Attachment A-1. Revised 2017 CSAPR Update Allowance Allocation Calculations Using Published EIA Data and ODEQ Accepted Emissions from Attachment A-2 for Oklahoma Cogeneration

					Step 1					Steps 2 & 3	Step 4	Step 5	Step 6				Step 7							Step 8	Steps 9 & 10	Data Flags
Plant Name	State	ORIS ID	Boiler ID	CAMD Unit ID	2011 Ozone Season Heat Input (mmBtu)	2012 Ozone Season Heat Input (mmBtu)	2013 Ozone Season Heat Input (mmBtu)	2014 Ozone Season Heat Input (mmBtu)	2015 Ozone Season Heat Input (mmBtu)	Average of 3 Highest Non-Zero Ozone Season Heat Inputs from 2011 to 2015 (mmBtu)	State Level Summation of Unit Level Three Year Average Ozone Season Heat Input (mmBtu)	Unit 's Percentage Share of State's Ozone Season Heat Input	Ozone Season NO_X 2017 State Budget for Existing Units (tons)	Initial Heat Input Based 2017 Ozone Season NO_X Allocation (tons)	2008 Ozone Season NO_X Emissions (tons)	2009 Ozone Season NO_X Emissions (tons)	2010 Ozone Season NO_X Emissions (tons)	2011 Ozone Season NO_X Emissions (tons)	2012 Ozone Season NO_X Emissions (tons)	2013 Ozone Season NO_X Emissions (tons)	2014 Ozone Season NO_X Emissions (tons)	2015 Ozone Season NO_X Emissions (tons)	Ozone Season NO_X Maximum Historic Baseline (tons)	Final Transport Rule Unit Level NO_X Ozone Season Allocation 2017 (tons)	EIA Data Substitution
Calculation										Average of three highest non-zero values in columns F - J	Sum column K values to get State level totals	Column K divided by column L		Column M x column N									Highest value of columns P - W	(Lesser of columns X and O if reapportionment if O < X	
AES Shady Point	Oklahoma	10671	1A	90961					3,069,468	3,069,468	341,045,302	0.009000	11,408	103									198	198	**128**	
AES Shady Point	Oklahoma	10671	1B	90962					3,098,716	3,098,716	341,045,302	0.009086	11,408	104									203	203	**130**	
AES Shady Point	Oklahoma	10671	2A	90963					2,995,953	2,995,953	341,045,302	0.008785	11,408	100									206	206	**125**	
AES Shady Point	Oklahoma	10671	2B	90964					2,963,255	2,963,255	341,045,302	0.008689	11,408	99									205	205	**124**	
Anadarko	Oklahoma	3006	3	2028	133,468	150,086	12,801	3,316	2,208	98,785	341,045,302	0.000290	11,408	3	10	0	0	17	20	1	0	0	20		**4**	
Anadarko	Oklahoma	3006	7	8326	4,542	7,815	1,238	74,648	179,235	87,233	341,045,302	0.000256	11,408	3	2	2	1	0	0	0	3	6	6		**6**	
Anadarko	Oklahoma	3006	8	8328	5,661	8,440	1,829	102,895	287,814	133,050	341,045,302	0.000390	11,408	4	2	2	1	0	0	0	4	11	11		**6**	
Anadarko	Oklahoma	3006	9	90429	41,507	46,134	26,593	295,179	339,270	226,861	341,045,302	0.000665	11,408	8		0	1	7	2	2	1	12	12		**9**	
Anadarko	Oklahoma	3006	10	90430	31,749	46,205	23,001	277,067	360,321	227,864	341,045,302	0.000668	11,408	8		0	7	1	2	1	1	11	13		**10**	
Anadarko	Oklahoma	3006	11	90431	38,284	43,771	20,674	246,624	356,087	215,494	341,045,302	0.000632	11,408	7		0	6	2	2	1	10	13	13		**9**	
Anadarko Plant	Oklahoma	3006	4	90966					736,757	736,757	341,045,302	0.002160	11,408	25									9		**9**	
Anadarko Plant	Oklahoma	3006	5	90967					1,118,066	1,118,066	341,045,302	0.003278	11,408	37									14		**14**	
Anadarko Plant	Oklahoma	3006	6	90968					1,335,829	1,335,829	341,045,302	0.003917	11,408	45									17		**17**	
Chouteau Power Plant	Oklahoma	7757	1	3155	1,690,022	2,695,834	1,704,144	1,177,991	2,299,246	2,233,075	341,045,302	0.006548	11,408	75	30	25	29	17	30	17	11	20	30		**30**	
Chouteau Power Plant	Oklahoma	7757	2	3156	1,786,931	2,742,217	2,080,949	1,508,912	1,604,752	2,203,365	341,045,302	0.006461	11,408	74	26	25	36	22	31	21	14	16	36		**36**	
Chouteau Power Plant	Oklahoma	7757	3	90617	1,751,203	2,880,624	2,323,423	1,766,885	2,293,282	2,499,110	341,045,302	0.007328	11,408	84				7	9	8	6	7	9		**9**	
Chouteau Power Plant	Oklahoma	7757	4	90618	2,106,231	2,984,166	2,627,158	1,939,519	2,534,858	2,715,394	341,045,302	0.007962	11,408	91				9	10	8	7	8	10		**10**	
Comanche (8059)	Oklahoma	8059	7251	3452	2,355,466	3,027,044	2,331,456	830,554	400,901	2,571,322	341,045,302	0.007540	11,408	86	613		467	552	875	552	232	101	875		**108**	
Comanche (8059)	Oklahoma	8059	7252	3453	2,036,004	1,118,659	2,376,484	827,743	402,644	1,843,715	341,045,302	0.005406	11,408	62	652	964	701	509	304	524	227	88	964		**77**	
Grand River Dam Authority	Oklahoma	165	1	95	18,403,552	13,685,149	11,137,886	11,089,938	12,995,997	15,028,233	341,045,302	0.044065	11,408	503	2,746	2,631	2,653	3,393	2,734	962	952	1,046	3,393		**629**	
Grand River Dam Authority	Oklahoma	165	2	96	18,269,015	16,338,246	15,658,304	14,282,766	11,908,354	16,755,188	341,045,302	0.049129	11,408	560	3,075	3,380	3,235	3,112	3,154	1,339	1,170	906	3,380		**701**	
Green Country Energy, LLC	Oklahoma	55146	CTGEN1	4006	3,024,874	4,885,757	3,244,307	3,599,882	4,268,154	4,251,264	341,045,302	0.012465	11,408	142	54	54	57	43	62	39	52	54	62		**62**	
Green Country Energy, LLC	Oklahoma	55146	CTGEN2	4007	3,511,385	5,018,229	3,454,453	3,363,115	4,060,370	4,196,661	341,045,302	0.012305	11,408	140	38	63	47	56	66	44	45	54	66		**66**	
Green Country Energy, LLC	Oklahoma	55146	CTGEN3	4008	2,040,433	4,687,392	3,855,251	3,421,369	4,558,724	4,367,122	341,045,302	0.012805	11,408	146	47	53	49	29	60	43	45	54	60		**60**	
Horsehoe Lake	Oklahoma	2951	6	2000	2,728,199	2,784,078	293,186	1,626,279	981,552	2,379,519	341,045,302	0.006977	11,408	80	327	377	397	351	376	36	200	120	397		**100**	
Horsehoe Lake	Oklahoma	2951	7	2001	4,653,860	3,830,768	2,988,490	2,132,490	335,162	3,824,373	341,045,302	0.011214	11,408	128	201	316	301	365	319	227	183	26	365		**160**	
Horsehoe Lake	Oklahoma	2951	8	2002	4,244,154	6,018,651	3,154,859	1,181,171	909,174	4,472,888	341,045,302	0.013115	11,408	150	94	163	427	270	498	300	159	129	498		**187**	
Horsehoe Lake	Oklahoma	2951	9	2003	185,581	94,721	53,165	311,000	346,428	281,003	341,045,302	0.000824	11,408	9	2	4	2	8	4	2	10	16	16		**12**	
Horsehoe Lake	Oklahoma	2951	10	1999	168,485	91,273	50,907	319,982	334,326	274,264	341,045,302	0.000804	11,408	9	2	3	10	7	4	2	14	17	17		**11**	
Hugo	Oklahoma	6772	1	2908	14,053,803	12,443,868	15,779,223	15,100,853	12,161,799	14,977,960	341,045,302	0.043918	11,408	501	1,438	1,351	1,264	1,289	1,124	1,472	1,465	1,079	1,472		**627**	
McClain Energy Facility	Oklahoma	55457	CT1	4808	4,764,423	5,209,353	3,985,515	3,648,240	5,410,267	5,128,014	341,045,302	0.015036	11,408	172	58	74	69	71	81	59	53	78	81		**81**	
McClain Energy Facility	Oklahoma	55457	CT2	4809	5,355,735	4,911,199	4,389,374	3,776,632	5,193,702	5,153,545	341,045,302	0.015111	11,408	172	61	79	72	74	76	75	64	79	79		**79**	
Mooreland	Oklahoma	3008	1	2029		267,927	22,551	6,087	26,841	105,773	341,045,302	0.000310	11,408	4	11	4	11	11	49	3	1	7	49		**4**	
Mooreland	Oklahoma	3008	2	2030	1,404,730	1,292,673	1,178,776	1,110,082	1,746,617	1,481,340	341,045,302	0.004344	11,408	50	90	128	104	114	106	77	110	173	173		**62**	
Mooreland	Oklahoma	3008	3	2031	1,600,846	1,080,048	653,393	482,996	421,943	1,111,429	341,045,302	0.003259	11,408	37	49	94	138	113	71	41	35	28	138		**47**	
Muskogee	Oklahoma	2952	3	2004							341,045,302	0.000000	11,408	0	175								175			
Muskogee	Oklahoma	2952	4	2005	14,645,468	14,714,430	11,346,599	14,015,059	407,653	14,458,319	341,045,302	0.042394	11,408	484	2,117	2,453	2,460	2,216	1,991	1,898	2,191	39	2,460		**605**	
Muskogee	Oklahoma	2952	5	2006	13,526,094	13,585,714	13,404,319	17,495,094	13,286,089	14,868,967	341,045,302	0.043598	11,408	497	2,728	2,257	2,429	2,212	1,881	2,115	1,290	929	2,728		**622**	
Muskogee	Oklahoma	2952	6	2007	15,873,981	15,669,398	13,181,624	7,224,451	11,503,682	14,908,334	341,045,302	0.043714	11,408	499	3,057	2,404	2,509	2,691	2,375	1,839	1,241	1,497	3,057		**624**	
Mustang	Oklahoma	2953	1	2008	364,305	202,390	129,585	127,564	67,379	232,093	341,045,302	0.000681	11,408	8	4	15	49	27	15	9	11	8	49		**10**	
Mustang	Oklahoma	2953	2	2009	421,621	268,951	133,631	180,959	39,379	290,511	341,045,302	0.000852	11,408	10	3	11	38	24	16	8	13	4	38		**12**	
Mustang	Oklahoma	2953	3	2010	2,562,029	1,802,439	686,475	290,336	268,649	1,683,648	341,045,302	0.004937	11,408	56	215	142	185	318	271	71	44	38	318		**70**	
Mustang	Oklahoma	2953	4	2011	4,363,918	3,343,122	2,999,937	817,506	769,131	3,568,992	341,045,302	0.010465	11,408	119	619	491	397	810	618	496	136	138	810		**149**	
Mustang	Oklahoma	2953	5A-1	90979					5,762	5,762	341,045,302	0.000017	11,408	0								2	2		**0**	
Mustang	Oklahoma	2953	5A-2	90980					5,762	5,762	341,045,302	0.000017	11,408	0								2	2		**0**	
Mustang	Oklahoma	2953	5B-1	90981					5,126	5,126	341,045,302	0.000015	11,408	0								2	2		**0**	
Mustang	Oklahoma	2953	5B-2	90982					2,932	2,932	341,045,302	0.000009	11,408	0								1	1		**0**	
Northeastern	Oklahoma	2963	3302	2018	7,877,877	6,957,295	4,455,656	1,010,287	344,725	6,430,276	341,045,302	0.018855	11,408	215	1,459	906	1,772	1,946	1,717	908	103	34	1,946		**269**	
Northeastern	Oklahoma	2963	3313	2019	15,036,138	14,605,962	16,401,728	17,836,754	14,654,299	16,424,873	341,045,302	0.048160	11,408	549	2,390	3,026	2,780	2,939	1,107	1,606	1,403	981	3,026		**687**	
Northeastern	Oklahoma	2963	3314	2020	16,360,545	14,565,496	16,167,021	14,092,113	12,901,609	15,697,688	341,045,302	0.046028	11,408	525	2,991	2,933	2,492	3,244	1,098	1,575	1,083	867	3,244		**657**	
Northeastern	Oklahoma	2963	3301A	2016	4,537,700	4,891,998	3,802,709	3,314,657	2,544,135	4,410,802	341,045,302	0.012933	11,408	148	74	61	75	88	88	69	64	47	88		**88**	
Northeastern	Oklahoma	2963	3301B	2017	4,718,498	4,522,603	4,368,881	3,096,951	3,079,965	4,536,661	341,045,302	0.013302	11,408	152	85	61	72	73	73	75	53	56	85		**85**	
Oklahoma Cogeneration LLC	Oklahoma	50558	CC01	90991	1,959,370	1,456,595	1,018,768	316,237	284,731	1,478,244	341,045,302	0.004334	11,408	49	126	105	145	163	130	96	29	43	163		**12**	
Oneta Energy Center	Oklahoma	55225	CTG-1	4187	3,224,014	3,962,017	3,046,024	2,974,408	4,562,330	3,916,120	341,045,302	0.011483	11,408	131	38	46	63	56	65	59	60	82	82		**82**	
Oneta Energy Center	Oklahoma	55225	CTG-2	4188	3,201,389	3,497,852	2,654,787	3,020,684	4,372,871	3,690,704	341,045,302	0.010822	11,408	123	33	49	64	57	62	51	60	80	80		**80**	
Oneta Energy Center	Oklahoma	55225	CTG-3	4189	3,419,843	3,334,069	2,525,902	2,677,617	4,580,192	3,778,035	341,045,302	0.011078	11,408	126	35	55	53	57	60	49	55	74	74		**74**	
Oneta Energy Center	Oklahoma	55225	CTG-4	4190	3,000,646	3,371,770	2,959,107	2,764,798	4,807,111	3,726,509	341,045,302	0.010927	11,408	125	34	62	67	56	63	60	57	83	83		**83**	
Ponca	Oklahoma	762	2	565	20,311	2,014	1,432	0	6,702	9,676	341,045,302	0.000028	11,408	0	0	0	0	2	0	0	0	0	2		**0**	
Ponca	Oklahoma	762	3	566	376,068	423,107	77,717	200,395	171,101	333,857	341,045,302	0.000979	11,408	11	17	6	12	15	17	3	8	7	17		**14**	
Ponca	Oklahoma	762	4	89334	83,012	186,384	23,042	46,674	57,162	108,853	341,045,302	0.000319	11,408	4	3	2	5	3	7	1	2	2	7		**5**	
Redbud Power Plant	Oklahoma	55463	CT-01	4817	4,862,939	6,628,641	3,677,760	4,376,522	7,468,258	6,319,946	341,045,302	0.018531	11,408	211	25	26	27	29	34	25	24	39	39		**39**	
Redbud Power Plant	Oklahoma	55463	CT-02	4818	4,555,704	5,748,420	4,819,740	5,505,094	6,808,480	6,020,665	341,045,302	0.017654	11,408	201	22	32	23	29	32	27	32	37	37		**37**	
Redbud Power Plant	Oklahoma	55463	CT-03	4819	5,047,457	6,183,199	5,359,072	5,828,259	6,672,154	6,227,871	341,045,302	0.018261	11,408	208	21	26	25	29	34	32	33	40	40		**40**	
Redbud Power Plant	Oklahoma	55463	CT-04	4820	5,029,510	4,582,708	4,493,608	3,991,752	6,803,225	5,471,814	341,045,302	0.016044	11,408	183	22	27	29	32	27	31	24	37	37		**37**	
Riverside (4940)	Oklahoma	4940	1501	2660	6,222,962	3,785,870	3,457,341	457,245	188,599	4,488,724	341,045,302	0.013162	11,408	150	597	772	493	782	437	424	56	19	782		**188**	
Riverside (4940)	Oklahoma	4940	1502	2661	6,307,010	6,684,520	4,904,690	264,626	313,353	5,965,407	341,045,302	0.017492	11,408	200	705	594	775	960	907	574	31	34	960		**250**	
Riverside (4940)	Oklahoma	4940	1503	1871	321,619	256,340	50,102	50,949	111,471	229,810	341,045,302	0.000674	11,408	8	38	1	4	22	20	9	3	7	38		**10**	
Riverside (4940)	Oklahoma	4940	1504	1872	308,812	232,830	42,737	27,573	120,584	220,742	341,045,302	0.000647	11,408	7	17	1	3	87	11	9	2	8	87		**9**	
Seminole (2956)	Oklahoma	2956	1	2012	7,276,466	7,231,098	5,441,626	581,067	1,965,855	6,649,730	341,045,302	0.019498	11,408	222	533	660	512	766	755	445	61	187	766		**278**	
Seminole (2956)	Oklahoma	2956	2	2013	7,914,160	6,688,177	5,785,875	501,299	2,815,665	6,796,071	341,045,302	0.019927	11,408	227	689	909	507	945	724	477	54	325	945		**284**	
Seminole (2956)	Oklahoma	2956	3	2014	7,877,917	7,889,247	5,828,963	2,068,523	4,443,605	7,198,709	341,045,302	0.021108	11,408	241	659	339	518	606	641	616	166	361	659		**301**	
Sooner	Oklahoma	6095	1	2773	14,492,320	12,970,207	12,982,243	16,295,046	14,203,709	14,997,025	341,045,302	0.043974	11,408	502	2,612	2,226	2,407	2,160	2,196	2,140	1,209	960	2,612		**627**	
Sooner	Oklahoma	6095	2	2774	16,114,964	13,070,591	14,196,639	12,684,629	14,480,181	14,930,595	341,045,302	0.043779	11,408	499	2,869	2,120	2,190	2,580	1,922	1,108	881	1,009	2,869		**625**	
Southwestern	Oklahoma	2964	8002	2021	683,954	56,826	192,921	117,045	352,238	409,704	341,045,302	0.001201	11,408	14	7	27	62	116	8	27	16	49	116		**17**	
Southwestern	Oklahoma	2964	8003	2022	4,104,929	3,851,791	2,873,574	1,945,321	2,322,871	3,610,098	341,045,302	0.010585	11,408	121	1,318	1,000	1,154	1,176	1,185	356	225	296	1,318		**151**	
Southwestern	Oklahoma	2964	8004	1873	375,991	351,913	89,721	71,824	93,537	273,813	341,045,302	0.000803	11,408	9	4	2	4	23	19	5	3	8	23		**11**	
Southwestern	Oklahoma	2964	8005	1874	376,331	309,336	72,400	82,264	95,746	260,471	341,045,302	0.000764	11,408	9	4	2	3	21	16	4	4	7	21		**11**	
Southwestern	Oklahoma	2964	801N	2023	353,020	367,256	93,574	13,786	50,631	271,283	341,045,302	0.000795	11,408	9	4	13	29	47	46	12	2	6	47		**11**	
Southwestern	Oklahoma	2964	801S	2024	352,920	426,814	93,553	13,859	43,929	291,096	341,045,302	0.000854	11,408	10	4	10	23	42	53	11	2	5	53		**12**	
Spring Creek Power Plant	Oklahoma	55651	CT-01	5035	353,532	409,355	27,743	11,452	44,311	269,066	341,045,302	0.000789	11,408	9	2	3	3	4	5	0	0	1	5		**5**	
Spring Creek Power Plant	Oklahoma	55651	CT-02	5036	358,198	360,108	37,537	9,957	43,954	254,086	341,045,302	0.000745	11,408	8	3	14	3	4	4	0	0	0	14		**11**	
Spring Creek Power Plant	Oklahoma	55651	CT-03	5037	363,243	285,385	30,473		23,734	226,367	341,045,302	0.000664	11,408	8	2	13	3	4	3	0		3	13		**9**	
Spring Creek Power Plant	Oklahoma	55651	CT-04	5038	342,944	296,234	33,309	6,033	30,714	224,162	341,045,302	0.000657	11,408	7	3	16	2	3	3	0	0	3	16		**9**	
Tenaska Kiamichi Generating Station	Oklahoma	55501	CTGDB1	4899	4,106,354	5,714,939	3,424,276	3,900,949	3,517,653	4,574,081	341,045,302	0.013412	11,408	153	83	77	72	74	92	66	71	62	92		**92**	
Tenaska Kiamichi Generating Station	Oklahoma	55501	CTGDB2	4900	4,023,474	5,987,472	3,503,399	3,836,373	3,500,287	4,615,773	341,045,302	0.013534	11,408	154	81	81	76	72	100	59	67	63	100		**100**	
Tenaska Kiamichi Generating Station	Oklahoma	55501	CTGDB3	4901	4,111,000	5,782,873	3,842,723	3,474,059	3,370,669	4,578,865	341,045,302	0.013426	11,408	153	80	80	74	75	84	71	62	62	84		**84**	
Tenaska Kiamichi Generating Station	Oklahoma	55501	CTGDB4	4902	4,114,049	5,882,598	3,809,293	3,641,688	3,386,384	4,601,980	341,045,302	0.013494	11,408	154	76	82	70	78	88	66	66	64	88		**88**	
Tulsa	Oklahoma	2965	1402	2025	1,102,922	1,104,548	548,895	194,222	787,108	998,193	341,045,302	0.002927	11,408	33	135	72	97	111	113	56	28	90	135		**42**	
Tulsa	Oklahoma	2965	1403	2026	284,315					284,315	341,045,302	0.000834	11,408	10	11	9	19	34					34		**12**	
Tulsa	Oklahoma	2965	1404	2027	1,027,755	872,103	789,282	1,064,146	856,029	988,001	341,045,302	0.002897	11,408	33	96	51	98	102	90	72	108	86	108		**41**	
Weleetka	Oklahoma	2966	4	90969					58,506	58,506	341,045,302	0.000172	11,408	2								20	20		**2**	
Weleetka	Oklahoma	2966	5	90970							341,045,302	0.000000	11,408	0									0		**0**	
Weleetka	Oklahoma	2966	6	90971					3,702	3,702	341,045,302	0.000011	11,408	0								1	1		**0**	
										341,045,302		1.000000											State Level All. =		11,408	

Reapportionment Analysis - Revised Calculations						
Calculate X – O to determine if reapportionment is applied.	If AB = (+), then include the heat input for each source to determine reapportionment	For reapportionment if O < X (portion of max heat rate for past 5 years is less than maximum emission rate for past 8 years)			Calculated Allocations – Revised for OK Cogen	% Diff of EPA All. And Calc All.
If (-), then O > X and no reapportionment	If (+), Heat Input (MMBtu)	Fraction of Total Heat Input	Min of X,O	Reapportionment		
96	3,069,468	0.01288	103	25.10	127.78	0.17
99	3,098,716	0.01300	104	25.34	129.00	0.17
106	2,995,953	0.01257	100	24.50	124.72	0.23
106	2,963,255	0.01243	99	24.23	123.36	0.52
17	98,785	0.00041	3	0.81	4.11	-2.81
3	87,233	0.00037	3	0.71	3.63	9.21
7	133,050	0.00056	4	1.09	5.54	7.69
4	226,861	0.00095	8	1.86	9.44	-4.93
5	227,864	0.00096	8	1.86	9.49	5.14
6	215,494	0.00090	7	1.76	8.97	0.32
-16			9			
-24			14			
-27			17			
-44			30			
-38			36			
-74			9			
-81			10			
789	2,571,322	0.01079	86	21.03	107.04	0.89
902	1,843,715	0.00773	62	15.08	76.75	0.32
2,896	15,028,233	0.06305	503	122.91	625.61	0.54
2,819	16,755,188	0.07029	560	137.03	697.50	0.50
-80			62			
-75			66			
-86			60			
318	2,379,519	0.00998	80	19.46	99.06	0.94
237	3,824,373	0.01604	128	31.28	159.20	0.50
348	4,472,888	0.01876	150	36.58	186.20	0.43
7	281,003	0.00118	9	2.30	11.70	2.52
8	274,264	0.00115	9	2.24	11.42	-3.79
971	14,977,960	0.06284	501	122.50	623.52	0.56
-90			81			
-93			79			
45	105,773	0.00044	4	0.87	4.40	-10.08
123	1,481,340	0.00621	50	12.11	61.67	0.54
101	1,111,429	0.00466	37	9.09	46.27	1.36
175	0	0.00000	0	0.00	0.00	
1,977	14,458,319	0.06066	484	118.25	601.89	0.51
2,230	14,868,967	0.06238	497	121.60	618.98	0.49
2,558	14,908,334	0.06254	499	121.93	620.62	0.54
41	232,093	0.00097	8	1.90	9.66	3.38
29	290,511	0.00122	10	2.38	12.09	-0.78
262	1,683,648	0.00706	56	13.77	70.09	-0.13
691	3,568,992	0.01497	119	29.19	148.57	0.29
2	5,762	0.00002	0	0.05	0.24	
2	5,762	0.00002	0	0.05	0.24	
2	5,126	0.00002	0	0.04	0.21	
1	2,932	0.00001	0	0.02	0.12	
1,731	6,430,276	0.02698	215	52.59	267.69	0.49
2,477	16,424,873	0.06891	549	134.33	683.75	0.47
2,719	15,697,688	0.06585	525	128.38	653.48	0.54
-59			88			
-67			85			
134	1,478,244	0.00620	49	12.09	61.54	-412.82
-49			82			
-44			80			
-52			74			
-42			83			
3	9,676	0.00004	0	0.08	0.40	
6	333,857	0.00140	11	2.73	13.90	0.73
3	108,853	0.00046	4	0.89	4.53	9.37
-173			39			
-164			37			
-169			40			
-147			37			
637	4,488,724	0.01883	150	36.71	186.86	0.61
761	5,965,407	0.02503	200	48.79	248.33

Attachment A-2
Oklahoma Cogeneration, LLC
Historical Ozone Season Data Based on EIA Published Data and Accepted Emission Calculation Methodology
Summary of Historical Operating Hours, Fuel Consumption, and Emissions (2008 - 2015)
Table 1

Historical Heat Input Rate and Emissions Summaries for Past Ozone Seasons Using Published EIA Data, Accepted Emission Factors, and CEMS Data (when available)

Ozone Season	Total Operations	Startup (SU) and Shutdown (SD) Operations	Duct Firing Hours	Gas Turbine Heat Input from EIA	Gas Turbine Heat Input During SU & SD	Duct Burner Heat Input from EIA	Total Fuel Consumption from EIA	Gas Turbine Normal Ops NOx Emissions [c]	Gas Turbine SU & SD NOx Emissions [c]	Duct Burner NOx Emissions [c]	Total NOx Emissions [c]	Notes
	Hours	Hours	Hours	MMBTU	MMBTU	MMBTU	MMBTU	Tons	Tons	Tons	Tons	
2008	1,990	56	101	1,465,055	41,387	21,955	**1,487,010**	**115**	**10**	**1**	**126**	[b]
2009	1,389	56	146	1,185,566	47,969	16,404	**1,201,970**	**93**	**12**	**0**	**105**	[b]
2010	1,936	62	617	1,651,538	53,151	83,671	**1,735,209**	**130**	**13**	**2**	**145**	[b]
2011	2,060	57	560	1,884,478	52,209	74,892	**1,959,370**	**148**	**13**	**2**	**163**	[b]
2012	1,669	81	257	1,420,029	68,547	36,567	**1,456,596**	**111**	**17**	**1**	**130**	[b]
2013	1,194	77	103	1,006,842	65,085	11,924	**1,018,766**	**79**	**16**	**0**	**96**	[b]
2014	373	20	10	315,280	16,803	957	**316,237**	**25**	**4**	**0**	**29**	[b]
2015	360	[a-1]	[a-1]	[a-1]	[a-1]	[a-1]	**284,731**	[a-1]	[a-1]	[a-1]	**43**	[a-1]
2016	971	[a-2]	[a-2]	[a-2]	[a-2]	[a-2]	**732,462**	[a-2]	[a-2]	[a-2]	**45**	[a-2]

NOx Emission Factors (2008 - 2014)
Table 2

Operations For Each Emission Factor	NOx Emission Factor [b]	NOx Emission Factor Units	NOx Emission Factor Basis
Gas Turbine, Normal Operations	0.157	lb/MMBTU	[b-1]
Gas Turbine, Startup and Shutdown	0.5	lb/MMBTU	[b-2]
Duct Burner	0.053	lb/MMBTU	[b-3]

[a-1] Based on temporary CEMS data. Emissions are reported for the combined stack, only.
[a-2] Based on permanent CEMS data. Emissions are reported for the combined stack, only.
[b] NOx emission factors are based on the best available emission calculation methodology at the time:
[b-1] 1989 Stack Test, 100% Gas Turbine Load, No Duct Firing, Steam Injection Operational (NOx emission controls)
Since gas turbine and duct burner emissions are considered separately, each emission factor represents the emissions from the respective unit, only.
[b-2] GE 7E Gas Turbine Technical Bulletin (GER-3435.pdf, Page 7, Figure 7 at maximum firing temperature of 2,075 °F).
[b-3] 1996 Stack Test, Duct Burner Contribution, Only
[c] Emissions Calculation Equations:
Emissions (Tons) = [Emission Factor (lb/MMBTU) * Fuel Consumption (MMBTU)] / 2000 (lb/Ton)]
Total Emissions (Tons) = Gas Turbine Normal Ops Emissions (Tons) + Gas Turbine SU & SD Emissions (Tons) + Duct Burner Emissions (Tons)