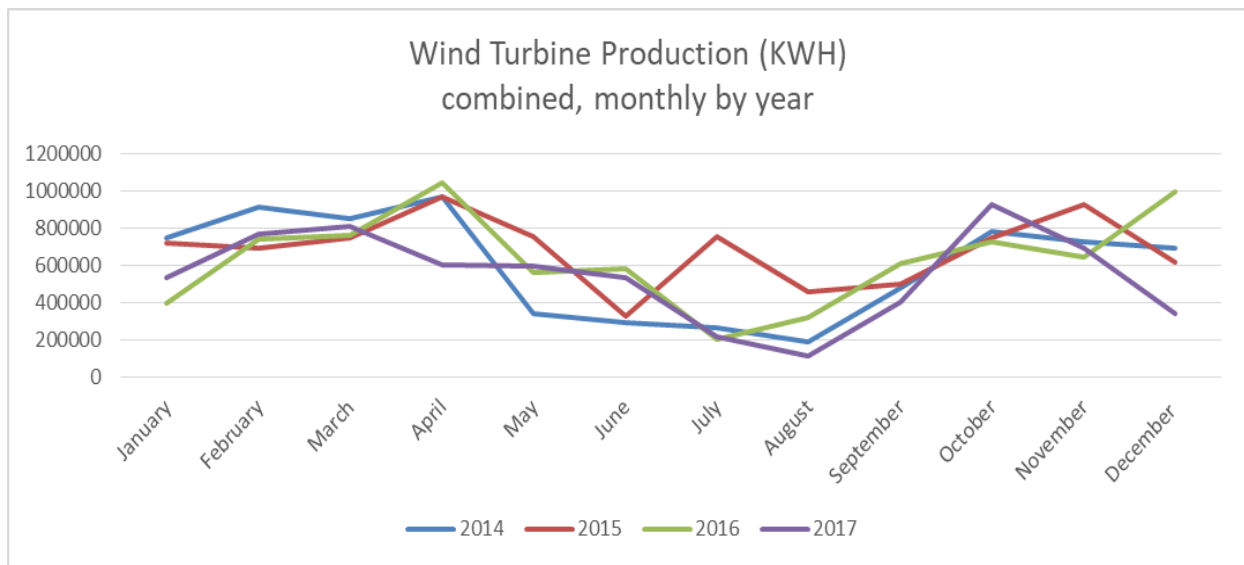




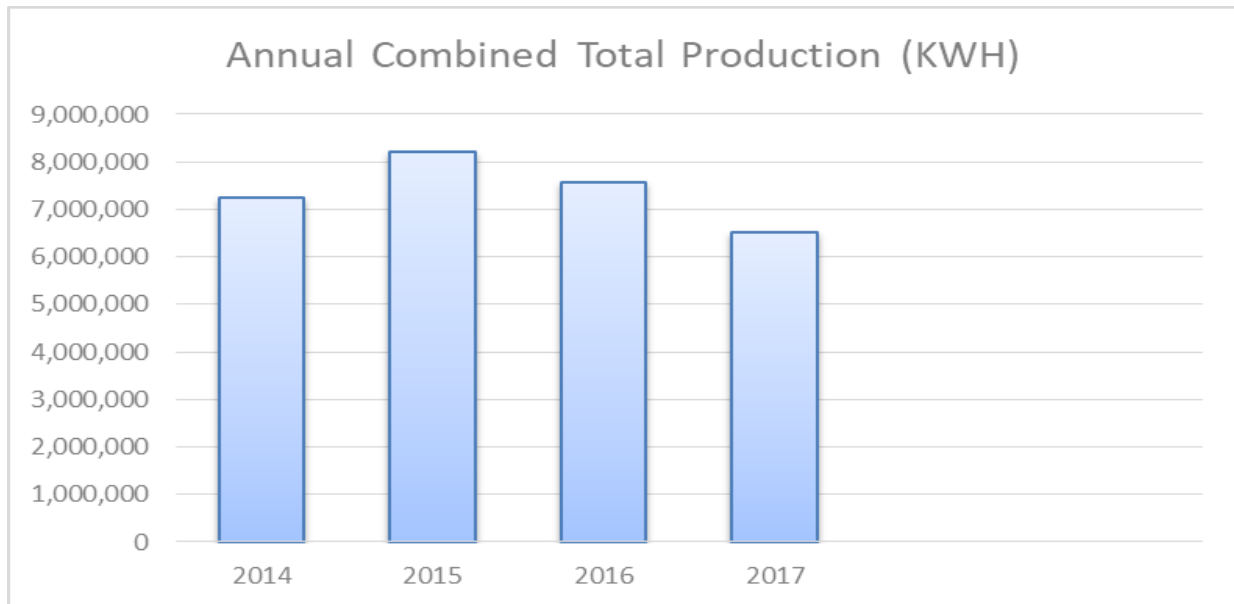
WILLMAR MUNICIPAL UTILITIES

December 2017 Wind Turbine Report



	Production (KWH)		Availability (%)		Total KWH	Major Outages
	#3	#4	#3	#4		
Dec. 2017	338,980	-	91.7	0.0	338,980	#4 Blade Pitch Control Unit Failure
Nov. 2017	404,496	286,351	94.7	73.7	690,847	
Oct. 2017	468,821	456,179	97.8	92.7	925,000	
Sep. 2017	192,873	207,337	62.2	67.4	400,210	#3 Control Software Malfunction #4 Hydraulic System Overheated
Aug. 2017	109,215	-	66.0	0.0	109,215	#3 Control Software Malfunction #4 Hydraulic System Overheated
July 2017	91,860	122,444	61.8	93.2	214,304	#3 Control Software Malfunction
June 2017	257,597	277,065	98.0	97.6	534,662	
May 2017	294,078	304,030	94.2	99.0	598,108	
Apr. 2017	299,044	302,779	86.8	86.3	601,823	
Mar. 2017	409,026	397,910	88.0	91.3	806,936	
Feb. 2017	385,543	385,684	94.5	95.8	771,227	
Jan. 2017	236,582	298,285	77.4	91.3	534,867	
Dec. 2016	467,905	531,073	92.9	93.4	998,977	
2017 Total	3,488,115	3,038,064			6,526,179	

Month	2014	2015	2016	2017		
January	745643	720369	393,477	534,867		
February	916093	695143	740,655	771,227		
March	848017	746045	761,028	806,936		
April	970215	965530	1,041,382	601,823		
May	340154	755889	557,947	598,108		
June	292744	324005	583,043	534,662		
July	264420	755889	199,043	214,304		
August	187490	457386	321,326	109,215		
September	480586	499215	609,004	400,210		
October	779328	744572	727,379	925,000		
November	728534	929609	640,522	690,847		
December	694570	616700	998,977	338,980		
Total	7,247,794	8,210,352	7,573,783	6,526,179		



Fun Fact: Wind power generated nearly 18 percent of Minnesota’s electricity in 2016, ranking sixth in the nation for wind energy as a share of total electricity generation.