Break-Even Analysis

Suppose that you are considering the purchase of a hybrid vehicle. Let’s assume the following facts: The hybrid will initially cost an additional $3,000 above the cost of a traditional vehicle. The hybrid will get 40 miles per gallon of gas, and the traditional car will get 30 miles per gallon. Also, assume that the cost of gas is $3 per gallon.

Instructions

Using the facts above, answer the following questions.

1) What is the variable gasoline cost of going one mile in the hybrid car? What is the variable cost of going one mile in the traditional car?

2) Using the information in part (a), if “miles” is your unit of measure, what is the “contribution margin” of the hybrid vehicle relative to the traditional vehicle? That is, express the variable cost savings on a per-mile basis.

3) How many miles would you have to drive in order to break even on your investment in the hybrid car?

4) What other factors might you want to consider?

1) The variable gasoline cost of going one mile in the hybrid car would be $0.075 ($3.00/40). The variable gasoline cost of going one mile in the traditional car would be $0.10 ($3.00/30).

2) The savings per mile of driving the hybrid vehicle would be $0.025 ($0.10 – $0.075).

3) In order to break-even on your investment you would need to drive 120,000 miles. This is determined by dividing the additional fixed cost of $3,000 by the contribution margin per mile of $0.025.

4) There are many other factors that you would want to consider in your analysis. For example, do the vehicles differ in their expected repair bills, insurance costs, licensing fees, or ultimate resale value. Also, some states and some employers offer rebates for the purchase of hybrid vehicles. In addition, your decision might be influenced by non-financial factors, such as a desire to reduce emissions.