

Aviation Emissions Report



A bi-weekly update on research, technology, and reduction strategies

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Outlook

AER'S EDITORIAL ADVISORY BOARD OFFERS PREDICTIONS FOR COMING YEAR

In this special issue of *Aviation Emissions Report*, members of the Editorial Advisory Board offer their second annual predictions on what to expect in the coming year and beyond in the area of aviation emissions reduction.

They address progress in the development of a viable aviation biofuel industry; national and international advances in addressing air quality issues arising from aircraft emissions; and action to reduce aviation emissions and operate in a sustainable manner.

Because this is a presidential election year, some Board members predict that action at the federal level will be relatively quiet in 2012 but they say watch the states, especially California – a bellweather of environmental action – where there is interest in lead, particulate, and hazardous emissions from aviation.

California attorneys Lori Ballance and Danielle Morone begin the 2012 AER Outlook below with a discussion of how it may be difficult to reconcile the goals of California's Sustainable Communities and Climate Protection Act of 2008, which has incentivized infill development along transportation corridors, with the goals of the state's Aeronautics Act, which foster compatible land use around airports.

Lori D. Ballance, Esq., and Danielle K. Morone, Esq.
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Will So-Called 'Sustainable Community' Laws Result in Airport Encroachment?

In 2008, California enacted Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008.¹ The objectives of the legislation are laudable: In an effort to reconcile future land use development patterns with transportation and transit infrastructure, and correspondingly reduce greenhouse gas (GHG) emissions from vehicle miles traveled (VMT), SB 375 requires the State's 18 metropolitan planning organizations (MPOs) to include a Sustainable Communities Strategy (SCS) within their Regional Transportation Plans (RTPs).

The SCS should, among other things, "set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the [GHG] emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the [GHG] emission reduction targets approved by" the California Air Resources

In This Issue...

Special Report ... In this annual exercise, the eight members of the Editorial Advisory Board of *Aviation Emissions Report* offer their predictions on the regulatory, technological, legal, and R&D activity in the area of aviation emissions reduction they expect to see occur in the coming year and beyond.

2012 will be a pivotal year for the aviation industry in moving to reach the aggressive emissions reduction goals it has set, Boeing's Billy Glover predicts.

A multi-year strategic environmental research plan for addressing the combined needs of airports and the FAA is now warranted, consultant Mary Vigilante asserts.

Much of the focus at the federal level this year will be on implementation of the 75 ppb ozone standard and implementation rules that will be important for airports in new nonattainment areas, attorney John Putnam says.

(Continued on p. 108)

Outlook, from p. 107

Board (CARB) for 2020 and 2035.ⁱⁱ In summary then, SB 375 strives to integrate land use, housing, and transportation planning.

Because RTPs only are updated every four years, California's MPOs are just now reaching the point in time at which they must comply with SB 375. Compliance efforts undertaken to date by MPOs, such as the Southern California Association of Governments (SCAG), demonstrate that CARB's reduction targets are generally resulting in forecasted land use development patterns that call for the increased densification and intensification of land uses along transportation and transit corridors; in other words: infill.ⁱⁱⁱ For example, SCAG is promoting development along designated "high-quality transit areas," which it defines as "a walkable transit village or corridor ... that has a minimum density of 20 dwelling units per acre and is within a ½ miles of a well-serviced transit stop with 15-minute or less service frequency during peak commute hours."^{iv} Similarly, "[o]f the 648,000 new housing units expected in 2020, 28 percent will be at a minimum 30 dwelling units per acre; and of the 1.5 million new housing units expected in 2035, 34 percent will be a minimum 30 dwelling units per acre."^v

What remains unclear is the extent to which the land use development patterns incentivized by SB 375 will result in airport encroachment. It is difficult to predict such encroachment because a Sustainable Communities Strategy does not trump a local agency's (e.g., city; county) land use authority. (That being said, it is reasonable to expect some support for rigid application and interpretation of an SCS, in order to avoid so-called "greenfield development." This is particularly the case as infill development is said – by some in California – to be the solution to many of the State's lingering environmental concerns.) Further, the scale of maps illustrating the forecasted land use development patterns often does not permit a ready analysis.

Nonetheless, SB 375 may run afoul of California's State Aeronautics Act, a critical portion of which is designed to minimize noise and safety encroachment issues through "airport land use compatibility planning" for the areas surrounding all public use and military airports in the State.^{vi} Over the coming year, and further into the future, close attention needs to be paid to how SB 375 and the State Aeronautics Act are reconciled as Regional Transportation Plans, with the SCS component, are developed, adopted and implemented. On its face, the conflict is ripe for controversy and confusion.

Further, while SB 375 is law specific to California, suffice it to say that many states look to California as a leader and an innovator in the area of global climate change. Therefore, it would not be surprising to see other states enact comparable legislation, particularly if implementation of SB 375 proves to be a success and results in the desired GHG reductions from the interface of land use and transportation.

i SB 375 is available online at http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0351-0400/sb_375_bill_20080930_chaptered.pdf.

ii See Cal. Gov. Code, §65080(b)(2)(B).

For more information on CARB's role under SB 375, including the target setting for years 2020 and 2035, please see <http://www.arb.ca.gov/cc/sb375/sb375.htm>.

Also of import, when an SCS cannot achieve CARB's reduction targets for the region, the MPO must prepare a separate Alternative Planning Strategy (APS). The APS, unlike the SCS, is not a part of the RTP.

iii SCAG's December 2011 Draft 2012-2035 RTP, including the SCS, is available online at <http://www.scagrtp.net/>.

iv SCAG, Draft 2012-2035 RTP (December 2011), pp. 112-113.

v Id. at p. 127.

vi See Cal. Pub. Util. Code, §§21670-21679.5.

Billy M. Glover
Vice President, Environment and
Aviation Policy
Boeing Commercial Airplanes

A Pivotal Year for the Industry

We're several months into 2012 and commercial aviation remains cautiously optimistic about several key pillars of its environmental strategy. This is a pivotal year for the industry, which has set aggressive emissions reduction goals and I'll once again take out my "crystal ball" and provide my best guess at where things are headed in the months ahead.

Much has been written about the benefits of air traffic modernization and certainly the U.S. House and Senate affirming votes to reauthorize the Federal Aviation Administration for the next four years is a critical step toward moving us beyond 1950's era air traffic control. While it's still unclear what, if any, impact the U.S. political elections will have, progress is being made in Europe as well, tempering optimism on both sides of the Atlantic.

We're also bullish on sustainable aviation biofuels. Last year we saw two of the world's leading aviation fuels standards bodies – ATSM International and UK Defence Standard – approve the use of bio-derived fuels in commercial jetliners using up to a 50 percent blend with traditional jet fuel. Subsequently, a number of airlines have flown biofuel-powered commercial flights with passengers all over the world. But we still have a way to go on availability, pricing and establishing regional supply chains to meet the industry's fuel needs. A key challenge is helping fuel producers see value in making the shift from "specialty batch" processing to regular production runs and from spot availability to "catalog" availability.

However, for aviation biofuels to be economically viable, we must remain focused on reducing the cost of growing,

harvesting and processing biomass. The good news is we're already working closely with the Department of Agriculture and others to create biofuels from substances that have little value and are readily available in different parts of the United States. For instance, efforts in Florida could involve waste from citrus crops, while activity in the Northwest could be based on the woody biomass from fallen timber. We also need and are seeing some progress on supportive government policies that lend themselves to biofuel commercialization efforts.

Many of these biomass species have never had strong agronomical sciences applied to them. With approximately 80 percent of the cost of biofuel tied to feedstock production, identifying additional sources that can be grown economically and shifted from lab or pilot-scale to commercial scale will help lower the overall cost of production and move bio-based fuels closer to price parity with conventional jet fuel.

There are also some exciting technology opportunities that, once approved, will allow the industry to move beyond petroleum and further diversify our biofuel options.

Although the aviation biofuel industry is in its infancy, the aim is to have 1 percent of aviation fuel come from bio-derived sources by 2015. The industry is making the right kind of progress to get there by working together and, while it's possible that not all of these goals will be met, significant progress should be evident by the end of 2012.

Dr. Lourdes Q. Maurice
Executive Director
Office of Environment and Energy
Federal Aviation Administration

What a Difference a Year Makes

What a difference a year makes! There have been major changes since I wrote my inaugural "Outlook" contribution to the *Aviation Emissions Report* last year. The Federal Aviation Administration (FAA) has a four year reauthorization. The bill contains a number of provisions addressing environment. We expect these provisions to present new opportunities and challenges in our work, but overall, we are happy to have a long-term bill in place.

After months of uncertainty, the 2011 aviation environmental budgets looked much the same in 2011 as they did in 2010. The 2012 budgets also remained largely unchanged; in fact, we saw growth in some areas. Although our crystal balls are maybe a bit clearer, we still have more questions than answers. What will happen to federal budgets? What will be the price and availability of fuel? Will we see a clear policy on aviation greenhouse gases? What will happen in the air quality front? Although the answer many of questions remains "I don't know," this year I am going to focus on

recent advances. Perhaps the past will prove to be a good predictor of the future.

We are making significant advances dealing with aircraft emissions that impact air quality. The International Civil Aviation Organization (ICAO) establishes international nitrogen oxides (NOx) emission standards for newly certified aircraft engines. The most stringent and recent version was enacted at the 8th meeting of ICAO's Committee on Aviation Environmental Protection (CAEP) in February 2010, with an effective date of 1 January 2014. An important milestone toward implementing ICAO's NOx emission standards is the establishment of a production cutoff date of 31 December 2012, after which only CAEP/6 compliant engines can be manufactured.

Advances in standards are predicated on technology advances. From my perspective, I am really pleased with the progress of the Continuous Low Energy, Emissions and Noise (CLEEN) program. With the demonstration of a low NOx combustor on a General Electric LEAP-X core, the first CLEEN goal was met — 60% reduction in Landing-and-Takeoff (LTO) NOx compared to CAEP 6 standards.

CLEEN is an FAA partnership with five aircraft and engine manufacturers focused on developing and maturing new technologies to reduce emissions, energy consumption and noise. We will see several additional CLEEN technology demonstrations in 2012 — and I expect we will see some of these technologies — including the low NOx combustor — on new aircraft.

In recent years we have learned that aircraft-related health impacts are primarily due to an incremental change in particulate matter (PM) — locally and regionally. Emissions of nitrogen oxides (NOx) contribute to PM emissions, so our efforts to reduce NOx have helped mitigate this impact. ICAO/CAEP is making progress exploring a PM standard. It will not happen overnight, but we are laying a solid foundation based on good science to inform future policy decisions.

The U.S. government continues to work closely with industry on the development of alternative jet fuels. Aircraft burn petroleum derived jet fuel or aviation gasoline. As part of President Obama's "Blueprint for a Secure Energy Future," the United States has a goal of reducing dependence on imported oil by one-third over the next decade.

To help achieve the president's goals, the FAA has set an aspirational target for use of 1 billion gallons of alternative jet fuel in the U.S. per year by 2018. This is part of our "Destination 2025" Vision. We made a substantial leap toward that vision in the summer of 2011.

On July 1, 2011, ASTM International revised the alternative fuel specification to permit alternative jet fuels made from bio-derived oils. Known as HEFA (hydroprocessed esters and fatty acids) jet fuels, they can be made from plant oils, including algae, waste greases or fats, which are then mixed with petroleum jet fuel up to a 50% blend level. The approval assures the safety and performance of the fuel and is enabling, for the first time, the commercial use of jet biofuel by airlines globally. The types of raw materials that can be

used by these approved fuels is limited so cooperative testing of additional advanced alternative jet fuels is necessary to meet aviation's needs and assure a wide range of options are available to power aviation sustainably.

From FAA's perspective, this is part of a strategic approach to approving as many commercially viable and environmentally sustainable alternative jet fuel options as possible. And we have to keep in mind, alternative aviation fuels are a win-win-win. Success will reduce air quality and climate impacts and move our nation toward energy independence.

When it comes to climate, the European Union's move to include international aviation in its Emissions Trading Scheme (EU ETS) is dominating the debate. The U.S. Government continues to object on legal and policy grounds. This is not just a U.S. versus EU issue. It is the EU versus other Countries. However, I think that once the objections are resolved, the focus will shift toward what we can accomplish together. The U.S. has set an ambitious goal of carbon neutral growth (CNG) for U.S. commercial airlines by 2020, using 2005 as a baseline. Net fuel consumption is likely to rise about 5% over 2005 levels by 2020.

Whether we can meet this ambitious goal depends on a variety of factors including the availability of new aircraft technologies and airline fleet renewals, the price of fuel, the success and timeliness of NextGen air traffic management innovation, how quickly sustainable fuels become commercially viable, and how fast the overall commercial sector grows. We have a good plan in place to make advances in technology, fuels and operations – a common focus on these positive approaches will enable the U.S., and the global community, to make real progress reducing aviation climate impacts.

Last, but not least, is the progress we have made in science. We know so much more today than we did when the landmark Report to Congress: Aviation and the Environment was published in 2005. Yes, there are still uncertainties, but we have also made progress in many fronts, including the Aviation Climate Change Research Initiative (ACCRI), an FAA funded effort, with support from other government agencies.

Our task is to address emissions, with the best knowledge available at the time. I know we will make progress, but I am comfortable with the progress we have made. I am also particularly delighted with the release of the Aviation Environmental Design Tool (AEDT) regional version. We have been on this road since 2004 – and I think the capabilities this model will bring to our industry are revolutionary.

At the end of the day, Outlook 2012 reminds me of the proverb: "The more things change, the more they stay the same." The bottom line is there won't be any fundamental changes from my 'Outlook' in 2011. Our efforts to address the complex issues associated with aviation's impact on the environment must continue if we are to ensure that our nation enjoys the economic and social benefits afforded by the aviation enterprise.

Katherine B. Preston
Director, Environmental Affairs
Airports Council International – North
America

Looking Forward to Busy, Productive Year

2012 is barely underway and yet it is already shaping up to be a vast improvement over 2011 for the aviation industry. After twenty-three extensions and an agency shutdown, Congress finally managed to reauthorize the Federal Aviation Administration (FAA) early this year, through fiscal year 2015. The bill included a number of exciting provisions for the industry that will help reduce emissions, such as expediting NextGen required navigation performance and area navigation procedures (RNP/RNAV), and several pilot projects: one to help airports to purchase zero-emissions ground service vehicles, a departure queue management pilot project, and continued alternative jet fuel research. We look forward to seeing these provisions implemented over the next few years.

In addition to these developments, the airport industry is looking forward to working with FAA on their energy efficiency and recycling task forces and collaborating with our international colleagues at ICAO on a CO2 standard and possible new noise stringency standard. Another big issue airports are facing in 2012 will be implementing FAA's clarified eligibility requirements for residential sound insulation programs.

One of the most exciting developments this year has been the inclusion of language accelerating the deployment of required navigation performance and area navigation procedures (RNP/RNAV) in the FAA Reauthorization bill. The bill requires FAA to implement RNP/RNAV at the nation's busiest 35 airports over the next three years, with mandatory milestones during that time. Flying planes more efficiently is one of the quickest ways to reduce emissions from aviation, and it is time to implement these procedures. The bill also included language to permit a streamlined environmental review process for RNP/RNAV procedures that can be shown to reduce emissions and noise, which will prevent delays associated with environmental assessments in implementing these measures.

In addition to expediting NextGen, the bill included provisions for the creation of several interesting pilot projects that will help airports further reduce their emissions. The Aircraft Departure Queue Management pilot project will be open to five airports, and will assess improved aircraft traffic management procedures and methods. The pilot project has the potential to reduce aircraft idling time at airports, therefore reducing fuel consumption and emissions. If successful these practices could be implemented at other airports in the future. The zero-emissions ground vehicle pilot project will allow airports to use grant funds to purchase zero-emissions vehicles and supporting infrastructure modifications. The bill

also directs the FAA to establish a Center of Excellence for alternative jet-fuel research and a Center of Excellence for coal-to-jet fuel research. Biofuels hold great potential to achieve significant aviation emissions reductions in the future so it is critical that industry, academia and government continue to work together to advance the research and development of aviation biofuels.

ACI-NA member airports are also pleased to participate in FAA's energy efficiency and recycling task forces (managed by the Office of Airports, Planning and Environmental Division). The goal of these two groups is to gather, organize and disseminate data on best management practices and to develop informal guidance for airports interested in implementing more effective energy and recycling management tools. These two task forces kicked off early this year and hope to have a work product completed by the end of 2012.

Although not emissions-related, one significant development ACI-NA expects this year is the release of FAA's clarified eligibility requirements for residential sound insulation programs (RSIP) in communities surrounding airports. Airports have a number of noise abatement tools they employ to reduce noise in neighboring communities, and one of the most frequently used and successful is the RSIP. There has been significant confusion within the airport industry on how to apply the existing eligibility guidelines, and as a result the FAA began an effort last year to clarify guidance for airport operators on which homes are eligible for sound insulation provided for by AIP funding. The guidance may affect how airports conduct these programs in the future.

On the international front, 2012 will be a busy year as ICAO member countries and industry gear up for the next CAEP cycle (CAEP/9). In response to the need for a global approach to addressing emissions from aviation, CAEP is working to develop a global CO₂ standard for aircraft, to be finalized at the next CAEP meeting in February of 2013. The standard is being developed with the support of airlines, airports, airframe and engine manufacturers, governments and other industry groups to approach the issue in a global, harmonized way. In addition to a possible CO₂ standard, ACI is working with our regional partners to explore options for a new noise stringency standard in the upcoming CAEP round, which would apply to newly certificated aircraft going forward.

Another important consideration as we review the upcoming issues and projects for 2012 is the election season this fall. It remains to be seen what effect the elections will have on aviation and airport policy, but it safe to assume a light agenda from Congress during the second half of the year. With so much going on in our industry, ACI-NA looks forward to a rather busy but productive year ahead!

John E. Putnam, Esq. Kaplan Kirsch & Rockwell, LLP

Focus on Implementation of Ozone Standard

Last year, aviation and other industries awaited a tighter ambient ozone standard that EPA proposed in 2010. EPA had proposed to strengthen President Bush's 2008 eight-hour ozone standard of 75 parts per billion (ppb) to a level within the range of 60-70 ppb. EPA's proposal would have significantly increased the number of nonattainment areas and the difficulty of complying with the conformity rules. Last summer, though, President Obama deferred promulgation of the proposed ozone standards. With this decision and the upcoming elections, 2012 will be a relatively quiet year for aviation air quality, at least on a federal level.

Much of the focus at a federal level this year will be on the EPA, state and local implementation of the 75 ppb ozone standard, including the designation of (fewer) nonattainment areas for the 75 ppb standard and implementation rules for it. These implementation rules will be important for airports in new nonattainment areas, potentially affecting their ability to rely on emissions budgets developed in prior State Implementation Plans ("SIPs") and how states will develop new SIPs based on the new standard.

The relatively quiet year ahead will still see movement towards potentially challenging standards in 2013 and beyond. EPA will need to work on new standards for ozone and particulate matter, with new studies and EPA panels suggesting the need for tighter standards. Tighter ambient air quality standards will lead to more airports in nonattainment areas and facing tougher challenges to meet conformity and other requirements. Further, EPA will continue to consider what to do with leaded aviation gasoline and aircraft emissions of greenhouse gases.

Much of the action this year will occur on the state level. In California, especially, there has been continued interest in lead, particulate, and hazardous emissions from aviation. Local groups and state legislators have focused on a few studies to suggest the need for measures to reduce exposures to lead, fine particulates and other hazardous air pollutants. For example, California State Senator Ted Lieu has requested that the California Department of Toxic Substance Control formally investigate the health of residents living adjacent to the Santa Monica Airport who the Senator believes ingest higher levels of lead and fine particulate matter from aircraft.

State law has also provided opportunities for creative legal approaches based on air pollutants. For example, under the California Safe Drinking Water & Toxic Enforcement Act ("Prop 65"), private parties may seek civil penalties and injunctive relief for, among other things, failure to provide warnings to those exposed to hazardous chemicals. Last year, an advocacy group initiated action against many California FBOs, fuel distributors, and fuel producers based on lead emissions from aviation gasoline. The group is seeking crip-

pling civil penalties and a ban on avgas sales until adequate warnings are provided to residents. The case raises important questions about the scope of federal preemption of local rules affecting aviation emissions. Expect further developments in this case this year.

Jawad Rachami
Director of Operations
Wyle Laboratories, Inc.

***Security = Energy = Environment:
 A Silver Lining for Air Resources by Way of
 Energy Efficiency and National Security***

The collective advance towards environmental sustainability has undoubtedly suffered notable setbacks in recent years following contentious debates in Washington and beyond about the wisdom of federal investments in scientific research and policy development at a time of economic distress. The debate fueled by widespread anxiety about economic security and budget sustainability has also, unfortunately, given way to unhelpful, and often unfounded, criticisms of climate science and environmental controls. The result, according to the Pew Research Center, has been a marked decline since 2006 in the number of Americans who view climate change as a serious problem¹.

To be sure, it is difficult to cite progress and achievement in environmental and climate sustainability against a backdrop of economic hardship, global instability, and public distrust. However, important work in this area has continued and the scientific community persists – despite constrained resources – in enhancing understanding of air quality and climate effects from various sources, including aviation emissions. As a result of recent research, we undoubtedly understand aircraft emissions better than before. Yet, more research is needed to address knowledge gaps in various areas including in the understanding of aircraft emissions in the higher levels of the troposphere and the stratosphere.

While much is yet to be done and many are discouraged by the lack of progress in environmental sustainability, an often-overlooked positive development is the increased interest by the U.S. Department of Defense (DOD) in Green energy. The U.S. military is becoming keenly aware of the linkages between national security, energy supply, and environmental sustainability. A retired General recently explained, at a U.S. Army NetZero energy meeting, that dependence on fossil fuels creates significant risks for the U.S. security mission, whether in terms of operational impacts associated with the transfer of fuel shipments into the battlefield or the cost burdens incurred in the maintenance of existing facilities and air installations. In short, Security = Energy = Environment.

In his last State of the Union Speech, President Obama made a reference to ongoing DOD initiatives in this area. The

ability of the Department of Defense to invest in the development of clean energy technologies and accelerate their introduction into the operational environment could become one of the biggest contributions by the U.S. government to the stated goal of reducing Greenhouse Gas emissions and local air quality impacts.

The technological breakthroughs and process innovations that may result from active DOD programs in Green energy can find their way into wide commercial applications as has been the case in the past with game-changers in information technology. Energy efficiency now makes sense from a national security standpoint – a rationale that is actively reinforced by returning war veterans – but, the benefit to the environmental community is the potential for a marked and systematic reduction in air emissions from the biggest energy and aviation user in the United States.

In the months to come, the landscape for budget planning and public discourse on the environment will most likely remain unchanged. Elections have consequences and the upcoming one is no different. However, there are reasons for being optimistic, even in the short term. That is because there is a tremendous opportunity to achieve meaningful emission reductions through DOD Green energy programs – with a clear link to national security – and also because the conditions shaping public attitudes towards the environment are likely to improve, albeit slowly, as the economic recovery gathers strength in the months and years to come².

¹ The full Pew research Center report can be found at <http://www.people-press.org/2011/12/01>

² The Pew report shows a modest improvement in public attitudes about climate change recently—possibly indicating a reversal in the declines registered since 2006.

Mary L. Vigilante
President
Synergy Consultants, Inc.

Optimism Abounds

Another year has passed and looking back, 2011 was not particularly remarkable in the area of emissions. Yet progress continues to be made. Financial issues (national and airport) will likely remain center stage in the near-term, but important emissions issues for 2012 and beyond include: adapting to climate change, implementing alternative energy options, applying sustainability practices, and developing an industry environmental strategic plan.

Due to the U.S. political fever, climate change is sadly not a priority of the U.S. Congress. No changes in that position are expected in this highly polarized election year. As a result, emphasis has shifted in many locations to climate change adaptation planning both at the state/regional and airport levels. Due in large part to the activities of the TRB's AV030 Committee Impacts of Aviation on the Environment, airports are now sharing their thoughts and activities on climate change adaptation and beginning the process of identifying how airports should embrace adaptation into their activities. Separately, individual airports have been sharing their irregular operations contingency plans (IROPS). Such plans are likely to morph into future airport climate adaptation plans, as more frequent erratic, climate change-related weather occurs.

Tremendous progress has been made in certifying and operating alternative aircraft fuels which could give airlines price stability and reduce our dependence on foreign supplies. Scaling up individual initiatives into full scale commercial application remains a key question, but also a huge opportunity. The great news is that industry publications are riddled with examples of the airline and airport actions to satisfy industry's need for alternative fuels. With increasing cost of fuel, coupled with hopes that the financial situations stabilize and credit constraints relax, alternative fuels are expected to significantly penetrate aviation markets in upcoming years.

Sustainability continues at the forefront of activities at an increasing number of airports. In 2011, FAA initiated a pilot program for 10 airports to prepare sustainable master plans or sustainability management plans (SMPs). FAA will fund additional sustainability studies in 2012. Great lessons are being learned from these projects, pointing to other opportunities for sustainability. These sustainability initiatives are achieving their goals of saving money, reducing environmental effects, and improving the relationship of the airports to the surrounding communities. Airport case studies are needed to make this information, particularly the cost savings, much more visible so that sustainability does not become last year's fad.

Over the last decade, the FAA's Office of Environment and Energy has done a fantastic job of mobilizing needed

research targeted at the government's aviation environmental agenda. The Airport Cooperative Research Program (ACRP) that has and continues to pursue and produce extremely valuable research and guidance for airport operators. These two efforts have made valuable strides. However, a multi-year strategic environmental plan for addressing the combined airport and FAA needs is now warranted. With continued strained resources, an opportunity exists to prepare a unified and transparent industry environmental strategic plan. Such a strategic plan would acknowledge the roles of the various efforts, optimize use of limited resources, and give some context to actions needed to ensure that industry has what it needs, when it is needed.

As noted last year, I believe that emissions will remain an issue that requires careful attention for years to come, but with widespread opportunities. Many initiatives have come to fruition in the last few years; we can point to real action on many fronts where industry can take credit for the success. But there is more to be done.

Nancy N. Young, Esq.
Vice President, Environmental Affairs
Airlines for America

*Aviation in 2012 – An Ever-Greener Engine
of the Global Economy*

On June 20, 2012, hundreds of countries and over 40,000 delegates are expected to gather in Rio de Janeiro for the "Rio+20" conference marking the twentieth anniversary of the 1992 "Earth Summit," widely regarded as a foundational pillar of sustainable development principles. Rio+20 is expected to build on those principles, highlighting best practices for greener economies. While by no means intended to focus on commercial aviation, this sector should get positive notice as a high-scorer in terms of its leading role in sustainable development.

What the original Rio Summit and other fountains of sustainability doctrine established was that sustainability is a balancing and advancing of economic good, social good and environmental good. Commercial aviation does just that, as an ever-greener engine of the economy.

Here is where we are in 2012, with particular focus on emissions issues.

Commercial aviation helps drive more than \$1 trillion in U.S. economic activity and more than 10 million U.S. jobs. We bring people together, transport critical goods and provide humanitarian services. While there is an environmental impact in what we do, we have worked hard to keep that impact small and are committed to making it smaller still.

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The facts: commercial aviation accounts for only 2 percent of the nation's man-made carbon dioxide (CO₂). U.S. airlines emitted 10 percent less CO₂ in 2010 than they did a decade before, despite moving 15 percent more passengers and cargo. The worldwide aviation industry is on track to meet its commitment for a 1.5 percent annual average fuel efficiency improvement through 2020, as a foundation for our goal of achieving carbon neutral growth from 2020.

Although the aviation industry is taking the laboring oar, we have asked for governments to work with us to complement our efforts. Approval of the long-awaited FAA Modernization and Reform Act this month should help, in particular by ensuring continuation of FAA's Continuous Lower Energy, Emissions and Noise (CLEEN) program and supporting air traffic management improvements (under the NextGen program) to enhance efficiency. Public-private partnerships like the Commercial Aviation Alternative Fuels Initiative (CAAIFI), the Farm to Fly program and others are helping turn sustainable alternative aviation fuels into reality. New versions of narrow-body aircraft have just been announced, joining their wide-body cousins in bringing double-digit fuel efficiency improvements and commensurate emissions savings. And so on.

Placing commercial aviation's economic, social and environmental contributions and commitments together, it is not difficult to see that we bring good "bang" for our carbon "buck." Despite this, and aviation's high score in sustainable development, the European Union is persisting in imposing its unilateral and punitive Emissions Trading Scheme on the world's airlines, with the tax obligation applying as of January 1. But the fight previously initiated by the airlines now is being led by governments, with countries vowing in a February 22, 2012 declaration out of Moscow to see the scheme overturned and calling for implementation of a global emissions framework under the International Civil Aviation Organization (ICAO).

So let's get on with it, so aviation can continue as a critical driver of a truly sustainable global society.

Stories reported in AER do not necessarily reflect the views of all Editorial Advisory Board members.

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