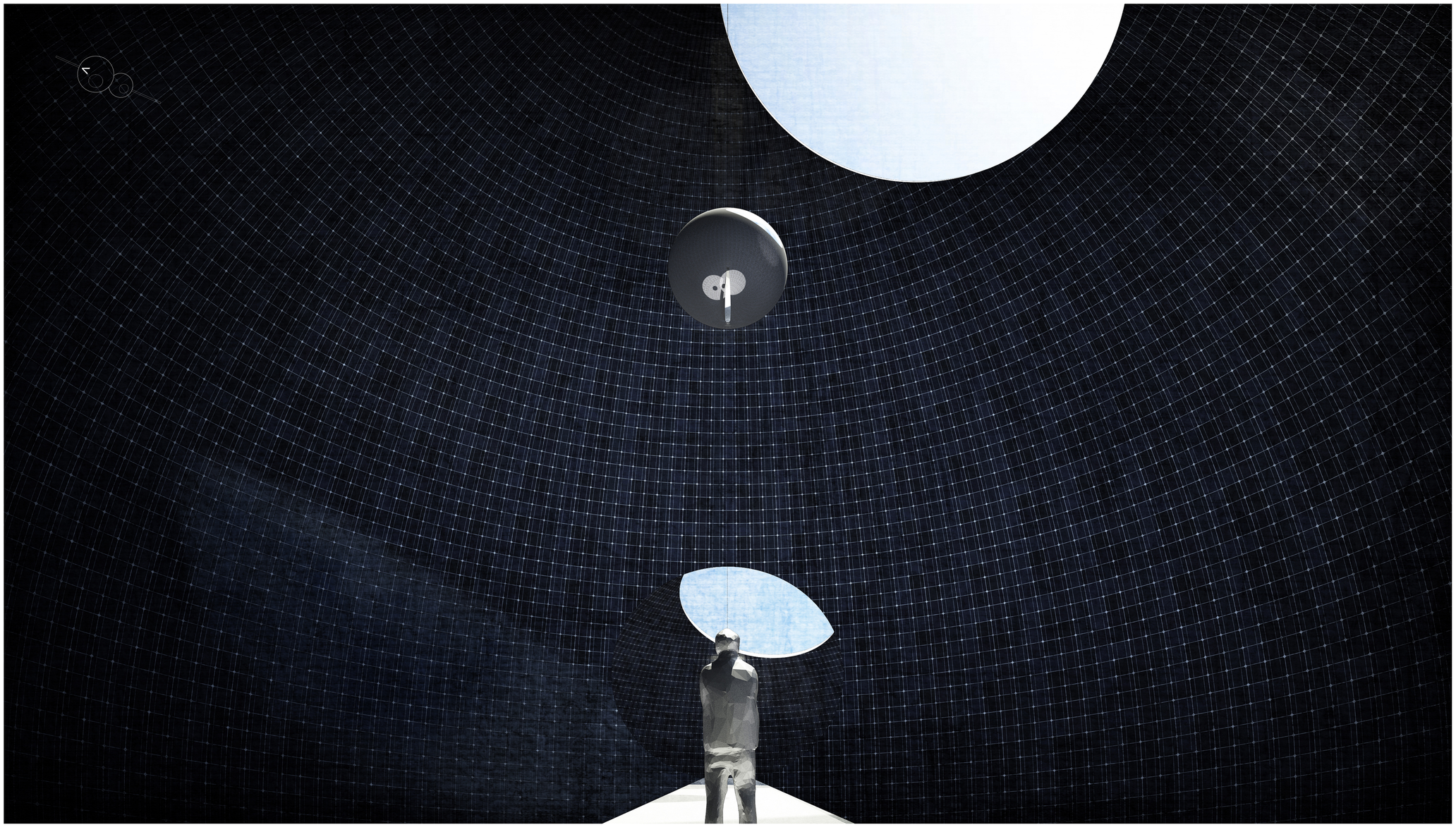


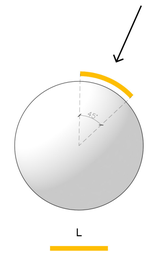
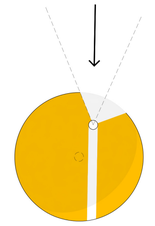
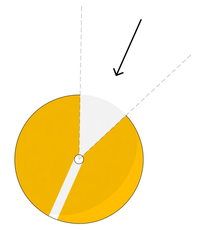


Diagram showing the difference in area according to installation location of solar cell based on average sunshine hours (4 hours)
Using a spherical reflector to mediate sunlight and solar cell prevents exposure of the solar cell and has the advantage that the area of the solar cell exponentially increases.





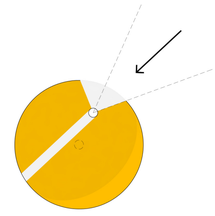
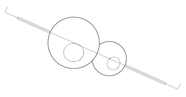


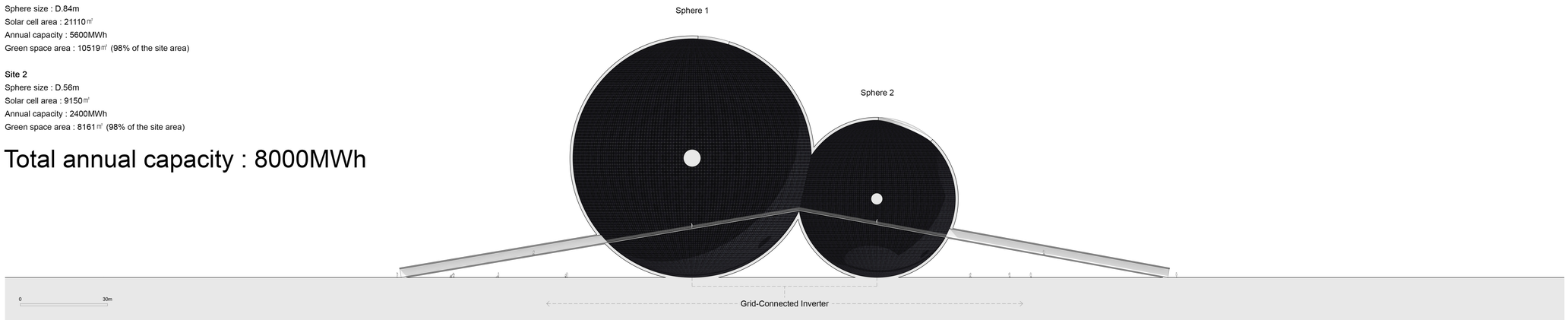
Diagram showing the relationship between sun altitude and reflector
The reflector suspended from the cable moves to the optimal position by adjusting the cable length according to the altitude of the sun.



Site 1
Sphere size : D.84m
Solar cell area : 21110㎡
Annual capacity : 5600MWh
Green space area : 10519㎡ (98% of the site area)

Site 2
Sphere size : D.56m
Solar cell area : 9150㎡
Annual capacity : 2400MWh
Green space area : 8161㎡ (98% of the site area)

Total annual capacity : 8000MWh



Section
The photovoltaic system using the inner surface of the sphere is similar to the structure of the eye. As the light passing through the lens forms an image on the retina, light passing through the lens of the sphere is reflected on a mirrored nucleus in the center to reach a flexible solar cell on the inner surface. Using a spherical reflector to mediate sunlight and solar cells prevents exposure of the solar cell and has the advantage that the area of the solar cell exponentially increases as the size of the sphere increases. The inner surface area (28.420㎡) of Masdar's Eyes is 1.5 times larger than the site area (19.200㎡), and annual capacity is approximately calculated to be 8000MWh.