Your (Electric) Mileage May Vary

Feasibility Report- Plug in Cars

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INTRODUCTION

The purpose of this feasibility report is to help environmentally conscious young professionals choose a Plug-In vehicle. There is a revolutionary new market in the automotive world that is rapidly expanding. Plug-In vehicles are becoming increasingly popular and while the market is limited to a few automakers, it is still a very competitive and deciding on a Plug-In to purchase can be challenging.

We will be comparing four of the most popular Plug-In vehicles currently on the market, the Chevrolet Volt, Nissan Leaf, BMW I3, and Honda Accord Plug-In. Comparing the categories of price, mileage, charging, and seating will reveal the best Plug-In (our recommendation).

We will compare these Plug-Ins in each category and rate them on a scale of one to five using lightning bolt as a scale, with one lightning bolt being the lowest rated and five lightning bolts being the highest rated. At the end of report, we will average the total number of lightning bolts to get a final score and a winner.

METHODS

For our four criteria, we had several different methods of evaluating each car and the following criteria. A lot of our information came directly from the automakers websites and brochures from car dealerships.

First, price was discovered by looking on the various websites and a visit to several dealerships to talk to a salesperson and locate a beginning price for each plug-in. We also talked to a salesperson about charging rates and mileage for each plug-in and also compared this information to the websites.

For seating, we sat in three of the four cars, as the BMW I3 was not present at the dealership, however, we did take interior volumes and number of seats and options into consideration.

PRICE

With Plug-In vehicles being new, it is understandable that a lot of these vehicles can be quite expensive. Do not fret, however, as there are huge tax credits that are granted when an electric vehicle is purchased. Vehicles with a **"*"** have the U.S. Government $7500.00 tax credit available.

	COST	**RATING**
BMW I3:	$46000.00*	⚡

Honda Accord Plug-In:	$39750.00*	⚡⚡⚡

Chevrolet Volt	$32000.00*	⚡⚡⚡⚡

Nissan LEAF:	$28980.00*	⚡⚡⚡⚡⚡

It is not surprising that Plug-In vehicles can be expensive. However, some of the automakers had a clear advantage. Also not surprising was the premium price of the I3. The Leaf undercuts the competition by being the cheapest overall, and can even cost less than some midsize sedans.

WINNER: (Tie) Chevrolet Volt & Nissan Leaf

MILEAGE

Probably the most important step of choosing an electric car is its mileage. We looked at our four cars and judged them on MPGe (estimated miles per gallon on electric power using gas equations) and MPG using a gasoline motor in case of depleting their electric charge.

	MPGe	MPG	Rating
BMW I3:	90-100 MPGe	none	⚡⚡⚡

Honda Accord Plug-In:	115 MPGe	46 MPG	⚡⚡⚡⚡⚡

Chevrolet Volt:	98 MPGe	37 MPG	⚡⚡⚡⚡

Nissan LEAF:	112-101 MPGe	none	⚡⚡⚡⚡

The I3 was given the lowest score of the group due to its inability to have a backup gas engine and lower MPGe than the other exclusively Plug-In, the Nissan Leaf the MPGe was better than the I3, but it also lacked a backup gas generator. Both the Accord and Volt offered electric only and a gas powered backup, but the Accord Plug-In scored higher due to its better mpg using the gas generator.

WINNER: Accord Plug-In

CHARGING

While mileage is an important factor when buying an electric car, charging time is another factor to take into consideration. Charging times can range, so finding a Plug-In that charges quickly is very important. We only compared 240 volt chargers, since not every manufacture offered a 120v.

BMW I3:	**CHARGE TIME**	**RATING**
	6 Hours<	⚡

Honda Accord Plug-In:

	1 Hour<	⚡⚡⚡⚡⚡

Chevrolet Volt:

	4 Hours	⚡⚡⚡

Nissan Leaf:

	4 Hours	⚡⚡⚡

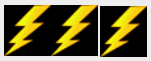
What we discovered about the Plug-Ins charge time was shocking (pun not intended). The I3 did not offer an exact charge time, instead stating that charges could take up to 6 hours, which we gave 1 star to. The Volt and Leaf both averaged 4 hours charging, which we considered to be an above average time and gave them 3 stars. Only the Accord Plug-In stood out, being able to fully charge under an hour. The Accord received 5 stars.

WINNER: Accord Plug-In

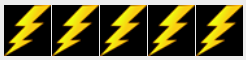
SEATING

While the cars were similar in their seating positions, it was found that options that affected seating were quite different.

BMW I3: **RATING**



Honda Accord Plug-In:



Chevrolet Volt:

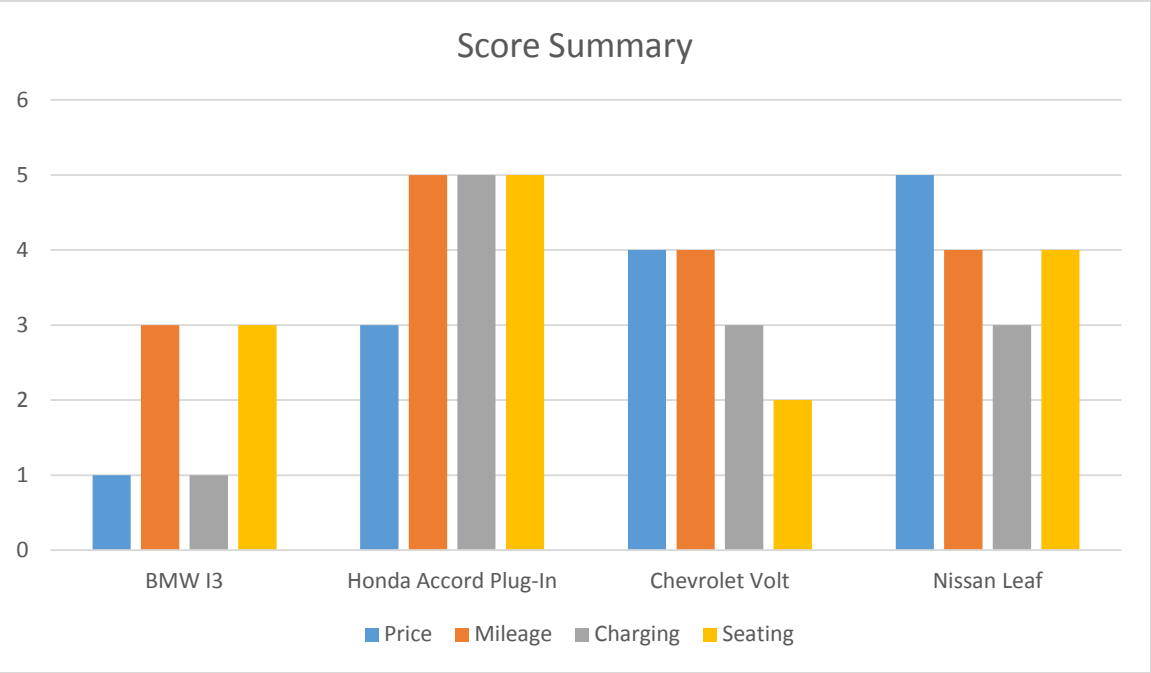
Nissan Leaf:

The Accord Plug-In was the most accommodating, offering seating for five with heated, powered seats with a memory function. The Leaf offers seating for five with heated seats, but lacks a power function for the driver. Both the BMW and Chevrolet offered only four seats, hindering their ability to transport people. The I3 redeemed itself, however, with no battery tunnel, giving rear passengers more room. The Volt sadly does not offer rear passenger this convenience, instead putting a large battery tunnel in between rear passengers. The Volt also lacks power adjustable seats, like all of its competitors.

WINNER: Accord Plug-In

CONCLUSION

The total scores were tallied to show how each Plug-In vehicle scored. The totals are listed below in the Score Summary Table.



OVERALL TOTAL SCORES:

BMW I3: 8

Accord Plug-In: 18

Chevrolet Volt: 13

Nissan Leaf: 16

The Accord Plug-In sweeps three of the four categories in mileage, charging, and seating. However, it can be somewhat costly, even with a government tax credit. The closest competitor to the Accord Plug-In is the Nissan Leaf with only two points behind the Accord. Therefore, it is our recommendation that if you want a Plug-In vehicle, the Honda Accord Plug-In is the best overall package.