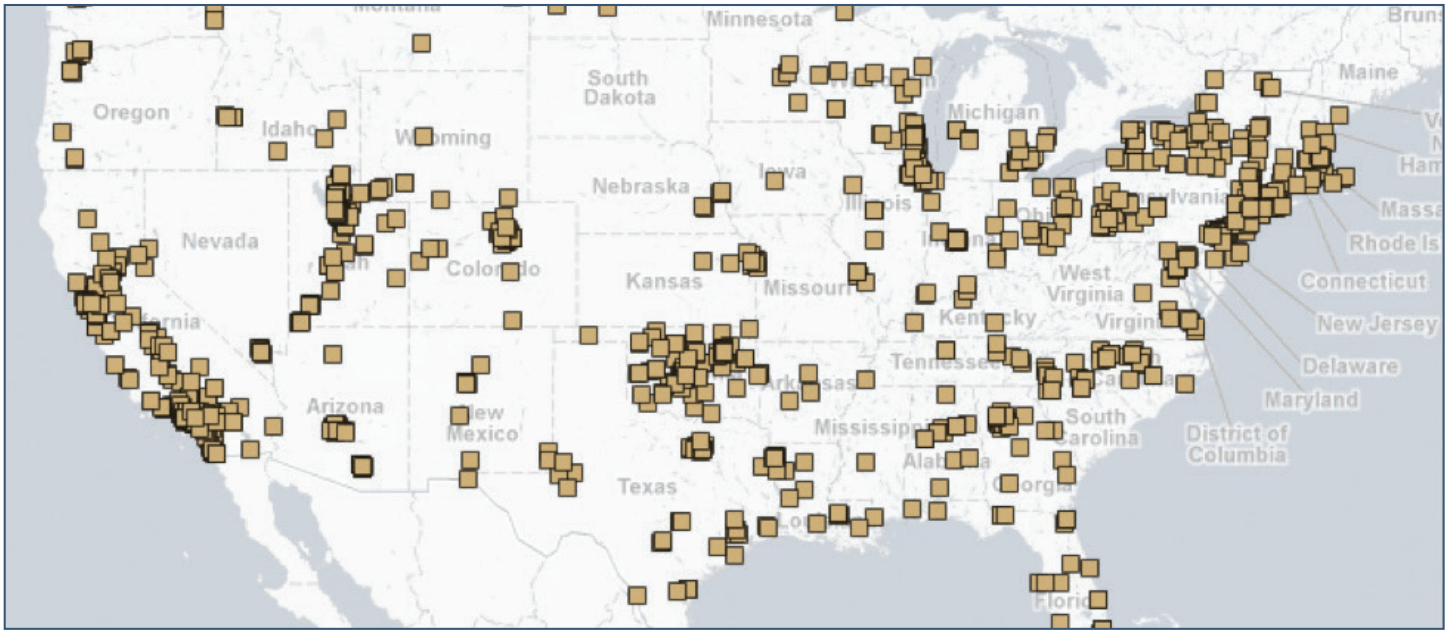


MOUNTAIN-PLAINS CONSORTIUM

PROJECT BRIEF | January 2015

Do Changing Prices Portend a Shift in Fuel Consumption, Diminished Greenhouse Gas Emissions, and Lower Fuel Tax Revenue?



the ISSUE

The growing uncertainty about oil prices and availability has made long-range transportation planning more challenging. Rather than relying on trend extrapolation, this study at Utah State University uses market mechanisms to evaluate key long-range transportation planning assumptions.

the RESEARCH

This report responds to an inquiry by the State of Washington about the viability of natural gas as an alternative source of energy for transportation. The report is organized around responses to several key research tasks. These tasks are to: (1) Document the increase in supply of natural gas, estimate future price, and availability; (2) Assess the extent to which natural gas is likely to substitute for petroleum; (3) Estimate the extent to which price and performance effects will influence VMT trends in Washington State; (4) Estimate changes in GHG emissions in Washington State attributable to increased use of natural gas; (5) Estimate potential loss of fuel tax revenue attributable to substitution of natural gas for petroleum fuels.

The report finds that natural gas enjoys a per-BTU cost advantage over petroleum in the United States and this price advantage is likely to persist for the foreseeable future. This price advantage is largely the result of the lower natural gas prices that have followed the increased supply created by new extraction technologies. This price difference is also likely to persist because of the high cost of transporting a pressurized gas over long distances where pipelines are not present.

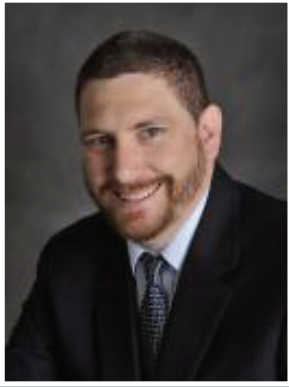


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Project Title

Do Changing Prices Portend a Shift in Fuel Consumption, Diminished Greenhouse Gas Emissions, and Lower Fuel Tax Revenue?

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the FINDINGS

The results of the modeling show that the impacts of natural gas vehicles (NGV) have the potential to effect vehicle miles traveled (VMT), emissions, and fuel tax revenue. The effects of NGVs are muted by the limited use of them in the fleet. Challenges with widespread integration include the increased upfront capital costs associated with NGVs, decreased power for heavy vehicles, and range anxiety in locations without developed natural gas fueling infrastructure. The NGV market in the state of Washington is hampered by these factors. The modeling and analysis in this report can be used to analyze changing conditions in the market and the effects on key transportation metrics.

the IMPACT

Although the Washington Department of Transportation (WSDOT) is pursuing alternative fuels and energy sources, this study focuses primarily on natural gas. In particular, this study will help WSDOT assess the likelihood natural gas will substitute for petroleum fuels and estimate the impact changes in fuel prices will have on travel demand, fuel consumption, emissions, and tax revenues.

For more information on this project, download the entire report at <http://www.ugpti.org/resources/reports/details.php?id=786>

For more information or additional copies, visit the Web site at www.mountain-plains.org, call (701) 231-7938 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.



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