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- ☐ reduce global warming
- ☐ it makes economic sense
- ☐ other

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- To leap at a LEAF or not to, that is the question** (19 comments)

Home ▶ editor's blog ▶ on evs & phevs ▶ EV battery replacement: Inevitable and expensive

EV battery replacement: Inevitable and expensive

Thursday, 22 July 2010 22:19 | Written by Christof Demont-Heinrich, SCD.Com Editor |

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The cost of a battery replacement somewhere around years eight or 10 could be pricey, and could reduce the attraction of EVs like the CODA Automotive EV Sedan to people who like to buy a new car and hold onto it for 10, 15 or even 20 years.



editor's
blog
entry

Looks like I'm going to have to change my attitude toward car buying and car ownership a bit.

You see, I'm one of those car owners automakers probably hate: I buy a car and I keep it for 20 years. Furthermore, I expect my car to last 20 years without requiring major re-hauls that cost several thousand dollars.

Now, I'm going to be plugging into electric cars – and battery packs with a life considerably shorter than two decades. In fact, it looks like a full battery pack replacement will be necessary for our future new EV – whatever that EV might be – after eight, or, at most, 10 years.

At that point, we're looking at what people who know a lot more about electric cars than I do tell me will probably be at least \$5,000 to replace our EV's battery pack, possibly (quite a bit) more.

Frankly, this knowledge takes a little bit of the shine off an electric car for me, at least economically speaking. In fact, it means that when I think of the post Federal Tax Credit price of about \$25,000 for the all-electric Nissan LEAF, I'm going to be tacking \$5,000 onto that price in my head. That's because I know I'll probably be one of those people who gets the battery pack replaced in year No. 8 rather than one of those buyers who dumps the car for a brand new EV at that point.

New car buying logic doesn't hold up

Going from one car to the next every five to seven years has never made sense to me. Why would anyone want to fork over monthly car payments endlessly, especially in a time in which well-made cars last 20 years without major maintenance investments?

My 1992 Acura Integra, which I bought new nearly two decades ago, falls into this category. So does the 1994 Toyota Camry with 270,000 miles that we inherited from my younger brother 2 ½ years ago.



I have to wonder: If you include the expense of replacing the

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battery pack somewhere between years seven and 10, at a cost of \$5,000 or more, are an EV's lifetime maintenance costs any less than a gas car's over a comparable time period?

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Yes, we do pay a fair amount to maintain these cars. But I've never understood those who justify a new car purchase based on the claim that maintaining their "old" car will cost more than buying a new one. Maybe you do get to that point with a car, especially with cars that aren't well made.

But we haven't gotten there yet. In fact, the claims that maintenance costs for an "old" car will be more than the \$250 to \$500 (or more) one can expect to shell out monthly for a new car don't align with reality, at least not ours.

We spend at most \$1,500 -- and probably quite a bit less -- per year maintaining our '92 Integra and our '94 Camry. That's a bargain compared to the minimum of \$6,000 a year in car payments we'd be making for two new cars.

Our "clunkers" may eventually die

Eventually, we will probably reach the point where the cost of maintaining our "clunkers" (which are running quite well, thank you) will approach that of the costs of a new car, gasoline or electric, though, frankly, I'm not really sure when that might be -- Three years? Five years? 10 years?

I know veteran EV owners stress that the maintenance costs for electric cars are essentially nothing -- with brake and suspension jobs and new tires being the primary expenses. I'm sure they're a lot less than for a comparable gasoline car.

But I have to wonder: If you include the expense of replacing the battery pack somewhere between years seven and 10, at a cost of \$5,000 or more, are an EV's lifetime maintenance costs any less than a gas car's over a comparable time period?



I'm going to pull my Acura Integra maintenance records -- which I have going all the back to 1992 -- and look closely at this question. But I'll do that in a different entry.

Suffice to say I'm going to have to adjust my car buying and car ownership attitude quite a bit when we make the leap from a gas to an electric car. While the body of the EV might last 20 years here in Colorado (where they prefer sheets of ice to putting down road salt), the battery pack sure isn't going to last that long.

The optimist in me says, "Well, by the time you replace the battery pack, EV batteries will last 15 or 20 years, and you'll get to settle back into your

20-year car ownership ways."

The pessimist in me says, "Maybe the EV+PV combination isn't going to deliver as much savings as I thought."

I'm hoping the optimist is right.

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Tom Moloughney · 138 weeks ago

0

Christof,

The long term expense structure of EV's will look much different than conventional cars. You will probably pay a little more for the car, and then you will have this large cost of a battery replacement looming at some point like you pointed out. As you also stated, EV's will have a much lower long term maintenance cost and that is true. Even brakes will last a long time with regenerative braking. I recently took a look at my cars brake




pads and at 35,000 miles, they look like they normally would at 5,000 miles or so. I think 100,000 miles on a set of brake pads is definitely reasonable to assume.

Then there is the cost to fuel the vehicle. No matter how you fuel it, from the grid or from your own solar array, the fuel savings will be significant. In only one year and 35,000 miles of driving, I saved over \$3,000 in fuel alone. Plus I didn't have to make 5 or 6 oil changes, don't need new brake pads and no tune up was necessary.

We really don't know what the replacement cost for battery packs will be in 7 or 8 years, but all indications is that they will be significantly less than today.

To make a fair comparison you really need to look at the total cost of ownership. I've done it and even if you pay a few thousand more for an EV, it is still a solid financial decision in the long term.

Reply 1 reply · active 138 weeks ago

↳  **Christof** 68p · 138 weeks ago +1  

Tom,
Thank you for your well-informed feedback. I do plan on actually going through my maintenance records for my 1992 Acura Integra, which I have from the very beginning to see how much I spent on maintaining my Integra for the first 8 years, and overall, for the 18 years I've had it. And I will definitely write about that when I do it.

I completely agree with you that an EV is a solid financial investment, but I'm always wanting to re-look at the whole cost equation as I learn more about EVs. Basically, I want to offer myself – and others who read stuff I write – the best, most well-informed assessment of EV cost and EV+PV cost as opposed to ICE cost as possible.

The other thing is that I'm a pretty unusual car owner, having the attitude that when I buy a new car I want to keep it for 20 years. I didn't start that way. But having had my Integra for nearly 20 years, and having it still running great, has helped evolve me into someone with that attitude. Of course, so too has my environmentalist streak, and a desire to save money. I still don't get people who go out and buy a new car every 4 or 5 years. I don't think it makes sense from an environmental or cost perspective, although it just might for EVs – if 2nd and 3rd generation EVs are leaps and bounds better than the 1st generation EVs.

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