Charge, Drive, Have Fun. Repeat.

JUKKA KUKKONEN

PlugInConnect
Driving Electric in Minnesota

Jukka Kukkonen
MN Plug-in Vehicle Owners’ Circle
Fun to drive

Photos: CERTS and Jukka
Happy Leaf charging in our garage.
Polluting our neighborhood with bubbles.

Photo: Jukka Kukkonen

PlugInConnect.com
It is a waste of time to buy an EV.
Luxury features

Photos: Nissan
How much energy is consumed driving 100 miles?

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>kWh</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline</td>
<td>135 kWh</td>
<td>25 MPG</td>
</tr>
<tr>
<td>Electricity</td>
<td>30 kWh</td>
<td>112 MPGe</td>
</tr>
</tbody>
</table>
Driving costs

- PEVs get about 3.5 miles/kWh.

- Flat electric rate
  1000 miles/month : 3.5 miles/kWh \* 
  12 cents/kWh = 34 dollars/month

- TOU electric rate
  1000 miles/month : 3.5 miles/kWh \* 
  6 cents/kWh = 17 dollars/month
Electric vehicle maintenance needs

Photos: Nissan

PlugInConnect.com
What does your bumper sticker say?

I drive on sunshine.
This car is powered by the sun
with a help of the PV technology.
EVs and Renewables

The electricity for charging the MINI E should come from...(n=41)

- Solar: 100% Agree, 0% Disagree
- Wind: 98% Agree, 2% Disagree
- Hydro: 90% Agree, 10% Disagree
- Nuclear: 63% Agree, 37% Disagree
- Natural Gas: 61% Agree, 39% Disagree
- Coal: 71% Agree, 29% Disagree

Figure 34 - Drivers opinions on what energy sources should charge the MINI E (UCD Survey)

UC Davis Mini E Field Study, 06/13/2011
Second Life for electric-vehicle batteries

Following use in electric cars, lithium-Ions batteries are reused for stationary applications and thereby begin a "second-life".

1. Recycle
At the end of its lifecycle in an electric car, the battery is still valuable.

2. Refabricate
The used battery modules are tested and reassembled.

3. Reuse
The battery modules are integrated in the stationary storage system.

4. Resell
The electricity from these large batteries is used for instance for grid stabilization.
Models available in MN

Photos: Manufacturers
What are you going to tell to your grandchildren?