

United States Industrial Sector Energy End Use Analysis

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Abstract

The United States Department of Energy's (DOE) Energy Information Administration (EIA) conducts the Manufacturing Energy Consumption Survey (MECS) to provide detailed data on energy consumption in the manufacturing sector. The survey is a sample of approximately 15,000 manufacturing establishments selected from the Economic Census - Manufacturing Sector. MECS provides statistics on the consumption of energy by end uses (e.g., boilers, process, electric drives, etc.) disaggregated by North American Industry Classification System (NAICS) categories. The manufacturing sector (NAICS Sector 31-33) consists of all manufacturing establishments in the 50 States and the District of Columbia. According to the NAICS, the manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. The establishments are physical facilities such as plants, factories, or mills. For many of the sectors in the MECS datasets, information is missing because the reported energy use is less than 0.5 units or BTUs, or is withheld to avoid disclosing data for individual establishments, or is withheld because the standard error is greater than 50%. We infer what the missing information likely are using several approximations techniques. First, much of the missing data can be easily calculated by adding or subtracting other values reported by MECS. If this is not possible (e.g. two data are missing), we look at historic MECS reports to help identify the breakdown of energy use in the past and assume it remained the same for the current MECS. Lastly, if historic data is also missing, we assume that 3 digit NAICS classifications predict energy use in their 4, 5, or 6 digit NAICS sub-classifications, or vice versa. Along with addressing data gaps, end use energy is disaggregated beyond the specified MECS allocations using additional industry-specific energy consumption data. The result is a completed table of energy end use by sector with mechanical drives broken down by pumps, fans, compressed air, and drives.

Introduction

In 2012, the United States industrial sector consumed 23.4 quadrillion BTUs of energy, representing approximately one-third of all U.S. delivered energy use (EIA, 2012). The U.S. Department of Energy's (DOE) Energy Information Administration (EIA) conducts the Manufacturing Energy Consumption Survey (MECS) to provide detailed data on energy consumption in the manufacturing sector. The survey is typically updated every four years and MECS 2006 is the most recent data available to date. MECS 2006 consists of reported energy use information from 15,500 sample establishments, which are used to represent 97-98% of the manufacturing payroll. Insight into relative energy use among different industries and how energy use is consumed within each of these industries provides opportunities to conduct analyses that can identify the potential impacts that would result various energy efficiency measures. This information can be used to target policy initiatives towards components within the U.S. industrial sector that will yield the greatest impacts on energy savings.

The utilization of MECS 2006 is partially limited owing to portions of data in the public version being withheld, either to protect the anonymity of a specific establishment or because the specific survey results generate a Relative Standard Error greater than 50%. Additionally, energy use estimates documented in the surveys that are less than 0.5 in corresponding physical units of BTU are withheld from the results. These withheld values create non-quantitative values throughout the MECS datasets, which limit the ability of this data to be incorporated into multi-decisional analysis tools.

This report presents an augmented form of the 2006 MECS datasets that provides estimates for any withheld data by evaluating trends in previous versions of MECS and disaggregates energy use beyond the specified MECS end-uses including additional industry-specific energy consumption data. Results present a more thorough understanding of energy use allocations throughout the U.S. industrial sector and provide an all-quantitative form of the data that can be more easily incorporated into other analysis tools.

Methods

For many of the sectors in the MECS datasets, information is missing because the reported energy use is less than 0.5 units or BTUs, or is withheld to avoid disclosing data for individual establishments, or is withheld because the standard error is greater than 50%. We infer what the missing information likely are using several approximations techniques. First, reported energy use values less than 0.5 units or BTUs are assumed to be zero. Since MECS provides total summed energy values even when one subcomponent energy values is absent, adding or subtracting other values reported by MECS can then easily calculate much of the withheld data. If this is not possible (e.g. two data are missing), we look at historic MECS reports to help identify the breakdown of energy use in the past and assume that MECS 2006 has the same energy use distribution ratio among end-use components within a specific national industry (a six-digit NAICS code). When historic data is also missing for a specific national industry, we assume that the distribution ratio of energy use within a three-digit NAICS subsector classification predicts the corresponding distribution ratio of energy use for the more detailed four-, five-, and six-digit NAICS classifications within that subsector, or vice versa. Along with addressing data gaps, end use energy consumption designated for the Machine Drives category in MECS is further separated into four motor categories (Pumps, Fans, Compressed Air, and Other Drives) using industry-specific data on the distribution of motor system energy use (Xenergy, 1998).

Results

Tables 1-6 present fuel-specific energy use – electricity, natural gas, petroleum, coal, steam, and biomass/byproducts, respectively – disaggregated by end-use for each of the NAICS categories available from MECS 2006, MECS 2002, and MECS 1998 data.

Table 1: Electricity End Uses (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
3112	100	4	4	-	86	2	9	75	19	9	9	38	<1	<1	8	4	3	1	<1	-	-	2
311221	100	5	5	-	86	1	12	73	19	9	9	37	-	<1	5	2	2	<1	-	-	-	4
All Other 3112	100	2	2	-	86	3	6	76	20	9	9	39	<1	1	11	5	5	1	<1	-	-	-
31131	100	4	4	-	78	2	2	74	19	9	9	37	<1	-	18	6	6	1	-	-	5	-
3114	100	3	3	-	80	8	37	34	9	4	4	17	<1	<1	18	7	7	2	1	-	<1	<1
311421	100	<1	<1	-	73	2	24	45	12	5	5	23	1	<1	22	9	10	1	1	-	-	5
3115	100	2	2	-	78	5	32	40	10	5	5	20	<1	2	19	8	8	2	1	-	1	<1
3116	100	2	2	-	80	5	42	31	8	4	4	16	<1	1	17	7	7	2	<1	-	<1	1
All Other 311	100	2	2	-	69	10	22	37	9	4	4	19	<1	<1	27	13	10	4	<1	-	<1	2
3121	100	1	1	-	75	3	29	40	10	5	5	20	<1	3	24	9	10	3	<1	-	1	<1
3122	100	1	1	-	48	3	7	38	10	4	5	19	-	<1	51	35	12	4	<1	-	-	-
313	100	1	1	-	77	10	13	53	11	8	9	25	-	1	22	11	8	2	<1	-	<1	-
313210	100	1	-	-	70	3	10	57	11	1	<1	<1	<1	<1	27	15	10	2	<1	-	-	2
All Other 313	100	1	-	-	74	6	9	59	11	2	<1	<1	<1	1	23	13	8	1	<1	-	<1	3

Table 1: Electricity End Uses (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
314	100	<1	<1	-	66	11	8	43	9	7	7	20	<1	4	30	14	10	4	2	-	<1	4
315	100	<1	<1	-	43	5	5	33	7	5	6	15	-	<1	53	30	18	5	<1	-	-	3
316	100	1	1	-	54	5	2	47	10	7	8	22	-	1	35	12	16	3	<1	-	3	9
321113	100	3	3	-	84	9	1	74	16	11	12	34	<1	<1	11	4	6	1	<1	-	<1	2
321114	100	4	-	-	74	15	1	58	11	1	<1	<1	-	-	14	6	6	1	-	-	-	8
3212	100	3	3	-	82	7	1	73	16	11	12	34	1	1	12	5	6	1	<1	-	<1	3
3219	100	<1	<1	-	65	4	<1	61	13	9	10	28	-	-	22	11	9	2	<1	-	<1	13
All Other 321	100	2	2	-	81	6	6	68	14	10	11	31	<1	2	16	7	6	3	<1	-	<1	1
322110	100	3	3	-	77	4	2	71	26	17	4	24	<1	-	9	4	3	2	-	-	-	10
322121	100	4	4	-	86	5	1	78	29	18	4	27	<1	1	10	5	4	1	<1	-	<1	-
322122	100	1	1	-	90	3	2	79	29	19	4	27	6	-	9	3	3	1	1	-	1	-
322130	100	12	12	-	82	4	1	74	28	17	4	25	1	2	5	2	2	1	<1	-	<1	1
All Other 322	100	11	11	-	70	4	3	63	23	15	3	21	<1	1	17	8	7	2	<1	-	<1	1
323	100	1	1	-	61	3	6	52	11	8	9	24	<1	<1	36	19	12	4	<1	-	1	2

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323110	100	<1	-	-	63	3	6	53	10	1	<1	<1	<1	1	32	18	12	2	<1	-	<1	5
All Other 323	100	1	-	-	55	3	5	46	9	1	<1	<1	1	<1	35	18	13	3	<1	-	1	9
324110	100	1	1	-	93	3	6	84	51	8	13	12	<1	<1	6	3	2	1	<1	-	<1	-
324199	100	2	2	-	69	16	2	51	31	5	8	7	-	<1	29	9	10	4	-	-	5	-
All Other 324	100	2	2	-	76	11	3	55	33	5	9	8	<1	6	19	10	6	3	<1	-	<1	3
325110	100	<1	<1	-	88	11	8	63	18	8	19	17	6	<1	12	5	6	1	-	-	-	<1
325120	100	<1	<1	-	96	<1	2	93	27	12	28	26	<1	-	4	2	1	<1	-	-	-	-
325181	100	<1	<1	-	97	<1	2	14	4	2	4	4	74	6	3	1	1	<1	-	-	<1	-
325182	100	1	1	-	77	2	<1	74	21	10	23	20	1	-	22	16	6	<1	<1	-	-	-
325188	100	1	1	-	89	2	3	63	18	8	19	17	20	1	8	4	2	1	<1	-	1	3
325192	100	<1	<1	-	91	64	7	20	6	3	6	6	-	-	9	4	3	2	-	-	<1	-
325193	100	4	4	-	89	8	11	67	19	9	21	19	-	2	7	3	3	1	<1	-	<1	-
325199	100	1	1	-	89	4	11	56	16	7	17	15	18	<1	9	5	3	1	<1	-	<1	1
325211	100	18	18	-	73	3	9	52	15	7	16	14	10	<1	9	3	3	2	<1	-	<1	<1

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325212	100	1	1	-	81	6	16	58	17	8	18	16	<1	<1	17	10	5	1	1	-	-	1
325222	100	13	13	-	74	7	16	50	14	7	15	14	-	1	13	6	4	2	<1	-	<1	<1
325311	100	1	1	-	92	2	11	78	22	10	24	22	<1	<1	8	3	4	1	<1	-	<1	-
325312	100	-	-	-	94	<1	<1	91	26	12	28	25	2	<1	6	3	2	2	<1	-	-	-
3254	100	2	2	-	54	14	12	27	8	4	8	8	<1	1	42	26	11	4	<1	-	1	2
325412	100	2	2	-	56	17	11	28	8	4	9	8	<1	<1	41	25	10	4	<1	-	2	2
All Other 3254	100	1	1	-	48	2	17	25	7	3	8	7	<1	2	47	31	13	4	-	-	-	4
325992	100	9	9	-	57	5	11	39	11	5	12	11	2	1	34	20	12	1	<1	-	-	-
All Other 325	100	1	1	-	84	7	12	62	18	8	19	17	3	<1	15	8	5	2	1	-	<1	<1
326	100	1	1	-	76	15	9	50	14	7	15	14	1	1	23	11	9	3	<1	-	<1	<1
326199	100	1	-	-	75	16	7	52	14	2	<1	<1	<1	<1	19	9	8	2	<1	-	-	5
All Other 326	100	<1	-	-	78	16	9	52	14	2	<1	<1	<1	<1	19	9	8	2	<1	-	<1	3
3272	100	<1	<1	-	83	38	5	39	8	6	7	18	<1	1	15	8	6	1	<1	-	<1	2
327211	100	1	1	-	88	39	7	39	8	6	7	18	1	2	11	4	5	1	1	-	-	-

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327212	100	<1	<1	-	86	23	3	53	11	8	9	25	<1	7	13	7	5	<1	<1	-	-	1
327213	100	-	-	-	89	37	3	49	10	7	8	23	-	<1	11	5	4	1	<1	-	1	-
327215	100	<1	<1	-	79	44	7	25	5	4	4	12	1	2	19	10	7	1	<1	-	<1	1
All Other 3272	100	<1	<1	-	78	42	7	29	6	4	5	13	<1	1	18	10	6	1	<1	-	<1	4
327310	100	-	-	-	85	8	1	74	16	11	12	34	<1	3	14	6	5	3	1	-	1	1
327410	100	-	-	-	90	13	<1	75	16	11	13	35	1	-	10	4	4	2	-	-	-	-
327420	100	<1	<1	-	91	6	1	83	18	13	14	39	-	-	9	4	4	1	<1	-	-	-
327993	100	<1	<1	-	91	37	2	38	8	6	6	18	<1	14	9	3	4	2	<1	-	<1	-
All Other 327	100	1	1	-	82	19	4	58	12	9	10	27	-	<1	17	8	7	2	<1	-	<1	<1
331111	100	<1	<1	-	92	41	1	47	4	7	7	29	3	1	7	3	4	1	<1	-	<1	<1
331112	100	-	-	-	98	57	<1	8	1	1	1	5	30	2	2	1	1	<1	-	-	-	-
3312	100	<1	<1	-	84	24	1	55	5	9	8	33	3	2	15	6	7	1	<1	-	<1	-
3313	100	<1	<1	-	96	4	<1	12	1	2	2	8	79	<1	4	2	2	1	<1	-	<1	<1
331312	100	-	-	-	97	5	<1	7	1	1	1	5	85	-	3	2	1	<1	-	-	-	-

Table 1: Electricity End Uses (in percentages)																						
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331314	100	<1	<1	-	81	22	1	55	5	9	8	34	-	2	19	8	9	1	<1	-	1	-
331315	100	<1	<1	-	88	21	3	65	6	10	9	39	<1	<1	11	5	5	2	<1	-	<1	<1
331316	100	<1	<1	-	81	19	4	53	5	8	8	32	4	1	19	7	10	2	<1	-	<1	-
All Other 3313	100	<1	<1	-	97	2	<1	4	<1	1	1	3	92	-	2	1	1	1	<1	-	-	-
3314	100	1	1	-	89	32	2	26	2	4	4	16	27	2	9	4	4	1	<1	-	<1	<1
3315	100	<1	<1	-	82	45	2	30	3	5	4	18	3	2	17	9	6	2	<1	-	<1	1
331511	100	<1	<1	-	82	46	1	28	2	4	4	17	4	2	18	10	6	2	<1	-	1	-
331521	100	<1	<1	-	76	28	4	44	4	7	6	27	<1	<1	24	12	10	1	<1	-	<1	-
331524	100	1	1	-	77	31	2	42	4	7	6	26	<1	2	22	9	8	4	<1	-	-	1
All Other 3315	100	<1	<1	-	85	52	3	27	2	4	4	16	2	2	12	6	5	1	-	-	<1	2
332	100	<1	<1	-	77	20	4	49	10	7	8	23	2	3	22	10	9	2	<1	-	<1	1
333	100	<1	<1	-	57	7	3	45	10	7	8	21	<1	2	41	22	15	3	1	-	1	2
334	100	1	1	-	51	11	11	21	4	3	3	10	1	8	48	28	12	6	<1	-	2	<1
334413	100	<1	<1	-	64	14	14	21	4	3	4	10	3	13	36	24	6	5	<1	-	<1	-

Table 1: Electricity End Uses (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
All Other 334	100	1	1	-	40	8	8	20	4	3	3	10	<1	3	58	32	16	7	<1	-	3	1
335	100	<1	<1	-	69	22	5	37	8	6	6	17	2	3	30	14	11	3	<1	-	<1	1
336	100	1	1	-	60	14	6	37	8	6	6	17	1	3	39	19	15	4	1	-	1	1
336111	100	2	2	-	53	7	4	36	8	6	6	17	2	4	43	24	15	3	1	-	<1	2
336112	100	1	1	-	62	3	8	43	9	6	7	20	2	6	37	18	14	4	2	-	<1	-
3364	100	2	2	-	46	13	8	22	5	3	4	10	1	2	52	28	19	5	1	-	<1	1
336411	100	<1	<1	-	40	8	10	20	4	3	3	9	<1	2	59	29	23	5	1	-	<1	<1
All Other 336	100	1	1	-	68	16	5	43	9	7	7	20	1	2	31	15	12	3	1	-	1	<1
337	100	1	1	-	48	6	1	40	9	6	7	19	<1	<1	32	13	14	4	<1	-	<1	18
339	100	2	2	-	50	10	6	33	7	5	6	15	1	1	47	25	17	5	<1	-	-	1

Table 2: Natural Gas End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
3112	100	54	47	8	42	38	-	2	-	-	-	-	-	1	3	3	-	-	-	-	-	1
311221	100	45	32	13	53	53	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-
All Other 3112	100	62	60	3	32	26	-	3	-	-	-	-	-	2	5	3	-	-	-	-	-	2
31131	100	72	11	56	22	22	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-
3114	100	72	69	3	21	21	-	1	-	-	-	-	-	-	6	5	-	2	-	-	-	-
311421	100	72	62	10	40	40	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	3
3115	100	45	44	1	46	38	-	2	-	-	-	-	-	6	6	5	-	1	-	-	-	2
3116	100	68	68	-	25	20	1	2	-	-	-	-	-	2	8	6	-	2	-	-	-	-
All Other 311	100	35	34	1	53	51	1	2	-	-	-	-	-	1	8	6	-	2	-	-	1	5
3121	100	74	66	8	16	11	-	3	-	-	-	-	-	5	11	11	-	-	-	-	-	-
3122	100	100	100	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
313	100	52	52	-	35	32	-	3	-	-	-	-	-	-	12	11	-	-	2	-	-	-
313210	100	65	-	-	30	26	-	-	-	-	-	-	-	-	4	4	-	-	-	-	-	-

Table 2: Natural Gas End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
All Other 313	100	59	-	-	35	33	-	3	-	-	-	-	-	-	4	4	-	-	-	-	-	1
314	100	35	35	-	48	46	-	-	-	-	-	-	-	2	7	7	-	-	-	-	-	11
315	100	57	57	-	29	11	-	17	-	-	-	-	-	-	14	14	-	-	-	-	-	-
316	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
321113	100	50	50	-	42	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
321114	100	33	-	-	67	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3212	100	33	13	20	60	51	-	2	-	-	-	-	-	7	4	2	-	-	-	-	-	2
3219	100	18	18	-	36	36	-	-	-	-	-	-	-	-	36	36	-	-	-	-	-	9
All Other 321	100	9	9	-	91	91	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322110	100	57	29	21	36	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
322121	100	55	22	32	38	32	1	5	-	-	-	-	-	-	3	2	-	-	-	1	-	4
322122	100	75	-	75	25	13	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-
322130	100	72	28	43	22	18	-	2	-	-	-	-	-	1	3	1	-	1	-	1	-	3
All Other 322	100	48	27	22	28	27	-	-	-	-	-	-	-	1	6	7	-	-	-	-	-	18
323	100	13	13	-	67	64	-	3	-	-	-	-	-	-	21	18	-	-	-	-	-	-

Table 2: Natural Gas End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
323110	100	12	-	-	64	56	-	8	-	-	-	-	-	-	20	20	-	-	-	-	-	4
All Other 323	100	32	-	-	32	21	-	5	-	-	-	-	-	5	32	26	-	-	-	-	-	5
324110	100	32	12	20	65	61	<1	2	-	-	-	-	-	2	2	1	-	<1	-	2	-	-
324199	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 324	100	41	41	-	47	33	-	3	-	-	-	-	-	10	7	7	-	-	-	-	-	5
325110	100	34	17	16	65	64	-	1	-	-	-	-	-	-	1	-	-	-	-	-	1	-
325120	100	43	43	-	57	43	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-
325181	100	55	13	41	45	14	-	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325182	100	18	18	-	36	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45
325188	100	26	26	2	61	56	-	-	-	-	-	-	-	4	4	2	-	-	-	-	-	9
325192	100	60	60	-	40	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	100	60	56	4	35	32	-	-	-	-	-	-	-	4	1	1	-	-	-	-	-	4
325199	100	67	38	29	28	22	1	1	-	-	-	-	-	4	2	1	-	<1	-	<1	<1	3
325211	100	79	16	64	19	16	<1	<1	-	-	-	-	-	2	1	1	-	-	-	-	1	<1
325212	100	85	23	62	15	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2: Natural Gas End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
325222	100	59	35	24	32	24	-	9	-	-	-	-	-	-	9	-	-	-	-	6	-	-
325311	100	24	21	3	75	56	10	5	-	-	-	-	-	3	1	-	-	-	-	-	-	-
325312	100	9	9	9	91	73	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3254	100	80	43	37	7	4	-	-	-	-	-	-	-	2	13	11	-	-	-	-	2	-
325412	100	81	39	42	6	6	-	-	-	-	-	-	-	-	13	10	-	-	-	-	3	-
All Other 3254	100	80	53	27	7	-	-	-	-	-	-	-	-	7	13	13	-	-	-	-	-	-
325992	100	57	14	43	29	14	-	-	-	-	-	-	-	14	14	14	-	-	-	-	-	-
All Other 325	100	56	34	21	36	19	-	15	-	-	-	-	-	6	7	8	-	1	-	-	-	1
326	100	46	46	-	29	24	-	2	-	-	-	-	-	2	21	19	-	2	-	-	-	4
326199	100	19	-	-	46	42	-	-	-	-	-	-	-	-	31	27	-	-	-	-	-	4
All Other 326	100	59	-	-	22	19	1	2	-	-	-	-	-	1	17	13	-	1	-	-	-	2
3272	100	1	1	-	93	91	-	1	-	-	-	-	-	1	5	5	-	-	-	-	-	1
327211	100	4	4	-	94	94	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-
327212	100	5	5	-	92	88	-	-	-	-	-	-	-	-	2	6	-	-	-	-	-	2
327213	100	-	-	-	96	96	-	-	-	-	-	-	-	-	4	4	-	-	-	-	-	-

Table 2: Natural Gas End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
327215	100	17	17	-	10	10	-	-	-	-	-	-	-	-	4	4	-	-	-	-	-	69
All Other 3272	100	4	4	-	84	80	-	2	-	-	-	-	-	2	8	8	-	-	-	-	-	4
327310	100	5	-	5	95	89	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327410	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327420	100	3	3	-	92	92	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	4
327993	100	-	-	-	79	79	-	-	-	-	-	-	-	-	6	6	-	-	-	-	-	15
All Other 327	100	-	-	-	-	-	-	31	-	-	-	-	-	6	50	-	-	6	-	-	-	50
331111	100	8	4	4	87	83	-	2	-	-	-	-	-	2	5	4	-	<1	-	-	-	-
331112	100	50	50	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3312	100	12	12	-	72	72	-	-	-	-	-	-	-	-	16	12	-	-	-	-	-	-
3313	100	16	3	12	78	75	2	1	-	-	-	-	-	1	4	3	-	1	-	-	-	2
331312	100	5	5	-	89	83	-	-	-	-	-	-	-	6	5	5	-	-	-	-	-	-
331314	100	-	-	-	100	89	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331315	100	3	3	-	89	86	-	-	-	-	-	-	-	-	5	3	-	-	-	-	-	3
331316	100	6	6	-	88	82	-	-	-	-	-	-	-	-	6	6	-	-	-	-	-	-

Table 2: Natural Gas End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
All Other 3313	100	36	5	32	57	57	2	2	-	-	-	-	-	2	5	5	-	2	-	-	-	2
3314	100	12	12	-	74	70	-	2	-	-	-	-	-	2	7	7	-	-	-	-	-	7
3315	100	4	4	-	72	69	-	1	-	-	-	-	-	1	19	18	-	1	-	-	-	4
331511	100	4	4	-	65	57	-	-	-	-	-	-	-	4	30	30	-	-	-	-	-	-
331521	100	6	6	-	75	75	-	-	-	-	-	-	-	-	13	13	-	-	-	-	-	6
331524	100	-	-	-	79	79	-	-	-	-	-	-	-	-	14	14	-	-	-	-	-	7
All Other 3315	100	5	5	-	74	74	-	5	-	-	-	-	-	-	16	11	-	5	-	-	-	5
All Other 331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
332	100	15	15	1	66	65	-	<1	-	-	-	-	-	1	16	15	-	1	-	-	-	3
333	100	25	19	6	34	29	-	-	-	-	-	-	-	5	39	36	-	2	-	-	-	2
334	100	42	42	-	9	7	-	-	-	-	-	-	-	2	40	38	-	-	-	-	2	9
334413	100	47	47	-	11	5	-	-	-	-	-	-	-	5	42	37	-	-	-	-	-	-
All Other 334	100	38	38	-	8	8	-	-	-	-	-	-	-	-	38	38	-	-	-	-	4	15
335	100	17	17	-	61	56	2	-	-	-	-	-	-	2	22	20	-	-	-	-	-	-

Table 2: Natural Gas End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
336	100	17	15	2	46	30	1	1	-	-	-	-	-	14	36	34	-	2	-	-	-	2
336111	100	14	14	-	59	50	5	-	-	-	-	-	-	-	23	23	-	-	-	-	-	5
336112	100	24	24	-	48	44	-	-	-	-	-	-	-	-	28	28	-	-	-	-	-	-
3364	100	45	32	13	23	13	-	6	-	-	-	-	-	3	26	23	-	-	-	-	-	6
336411	100	56	56	-	22	11	-	-	-	-	-	-	-	-	22	22	-	-	-	-	-	-
All Other 336	100	9	8	-	49	30	1	1	-	-	-	-	-	20	41	40	-	2	-	-	-	1
337	100	6	6	-	41	41	-	-	-	-	-	-	-	-	41	41	-	-	-	-	-	12
339	100	16	16	-	24	20	-	-	-	-	-	-	-	4	56	52	-	4	-	-	-	4

Table 3: Petroleum End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
3112	100	67	67	-	-	-	-	-	-	-	-	-	-	-	33	-	-	-	33	-	-	-
311221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3112	100	67	67	-	-	-	-	-	-	-	-	-	-	-	33	-	-	-	33	-	-	-
31131	100	100	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3114	100	67	67	-	-	-	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	-
311421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3115	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3116	100	57	57	-	14	-	-	-	-	-	-	-	-	-	29	-	-	-	-	-	-	-
All Other 311	100	52	52	-	29	10	5	14	-	-	-	-	-	5	19	5	-	-	10	10	-	-
3121	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3122	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
313	100	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
313210	100	50	-	-	25	25	-	-	-	-	-	-	-	-	25	25	-	-	-	-	-	-
All Other 313	100	75	-	-	25	25	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-
314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3: Petroleum End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
321113	100	11	11	-	22	-	-	11	-	-	-	-	-	-	67	-	-	-	56	-	-	-
321114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3212	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	100	-	-	-
3219	100	-	-	-	33	-	-	33	-	-	-	-	-	-	67	-	-	-	67	-	-	-
All Other 321	100	-	-	-	50	17	-	17	-	-	-	-	-	-	-	-	-	-	-	-	17	50
322110	100	40	-	33	40	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
322121	100	67	14	53	27	25	-	2	-	-	-	-	-	-	6	-	-	-	4	-	-	-
322122	100	33	-	-	-	-	-	-	-	-	-	-	-	-	67	33	-	33	-	-	-	-
322130	100	27	18	155	64	64	-	-	-	-	-	-	-	-	9	-	-	-	9	-	-	-
All Other 322	100	-	-	-	40	20	-	20	-	-	-	-	-	-	60	-	-	-	60	-	-	-
323	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-
323110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 323	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-
324110	100	16	12	7	74	67	-	5	-	-	-	-	-	2	2	-	-	-	2	-	-	7
324199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3: Petroleum End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
All Other 324	100	-	-	-	91	68	-	23	-	-	-	-	-	-	9	-	-	-	9	-	-	-
325110	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325181	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325188	100	63	63	-	38	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325192	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325199	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325211	100	33	33	-	67	-	-	-	-	-	-	-	-	67	-	-	-	-	-	-	-	-
325212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325222	100	67	33	33	33	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325311	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3254	100	50	-	50	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-
325412	100	50	-	50	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-
All Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3: Petroleum End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
3254																						
325992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 325	100	45	36	9	27	18	-	9	-	-	-	-	-	-	27	9	-	-	27	-	-	-
326	100	67	67	-	-	-	-	-	-	-	-	-	-	-	33	-	-	-	22	-	-	-
326199	100	-	-	-	33	-	-	-	-	-	-	-	-	-	67	-	-	-	33	-	-	-
All Other 326	100	86	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	29	-	-	-
3272	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327211	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3272	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327310	100	-	-	-	40	40	-	-	-	-	-	-	-	-	40	-	-	-	40	-	-	20
327410	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	100	-	-	-
327420	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	100	-	-	-
327993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3: Petroleum End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
All Other 327	100	-	-	-	67	7	-	44	-	-	-	-	-	15	33	-	-	-	19	-	7	-
331111	100	18	-	18	55	50	-	-	-	-	-	-	-	-	9	-	-	-	9	-	-	18
331112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3313	100	-	-	-	50	50	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-
331312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331316	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3313	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-
3314	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3315	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	100	-	-	-
331511	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-
331521	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3: Petroleum End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
All Other 331	100	-	-	-	67	67	-	-	-	-	-	-	-	-	33	-	-	-	67	-	-	-
332	100	-	-	-	17	-	-	-	-	-	-	-	-	-	83	17	-	-	67	-	-	-
333	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	25	-	25	-
334	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-
334413	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 334	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-
335	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	100	-	-	-
336	100	55	36	18	9	-	-	-	-	-	-	-	-	-	36	-	-	-	27	-	-	-
336111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
336112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3364	100	100	33	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
336411	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 336	100	38	38	-	13	-	-	-	-	-	-	-	-	-	50	-	-	-	38	-	-	-
337	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
339	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4: Coal End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
3112	100	88	18	69	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
311221	100	86	17	69	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
All Other 3112	100	95	26	68	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31131	100	90	10	84	10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3114	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 311	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100
3121	100	88	6	81	13	-	-	6	-	-	-	-	-	6	-	-	-	-	-	-	-	-
3122	100	100	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
313	100	100	53	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
313210	100	67	-	-	33	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 313	100	94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
314	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4: Coal End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
321113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
321114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3212	100	50	50	-	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3219	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 321	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322110	100	100	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322121	100	95	7	88	4	2	-	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-
322122	100	100	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322130	100	71	3	68	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
All Other 322	100	100	-	100	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
323110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
324110	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4: Coal End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
324199	100	4	2	-	96	-	-	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 324	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325181	100	88	29	59	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325188	100	96	13	83	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325192	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	100	63	58	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37
325199	100	94	15	79	6	6	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325211	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325212	100	100	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325222	100	100	38	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325311	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325312	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3254	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325412	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4: Coal End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
3254																						
325992	100	100	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 325	100	100	100	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
326	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
326199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 326	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3272	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327211	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3272	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327310	100	-	-	-	99	99	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
327410	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4: Coal End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
All Other 327	100	-	-	-	97	84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
331111	100	7	-	7	93	27	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-
331112	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100
3312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3314	100	20	-	20	-	-	-	-	-	-	-	-	-	-	60	-	-	-	-	60	-	20
3315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331511	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331521	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4: Coal End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
All Other 331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
332	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
333	100	100	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
334	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
334413	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
All Other 334	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
336	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
336111	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
336112	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
336411	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
All Other 336	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
337	100	33	33	-	-	-	-	-	-	-	-	-	-	-	33	33	-	-	-	-	33	
339	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 5: Steam End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
3112	100	-	-	-	92	92	-	-	-	-	-	-	-	-	8	8	-	-	-	-	-	-
311221	100	-	-	-	97	97	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-
All Other 3112	100	-	-	-	88	88	-	-	-	-	-	-	-	-	13	13	-	-	-	-	-	-
31131	100	-	-	-	80	80	-	-	-	-	-	-	-	-	20	20	-	-	-	-	-	-
3114	100	-	-	-	77	77	-	-	-	-	-	-	-	-	23	23	-	-	-	-	-	-
311421	100	-	-	-	84	84	-	-	-	-	-	-	-	-	16	16	-	-	-	-	-	-
3115	100	-	-	-	88	88	-	-	-	-	-	-	-	-	12	12	-	-	-	-	-	-
3116	100	-	-	-	77	77	-	-	-	-	-	-	-	-	23	23	-	-	-	-	-	-
All Other 311	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3121	100	-	-	-	60	60	-	-	-	-	-	-	-	-	40	40	-	-	-	-	-	-
3122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
313	100	-	-	-	74	74	-	-	-	-	-	-	-	-	26	26	-	-	-	-	-	-
313210	100	-	-	-	88	88	-	-	-	-	-	-	-	-	13	13	-	-	-	-	-	-

Table 5: Steam End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
316	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
321113	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
321114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3212	100	-	-	-	93	93	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	-
3219	100	-	-	-	50	50	-	-	-	-	-	-	-	-	50	50	-	-	-	-	-	-
All Other 321	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322110	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322121	100	-	-	-	92	92	-	-	-	-	-	-	-	-	8	8	-	-	-	-	-	-
322122	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322130	100	-	-	-	89	89	-	-	-	-	-	-	-	-	11	11	-	-	-	-	-	-
All Other 322	100	-	-	-	83	83	-	-	-	-	-	-	-	-	17	17	-	-	-	-	-	-
323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
323110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5: Steam End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
324110	100	-	-	-	97	97	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-
324199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 324	100	-	-	-	87	87	-	-	-	-	-	-	-	-	13	13	-	-	-	-	-	-
325110	100	-	-	-	99	99	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
325120	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325181	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325188	100	-	-	-	94	94	-	-	-	-	-	-	-	-	6	6	-	-	-	-	-	-
325192	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325193	100	-	-	-	97	97	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-
325199	100	-	-	-	94	94	-	-	-	-	-	-	-	-	6	6	-	-	-	-	-	-
325211	100	-	-	-	94	94	-	-	-	-	-	-	-	-	6	6	-	-	-	-	-	-
325212	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325222	100	-	-	-	79	79	-	-	-	-	-	-	-	-	21	21	-	-	-	-	-	-
325311	100	-	-	-	99	99	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-

Table 5: Steam End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
325312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325412	100	-	-	-	33	33	-	-	-	-	-	-	-	-	67	67	-	-	-	-	-	-
All Other 3254	100	-	-	-	33	33	-	-	-	-	-	-	-	-	67	67	-	-	-	-	-	-
325992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
326199	100	-	-	-	60	60	-	-	-	-	-	-	-	-	40	40	-	-	-	-	-	-
3272	100	-	-	-	95	95	-	-	-	-	-	-	-	-	5	5	-	-	-	-	-	-
327211	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327420	100	-	-	-	99	99	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-

Table 5: Steam End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
327993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331111	100	-	-	-	95	95	-	-	-	-	-	-	-	-	5	5	-	-	-	-	-	-
331112	100	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3312	100	-	-	-	82	82	-	-	-	-	-	-	-	-	18	18	-	-	-	-	-	-
331312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331315	100	-	-	-	94	94	-	-	-	-	-	-	-	-	6	6	-	-	-	-	-	-
331316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3313	100	-	-	-	93	93	-	-	-	-	-	-	-	-	7	7	-	-	-	-	-	-
3314	100	-	-	-	91	91	-	-	-	-	-	-	-	-	9	9	-	-	-	-	-	-
3315	100	-	-	-	79	79	-	-	-	-	-	-	-	-	21	21	-	-	-	-	-	-
331511	100	-	-	-	68	68	-	-	-	-	-	-	-	-	32	32	-	-	-	-	-	-
331521	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
332	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 5: Steam End Use (in percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
333	100	-	-	-	47	47	-	-	-	-	-	-	-	-	53	53	-	-	-	-	-	-
334	100	-	-	-	18	18	-	-	-	-	-	-	-	-	82	82	-	-	-	-	-	-
334413	100	-	-	-	20	20	-	-	-	-	-	-	-	-	80	80	-	-	-	-	-	-
335	100	-	-	-	74	74	-	-	-	-	-	-	-	-	26	26	-	-	-	-	-	-
336111	100	-	-	-	72	72	-	-	-	-	-	-	-	-	28	28	-	-	-	-	-	-
336112	100	-	-	-	63	63	-	-	-	-	-	-	-	-	37	37	-	-	-	-	-	-
All Other 336	100	-	-	-	54	54	-	-	-	-	-	-	-	-	46	46	-	-	-	-	-	-
3364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
336411	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
337	100	-	-	-	50	50	-	-	-	-	-	-	-	-	50	50	-	-	-	-	-	-
339	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6: Byproducts and Biomass End Use (by percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
3112	100	93	25	69	6	5	-	<1	-	-	-	-	-	<1	<1	<1	-	-	-	-	-	<1
311221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 3112	100	87	38	49	11	9	-	1	-	-	-	-	-	1	2	1	-	-	-	-	-	1
31131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
311421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 311	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
313210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
321113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6: Byproducts and Biomass End Use (by percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
321114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3219	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 321	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322121	100	100	29	71	<1	<1	<1	<1	-	-	-	-	-	-	<1	<1	-	-	-	<1	-	<1
322122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
322130	100	100	26	74	<1	<1	-	<1	-	-	-	-	-	<1	<1	<1	-	<1	-	<1	-	<1
All Other 322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
323110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
324110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
324199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 324	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
325120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6: Byproducts and Biomass End Use (by percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
325181	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325188	100	27	25	2	60	55	-	-	-	-	-	-	-	4	4	2	-	-	-	-	9	
325192	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325193	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325199	100	68	37	31	27	21	1	1	-	-	-	-	-	4	2	1	-	<1	-	<1	<1	3
325211	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325222	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325311	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325412	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
325992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
All Other 325	100	100	83	17	<1	<1	-	<1	-	-	-	-	-	<1	<1	<1	-	<1	-	-	<1	
326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
326199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 6: Byproducts and Biomass End Use (by percentages)																			
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation
3272	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327211	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
327993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
All Other 327	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
331315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6: Byproducts and Biomass End Use (by percentages)																						
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes	Other Process Use	Direct Uses-Total Non-process	Facility HVAC (g)	Facility Lighting	Other Facility Support	Onsite Transportation	Conventional Electricity Generation	Other Non-process Use	End Use Not Reported
331316	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
331511	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
331521	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
331524	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
All Other 331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
332	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
333	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
334413	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
All Other 334	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
336	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
336111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
336112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
336411	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
All Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table 6: Byproducts and Biomass End Use (by percentages)													
	TOTAL FUEL CONSUMPTION	Indirect Uses-Boiler Fuel	Conventional Boiler Use	CHP and/or Cogeneration Process	Direct Uses-Total Process	Process Heating	Process Cooling and Refrigeration	Machine Drive	Motors: pumps	Motors: fans	Motors: compressed air	Motors: drives	Electro-Chemical Processes
													Other Process Use
													Direct Uses-Total Non-process
													Facility HVAC (g)
													Facility Lighting
													Other Facility Support
													Onsite Transportation
													Conventional Electricity Generation
													Other Non-process Use
													End Use Not Reported
336													
337	.	.	.	.	.	.	.	.	.	.	.	.	.
339	.	.	.	.	.	.	.	.	.	.	.	.	.

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