

SOLAR SITE ANALYSIS: THE PVWATTS CALCULATOR

MAY ADVANCE THESE NEXT GENERATION SCIENCE STANDARDS:

Physical Science 3 *Energy*

Students who demonstrate understanding can:

HS-PS3-1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.

HS-PS3-3. Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.*

Life Science 2 *Ecosystems: Interactions, Energy, and Dynamics*

Students who demonstrate understanding can:

HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.*

Earth and Space Sciences 1 *Earth's Place in the Universe*

Students who demonstrate understanding can:

HS-ESS1-4. Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

Earth and Space Sciences 3 *Earth and Human Activity*

Students who demonstrate understanding can:

HS-ESS3-2. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.*

HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.*

Engineering, Technology, and Applications of Science 1 *Engineering Design*

Students who demonstrate understanding can:

HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

HS-ETS1 Design a solution to a complex real-world problem by breaking it down into smaller,

- 2. more manageable problems that can be solved through engineering.
- HS-ETS1
-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.
- HS-ETS1
-4. Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.