# Re: Cloud nine tensegrity city

***Source:*** http://sci.tech−archive.net/Archive/sci.space.policy/2008−02/msg00100.html

- *From*: BradGuth <bradguth@xxxxxxxxx>
- *Date*: Sun, 3 Feb 2008 13:25:55 −0800 (PST)

Why not just park our energy sucking butts within our salty old moon?

Don't you think there's any usable geode pockets or hallow rilles up there?

Don't you think our trusty old moon is semi−hollow, or perhaps at most that offering a low density core?

How about just using my 256e6 tonne LSE−CM/ISS? (there's lots of room inside, and it's extremely well shielded)

On Feb 3, 7:30 am, Willie.Moo...@xxxxxxxxx wrote:

> On Feb 2, 2:03 am, BradGuth <bradg...@xxxxxxxxx> wrote:
>
> > And the Mook World FactBook is once again telling us what we already know, or of what none of us need to know.
> >
> > How about all of those robo H2 blimps doing their global internet fast access thing?
> > . − Brad Guth
> >
> > Willie.Moo...@xxxxxxxxx wrote:
> >
> > > http://en.wikipedia.org/wiki/Cloud_nine_%28Tensegrity_sphere%29
> > > http://www.flickr.com/photos/ldjjj/109033997/
> > >
> > > Two kilometer diameter geodesic spheres floating due to warm air

inside was first proposed by Buckminster Fuller in 1967. Entire
communities could float overhead, taking in resources and providing
finished goods in payment. They could also trade goods.

Travelling at an average speed of 80 kph − they would circumnavigate
the Earth every ,20 days. Carrying 50,000 tons of surplus cargo for
trade, 10,000 such cities, with 5,000 people on board each − would
exchange enough goods to support every man woman and child on Earth at
the US per capita rate.

In 1967 these cities were thought to be nuclear powered. Compact
nuclear reactors from GE − of the type that powered Antarctica from
1962 to 1972

http://www.eoearth.org/article/Small_nuclear_power_reactors

would provide the city its lifting capacity and power supply.

I envision such cities might be powered by laser beams from space −
and would be the first step toward space colonies. They would also be
the natural warehousing and control centers for terrestrial processing
and distribution of early stage raw materials and finished goods from
orbit.

Smaller hydrogen filled balloons − with compact industrial processors
− also powered from space − could provide a variety of

functions
supporting the larger city. 5 to 10 smaller cargo balloons each with
200 to 1,500 ton lift capacity − would be associated with each city of
2,000 to 5,000 people.

2,000 asteroids or astreroid fragments would be gathered from the
asteroid beltand returned to sun synchronous polar orbit above the
terminator line of Earth. The asteroids would be processed into raw
materials and finished goods − as the first step in off−world development.

Power satellites would be built on Earth and orbited. the power
satellites would then be used to increase the efficiency of the rockets used to deploy them. A total of 2,000 satellites, each generating 22 GW of laser energy − would provide sufficient energy for
all of Earth as well as substantial space resources.

The ground based systems that supported the deployment of 2,000 power
sats, and 660 comsats previously, would build and dispatch 1,000
probes to the asteroid belt to survey 6,700 asteroids selected from
45,000 chosen from an optical analysis of 300,000 small solar system
bodies. From this process, 1,000 asteroids, ideally suited for use as
industrial feedstock are returned ot Earth orbit.

1,000 telerobotically operated factories are deployed one to each
asteroid− in orbit 1,000 km above the Earth. Eeach separated 46.3 km
from the other.

The first major construction are 10,000 cloud nine cities that re−
enter the Earth's atmosphere and deploy after reaching subsonic speeds
− spread throughout the Earth. Crews are selected from the millions
of workers that operate the telerobotic factories on orbit, along with
their families. Up to 50 million people may be recruited in this way,
with 10 million workers spread among 100 different operating
companies.

The next expansion is to build assembly plants and other industrial
components on orbit, to support processing and eventual distribution
to Earth through the cloud nine cities.

Support

4 HL−RLVs
30 LHL−RLV

660 communications satellites
2,000 power satellites

Primary

1,000 feedstock points to reduce ores to materials
10,000 processing centers to convert materials to finished goods
100,000 assembly centers to convert finished goods to consumer
products
1,000,000 farm centers to grow and process food on orbit
10,000,000 forest centers to grow fiber and wood on orbit
100,000,000 residential centers − to house people on orbit

> Once established each population of primary assets continues growing
> until their total numbers are 20x the figures shown above.
>
> The number of floating cities never exceeds 25,000 since the population of Earth is reduced at the point this number of cities is
> reached.− Hide quoted text −

− Show quoted text −

Well, 10,000 cities flying freely over the Earth's surface COULD take up stationary positions relative to one another. Clearly 10,000 cities are more expensive than 660 satellites. And with a reusable heavy lift launcher, 660 satellites are still cheaper and more reliable than 10,000 comsat balloons. Average separation is 255 km − and they'd have to hover there. If a storm passed by, or if they wanted or needed to move − there'd be problems. Not so with a satellite.

20 tons at $2 million per ton is $40 million per satellite − and with 22 satellite per launch, and $70 million per launch − that's 22 satellites launched for $950 million. 30 orbital planes − 30 launches − $28,500 million − with a longevity of 30 years.

At the end of the day with satellites I have a productive capacity to build and fly heavy lift launchers and build large quantities of space payloads at reasonable costs − which well prepares me for doing power satellites − while providing substantial income to support it (without detracting from energy revenues).

A 15 ton balloon at $2 million per ton is $3 million per balloon − 10,000 ballons is $30,000 − with a likely replacement rate of 1% − 100 units per year − at $300 million − plus I'm in the airspace of every nation on Earth − and to save money I'd likely not populate certain regions since there's no traffic there to speak of − and so forth. A major train wreck in terms of management.

At the end of the day, with balloons, I have a fragile high cost system that has low margins that every nation on Earth can interfere with − and no skill s whatever for the powersat business which remains to be developed.

You see, I'm in the energy business − not the communications

business. Once you can see that the dollar per watt for a powersat based solar collector is less than a terrestrial one − that's when I'm interested in heavy lift launch. Now, the question and the focus is; how do you get heavy lift launch? The answer, build it. Just like Rockerfellar built railroads and barrels and grew wood − these served his primary business − they weren't businesses in themselves. Now is there low hanging fruit along the way to pick? Yes. Comsat networks.

Later, once the power supplies of Earth have been turbocharged with abundant solar harvested from space and delivered where its needed at very reasonable prices − Earth's economy will grow dramatically. This will create OTHER shortages in OTHER materials. Those shortages will constrain growth in energy demand.

At that point, I have an asset that is underused and a rationale to use it. I only need 70 launches per year − to keepy my system busy − but I have the capacity to do 200. Shortages in other materials reduce growth rates and cause my assets to be underused. Can I use that spare capacity to increase the demand for energy?

Yep − by supplying those strategic shortages from space based assets at market, or below market prices. In fact, I will supply these other materials at costs that let me to maximize my overall profit in the energy business. So, I may accept loss leaders in the metals business, the food business, or even temporarily in certain regions and channels, in the energy business to maximize growth in profits in my primary most profitable channels.

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