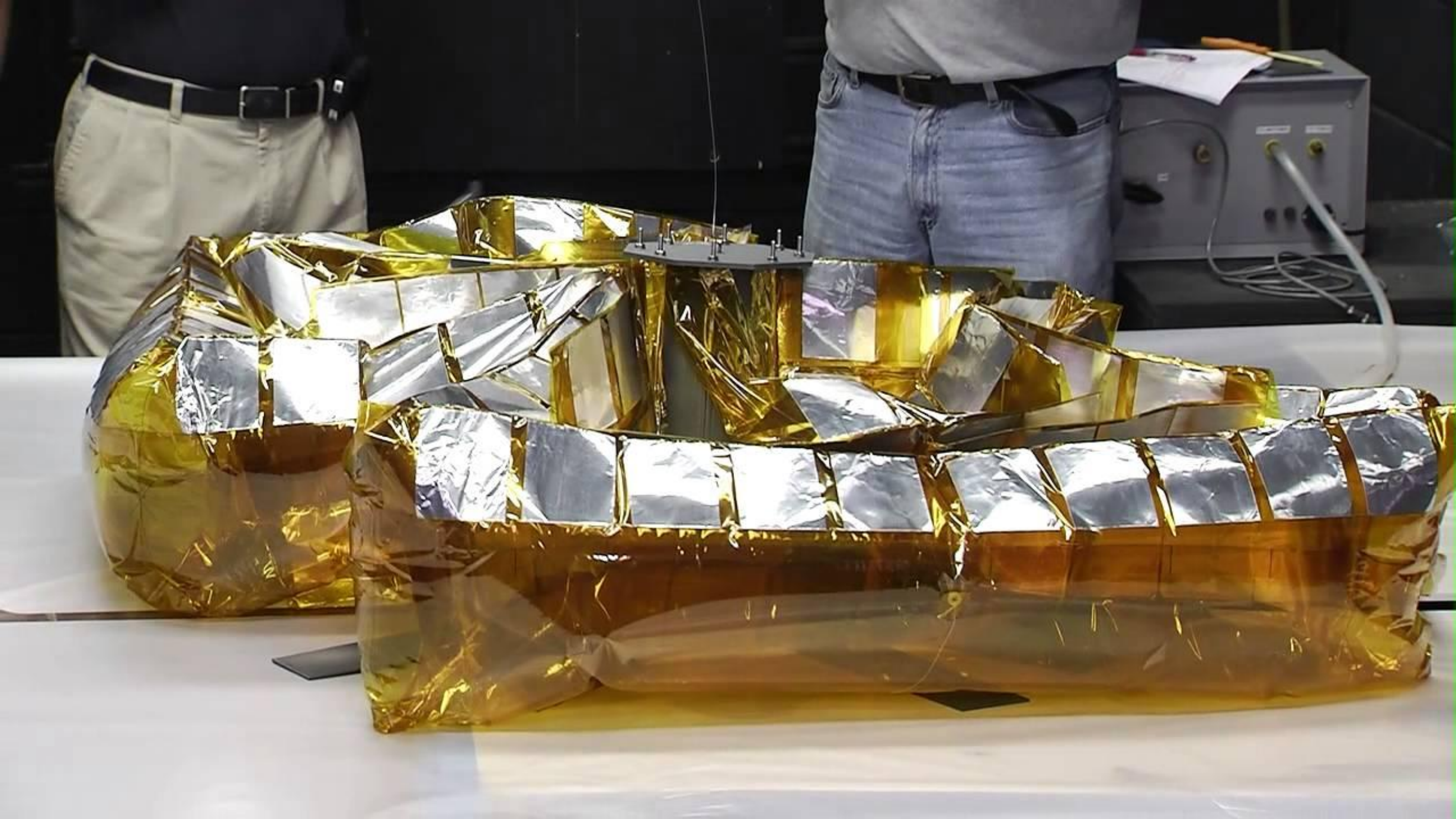

1
00:00:10,400 --> 00:00:08,720
satellites have a have a common problem

2
00:00:11,629 --> 00:00:10,410
and that is they're always power starved

3
00:00:13,580 --> 00:00:11,639
no matter where you are there's not

4
00:00:16,450 --> 00:00:13,590
enough power and conventional solar

5
00:00:18,980 --> 00:00:16,460
power comes from rigid deployable arrays

6
00:00:21,200 --> 00:00:18,990
typically with cover glass they're

7
00:00:23,570 --> 00:00:21,210
somewhat fragile easily damaged during

8
00:00:25,820 --> 00:00:23,580
packaging and it's difficult to get a

9
00:00:27,320 --> 00:00:25,830
lot of power in a small spacecraft which

10
00:00:29,630 --> 00:00:27,330
is the current generation of cube SATs

11
00:00:30,980 --> 00:00:29,640
and ultra small spacecraft what we're

12
00:00:33,860 --> 00:00:30,990
doing in this test is we're

13
00:00:36,560 --> 00:00:33,870

demonstrating the ability to take next

14
00:00:38,900 --> 00:00:36,570
generation very flexible solar arrays

15
00:00:41,750 --> 00:00:38,910
fold them package them into a very small

16
00:00:44,090 --> 00:00:41,760
volume and deploy them once they're in

17
00:00:45,890 --> 00:00:44,100
space so that you can get a large

18
00:00:54,670 --> 00:00:45,900
surface area and generate a lot of power

19
00:00:58,939 --> 00:00:57,350
the way this all got started was we were

20
00:01:02,299 --> 00:00:58,949
working with several companies on very

21
00:01:03,740 --> 00:01:02,309
thin film lightweight solar cells these

22
00:01:04,850 --> 00:01:03,750
are very different than the solar cells

23
00:01:07,460 --> 00:01:04,860
that are used in space applications

24
00:01:09,740 --> 00:01:07,470
today and they they're very flexible

25
00:01:12,290 --> 00:01:09,750
they're very light and they're mountable

26
00:01:15,080 --> 00:01:12,300
on on a variety of substrates including

27
00:01:16,280 --> 00:01:15,090
aluminum or captain and we were thinking

28
00:01:18,320 --> 00:01:16,290
about structures that we can mount them

29
00:01:19,670 --> 00:01:18,330
on and we realized that inflatable

30
00:01:21,530 --> 00:01:19,680
structures were were the perfect

31
00:01:24,680 --> 00:01:21,540
mounting structures for those and that

32
00:01:26,270 --> 00:01:24,690
they gave us a very rigid structure that

33
00:01:29,600 --> 00:01:26,280
would hold the lightweight array and

34
00:01:31,219 --> 00:01:29,610
would also provide very small storage

35
00:01:37,660 --> 00:01:31,229
volume for the array that you end up

36
00:01:43,210 --> 00:01:39,820
the unit you see who came from a concept

37
00:01:46,210 --> 00:01:43,220
study that we did for a micro set that

38
00:01:48,400 --> 00:01:46,220

would implement a telescope application

39
00:01:50,590 --> 00:01:48,410
and so we took the concept design that

40
00:01:51,610 --> 00:01:50,600
we had and actually built the test

41
00:01:54,400 --> 00:01:51,620
article out of it

42
00:01:56,080 --> 00:01:54,410
the silver substrate pieces that you see

43
00:01:57,850 --> 00:01:56,090
aren't print of the solar arrays but we

44
00:02:00,250 --> 00:01:57,860
had one actual solar cell that we

45
00:02:02,410 --> 00:02:00,260
attached to the pedal instrumented and

46
00:02:03,969 --> 00:02:02,420
we did flash tests of it in the

47
00:02:05,770 --> 00:02:03,979
beginning and we wrapped it up for

48
00:02:07,300 --> 00:02:05,780
deployment now we've done the deployment

49
00:02:09,219 --> 00:02:07,310
and you know do another test to assure

50
00:02:16,620 --> 00:02:09,229
that the deployment hasn't damaged it

51
00:02:20,400 --> 00:02:18,480
there are a lot of applications for this

52
00:02:22,740 --> 00:02:20,410
technology we envision that you could

53
00:02:25,170 --> 00:02:22,750
use this inflatable or deployables solar

54
00:02:27,360 --> 00:02:25,180
array system everything from cube SATs

55
00:02:29,520 --> 00:02:27,370
which are was a very small 10 centimeter

56
00:02:31,560 --> 00:02:29,530
by 10 centimeter spacecraft which are

57
00:02:33,510 --> 00:02:31,570
typically very very power limited

58
00:02:36,030 --> 00:02:33,520
something like this could be packaged in

59
00:02:38,400 --> 00:02:36,040
about 1/3 of the volume and inflate to

60
00:02:40,800 --> 00:02:38,410
something this size providing unheard of

61
00:02:43,020 --> 00:02:40,810
power for small SATs primarily in

62
00:02:44,520 --> 00:02:43,030
low-earth orbit you could also take this

63
00:02:47,160 --> 00:02:44,530

technology and use it for human

64
00:02:49,560 --> 00:02:47,170
exploration in deep space and deploy

65
00:02:52,380 --> 00:02:49,570
incredibly large thanks size of this

66
00:03:09,020 --> 00:02:52,390
room or bigger arrays packaged into

67
00:03:14,070 --> 00:03:12,090
the next steps for the technology are to

68
00:03:16,470 --> 00:03:14,080
take this demonstration which we believe

69
00:03:19,559 --> 00:03:16,480
is shown of the viability of this at

70
00:03:21,570 --> 00:03:19,569
technology readiness level 4 and start