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Crowded skies impact air quality

Jet emissions get scant focus in U.S., but issue on U.N. agenda for climate talks



Tim Boyle / Newsmakers file

Chicago's O'Hare Airport is one of the busiest air travel hubs in the world.

By Jon Bonné
MSNBC

July 16 — Ron Wieteka will eagerly tell you of the moment he began his fight against the jets. The mayor of Park Ridge, Ill., was campaigning

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five years ago when he met an elderly couple. The wife was on a portable oxygen tank; the husband had cancer.

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MSNBC
Jon Bonne
MSNBC CORRESPONDENT

THEY WEREN'T smokers, and there was no apparent other cause for their illnesses — except that Park Ridge lies just three miles from O'Hare Airport, one of the busiest air travel hubs on Earth.

Their puzzling condition set Wietecka on a crusade against what he calls the “nasty soup” of chemicals that drifts out from O'Hare — nitrogen oxides, sulfur oxides and hydrocarbons from jets, along with carbon monoxide from ground vehicles.


Wietecka's crusade is a somewhat lonely task: U.S. authorities do not have hard standards for the amount of pollution jets are allowed to spew into the air. And there's no ongoing enforcement system for the standards that do exist. However, the issue is on the agenda as the United Nations' talks on global pollution resume this week in Bonn.

In the meantime, to many residents in quiet Park Ridge, pop. 37,000 and the hometown of Hillary Clinton and Harrison Ford, their bustling neighbor to the west is a major nuisance.

“In our town, you can smell jet fuel in the air,” said Wietecka, who years ago helped customers and moved jetways as an intern for TWA. “We wake up to the smell of benzene and formaldehyde-based chemicals.”

The dirty skies

WHERE PLANES POLLUTE	TYPES OF EMISSIONS
● At the gate	● Carbon dioxide (CO ₂)
● Taxiing	● Particulates
● Takeoff	● Water vapor
● Mixing zones	● Nitrogen oxides (NO _x)
● Cruising altitudes	● Sulfur dioxide (SO ₂)
● Approach and landing	● VOCs (Hydrocarbons)



Commercial jets pounds of pollutants look at where the emissions

At the gate
Engines usually shut down at the gate, but a small army of service vehicles, from baggage loaders to catering trucks, which all emit fumes and particulates, service

Sources: MSNBC Research, FAA, BTS, EPA

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There are worse pollution problems. But aircraft are responsible for 3.5 percent of all human-caused global warming, according to the Intergovernmental Panel on Climate Change. Though jets are ever more efficient, and plans are in place for a high-tech system to uncrowd the skies, a 1999 IPCC report shows aviation's impact on global warming could explode. One report scenario shows a 600 percent jump.

In fact, "the growth could be quite a bit higher," said Joyce Penner, professor of atmospheric, oceanic and space sciences at the University of Michigan and an editor of the IPCC report. "We actually had a lot of improvements built into the scenarios."

The aviation industry insists its jets have a steadily improving record of being environmentally sound, and even critics acknowledge that new engines operate more cleanly now than ever before. But the exponential boom in air travel caused emissions to more than double between 1970, when the 747 first entered commercial service, and 1995. Just considering pollution near the ground, aircraft at U.S. airports generated over 350 million pounds of pollutants in 1993, according to the National Resources Defense Council — as much as nearly 4 million cars would produce in a year.

THE HIGH COST OF TAKING OFF

Between landing and its next takeoff, a single jet at an airport like O'Hare could cause as much pollution as driving a car over 4,000 miles. Other estimates place that number as high as 12,000 miles. That doesn't include emissions at cruising altitude.

While auto emissions are expected to decrease in

But the airlines and, to a large extent, the FAA have placed most of their hopes in the next generation of air traffic control technologies, which they claim could reduce fuel consumption by 8 to 18 percent.

the next 10 years, researchers believe jet emissions will keep growing. And while U.S. regulations have cracked down on automobiles, the government has been hesitant to set hard numbers for jet emissions.

Rather than test for emissions on an ongoing basis, as most states do for automobiles, engines operate by certain emissions standards as part of their overall operation, which is tested before engines go into service.

“They really don’t have what you’d call an in-use enforcement system,” said Bryan Manning, an engineer and aviation expert with the Environmental Protection Agency. “There is no information on how these engines deteriorate over time.”

What standards exist for U.S. jets are written by the EPA and administered by the FAA, based on global standards set by the International Civil Aviation Organization (ICAO), an arm of the United Nations. Most recently, ICAO called for a 16 percent reduction in nitrogen oxides emitted by jet engines as part of a mandate to make the industry both fiscally and environmentally healthy. It may also call for trade in emissions credits and additional tariffs for heavy polluters.

“If you do not provide an aviation system that’s respectful of the environment, eventually it will suffer,” said ICAO spokesman Dennis Chagnon. “It’s how we achieve it that’s the key.”

HESITANT TO SET FIRM LIMITS

U.S. officials also support such measures, and they point to the Clean Air Act as a way to limit overall pollution, but they remain hesitant to set firm emissions limits on the aviation industry.

“While we’ve done a pretty good job regulating cars and trucks and power plants, or at least are on our way to doing that, it hasn’t been the same case for aircraft and airports — generally,” said Arthur Marin, deputy director of Northeast States for Coordinated Air Management (NESCAUM), a coalition of air quality officials.

Hopes for tougher regulation clash with many communities’ efforts to expand airports and build new runways — and 18 of the nation’s 31 large hub airports hope to build new runways.

STORY Climate talks resume in Bonn

Boston’s Logan Airport, one of the nation’s busiest, hopes to add a 5,000-foot runway to the five it already



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operates. Average wait for a takeoff at Logan in 1999 was over 18 minutes, one of the highest in the nation, and officials at Massport, the state agency that runs Logan, insist only the expansion can cut delays and meet growing demand. Massport cites FAA assessments that the new runway would actually reduce pollution by cutting jets' idle time on the ground.

EXPANSION PLANS MOVE AHEAD

But Logan is currently the fifth or sixth largest polluter in the state, according to state data cited by NESCAUM; by 2010 it is projected to be the largest. Despite opposition by local EPA officials until pollution issues could be addressed, Massport and the FAA are moving ahead with expansion plans.

Boston isn't alone in its dilemma: Studies have shown Kennedy Airport in New York to be the city's largest generator of nitrogen oxides; overseas, Heathrow Airport in London generates over half of most major pollutants in the surrounding area. Both are among the major airports seeking expansion.

If anything, U.S. officials hope to speed up the expansion process. The FAA proposed and Congress is considering legislation that would streamline the approval process for airport expansions — in particular, the lengthy environmental impact statements that communities prepare to weigh the impact of airport growth.

CRAZY QUILT OF LAWS

As for tighter standards, federal officials counter that the current set of environmental laws are a crazy quilt — and that emissions models are often inaccurate.

“No one's really taken a systematic look at how they all fit together,” said Carl Burleson, director of the FAA's office of energy and environment. “You can't really get the right solution unless you measure the problem correctly.”

Of course, airplanes are not the only cause of pollution at airports, which rank with refineries, chemical producers and power plants in emitting nitrogen oxides and VOCs. Ground vehicles also emit pollutants, which the FAA hopes to remedy with a trial program at 10 airports that encourages use of alternative fuels.

There is also noise pollution. As the airline industry is quick to point out, a major way to reduce noise is to get jets off the ground as fast as possible - which increases engine thrust and emissions.

But that comes at a price. Commercial jet engines deposit pollution in some of the most potentially

The current
generation of jets

is about 70 percent more efficient than those at the dawn of the jet era. The fleet should be 20 percent more efficient in burning fuel within the next 15 years, according to the IPCC.

sensitive areas of the atmosphere: both in “mixing zones,” crucial areas just above the ground where chemicals heavily impact ground pollution; and in its upper reaches, where exhaust builds ozone and greenhouse gases.

NASA researchers also have warned that jet contrails — those long streams of water vapor jets leave behind — are a major factor in the formation of cirrus clouds, which contribute to a warming climate.

The high-altitude emissions have less direct impact on communities, but scientists are concerned about their global impact because pollutants can be more potent in the troposphere and because ozone produced there has a greater warming impact.

It’s the pollution closer to the ground, along with the occasional unmuffled jet flyover, that keeps Wieteka up at night. To confirm residents’ suspicions, Park Ridge commissioned a report that showed O’Hare had a major impact on air quality and contributed to elevated cancer risks.

“The FAA and the airports don’t tell the communities the environmental impact,” said Jack Saporito, executive director of Citizens Aviation Watch Association and, as an O’Hare neighbor, an opponent of that airport’s expansion plans. “The environmental process doesn’t work now. Otherwise, we wouldn’t have the problems we do.”

There are a handful of potential solutions. Jet engineers are savvy about engine efficiency for economic reasons if nothing else.

20 PERCENT BETTER IN 15 YEARS

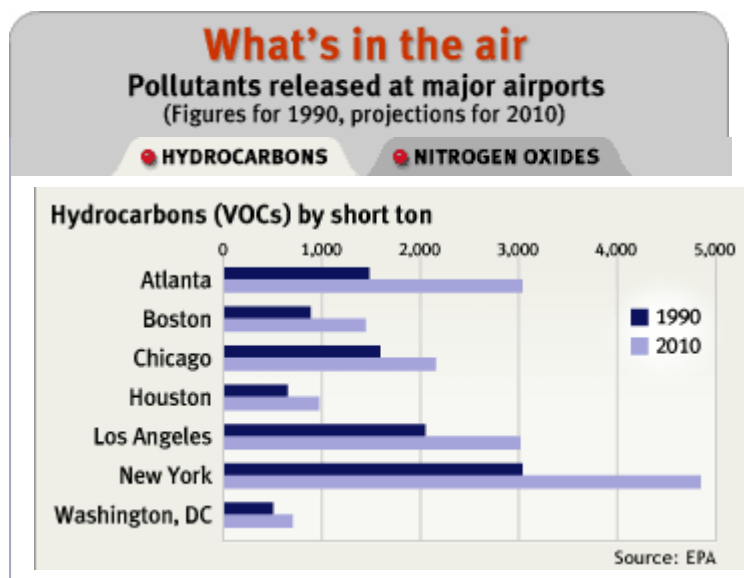
The current generation of jets is about 70 percent more efficient than those at the dawn of the jet era. The fleet should be 20 percent more efficient in burning fuel within the next 15 years, according to the IPCC.

But the airlines and, to a large extent, the FAA have placed most of their hopes in the next generation of air traffic control technologies, which they claim could reduce fuel consumption by 8 to 18 percent.

“That is the most promising win-win solution for the airlines from both an economic and environmental perspective,” said Heather Miller, assistant general counsel for the Air Transport Association.

The other option is to set hard caps on emissions. Officials remain hesitant to set firm numbers or mandate regular tests of engines.

“I think that’s one way of handling it,” Bureson said. “One of the issues is: How do we make sure we measure it right?”



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