

MAR 03 2017

SENATE RESOLUTION

REQUESTING THE OFFICE OF AEROSPACE DEVELOPMENT TO FACILITATE THE FORMATION OF A MULTINATIONAL LUNAR ARCHITECTURE ALLIANCE TO GUIDE THE DEVELOPMENT AND IMPLEMENTATION OF A PROTOTYPE LUNAR BASE ON THE ISLAND OF HAWAII.

1 WHEREAS, Hawaii's strategic mid-Pacific near-equatorial
2 location, Moon/Mars-like terrain, resident expertise in multiple
3 aerospace-related technologies, and long-standing ties with
4 space-faring nations worldwide confer clear strategic assets and
5 capabilities that can be leveraged to realize humankind's full
6 potential in space, and in doing so enable the State to engage
7 as a major contributor to and beneficiary of global space
8 enterprise; and

9
10 WHEREAS, for the past half century, Hawaii has played a
11 seminal role in developing the national space program, beginning
12 with astronaut training for the Apollo lunar missions and the
13 development of world-class observatories on the Island of
14 Hawaii; and

15
16 WHEREAS, over the past four decades, the University of
17 Hawaii, the United States military, and numerous companies
18 statewide have pioneered nationally-funded programs in planetary
19 geosciences, satellite communications, space-based remote
20 sensing and environmental monitoring, deep-space surveillance,
21 and other areas employing aerospace-related technologies; and

22
23 WHEREAS, new opportunities are forthcoming in the aerospace
24 industry related to robotics, renewable energy, additive
25 manufacturing, and other areas that are ideally suited for
26 Hawaii and could generate substantial scientific, educational,
27 and commercial benefits for the State's residents; and

28
29 WHEREAS, the Moon contains abundant geological resources,
30 proximal to Earth, that can be utilized to advance
31 interplanetary travel and improve quality of life on Earth; and

32
33 WHEREAS, an expanded and diversified space economy, based
34 upon innovative commercial utilization of lunar resources



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1 including but not limited to lunar mining, harvesting of space-
2 based solar power, and the development of cis-lunar propellant
3 depots, could enrich terrestrial civilizations, help preserve
4 the Earth's fragile environment, and ultimately enable
5 sustainable human exploration throughout the Solar System; and
6

7 WHEREAS, global technologies and economic capacities have
8 advanced to the point where self-sustaining space economies
9 could be created through international collaboration and public-
10 private partnerships, and rapidly expanding governmental and
11 corporate interests in lunar enterprise worldwide can facilitate
12 the development of these economies; and
13

14 WHEREAS, sustainable space settlement will require advances
15 in key technologies beyond rocket propulsion including life
16 support systems, telecommunications, power generation, and food
17 production and terrestrial-based testing and evaluation of these
18 technologies will play an indispensable role in their long-term
19 development and implementation; and
20

21 WHEREAS, the Island of Hawaii's Moon-like terrain offers an
22 ideal environment for multinational teams to develop, test, and
23 validate such technologies, which in turn would enable multiple
24 opportunities for local scientists, engineers, entrepreneurs,
25 and students to participate in this enterprise; and
26

27 WHEREAS, rapidly expanding international interest and
28 investment in future lunar missions, as well as multinational
29 collaboration in lunar research and development enabled through
30 public-private partnerships, could help reduce the costs,
31 enhance the benefits, and accelerate timetables for future space
32 missions; and
33

34 WHEREAS, Hawaii's resident expertise in space science and
35 education, as well as ongoing research and commercial
36 partnerships with space-faring nations worldwide, well position
37 the State to play a leadership role in space exploration,
38 utilization, and commerce, beginning with the development,
39 testing, and evaluation of prototype habitats and related in
40 situ resource utilization technologies to enable and support
41 future missions to the Moon; and
42



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1 WHEREAS, there exist significant and diverse scientific,
2 educational, and economic benefits of space exploration, and a
3 preliminary emphasis on lunar-related enterprise could enable
4 more affordable and sustainable space enterprise in the long
5 term, expanding humanity's reach through the solar system as
6 well as improving quality of life on Earth, and leading toward
7 development of a sustainable space economy; now, therefore,
8

9 BE IT RESOLVED by the Senate of the Twenty-ninth
10 Legislature of the State of Hawaii, Regular Session of 2017,
11 that the Office of Aerospace Development (OAD) is requested to
12 facilitate the formation of a Multinational Lunar Architecture
13 Alliance (MLAA) with representatives from government, industry,
14 and academia to provide recommendations and guidance for the
15 development of a prototype lunar base on the Island of Hawaii,
16 to include but not be limited to modular habitats, telerobotic
17 systems, communications networks, cis-lunar positioning and
18 navigation systems, and in situ resource utilization
19 technologies; and
20

21 BE IT FURTHER RESOLVED that the MLAA be launched through an
22 International Lunar Summit (ILS) in Hawaii, coordinated through
23 OAD during the fall of 2017, with the goal of engaging
24 representatives from:
25

26 (1) Hawaii-based organizations, including but not limited
27 to OAD, the Pacific International Space Center for
28 Exploration Systems (PISCES), Hawaii Space Exploration
29 Analog and Simulation (HI-SEAS) program, Hawaii Space
30 Flight Laboratory (HSFL), and University of Hawaii
31 College of Engineering;
32

33 (2) Appropriate federal agencies and institutions,
34 including but not limited to the National Aeronautics
35 and Space Administration (NASA), Federal Aviation
36 Administration (FAA), United States Pacific Command
37 (USPACOM), United States Army Pacific (USARPAC), Lunar
38 Exploration and Analysis Group (LEAG), University
39 Space Research Association (USRA), and Lunar and
40 Planetary Institute (LPI);
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- 1 (3) International space agencies and organizations,
2 including but not limited to the European Space Agency
3 (ESA), Canadian Space Agency (CSA), Japan Aerospace
4 Exploration Agency (JAXA), International Lunar
5 Exploration Working Group (ILEWG), International Space
6 Exploration Coordination Group (ISECG), Committee on
7 Space Research (COSPAR), and United Nations Office for
8 Outer Space Affairs (UNOOSA);
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- 10 (4) Major corporations representing aerospace, information
11 technology, renewable energy, robotics, and other
12 appropriate industrial sectors; and
13
- 14 (5) Space advocacy agencies and organizations, including
15 but not limited to the National Space Society (NSS),
16 Lunar Explorers Society (LES), Space Frontiers
17 Foundation (SFF), and American Astronautical Society
18 (AAS); and
19

20 BE IT FURTHER RESOLVED that the ILS primarily focus on
21 identifying the major goals and challenges associated with the
22 design and validation of a prototype lunar base in Hawaii, as
23 well as the formulation of strategies for enabling public-
24 private partnerships to support the organization and
25 implementation of multinational research activities and
26 commercial ventures, on the lunar surface and in cis-lunar
27 space, toward the development of a sustainable space economy;
28 and
29

30 BE IT FURTHER RESOLVED that the ILS submit a report of its
31 recommendations, including any proposed legislation, to the
32 Legislature and the Office of the Governor no later than twenty
33 days prior to the convening of the regular session of 2018; and
34

35 BE IT FURTHER RESOLVED that certified copies of this
36 Resolution be transmitted to the Commander of the United States
37 Pacific Command; Commander of the United States Pacific Fleet;
38 Commander of the United States Pacific Air Forces; Commanding
39 General of the United States Army Pacific; Commander of the
40 United States Marine Corps Forces, Pacific; Administrator of the
41 National Aeronautics and Space Administration; Federal Aviation
42 Administration Local Coordinator for the Pacific; Office of the



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1 Governor; Office of the Lieutenant Governor; Director of
 2 Business, Economic Development, and Tourism; Chairperson of the
 3 Board of Regents of the University of Hawaii; Adjutant General;
 4 Director of the Office of Aerospace Development; Executive
 5 Director of the Pacific International Space Center for
 6 Exploration Systems; President of the University Space Research
 7 Association; Director of the Lunar and Planetary Institute;
 8 Director General of the European Space Agency; President of the
 9 Canadian Space Agency; President of the Japan Aerospace
 10 Exploration Agency; President of the Committee on Space
 11 Research; Director of the United Nations Office for Outer Space
 12 Affairs; Board of Directors of the National Space Society;
 13 Advisory Committee for the Lunar Explorers Society; Board of
 14 Directors of the Space Frontiers Foundation; and President of
 15 the American Astronautical Society.

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OFFERED BY: Will Expro

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