

In this activity, you will be evaluating whether you should purchase a hybrid car...

[Finance](#)



A hybrid car or its gasoline-engine counterpart Task Introduction The case study seeks to evaluate the significance of purchasing either a hybrid car or its gasoline-engine counterpart. Two cars falling under the same brand will be selected to facilitate the assessment. However, one car will be a hybrid with the other being a non-hybrid type. For the purpose of the study, Honda Civic EX Hybrid and the non-hybrid counterpart is taken into consideration.

Question 1

Miles per gallon (Mpg) is the distance in miles traveled by the cars after consuming one gallon of gasoline. The retail base price and Mpg of a Honda Civic EX hybrid car are \$ 26, 925 and 44 respectively. On the other hand, the retail base price and the Mpg for the non-hybrid counterpart is \$ 21, 275 and 39 respectively (Car and Driver, 2015).

Question 2

I drive around 12, 000 miles annually. Currently, the cost of a gallon of gasoline, on average, in the United States is \$ 2. 433 (GasBuddy. com, 2015).

Question 3

The annual cost of driving a Hybrid Honda Civic EX = annual gallon of gasoline*price per gallon. Gallons used annually = $(12,000/44) = 272.73$ gallons. Therefore, the total cost = $(272.73*2.433) = \$ 663.55$ annually. On the other hand, the aggregate cost of driving the non-hybrid model = annual gallons * cost per gallon. Annual gallons consumption rate = $(12,000/39) = 307.69$. Therefore, the total cost = $(307.69*2.433) = \$ 748.61$ annually. Based on the cost estimations, the savings offered by the hybrid model over the non-hybrid model = $(748.61 - 663.55) = \$ 85.06$.

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Question 4

The net present value (NPV) of the hybrid model assuming a rate of return of 10% is determined. The annual cash inflow = \$ 85. 06. The original investment = $(26, 925 - 21, 275) = \$ 5, 127$. Therefore, the NPV = \$ - 4, 604. See appendix 1 (Needles, Powers & Crosson, 2011).

Question 5

Based on the analysis, the NPV of the hybrid model = \$ - 4, 604, which lower than the cost of gasoline counterpart (\$ 21, 275). The investment does not create value for the investors but does save costs related fuel consumption as has been determined above (\$ 85. 06) annually.

Question 6

The payback period is how long it takes to recover the initial investment completely. Based on the analysis, the original investment = (cost of the hybrid car - the cost of the gasoline counterpart) = $(26, 402 - 21, 275) = \$ 5, 127$. The anticipated annual net cash flows have been determined as \$ 85. 06. Therefore, the payback period = $(5, 127/85. 06) = 60. 28$ years (Needles, Powers & Crosson, 2011).

Question 7

The following are some of the quality factors that influence a buyers decision: first, hybrid cars have less power as compared to their gasoline counterpart. The amount of load that the model can carry is limited. Second, the battery is sensitive to temperature. In cold weather, its ability to store charge is limited. Same applies to the length of charge storage. Therefore, the fuel consumption may not be optimized during cold weather. Third, the cost of replacing vehicle parts is high. For instance, it is expensive to replace

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the rechargeable battery. Last, the speed at which the hybrid cars move is lower as compared to the non-hybrid car speed. Therefore, it is not easy for the hybrid cars to keep up with the highway speed (Hybrid car disadvantages you may want to consider, 2012).

References

Cars and Driver. (2015). Retrieved from <http://www.caranddriver.com/reviews/2012-honda-civic-natural-gas-test-review>

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Hybrid car disadvantages you may want to consider. (2012). Retrieved from <http://www.greenfootsteps.com/hybrid-car-disadvantages.html>

Needles, B. E., Powers, M., & Crosson, S. V. (2011). Principles of accounting. Mason, Ohio: Cengage Learning.

Appendix 1: NPV

NPV for Hybrid model (10%)

Year

0

1

2

3

4

5

6

7

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8

9

10

Cash inflow

-5, 127

85. 06

85. 06

85. 06

85. 06

85. 06

85. 06

85. 06

85. 06

85. 06

85. 06

Discounting factor

1

0. 9091

0. 826

0. 751

0. 683

0. 621

0. 565

0. 5132

0. 4665

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0. 4241

0. 3855

Present value

-5, 127

77. 328

70. 29

63. 91

58. 1

52. 81

48. 02

43. 653

39. 68

36. 074

32. 791

Total present value

522. 7

NPV

-4, 604