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Greenhouse Gas Emissions From Natural Gas-Fired Electricity 50% Less Than Coal According To New Study By Washington Nonprofit ACSF

New Estimates Of Methane Leakage From Drilling and Pipelines Outweighed By Emissions Reductions At Power Plants

WASHINGTON--(BUSINESS WIRE)--A new study based on revised Environmental Protection Agency (EPA) estimates of the greenhouse gas emissions (GHG) from natural gas finds that gas-fired electricity still produces 50 percent fewer emissions than does coal-fired generation. The reduction in GHG is even greater when compared to coal-fired plants built at least 30 years ago.

The paper was written by Gregory C. Staple, CEO of American Clean Skies Foundation, and Joel N. Swisher Ph.D., director of technical services for Camco International, a carbon offset developer, and a consulting professor of engineering at Stanford University.

The study – available at cleanskies.org/ghgemissions – updates existing studies by incorporating 2011 EPA estimates of fugitive methane emissions from producing natural gas.

These new EPA estimates have triggered controversy about the extent of fugitive methane emissions from gas drilling, especially in shale gas formations. However, even assuming the EPA's new emissions estimates are correct, the Staple-Swisher study found that, using the latest Department of Energy (DOE) data on electricity generation, the fuel chain emissions from existing gas-fired power is still about 52 percent less GHG intensive on average than is existing coal-fired generation.

The new Staple-Swisher paper also corrects the misleading impression about the overall GHG footprint of gas and coal recently offered by a team of Cornell researchers led by Professor Robert Howarth. The full text of the Howarth report can be found at http://www.eeb.cornell.edu/howarth/Howarth%20et%20al%20%202011.pdf.

The Howarth team compared the *estimated* GHG footprint of shale gas versus coal based solely on the theoretical amount of energy input for power generation. This disregards the efficiency

advantage of modern gas-fired generation in terms of the *electric energy output* -- kilowatt hours. In contrast, the Staple-Swisher paper uses the most recent EPA and nationwide DOE data to calculate GHG emissions from both the production and combustion portion of the fuel chain for all natural gas-fired and coal-fired electric power. The comparison is based on GHG emissions per kilowatt hour generated and also uses conventional internationally accepted values for estimating the climate impact of various GHG emissions over 100 years. By contrast, the Cornell team looked primarily at a 20-year time horizon and used novel values for weighting the comparative climate impact of methane and other greenhouse gases, rather than the 100-year period that climate scientists and researchers regard as most accurate and useful for estimating the impact of methane and other greenhouse gases.

In sum, the new paper shows that, using the most current U.S. national inventory data and standard international assumptions on the global warming impact of various gases, as compared to coal-fired power, the large comparative GHG advantage of natural gas-fired power plants continues to outweigh the estimated methane leakage from natural gas production.

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