

# Model S wh/mile Data from the TMC Lifetime wh/m thread

April 22, 2014

## 1 Lifetime Average wh/mi Data

The data below is self reported data from Model S drivers on the TMC website in the thread started by GeekGirl in January 2013.

### 1.1 Data Summary

	Drivers	Miles	Locales	wtdAvg(wh/m)	Avg(wh/m)	Median(wh/m)	Stdev(wh/m)
All	193	2620826	36	332	336	336	34
Clean	154	2467026	36	330	330	332	30

Table 1: Number of drivers, locales, and several estimates for the center of the wh/m distribution. In the second row, I use exclude very short driving histories because their wh/m numbers are often not indicative of long term energy use. This eliminates about twenty percent of the drivers, but less than five percent of the miles driven. I use the clean data set below.

In addition to the average and median wh/m, I include a mile weighted average, wtAvg, which is just the total energy (sum drivers wh/m \* miles) divided by the total miles driven. All three estimates for the center of the distribution are very close, so it doesn't make much difference which one we use. I will mostly use the wtAvg below.

### 1.2 Expectations

- Wheels. The range calculator on the Tesla website shows 21" wheels increasing energy consumption by 6% on an 85kwh battery.
- Battery. The same calculator shows the 60kwh battery uses about 10% less energy than the 85kwh battery. (It is not clear to me what accounts for this difference; the small difference in weight doesn't seem large enough to account for it.)
- Temperature. We expect a fairly strong negative correlation between wh/m and the severity of winter.

### 1.3 References

For a good quantitative discussion of the factors that affect energy use, see ChadS's post here For a nice plot showing the strong temperature dependence of wh/m on temperature, see this graph. Cliff Hannel has an EVTripPlanner which also estimates these factors.

### 1.4 Winter

A large fraction of the data set is up to date through March of 2014, just after winter. So I expect the averages are a bit high. If we do these calculations again at the end of September we should see somewhat lower numbers (this would be a good time to update numbers). I don't think the effect will be dramatic for two reasons. First, as we will see later, for drivers who live in areas with mild winters (the South, the Southwest, California), winter has a relatively small effect on mileage. Second, we have quite a few miles recorded now, so it will take a lot to move the needle. In any event, the average of the end of winter and end of summer numbers should be close to the year round average.

### 1.5 More Detailed Summary

Here is a slightly more detailed summary:

	Wh	Miles	State	MBattery	Wheels	JanTemp
1	Min. :256.0	Min. : 2193	CA :42	40 : 3	19 :93	Min. : 1.00
2	1st Qu.:309.0	1st Qu.: 9751	TX :12	60 :33	21 :35	1st Qu.:26.00
3	Median :332.0	Median :15222	FL :10	85 :47	M :17	Median :42.00
4	Mean :330.2	Mean :16020	IL :10	P85 :46	NA's: 9	Mean :36.87
5	3rd Qu.:351.0	3rd Qu.:20915	AZ : 9	S85 :21		3rd Qu.:45.00
6	Max. :406.0	Max. :47142	OR : 7	NA's: 4		Max. :67.00
7			(Other):64			

Table 2: Summary of the Data

## 1.6 Histogram

Below is a histogram of the clean data set.

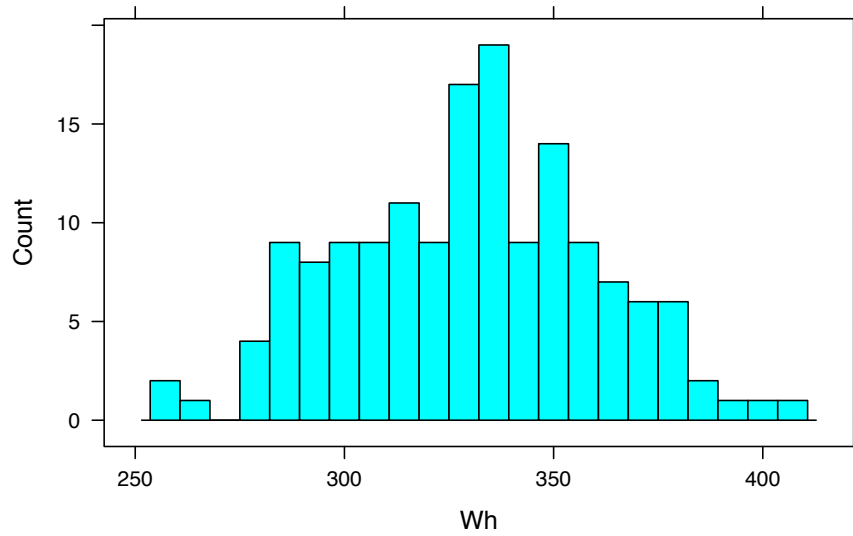


Figure 1: Histogram of Wh/mile data.

## 1.7 Lower Bound

	Wh	Miles	State	Battery	Wheels	LastUpdate	JanTemp	MBattery
jerry33	256	20659	TX	85	19	04/01/14	46	85
Sparrow	260	12954	GA	85	19	04/01/14	46	P85
svoelpel	264	8154	NC	85	19	04/05/14	40	S85
mal42north	278	20056	CA	60	19	04/05/14	45	60
gnelson	280	4813	TX	85	21	04/04/14	46	P85
gmtom1	281	6028	HI	60	19	04/05/14	67	60
zdre	282	11500	MO	40	19	04/03/14	29	40
MichaelS	283	16358	CA	60	19	04/07/14	45	60
AudubonB	284	9362	AZ	85	19	04/07/14	42	P85
IlliniT	285	24900	IL	60	19	04/04/14	25	60
davecolene06062	286	8121	FL	60	21	04/16/14	58	60
spaghetti	287	11700	CA	85	19	04/14/14	45	85
DonD	288	22100	FL	60	19	02/17/14	58	60
jive_devil	288	15800	CA	60	19	04/04/14	45	60
mckemie	289	34318	TX	85	19	04/05/14	46	85
qphan79	289	35000	CA	60	19	04/05/14	45	60

AmpedRealtor	290	7356	AZ	85	19	04/04/14	42	P85
jpgasqua	290	2216	CA	60	19	06/02/13	45	60
lolachampcar	291	9700	FL	85	21	04/04/14	58	P85
araxara	293	27876	AZ	85	M	04/04/14	42	P85

There are three outliers on the left tail of the distribution at around 260 (jerry33, Sparrow, svoelpel). All drive 19" wheels and live in states with mild winters, but even still, the numbers are clearly exceptional. Somewhat surprisingly, all of these drivers have 85s (P85 for Sparrow). Given that the 60s are more efficient, I would have expected to see some 60s having the lowest numbers. Perhaps if we collect more data on the 60s that will happen; currently the majority of our data is 85s. gnelson is also somewhat of an outlier as he gets a very good wh/m average despite driving with 21" wheels.

jerry33 and Sparrow's monthly numbers are even more impressive as they are sometimes less less than 250. See the plots in the monthly data section below.

## 1.8 Upper Bound

	Wh	Miles	State	Battery	Wheels	LastUpdate	JanTemp	MBattery
neroden	406	9493	NY	85	19	04/07/14	21	85
EarlyAdopter	399	6882	WA	85	21	01/27/14	32	P85
brianman	394	24448	WA	85	M	04/04/14	32	S85
jweinstein	384	13686	AK	85	19	04/05/14	1	P85
MitchL	383	18300	CA	85	21	04/14/14	45	S85
mnx	382	14780	ON	85	19	03/18/14	21	P85
eelton	381	7100	IL	85	19	04/16/14	25	S85
ckessel	380	20000	OR	85	21	04/01/14	33	85
MassAmped	380	16000	MA	85	19	04/05/14	25	P85
AMN	379	11046	MN	85	21	04/05/14	8	P85
mark	376	13800	TX	85	19	04/04/14	46	85
Zextraterrestrial	375	22000	CA	85	21	04/14/14	45	P85
Longhorn92	374	7293	IL	40	19	04/04/14	25	40
xray	371	10131	CA	85	21	07/25/13	45	P85
Rodolfo Paiz	370	3500	FL	85	<NA>	10/28/13	58	P85
smd	369	7950	CA	85	<NA>	05/13/13	45	85
yobigd20	368	44049	NJ	85	19	04/09/14	31	P85
FlasherZ	366	22507	IL	85	M	04/03/14	25	S85
drbradfo	364	16363	OR	85	M	04/04/14	33	85
stsanford	364	16500	NY	<NA>	<NA>	04/04/14	21	<NA>

The highest upper bound is from neroden at 406. Neroden lives in Ithaca so (I assume) has to deal with bad winters and with lots of hills. The next largest numbers are both from WA: EarlyAdopter at 399 and brianman at 394. In general WA and OR numbers are higher than one might expect just based on temperature, as others have noted. Presumably this has to do with having lots of hills and many days with wet roads, but with the limited data we have on this thread it's impossible to pin down the exact causes.

## 1.9 Geographical Distribution of Data

	wtdAvg	Avg	Median	Miles	Drivers	JanTemp(F)
AB	332	329	329	18832	2	8
AK	384	384	384	13686	1	1
AR	311	311	311	18032	1	39
AZ	304	306	303	117405	9	42
BC	334	334	334	42482	2	36
CA	327	327	326	667027	42	45
CO	323	326	327	71984	5	24
CT	330	330	330	11000	1	26
FL	315	322	318	146701	10	58
GA	323	318	332	74454	4	46
HI	307	303	298	20160	3	67
IL	336	343	345	133569	10	25
IN	307	307	307	10497	1	26
MA	352	343	343	25700	2	25
MD	348	341	342	85991	3	32
MI	346	346	346	31827	2	19
MN	341	342	342	83254	6	8
MO	322	312	318	78948	3	29
NC	314	314	314	16438	2	40
NJ	348	340	340	67849	2	31
NV	302	302	302	17000	1	30
NY	374	374	364	32993	3	21
OH	362	362	362	25716	1	27
ON	362	366	366	37377	2	21
OR	355	353	360	121787	7	33
PA	332	332	332	22288	1	26
QC	331	331	331	14323	1	15
TX	319	319	325	195089	12	46
UT	336	340	340	25706	2	26
VA	309	313	314	84113	4	35
WA	352	356	353	128486	7	32
WI	340	340	340	19653	1	13
WY	293	293	293	6659	1	19

Table 3: Wh/mile aggregated by locale.

## 1.10 Colored Map

Unfortunately, I couldn't figure out how to include Alaska (deepest blue at 384), Hawaii (lightest blue at 307), Quebec (mid blue, 331), Ontario (dark blue, 362), Alberta (mid blue, 332) or British Columbia (mid blue at 334).

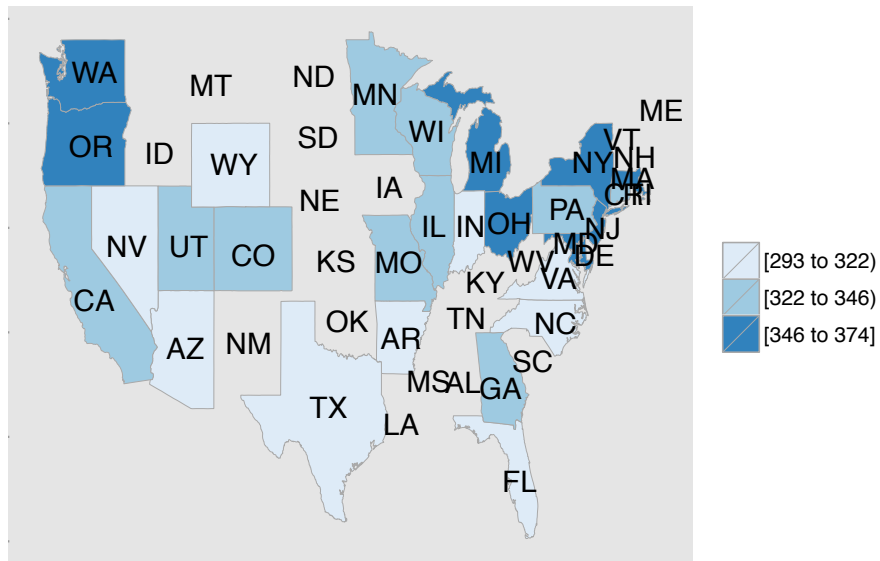


Figure 2: Map of wtAvg wh/m data.

### 1.11 Distribution of Battery and Wheels Sizes

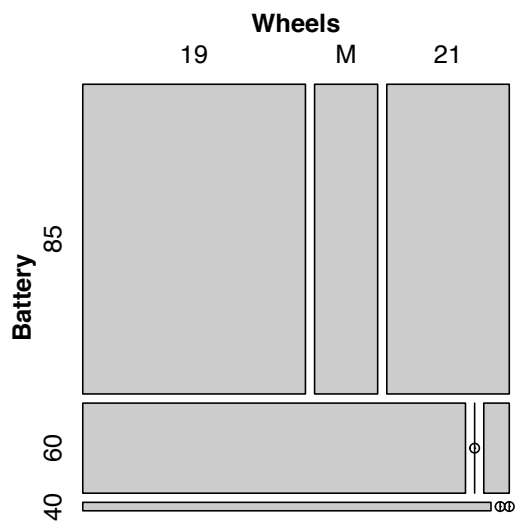


Figure 3: Proportion of cars by battery and wheel type in the clean data set.

### 1.12 Average wh/m by Battery and Wheels Sizes

	Battery	Wheels	wtdAvg	Avg	Median	Miles	Drivers	AvgJanTemp
1	40	19	313	321	307	34793	3	26
2	60	19	309	310	312	502646	30	35
3	85	19	330	329	334	956348	60	36
4	60	21	290	292	292	12840	2	62
5	85	21	343	342	342	509832	33	41
6	85	M	343	343	346	342945	17	32

Table 4: Wh/mile aggregated by Wheel and Battery. 'M' means a mixture of 19s and 21s

Below is a box and whiskers plot of the same data giving a better picture of the distribution.

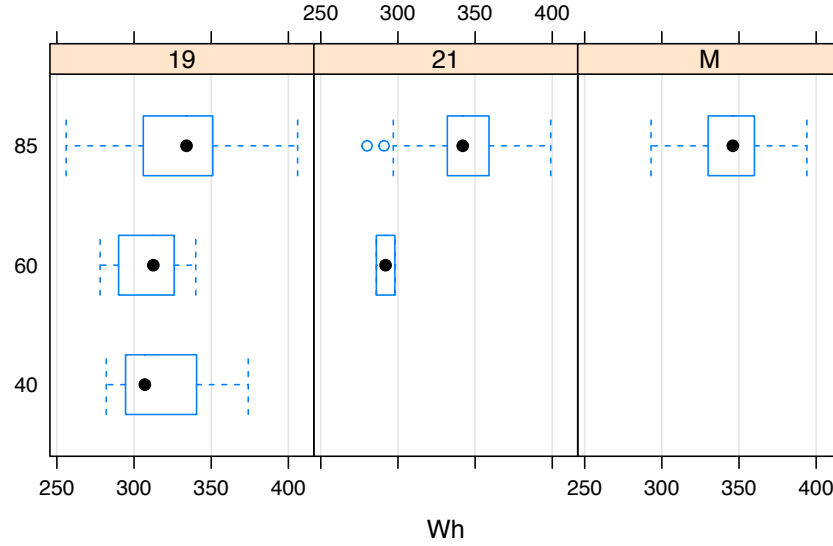


Figure 4: Box and Whiskers plot of Battery vs Wh grouped by Wheel. The black dot is the median and the box is the 25th-75th interquartile range.

In the table we see the average January temperature of the locations for the 60/19 and 85/19 are about the same, so it the 21wh/m difference between these 85 and 60kwh batteries should not be affected by climate differences in the locations of these two groups of cars.

The situation is a bit less clear when comparing Wheels. From the table, average January temperature of the locations of 85/21 combinations is slightly higher than the 85/19 combination. Because higher temperatures are associated with lower wh/m, the 13wh/m wtAvg difference between the 85/21s and 85/19s may underestimate of the real difference between 21 and 19 inch wheels. The linear model we fit below gives a slightly larger difference of 16wh/m.



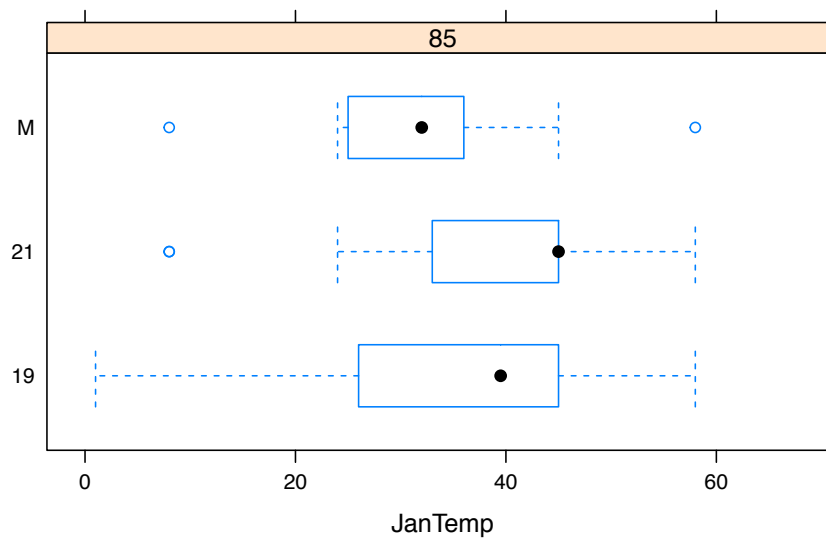


Figure 5: wh/m for the 85kwh battery vs average January temperature, grouped by Wheel. The black dots are the median of the distribution.

### 1.13 wh/m vs JanTemp conditioned on Wheel and Battery Sizes

The left panel shows that for all average January temperatures of the locations of the cars, the 60s tend to have lower wh/m numbers than the 85s. The strong negative correlation with temperature is also clear on this plot.

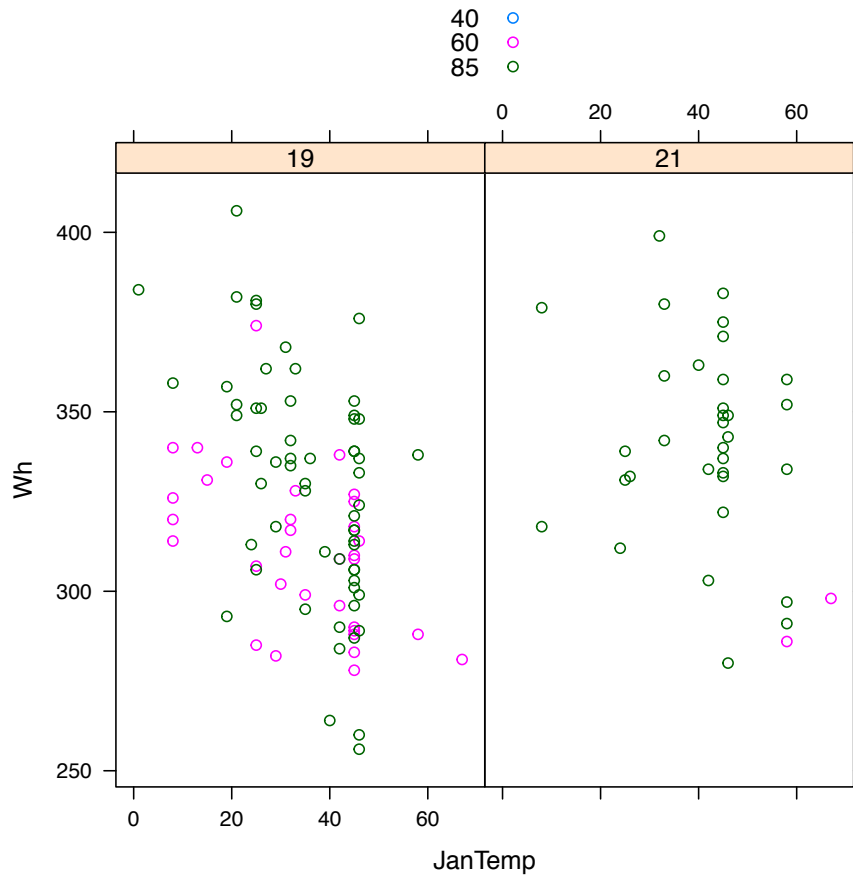


Figure 6: We drop the mixed Wheel combinations in this plot.

## 1.14 Simple Model

This section is just for fun. I don't put a lot of weight on the exact numbers that come out, but the trend and magnitudes seem about right.

We can try to fit a simple model to the data to predict wh/m given what we know. The model has to be simple because the data set is small. We don't know a lot of the relevant factors that affect a given driver's wh/m (e.g. driving style, typical elevation changes, typical road conditions where he or she lives) so we don't expect the model to be terribly accurate. At the same time, there are clear geographical and wheel/battery patterns in the data so we should be able to say something.

The main difference between the states and provinces as far as annual energy consumption goes is the severity of the winter. One simple way to characterize the severity of winter is by the average temperature in January. I used the 30 year average of the average January temperature from the NWS because it was easy to find. The main purpose of using this variable as a proxy for location is that it has the right quantitative characteristics. The absolute scale doesn't matter, as long as all states are shifted by similar amounts. However as this winter was severe in the east and mild in the west, we would likely get better results if we used this year's average January temperatures (heating degree days would be another option).

In any case, the model is simply a linear model in average JanTemp, Wheel Size, and Battery size. To fit the model, I drop "mixed" wheel data and set 40 kwh batteries to 60 (they should be the same).

The regression coefficients are:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	341.9711	7.7096	44.36	0.0000
JanTemp	-0.9158	0.1794	-5.10	0.0000
Wheels21	16.4614	5.5300	2.98	0.0035
Battery85	20.4723	5.3971	3.79	0.0002

Table 5: Linear Model

and the adjusted  $R^2$  is .27.

In words, the model predicts your annual wh/m will be 342 minus .9 times the average January temperature of your state (in degrees F, included in the Locale data table above) plus 20 if you have an 85 battery, plus another 16 if you have 21 inch wheels. If you have 21 inch wheels half the time, and 19 inch the other half, you should add 8 instead of 16 etc.

I include the predictions of the model for all drivers at the end, assuming in the case of mixed wheels that it is half 19 and half 21.

### 1.15 Plot of Predicted vs Actual Wh/m

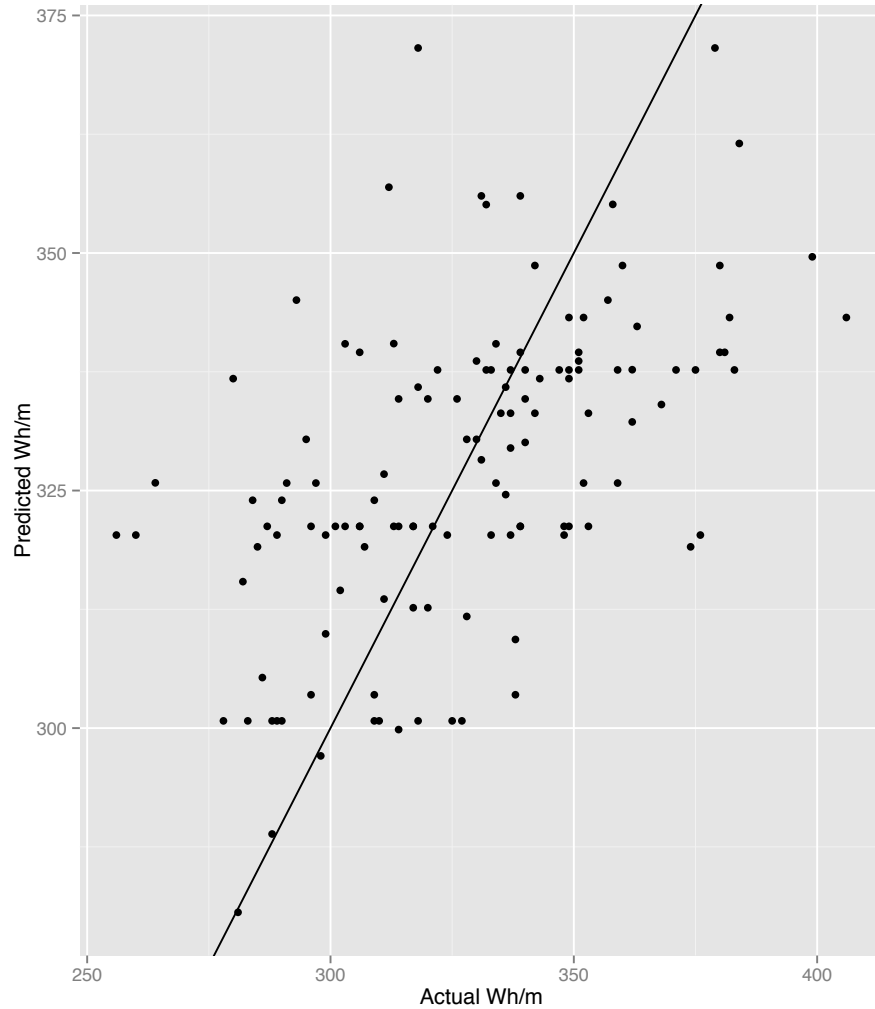


Figure 7: Predicted vs Actual Wh/m

### 1.16 Monthly Data

I plot time series data below for each driver for whom I have at least five updates. Note that the points in the graph are "monthly" wh/m numbers, not cumulative ones. For some drivers, the updates are not regularly spaced, so a given point corresponds to the wh/m since the previous point (e.g. the previous two months if the previous update was two months prior). Also, for a couple of drivers, there are two plots - one showing monthly numbers they provided and one derived from

their cumulative numbers.

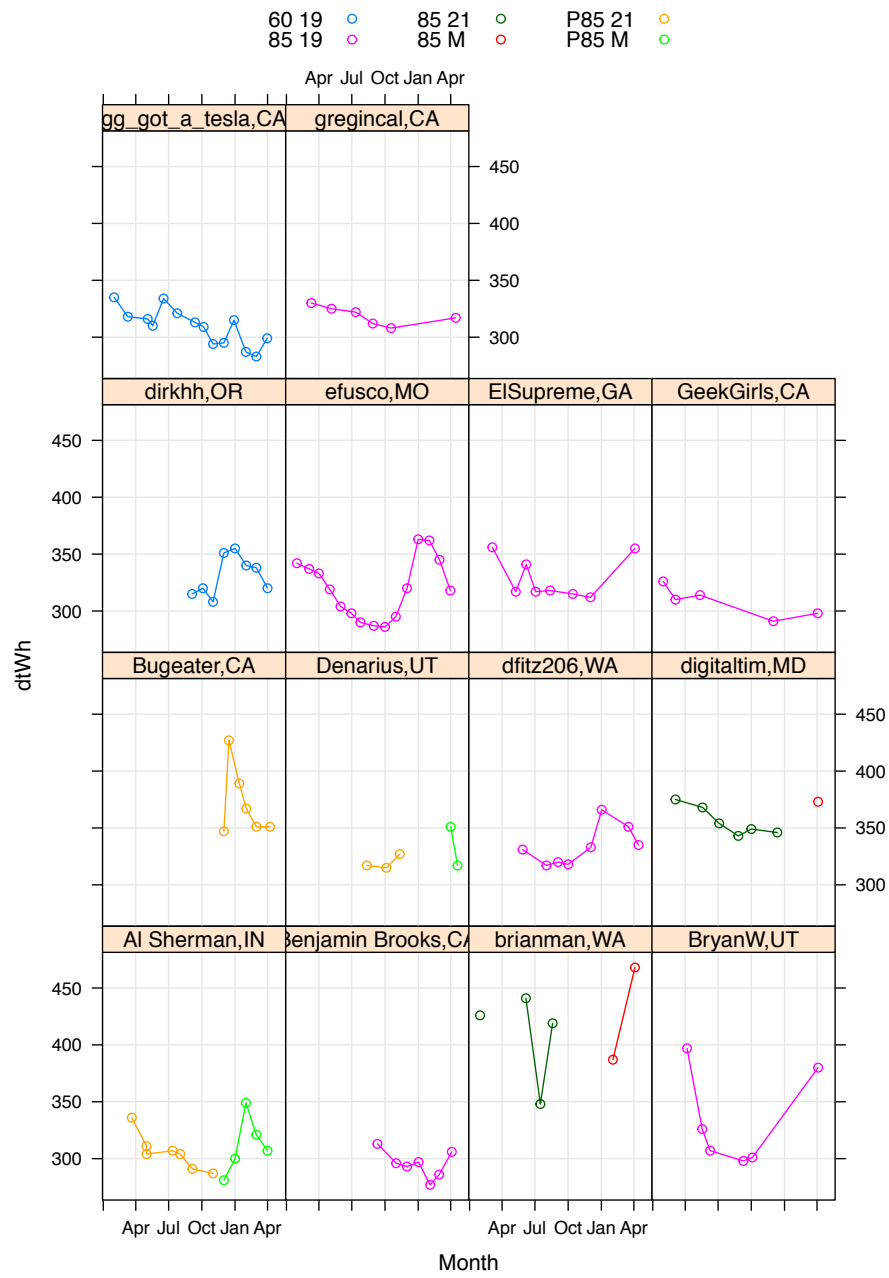


Figure 9: Selected time series

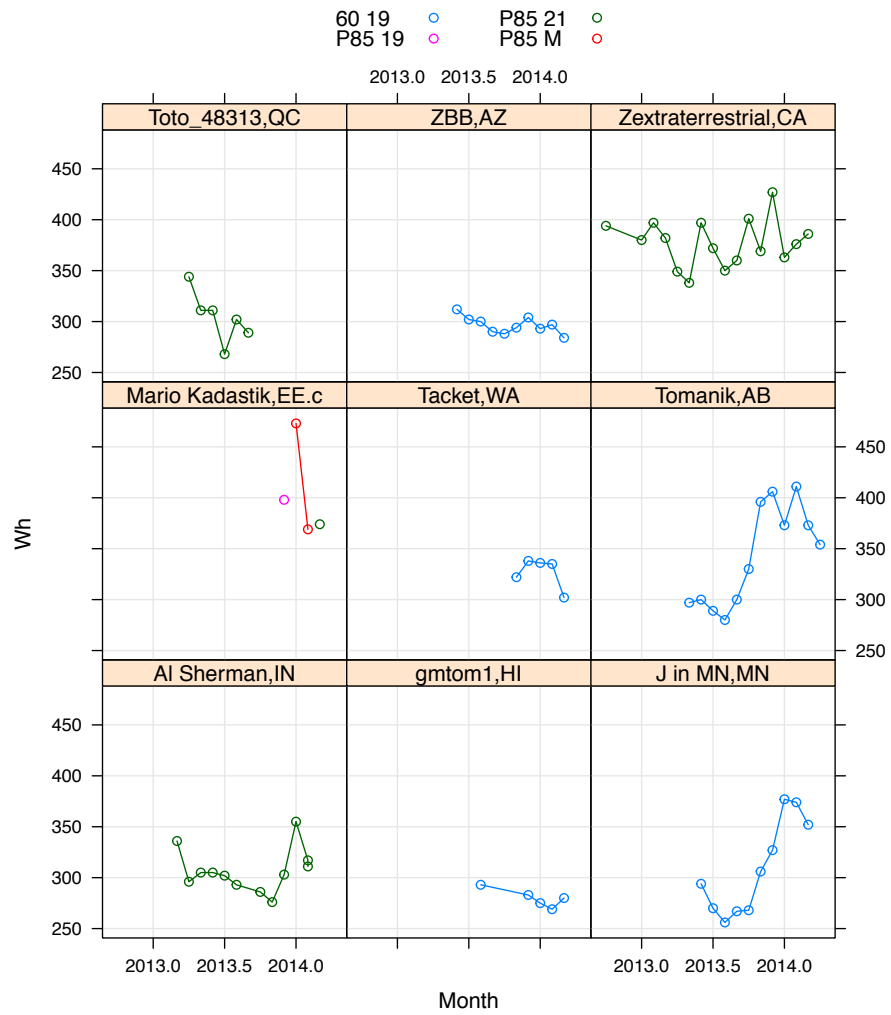


Figure 8: Selected time series



Figure 10: Selected time series

## 1.17 Data with Predictions

	Wh	Prediction	Miles	State	Battery	Wheels	LastUpdate	RecLength	JanTemp
aaron.s	352	343	7000	NY	85	19	05/13/13	L	21
AC1K	318	372	6665	AB	P85	21	04/21/14	L	8
ajros1	324	320	7600	TX	85	19	04/05/14	L	46
Al Sherman	307	347	10497	IN	P85	M	04/01/14	L	26
AMN	379	372	11046	MN	P85	21	04/05/14	L	8
AmpedRealtor	290	324	7356	AZ	P85	19	04/04/14	L	42
Andrew Wolfe	332	338	14653	CA	P85	21	04/04/14	L	45
AndyM	360	349	27590	OR	P85	21	04/05/14	L	33
AnOutsider	409	355	8567	PA	85	21	05/13/13	S	26
araxara	293	332	27876	AZ	P85	M	04/04/14	L	42
AudubonB	284	324	9362	AZ	P85	19	04/07/14	L	42
Banahogg	318	301	10500	CA	60	19	04/04/14	L	45
bbmertz	353	321	15200	CA	85	19	04/04/14	L	45
Beavis	312	357	15243	CO	S85	21	04/05/14	L	24
Ben W	359	338	12500	CA	P85	21	10/01/13	L	45
Benjamin Brooks	306	321	17450	CA	S85	19	04/04/14	L	45
Biff67	330	330	10815	VA	85	19	10/01/13	L	35
bigsmooth125	299	320	4000	TX	85	19	05/23/13	L	46
bob_p	326	320	3000	TX	85		03/05/13	L	46
bosgig	345	356	900	MA	P85	21	03/12/13	S	25
Brad-isa	365	319	1490	IL	60	19	o	S	25
Brass Guy	306	340	9700	MA	S85	19	01/14/14	L	25
Brett	344	301	9782	CA			04/08/14	L	45
brianman	394	341	24448	WA	S85	M	04/04/14	L	32
BriansTesla	294	313	1200	WA	60	19	06/14/13	S	32
BryanW	351	339	7200	UT	85	19	04/04/14	L	26
Bucket22	354	348	12700	IL	P85	M	04/09/14	L	25
Bugeater	351	338	19072	CA	P85	21	04/08/14	L	45
CalDreamin	317	321	16000	CA	S85	19	04/04/14	L	45
captain_zap	360	341	15629	WA	P85	M	04/05/14	L	32
Cattledog	348	320	6400	TX	85	19	05/12/13	L	46
ChadS	337	333	21187	WA	S85	19	04/10/14	L	32
Chgd Up	353		8400		S85		01/31/13	S	
ckessel	380	349	20000	OR	85	21	04/01/14	L	33
Cliff Hannel	344	329	19000	CA	P85	M	12/02/13	L	45
Cottonwood	327	349	18652	CO	85	M	04/04/14	L	24
cschock	313	321	13135	CA	S85	19	03/14/14	L	45
Darmok	302	314	17000	NV	60	19	04/04/14	L	30
davecolene0606	302	318	33253	FL	S85	M	04/16/14	L	58
davecolene06062	286	305	8121	FL	60	21	04/16/14	L	58
David Trushin	378	340	1100	IL	85	19	o	S	25
David99	303	321	2800	CA	85	19	04/13/14	L	45
DavidM	338	309	5165	FL	85	19	05/19/13	L	58



ddenboer	340	338	34971	CA	P85	21	04/21/14	L	45
deaton52	353	333	12850	WA	85	19	08/13/13	L	32
Denarius	330	347	18506	UT	P85	M	04/20/14	L	26
DfibRL8R	299	310	25230	VA	60	19	02/04/14	L	35
dftiz206	335	333	25342	WA	85	19	04/14/14	L	32
dflye	364	342	7623	NC	P85	21	04/16/13	S	40
digitaltim	362	341	47142	MD	S85	M	04/04/14	L	32
dirkh	328	312	12994	OR	60	19	04/01/14	L	33
dlmorgan999	397	332	1565	OR	85	19	02/10/13	S	33
dmckinstry	297	333	3160	WA	85		09/07/13	S	32
DonD	288	289	22100	FL	60	19	02/17/14	L	58
dpodoll	298	297	4719	HI	60	21	04/08/14	L	67
drbradfo	364	340	16363	OR	85	M	04/04/14	L	33
drp	339	356	6100	IL	85	21	05/13/13	L	25
dtich	402	338	1300	CA	P85	21	03/20/13	S	45
dwegmull	296	321	9800	CA	85	19	04/19/14	L	45
EarlyAdopter	399	350	6882	WA	P85	21	01/27/14	L	32
eelton	381	340	7100	IL	S85	19	04/16/14	L	25
efusco	318	336	27471	MO	85	19	03/31/14	L	29
eidco	348	321	2500	CA	85	19	03/07/14	L	45
ElSupreme	333	320	26000	GA	85	19	04/04/14	L	46
FlasherZ	366	348	22507	IL	S85	M	04/03/14	L	25
flightdoc	329	301	9413	HI	P85		12/02/13	L	67
fluxemag	369	304	750	AZ	40		06/11/13	S	42
gdh66	333	312	15000	OR			12/01/13	L	33
GeekGirls	301	321	19503	CA	85	19	04/03/14	L	45
gene	306	321	21000	CA	85	19	04/01/14	L	45
gg-got_a_tesla	310	301	21795	CA	60	19	03/31/14	L	45
glhs272	340	330	19653	WI	60	19	04/04/14	L	13
gmtom1	281	281	6028	HI	60	19	04/05/14	L	67
gnelson	280	337	4813	TX	P85	21	04/04/14	L	46
gregincal	317	321	10684	CA	85	19	04/15/14	L	45
gtimbers	330	321	900	CA	85	19	03/12/13	S	45
hj-45	279	325	7000	NH	40	19	10/07/13	S	18
HTK	337	329	19721	BC	85	19	04/04/14	L	36
huntjo	346	349	12477	CO	S85	M	04/04/14	L	24
ibcs	362	338	25716	OH	P85	19	04/05/14	L	27
IlliniT	285	319	24900	IL	60	19	04/04/14	L	25
Iz	281	323	4297	NY	60	19	07/31/13	S	21
J in MN	320	335	12039	MN	60	19	04/02/14	L	8
j1nroh	300	301	1135	CA			04/16/14	S	45
Jason	343	337	34531	TX	P85	21	04/19/14	L	46
Jason S	354	329	20241	CA	P85	M	04/08/14	L	45
Jason2	337	300	19477	TX	60		04/19/14	L	46
jchangyy	314	321	16500	CA	S85	19	04/05/14	L	45
Jdcleary	311	327	18032	AR	85	19	03/02/14	L	39

Jeff Miller	339	340	5516	IL	85	19	04/03/14	L	25
jeffnorman	357	356	1118	IL	P85	21	07/28/13	S	25
jerry33	256	320	20659	TX	85	19	04/01/14	L	46
jhs_7645	399	350	558	WA	P85	21	01/31/13	S	32
jive_devil	288	301	15800	CA	60	19	04/04/14	L	45
jjaeger	349	321	19800	CA	85	19	04/04/14	L	45
joer00	352	326	27330	FL	P85	21	04/04/14	L	58
johndoe74	309	324	4250	AZ	85	19	06/08/13	L	42
johngray	391	313	4879	WA		19	03/22/13	S	32
jomo25	309	304	13444	AZ	60	19	03/04/14	L	42
jpasqua	290	301	2216	CA	60	19	06/02/13	L	45
jweinstein	384	362	13686	AK	P85	19	04/05/14	L	1
kaivball	340	338	1400	CA	P85	21	04/14/13	S	45
kcveins	351	340	20358	IL	85	19	04/08/14	L	25
kendallpb	342	333	18230	MD	S85	19	04/02/14	L	32
Kipernicus	309	301	17201	CA	60	19	04/14/14	L	45
Kklabunde	347	339	2881	IN	85	19	03/20/13	S	26
Klaus Fechner	327	301	10471	CA	60	19	04/05/14	L	45
kvietor	297	326	21075	FL	S85	21	04/03/14	L	58
lholtzman	364	340	2700	IL	85	19	o	S	25
Liz G	336	336	39977	MO	85	19	04/04/14	L	29
Lloyd	349	338	9741	CA	P85	21	04/04/14	L	45
lolachampcar	291	326	9700	FL	P85	21	04/04/14	L	58
Longhorn92	374	319	7293	IL	40	19	04/04/14	L	25
Maarten ST	409	342	6211	NL.c	85	21	02/09/14	S	40
mal42north	278	301	20056	CA	60	19	04/05/14	L	45
Mario Kadastik	394	350	6211	EE.c	P85	M	04/05/14	S	23
mark	376	320	13800	TX	85	19	04/04/14	L	46
MassAmped	380	340	16000	MA	P85	19	04/05/14	L	25
matthew.johnson	407	356	3500	IL	85	21	o	S	25
mckemie	289	320	34318	TX	85	19	04/05/14	L	46
mcornwell	337	338	14221	CA	P85	21	12/01/13	L	45
meduri	332	300	23000	GA			10/31/13	L	46
merlynhough	362	332	15528	OR	85	19	04/20/14	L	33
MichaelS	283	301	16358	CA	60	19	04/07/14	L	45
michiganmodels	357	345	14977	MI	P85	19	11/01/13	L	19
Mike_Schlechter	330	339	11000	CT	85	19	10/24/13	L	26
MitchL	383	338	18300	CA	S85	21	04/14/14	L	45
mknox	349	343	22597	ON	85	19	04/02/14	L	21
mnx	382	343	14780	ON	P85	19	03/18/14	L	21
Model S P	334	340	6458	AZ	P85	21	05/23/13	L	42
Morristhecat	331	309	3386	BC	60	19	07/12/13	S	36
Nathan Smith	332	355	22288	PA	P85	21	04/04/14	L	26
neroden	406	343	9493	NY	85	19	04/07/14	L	21
Nickjhowe	334	326	9657	FL	P85	21	04/04/14	L	58
NJS1207	424	334	3600	NJ	85		02/10/13	S	31

ohaq	336	325	16850	MI	60	19	04/04/14	L	19
paco3791	384	319	8931	IL	60	19	04/01/14	S	25
pbrulott	331	328	14323	QC	60	19	04/07/14	L	15
phx182flyer	303	340	22343	AZ	P85	21	04/05/14	L	42
pilotSteve	422	333	1767	WA	85	19	02/10/13	S	32
Psullivan	333	338	7885	CA	P85	21	05/13/13	L	45
qphan79	289	301	35000	CA	60	19	04/05/14	L	45
raptorweb	357	363	18700	MN	85	M	04/03/14	L	8
rcc	339	321	22000	CA	85	19	04/05/14	L	45
rdrcmatt	313	330	10800	WI			10/21/13	S	13
rlcordeiro	347	338	25786	CA	P85	21	04/09/14	L	45
Rlsarch	359	326	6800	FL	P85	21	04/09/14	L	58
Rodolfo Paiz	370	309	3500	FL	P85		10/28/13	L	58
rpavlicek	325	301	15257	CA	60	19	04/04/14	L	45
Sacramento055	307	319	16000	IL	40	19	04/04/14	L	25
SarahsDad	363	342	8284	NC	P85	21	04/04/14	L	40
scaesare	328	330	21934	VA	S85	19	04/05/14	L	35
schueppert	332	320	1066	TX	85	19	08/05/13	S	46
SCW-Greg	342	349	14312	OR	S85	21	04/03/14	L	33
SeminoleFSU	349	337	12500	GA	P85	21	04/05/14	L	46
smd	369	321	7950	CA	85		05/13/13	L	45
spaghetti	287	321	11700	CA	85	19	04/14/14	L	45
Sparrow	260	320	12954	GA	P85	19	04/01/14	L	46
spatterso911	354	338	2000	CA	P85	21	03/04/13	S	45
StephRob1	387	338	4938	CA	85	21	03/05/13	S	45
StephRob2	336	301	1054	CA	60	19	03/05/13	S	45
stevezzz	313	340	23419	CO	S85	19	04/03/14	L	24
stsanford	364	323	16500	NY			04/04/14	L	21
sublimaze1	337	320	27000	TX	85	19	04/05/14	L	46
SuperCoug	368	313	1000	WA			o	S	32
svoelpel	264	326	8154	NC	S85	19	04/05/14	L	40
Tacket	317	313	22148	WA	60	19	04/05/14	L	32
tdiggity	322	338	15860	CA	P85	21	04/04/14	L	45
tesla2012	338	304	11989	AZ	60	19	04/07/14	L	42
tezco	332	349	2193	CO	P85	M	04/03/14	L	24
Todd Burch	295	330	26134	VA	S85	19	04/05/14	L	35
Tomanik	340	335	12167	AB	60	19	04/04/14	L	8
tomas	331	356	11095	IL	85	21	12/18/13	L	25
Tommy	321	321	36000	CA	85	19	04/14/14	L	45
Toto_48313	298	357	18013	QC	P85	M	10/01/13	S	15
Treker56	301	310	4000	VA	60	19	08/10/13	S	35
Txjak	314	300	19491	TX	60	19	03/17/14	L	46
Ven Rala	320	313	20619	MD	60	19	04/14/14	L	32
Vern110	407	340	1800	IL	85		o	S	25
Vexar	314	335	19000	MN	60	19	04/06/14	L	8
Vger	332	338	22761	BC	P85	M	04/04/13	L	36

William13	403	339	9000	IN	85		05/13/13	S	26
wraithnot	339	321	6208	CA	85	19	05/12/13	L	45
wycolo	293	345	6659	WY	85	19	06/15/13	L	19
XK8driver	342	347	3600	VA	P85	21	03/17/13	S	35
xray	371	338	10131	CA	P85	21	07/25/13	L	45
yobigd20	368	334	44049	NJ	P85	19	04/09/14	L	31
youlikeadajuice	311	314	23800	NJ	60	19	04/04/14	L	31
ZBB	296	304	14327	AZ	60	19	03/31/14	L	42
zdre	282	315	11500	MO	40	19	04/03/14	L	29
Zextraterrestrial	375	338	22000	CA	P85	21	04/14/14	L	45
Zythryn1	358	355	12579	MN	85	19	06/25/13	L	8
Zythryn2	326	335	9890	MN	60	19	04/05/14	L	8

Table 6: All data with predictions. RecLength means Record Length; a value of L (=Long) means I kept it in the clean data set.