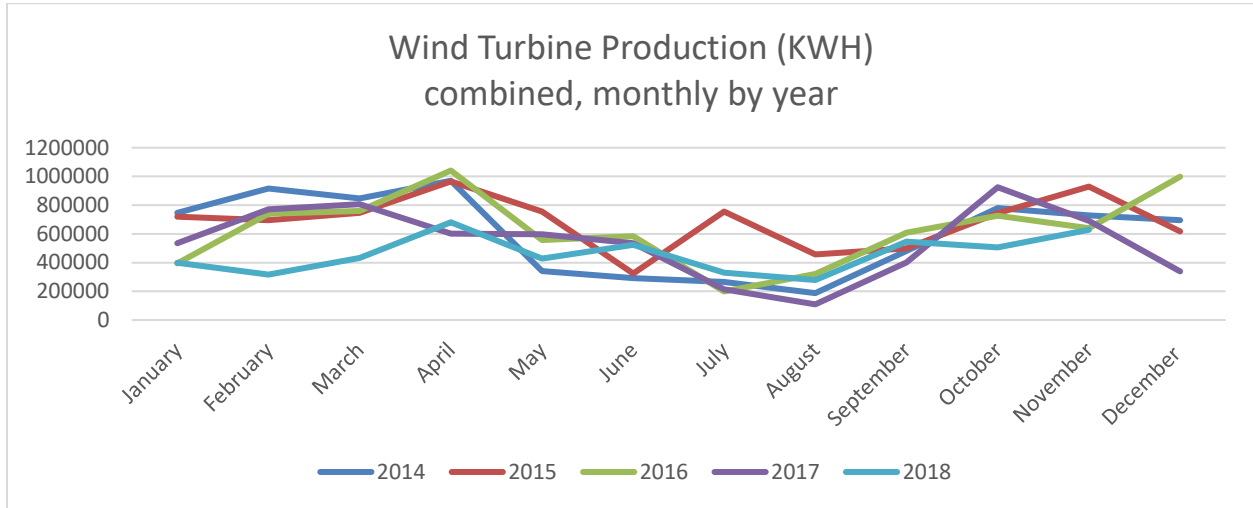




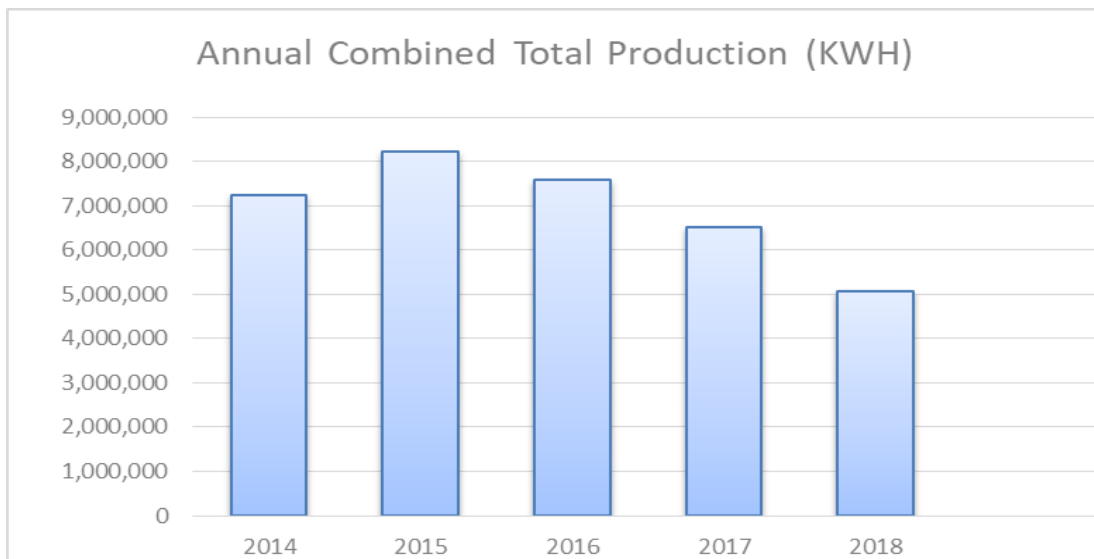
## WILLMAR MUNICIPAL UTILITIES

### November 2018 Wind Turbine Report



	Production (KWH)		Availability (%)		Total KWH	Major Outages
	#3	#4	#3	#4		
Nov. 2018	312,989	315,427	99.0	100.0	628,416	
Oct. 2018	195,545	310,361	69.7	90.6	505,906	#3 and #4 Blade Repairs
Sept. 2018	263,800	281,669	97.2	97.8	545,469	
Aug. 2018	137,091	141,560	100.0	81.6	278,651	
July 2018	155,457	175,099	95.2	98.2	330,556	
June 2018	249,292	274,114	90.4	91.3	523,406	
May 2018	209,088	218,131	94.6	96.9	427,219	
Apr. 2018	303,979	377,047	78.6	100.0	681,026	
Mar. 2018	389,456	42,709	93.6	6.9	432,165	#4 Blade Pitch Control Unit Failure
Feb. 2018	317,618	-	99.6	0.0	317,618	#4 Blade Pitch Control Unit Failure
Jan. 2018	398,844	-	92.0	0.0	398,844	#4 Blade Pitch Control Unit Failure
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	
<b>2018 Total</b>	<b>2,933,159</b>	<b>2,136,117</b>			<b>5,069,276</b>	

Month	2014	2015	2016	2017	2018	
January	745643	720369	393,477	534,867	398,844	
February	916093	695143	740,655	771,227	317,618	
March	848017	746045	761,028	806,936	432,165	
April	970215	965530	1,041,382	601,823	681,026	
May	340154	755889	557,947	598,108	427,219	
June	292744	324005	583,043	534,662	523,406	
July	264420	755889	199,043	214,304	330,556	
August	187490	457386	321,326	109,215	278,651	
September	480586	499215	609,004	400,210	545,469	
October	779328	744572	727,379	925,000	505,906	
November	728534	929609	640,522	690,847	628,416	
December	694570	616700	998,977	338,980		
<b>Total</b>	<b>7,247,794</b>	<b>8,210,352</b>	<b>7,573,783</b>	<b>6,526,179</b>	<b>5,069,276</b>	



**Fun Fact:** One of Minnesota's largest wind farms is the Buffalo Ridge Wind Farm at 225 MW.