ACTIVITY 3: (Energy Returned on Energy Invested) of Hypothetical Wind Energy Project

Activity Objective: Determine the EROEI (Energy Returned on Energy Invested) of Hypothetical Wind Energy Project

Definition: EROEI (Energy Returned on Energy Invested) is the ratio of electricity generated divided by the energy required to build and maintain the equipment, which is an economic measure, closely related to the energy payback time. EROEI is not the same as ROI or economic return on investment that varies according to local energy prices, subsidies available and metering techniques. The EROEI of a wind powered system is in the range of 10 to 30 years, thus generating enough energy over their lifetimes to reproduce themselves many times depending on what type of material, system balance, and the system geographic location. EROEI uses the following formula:

$$EROEI = \frac{Electricity\ Generated}{Energy\ required\ to\ build\ and\ maintain\ the\ equipment}$$

REVIEW VIDEO:

Energy returned on investment for wind (EROEI): EROEI over wind energy: What's it mean: https://www.youtube.com/watch?v=KlilPU2jMP4

Materials: Chapter 9, paper, computer, printer, Internet Access

Procedure:

1. Work as partners or small teams.
2. Review the above video and Chapter 9 information from www.sus101.com and research the web on how EROEI (Energy Returned on Energy Invested) is calculated and find examples of similar wind projects.
3. Calculate the EROEI (Energy Returned on Energy Invested) for the Activity 1 Wind Project.

RUBRIC

4 World-Class Learner	3 Proficient Learner	2 Developing Learner	1 Emergent Learner
Learner at this level has gone beyond mastery of knowledge, skills, & attitudes described in project. World-class learner consistently exhibits high-quality performance.	Learner at this level has had opportunities to apply knowledge, skills, & attitudes of component of project. Proficient learner has mastered essential attributes, thus proving mastery.	Learner at this level has been exposed to & had opportunity to apply knowledge, skills, & attitudes of project. Developing learner may have only a few essential attributes to master before mastery.	Learner at this level may or may not have been exposed to knowledge, skills, & attitudes required by academic standards of the project.

1= Emergent Learner

2 = Developing Learner

3 = Proficient Learner

4 = World-Class Learner