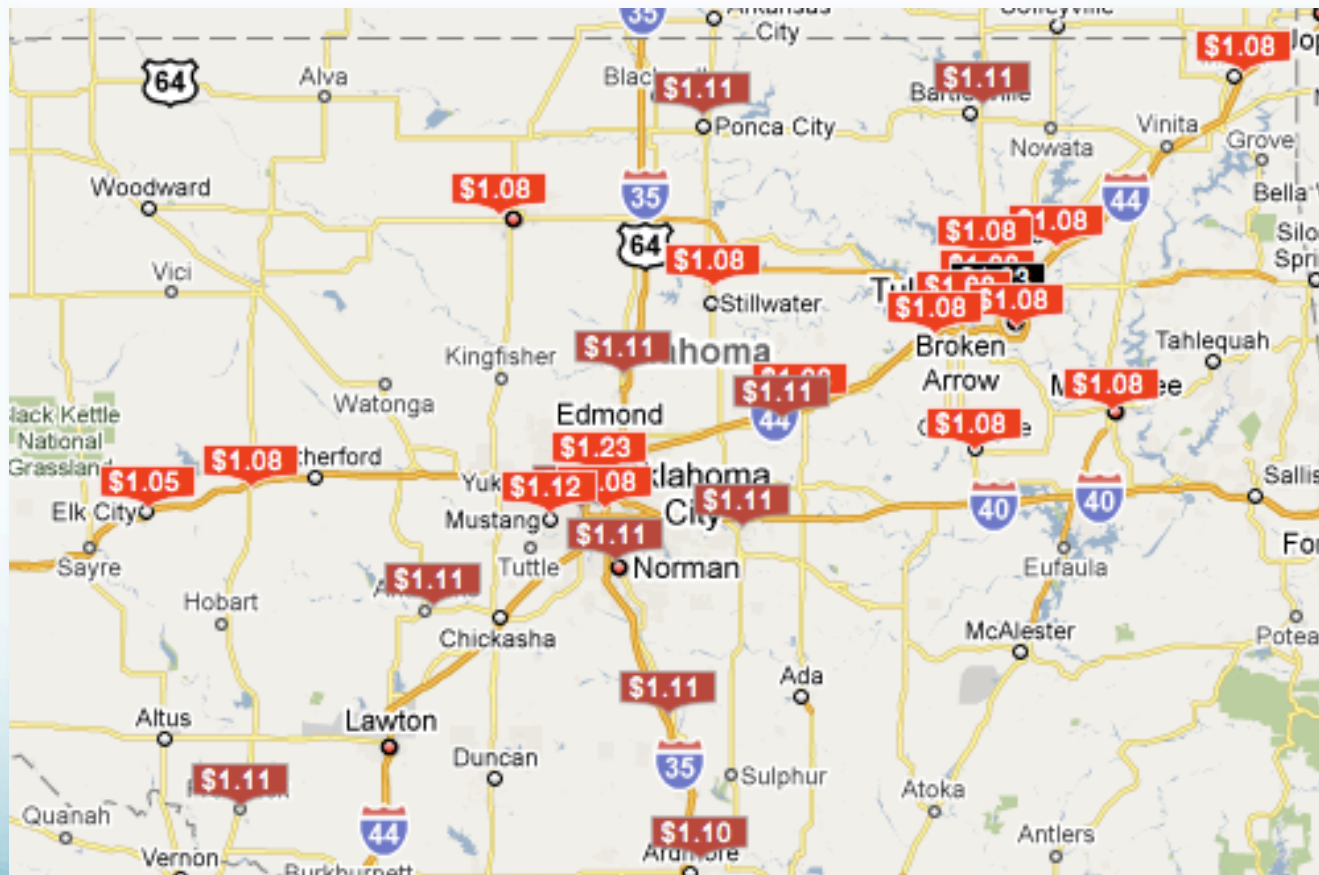


NGV Roadmap: Oklahoma

- Oklahoma presently has one private-sector CNG dispensing station
- Oklahoma has passed a 5-mile exclusion boundary between state-operated public stations and the nearest independently operated CNG station.
- Oklahoma has 3rd largest CNG refueling infrastructure following California and New York
- Generous state policy incentives for CNG infrastructure and NG vehicles



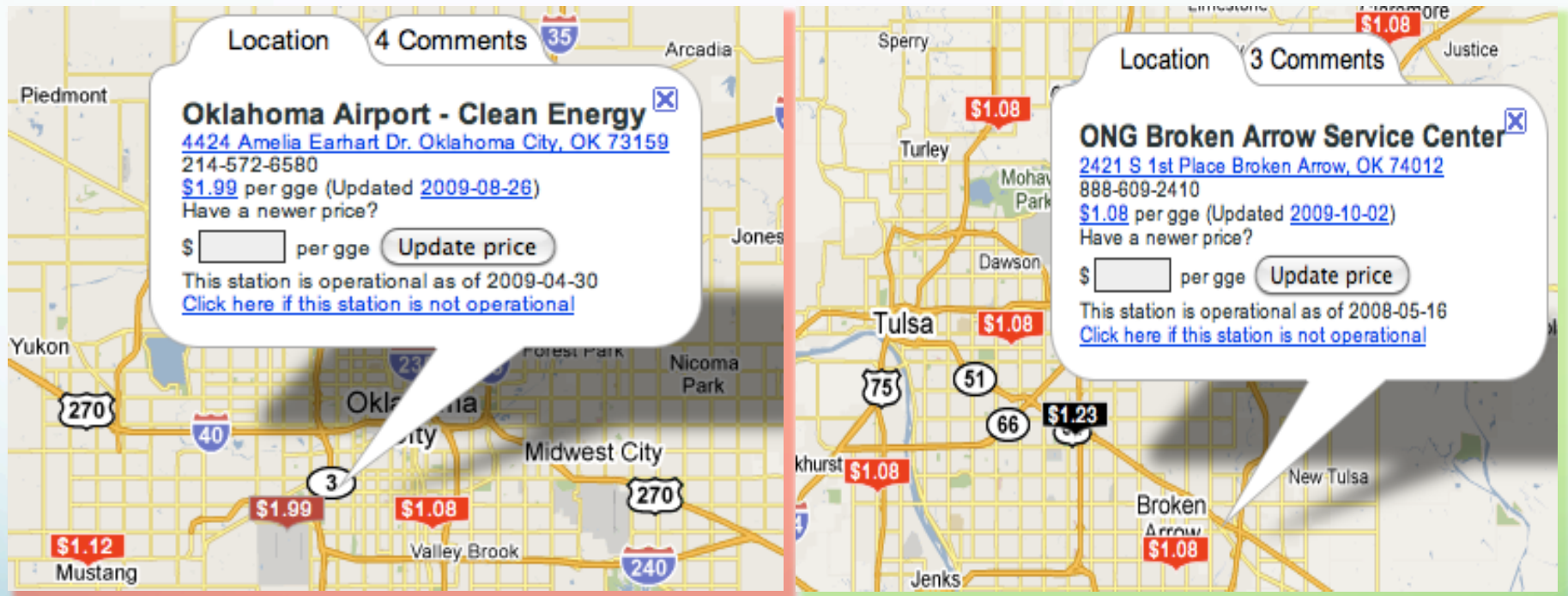
<http://www.cngprices.com>





NGV Roadmap: Oklahoma Comparison

<http://www.cngprices.com>





Tulsa Public Schools move to clean, economical, CNG-powered School Buses



How is NGV Fleet Partners implementing CNG in heavy-duty vehicles?



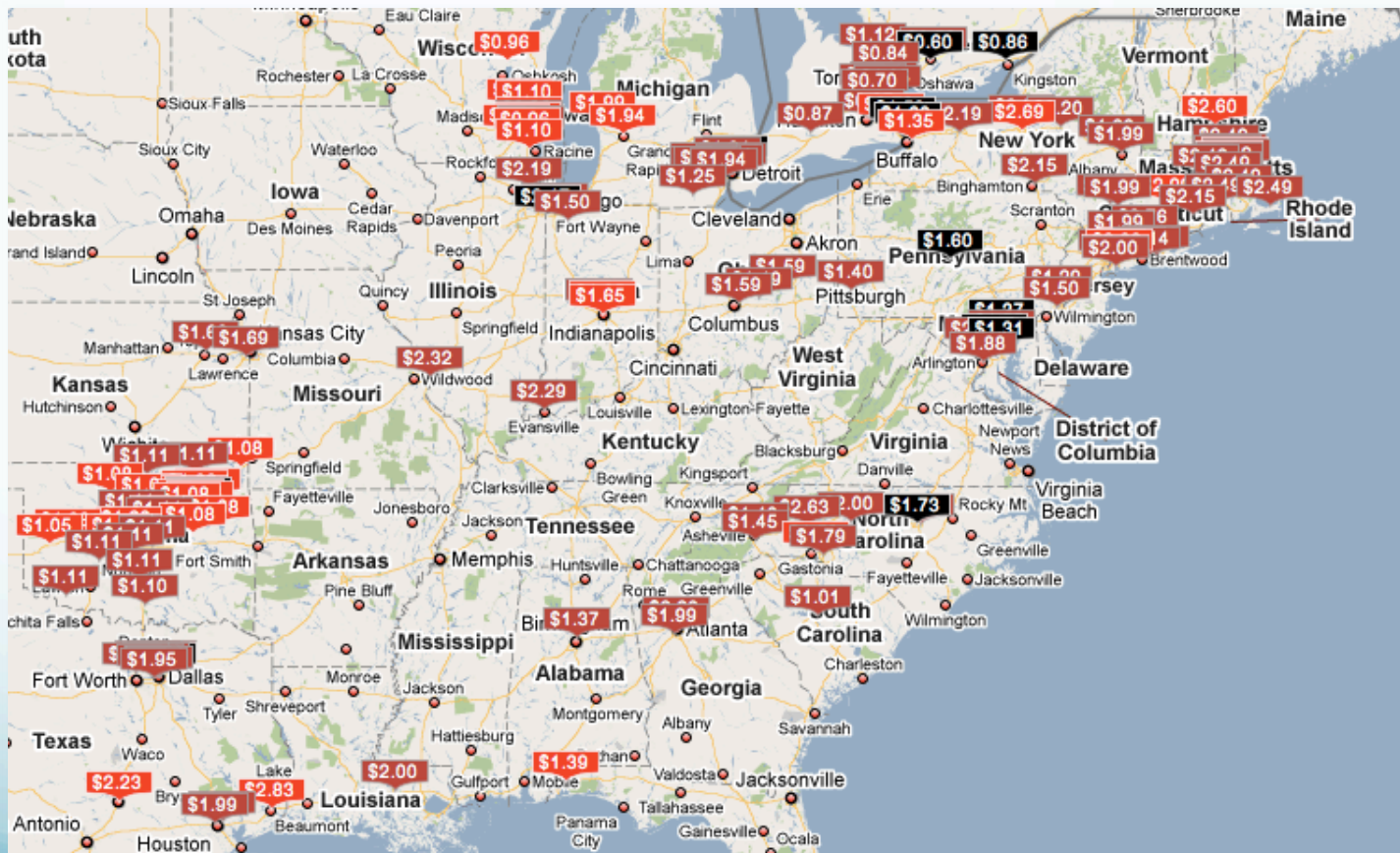
Link to live video:

<http://www.youtube.com/watch?v=lpi3GFELNWo>



NGV Roadmap: Eastern USA CNG Prices

<http://www.cngprices.com>

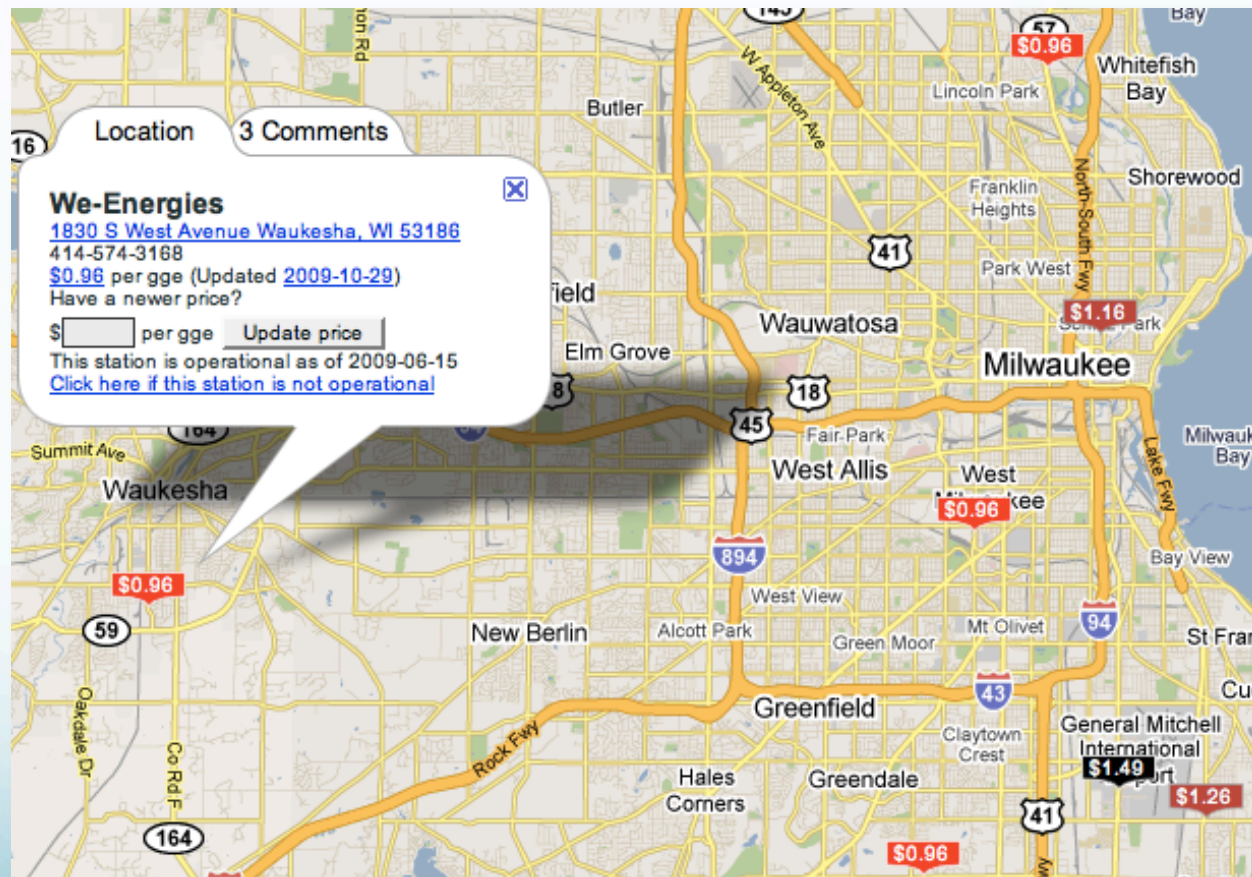


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NGV Roadmap: Milwaukee CNG Pricing

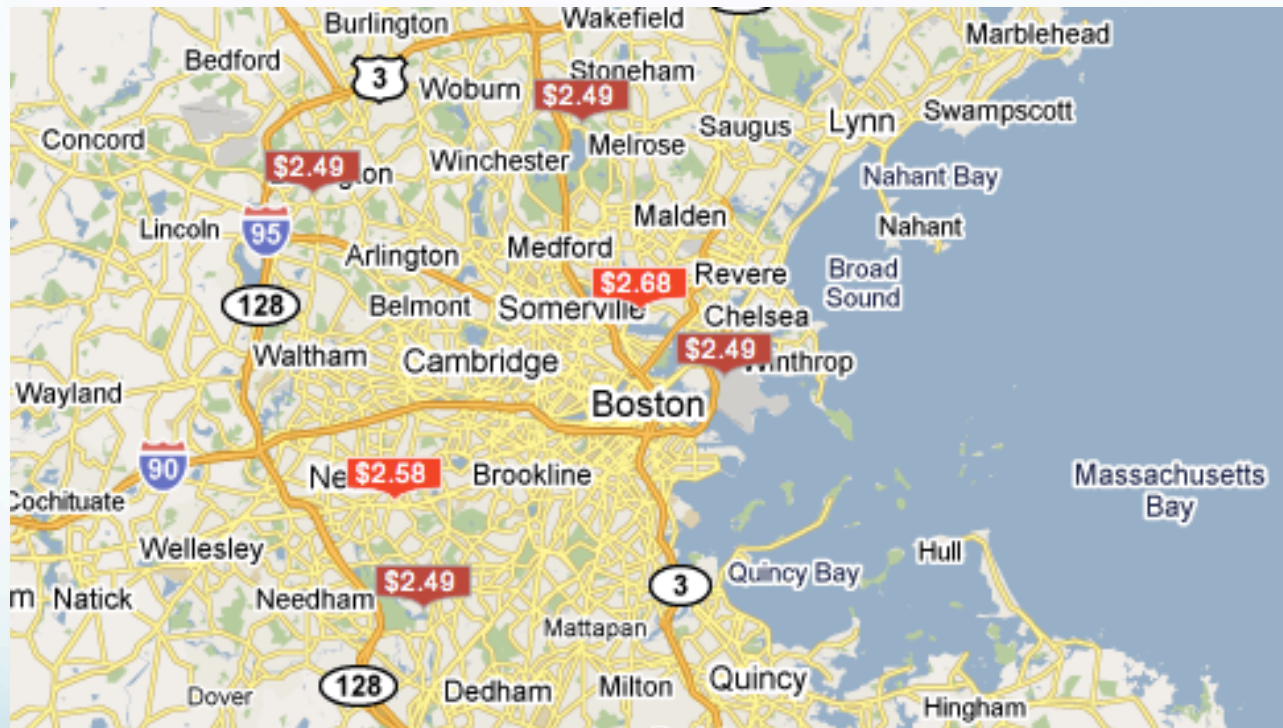
<http://www.cngprices.com>





NGV Roadmap: Boston CNG Pricing

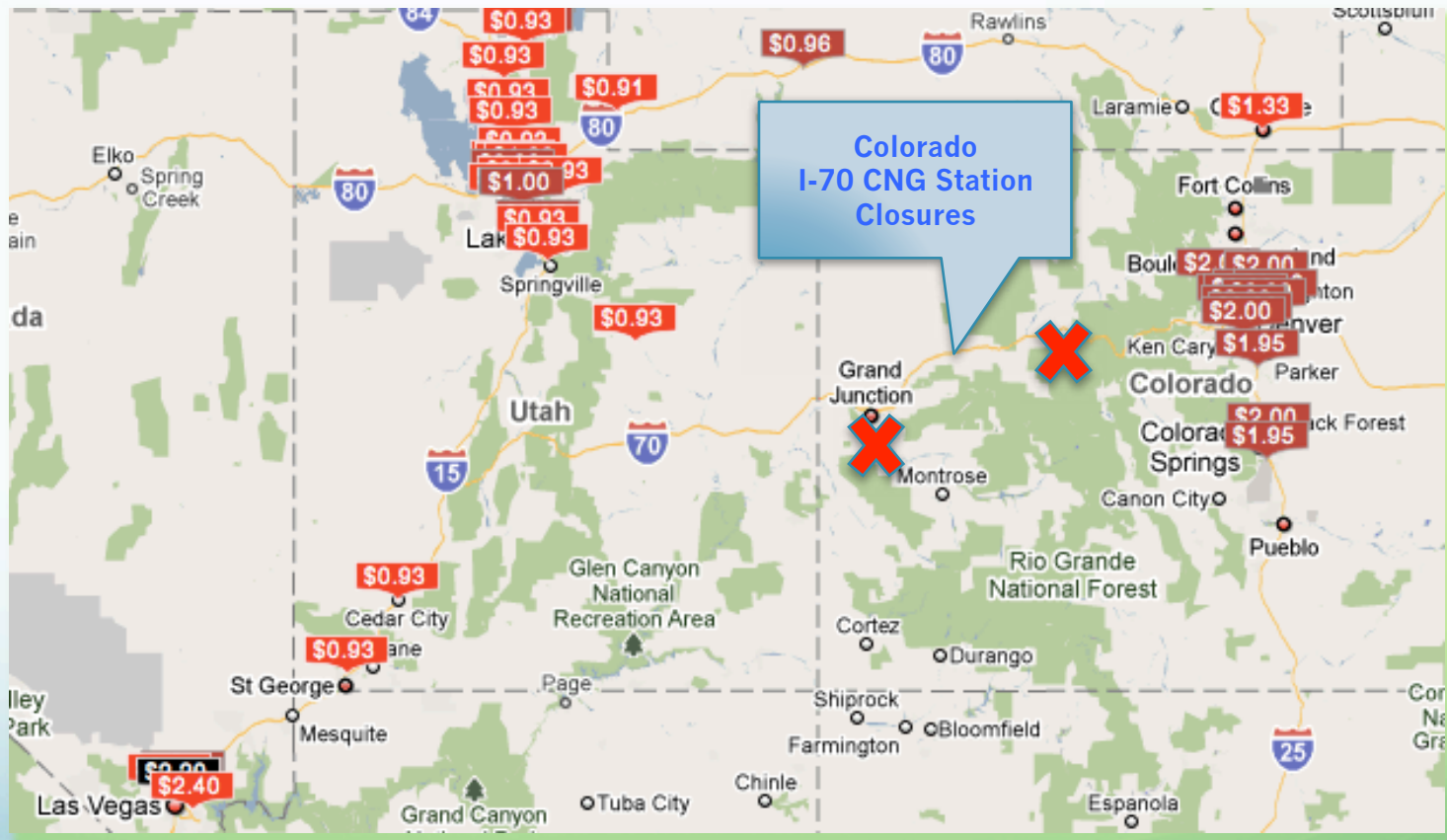
<http://www.cngprices.com>





NGV Roadmap: Regional CNG Prices

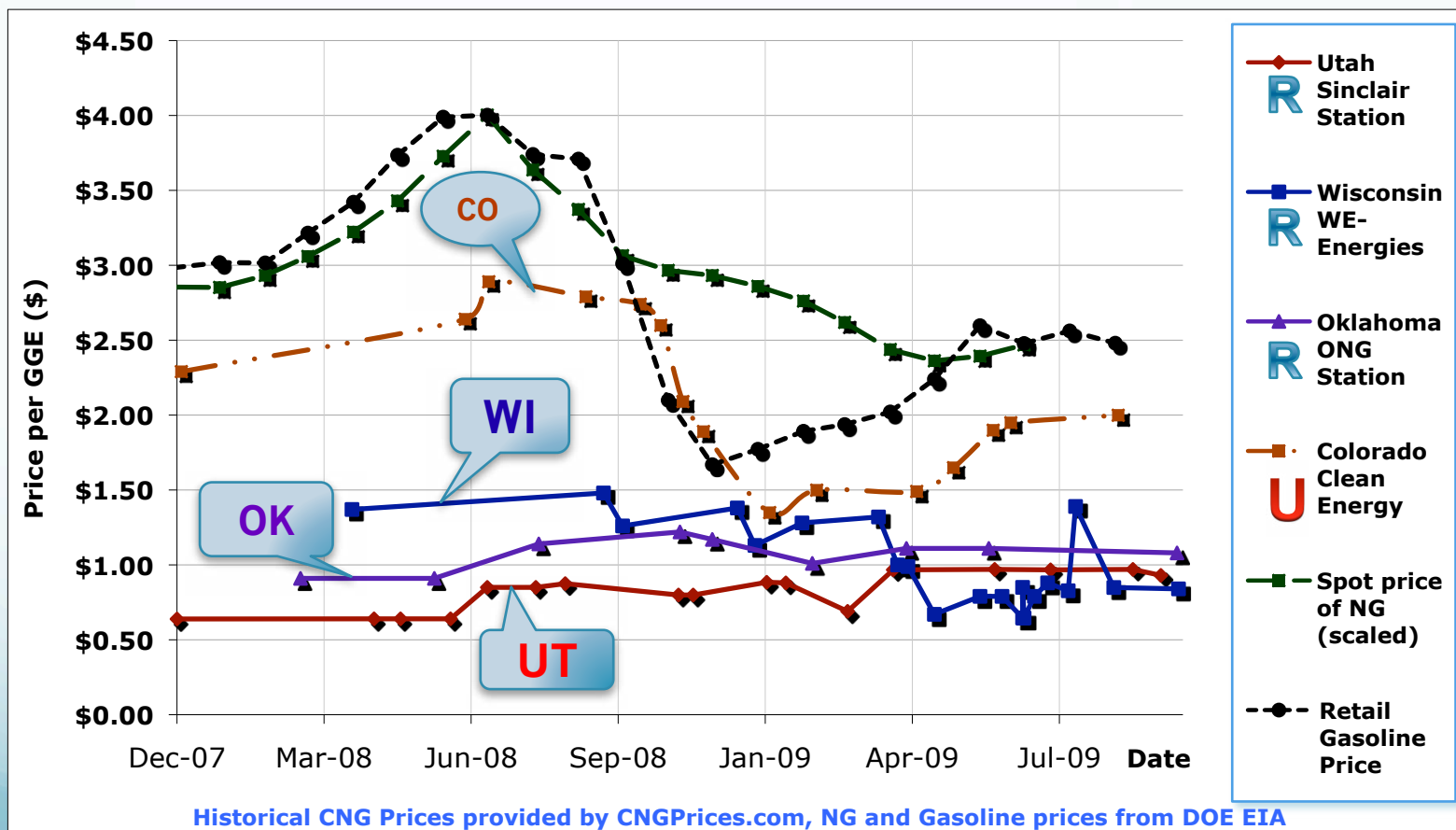
<http://www.cngprices.com>





Unregulated vs. Regulated CNG Prices

<http://www.cngprices.com>





Specific recommendations to the PSC of Utah

1. Develop a regulatory framework that encourages rapid adoption of clean transportation technologies. Encourage policies that educate customers about alternative fuel technologies and their greater societal benefits.
2. Establish clear roles for the public utilities encouraging greater use of alternative transportation fuels by:
 - i. Ensuring adequate infrastructure, including residential appliances for refueling
 - ii. Providing accurate and fair pricing education
 - iii. Promote programs or policies designed to improve energy efficiency, reduce health and environmental impacts from air pollution, and greenhouse gas emissions related to electricity and natural gas use, and increased use of alternative fuels
3. Create public policies that are even-handed in supporting all cost-effective, low-emission alternative fuel vehicle technologies – specifically including natural gas, electricity, and bio-methane (i.e., fully supporting technology-neutral policies).



Utah's Public Service Commission Can Help

- First and foremost “do no harm” in the implementation of recently-approved \$14.9 million DOE/Clean Cities Coalition grant for alternative fuel infrastructure and vehicles in Utah.
- Foster Utah’s vision for increased use of natural gas in the transportation sector. Utah should continue “to lead the nation by example.” At the current CNG dispensing volume rate and differential petroleum displacement cost an estimated \$7.5 million dollars are being retained in Utah’s economy. Those dollars are NOT going overseas.
- Enact policies which ensure those consumers who wish to use this alternative, clean fuel are subject to market risks *in the pricing of natural gas* – not relative to gasoline pricing as is the case in many unregulated CNG markets.
- **Should Questar Gas leave the CNG dispensing business, ensure no unregulated monopoly takes its place**





*CNG Chat wishes to thank the
Utah Public Service Commission for the
opportunity to present this information.*

Q & A

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Supplemental Information

(not included in Audio-Visual Presentation)

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NGV Roadmap: Utah's Endangered CNG Station List

- Several of Utah's public CNG dispensing stations are located in rural areas of the state. While these locations serve a vital need to range-limited NGV's, they typically are low-volume (under 200 gge/day) operations.
- Typically when LDC's are de-regulated, private industry can not afford to maintain lower volume stations. The following Utah public CNG stations would very likely be eliminated under an "adjusted" or deregulated alternative fuel market:
 - Price, UT – Market Express
 - Fillmore, UT – Chevron
 - Richfield, UT -- Chevron
 - Logan, UT – Conoco
 - Park City, UT – Top Stop



NGV Home Refueling

- **NGV Home Refueling goals and objectives**
 - Support NGV LDV market growth
 - Support state energy and climate change goals
 - Increase customer confidence and experience with NGVs
 - Lower market and cost barriers to increase customer adoption
- **NGV Home Refueling suggestions**
 - Biggest barrier to home refueling is high cost to purchase, install, and maintain infrastructure
 - Consider adding greater “up-front” incentives to defray these costs
 - NGV residential refueling shares many potential regulatory issues that also face users of BEV and PHEV (electric-power recharging) users
 - Consider adding lower residential natural gas tariffs to promote greater use of natural gas transportation fuel home refueling appliances



NGV History 101

- **The history timeline of NGVs & CNG Infrastructure development can be divided into four time periods**
 - **1965 to 1990**
 - **1991 to 1997**
 - **1998 to 2007**
 - **2008 to Present**



NGV History: 1965 - 1990

- **Concerns for Air Quality (California) & Economics**
 - Clean Air Act of 1963
 - NG Vehicle and CNG station technology primitive; but industry driven by process and discovery
 - NGV industry shows slow, but steady growth. Primarily driven by growing number of public utilities (LDCs) converting own fleets, but also slowly commercializing technology with customers



NGV History: 1991 - 1997

- **“Golden-Age” of NGVs in America**
 - Energy Policy Act 1992 (aka EPLA 1992)
 - Boom period for NGV sales and CNG Station development in US driven by:
 - Growing number of LDC's having overly optimistic expectations of market potential due to federal and state mandates and transit sector grants, and
 - Detroit embraces NGV technology and introduces product range of OEM (factory-built) and supported LDVs and MDVs



NGV History: 1998 - 2007

- **NGV progress derailed**
 - Utility industry deregulation decimates NGV market development programs with LDC's
 - CNG fueling infrastructure network starts to recede as deregulated market “self-corrects.”
 - Despite vehicle and station improvements, sluggish sales prompt several major OEM's to withdraw
 - Focus shifts from LDVs to HDV-niche markets provided by SVMs; although Honda introduces NGV Civic GX
 - EPA Act 92 fleet mandates often met with FFV E-85 or hybrids



NGV History: 2008 - Present

- **Public AFV interest increases with \$4.00/g. gas**
 - Economy enters worst recession since 1930's depression
 - One year after California's Proposition 10 is defeated, T. Boone Pickens launches \$60-million national advertising campaign promoting wind power and natural gas for transportation
 - Sen. Hatch co-sponsors NAT GAS Act S. 1408
 - Diesel emissions standards tighten 2007, 2010, as diesel fuel costs
 - EPA lists 24-hour (PM2.5) nonattainment designations for Utah counties



Acronyms

American Recovery Reinvestment Act	ARRA	Department of Energy	DOE
Air Quality Improvement Program	AQIP	Energy Information Administration	EIA
Alternative And Renewable Fuel and Vehicle Technology Program	AFRV TP	Energy Policy Act	EPAct
Alternative Fuel Incentive Program	AFIP	Environmental Protection Agency	EPA
Alternative Fuel Vehicle	AFV	Federal Energy Regulatory Commission	FERC
Alternative Vehicle Services Group	AVSG	Greenhouse Gases	GHG
California Air Resources Board	CARB	Greenhouse Gases, Regulated Emissions, and Energy use in Transportation	GREET
California Energy Commission	CEC	Heavy Duty Vehicle	HDV
California Public Utilities Commission	CPUC	High Occupancy Vehicle	HOV
Clean Cities Coalition	CCC	Inherently Low Emission Vehicle	ILEV
Clean Energy Fuels Corp	CE	Investor-owned utility	IOU
Carbon Dioxide	CO2	Landfill Compress Natural Gas	LF-CNG
Compressed Natural Gas	CNG	Liquefied Natural Gas	LNG
Cost of Service	COS	Local Distribution Company	LDC



Acronyms

Low Carbon Fuel Standard	LCFS	Plug-in Hybrid Electric Vehicle	PHEV
Low Emission Vehicle	LEV	Questar Gas Co	QGC
Medium Duty Vehicle	MDV	San Diego Gas & Electric	SDG&E
Methane	CH4	Southern California Gas	SoCalGas
Million metric tones of carbon dioxide equivalent	MMtCo2e	Specialty Vehicle Manufacturer	SVM
National Ambient Air Quality Standards	NAAQS	Tank-to-Wheel	TTW
Natural Gas Vehicle	NGV	Volumetric Ethanol Excise Tax Credit	VEETC
Nitrous Oxide	NO2 or NOX	Volatile Organic Compounds	VOC
Oklahoma Natural Gas	ONG	We Energy (Wisconsin)	WE
Original Equipment Manufacturer	OEM	Well-to-Wheel	WTW
Pacific Gas & Electric	PG&E		
Particulate Matter	PM		
Public Policy & Incentives	PP&I		
Plug-in Electric Vehicle	PEV		

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