

# Biofuels are key to reducing carbon dioxide emissions

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By Arlin E. Gyberg | FEBRUARY 16, 2019 — 6:32AM

I have been involved in environmental concerns since I began teaching in 1967 at Augsburg University, where I taught, did research and consulted at major companies for 45 years.

We are facing a tremendous environmental challenge through the buildup of so-called greenhouse gases. We can combat this challenge in Minnesota and elsewhere, partly by continuing to develop low-carbon biofuels, including through the catalytic Mcgyan process, which uses waste fats and oils to produce biodiesel.

The metal oxide catalyst employed by the Mcgyan process was developed more than three decades ago at the University of Minnesota's chemistry department by Prof. Peter W. Carr and then conceived of for biodiesel catalysis in 2006 by a former student, Clayton McNeff, his colleagues, and me and Augsburg University chemistry student Brian Krohn. This discovery led to a research project supported by the U.S. Department of Agriculture and was then commercialized in 2009 by McNeff, who had co-founded Ever Cat Fuels, of Minnesota.

Sen. Amy Klobuchar was at the 2009 grand opening of Ever Cat's 3 million gallon per year biodiesel plant in Isanti. The company, started by a feed-supplement supplier for farmers, uses innovative technology to create biodiesel from waste that has produced tens of millions of gallons of clean-burning biodiesel and 25 production jobs.

"That's just one example of a Minnesota biofuel company that is helping strengthen our economy while decreasing our dependence on foreign oil," Klobuchar said two years ago in a statement that also mentioned Claremont's Al-Corn Clean Fuel plant, Chippewa Valley Ethanol Company in Benson, one of the first farmer-owned, ethanol-producing companies in the state, and Highwater Ethanol in Lamberton.

Across Minnesota, about 25 ethanol and biodiesel plants generate about \$5 billion in combined economic output and have made our state the fourth-largest ethanol producer, Klobuchar noted. A study by ABF Economics showed that the ethanol industry generated \$7.37 billion in gross sales in 2015 for Minnesota businesses, \$1.6 billion in income for households and supports more than 18,000 full-time jobs in the state.

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The last 400,000 years a regular cycle of the greenhouse gas carbon dioxide has occurred every 100,000 years with a peak of about 300 ppm of the greenhouse gas carbon dioxide after which the level would decrease to about 180 ppm in an ice age and increase to about 300 ppm again before decreasing again. Scientists became alarmed in the 1970s when the levels kept increasing to a level of about 320 ppm. It is now at about 385 ppm and at 400 ppm models predict major climate change.

But, the Trump administration has stepped up its support and subsidies of fossil fuels.

In December, the Star Tribune reported that three-year-old carbon-reducing agreements between countries appeared to be working as carbon dioxide had leveled off for two years. The levels are rising in the U.S. once again. Our government is relaxing and removing mandates for renewable fuels which have a net decrease in emission of toxic chemicals (unburned hydrocarbons) and carbon dioxide. Major oil companies have received increasing numbers of inexplicable "hardship waivers" from existing pollution laws.

These companies receive generous support, about \$20 billion in environmental breaks annually, according to Vox.com reporting.



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The ethanol industry years ago gave up much of its federal subsidy and it is much cleaner than oil-based product and reduced carbon dioxide and noxious emissions.

Argonne National Laboratories has determined that neat biodiesel (B100) reduces emission by 50 percent and carbon dioxide by 74 percent, and B20 by 15 percent; ethanol (E85), cuts emissions 23 percent, and cellulose-based ethanol by 69 percent.

Late last year, Rep. Kevin Brady, R-Texas, chairman of the House Ways and Means Committee, introduced legislation that would extend tax credits and provide a multiyear extension of the biodiesel and renewable diesel tax incentive. This is currently in limbo.

Some commentators have said “electrification of the transportation fleet” is the best way to cutting related pollution. This also will take decades, if ever.

We can and need to move quickly to cut pollution through cleaner motor fuels. Time is short. Immediate action is needed as carbon dioxide emission can be markedly decreased through increasing use of biofuels.

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