

For decades, I have worked to make human activity in space economically self-sustaining, with “multiplier effects” which make space more than just a “banana republic.” Space must open up big new markets. We must cut the cost of access to space to \$200/pound. (That drives the economics of energy from space and the scale of other markets.) We need dogged efforts to connect the requirements all the way from nuts and bolts to global policies and politics.

In 1972, while getting a PhD from Harvard in Applied Math, I started the Harvard Committee for a Space Economy (HCSE). HCSE stimulated many new ideas. It provided a start for Mark Hopkins, and links to the Princeton group (O’Neill) and Drexler. George Mueller’s vision for the space shuttle inspired us, but Nixon’s response illustrated pitfalls in politics.

Teaching at U. Maryland (1975-1978), I included space in my course on Global Survival Problems, where I met Gary Barnhardt. With another friend, we founded the Maryland Alliance for Space Colonization, which got up to 500 members.

From 1979-1989, I became the DOE/EIA lead analyst for long-term energy futures. As Regional Director for L-5, I worked with chapters from New Jersey to the Piedmont. I served quietly but effectively as L-5’s representative to Congress, helping start the National Aerospace Plane Project (NASP). After my DOE colleague Gary Oleson became representative, I worked with him on a council of pro-space organizations leading to the founding of NSS.

Through 2010, I funded research from the Engineering Directorate of NSF. I funded AAC in Tennessee to apply computational intelligence to problems which plagued NASP. Based on their success, AAC briefly led America’s continuing effort in hypersonics (LoFlyte) after NASP cancellation. I cooperated with McDonnell Douglas, leading to the Handbook of Intelligent Control (White and Sofge), yielding methods to mass-produce materials for hypersonics and reduce the weight of thermal protection systems. I funded efforts to assimilate and improve a Russian approach (“Ajax”) to air-breathing vehicles fast enough to get to orbit. In 2002, I visited John Mankins, who agreed to “JIETSSP,” the last US government funding program for space solar power, which we ran jointly. (To learn more, search on JIETSSP at [www.nsf.gov](http://www.nsf.gov), or visit [www.werbos.com/space.htm](http://www.werbos.com/space.htm).) In 2009, I worked at the Senate on climate, energy, defense technology and space. Futures published my paper on a rational strategy to maximize the probability that humans really succeed in settling space.