119th CONGRESS

2nd Session

S. ____

A BILL

To prohibit the Secretary of Transportation from licensing the launch of, and any holder of a license from launching, a payload containing any material to be used for the intentional reflection of sunlight toward Earth, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Regulating Orbital Sunlight Reflection Act" or the "Sunlight-as-a-Service Act".

SEC. 2. FINDINGS.

Congress finds the following:

(1) The night sky and natural darkness are a shared resource essential to human health, wildlife, ecosystems, cultural heritage, and scientific discovery.

(2) Locations throughout the United States have been designated as International Dark Sky Places, Communities, Parks, Reserves, or Sanctuaries, and many other communities value their dark night skies as a matter of public health, environmental quality, and economic importance to local astro-tourism.

(3) One or more companies have proposed or begun to deploy satellites carrying large mirrors or reflective films to redirect sunlight to the surface of the Earth at night, a practice marketed as "sunlight-as-a-service", "orbital illumination", or similar terms.

(4) Reflected sunlight from even a single such satellite introduces a new and previously unregulated category of intentionally directed light at night, with a ground footprint several kilometers in diameter and a brightness several times that of the full moon.

(5) Credible scientific and technical analysis indicates that orbital sunlight reflection would, at scale—

(A) disrupt wildlife behavior, including migration, foraging, and reproduction;

(B) suppress nocturnal pollination and aquatic food webs;

(C) create distraction and glare hazards for pilots, drivers, and other nighttime operators;

(D) disrupt human circadian rhythms and increase health risks associated with light exposure at night;

(E) impair or damage professional and amateur astronomical observation and instrumentation;

(F) increase the risk of orbital collisions and space debris.

(6) The harms described in paragraph (5) arise from the intentional delivery of reflected sunlight to the surface of the Earth as a commercial service, and not from any particular level of illuminance. A numerical brightness threshold would introduce an evidentiary question into every enforcement action without excluding any activity that Congress intends to permit.

(7) Section 50911 of title 51, United States Code, already bars the licensing and launch of payloads to be used for obtrusive space advertising, and reflects a longstanding judgment of Congress that the appearance of the night sky is a public resource that commercial activity in outer space should not be permitted to alter.

SEC. 3. DEFINITION OF INTENTIONAL REFLECTION OF SUNLIGHT TOWARD EARTH.

Section 50902 of title 51, United States Code, is amended by adding at the end the following:

"(28) 'intentional reflection of sunlight toward Earth' means the use of a mirror, reflective film, reflective coating, or other apparatus carried by a payload for the purpose of redirecting sunlight toward the surface of the Earth so as to illuminate any point on the surface of the Earth, including for the purpose of extending photovoltaic power generation, agricultural lighting, event lighting, or a similar commercial application, regardless of the intensity of the illumination produced. Such term does not include the incidental reflection of sunlight from a satellite, launch vehicle, or other spacecraft that is not designed, marketed, or operated for the purpose of illuminating the surface of the Earth.".

SEC. 4. PROHIBITION ON LICENSING AND LAUNCH.

(a) In General.—Section 50911 of title 51, United States Code, is amended—

(1) in the section heading, by striking "Space advertising" and inserting "Space advertising and reflected illumination of Earth";

(2) in subsection (a), in the matter preceding paragraph (1), by striking "obtrusive space advertising" and inserting "obtrusive space advertising or the intentional reflection of sunlight toward Earth";

(3) in subsection (b), by striking "obtrusive space advertising" and inserting "obtrusive space advertising or the intentional reflection of sunlight toward Earth"; and

(4) in subsection (c), by adding at the end the following: "Nothing in this subsection shall be construed to authorize the launch of a payload containing any material to be used for the purpose of the intentional reflection of sunlight toward Earth.".

(b) Clerical Amendment.—The table of sections for chapter 509 of title 51, United States Code, is amended by striking the item relating to section 50911 and inserting the following:

"50911. Space advertising and reflected illumination of Earth.".

SEC. 5. REVIEW OF EXISTING AUTHORIZATIONS.

(a) Report.—Not later than 180 days after the date of enactment of this Act, the Secretary of Transportation, in consultation with the Federal Communications Commission, shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report identifying each license, permit, or other authorization issued before the date of enactment of this Act for a payload containing any material to be used for the intentional reflection of sunlight toward Earth.

(b) Contents.—The report required by subsection (a) shall describe, with respect to each authorization identified—

(1) the environmental review, if any, conducted before the authorization was issued;

(2) the anticipated ground footprint and illuminance of the reflected sunlight; and

(3) the authority available to the Secretary or the Commission to modify, condition, suspend, or revoke the authorization.

SEC. 6. SEVERABILITY.

If any provision of this Act, or any amendment made by this Act, or the application of any such provision to any person or circumstance, is held to be invalid, the remainder of this Act, the amendments made by this Act, and the application of such provision to other persons or circumstances, shall not be affected thereby.