Fuel Facts

Protect Our Friendly Skies: Gassing Up on Tar Sands, Liquid Coal, and Oil Shale Would Sharply Increase Aviation Emissions

Production of fuels from tar sands, liquid coal and oil shale emits two to five times the global warming pollution per barrel as compared to conventional oil.

The aviation industry is likely to be directly affected by the impacts of global warming, as increased storm severity, sea-level rise, and economic upheaval change the way airlines operate. The aviation sector also has great potential to reduce emissions—and cut operating costs—by focusing on emission reduction techniques that many airlines are already implementing. In particular, the aviation industry should discourage the use of polluting sources of "dirty fuels" such as tar sands, liquid coal, and oil shale, which would sharply increase aviation emissions. The U.S. government must also play a role by ensuring that the best available technology for reducing aviation emissions becomes the regulated industry standard.

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The Aviation Industry is Critical to Reducing Global Warming Pollution

U.S. aviation already accounts for *half* of the world's aviation fuel burn, and by association, carbon dioxide emissions, according to the U.K. Royal Aeronautical Society. Despite large past gains in efficiency, aviation emissions are growing along with ever-increasing air traffic. Airlines are responsible for approximately 10 percent of transportation greenhouse gas releases in the United States, and airlines are one of the fastest-growing sources of global warming pollution.[1]

According to the Intergovernmental Panel on Climate Change (IPCC), global emissions from air traffic are growing at 3 percent to 4 percent annually, overtaking the 1 percent to 2 percent increase in efficiency gains achieved to counter high fuel costs. This makes it particularly important that the fuel used by the aviation industry does not come from heavily polluting sources of dirty fuel such as tar sands, liquid coal, and oil shale.

Tar Sands, Liquid Coal, and Oil Shale are Not the Answer for Airlines

Relying on high-carbon fuel from tar sands (an extremely heavy oil mixed with sand and clay), oil shale (rock that produces oil when heated to extreme temperatures) and liquid coal (a destructive and expensive process for making fuel from coal) would substantially increase the amount of global warming pollution associated with jet fuel.

And the aviation industry is already responsible for significant amounts of global warming pollution: Altitude may enhance the global warming impact of pollutants emitted from

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Underground *in-situ* drilling of tar sands requires major industrial facilities that mar the surrounding landscape.

the combustion of jet fuel through the formation of ozone from nitrogen oxides and contrails—the trails of water vapor and chemicals in the wake of aircraft which create more cirrus cloud cover.

Add to that the fact that airlines are already using high-carbon fuel derived from the tar sands underlying Canada's Boreal forest in the province of Alberta and the aviation "footprint"—the lifecycle emissions from production to high-altitude combustion emissions—becomes substantially larger. About 15 percent of tar sands oil is made into jet fuel. Refineries in or around Chicago, Denver, Minneapolis-St. Paul, and St. Louis are providing airports with jet fuel made partially from tar sands oil.

Tar sands extraction is fast becoming known as one of the most environmentally destructive projects in the world—for water, toxics, air, and wilderness, as well as its global warming pollution impacts. Canada projects that tar sands oil production will triple in the next decade. At the same time, liquid coal and oil shale are being developed as potential fuel sources in the United States. Liquid coal production would accelerate the mountaintop removal coal mining that is destroying the Appalachian landscape and oil shale production would devastate millions of acres of pristine public lands in the western United States. Production of these fuels generates far more greenhouse gases than production from conventional oil sources.

Join NRDC's effort to stem high-carbon fuels and reduce global warming:

NRDC's "Cool Fuels" initiative seeks to work with the aviation industry, companies with car and truck fleets, and others to develop alternatives to high-carbon fuels and solutions to global warming. Please join us today by going to **http://beyondoil.nrdc.org**.

Tar sands production threatens the Athabasca River delta in Alberta, Canada, the largest freshwater delta in the world.

Reducing Global Warming Pollution in the Aviation Industry

Recommendations for airlines and the aviation industry:

- The aviation industry should challenge the need for high-carbon fuels such as tar sands, liquid coal, and oil shale and should advocate for low-carbon fuel standards where they are being developed.
- Airlines, manufacturers, and government need to keep the focus on emissions reduction, regardless of fuel use. They should—as some are already doing—take immediate steps to improve operations such as continuous descents, reduced engine taxiing, and increased use of ground power; improve technology such as airframe design changes, winglets, better engine design and weight; and test and develop environmentally sustainable, low-carbon alternative fuels.

Recommendations for government:

- Future international agreements under the U.N. Framework Convention on Climate Change should include aviation emissions.
- The Environmental Protection Agency (EPA) should act to regulate aircraft emissions under the Clean Air Act and should work with the Federal Aviation Administration (FAA) to minimize aircraft emissions under the Next Generation Air Traffic Control System (NextGen).
- Government and industry should make best available technologies and operational measures to reduce fuel use—as many in the aviation industry are already doing voluntarily—the regulated industry standard.
- Policymakers should restore research funding to The National Aeronautics and Space Administration (NASA) and FAA. Funding should accelerate breakthroughs in and commercialization of clean and efficient aviation technology.

Reducing global warming emissions will help the aviation industry to ensure its long-term economic viability and help the industry prepare for operating in a carbon-constrained world. With the U.S. aviation industry accounting for nearly half of the industry's fuel burn, it is critical that the United States takes the lead in reducing global warming pollution and saying no to tar sands, oil shale, and liquid coal.

[1] U.S. Environmental Protection Agency Greenhouse Gas Inventory.

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