

Opportunities and Challenges to the Expanded Use of Natural Gas in Transportation

Alex Schroeder - Sr. Manager, Transportation Fuels September 10, 2012





The Governor's Energy Office promotes sustainable economic development in Colorado through advancing the state's energy market and industry to create jobs, increase energy security, lower long term consumer costs, and protect our environment.



Key Initiatives: FY'11-'12

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- 1. A Balanced Energy Portfolio in the Electric Power Sector

- Model Development
- Stakeholder Engagement

2. Diversifying Colorado's Transportation Fuels Portfolio

- NGV Analysis, MOU, & Pilots
- EV & Biofuels Opportunities

3. Unlocking the Potential of Building Energy Efficiency

- Res. EE Valuation & Financing
- Private Sector EPC Grant
- PUC DSM Dockets

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- 4. Supporting the State's Energy Innovation Ecosystem
 - 5. Increasing Access to Energy Information

- Asset Inventory
- ARRA Revolving Loan Fund
- COIN
- ReCharge Spin-Out
- Website Launch



Natural Gas Can Play a Key Role in Our Transportation Future

In Colorado, natural gas vehicles can play a key role in diversifying our transportation fuels energy portfolio

CNG and LNG infrastructure and price differential vary widely across the country and can be linked to a number of key attributes

Innovative approaches can address market barriers towards a mutual benefit





Like the Nation, Colorado is Dependent on Oil

Colorado's Current Energy Mix



Balancing Colorado's Transportation Energy Mix

CEO seeks to complete analysis of market segmentation to identify optimal opportunities and geography for a portfolio of fuels (e.g. CNG for fleets, hybrids for rural commuters, EV for urban commuters)

Benefits

Energy security, lower consumer costs, improved environmental performance, and Colorado jobs

Petroleum Consumption, Production, and Import Trends (1949-2010)



Note: Production includes crude oil and natural gas plant liquids only.

Source: U.S. Energy Information Administration, Monthly Energy Review (May 2011), preliminary data, and Annual Energy Review 2009, Table 5.1 (August 2010).



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Colorado is a Net Importer of Oil, but a Net Exporter of Natural Gas



Oil in Colorado

Note: 2011 state consumption numbers not yet published- extrapolated from 2011 U.S. consumption and 2010 state share of U.S. consumption

Oil and gas consumption: EIA SEDS

Natural Gas in Colorado

Oil and gas production: COGCC



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Fleets in Colorado Have Shown Positive Results – CEO Case Studies





Fleet Size	18 buses	Fleet Size	22 refuse trucks (36 by the end of 2012)
Annual petroleum displacement (DGE)	372,624	Annual petroleum displacement (DGE)	260,000 (2012) 1.12 million for entire fleet
Fueling station cost	\$1.8 million	Fueling station cost	\$2 million
Incremental CNG truck costs	\$28,000 per bus	Incremental CNG truck costs	\$25,000 per truck
Annual fuel savings	\$350,000	Annual fuel savings	2012: \$420,000 Full project: \$1,811,040
Simple payback period	6.5 to 9.5 years (project in progress)	Simple payback period	2 to 3 years



Nationally, CNG is Consistently the Lowest-Cost Alternative Fuel, but...







The CNG-Gasoline Price Differential Varies





As Does Infrastructure Availability



Includes public and private stations. Source: Alternative Fuels Data Center, as of 8/28/2012.



Vehicle Payback will Vary Accordingly



Assumptions: Same as with refuse truck, except 12000 miles/year at EPA tested MPG.

Savings for a typical CNG Honda Civic over 10 years





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Fleets are the Tip of the Spear





States are Working Together to Take the Lead

Multi-State Memorandum of Understanding

•Aggregates state vehicle procurement in a Joint RFP; utilize local distribution networks

•Engage local government in procurement to the extent practicable

•OEM NGV should have comparable performance and price to a gasoline vehicle

- •Encourage private investment in NGV infrastructure
- •Reach out to fellow Governors to encourage participation
- •MOU purposely kept short and simple

Promote Policy Objectives

- Energy Security
- Reduce Emissions
- Create Domestic Jobs
- Lower Consumer Costs

Address Market Barriers

- •Tackle Chicken and Egg Dilemma (Vehicles/Infrastructure) and Encourage Private Investment
- Drive Down Incremental Costs
- Increase Fuel Price Separation





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Back to the Future?

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FUELMASTER THANK YOU! HAVE A NICE DAY!



Contact Us

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