Appendix A.
Statistical Methodology

THE SURVEY POPULATION

The target population for the 2009 On-Farm Renewable Energy Production Survey (OREPS) was all farms and ranches that selected yes to the question "At any time during 2007, did this operation generate energy or electricity on the farm using wind or solar technology, methane digester, etc?" on the 2007 Census of Agriculture.

Operations that were listed on the U.S. Environmental Protection Agency's AgStar site (http://www.epa.gov/agstar/projects/index.html) as having a methane digester project that was operable in 2009 and earlier were also included in the sample population.

DATA COLLECTION

Method of Enumeration

The 2009 OREPS was conducted primarily by mail. It was supplemented with electronic data reporting via the internet and data collected by telephone and personal enumeration.

Report Form

A four page report form was designed to capture data for number of on-farm renewable energy production devices, installation costs, sales to the grid, and utility savings. The main focus of the 2009 OREPS was to provide detailed information on wind turbines, solar panels and methane digesters. The "other forms of energy produced" question in Section 5 of the OREPS report form was primarily for clarification and was not summarized or published. The "other solar powered devices (fence chargers)" question in Section 3 was included to prevent misreporting of solar panels versus small solar powered devices. These devices were included in the 2007 Census of Agriculture published count of farms having renewable energy producing devices but were not included in the published OREPS solar panel section. The questions pertaining to energy sales were not summarized or published in this first energy release due to reporting errors. There was confusion between actual sales and net metering. On future energy surveys, sales questions will be clarified and additional net metering questions will be asked.

Report Form Mailings and Respondent Follow-up

The 2009 On-Farm Renewable Energy Production Survey report form mail packet was mailed from the Census Bureau's National Processing Center (NPC) at Jeffersonville, IN on May 3, 2010. The mail packet included a labeled report form, an instruction sheet, a letter requesting prompt response with electronic data reporting instructions, and a return envelope to NPC for data capture. The report form carried a return due date of May 24, 2010. A second mailing to nonrespondents took place from NPC on June 4, 2010.

Telephone follow-up interviews to nonrespondents took place from June 20 to July 9, 2010 from NASS Data Collection Centers. A process was used to exclude operations from receiving a follow-up telephone call if their report form was received in the mail.

Data collection for the 2009 OREPS was coordinated with other NASS agricultural surveys. In some cases, if an operation was selected for multiple surveys, NPC mailed the materials to NASS field offices. Field office personnel then were responsible for collecting the data and completing other survey report forms in an effort to reduce the number of contacts and respondent burden.

REPORT FORM PROCESSING

Data Capture

All report forms returned to NPC were immediately checked in using bar codes printed on the mail label and were removed from follow-up mailings. All forms were reviewed prior to data keying to identify inconsistencies and ensure the data could be keyed. Major inconsistencies, respondent remarks, and blank forms were reviewed by analysts and adjusted prior to keying. In some cases, report forms were mailed to field offices for further editing. All forms with any data were scanned and an image was created for each page of the report form. After images were created, the data were keyed directly from the report form.

Data Editing and Analysis

Data from each report form were processed through a computer edit which flagged inconsistent entries. Each report form with a flagged entry was reviewed by an analyst. Action was required for any record with reported data that were obviously incorrect. In some cases, respondents may have failed to provide all of the information requested, only indicating the presence of an item but not the amount. Only number of wind turbines and methane digesters were coded for machine imputation. Percents and averages of positive reported data were used for all other items.

After the initial edit, an automated imputation program supplied missing wind turbine and digester numbers based on State or national averages. A post-imputation computer edit was performed to ensure imputation actions provided acceptable results. Instances where imputed data failed edit checks were referred to analysts for corrective action.

The computer edit ensured the data on a report form were internally consistent. An analysis tool was provided to examine the data across records to check for distributional irregularities and data outliers. Analysts corrected suspect data when necessary and re-edited the record.

ESTIMATION

Nonresponse Weighting

While effort was expended to obtain a response from each farm, a complete set of responses was not achieved. Nonresponse can lead to biases in published estimates because the information concerning on-farm energy production of the nonresponding farms could not be factored into the estimates. Estimates of totals, for example, will be biased low. It is necessary to reduce this bias through the use of a procedure called nonresponse weight adjustment. Nonresponse weight adjustment gives more weight to the data reported by responding farms in an effort to account for the data that would have been reported by the nonresponding farms. This will increase the estimates of totals obtained by the respondents and reduce this bias.

Most of the estimates published from the 2009 OREPS are ratios of estimated totals. The potential for bias exists for these estimated ratios, although it is difficult to predict whether the bias is upward or downward. Nevertheless, nonresponse adjustments were calculated and factored into the ratio estimates as well.

Conceptually, each farm on the mail list begins the survey with a weight of one. In other words, if each farm on the list would provide the requested data, the data could be simply added up to estimate the total. In the presence of nonresponse, adjustments are computed and applied to the initial weights of the responding farms resulting in a nonresponse adjusted weight greater than 1 for these farms. The initial weight of each nonresponding farm is adjusted to zero. The adjustments are computed in a manner that requires the sum of the nonresponse-adjusted weights across the *responding* farms on the mail list to equal the sum of the initial weights across all farms on the mail list.

If the total number of farms on the mail list is N, the sum of the initial weights across all farms on the mail list equals N, because the initial weight for each farm on the list is 1. The sum of the nonresponse-adjusted weights across all *responding* farms on the mail list must equal N. In fact, the sum of the nonresponse-adjusted weights across all farms on the list would sum to N as well because the nonresponse adjusted weight of nonresponding farms is set to 0.

Weight-Adjustment Groups

To compute nonresponse adjustments, each record on the mail list is first placed in a weight-adjustment group. The groups are defined in such a way that all farms that reside in the same group appear to share similarities with respect to the characteristics used to define the group. It is necessary that the characteristics by which the weight-adjustment groups are defined be available for responding and nonresponding farms alike. Therefore, it was not possible to define weight-adjustment groups using data collected via the survey. Information used to define the groups was obtained from historical information maintained on the mail list and available for each farm.

The information used to create the weight-adjustment groups was a measure of general farm sales (GFS), expressed in total dollars. This measure is available for all farms on the mail list. The basic definition of the weight-adjustment groups is given below:

Definition	**Weight Adjustment Group ID**
GFS<= $50,000	10
$50,000< GFS <= $250,000	20
$250,000< GFS <=$500,000	30
$500,000< GFS <= $1,000,000	40
$1,000,000 < GFS <= $5,000,000	50
$5,000,000 < GFS	60
Methane Digester Farms	900

Farms on the mail list were placed in mutually exclusive groups based on the farm's GFS. One additional weight-adjustment group was composed of farms believed to possess a methane digester. These farms are generally economically large but were placed in the group 900 without regard to the GFS. Weight-adjustment groups were created and weight adjustments were carried out separately for each state.

To ensure there were sufficient numbers of responding farms in each group, some collapsing of weighting groups occurred, resulting in some States having more weight adjustment groups than others.

Nonresponse-Adjustment Computation

A separate nonresponse adjustment is calculated within each weight-adjustment group. All responding records within each group will receive the same nonresponse adjusted weight. The nonresponse-adjustment is obtained by dividing the total number of farms contained in a group by the number of responding farms in the group. If the total number of farms in the group is 50 and the number of responding farms in the group is 40, the nonresponse-adjustment for the responding farms is 50/40 or 1.25. The nonresponse-adjusted weight for all responding farms in the group is the product of the survey weight and the nonresponse adjustment of 1.25. This is simply (1 x 1.25) or 1.25. Note that 1.25 x 40 = 50, the total number of farms in the group.

The assumption being made is that within each weight-adjustment group, the data the nonrespondents would have provided had they responded is similar to the data provided by the respondents. This assumption is made somewhat more plausible by the fact that farms in the same group share similar characteristics with respect to the information used to define the group- the GFS.

Coverage Weighting Adjustments

The target population for the 2009 OREPS was the set of all farms in the United States producing at least $1,000 worth of raw agricultural commodities and producing on-farm renewable energy in 2009. Realistically, it is a nearly impossible task to compose a list of farms that is complete. Due to this incompleteness of the 2009 OREPS mail list, estimates produced from it, even if perfectly corrected to account for nonresponse, will still be downward biased because farms not on the list would not have any representation. This bias due to list incompleteness is called coverage bias, or more specifically, bias due to under coverage of the list.

To reduce the amount of this bias, an additional adjustment was calculated and applied to the nonresponse-adjusted weight for each responding farm. This is called the coverage adjustment. The coverage adjustment was calculated within the same weight-adjustment groups defined above.

Coverage Adjustment Computation

Each farm on the 2009 OREPS mail list was a respondent to the 2007 Census of Agriculture. The weights of all 2007 census respondents were fully adjusted for nonresponse and coverage error. Coverage adjustment for the 2007 census was made possible through the use of survey data that was based on a list (or frame) of geographic land segments. In theory, every acre of land in the U.S. is contained in one of these segments. This implies that a survey based on such a frame will have complete coverage and represent all farms in the U.S. This survey was used to derive estimates of the magnitude of the coverage error associated with the census mail list. The nonresponse-adjusted weight for each 2007 agricultural census respondent received a coverage adjustment based on the estimated coverage error obtained from the area frame survey. This resulted in a fully coverage-adjusted weight for each census respondent.

These weights were pulled forward for every farm on the 2009 OREPS mail list. Summing these weights across every farm on the list produces an estimate of the total number of farms producing on-farm energy in 2007. These estimates account for both 2007 census nonresponse and coverage bias. Information contained in the census weights is used to create a coverage adjustment for the 2009 OREPS. This information is somewhat dated (2007 vs. 2009), but still useful for accounting for the 2009 OREPS list coverage bias

The coverage-adjustment for responding farms to the 2009 OREPS was calculated by first summing the 2007 census fully adjusted weight across all farms residing in the weight-adjustment group. This gives an estimate of the total number of energy producing farms in a state that would fall into that group, whether they are contained on the 2009 OREPS mail list or not. This number is divided by the sum of the nonresponse-adjusted weights for all responding farms in the group. This results in the 2009 OREPS coverage adjustment for that group. If the sum of the fully adjusted census weights in a group for all farms in the group is 60 and the sum of the nonresponse-adjusted weight across all responding farms in the group is 50, the 2009 OREPS coverage-adjustment is 60/50 or 1.2. Multiplying the coverage adjustment by the nonresponse adjusted weight results in the fully-adjusted 2009 OREPS weight. In the given example with 40 responding farms, this would be 1.25 x 1.2=1.5. Note that 1.5 x 40=60. This represents the estimated total number of energy-producing farms that would fall into that group, whether on the list or not. All responding farms in a group will have the same fully-adjusted 2009 OREPS weight.

Summary Weights

Many of the fully adjusted weights for the 2009 OREPS are not whole numbers (integers). Using these weights to create the estimates published in the tables would result in the tables having lots of fractional values. These would be difficult to read or could cause consistency problems between different tables. To avoid some of these problems, *summary weights* were created by moving the fully adjusted weights randomly up or down to the nearest integer in an unbiased manner by retaining the weighting cell total. This process is called *weight integerization*. The resulting integer summary weights are used to actually produce the numbers published in the tables.

Explanation of Published Ratios

Table 1. Wind Turbines – Calculations for columns 3, 4, and 5 in Table 1 include only those surveyed farms reporting positive data values for both the numerator and the denominator.

***Column 3. Average Rated Generating Capacity Per Turbine* -** This is computed as the estimated total kilowatts of rated generating capacity, divided by the estimated number of actively generating turbines.

Column 4. Average Installation Cost Per Turbine - This is computed as the estimated total system installation cost (includes outside funding) for all turbines, divided by the estimated number of turbines owned and used.

Column 5. Percent of Installation Cost Provided by Outside Funding - This is computed as the estimated installation cost received from outside funding, divided by the estimated total installation cost.

Table 2. Methane Digesters – Calculations for columns 3, 4, and 5 in Table 2 include only those surveyed farms reporting positive data values for both the numerator and denominator.

Column 3. Average Methane Volume Production Per Digester - This is computed as the estimated total amount of methane produced, divided by the estimated total number of methane digesters.

Column 4. Average Installation Cost Per Digester - This is computed as the estimated total installation cost of methane digesters, divided by the estimated total number of digesters on farms with positive installation costs.

Column 5. Percent of Installation Cost Provided by Outside Funding - This is computed as the estimated installation cost provided by outside funding, divided by the estimated total installation cost.

Table 3. Solar Panels – Calculations for columns 4, 5, and 6 in Table 3 include only surveyed farms reporting positive data values for both the numerator and denominator.

Column 4. Average Photovoltaic Solar Panel Generating Capacity Per Farm - This is computed as the estimated total generating capacity of all photovoltaic solar panels, divided by the estimated total number of farms utilizing photovoltaic solar panels.

Column 5. Average Installation Cost Per Farm - This is computed as the estimated total solar panel system installation cost, divided by the estimated number of farms having positive solar panel installation cost.

Column 6. Percent of Installation Cost Provided by Outside Funding - This is computed as the estimated installation cost received from outside funding, divided by the estimated total installation cost.

Table 4. Energy Cost Savings -

Column 2. Average Dollars Saved on Utility Bills Per Farm - This is computed as the estimated total amount saved on utility bills for farms having wind turbines, solar panels, and/or methane digesters, divided by the estimated total number of farms having positive utility bill savings.

MEASURES OF PRECISION AND ACCURACY OF THE ESTIMATES

All numbers published in the tables are merely estimates of particular characteristics of the entire population of energy-producing farms. The true values of these characteristics are unknown and unknowable. Even though an attempt was made to contact every farm on the mail list, the estimates produced by the survey will not exactly attain the true values. This is due to a number of factors, such as survey nonresponse, mail list incompleteness, and the weight integerization process. Hypothetically, if the entire survey process was repeated over and over again, each replication of the survey would almost certainly produce a different estimate for the same population value every time. This is because each time the survey is carried out, a different set of respondents would be obtained, response rates would fluctuate, and the estimated coverage rates of the mail list could change.

It is possible to obtain an idea of how much this variation would be on average by calculating the estimate's *variance*. The variance of an estimate gives a measure of the average squared random fluctuation that would be seen in an estimate if the survey was carried out multiple times. This is referred to as the *precision* of the estimate. Because the variance measures random fluctuation in squared units, the square root of the variance is computed to obtain a random fluctuation measure that is in the same units as the original estimate. This is called the *standard error* (se) of the estimate. The standard error can then be divided by the estimate itself to show the relative size of the standard error to the estimate. If this ratio is small, the estimate is quite precise. If this ratio is large, the estimate is imprecise. An estimate of 100 with a standard error of 2 would result in a relative standard error of .02 or 2 percent. This would be a very precise estimate. An estimate of 100 with a standard error of 20 would result in a relative standard error of 20 percent. This might be considered to be an imprecise estimate. The idea of precision can be made a little more clear by stating that if the estimate is 100 with a standard error of 2, you could be quite confident that the true population value would be in the interval 96 to 104 (within two standard deviations of the estimate).

Unbiased estimates are generally accurate. This is to say that if the survey is hypothetically repeated over and over, the *average* of the estimates obtained would be very close to the true value being estimated. This does not mean that any particular realization of the estimate will be "close" to the true value. An accurate estimate that is not precise has a good chance of missing the true value of the characteristic being estimated by a significant amount.

If the estimate contains some *bias*, both precision and accuracy are measured by computing the *mean squared error* (mse) of the estimate. *Bias* is systematic error that would be about the same for every hypothetical replication of the survey. Bias is not random fluctuation and affects the *accuracy* of the estimate. The weight adjustments described earlier are used to decrease biases in the estimates. However, the weight integerization process introduces some bias. Ideally, the amount of bias contained in an estimate should be small or non-existent, but in conducting actual surveys, some biases may be hard to avoid. Biased estimates can be precise, but in hypothetical replications of the survey, will tend to be systematically lower or higher than the true population value being estimated. Highly biased estimates are generally quite inaccurate and are not desirable.

The mean squared error is computed by adding a term to the variance called the estimated *squared bias*. The mean squared error can be used to measure the combined effects of random variation and bias contained in an estimate. Like the variance, the mean squared error is measured in squared units, so the square root of the mean squared error is often taken. This results in what is called the *root mean squared error* (rmse). Like the standard error, the ratio of the root mean squared error to the estimated value can be created. It is often multiplied by 100 and expressed as a percent. This ratio gives a measure of the *relative root mean squared error* (relative rmse) of the estimate. When this ratio is small (close to 0 percent), the estimate is both very precise and very accurate. A large ratio (20 percent or more) might indicate that the estimate is precise but not very accurate. Another possibility is that the estimate might be accurate but not very precise. A third possibility is that the estimate might reflect only a moderate level of both accuracy and precision.

Table A. **Reliability Estimates of Operations Reporting Small and Large Wind Turbines: 2009**

State	Small wind turbines - Farms - Number	Small - Farms - Relative RMSE	Small - Average per turbine - Rated generating capacity - kW	Small - Rated generating capacity - Relative RMSE	Small - Average per turbine - Installation cost - Dollars	Small - Installation cost - Relative RMSE	Large wind turbines - Farms - Number	Large - Farms - Relative RMSE	Large - Average per turbine - Rated generating capacity - kW	Large - Rated generating capacity - Relative RMSE	Large - Average per turbine - Installation cost - Dollars	Large - Installation cost - Relative RMSE
United States	1,406	1.4	6	3.4	12,972	1.7	14	8.4	1,035	9.7	1,339,143	8.9
Alabama	3	48.1	(D)	(D)	(D)	(D)	-	-	-	-	-	-
Alaska	8	11.9	1	11.0	4,394	24.9	-	-	-	-	-	-
Arizona	63	6.9	1	11.0	2,768	16.0	-	-	-	-	-	-
Arkansas	7	8.5	2	57.3	5,800	56.9	-	-	-	-	-	-
California	134	5.5	3	4.3	13,955	4.1	-	-	-	-	-	-
Colorado	98	6.9	3	12.5	4,581	4.6	-	-	-	-	-	-
Connecticut	1	16.0	(D)	(D)	(D)	(D)	-	-	-	-	-	-
Delaware	-	-	-	-	-	-	-	-	-	-	-	-
Florida	5	12.3	1	13.6	5,250	8.4	-	-	-	-	-	-
Georgia	4	12.1	(D)	(D)	(D)	(D)	-	-	-	-	-	-
Hawaii	43	8.7	1	2.8	1,799	5.5	-	-	-	-	-	-
Idaho	39	7.8	4	8.0	12,778	14.1	-	-	-	-	-	-
Illinois	28	9.3	5	11.7	11,448	9.3	-	-	-	-	-	-
Indiana	49	7.4	2	10.2	7,870	9.3	-	-	-	-	-	-
Iowa	39	5.7	8	7.9	23,840	9.3	9	6.0	1,359	5.8	1,784,889	5.6
Kansas	18	16.5	6	11.3	10,084	7.0	-	-	-	-	-	-
Kentucky	1	60.1	(D)	(D)	(D)	(D)	-	-	-	-	-	-
Louisiana	2	27.9	(D)	(D)	(D)	(D)	-	-	-	-	-	-
Maine	32	7.2	5	9.0	17,353	6.9	-	-	-	-	-	-
Maryland	2	29.5	(D)	(D)	(D)	(D)	-	-	-	-	-	-
Massachusetts	22	6.4	7	7.2	43,218	7.9	-	-	-	-	-	-
Michigan	34	10.7	2	11.8	9,981	19.3	-	-	-	-	-	-
Minnesota	99	4.8	20	6.1	37,647	4.5	-	-	-	-	-	-
Mississippi	3	23.6	1	4.2	4,467	6.6	-	-	-	-	-	-
Missouri	21	11.9	3	38.4	7,779	23.9	-	-	-	-	-	-
Montana	63	6.2	3	13.4	6,293	5.9	-	-	-	-	-	-
Nebraska	7	8.0	1	6.7	1,563	15.4	-	-	-	-	-	-
Nevada	8	34.3	1	7.9	1,455	12.4	-	-	-	-	-	-
New Hampshire	11	16.0	3	18.5	9,850	14.1	-	-	-	-	-	-
New Jersey	3	46.7	8	7.2	47,518	11.9	-	-	-	-	-	-
New Mexico	28	14.4	1	5.7	4,807	10.9	-	-	-	-	-	-
New York	58	7.6	5	7.4	22,254	9.9	-	-	-	-	-	-
North Carolina	12	10.9	2	5.2	12,800	6.8	-	-	-	-	-	-
North Dakota	5	35.7	(D)	(D)	15,778	10.8	-	-	-	-	-	-
Ohio	44	10.6	2	8.4	11,257	11.8	-	-	-	-	-	-
Oklahoma	20	14.7	2	13.5	4,156	9.9	-	-	-	-	-	-
Oregon	37	7.9	1	4.5	3,209	10.2	-	-	-	-	-	-
Pennsylvania	26	7.0	3	7.7	7,148	20.9	-	-	-	-	-	-
Rhode Island	2	30.6	(D)	(D)	(D)	(D)	-	-	-	-	-	-
South Carolina	-	-	-	-	-	-	-	-	-	-	-	-
South Dakota	11	7.6	4	35.8	19,064	13.1	-	-	-	-	-	-
Tennessee	9	23.7	(D)	(D)	8,177	13.0	-	-	-	-	-	-
Texas	102	6.9	4	9.4	8,493	4.2	-	-	-	-	-	-
Utah	31	9.0	1	4.7	2,562	9.8	-	-	-	-	-	-
Vermont	43	4.9	3	2.2	16,847	5.5	-	-	-	-	-	-
Virginia	11	11.0	1	25.5	2,971	34.0	-	-	-	-	-	-
Washington	50	7.6	19	16.7	12,669	7.9	-	-	-	-	-	-
West Virginia	4	19.9	5	14.8	44,400	16.0	-	-	-	-	-	-
Wisconsin	46	5.4	8	1.2	15,329	1.9	-	-	-	-	-	-
Wyoming	20	12.8	2	8.2	4,648	10.4	-	-	-	-	-	-
Other States [1]	-	-	-	-	-	-	5	20.0	453	54.0	536,800	55.7

[1] Other States include Kansas, Minnesota, and Montana.

Table B. **Reliability Estimates of Operations Reporting Methane Digesters and Solar Panels: 2009**

State	Methane digesters						Solar panels					
	Farms		Average per methane digester				Farms		Average per farm			
			Methane produced		Installation cost				PV rated generating capacity		Installation cost	
	Number	Relative RMSE	Cubic feet	Relative RMSE	Dollars	Relative RMSE	Number	Relative RMSE	Watts	Relative RMSE	Dollars	Relative RMSE
United States	121	1.5	30,515,800	2.0	1,718,562	1.3	7,968	1.5	4,449	3.8	31,947	2.8
Alabama	-	-	-	-	-	-	33	7.7	865	23.3	6,948	12.3
Alaska	-	-	-	-	-	-	16	8.0	865	7.9	9,134	9.0
Arizona	-	-	-	-	-	-	255	4.9	2,002	4.9	19,992	2.7
Arkansas	-	-	-	-	-	-	41	6.6	833	14.6	7,502	8.0
California	14	8.9	29,194,314	20.5	1,794,444	23.3	1,906	5.4	11,229	5.6	78,910	4.5
Colorado	-	-	-	-	-	-	504	5.1	1,654	4.5	16,879	2.7
Connecticut	-	-	-	-	-	-	26	12.1	4,173	16.4	29,571	17.6
Delaware	-	-	-	-	-	-	4	17.1	15,500	19.3	101,250	18.7
Florida	-	-	-	-	-	-	88	6.3	2,162	6.6	12,223	4.0
Georgia	-	-	-	-	-	-	32	6.8	3,625	9.3	28,545	8.3
Hawaii	-	-	-	-	-	-	520	6.0	1,790	3.5	16,665	3.2
Idaho	-	-	-	-	-	-	131	6.1	916	3.5	12,524	6.9
Illinois	-	-	-	-	-	-	58	8.2	4,575	19.1	39,018	16.6
Indiana	-	-	-	-	-	-	127	6.3	543	5.7	5,262	6.4
Iowa	-	-	-	-	-	-	40	6.7	1,988	13.8	17,791	18.6
Kansas	-	-	-	-	-	-	116	4.1	408	11.4	4,607	5.4
Kentucky	-	-	-	-	-	-	67	9.6	776	5.9	6,305	7.5
Louisiana	-	-	-	-	-	-	13	10.3	876	11.7	10,970	10.1
Maine	-	-	-	-	-	-	97	5.9	1,680	6.0	13,892	7.2
Maryland	-	-	-	-	-	-	21	11.2	2,665	26.8	24,201	15.0
Massachusetts	-	-	-	-	-	-	63	5.9	3,678	6.5	27,624	2.4
Michigan	5	1.0	36,923,333	(Z)	1,322,222	(Z)	75	6.5	841	9.2	7,416	6.7
Minnesota	5	1.0	69,105,120	(Z)	3,123,333	(Z)	73	6.6	1,409	7.4	11,178	5.2
Mississippi	-	-	-	-	-	-	23	13.3	706	13.4	11,593	11.2
Missouri	-	-	-	-	-	-	93	6.1	1,022	12.7	9,429	13.2
Montana	-	-	-	-	-	-	238	4.3	988	3.0	9,180	3.2
Nebraska	-	-	-	-	-	-	65	4.3	742	6.6	5,632	4.8
Nevada	-	-	-	-	-	-	51	12.6	1,832	13.7	21,971	8.2
New Hampshire	-	-	-	-	-	-	49	8.4	1,641	5.6	16,173	4.7
New Jersey	-	-	-	-	-	-	138	5.5	14,081	4.4	112,855	4.4
New Mexico	-	-	-	-	-	-	258	4.2	1,261	4.2	12,888	4.6
New York	16	1.5	18,611,675	(Z)	1,611,206	(Z)	156	6.2	2,501	4.8	21,661	4.3
North Carolina	-	-	-	-	-	-	104	8.1	1,015	8.1	10,198	3.5
North Dakota	-	-	-	-	-	-	29	9.9	429	6.1	5,048	10.6
Ohio	-	-	-	-	-	-	130	6.5	1,614	10.7	12,122	16.2
Oklahoma	-	-	-	-	-	-	187	5.2	428	22.9	4,612	9.7
Oregon	-	-	-	-	-	-	332	5.3	3,002	8.0	22,147	6.9
Pennsylvania	13	1.0	18,951,843	(Z)	642,188	(Z)	173	5.6	1,750	4.8	20,699	2.8
Rhode Island	-	-	-	-	-	-	12	7.9	(D)	(D)	30,960	28.3
South Carolina	-	-	-	-	-	-	20	10.4	(D)	(D)	5,047	6.9
South Dakota	-	-	-	-	-	-	55	3.3	696	3.9	7,470	2.7
Tennessee	-	-	-	-	-	-	66	6.5	1,065	8.7	8,657	13.4
Texas	-	-	-	-	-	-	573	4.3	783	2.4	7,692	1.9
Utah	-	-	-	-	-	-	133	5.3	1,211	4.2	14,573	5.7
Vermont	8	1.0	(D)	(D)	1,718,750	(Z)	110	6.2	1,304	1.2	15,510	1.7
Virginia	-	-	-	-	-	-	83	5.7	869	10.1	12,868	5.4
Washington	-	-	-	-	-	-	205	5.6	1,547	2.7	10,377	2.6
West Virginia	-	-	-	-	-	-	27	9.9	521	9.2	8,166	7.4
Wisconsin	21	2.1	(D)	(D)	1,608,924	1.8	176	6.0	2,484	13.8	17,607	8.2
Wyoming	-	-	-	-	-	-	176	5.6	1,275	5.1	10,362	2.7
Other States [1]	39	4.9	26,034,140	6.0	2,181,189	5.6	-	-	-	-	-	-

[1] Other States include Colorado, Connecticut, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Maryland, Mississippi, Missouri, Montana, Nebraska, North Carolina, Ohio, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Washington, and Wyoming.