Aviation Gasoline

The Federal Aviation Administration (FAA) shares the Environmental Protection Agency's (EPA) concerns about lead emissions from small aircraft. Lead is a toxic substance that can be inhaled or absorbed in the bloodstream. Aviation gasoline (avgas) is the only remaining lead-containing transportation fuel. Avgas emissions have become the largest contributor of lead emissions.

Owners and operators of more than 222,609 piston-engine aircraft operating in the United States rely on avgas to power their aircraft. Lead in avgas prevents damaging engine knock, or detonation, that can result in a sudden engine failure. The FAA, EPA and industry are partnering to remove lead from avgas without adversely impacting the safe and efficient operation of the existing GA fleet.

To help "get the lead out," FAA is supporting the research of alternate fuels at our William J. Hughes Technical Center in Atlantic City. We are working with the aircraft and engine manufacturers, fuel producers, the EPA and industry associations to overcome technical and logistical challenges to developing and deploying a new, unleaded fuel.

The FAA continues to work with EPA to make this a smooth transition and to ensure the supply of aviation gasoline is not interrupted, and that all aircraft can continue to fly.

What is PAFI?

The Piston Engine Aviation Fuels Initiative (PAFI) was established in 2014 to support the evaluation of candidate-unleaded fuels to replace approved leaded gasoline, with the objective of ultimately qualifying a fleet-wide solution. Once a candidate fuel formulation is qualified for PAFI testing, the FAA tests it using methods created through collaboration with industry. The collaborative process also includes the selection of materials, engines, and aircraft to test to ensure the full general aviation engine power range and aircraft operational spectrum are represented. Company test data within PAFI are considered proprietary. The data collected contribute to FAA’s fleet eligibility determination.

Although no high-octane unleaded replacement fuel has yet been qualified under PAFI as a suitable drop-in candidate, approval of a qualified fuel would occur following the issuance of a new production specification/ standard of safety and reliability.

- White Paper Explaining the PAFI Program (PDF)

PAFI Steering Group (PSG)

The purpose of the PSG is to facilitate, coordinate, expedite, promote and oversee the Piston Aviation Fuels Initiative (PAFI) based on the recommendations of the Unleaded Avgas Transition Aviation Rulemaking Committee Final Report.

- PAFI Steering Group Charter (PDF)

Recent Program Updates

August 11, 2022: **Piston Aviation Fuels Initiative (PAFI) Update**

Recognizing the need to galvanize and facilitate a broad range of cross-sectoral actions, in February of 2022 the FAA and critical government and industry partners launched the multi-layered EAGLE initiative with the intent to safely eliminate leaded aviation fuel by the end of 2030 without impacting the safe and efficient operation of the piston-engine fleet. PAFI became an integral part of one of the four critical EAGLE pillars tasked with evaluation and authorization of the unleaded fuel (UL). Its goal continues to be to complete the testing and evaluation of candidate replacement fuels and to identify at least one UL fuel acceptable for widespread use.

There are two candidate 100 octane unleaded fuels from two fuel developers, Afton/ Phillips66 and Lyondell/ VP Racing, currently being tested at the FAA's William J. Hughes Technical Center for entry into the PAFI program.

August 20, 2020: **Piston Aviation Fuels Initiative (PAFI) Update**

Fuel Testing and Evaluation

The FAA, fuel suppliers, and aerospace manufacturers continue to develop high octane, unleaded fuel formulations. The goal of these efforts is to identify fuel formulations that provide operationally safe alternatives to 100LL. The PAFI program continues to support the efforts of fuel producers as they bring forth alternative, unleaded fuels for testing and evaluation.

The FAA requires the fuel producers to complete the following "pre-screening" tests prior to a candidate fuel formulation entering into more extensive testing through the PAFI program:

1. Successful completion of a 150 hr. engine endurance test on a turbocharged engine using PAFI test protocols or other procedure coordinated with the FAA;
2. Successful completion of an engine detonation screening test using the PAFI test protocols or other procedures coordinated with the FAA
3. Successful completion of a subset of the material compatibility tests using the PAFI test protocol or other procedures coordinated with the FAA.

Development and pre-screening testing is taking place at both private and public testing facilities across the country. The FAA's William J. Hughes Technical Center is providing engine-testing services through Cooperative Research and Development Agreements (CRADA) with the individual fuel companies. While COVID-19 has delayed the completion of the pre-screening tests, the tentative schedule is to re-start formal PAFI testing in 2021.

The FAA will provide additional details to the public regarding the fuel authorization process via the federal register as required per Public Law 115-254 (FAA reauthorization Act of 2018 HR 302, Section 565). The FAA also continues to support other fuel applicants who have decided to pursue engine and airframe approvals that would allow the use of their fuel formulations via traditional certification processes.

June 20, 2019: **Piston Aviation Fuels Initiative (PAFI) Update**

FAA and PAFI have established a rigorous test program to facilitate the evaluation and approval of unleaded fuels that will be environmentally safer

than leaded fuels, yet as operationally safe as leaded fuels in the current fleet of piston engine aircraft.

PAFI's focus during the first 6 months of 2019 has included testing at the William J. Hughes Technical Center of an optimized Shell fuel and screening testing of 3 fuels not previously part of the PAFI program. The scope of PAFI has continued to evolve with the preliminary evaluation of 3 other fuels representing PAFI's commitment to research and evaluate all candidate unleaded fuels. Test results with the optimized Shell fuel were not successful with testing indicating additional refinements are required.

Test results of that engine testing have revealed that additional refinement will be necessary to support continuation and ultimately result in successful completion. Shell has indicated it is committed to additional R&D efforts to make those adjustments in order to result in a safe and viable unleaded avgas.

PAFI's test experience which brackets engine, aircraft, materials, and toxicology has served to accentuate the extent of the challenge to identify an acceptable unleaded fuel for general aviation. Accordingly, it is recognized that the scope of PAFI must expand to support the necessary research and development while engaging other candidate fuels for evaluation. The FAA alternative fuels program for general aviation must be multi-faceted, ongoing, and supported by a collaborative government and industry process. The focus remains qualification and authorization of an acceptable unleaded fuel and the safe transition to a more environmentally friendly aviation fuel.

The Piston Aviation Fuel Initiative includes four key elements –

1. **Fleet-wide Authorization Qualification Test Program**

   Based on the recommendations of the Unleaded Avgas Transition Aviation Rulemaking Committee, FAA established a fleet-wide authorization test program to identify and deploy a safe unleaded avgas with the least impact on the U.S. fleet of over 170,000 piston-engine aircraft. Congress fully funded this 5-year test program in which 17 fuel formulations from a government Screening Information Request (SIR) submitted to FAA in 2014 were evaluated and down selected to the most promising candidates through technical assessments, Phase 1 laboratory and materials compatibility tests, and current phase 2 full-scale aircraft engine and aircraft testing.

Despite this recent program delay, the PAFI program is essential to ensure a viable, safe, and economical fuel can be authorized by FAA for use by the existing GA piston engine aircraft fleet.

2. **New Alternative Fuel Proposals & Certification**

   Several companies continue to invest in R&D of alternative fuels and are working directly with FAA on applicable safety standards and guidance for means of compliance and qualification testing during development.

   FAA invites fuel producers that are currently developing high-octane unleaded fuels to bring their data to the FAA for evaluation and initial screening to be conducted by the William J. Hughes Technical Center. Those that pass the initial screening are invited to participate in a Cooperative Research and Development Agreement (CRADA) testing program in which producers provide additional resources and some funds for independent testing using PAFI developed standards and guidance. This is an ongoing activity necessary to support FAA and industry understanding and qualification for the authorization of any newly developed and proposed alternative fuels.

3. **Establishment of FAA safety standards**

   There are significant and unique challenges in evaluating performance, operability, and compatibility of any new alternative fuel to an existing fleet of aircraft and engines.

   FAA research is necessary to apply existing and create new regulations, guidance and procedures for safety qualification and authorization approval to use a new fuel and the establishment of consensus fuel specifications that the FAA relies on for aircraft continued operational safety. This is an ongoing activity necessary to address FAA safety requirements for any proposed changes to fuel specifications, new alternative fuel proposals submitted to FAA, and continued operational safety activities related to a transition to an alternative/replacement fuel. The FAA Reauthorization Act of 2018 (HR 302), Section 565 Aviation Fuel, provided the Administrator with additional authorization for safety qualification and allowing the use of a replacement unleaded gasoline.

4. **Safely Deploy and Transition to a new fuel**

   While it remains a challenge to identify an unleaded fuel formulation that will take the place of 100LL, the FAA and industry will continue to collaborate in executing an informed and safe transition of the GA fleet to an unleaded avgas once it is approved. The PAFI Deployment Guide will eventually serve as a roadmap to successfully deploy an unleaded avgas, from the refineries to the wingtips of aircraft, including the essential supporting infrastructure.

   Nine aviation sectors have been identified as being crucial areas in need of planning and guidance, prior to deployment, including –

- State and Federal Legislative
- Aircraft Fuels Regulations and Standards
- Manufacturing Capability
- Distribution System
- Airports
- Aircraft Modifications
- Communication & Training
- International Communication
- Safety Assurance

   A PAFI Deployment Guide is being drafted with the objective of providing requirements and guidance to all stakeholders affected by deployment. The Deployment Guide provides specific action plans with responsibility for each of the 9 aviation sectors and is intended to be applicable to any unleaded fuel meeting the FAA requirements for approval.

   The PAFI Deployment Guide is intended to be inclusive, relative to any candidate unleaded fuels. Identifying, testing and eventually authorizing a fleet-wide unleaded avgas solution remains a difficult challenge — but one that the FAA and industry are completely committed to. The FAA and industry members of the PAFI Steering Group continue to work with multiple fuel offerors to find the very best unleaded avgas solution for the GA fleet. The resolve to find an environmentally friendly solution has not waivered — regardless of the amount of time and effort it may take to achieve.

September 7, 2018: **Piston Aviation Fuels Initiative (PAFI) Progress Update**

PAFI Phase 1 and 2 testing of the remaining PAFI fuels from Shell and Swift revealed unique issues with each fuel that needed to be addressed. In response, the PAFI Steering Group (PSG) notified each of the fuel producers and provided a list of issues that needed to be better understood and mitigated in order for their fuel to move forward in the program. During that timeframe, PAFI flight testing and some engine testing was halted, resulting in a delay in testing completion – from December 2018 to mid-2020.

In early September 2018:

- Swift announced a suspension in their PAFI work activities to pursue another fuel outside of the program.
- Shell continued to actively work to optimize its fuel formulation within their specification to mitigate identified issues. Early results from these efforts appear promising.
- In response to Shell's efforts to mitigate identified issues, PSG members voted unanimously to resume PAFI phase 2 testing of the Shell fuel this fall. Testing will include clearing material compatibility, durability, detonation, and performance issues before additional flight testing is conducted.

Despite the delay of testing completion, the PAFI mission endures and both FAA and industry partners continue their commitment to successfully evaluating and identifying unleaded fuel candidates that can be authorized for use by the vast majority of the GA piston engine fleet. Although it will take additional time to realize this goal, it is essential to ensure a viable, safe, and economical fuel is ultimately authorized.

As reported in an earlier update, the FAA and industry continue to pursue all alternatives outside of the Solicitation of Interest Request (SIR), PAFI program. Other high-octane unleaded fuel offerors continue to work with the FAA on a non-interference basis to the ongoing PAFI program. The FAA invited the fuel producers currently developing high-octane unleaded fuels to bring their data to the FAA for evaluation and a screening process is underway. Those that pass the screening process will participate in a Cooperative Research and Development Agreement (CRADA) testing program utilizing a sub-set of the PAFI testing. The testing is anticipated to include detonation and some performance testing at the FAA's William J. Hughes Technical Center.

For more details, watch the recent interview of FAA PAFI Co-lead Peter White by AOPA President Mark Baker.

June 4, 2018: **Unleaded Avgas Progress Update**

The FAA continues to be committed to evaluating suitable replacement unleaded fuels to support general aviation. Phase Two testing of unleaded avgas continues, having completed two and a half years of testing and evaluation since the FAA's selection of the two finalists in the Piston Aviation Fuels Initiative (PAFI) replacement unleaded fuels program. To date, the flight test program is approximately one-third complete, while the engine test program is about halfway complete.

Differences in the two PAFI fuels as compared to 100LL are being evaluated for impacts and mitigations. While these issues are assessed, PAFI flight testing and some engine testing have been halted. Both fuel producers, Shell and Swift, are currently evaluating options to mitigate the impacts that these differences will present in fuel production, distribution, and operation in the GA fleet. These evaluations will take time and ultimately affect the schedule of the test program. Based on current projected activities and timelines, the testing completion date for the PAFI program will be December 2019 (previously December 2018).

The FAA and industry are interested in pursuing all alternatives while issues are assessed including evaluating high-octane unleaded fuels currently being developed outside of the PAFI program. The FAA invited the fuel producers currently developing high-octane unleaded fuels to bring their data to the FAA for evaluation and consideration for possible detonation, operability, and performance testing at the FAA's William J. Hughes Technical Center. Fuel producers offering alternatives determined to have potential viability as an unleaded replacement for 100LL will be invited to participate in a Cooperative Research and Development Agreement with the FAA, which will be conducted on a non-interference basis with the PAFI program.

July 25, 2017: **Piston Aviation Fuels Initiative (PAFI) Update at EAA AirVenture Oshkosh**

For the fourth consecutive year, the PAFI Steering Group presented an update on the PAFI replacement unleaded fuel test program (PDF) at EAA's AirVenture in Oshkosh, WI. The program is in the midst of Phase 2 engine and aircraft testing on high octane, unleaded fuels selected from Shell and Swift Fuels. The program is progressing well, with industry in-kind support

providing much of the flight test and engine testing data. The program has identified some differences between the PAFI fuels and 100LL, which are being investigated to determine potential impacts on the fleet and mitigating actions. The audience was engaged and interested in the status and outcomes of the program as well as the issues surrounding transition to unleaded avgas.

December 20, 2016: **Unleaded Avgas Progress Update**

PAFI Phase 1 laboratory, rig and materials compatibility testing was completed on schedule in December 2015. Issues noted in Phase 1 testing are being further evaluated in Phase 2, with additional testing being defined to evaluate differences and better assess their impacts on the general aviation fleet and the fuel production and distribution infrastructure. Mitigation strategies and deployment plans are being developed to minimize impacts and smooth the transition to unleaded avgas.

Engine testing and aircraft flight test planning is ongoing at the FAA's William J. Hughes Technical Center and Canada's National Research Council. "In-kind" flight testing (testing performed by industry Original Equipment Manufacturers and other stakeholders) is underway, and several Phase 2 propeller, engine, and aircraft tests have already completed. More is in progress or preparing to start.

The FAA is seeking a new authority for the FAA Administrator to conduct the engine and aircraft approvals for the PAFI program. Draft language requesting this authority has been reviewed by both the House and the Senate and is planned to be submitted to Congress as part of the FAA Reauthorization language. PAFI created a Deployment Working Group, composed of industry stakeholder representatives and FAA. It is focused on planning for the production, deployment and implementation phases of the new fuels. The working group is developing action plans to address a number of deployment matters including legislative and regulatory issues and requirements, manufacturing capability, distribution system and airport deployment, engine and aircraft modifications, communications and training.

Meanwhile, the FAA continues to facilitate other unleaded avgas approvals by working directly with other fuel producers seeking unleaded avgas engine and aircraft approvals through traditional procedures. The FAA also recently issued a Special Airworthiness Information Bulletins (SAIB) clarifying that UL94/91 grade fuels can be used in engines/aircraft with a "mogas"

Supplemental Type Certificate (STC) or in engines approved to operate on Grade 80 avgas.

The FAA remains focused on delivering alternatives to leaded avgas through traditional processes and the PAFI program. The PAFI program continues to be on schedule with a projected completion of all testing in mid-2018 and issuance of all final test reports by the end of 2018.

July 26, 2016: **Piston Aviation Fuels Initiative (PAFI) Update at EAA AirVenture Oshkosh**

For the third consecutive year, the PAFI Steering Group presented an update on the PAFI replacement unleaded fuel test program (PDF) at EAA's AirVenture in Oshkosh, WI. The program is currently starting Phase 2 engine and aircraft testing on high octane, unleaded fuels selected from Shell and Swift Fuels. Phase 1 testing was completed on schedule in December 2015. Information on AirVenture can be found on the EAA website.

March 29, 2016: **FAA Selects Two Unleaded Fuels for Engine and Aircraft Testing**

In early January 2016, the FAA completed Phase 1 of the PAFI program, and selected Shell and Swift Fuels to participate in Phase 2. The FAA selected these two formulations as likely to have the least impact on the General Aviation fleet based on a review of extensive Phase 1 test data along with updated Feasibility Assessments submitted by each fuel provider. To prepare for the extensive and complex Phase 2 engine and aircraft test program, the FAA will now begin working with producers to coordinate fuel deliveries, and with industry supporters who will provide the engines and aircraft necessary for testing.

This effort requires extensive ground and flight tests on approximately 15 engine and 10 aircraft models. The Phase 2 engine and aircraft test program is expected to take approximately two years, and will generate data that can be used to authorize most, if not all, of the existing fleet to operate on these fuels. This data will also be used to obtain an ASTM International production specification. For more information, see the FAA's Press Release – FAA Announces Finalists Working to Get the Lead Out of General Aviation Fuel.

November 20, 2015: **PAFI Phase 1 Test Program Status/Pictures**

In August of 2014, the FAA's Technical Evaluation Committee (TEC) reviewed 17 submittals from 6 offerors proposing replacement unleaded fuel formulations for the General Aviation (GA) fleet. The TEC provided their recommendation, and the FAA requested 4 formulations from 3 offerors in September 2014. A comprehensive Phase 1 test program consisting of laboratory, rig, and engine tests began in March 2015.

A presentation describing the Phase 1 test program (PDF) includes many photos of the various tests in progress. Many of these tests are already complete, with reports submitted to the FAA and the offerors for review. The entire Phase 1 test program is scheduled to conclude in December. The offerors will update their fleet impact assessments using this data as well as additional data they have obtained over the last year, and the FAA TEC will convene in January to review the Phase 1 data and updated fleet impact assessments. Based on this assessment, the FAA TEC will select the two fuels determined to have the lowest impact on the GA fleet and the production and distribution infrastructure for participation in the Phase 2 test program in early 2016. The Phase 2 test program and reports are scheduled for completion by December 2018.

July 21, 2015: **Piston Aviation Fuels Initiative (PAFI) Update at EAA AirVenture Oshkosh**

On July 21, the FAA and the PAFI Steering Group presented an update on the test program at EAA AirVenture in Oshkosh, WI.

The presentation included background information, program schedule and status, updates on the status on the Phase 1 testing (currently in progress), and next steps. There was also a discussion of the environmental issues and regulations.

You can download the (PAFI) Piston Aviation Fuels Initiative (PDF) briefing to see the entire presentation. Information on AirVenture can be found on the EAA website.

September 8th, 2014: **FAA Selects Four Unleaded Fuels for Testing**

The FAA's request for fuel producers to submit unleaded avgas formulations to replace 100LL closed July 1st, 2014. The FAA has selected four fuels; one each from Shell and TOTAL, and two from Swift Fuels. The FAA will now

begin working with the producers to define the formulations to be submitted to the FAA for the Phase 1 test program. The Phase 1 laboratory and rig test program is anticipated to take approximately one year, at which point the FAA will evaluate the fuels for continued participation in Phase 2 test of the test program. Two or three of the Phase 1 fuels will be selected for participation in the Phase 2 engine and aircraft test program. The Phase 2 engine and aircraft test program is expected to take approximately two years, and will generate data that can be used to obtain an ASTM Production Specification for the fuels, and to certify most of the existing fleet to operate on these fuels. The FAA issued a press release which can be found here: Press Release – FAA Selects Fuels for Testing to Get the Lead out of General Aviation Fuel

July 28th, 2014: **PAFI update at EAA AirVenture Oshkosh**

On July 28th at the EAA AirVenture in Oshkosh, WI, the FAA and the PAFI Steering Group presented an update on the PAFI test program. The mission of this effort is to develop and implement a path forward for the identification, evaluation, fleet-wide certification, and deployment of the most promising unleaded replacement fuels with the least impact on the existing piston-engine aircraft fleet. The briefing presented is available below:
PAFI Briefing (PDF)

Information on AirVenture can be found on the EAA website at the following link:
http://www.eaa.org/en/airventure

July 10th, 2014: **FAA Receives Unleaded Avgas Fuel Proposals**

The FAA's request for fuel producers to submit unleaded avgas formulations to replace 100LL closed July 1st, 2014. The FAA received nine fuel proposals from five fuel producers; Afton Chemical Company, Avgas LLC, Shell, Swift Fuels, and a consortium of BP, TOTAL, and Hjelmco. The FAA will now assess the viability of the candidate fuels in terms of their impact on the existing fleet, the production and distribution infrastructure, their impact on the environment, their toxicology, and the cost of aircraft operations. Several of the fuels will be selected for further evaluation in Phase 1 of the Piston Alternative Fuels Initiative (PAFI) test program. For the Phase 1 laboratory and rig test program, selected fuel suppliers will be requested to provide 100 gallons of fuel for this evaluation. The Phase 1 test program is anticipated to take approximately one year, at which point the FAA will evaluate the fuels for continued participation in Phase 2 test of the test program. Two or three of the Phase 1 fuels will be selected for participation in the Phase 2 engine and

aircraft test program, for which the suppliers will be requested to provide 10,000 gallons of fuel. The Phase 2 test program is expected to take approximately two years, and will generate data that can be used to obtain an ASTM Production Specification for the fuels, and to certify most of the existing fleet to operate on these fuels. The FAA issued a press release which can be found at the link below:
Press Release – FAA Receives Unleaded Fuel Proposals, July 10, 2014

June 18, 2014: There will be a **Screening Information Request (SIR) – Question & Answer** session during the ASTM meeting in Indianapolis on June 23, 2014. The session will be between 3:00 P.M. and 5:00 P.M. local time.

The purpose of the session is to answer offeror's questions about responding to the SIR. The SIR closes July 1, 2014.

Questions must be submitted in writing to the Contracting Officer by 4 PM on June 18, 2014. Please email questions to Lori.McLaughlin@faa.gov (No phone calls, please.)

Meeting Location:

June 22-26, 2014
JW Marriott Indianapolis
Indianapolis, IN

Bridge Line: 888-924-3230
Participant Passcode: 477034

For additional information please see the following announcements:

- Federal Aviation Administration Contract Opportunities (FAACO) Announcement
- ASTM Meeting Announcement

April 22, 2014: **2nd SIR Informational Webinar Available Online**

The information briefing held on April 16th can now be viewed online. Click on "View Now" to view the webinar.

Approximately 40 people signed up and attended the conference. Members of the project team went over a presentation addressing top issues raised by the

questions, and an overview of answers to 10 of the 19 submitted questions. Also available are all 19 submitted questions and their answers.

- SIR Informational Webinar Presentation (PDF)
- SIR Informational Webinar Questions and Answers (PDF)

The webinar lasted approximately one hour, and the feedback received from attendees was 100% positive. The industry and government members of PAFI are confident that the seminars have addressed the questions of potential fuel offerors, and that the community is adequately informed about the program.

Second SIR Informational Session – Rescheduled to April 16, 2014

A second informational session will be held regarding the Replacement Unleaded Avgas R&D program, and the FAA request for candidate fuels, on April 16th. The latest version of the fuels request (Screening Information Request – SIR) can be found at the following link: https://faaco.faa.gov/index.cfm/announcement/view/16015

Also available at this link are the two presentations that we gave at the December 2013 ASTM meeting regarding the PAFI program and the SIR. In addition, the link also contains the official notification of the second informational session. This session will be presented in a Question and Answer format. As noted, an open period for interested parties to submit questions will extend through March 3rd. On March 26th, the questions will be presented, along with answers, by members of the PAFI Steering Group in a webinar. The signup page for the webinar can be found at: http://nbaa.peachnewmedia.com/store/seminar/seminar.php?seminar=25370

January 14-15, 2014: **Piston Aviation Fuel Initiative Steering group (PAFI PSG) meeting held**

The PAFI program enters the New Year on a positive note with Congress having authorized $6M for the FY14 budget to support the PAFI test program at the FAA Technical Center. The PAFI Industry Co-lead was identified and brought onboard in September 2013. Bi-monthly PAFI Steering Group meetings were launched in 2013 and will continue through 2014. This team continues to meet and complete the UAT ARC recommendations. To date all 5 key recommendations have been meet and 4 out of the 14 follow-on recommendations have been completed.

Currently in-work under PAFI PSG: A Technical Evaluation Committee (TEC), reporting directly to the FAA, has been formed by the FAA to serve as the primary evaluator of fuel proposals furnished in response to the SIR. Providing industry support and guidance to the PSG is a Technical Advisory Committee (TAC) whose membership was identified in late 2013. TAC membership includes the primary OEM product manufacturers and other key stakeholders. Initial membership includes Air BP, Air Repair, AVFUEL Corp, Continental Motors, Beechcraft, Cape Air, Cessna Aircraft, Chevron, Cirrus, Dixie Services, Epic Aviation, Ethyl Corp, Everts Air, Exxon Mobil, Hartzell Propeller, Lycoming Engines, McCauley Propeller, Mooney Aircraft, Phillips 66, Piper Aircraft, Precision Airmotive, Precision Engines, and Robinson Helicopter.

These accomplishments all reflect actions implemented pursuant to the recommendations of the UAT ARC final report.

December 9, 2013: **PAFI/SIR Briefing at ASTM Meeting**

Presenters from the Piston Aviation Fuels Initiative Steering Group (PSG) were on hand at the ASTM meeting in Tampa Florida. They provided two presentations. The first presentation was done collaboratively by Industry and the FAA to discuss PAFI, the accomplishments to date, the overview of the FAA Technical Center Testing Program for Phase 1 and Phase 2, and the fleetwide certification challenge. Piston Aviation Fuels Initiative (PDF). The second presentation was done by the FAA; it provided a briefing on Screening Information Request (SIR fuels request), FAA Screening Information Request (SIR) – Unleaded Avgas (PDF). This presentation provided background, instructions, and milestones for the SIR. The session was well attended and many issues were raised and discussed.

November 21, 2013: **General Aviation Caucus Briefing**

- Discussion Points (PDF)
- Informational Handout (PDF)

On November 21, 2013, the FAA, EPA and industry members of the Piston Aviation Fuel Initiative Steering Group met with Senators Begich and Johanns, co-leads of the Senate General Aviation Caucus Briefing and Senate staff. The meeting was to provide the avgas history and background, and an update on progress being made in the transition to an unleaded avgas. This briefing included discussion of the FAA Modernization and Reform Act of 2012 section 910 and the FAA's R&D plan and report (PDF).

The briefing also included discussion on the Unleaded Avgas Transition Aviation Rulemaking Committee (UAT ARC), and accomplishments made since receipt of that team's report and recommendations.

June, 2013: FAA Issues Request for Unleaded Replacements for General Aviation Gasoline (Avgas)

On June 10, 2013, FAA issued a request for candidate fuel producers to submit unleaded fuel formulations to be evaluated as replacements for 100LL (https://faaco.faa.gov/index.cfm/announcement/view/15840). This announcement is a significant milestone in a government/industry collaborative effort to find an unleaded replacement fuel for the general aviation industry. The request for candidate fuels kicks off a multi-year R&D program that will help select the best unleaded fuel(s) with least impact on the general aviation fleet.

- Press Release — FAA Requests Proposals for Options to Help General Aviation Transition to Unleaded Fuels, June 10, 2013