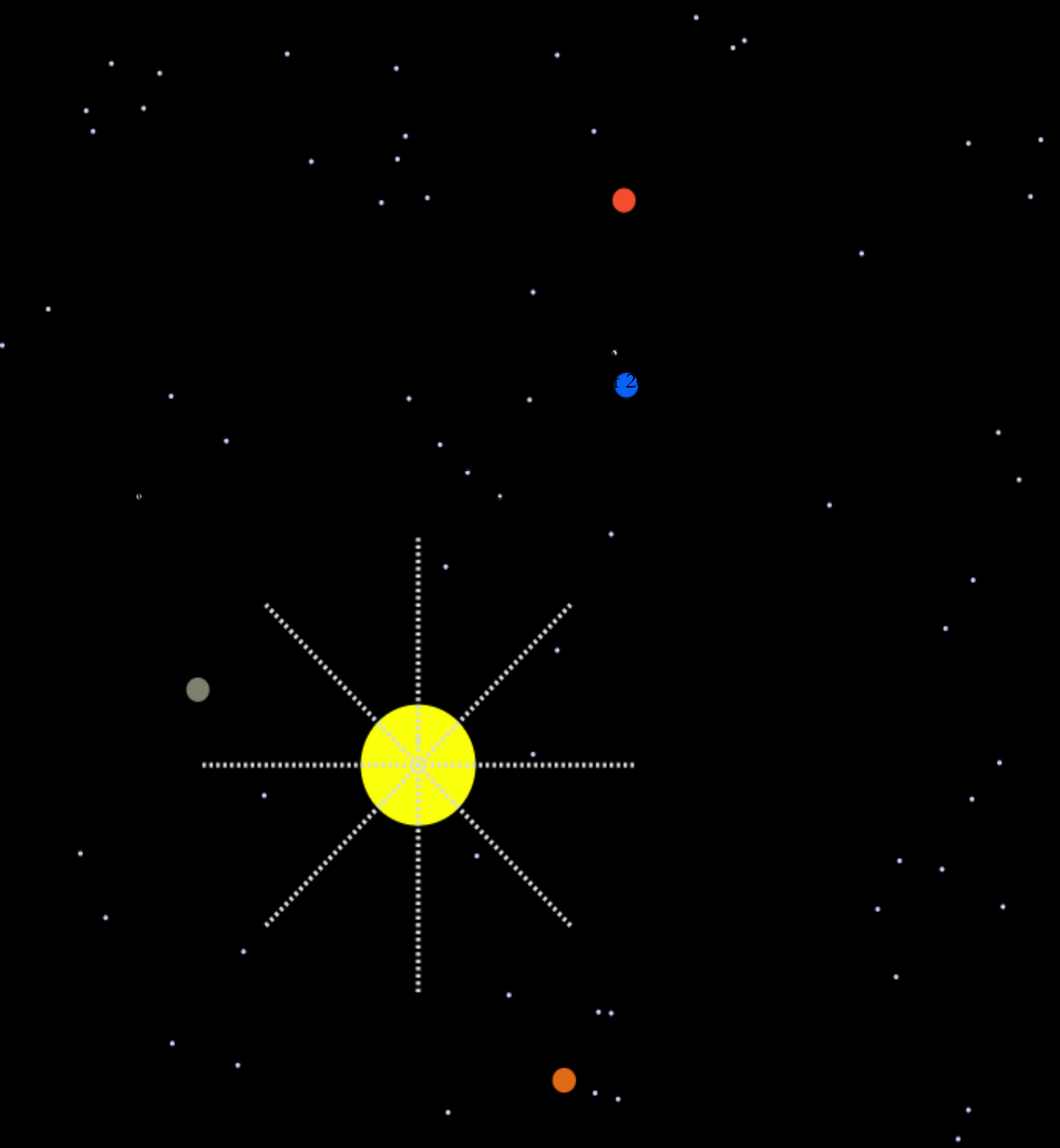
Power source of the future?

The concept of the Dyson sphere was the result of a thought experiment by physicist and mathematician Freeman Dyson, when he theorized that all technological civilizations constantly increased their demand for energy. He reasoned that if human civilization expanded energy demands long enough, there would come a time when it demanded the total energy output of the Sun. He proposed a system of orbiting structures (which he referred to initially as a shell) designed to intercept and collect all energy produced by the Sun. Dyson's proposal did not detail how such a system would be constructed, but focused only on issues of energy collection, on the basis that such a structure could be distinguished by its unusual emission spectrum in comparison to a star.



Albedo (Proportion of the incident light or radiation that is reflected by a surface)
Values are between 0 and 1
0.1

Diameter of the dyson sphere in million kilometers
Minimum: 50 million km (Almost as far as Mercury)
Maximum: 150 million km (Distance of Earth from the sun)
50

Number of dyson spheres
Minimum: 1
Maximum: 10
4

This will generate 183,844.243 Mtoe

This will require 40,000.4 billions of dollars in deployment costs

As of 2017, this is enough to power 13.06 Earths

How it's calulated?

Takeaways: Even the most basic Dyson Sphere has enough power to produce more than thrice the energy that the whole of world produced in the year of 2017. While it is a very enticing prospect in this regard, the economics behind it are very prohibitive. It required tens of thousands of billions of dollars just to deploy the Dyson Spheres in sphere. Now this does not take into account the manufacturing costs which once included would inflate this figure even more. So, at the moment Dyson spheres are not a solution due to both the technological and economical limitations.