TESTIMONY

Aviation Fuels: Needs, Challenges and Alternatives

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before the
Subcommittee on Aviation
of the
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AIR TRANSPORT ASSOCIATION

Introduction

As jet-fuel touches virtually every aspect of the commercial aviation business, policies affecting jet-fuel are a core concern for the U.S. airline industry. Recognizing that commercial aviation is an essential driver of the U.S. economy, those policies also should be a core concern for our nation's policymakers. The Air Transport Association of America (ATA) applauds the Subcommittee for holding this hearing today.

The steady rise of jet-fuel prices in the last decade and unprecedented price volatility in more recent years have had a tremendous negative impact, not only on the U.S. airlines and their employees, but also on the customers and communities they serve throughout the nation. Congressional action to enhance the level and reliability of fuel supplies and the integrity of aviation fuel markets will help meet those challenges.

Alternative-fuels hold the promise of new, homegrown sources of transportation energy. For the nation, a vibrant alternative-fuels industry would mean more jobs, greater national security and cleaner air. For our industry, a reliable new supply of alternative jet-fuels would help moderate the level and volatility of fuel prices and offer the prospect of further reducing our environmental impact. Our armed forces, with whom ATA is strategically allied in the development and deployment of alternative aviation fuels, would derive similar benefits, further enhancing national security. Everyone wins – except the purveyors of foreign oil.

ATA is working to support development and accelerated commercial deployment of "drop-in" alternatives (fuels that can be used without changing infrastructure) that are safe and deliver environmental, economic and operational benefits, such as supply reliability. We co-founded and co-lead the Commercial Aviation Alternative-fuels Initiative® (CAAFI), a diverse coalition of leading aviation stakeholders dedicated to facilitating alternative aviation fuels. We also are working closely with government agencies, for example, in the *Farm to Fly* initiative, to bring available tools to bear to support aviation biofuels. And our member airlines have executed several pre-purchase agreements for alternative jet-fuel that is soon to be produced.

We have made huge strides, but obstacles remain. Government has a key role to play in helping us overcome them. In terms of general policy matters, it is essential that the government adopt energy policies that increase U.S. energy security, reduce greenhouse gas (GHG) and other emissions, and result in more predictable and stable energy supply and prices. In terms of measures directly relevant to development of alternative-fuels, aviation should be considered a top priority. The aviation industry and would-be alternative jet-fuel suppliers are on the cusp of creating a viable alternative jet-fuel industry. But government support is needed in the near team to provide financial bridging and other tools necessary to

help us get over the cusp. We are providing detailed recommendations for how the U.S. government can – quite literally – help us get the alternative aviation fuels industry off the ground and ensure a future where clean, homegrown jet-fuel is available in significant quantities.

Context for Consideration of Policies to Advance Aviation Fuels

Airlines Are Vital to the American Economy

Commercial aviation is a cornerstone of the economy, driving more than 5 percent of U.S. Gross Domestic Product (GDP). Airlines are at the heart of this, ultimately being responsible for nearly 11 million U.S. jobs and some $370 billion in personal earnings. According to the most recent Federal Aviation Administration (FAA) analysis, every 100 airline jobs help support some 388 jobs outside of the airline industry. In 2010, airlines enplaned 720 million passengers and 18 million tons of cargo on more than 10 million flights. In the same year, U.S. exports by air topped $392 billion and accounted for 31 percent of exports by value.

Commercial aviation also is a key driver of innovation and efficiency. As stated by FAA, "the air transport network contributes added efficiency, technological advancement and versatility that enhance the overall quality of life for U.S. residents and the world as a whole."[1] This not only enhances economic productivity but also enables significant environmental benefits; for example, allowing the production of more goods with fewer warehouses and factories. In turn, this means fewer GHG emissions associated with building and maintaining infrastructure.

Fuel Touches Virtually Every Aspect of Commercial Aviation

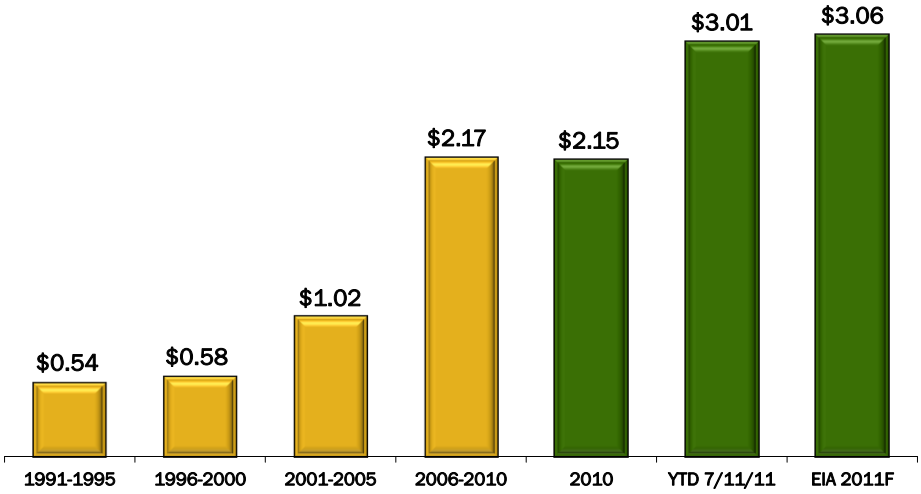
No matter what issue or challenge we face, airlines never lose sight of their core mission: safety. Our fuels must meet rigorous specifications that ensure safe operation, whether in the icy cold at 30,000 feet or while filling tanks on the ground at airports crowded with activity.

From a purely business perspective, fuel also plays a critical role. Every penny per gallon costs the industry some $175 million annually, depending on levels of flight activity. The average price of jet-fuel paid by U.S. airlines rose from an average of $0.82 per gallon in 2000 to $2.24 per gallon in 2010. The impact of that dramatic increase is reflected in the fact that although U.S. airlines consumed 3.1 billion ***fewer*** gallons in 2010 than they did in 2000, they nonetheless spent a staggering $22 billion ***more*** for fuel. Now, in 2011, the U.S. Energy Information Administration (EIA) is projecting Gulf Coast jet-fuel prices to average $3.06 per gallon (or $128.52 per barrel) for all of 2011, leading ATA to project industry fuel expenditures of $53 billion this year. See Figure 1.

[1] FAA, *The Impact of Civil Aviation on the U.S. Economy* (December 2009) at pp. 6-7.

Figure 1. Airline Energy Costs Are High and Poised to Rise

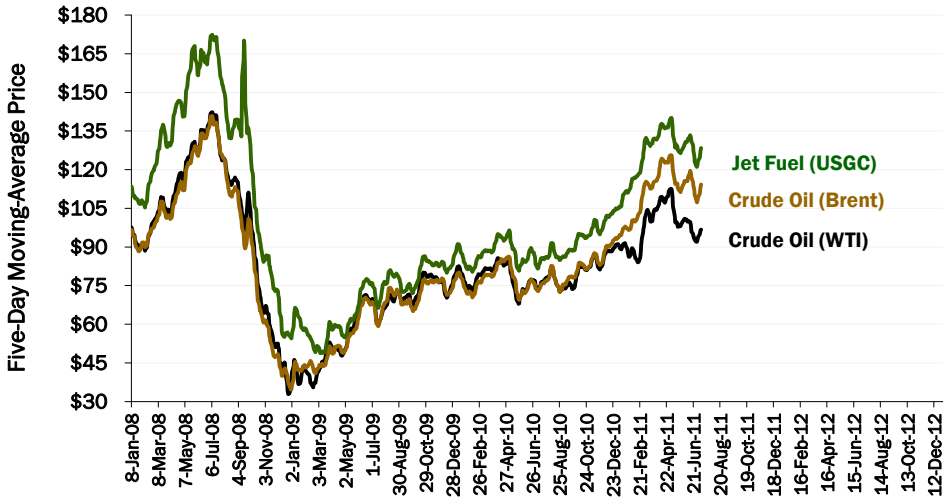
$3.00/Gallon Jet Fuel Would Raise U.S. Airlines' 2011 Fuel Bill by ~ $15 Billion



Price level, however, is not the only concern. Especially in recent years, supply disruptions, demand shocks, petroleum futures speculation and other factors have culminated in unprecedented jet-fuel price volatility. See Figure 2. A look at recent Gulf Coast prices illustrates the point: From January 2008 through June 2011, monthly average jet-fuel prices ranged from a high of $3.89 per gallon (in July 2008) to a low of $1.26 per gallon (in February 2009) – a span of $2.63 per gallon or 209 percent over just seven months. On an annualized basis, this difference translates to $46 billion in airline-industry fuel expenditures, rendering business planning extraordinarily difficult, especially for such a capital-intensive operation. And EIA reported an average price of $3.14 for the week ending July 15, 2011, the most recent period for which data is available. Among other consequences, the general trend of rapidly rising prices coupled with large, unpredictable price swings has made it increasingly challenging to maintain adequate profitability on a wide number of the routes served by U.S. airlines, resulting in significant scale-backs in seating capacity for many communities and associated job cuts. In the first quarter of 2011, at 33 percent of operating expenses, fuel constituted the industry's top cost; it is estimated to have risen further in the second quarter, although several airlines have yet to report results for that period.

Figure 2. Jet Fuel Volatile Again in 2011

Surpassed $140/bbl on Rising Crude *and* Refining Crack Spread*



Source: ATA and EIA (for WTI and Brent crude oil and U.S. Gulf Coast jet fuel)

* Refining margin (difference between jet-fuel and crude-oil price)

Fuel also is central to managing our environmental impact. As detailed below, airlines have a superb environmental record, particularly in reducing carbon dioxide (CO_2) emissions. This performance is closely linked to the financial incentive airlines have to minimize fuel consumption: Lower fuel consumption has the dual benefit of lower costs and lower emissions. The public has benefitted from the airlines' relentless efforts to reduce costs and emissions in the deregulated environment, as data compiled by the Department of Transportation show that the average round-trip domestic fare, adjusted for U.S. inflation, was 43 percent lower in 1979 than in 2010 (from $559 to $316 in 2010 dollars).[2] Simply put – airlines deliver tremendous economic and environmental bang for the customer's buck.

Commercial Aviation Has a Superb Environmental Record

Our environmental record is particularly strong with respect to the impact most closely related to combustion of jet-fuel: emissions. For example, the latest EPA GHG inventory shows that commercial aviation's domestic GHG emissions declined 18 percent from 1990 to 2009, even though we transport far more cargo and passengers today. Bureau of Transportation Statistics data show that on a systemwide basis, U.S. passenger and cargo airlines carried 14 percent more passengers and cargo in 2009 than in 2000 while reducing fuel burn and emissions by 7.3 percent. Similarly, fuel efficiency (measured by revenue ton miles per gallon) has more than doubled since 1978; stated differently, for every mile flown, today we carry more than twice as many passengers and cargo per gallon than we did in 1978. And EPA

[2]ATA analysis of data compiled by the U.S. Department of Transportation in the Origin-Destination Survey, more commonly known as Data Bank 1A

GHG inventory shows that commercial aviation's share of GHG emissions in the United States is only two percent of the nation's GHG emissions today.

The U.S. airlines have accomplished this tremendous record by investing billions in new equipment, infrastructure and technology to maximize fuel efficiency. This includes purchasing advanced airframes and engines and updating existing equipment with fuel-saving enhancements like winglets, better fanblades and advanced avionics. We also seek to maximize efficiency of operations in the air by taking advantage of new procedures like continuous descent approach (CDA), required navigation performance procedures (RNAV) and reduced vertical separation minima (RVSM). Other measures maximize fuel efficiency while on the ground, like taxiing on one engine where operationally feasible and utilizing electric gate power instead of our planes' auxiliary power units (APUs) while parked at the gate. Measures as banal as reducing aircraft weight by eliminating unneeded magazines and replacing catering carts with new light-weight carts or washing fan blades more often also can result in small but cumulatively significant fuels savings.

It bears emphasis that implementation of some of these measures are not fully within the control of airlines, but require government action. For example, fuel-saving procedures must be approved by FAA, and broad access to these procedures will depend on full and cost-effective implementation of NextGen, which encompasses the suite of technologies and initiatives required to transform today's antiquated ground-based air traffic navigation and surveillance system into a state-of-the-art satellite-based system. Utilizing this system, FAA and the airlines will be able to route flights more efficiently, precisely and directly, leading to lower fuel consumption and emissions while increasing safety by enhancing situational awareness for pilots and controllers.

And the industry is not stopping with these measures. ATA and its members are part of a worldwide aviation coalition that has put a strong proposal on the table for further addressing aviation CO_2 under the International Civil Aviation Organization (ICAO), the United Nations body charged by treaty with setting standards and recommended practices for international aviation. Our focus is on getting further fuel efficiency and emissions savings through new aircraft technology, sustainable alternative aviation fuels and improvements to air traffic management and infrastructure.

Under our proposal, all airline emissions would be subject to collective emissions targets requiring industry and governments to do their part. The emissions targets include collective industry commitments to:

- Continue the industry's fuel (and, hence, CO_2) efficiency improvements, resulting in an average annual CO_2 efficiency improvement of 1.5 percent per year on a revenue ton mile (RTM) basis through 2020;
- Cap industrywide CO_2 emissions from 2020 (carbon-neutral growth) subject to critical aviation infrastructure and technology advances achieved by the industry and government; and
- Contribute to an industrywide goal of reducing CO_2 emissions by 50 percent by 2050, relative to 2005 levels.

Significantly, at its 2010 Assembly, ICAO adopted much of the industry's framework. While more work is needed to flesh out this framework, the global aviation industry is moving forward with its emissions-savings initiatives.

Airlines Are Uniquely Positioned to Benefit from and to Facilitate the Emergence of Alternative Fuels

While other sectors and modes of transportation can be powered via a variety of energy sources, including electricity, nuclear, solar, hydrogen and wind, to name a few, airlines will be flying aircraft and engines requiring liquid, high energy-density fuels for the foreseeable future. There simply is no realistic prospect for the next several decades that commercial aircraft will be powered by batteries, solar cells, fuel cells, hydrogen or other alternatives. This is primarily a function of the reality that the useful life of aircraft and aircraft engines is very long, and that the pipeline for development of new aeronautics technologies is even longer. As a result, airlines will be flying aircraft designed to operate on fuels that meet the performance characteristics of traditional petroleum-derived jet-fuel for decades to come. Consequently, while other modes and sectors may benefit from the emergence of other energy and fuel alternatives, commercial aviation can benefit only if it has access to significant supplies of liquid alternative-fuels that meet the rigorous safety and performance criteria required of current petroleum-based fuels.

Commercial aviation, however, also offers unique benefits to prospective fuels producers. First, fuel demand is highly concentrated. The 40 largest airports account for an estimated 90 percent of all jet-fuel U.S. demand while the top 10 airports account for about half of demand. The country's largest airports – Los Angeles (LAX), New York-Kennedy (JFK), Chicago O'Hare (ORD) and Atlanta (ATL) – each demand more than one billion gallons of jet-fuel annually. Demand from Air Force bases and Navy installations is also highly concentrated. Thus, airports essentially compose a network of markets that alone could support all the output from alternative-fuels production facilities. In addition, with high-demand nodes across the country, the aviation industry can support production from the full gamut of potential producers, who will rely on different feedstocks, depending on where they intend to operate.

Alternative Jet-fuels Offer a Rare Opportunity

Development of alternative jet-fuels offers a rare opportunity to meet disparate but beneficial objectives. A vibrant alternative jet-fuels industry would create American jobs and spur economic development in areas most hit by the recession. Rural America would benefit greatly from access to new markets for new agricultural biomass crops while industrial areas would be revitalized through construction of new or revitalization of mothballed refinery operations. At the same time, a stable, domestic supply of alternative jet-fuel would improve our nation's security by reducing our dependence on foreign oil and improve national economic security by improving our trade balance. In turn, stable, homegrown production of alternative jet-fuels will introduce competition to petroleum-based jet-fuels and a moderating force on price levels and volatility. This would be a very welcome change for airlines that have struggled to manage their businesses as prices driving their number-one cost center have steadily risen and fluctuated sharply in recent years. Undoubtedly, the conditions necessary to foster a financially healthy, vibrant and growing commercial aviation sector – so vital to the overall health and vitality of U.S. commerce – would improve, further benefiting the broader economy as airline-driven growth is known to generate numerous jobs beyond the aviation sector.

Sustainable alternative-fuels also will allow our industry to grow while reducing its emissions of GHGs and emissions with local air-quality impacts. Such fuels also could be used in our ground support equipment (GSE), removing costs associated with management of separate fuels and further reducing emissions.

The U.S. military, which has been a very active ATA partner in the pursuit of jet-fuel alternatives, shares many of these same interests. To formalize this working relationship, on March 19, 2010, ATA and the Defense Logistics Agency's Defense Energy Support Center (now known as DLA Energy) signed a "Strategic Alliance for Alternative Aviation Fuels."[3] Like airlines, jet-fuel represents a significant share of costs to the U.S. military, particularly the U.S. Air Force. Rising and volatile prices wreak havoc on military budgets and present significant challenges for military planners, especially as combat logistics become increasingly complex and supply lines extend over often mountainous or desert terrain. At the same time, GHG emissions from military jet operations represent a large portion of the federal government's carbon footprint. Access to stable, domestically produced supplies of low-carbon alternative-fuels would allow the armed services to address all of these concerns in the same manner it would enable commercial aviation to address the parallel concerns as discussed above.

[3] http://airlines.org/News/Releases/Pages/news_3-19-10.aspx

The opportunities presented by the prospect of viable alternative jet-fuel are reflected in the four specific requirements we set out as conditions for use:[4]

1. **Safety/Fuel Quality:** To ensure safety, commercial jet-fuel must meet precise technical and operational specifications, and jet engines are designed to work with jet-fuel having these specific characteristics. The fuel must meet regulatory and standards-making organization specifications including, but not limited to, ASTM D1655 and others referenced and required by the FAA.

2. **Environmental Benefit:** We seek alternative-fuels that will meet accepted criteria to be more environmentally friendly than traditional jet-fuel, in particular resulting in a reduced emissions profile on a life-cycle basis, without compromising critical uses of relevant feedstocks.

3. **Supply Reliability:** Alternative jet-fuels must be "drop in" fuels, meaning they must satisfy technical and functional criteria that make them fungible with traditional, petroleum-based jet-fuel and allow them to be commingled within the existing national fuel transport, storage and logistics infrastructure, as well as within individual airport and airline systems.

4. **Economic Feasibility:** Alternative jet-fuels must be economically feasible from the perspectives of both suppliers and purchasers.

Airlines Have Been Working Diligently to Support Development of Alternative-fuels

ATA and its member airlines are committed to finding safe, environmentally preferred, operationally reliable and economically feasible alternatives to conventional petroleum-based jet-fuel. This is no easy task. Realizing the deployment of significant quantities of viable alternative jet-fuel will require overcoming significant technical and financial hurdles. To meet this challenge, we are proactively addressing the commercial, environmental and safety issues associated with developing and commercializing promising technologies that can meet our needs.

Five years ago, together with the Federal Aviation Administration (FAA), Airports Council International – North America (ACI-NA) and the Aerospace Industries Association (AIA), we founded CAAFI, a coalition that brings together leaders in the aviation community (including airlines, airframe and engine manufacturers and airports), alternative-fuels providers, universities and government stakeholders to exchange information and work to make alternative aviation fuels a reality.

ATA also has directly engaged government stakeholders. Specific engagement with the U.S. military includes the aforementioned alliance with DLA Energy. On March 30, 2011, in a bellwether speech on America's energy security, President Obama recognized the role of precisely this type of partnership by issuing the following directive:

> . . . our Air Force used an advanced biofuel blend to fly an F-22 Raptor faster than the speed of sound. In fact, the Air Force is aiming to get half of its domestic jet-fuel from

[4] http://airlines.org/Energy/AlternativeFuels/Pages/CommercialAviationAlternativeFuelsTheATACommitment.aspx

> alternative sources by 2016. And I'm directing the Navy and the Departments of Energy and Agriculture to work with the private sector to create advanced biofuels that can power not just fighter jets, but trucks and commercial airliners.[5]

ATA also has joined Boeing and USDA in putting together and leading the *Farm to Fly* initiative[6] aimed at advancing a comprehensive sustainable aviation biofuels rural development plan. To achieve this, we have engaged the U.S. agencies with authority to spur development of aviation biofuels (including USDA, DOE, DOT, FAA and DOD) and academia to ensure that federal programs are aligned and modified to recognize and enhance the eligibility of feedstocks, conversion technologies and supply chains most conducive to the production of aviation biofuel.

The *Sustainable Aviation Fuels Northwest (SAFN)* initiative,[7] led in part by ATA member Alaska Airlines, together with the Port of Seattle, Port of Portland, Spokane International Airport, Boeing and Washington State University, is another example of a coalition effort in which we have been engaged to enable sustainable alternative aviation fuels. More than 40 organizations representing a broad range of stakeholders participated, including aviation, biofuels producers, environmental NGOs, agriculture, forestry, federal and state government agencies, and academic institutions. This effort culminated in a report that detailed opportunities for and measures needed to foster the development and deployment of alternative jet-fuels derived from sustainable biomass grown in the northwestern United States.

An extremely important step in alternative aviation fuel development is fuel certification. Accordingly, ATA and other stakeholders such as FAA have made great strides in this area. Before the fuel can be approved for commercial use, it must meet rigorous safety and performance standards set out in the applicable specification, which is controlled by ASTM International, an organization devoted to the development and management of standards for a wide range of industrial products and processes. This specification, in turn, is included in FAA product approvals and required air-carrier manuals. The process for securing new specifications for alternative-fuels is exacting. Supporting test data is referred to ASTM Subcommittee D02J to review and the sponsors of the new fuel write a new specification for that fuel. The specification and required research reports are then reviewed and voted upon by the technical experts. The specification allowing use of Fischer-Tropsch (FT) in blends of up to 50 percent with traditional jet-fuels was approved in September 2009[8] and the specification for hydroprocessed esters and fatty

[5] http://www.whitehouse.gov/the-press-office/2011/03/30/remarks-president-americas-energy-security

[6] http://airlines.org/News/Releases/Pages/News_07-21-10.aspx

[7] http://www.safnw.com/

[8] http://www.astmnewsroom.org/default.aspx?pageid=1895

acids (HEFA) jet-fuels (again in up to 50/50 blends) was formally approved just a few weeks ago, on July 1.[9] FT is a chemical process that can convert a variety of feedstocks (including fossil-fuel sources like coal and natural gas, as well as biomass) in liquid fuels. HEFA fuels can come from many regionally grown and processed sustainable feedstocks. Both types of fuels can offer significant GHG reductions relative to conventional jet-fuel. The successful conclusion of the specification approval process for these two fuels has paved the way for additional fuels to be examined and approved in the future.

ATA also is working to confirm agreed-upon methodologies for determining the emissions profile of alternative-fuels. This can be extremely complicated, requiring close analysis of the emissions associated with each link in the "life cycle" of a fuel, including production of the feedstock, transportation of the feedstock, processing and refining, and transportation of the final product. Significant work has been done in this area, including by agencies implementing alternative-fuels programs like EPA (which evaluates fuels in implementation of the Renewable Fuels Standard established under the *Energy Policy Act of 2005* and expanded under the *Energy Independence and Security Act (EISA) of 2007*) and the California Air Resources Board (CARB, which evaluates fuels under its Low Carbon Fuels Standard – LCFS). While these programs establish basic methods and criteria for life cycle analysis, ATA is working through CAAFI to confirm jet-fuel-specific applications. Other, broader criteria for assessing the "sustainability" of fuels also have been considered by various entities, which address environmental and other impacts beyond emissions. CAAFI also is working to identify issues relevant to alternative jet-fuels and reach acceptable resolutions.

The airlines' initiative in tackling these issues with our partners has sent a clear unmistakable signal to potential fuels producers and investors: airlines are committed to making alternative jet-fuels a reality and will do our part to overcome the obstacles that may stand in the way. Scores of companies eager to meet our demand have emerged and are themselves helping to resolve these issues, again largely through participation in CAAFI. The fruits of this labor are apparent in that ATA member airlines have agreed with alternative-fuels producers to support a number of specific projects, including:

1. On December 15, 2009, 15 airlines from the United States, Canada, Germany and Mexico signed memoranda of understanding (MOU) with:

    - AltAir Fuels LLC ("AltAir"), involving camelina and potentially other crops in the western United States for the production of 75 million gallons per year, over a 10-year period, of jet-fuel and diesel fuel derived from camelina oils or comparable feedstock, refined in the State of Washington.[10]

[9] http://www.astmnewsroom.org/default.aspx?pageid=2524

[10] http://airlines.org/News/Releases/Pages/news_12-15-09.aspx

- Rentech, Inc. ("Rentech") contemplating the production of approximately 250 million gallons per year of synthetic jet-fuel at a facility in Adams County, Miss. ("Natchez Project"). The fuel will be derived from coal or petroleum coke, with the resultant carbon dioxide sequestered. This drop-in synthetic jet-fuel will have lower regulated emissions and a lower carbon footprint than traditional jet-fuel. Rentech intends to potentially further reduce the carbon footprint by integrating biomass as a feedstock.[11]

2. On August 18, 2009, eight U.S. airlines – Alaska Airlines, American Airlines, Continental Airlines, Delta Air Lines, Southwest Airlines, United Airlines, UPS Airlines and US Airways – signed an agreement with Rentech and Aircraft Service International Group (ASIG) to purchase up to 1.5 million gallons per year of renewable synthetic diesel for use in ground service equipment at LAX beginning in late 2012 or 2013, with urban woody green waste from the Los Angeles area.[12]

3. On June 20, 2011, a core group of airlines signed letters of intent with Solena Fuels, LLC ("Solena") for a future supply of jet-fuel derived exclusively from biomass to be produced in northern California. Solena's "GreenSky California" biomass-to-liquids (BTL) facility in Northern California (Santa Clara County) will utilize post-recycled urban and agricultural wastes to produce up to 16 million gallons of neat jet-fuel (as well as 14 million gallon equivalents of other energy products) per year by 2015 to support airline operations at Oakland (OAK), San Francisco (SFO) and/or San Jose (SJC). The project will divert approximately 550,000 metric tons of waste that otherwise would go to a landfill while producing jet-fuel with lower emissions of greenhouse gases and local pollutants than petroleum-based fuels.[13]

And more such projects are in the works.

Government Has an Essential Role to Play in the Success of Alternative-fuels

Commercial aviation is doing all that it can to minimize fuel burn, reduce emissions, enhance stability of supply and foster the production of alternatives. But we cannot do it alone. We need sustained leadership and support from the U.S. Congress and administration. We applaud the leadership already provided by the Department of Transportation-commissioned Future of Aviation Advisory Committee (FAAC), which under the direction of Secretary of Transportation Ray LaHood, reached consensus on several recommendations regarding what government needs to do to help ensure the viability and global competitiveness of the U.S. aviation industry,[14] including:

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[11] http://airlines.org/News/Releases/Pages/news_12-15-09.aspx

[12] http://airlines.org/News/Releases/Pages/news_8-18-09.aspx

[13] http://airlines.org/News/Releases/Pages/news_6-20_11.aspx

[14] http://www.dot.gov/faac/docs/faac-final-report-for-web.pdf

- Accelerate NextGen implementation by providing government financial incentives to airline operators for equipage;
- Expedite the most cost-beneficial elements of NextGen, including ADS-B and performance-based procedures;
- Ensure that the federal aviation tax burden does not undermine the viability and competitiveness of the airline industry;
- Mitigate jet-fuel price volatility by supporting federal regulatory efforts to mitigate the impact of speculative activity on the price of oil; and
- Reduce the impact of aviation on the environment through the use of sustainable fuels and improved aircraft technology.

Many of these points are echoed in our recommendations for action, which fall into two categories: (1) general policies affecting energy and fuel and (2) measures directly relevant to development of alternative-fuels.

Recommendations Regarding General Policies Affecting Energy and Fuel

A. Government must adopt energy policies that increase U.S. energy security, reduce GHG and other emissions, and result in more predictable and stable energy supply and prices. The enactment of the *Dodd-Frank Wall Street Reform Act* was an important step toward eliminating speculation-driven price volatility in oil markets. But it is equally important now that the Commodity Futures Trading Commission's implementing regulations to curb speculation that distorts oil markets are consistent and meet the objectives of the law.

B. Congress must support programs that enable ever-increasing fuel efficiency in the aviation sector. This includes:

a. Funding and encouraging a business-case approach to implementation of NextGen. Cost-effective implementation of NextGen, in addition to many other benefits (including reduction of delays even as capacity of the system is increased) will save fuel and Congress needs to fully support it.

b. Restoring funding for basic aeronautics research and development at the National Aeronautics and Space Administration (NASA) and FAA. With the airlines' support, commercial aircraft and engine manufacturers have succeeded in consistently improving the safety, reliability and performance of commercial aircraft. Improvements in fuel efficiency have been accompanied by improvements in noise and emissions. Unfortunately, in the near future, no major breakthrough in either aircraft or engine design is expected because of the enormous effort and cost of engineering research and development. Over the past several years, the federal government has significantly reduced funding for FAA and NASA

aeronautics research and development programs, which are critical in moving airframe and engine technologies forward. Countering this trend requires the federal government to restore and increase funding for aeronautics research.

c. **Supporting a global sectoral approach to regulation of aviation GHG emissions to be overseen by ICAO.** As discussed above, U.S. airlines have joined the global aviation industry in adopting an ambitious set of near-, mid- and long-term targets to further mitigate GHG emissions from our industry under a global sectoral approach. Congress should endorse this approach.

Recommendations for Measures to Support Development and Deployment of Alternative-fuels

A. **Commercial aviation should be identified as a top priority for alternative transportation fuels.** As previously discussed, while other sectors and modes of transportation have other options available, aviation will be dependent on liquid, high energy-density fuels for the foreseeable future. At the same time, however, with concentrated demand nodes in each region of the United States and an industrywide commitment to ensure that alternative aviation fuels are successful, aviation presents a unique opportunity for successful deployment of such alternatives. We ask the Subcommittee to support policies and initiatives that prioritize alternative-fuels for aviation.

B. **Government law and policy should not discriminate among alternative-fuel technologies.** Commercial aviation will use *any* alternative fuel that meets the four criteria laid out above concerning safety, environmental benefit, supply reliability and economic feasibility. The appropriateness of using certain feedstocks or processes must not be prejudged or disqualified for use based on other agendas.

C. **Congress should encourage near-term environmental benefits.** Policy should encourage development of fuels that provide near-term emissions benefits, even if GHG reductions are more modest than may be expected in the future development of the biofuels industry in the United States. Policies that require fuels to meet elevated emission-reduction targets as a precondition to receiving government support risk erecting unnecessary barriers to achieving greater reductions in the future. In short, the perfect must not be the enemy of the good – especially where "the good" has the potential to mature into "the great."

D. **Government policy must ensure coordination among various government agencies with authority to provide support to alternative-fuels development, including the DOT/FAA, USDA, DOE and DOD.** In our experience, these agencies are doing what they can within their

existing authorities and mandates to coordinate activities and leverage mutually reinforcing programs. Congress should take further action to encourage and empower this type of interagency coordination and commingling/aggregation of fiscal and human resources.

E. **To support our military and the development of alternative-fuels, we also ask Congress to authorize DOD to enter long-term (up to 20-year) contracts for alternative-fuels and renewable energy.** To secure investment in capital-intensive alternative-fuel production facilities, providers must be able to demonstrate revenue streams extending out at least 10 years but ideally more on the order of 20 years. Without long-term contracting authority, the military simply will not be able to participate meaningfully in efforts to spur construction of alternative-fuel production capacity. Congress needs to remedy this.

F. **It is critical that existing programs that have been effective in supporting development and deployment of alternative aviation fuels be maintained and, if possible, expanded.** First, it is vital that cellulosic biofuel producer credit be extended. Second, programs direction federal agencies to help America transition to alternative-fuels need to be funded. These include the Biomass Research and Development Initiative, Biorefinery Assistance Program, Bioenergy Program for Advanced Biofuels, Marketing Assistance Loans and Loan Deficiency Payment Programs, Biomass Crop Assistance Program, Crop Insurance Coverage for Energy Crops, and National Institute of Food and Agriculture.

G. **Many projects with the potential to produce alternative jet-fuels already have been developed and tested but need additional funding for near-term development.** Economic conditions have made credit and investment difficult to come by – it is even more difficult for emerging technologies. In this environment, government support is essential to assist the alternative-jet-fuels industry through this early stage in its development. Marshaling existing funding and other mechanisms across agencies to support one or more projects with the aim of proving production of significant quantities of alternative-fuels is possible will go a long way toward demonstrating commercial viability to reluctant private capital. A limited government commitment would "jump start" this industry and build the necessary bridge to a future in which the industry is entirely funded by private capital. To be clear, ATA is not calling for perpetual government funding. For an industry that is self-sustaining to emerge, however, requires "proof of concept" in the near term and this is where government support is necessary and should be focused.

A final point deserves emphasis: The last thing we need is more taxes on commercial aviation. Also particularly relevant here is the European Union's Emissions Trading Scheme (EU ETS), which imposes a steep tax on jet-fuel consumed by U.S. airlines for flights to or from Europe, even when they are in U.S. airspace, on the ground in the United States or over the high seas. Such taxes are counterproductive – siphoning slim resources from airlines and compromising our ability to make the types of investments in technology that have enabled us to transport more and more people and goods, even as we reduce our environmental impacts. Commercial air transportation already is one of the most heavily taxed businesses in the country, facing rates comparable to those of alcohol and tobacco, which are designed to discourage their consumption. Discouraging air transportation, which drives the global economy with still more taxes is the last thing we should be doing, particularly in these economic times. We urge the Subcommittee to join the administration's opposition of the application of the EU ETS to U.S. airlines, and to oppose new or increased taxes here at home.

Conclusion

We will continue to do everything we can to minimize fuel burn, reduce emissions, enhance stability of supply and foster the production of alternatives. ATA looks forward to working with the Subcommittee to help spur government actions and leadership necessary to realize these objectives.