1 00:00:06,799 --> 00:00:11,519
good afternoon and welcome to today's

2 00:00:09,718 --> 00:00:13,259
awards ceremony here at the NASA Ames

3 00:00:11,519 --> 00:00:15,750
Research Center at Moffett Field

4 00:00:13,259 --> 00:00:18,000
California for the green flight

5 00:00:15,750 --> 00:00:19,230
challenge sponsored by Google it's a

6 00:00:18,000 --> 00:00:21,390
great day to have you all here it's

7 00:00:19,230 --> 00:00:23,310
great to have the teams here and it's a

8 00:00:21,390 --> 00:00:26,849
wonderful day to announce the winner of

9 00:00:23,309 --> 00:00:28,409
the first green flight challenge before

10 00:00:26,849 --> 00:00:30,960
we get to that I'd like to introduce our

11 00:00:28,410 --> 00:00:32,399
host for the day the deputy acting

12 00:00:30,960 --> 00:00:36,710
deputy director of NASA Ames Research

13 00:00:32,399 --> 00:00:36,710
Center Deb Fang Deb

14 00:00:41,280 --> 00:00:47,399
good afternoon is it afternoon just
slightly well welcome to Ames we are

very pleased to host the green flag

challenge Expo we want to congratulate

all the teams who participated in the

Google green flight challenge in Santa

Rosa this let this past week as you may

know air travel is predicted to double

in the next 20 years and because of this

we need to find ways to make aircraft

travel more efficient while maintaining

safety to help achieve that goal we

conduct wind tunnel tests computer

modeling and computational fluid dynamic

simulations nasa ames as a history of
always being at the forefront of

starting more than 70 years ago when

Ames was founded as part of the national

Ames in 1965 to seek out ways to make

air travel safer and more efficient

Earth's burger created software tools
designed to help air traffic controllers

better manage traffic flow by providing

them timely information about aircraft

in the system including predictions and

advice on sequencing aircraft and
avoiding conflicts many of those

44
00:01:52,530 --> 00:01:56,989
innovation tools are still in use today

45
00:01:54,390 --> 00:02:00,180
as we look to the future of aviation

46
00:01:56,989 --> 00:02:01,468
NASA Ames Research Center continues to

47
00:02:00,180 --> 00:02:04,310
conduct advanced Aeronautics research

48
00:02:01,468 --> 00:02:07,408
with next-gen and air traffic management

49
00:02:04,310 --> 00:02:09,539
next-gen strives to reduce air traffic

50
00:02:07,409 --> 00:02:12,359
emissions while lessening congestion in

51
00:02:09,538 --> 00:02:13,889
the nasa in the nation's airways thank

52
00:02:12,359 --> 00:02:17,870
you for attending and we hope you enjoy

53
00:02:13,889 --> 00:02:17,869
these unusual and amazing aircraft

54
00:02:20,709 --> 00:02:25,670
Thank You Deb for those of you watching

55
00:02:23,419 --> 00:02:28,609
on television or following us on the web

56
00:02:25,669 --> 00:02:33,348
you can learn more about NASA Ames at ww

57
00:02:28,610 --> 00:02:36,440
NSA gov / Ames is one of our spectacular
NASA centers it's now my great privilege

and honor to introduce dr. Brian Seely

brian is the president of the cafe

foundation thank you David it's a great

pleasure to be here this culmination of

three years of effort at the cafe

foundation to bring forth the green

flight challenge i'm mainly here to

issue thank yous and i want to be very

quick about it but I first want to say

we consider this truly a pivotal

historic event in aviation and I there's

much more time later to tell you why

that's the case but our vision at Cafe
is that the green flight challenge will bring forth future air vehicles that are quiet and a remission free that are very safe and that can land just about anywhere essentially do what birds do more on that later our future vision has been helped tremendously by the support from everyone but particularly I want to thank the amazing diverse skill set of the cafe board of directors who really brought this together and just put out tremendously the eaa chapter 1 24 volunteers who are another group of fantastic people the backbone of our
event the NASA people who worked with us
tirelessly even on weekends to put
get this program together they've been
absolutely great and I want to
particularly thank Google for actually
making this possible cafe received no
sponsorship for this until Google
rescued us and not only made it possible
that made it possible to do it up in a
very good fashion made possible the
world's four
first electric aircraft charging station
powered by clean geothermal energy and
to really thank Google I want to invite

to really thank Google I want to invite

Anita Yuen from Google thank you.

Brian we're really excited to be here today at Google were committed to a clean energy feature and in fact we've been carbon neutral since 2007 and we've also invested over 850 million dollars already in the sectors thus far we believe green transportation is a key part an important part of this clean energy future in fact that's why we've been greeting our transportations at Google for a while in fact we've had an electric vehicle program for three years now and now we have one of the largest.
electric vehicle charging stations in

the u.s. 200 charging stations just down the road over at Mountain View

headquarters so we're that's why we really is excited to support this year's green flight challenge we really believe that green aviation is the next frontier we want to issue a huge congratulations to the teams to cafe foundation for organizing the event to NASA for the important support for this important effort and overall we're extremely thrilled to be part of this in helping usher in a new generation of
emission-free aviation thank

Thank You Nita and thank Google I've seen the charging station up in Santa Rosa and it's very cool it's now my honor and privilege to introduce Eric Lindbergh eric is going to be giving out an award for the quietest aircraft in the competition eric is the founder of leap Eric thank you our mission at leap is to stimulate innovation for a resilient future we do that through offering prizes and focusing on the electric aircraft industry advancing the development of an industry that has the
potential to revolutionize the way we
move about the planet we've also formed
an electric aircraft development
alliance to help work on safety and
regulations and standardization to help
again advance the development of the industry we also have an amazing youth education program where high school teams are are going out in filming short video documentaries on solutions to problems innovators really focusing on innovators and then sharing that information as wide as possible in order to solve all of the problems that we're
facing today we need to create a whole
generation who are incentivized to go

out seek out problems as potential

opportunities to move their forward in

their college and their work careers but

we're here today because really one of

the largest threats to the future of

aviation and general aviation which is

closer to my heart than flying in the

back of a transport category aircraft

aviation is threatened biggest one of

the biggest threats is noise and so

we're here to announce the the Lindbergh

prize for quietest aircraft and want to

say that we're very fortunate to have
had a generous ten thousand dollar donation from a private citizen Jeanne Schultz whose husband Charles M Schultz the airport at Santa Rosa was named after so Jeanne donated 10 thousand dollars so that we could award that with the quietest aircraft prize the aircraft that won the prize this first quietest aircraft prize had a DBA at a really annoys measured from a public standpoint of 56 262 DBA so very quiet for an example that's 16 times less noise than a than a turbofan aircraft and and on our way down to the bay area
in the rental car we had a little app on our phone that said 67 DBA so it was a whole lot louder inside the car and it bumped up to 87 when I started talking so I'll shut up soon so the Lindbergh prize for quietest aircraft is awarded to eg Gnaeus led by Eric Raymond congratulations on behalf of my entire team who I won't mention individually I got very thankful to receive this award and it's been a lot of work what I thought that just occurred to me is people expect progress through the passage of time as if in the
future there will be electrical I

electric aircraft and its really been slow in coming and what we really need is support for the engineers which often the engineers are very modest and not publicity-seeking so they don't tend to get the support so especially in this area Silicon Valley where there's so much innovative thinking I would really encourage people to support the engineers that are working hard often unnoticed and not just necessarily the pilots for example of the aircraft so thank you very much
thank you and congratulations Eric new

00:10:20,289 --> 00:10:24,610
genius we're now going to see a brief

00:10:22,870 --> 00:10:26,889
video that captures some of the

00:10:24,610 --> 00:10:29,230
highlights of the green flight challenge

00:10:26,889 --> 00:10:31,500
as seen over the past week up in Sonoma County

00:10:29,230 --> 00:10:31,500

00:10:53,409 --> 00:10:58,568
the dream by guests of everyone for a long time as we never flying car and if

00:10:55,870 --> 00:11:00,100
we can have electric flying cars that be wonderful

00:10:58,568 --> 00:11:01,719
it really is the dawn of a new era for aviation it's general aviation finally

00:11:00,100 --> 00:11:03,730
with an electric aircraft they'll be cheap simple easy to fly renewable

00:11:01,720 --> 00:11:06,759
energies quiet that's what we need to
revitalize the aviation industry this

dollars will use it for further aircraft

development I'm just bigger and better

faster onward and upward we want to fly

something or build something that's just

as efficient as a Prius this is our more

cosmic entrance a hybrid gas electric

battery powered airplane which is a

first of its kind Aviation is definitely

one of the most pollutant transportation

industries out there so trying to move

towards a greener and healthier motive

repulsion is definitely where we're all
headed they all have to fly up an average of 100 miles per hour or greater they require 200 miles per gallon per seat so a two-seater we have to average 100 miles per gallon at 100 miles per hour and there's no gasoline engine they can do that the other thing is sound so you want to be able to fly these at 78 decibels basically the sound of a dishwasher measured it 250 feet two years ago they came out with a proposal for this I laugh because it was impossible it just couldn't be done and yet in two years there's at least two
airplanes here that I know of that electric that I think can meet the criteria it's happening and it's happening exponentially the batteries get better these airplanes are going to get that and when we see that it's going to start to change the way we move about the planet today's prize prize purse is being provided by nasa through a NASA program called the Centennial Challenges program that program is a program that offers prize purses to technology challenges
and innovation challenges that benefit to NASA and to the nation and to industry it's a program that encourages inventors citizen inventors students and teams from all walks of life to compete to win a purse prize the government doesn't actually pay until a goal is met that program is overseen by the space technology program at NASA which oversees NASA's technology and innovation development for future missions which in turn is part of our office of the chief technologist we're lucky to have with us today our acting chief technologist Joe parish who is
going to announce the winners of today's competition

today I'd like to make a couple of brief acknowledgments and then I have a couple of brief thoughts also before we announce the winners I'd like to acknowledge a few individuals some of whose names you've heard already but some you have not mark Moore and Bruce homes at NASA Langley are actually responsible for the original idea for the green flight challenge and they came up with this idea back in 2005 and we've
been working toward this end ever since

then so we're grateful for them for having such an innovative idea and setting us on the path to get us where we are today I'd like to also acknowledge Sam Ortega and Larry Cooper from NASA the Centennial Challenges program they have been shepherding this at this effort along for months and months and months they must think it's years and years and years and this is also a culmination of their hard effort to dr. Brian Seely and his colleagues his all volunteer team at
cafe and his colleagues from the EAA chapter at the Sonoma Airport. They are just terrific and they've been a wonderful ally to NASA to execute this program. I'd like to also thank Google for sponsoring this Expo for installing the charging station at Sonoma County Airport and for their support to the Cafe Foundation. Finally, I'd like to thank NASA Ames for hosting us today in providing the wonderful flight line for the demonstration of the aircraft and the.
facilities that we're using right now so  

00:15:33,129 --> 00:15:40,299  
thanks to everyone for that there are  

00:15:36,509 --> 00:15:42,220  
three teams that qualified for the green  

00:15:40,299 --> 00:15:45,129  
flight competition the first one is the  

00:15:42,220 --> 00:15:47,500  
e genius team led by eric raymond the  

00:15:45,129 --> 00:15:50,320  
next one is the phoenix air team led by  

00:15:47,500 --> 00:15:53,799  
jim lee and the third is the llangollen  

00:15:50,320 --> 00:15:56,980  
aeronautics LLC pipistrelle USA team led  

00:15:53,799 --> 00:15:59,740  
by Jack llangollen in addition flying an  

00:15:56,980 --> 00:16:01,720  
Exhibition Mode was the echo eagle from  

00:16:01,720 --> 00:16:06,879  
was fantastic to have four aircraft  

00:16:03,360 --> 00:16:08,680  
flaying in California this weekend  

00:16:06,879 --> 00:16:12,769  
demonstrating the wonders of electric  

00:16:08,679 --> 00:16:14,808  
and hybrid flight and clean flight
there were tremendous accomplishments

made in aerodynamics aircraft

configuration design power plant design

and integration and flight path planning

these aircraft or five to ten times more efficient than conventional aircraft and

in fact they're even three times more efficient than large transport aircraft

it was not possible to win the green flight challenge with an existing aircraft design innovation was required

in order to win this competition lighter

batteries more compact and powerful

electric motors sleeker and lighter
structures are going to benefit more than just the aerospace community

you're going to usher in technologies that are useful in the automotive industry in mass transit in the green energy industries and we are extremely impressed by the ingenuity and the inventiveness that have been shown by the participants in the green flight challenge the folks who produce these innovative aircraft there they're just brilliant I hope to be looking back on this day from the not-too-distant future and talking about how the dawn a
practical electric flight broke today

just as the artigue prize was won by

Charles Lindbergh and the spirit of st. Louis that one showed that airplanes

could be used to fly long distances with

reliability and the Ansari XPrize showed

heralded in a new private space flight

industry we hope that the green flight

challenge will inspire a renaissance in

aviation new breed and a new industry in

fact of hyper efficient airplanes

ranging from aircraft of the size that

we've seen flying in the competition

today all the way up to large passenger
transports before I announce the winner

00:18:06,980 --> 00:18:11,899
of the prize I'd like to mention that

00:18:09,349 --> 00:18:14,959
NASA and the American taxpayers are also

00:18:11,898 --> 00:18:17,089
winners through prize competitions like

00:18:14,960 --> 00:18:19,460
the green flight challenge NASA's turned

00:18:17,089 --> 00:18:20,808
the technology development cost equation

00:18:19,460 --> 00:18:23,929
on its head

00:18:20,808 --> 00:18:26,028
in this case instead of contracting for

00:18:23,929 --> 00:18:28,960
tens of millions of dollars for a

00:18:26,028 --> 00:18:31,220
concept that might or might not work

00:18:28,960 --> 00:18:33,528
NASA is paying only one and a half

00:18:31,220 --> 00:18:35,769
million dollars and we only pay if it

00:18:33,528 --> 00:18:35,769
works

00:18:37,890 --> 00:18:40,890
considering

00:18:45,390 --> 00:18:51,520
so every once in a while we seem smart
don't we considering that over four million dollars was was was spent by the competitors on the weight of this prize we think this is a fantastic deal for the American taxpayer and NASA is absolutely committed to fostering innovative solutions through innovative mechanisms okay now to the announcement that you've all been waiting for the judges from cafe and NASA have totaled the scores from this week's competition I'm pleased to announce that two teams have met or exceeded the 200 passenger mile per gallon standard and they've
exceeded them by a very large margin

i'll tell you the by how large a margin

in just a moment to give you just a little bit of suspense i will announce

the second place winner first and then on to the first place and i'll invite both teams to come up and receive their checks and then the first place winner will have some some remarks to make in second place with a score of 370 5.8 miles per gallon is the e genius team led by eric raymond taking a prize taking a prize own

120 thousand dollars congratulation
killing say a thing for a moment

so you had to do better than 385 miles per gallon to win this competition in first place with a passenger miles per gallon of 400 + 3.5 is the llangollen aerospace LLC pipistrelle USA team led by Jack llangollen your prize is 1.35 million dollars congratulations please give them your pot they've done an amazing job I hope they'll let me take this home on carrion before I really get started I’d like my team to stand up pip the straw
usa.com you will be hard-pressed to find a better group of engineers and pilots anywhere in the world and also the people that are not here but helped enormously along the way the aerospace engineering department at Penn State my department head George Lacerte for all the support along the way we could have done it without everybody so many many years ago in December 17th in 1903 Orville Wright flew 120 feet in 12 seconds only two years later at Huffman Prairie near what is now wright-patterson Air Force Base they were flying more than 20 miles and
flights that were lasting more than 30 minutes this is incredible progress in 2008 at the Experimental Aircraft Association convention at Oshkosh Larry fishman's battery-powered electric fly RC was first flown publicly this airplane could fly 70 miles an hour could fly for about 45 minutes or so now at the green flight challenge two airplanes were able to fly more than 200 passenger miles per gallon and more than 100 miles an hour the e genius and the pipistrelle tour is g for four people aboard the Torah's g for an hour average
energy consumption was over 400

passenger miles per gallon this is incredible progress in only three years

together we have all shown that electricity is not only a viable but in fact a beautiful way of powering these airplanes when our airplanes fly overhead 2,000 feet up we cannot hear them when they fly by they are no emissions the power to recharge our batteries came from a geothermal plant powered by geysers near santa rosa this is absolutely incredible I pay about eight cents a kilowatt hour for
electricity in state college okay so

that means to fly the Torres g4 for two

hours cost me about seven dollars

compare that with the cost of flying a

standard for passenger airplane for two

hours that's an awful lot of aviation

gasoline compared the environmental

impact of our electricity with

environmental impact of all those

gallons of aviation gasoline on board

the the standard airplanes we're at the

point where personal air travel is

becoming both affordable and truly green

this is absolutely incredible there are

00:24:07,680
many many people out there now building electrically powered airplanes in start-up companies and small businesses and in their garages we have to encourage this to continue we have to continue to drive the technology team pipistrelle usa.com believes that technological progress comes from both bold vision and from Grand Challenges and because of that pipistrelle if NASA Google on the cafe foundation accept the challenge pippa Stroh will donate $100,000 to the first electrically powered airplane that can fly faster than the speed of sound
we fully expect that somebody will win this award within the next five years so we are going to go from the first flight of a battery powered airplane to supersonic flight within one decade that is going to be absolutely amazing we're all incredibly proud of what we've done here and we expect it'll be enormous changes in aviation of the couple of years to come we congratulate all of the teams and their achievements and we thank NASA google and the cafe foundation for enabling this historic competition and we're all looking
forward to the future of electric aviation with enormous anticipation

thank you

thank you jack and we have one more surprise for you to help close the show
today our folks at cafe have something to give you to commemorate today's winning of the green flight challenge

bringing it up the aisle here is actually the sculptor Ralph Karlsson from Sebastopol California to give you the green flight Challenge Trophy

congratulations to our winners and
everybody who participated in the green flight challenge thank you for joining us here at NASA's Ames Research Center for today's awards for more information about the green flight challenge in NASA visit wn sl gov thank you all for coming you