

Valuing Investments

Physics and Mathematics of Sustainable Energy

College of the Atlantic

Consider the situation that we explored in discussion section yesterday. That scenario was: You wish to buy 20 solar panels, each of which has a nameplate capacity of 250 Watts. The electricity is worth \$0.17 per kWh. Assume the panels last ten years, and use a capacity factor of 0.15.

1. Suppose that:

- The panels cost \$11,000
- The price of electricity is \$0.18
- The capacity factor is 0.16.

In this case:

- (a) What is the ROI?
- (b) What is the payback time?
- (c) What is the NPV if the discount rate is 0.05?
- (d) What is the IRR?

2. Repeat the above exercise, but use a panel cost of \$13,000.