

These plotted curves to show, from various perspectives, the battery range of a 2018 Tesla Model 3 Long Range RWD.

The data for these is obtained by driving the car back and forth on a fairly flat road multiple times, at different speeds, and recording the energy usage as shown by the car, in watt-hours per unit distance travelled. This data is shown on one of the plots.

If some plots indicate a battery degradation, this is obtained from known or tested car battery degradation.

If you have questions or concerns about any of the plots, you can contact me on various online groups or at [ted@tedtoal.net](mailto:ted@tedtoal.net)

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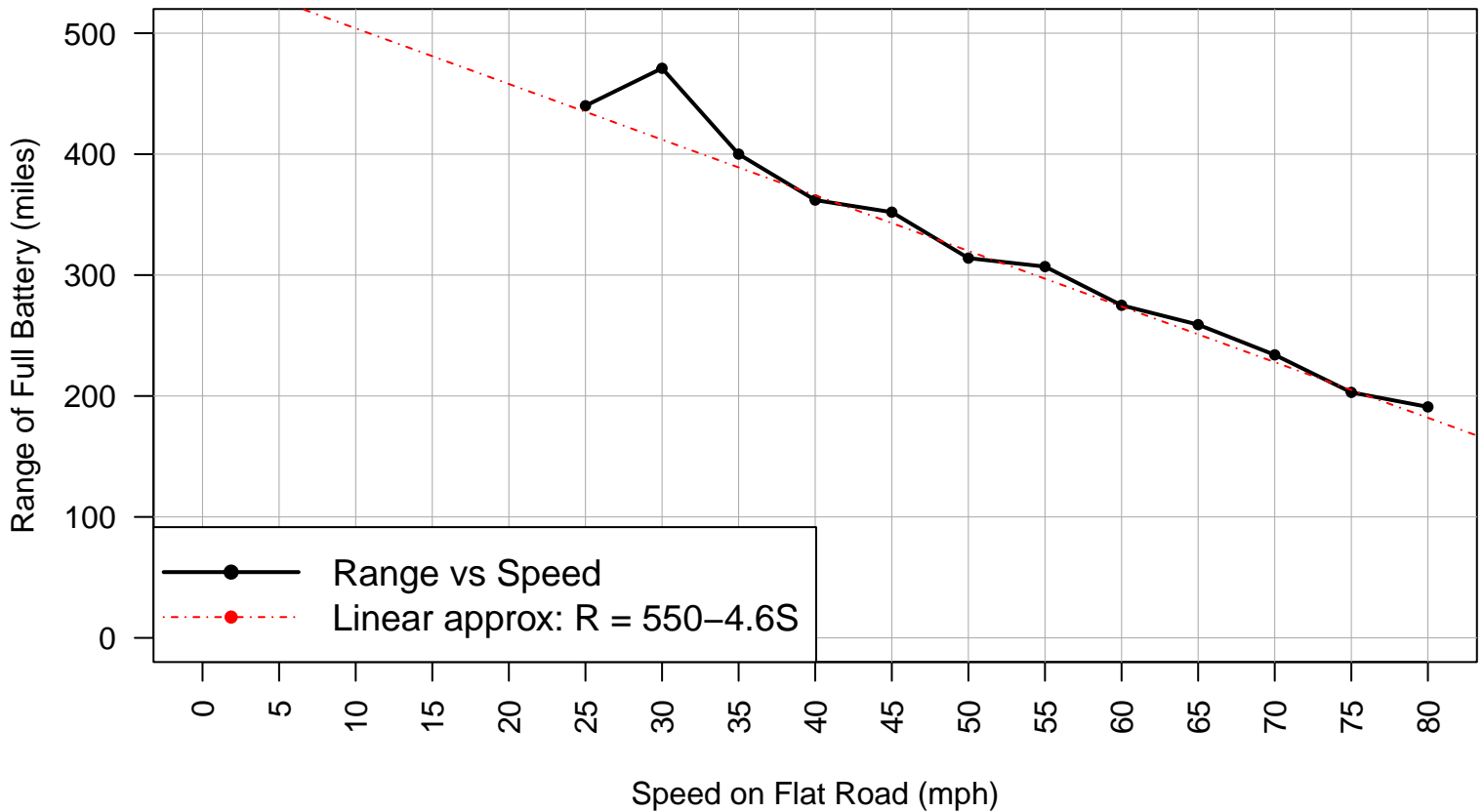
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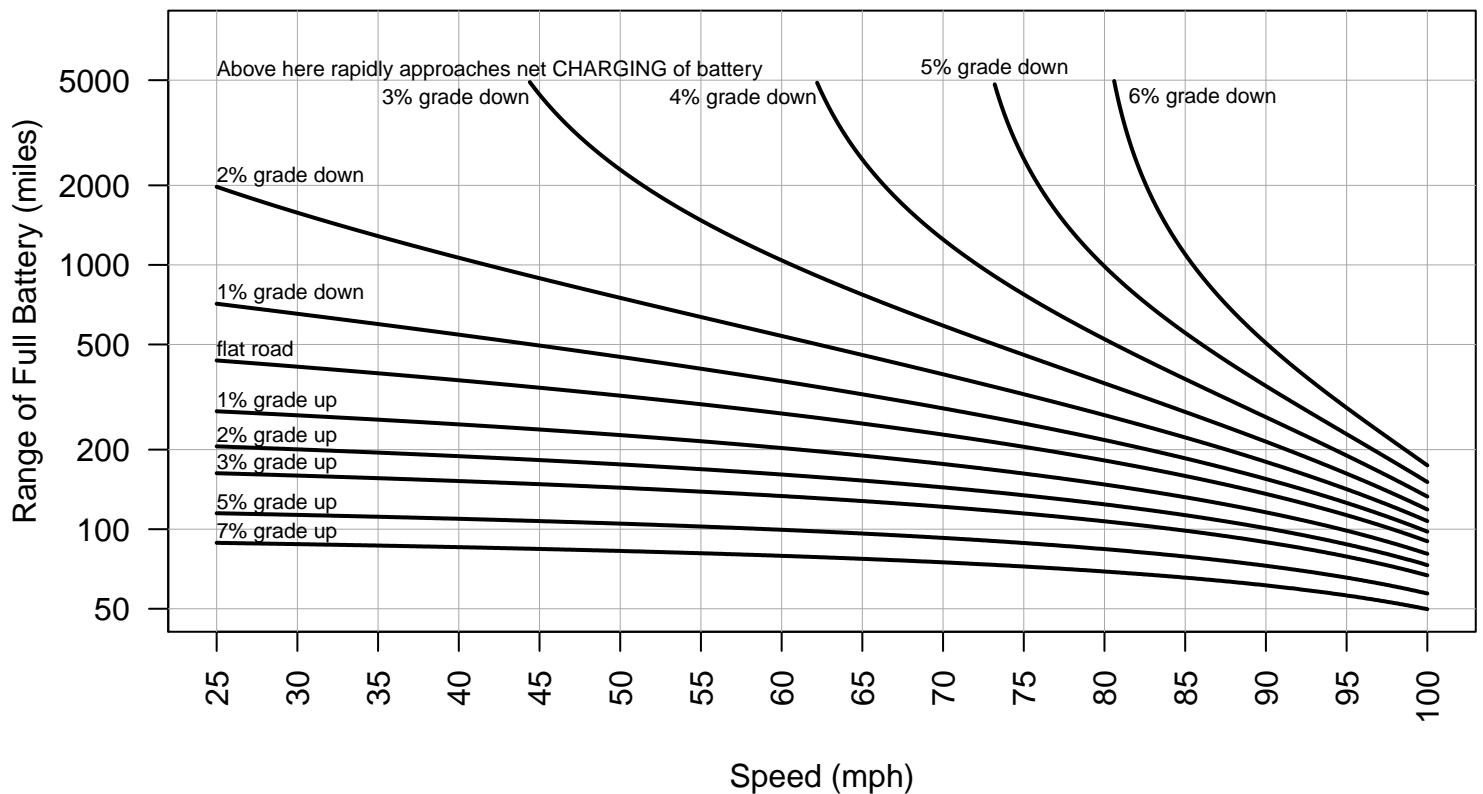
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including linear approximation (assume battery degradation of 12% for capacity of 66 KWh)



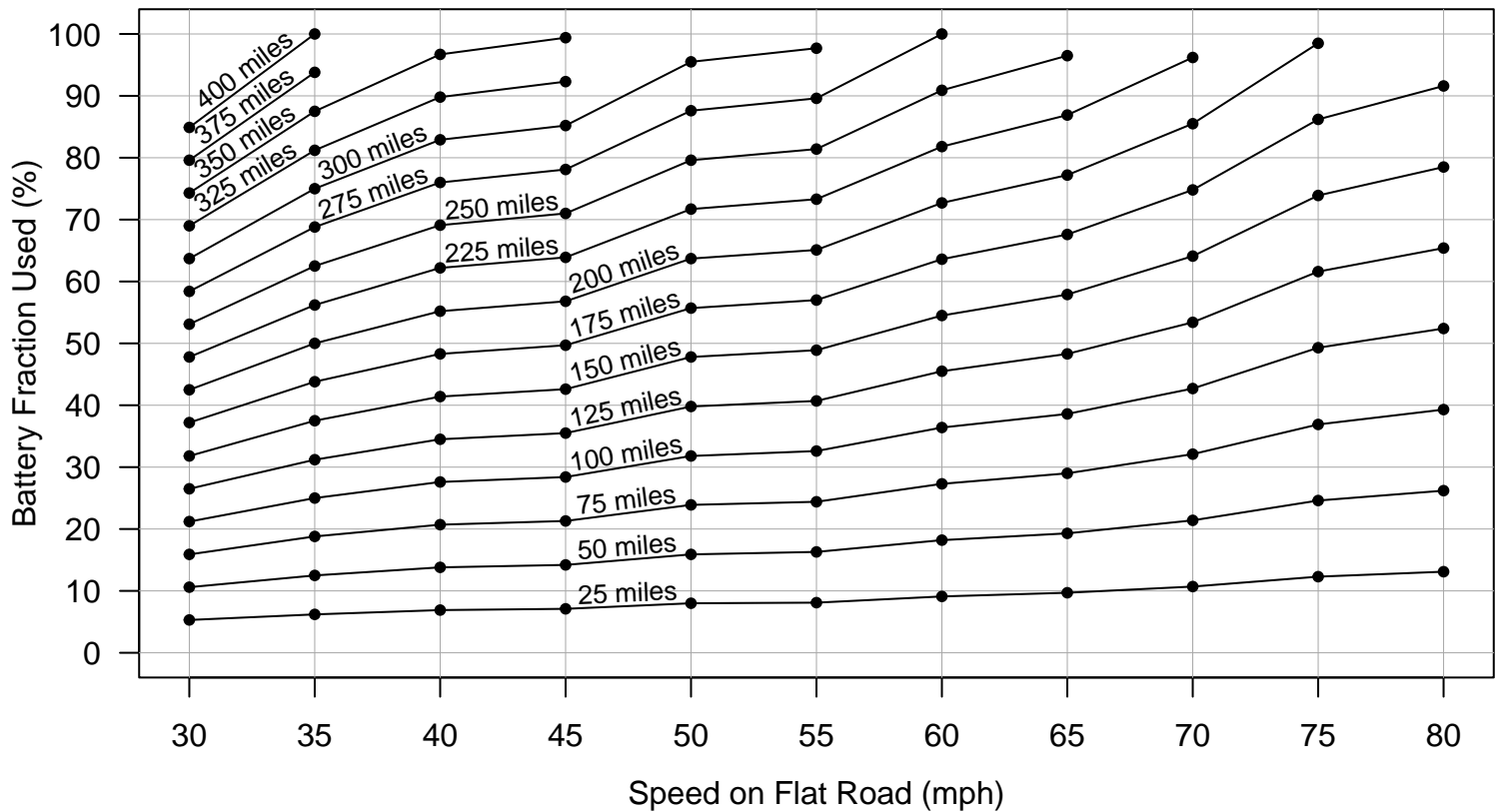
Assumptions: A: weight 4250 lb (with 250 lb passenger weight) B: regen efficiency 70%

C: battery degradation 12% for capacity of 66 KWh D: flat road linear range approximation =  $R = 550 - 4.6S$



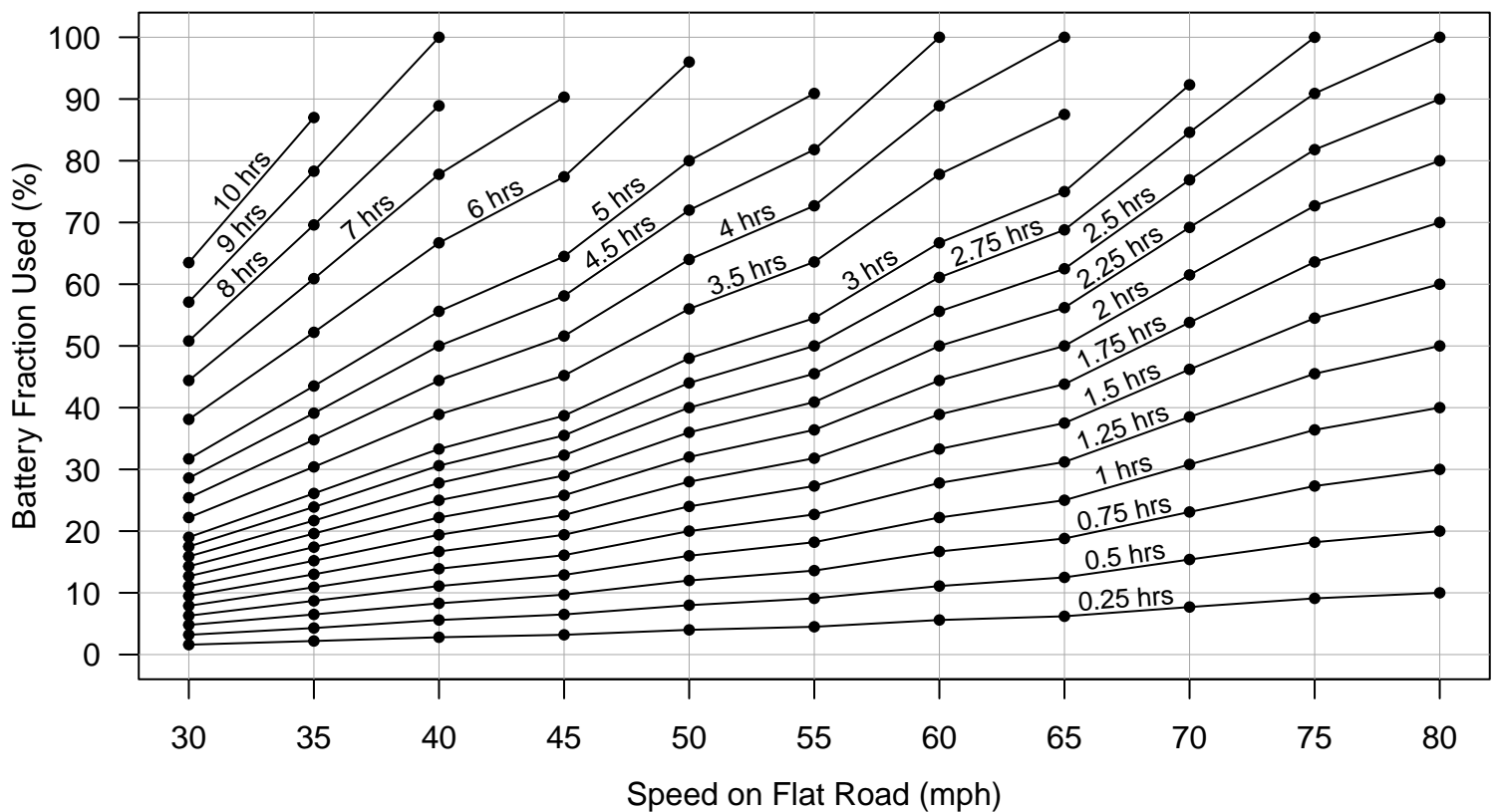
## Battery Fraction Used at Speeds/Distances, 2018 Tesla Model 3 Long Range RWD

(assume battery degradation of 12% for capacity of 66 KWh)



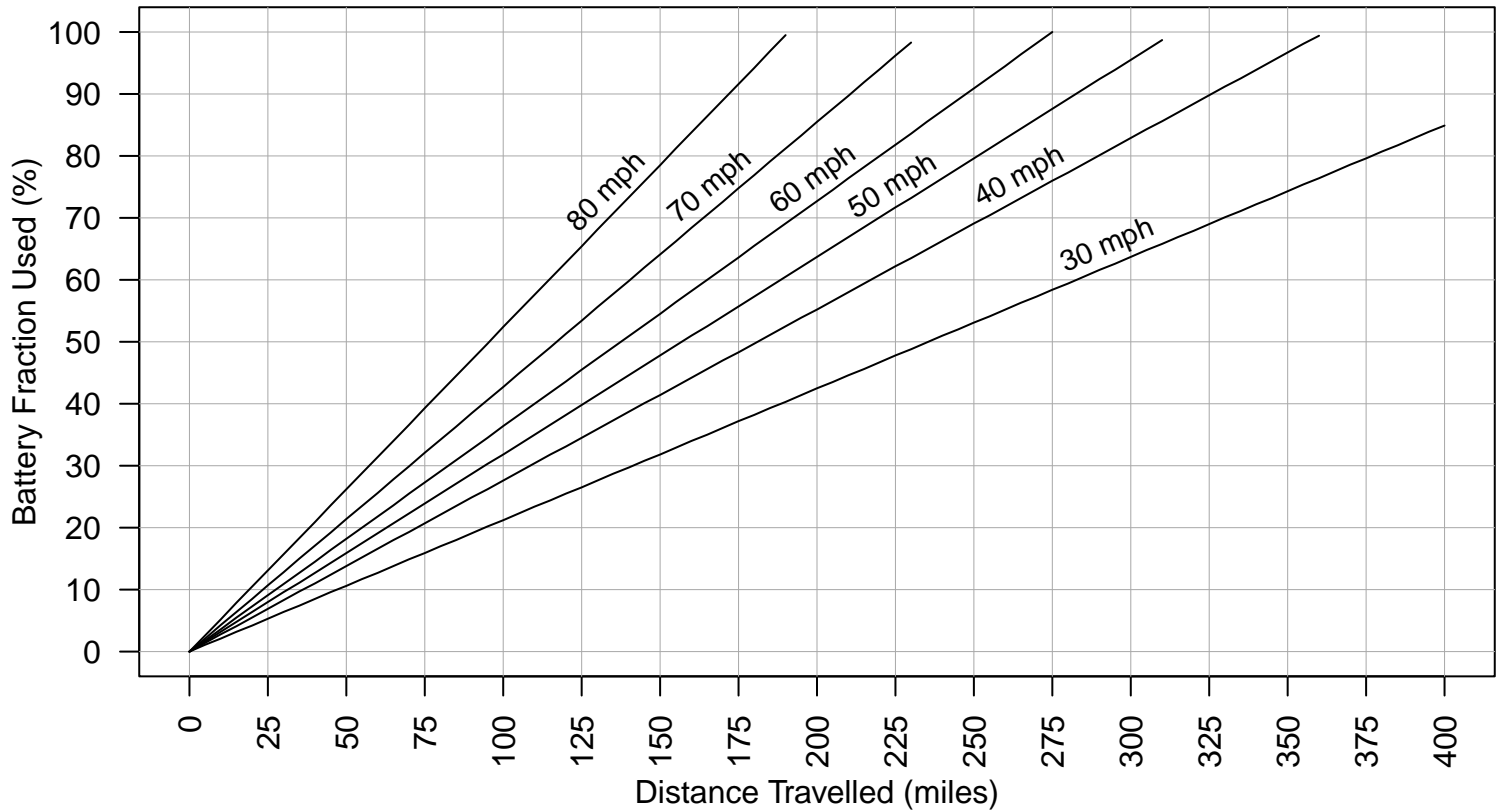
## Battery Fraction Used at Speeds/Times, 2018 Tesla Model 3 Long Range RWD

(assume battery degradation of 12% for capacity of 66 KWh)



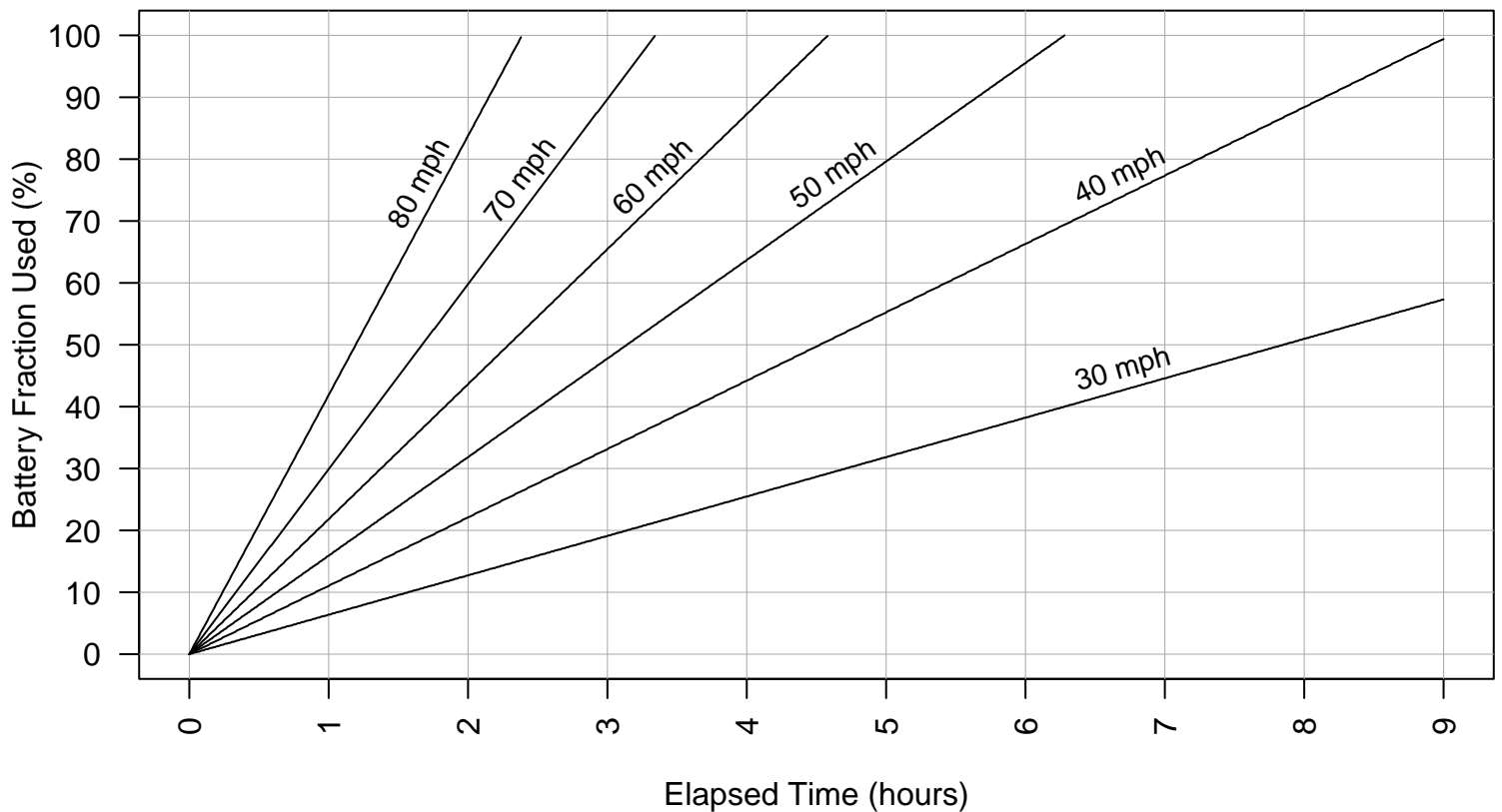
## Battery Fraction Used at Distances/Speeds, 2018 Tesla Model 3 Long Range RWD

(assume battery degradation of 12% for capacity of 66 KWh)



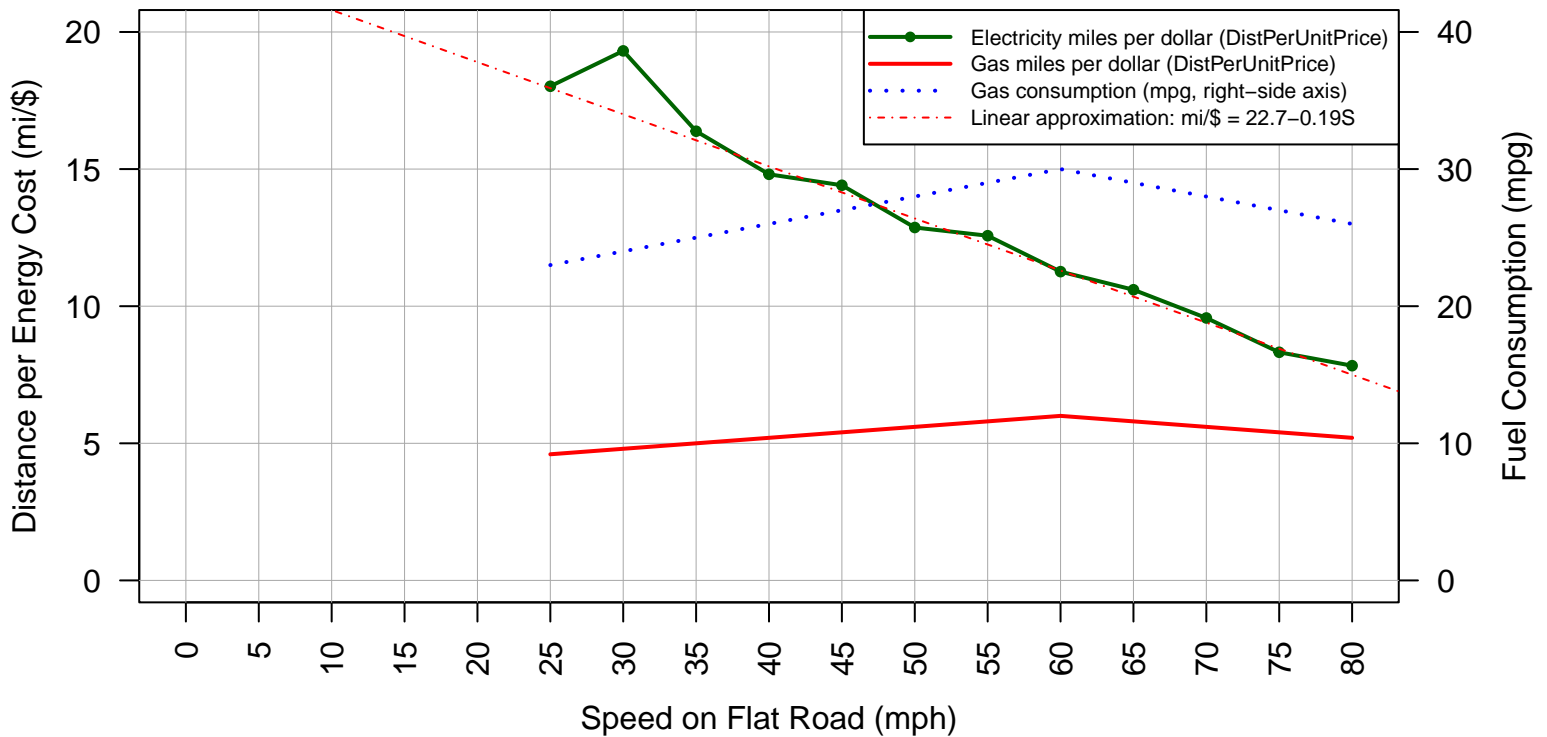
## Battery Fraction Used at Times/Speeds, 2018 Tesla Model 3 Long Range RWD

(assume battery degradation of 12% for capacity of 66 KWh)



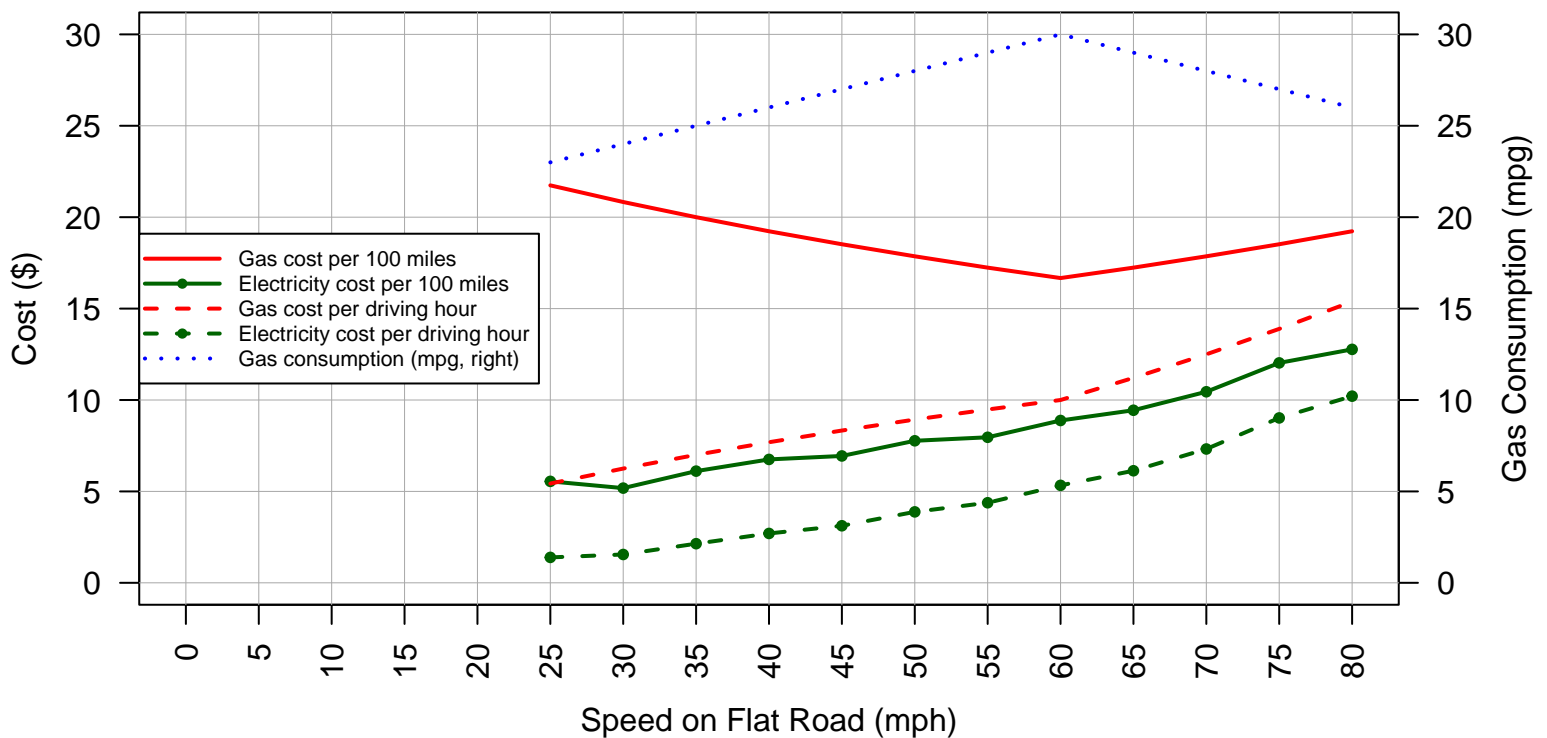
## Distance as a Function of Energy Cost, 2018 Tesla Model 3 Long Range RWD

(Assumptions: A: electricity cost \$0.37/KWh (charging efficiency excluded) B: gasoline cost \$5/gal  
C. fuel mileage 30 mpg at 60 mph down 1 mpg every 5 mph D: battery degradation of 12% for capacity of 66 KWh)



## Cost per Distance or Time, 2018 Tesla Model 3 Long Range RWD

(Assumptions: A: electricity cost \$0.37/KWh (charging efficiency excluded) B: gasoline cost \$5/gal  
C. fuel mileage 30 mpg at 60 mph down 1 mpg every 5 mph D: battery degradation of 12% for capacity of 66 KWh)



## Range at Car and Wind Speeds, 2018 Tesla Model 3 Long Range RWD

Assumptions: A: weight 4250 lb (with 250 lb passenger weight) B: drag coefficient 0.23 C: frontal area 2.22 sq. m.  
D: power approximation  $P = ((57S - 2600)S / 10000 + 19)S / 100 - 4$  E: battery degradation 12% for capacity of 66 KWh  
F: air density computed using density altitude

