

# VEHICLE TECHNOLOGIES PROGRAM

## PHEV Accelerated Testing Results – Jan. 2009

### Advanced Vehicle Testing Activity



### 2003 Renault Kangoo

VIN #  
JTDKKB20U767508841

### A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

Accelerated testing was completed in September 2008 and the final results can be found in the table to the right. The Renault Kangoo operated in all-electric mode during all of the 40-mile and shorter test cycles. During the 60- and 80-mile test cycles, both the electric motor and gasoline engine were required to propel the Kangoo. Note that the 100- and 200-mile cycles were not performed due to gasoline engine and inverter failures.

Based on an electricity cost of 10 cents per kWh, the total fuel cost for the Kangoo was 3.27 cents per mile for electricity when in all-electric mode.

Again using 10 cents per kWh for electricity and a gasoline cost of \$3.00 per gallon, during the 60- and 80-mile cycles, the fuel cost was 0.81 cents per mile for electricity and 7.08 cents per mile for gasoline (at 42.4 mpg), for a total fuel cost of 7.89 cents per mile for the Renault Kangoo.

While not a perfect comparison, the Ford HEV Escape averaged 27 mpg in AVTA testing, so the conventional HEV Ford Escape fuel cost would average 11.11 cents per mile.

### Renault Kangoo – Accelerated Testing

Cycle (mi)	Urban (10 mi)	Highway (10 mi)	Charge (hr)	Reps (N)	Total (mi)	Electricity		Gasoline	
						AC kWh	Mi/kWh	Gals	MPG
10	1	0	4	60	600	359.60	1.7	0	
20	1	1	8	30	600	131.96	4.6	0	
40	4	0	12	5	200	35.18	5.6	0	
40	2	2	12	5	200	33.22	6.0	0	
40	0	4	12	5	200	28.60	7.0	0	
60	2	4	12	10	600	57.96	10.4	13.3	45.1
80	2	6	12	8	640	44.62	14.4	16.6	38.6
100	2	8	12	6	600	Deleted*			
200	2	18	12	3	600	Deleted*			
<b>Total</b>	<b>1560</b>	<b>1480</b>	<b>876</b>	<b>123</b>	<b>3,040</b>				

\* Testing ended when gasoline engine and inverter failed. Each total distance slightly greater than 600 miles.



For more information contact:  
EERE Information Center  
1-877-EERE-INF (1-877-337-3463)  
[www.eere.energy.gov](http://www.eere.energy.gov)  
Or <http://avt.inl.gov>



U.S. Department of Energy  
**Energy Efficiency and Renewable Energy**

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable