

Comparing Lifecycle GHG Emissions from Coal-to-Liquids and Plug-in Hybrids **By Paulina Jaramillo and Constantine Samaras**

The House Committee on Energy and Commerce is considering enacting policies to subsidize the production of transportation fuel from coal-to-liquid projects¹. This policy would enhance national security by lowering oil imports, but there is a less costly policy that would do more to lower greenhouse gas emissions. If we consider the entire life-cycle of the fuel, **Coal-to-liquids projects with carbon capture and sequestration would, at best, reduce greenhouse gas emissions from vehicle travel only by about 6%. Without carbon capture and sequestration, gasoline produced from coal would increase greenhouse gas emissions by about 56%².**

The vast US coal resources can be used to power our vehicles, enhancing national security, **and** reduce greenhouse gas emissions. Plug-in hybrid electric vehicles using electricity made from coal with carbon capture can enhance energy security by reducing oil dependence while also reducing greenhouse gas emissions.

- Since about 60% of passenger vehicles travel less than 30 miles per day³, **plug-in hybrids** can travel on electricity for nearly all of daily travel, **displacing up to 85% of gasoline use** in vehicle travel each year².
- **Plug-in hybrids** charged with electricity generated from coal **reduce greenhouse gas emissions** from vehicle travel **by about 23%; with carbon capture and sequestration** or other low-carbon electricity generation, **plug-in hybrids can reduce greenhouse gas emissions by up to 70%²**
- Nearly three-fourths of the existing light-duty vehicle fleet could be accommodated as plug-ins without requiring additional power plants through off-peak charging.⁴

Generating electricity from coal with carbon capture and sequestration and replacing the fleet with plug-in hybrid vehicles could enhance energy security by reducing 85% of motor vehicle gasoline use and reduce greenhouse gas emissions from vehicle travel by 70%². Even the most carbon-intensive scenario using plug-in hybrids has **substantially less greenhouse gas emissions** than the best possible coal-to-liquids case².

A major program to subsidize coal-to-liquids makes no sense, since the goals of energy independence and reducing greenhouse gas emissions can be achieved at lower cost through plug-in hybrid vehicles charged with electricity from reduced carbon sources.

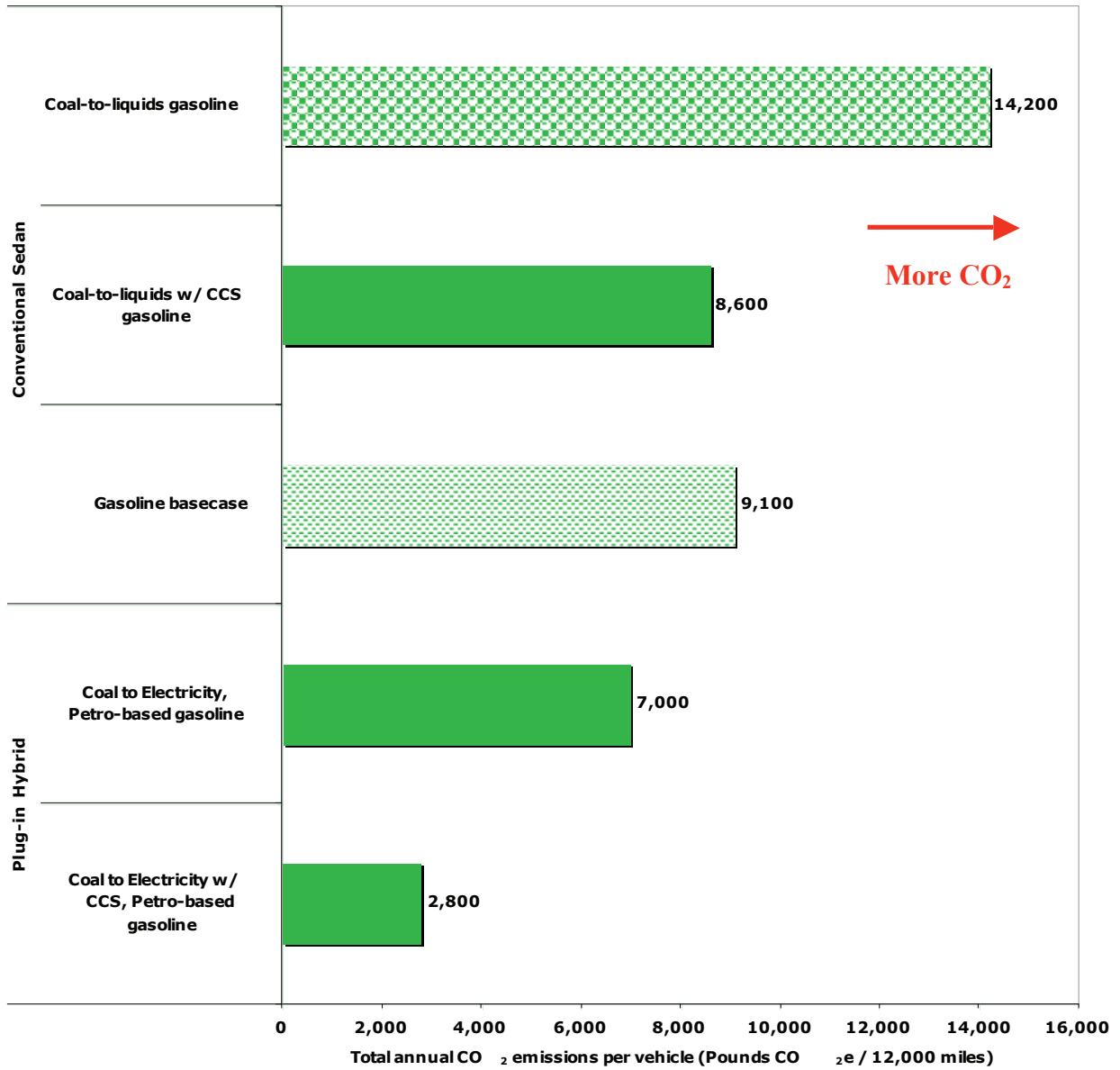
¹ http://energycommerce.house.gov/energy_110/index.shtml

² P. Jaramillo, C. Samaras. CEIC Working Paper 07-04. Carnegie Mellon University, 2007. Available at www.cmu.edu/electricity

³ US Department of Transportation, 2001.

⁴ M. Kintner-Meyer, K. Schneider, R. Pratt. Pacific Northwest National Laboratory, 2006.

Comparing life cycle CO₂ emissions for options to reduce oil imports for passenger transportation



Note: CCS is 80% Carbon Capture