



## Green Flight Challenge

The Green Flight Challenge (GFC) sponsored by Google is one of six NASA technology prize competitions that are collectively known as Centennial Challenges. The goal of this challenge is to advance technologies in aircraft fuel efficiency and reduced emissions with cleaner renewable fuels and electric power.

### GFC COMPETITION

The Green Flight Challenge will be held at the Sonoma County Airport in Santa Rosa, CA, from September 25 to October 1. The aircraft will take part in a competitive fuel-efficiency demonstration on September 27 and in a speed competition on September 29.



Ten teams from across the United States will compare their innovative designs for electric, biofueled, and hybrid-powered aircraft, competing for the largest-ever prize in civil aviation: a total prize purse of \$1.65 million.

Teams are led by American innovators drawing on the best technologies in the world to win the competition. The event will include the first-ever flight of a four-seat, electric airplane and the largest battery pack ever developed for a flight vehicle.

To win the Green Flight Challenge, an aircraft must exceed an equivalent fuel efficiency of 200 passenger miles per gallon (mpge). Typical general-aviation aircraft have fuel efficiencies in the range of 5–50 mpge. Large passenger aircraft are in the 50–100 mpge range, depending on passenger/cargo load.

Green Flight Challenge aircraft also must have an average speed of at least 100 mph over a 200-mile race circuit; achieve a takeoff distance of less than 2,000 feet to clear a 50-foot obstacle; and

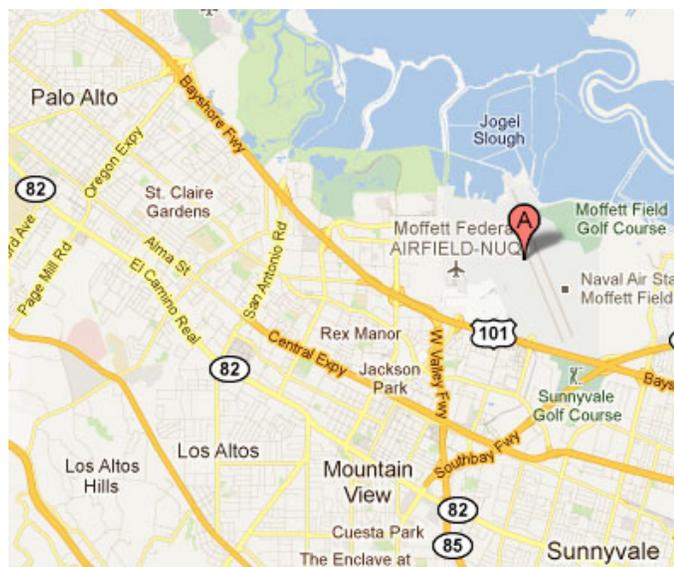
deliver a decibel rating of less than 78 dBA at full-power takeoff, as recorded from 250 feet away.

### ADVANCED TECHNOLOGIES

Technologies to be demonstrated in the challenge include biofueled propulsion; breakthroughs in batteries, motors, solar cells, fuel cells, and ultracapacitors that enable electric-powered flight; advanced high-lift technologies for very short takeoff and landing distances; ultraquiet propellers; enhanced structural efficiency by advances in material science and nanotechnology; and safety features such as vehicle parachutes and air bags.

# Challenge facts

The NASA Centennial Challenges program invites you to attend the awards ceremony and exposition of the aircraft competing in the Green Flight Challenge. The event will be held October 3, 2011, at NASA Ames Research Center, Moffett Field, CA. Tickets are available from the Comparative Aircraft Flight Efficiency (CAFE) Foundation at <http://tinyurl.com/3grrjnw>.



NASA Ames Research Center  
Moffett Field, CA

### The Expo will consist of

- static displays of the aircraft that participated in the challenge;
- exhibits of green transportation technology companies, aircraft companies, other green companies, and NASA displays;
- flybys of participating aircraft (pending airfield management approval); and
- an awards ceremony to recognize the winners of the Challenge.

### CENTENNIAL CHALLENGES

The Centennial Challenges program was created in 2005 in recognition of the centennial of powered flight; it celebrates and sustains the spirit of the Wright brothers and other American innovators. Centennial Challenge prizes are offered to independent inventors—small businesses, student groups, and enterprising individuals—who work without government support.

The prize competitions are targeted at a range of technical challenges that support NASA's missions in aeronautics and space. The goal is to encourage novel solutions from nontraditional sources. NASA provides the Centennial Challenge prize money.

Each competition is managed by an independent organization. The CAFE Foundation, based in Santa Rosa, CA, manages the Green Flight Challenge for NASA. Additional information about the challenge, including travel information, is available at <http://tinyurl.com/3czljgk>.

NASA's Office of the Chief Technologist in Washington, DC, manages the Centennial Challenges program. For more information on the Centennial Challenges, visit <http://www.nasa.gov/challenges>.