

Valuing Investments

Physics and Mathematics of Sustainable Energy

College of the Atlantic. October 21, 2025

Consider the situation that we explored in lab on Friday. That scenario was: You wish to buy 16 solar panels, each of which has a nameplate capacity of 450 Watts. Assume the panels last ten years.

Suppose that:

- The panels cost \$20,000
- The price of electricity is \$0.32
- The capacity factor is 0.16. (The panels are located someplace sunnier than Maine.)

1. What is the ROI?
2. What is the payback time?
3. What is the NPV if the discount rate is 0.05?
4. What is the IRR?