

The Energy Crisis, Space Crisis, and the Future of the International Space Station

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While the idea of bootstrapping human evolution into Space with LOX depots (Martin 2015) is a good one, we need to frankly discuss what this will mean from a practical standpoint. First, onsite personnel will be required for an extended period of time to assemble and activate a fully functioning LOX depot. Once established and ready to receive LOX deliveries, a transient staff will be needed to make at least the first deliveries and to monitor and service the depot, as needed, during its trial period. It may be possible over time to develop the technology and protocols for automated deliveries and disbursements of LOX without the need for onsite personnel, but whether an unmanned LOX depot is wise, is another matter. Further, the LOX depot concept needs to be broadened to a multi-use propellant depot that can provide a variety of propellants as needed by the various Space-based vehicles.

As use of the LOX (Propellant)depot increases, it is reasonable to expect that an onsite habitation for support personnel and transient personnel will be desirable, if not actually needed for practical reasons. A bare essentials depot will only require propellant storage and transfer facilities and arrival, docking, and departure facilities. When a permanent onsite habitation is deemed necessary, it will be important to add support modules for maintenance and repair (with a remanufacturing capability), as well as support modules for needed relating to food and water, cleaning/laundry, emergency health care, energy generation, air purification and regeneration, battery recharging, etc. In short, what the establishment of an operational depot will require is an orbiting infrastructure in Space that is much more advanced than that of the International Space Station (ISS).

The cost of developing an orbiting propellant depot can be reasonably expected to pay for itself over time from savings relative to current budgeting for outbound and returning launch missions, as well as from income from use by private ventures in their business development endeavors. In short, it seems to me that we urgently need an orbiting depot right now and that this should be developed while also preparing for longer-term (several months or longer rotational) habitation by humans. Moreover, we need a propellant depot far more than we need

to launch a glamour mission to Mars, blasting an asteroid, or even launching an ORION flight. Admittedly, serious exploration of the solar system is still far off into the future, but we can with certainty take catalytic initial steps in this direction now by getting a permanent support infrastructure into place (Knuth 2015), e.g., by way of a depot array and, in parallel, its support habitation.

We have already learned much from the ISS, yet there is much that we still need to learn about developing Space living technologies and practices. While the future of the ISS is being debated, it would be an interesting topic of discussion to consider whether the ISS can be re-tasked to support development the first propellant depot. Possibly, the infrastructure and the personnel needed to assemble the depot and its parallel habitation facilities may already be in orbit as the residents of the ISS. Once assembled, the first depot can be repositioned as needed, thus leaving the ISS free to take on another project.

From certain standpoints, re-tasking the ISS to develop the first depot can be seen as a half-hearted approach to Space habitation. Assuming that it is possible to retask the ISS for this purpose, would we not risk stalling true Space habitation indefinitely? Would it not be better to take a fresh look at what it would take to develop and finance the next generation Space habitation without resorting to the use of the ISS?

I am reminded that we are in the midst of an energy crisis and that we may not fully understand why this crisis developed. There are many who think that our efforts to develop renewable energy have stalled real steps towards National energy abundance for the last 40-50 years and on into the future. At the outset, we could easily have achieved energy independence and abundant low cost energy by devoting our Nation's technical expertise to continuing the advancement and refinement of energy extraction from nuclear sources. Reasonable ongoing investments would have solved safety concerns. Nuclear waste disposal by parking it in solar orbits could have resolved waste issues (although that could have also been minimized by development of Breeder Reactors). The energy solution would have been

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an effective and complete solution, perhaps even resulting in the development of undersea reactors offering significantly improved thermal efficiency and lower cost safety. Instead, we allowed fear mongers without technical expertise to make the crucial decision for the Nation, which basically stalled the development of nuclear power. Some say it was the influence of oil companies. I do not know. But in any event, this opened the door for the incredible folly of “renewable energy”. This has given us the specter of wind farms heavily subsidized by the tax payer, sprawled in great ugly towers across otherwise pristine hillsides and plains county across the Nation. Their great spinning blades promise death to countless birds nationwide annually. The electricity they produce is less than 5% of the Nation’s needs, yet we all pay a higher price for our electricity because a small fraction of it is streamed into the grid from the wind farms at a much higher price than that produced by fossil fuels. The subsidized wind farms corporations reap a bonanza of tax-free profits, earned from installations paid for by Government loans. A very similar story applies to the ethanol fuel industry, resulting in our paying for its profits in higher priced cereal and flour-based products as well as meats, and reduced gas mileage in our cars. A similar story applies to solar power, where the false promise of cheap power from the sun becomes evident when the presence of the solar panels damage the homeowners roof, and where wind and hail and dust and debris degrade the performance and shorten the panel life, and swallows turn into puffs of smoke in concentrated solar beams from mirror arrays. Again the subsidized solar power companies reap profits from the taxpayer because of subsidies and tax exclusion clauses in their permits. Much of the drive for renewable energy comes from those who are involved in building and operating renewable energy systems and their Government minions.

We have not yet learned enough from our energy crisis, so we do not fully understand its magnitude and why this crisis developed.

There is a striking analogy with regards to what can be called our Space crisis. We have become lost in ever more glamorous missions such as going to Mars, when we should be dedicating serious thought to developing and financing the next generation Space habitation. A half-hearted approach to Space habitation, in my opinion, would be what I would expect out of an indolent Nation, such as we are becoming. It is not the approach of a confident, vigorous nation that I used to know, that built the United States and went to the Moon, and was preeminent in the world in most major aspects of quality of life.

Sources Cited

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