

WIND TURBINES ILL-SUITED TO PRODUCE ELECTRICITY

Electricity Horror – Washington’s Experience

List of 46 wind farms (4,782 MW)

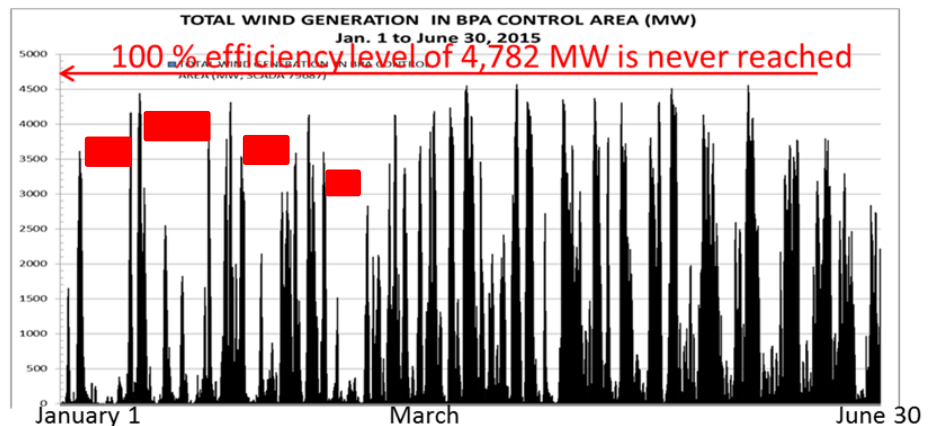
WIND GENERATION NAMEPLATE CAPACITY IN THE BPA BALANCING AUTHORITY AREA (as of 6/16/2016)

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Plant	Nameplate Capacity MW	Date When Actual Gen First Exceeded 1/2 of Current Nameplate Capacity	Cumulative Nameplate Capacity MW
Vancouver	25	10/23/1998	25
Shanley	90	12/18/2001	115
Klondike I	24	1/16/2002	139
Condon	50	6/18/2002	189
Klondike II	74	6/29/2003	263
Horseshoe Ridge	157	11/29/2003	420
Leaning Juniper	100	8/10/2006	522
Big Horn	206	10/4/2006	722
White Creek	204	10/12/2007	922
Klondike III	224	10/15/2007	1148
Biglow Canyon PFI 1	126	11/17/2007	1274
Nine Canyon @ 20%	27	11/26/2007	1301
Oondroo Hills	94	4/29/2008	1397
Nine Canyon @ 52%	24	5/10/2008	1421
Klondike 3a	75	6/9/2008	1496
Arlington	103	12/7/2008	1599
Willow Creek	72	1/1/2009	1671
Pebble Springs	100	1/27/2009	1771
Hay Canyon	106	2/12/2009	1877
Woodfield	97	3/22/2009	1968
Tushnet	137	5/1/2009	2105
Biglow Canyon Phase 2	149	8/6/2009	2254
Windy Flats Dooly (Phase 1)	36	9/21/2009	2294
Windy Flats Dooly (Phase 2)	233	11/09/2009	2517
Harvest	100	12/16/2009	2617
Comdore Hills	63	1/1/2010	2680
Star Point	100	1/15/2010	2784
Linden Farm	50	6/9/2010	2834
Coastal Energy	6	6/30/2010	2836
Biglow Canyon PFI 2	14	8/11/2010	2850
Biglow Canyon PFI 3	161	8/11/2010	3011
Big Horn II	56	10/9/2010	3067
Leaning Juniper II PFI A	91	10/24/2010	3152
Kittitas Valley	101	11/15/2010	3253
PATU	10	11/29/2010	3263
Leaning Juniper II PFI B	109	12/1/2010	3372
Juniper Canyon	150	2/11/2011	3522
North Harbort	266	11/29/2011	3788
Lower Snake	343	2/29/2012	4131
South Harbort	290	3/11/2012	4421
Horseshoe Road	290	5/13/2012	4711
No change	0	3/31/2013	4711
Oondroo Hills (OUT to PAC BA)	-96	4/1/2013	4615
Leaning Juniper (OUT to PAC BA)	-100	4/2/2013	4515
No change	0	12/18/2014	4515
Tussock River	267	12/18/2014	4782
No change	0	6/16/2016	4782

<https://transmission.bpa.gov/business/operations/wind/>

Chart of electricity output from 46 wind turbine farms in WA-OR with capacity of 4,782 MW (Bonneville Power Admin.)

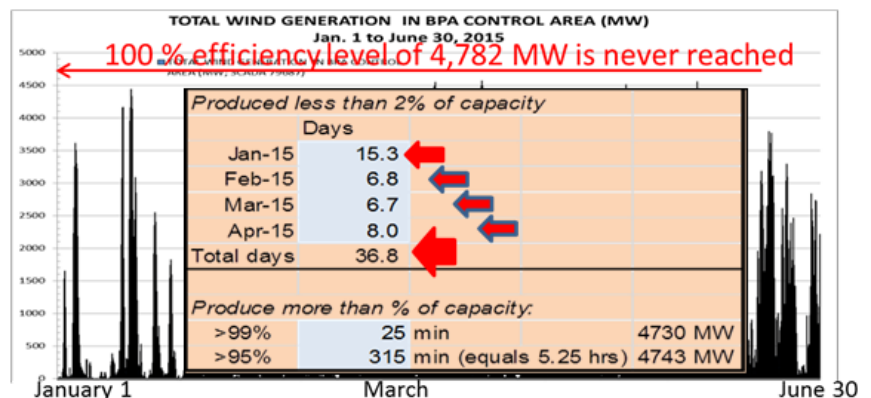


How Washington’s wind turbines perform:

- Wind generation in WA-OR has a capacity 37% larger (4,782 MW) than the four Snake River dams (3,489 MW) yet produced 1,243 MW, or 64% less than Snake River dams.
- Conclude: wind turbines cannot produce full-time power;
- Power generated by 46 wind farms is intermittent, unpredictable
- It requires full time fill-in or back-up power for customers to obtain a full-time supply.

RED BARS (above) ARE LONG PERIODS (1 to 2 weeks) WHEN NO ELECTRICITY WAS PRODUCED IN 2015

DAYS WITHOUT ELECTRICAL POWER:



WIND PRODUCTION STATISTICS FOR 44 PLANTS IN BPA CONTROL AREA OF WA-OR:

- For 57 days, the 44 wind farms generated less than 100 MW (<2% of capacity during 9/28/2013 to 1/29/2014)
- During one windless 25-day period (Jan. 5 – Jan 29 2014) almost no wind power was generated
- For the 33-month period or 992 days from Jan 1 2013 to Sep. 20, 2015:
 - 11.7% of the time (115 of 992 days) produced 0.5% of capacity
 - 23.4% of the time (232 of 992 days) produced 2.1% of capacity
 - 56.2% of the time (557 of 992 days) produced 10.5% of capacity