

#flo #ret #ref #disorganized #incomplete #hw

1 | Les go.

- we need to figure out:
 - what is the curve of generation over a day
 - how does this curve shift over the seasons?
- our inputs
 - location
 - time of year (season)
- output
 - generation curve over a day

look into: Global Tilted Irradiance.

all we care about is the relative shape and how the relative shape changes! this is because the other stuff will be consistent, and we aren't recommending a solar system

1.0.1 | terms:

solar irradiance: power per unit area (W/m^2) integrated over time gives us: insolation (J/m^2)

TSI: total solar irradiance. when the sun is perpendicular! over a square meter. this is just a constant

solar irradiance aka solar flux: power per unit area!

zenith angle: angle between sun's rays and vertical direction (of earth). "local normal to earth's surface" and sun rays (line between point on earth surface and sun)

declination angle: latitude of point directly under the sun at **noon** complement of solar zenith angle

subsolar point: point that is closest to the sun on a planet

hour angle h : defined as the longitude of the subsolar point relative to its position at noon. AKA how far it moves in an hour!

A \cos zenith angle is the area of sunlight received per area on earth AKA how much sunlight area you're actually getting for an area on earth.

1.0.2 | helpful relations

spherical law of cosines!