

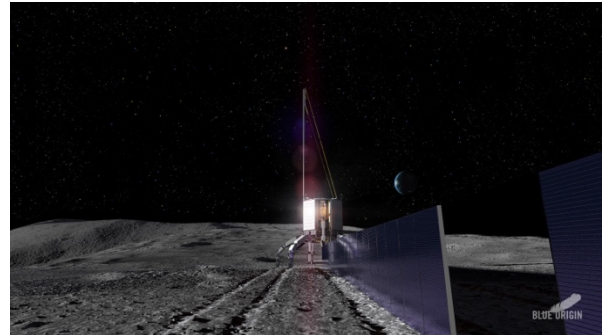
Harnessing Space Resources for the Benefit of Earth at Blue Origin. M. L. Hendry¹ and Space Resources Program Team, ¹ Space Resources Program, Space Systems Development, Blue Origin. (Contact: mhendry@blueorigin.com).

Introduction: Blue Origin was founded with a vision of millions of people living and working in space for the benefit of Earth. Blue Origin envisions a time when people can tap into the limitless resources of space and enable the movement of damaging industries into space to preserve Earth, humanity's blue origin. Blue Origin is working today to create that future by developing reusable launch vehicles and in-space systems that are safe, low cost, and serve the needs of all civil, commercial, and defense customers. Blue Origin's efforts include flying astronauts to space on New Shepard, producing reusable liquid rocket engines, developing an orbital launch vehicle with New Glenn, and returning to the surface of the Moon in a more permanent way. These endeavors will add new chapters to the history of spaceflight and move all of humanity closer to that founding vision.

A key part of this vision is the harnessing of space resources for the benefit of Earth. The Space Resources Program within Space Systems Development at Blue Origin has been established to address the challenges required for opening space resources to humanity and to use them in-situ, starting with the Moon.

The Space Resources Program at Blue Origin was ignited in 2020 and consists today of scientists and engineers across various disciplines from geophysics, geochemistry, geology, instruments, materials, chemistry, production, and all engineering disciplines required to design, build, and maintain resource prospecting, processing, and manufacturing systems in space – primarily focusing on developing the Blue Alchemist system.

The core technology for the Space Resources Program is Blue Alchemist [1], an end-to-end, scalable, autonomous, and commercial solution that produces solar cells, wire, and oxygen from lunar regolith. Based on a process called molten regolith electrolysis, the breakthrough will bootstrap unlimited electricity and power transmission cables anywhere on the surface of the Moon.



In this talk, I will provide an overview of our Space Resources Program and our Blue Alchemist core technology development in partnership with NASA through a Tipping Point award [2] and expand on how this technology will support a vivid lunar economy in this decade.

References:

- [1] <https://www.blueorigin.com/news/blue-alchemist-powers-our-lunar-future>
- [2] <https://www.blueorigin.com/news/blue-origin-awarded-nasa-partnership-to-turn-lunar-regolith-into-solar-power-systems-on-the-moon>