

Selawik



1. **Community Information**
 - a. Population served: 850 residents
 - b. Average Load: 336 kW
2. **Wind Turbines**
 - a. Installed Capacity: 260 kW
 - b. 4- Entegrity (65 kW)
 - i. Date Online: June 2003
3. **Diesel Gen-Sets**
 - a. Average Diesel Plant Output: 333 kW
4. **2009 Performance Data**
 - a. Net Wind Production: 63,876 kWh
 - b. Capacity Factor: 3.4 %
 - c. Net Wind Penetration: 1.7 %

Selawik, located in the Northwest Arctic Borough, is AVEC's first wind system installation. It consists of four Entegrity 65 kW (AOC 15/50) turbines. The turbines have had tip brake problems that reduced production.

Toksook Bay/ Tununak/ Nightmute



1. **Community Information**
 - a. Population Served: 1200 residents
 - b. Average Load: 377 kW
2. **Wind Turbines – Total Installed Capacity 400 kW**
 - a. 4 - NW 100s
 - i. Date Online: 3 online July 2006, 1 online October 2010
3. **Diesel Gen-Sets**
 - a. Average Diesel Plant Output: 309 kW
4. **Other Pertinent Info**
 - a. Tununak Intertie (6 miles)
 - b. Nightmute Intertie (17 miles)
5. **2009 Performance Data**
 - a. Net Wind Production: 564,257 kWh
 - b. Capacity Factor: 22.6 %
 - c. Net Wind Penetration: 17.6 %

The wind project at Toksook Bay also serves the communities of Nightmute and Tununak via 23 miles of electrical interties. Toksook Bay is a community of about 600 on Nelson Island, northwest of Bethel. Wind contributes 22% of Toksook Bay's electric load.

As in Kasigluk, AVEC initially installed three NW100 wind turbines in 2006, and is installing one additional NW100 in October 2010, for a total installed capacity of 400 kW. To maximize operation in the region, an intertie was developed from Toksook Bay to Tununak and Nightmute—the other two communities on Nelson Island—and the power plants in those communities were shut down and replaced with standby plants that only operate during outages.

Savoonga



1. Community Information

- a. Population Served: 730 residents
- b. Average Load: 266 kW

2. Wind Turbines

- a. Installed Capacity: 200 kW
- b. 2 - NW 100s
 - i. Date Online: November 2008

3. Diesel Gen-Sets

- a. Average Diesel Plant Output: 226 kW

4. 2009 Performance Data

- a. Net Wind Production: 345,743 kWh
- b. Capacity Factor: 13.6 %
- c. Net Wind Penetration: 14.6 %

AVEC also installed two NW100s in Savoonga, on St. Lawrence Island, in the fall of 2008. At times, Savoonga has seen instantaneous wind penetrations of greater than 60% without any energy storage or secondary load. A secondary load was added in 2010, which has reduced the stop and start cycles of the wind turbines.

Hooper Bay



1. Community Information

- a. Population Served: 1160 residents
- b. Average Load: 334 kW

2. Wind Turbines

- a. Installed Capacity: 300 kW
- b. 3 - NW 100s
 - i. Date Online: November 2008

3. Diesel Gen-Sets

- a. Average Diesel Plant Output: 308 kW

4. 2009 Performance Data

- a. Net Wind Production: 310,289 kWh
- b. Capacity Factor: 11.9 %
- c. Net Wind Penetration: 11.0 %

A wind system in Hooper Bay, a community of about 1,200 in the Yukon-Kuskokwim Delta, is another AVEC project that includes three NW100s, installed in 2008. The wind turbines were integrated in 2009 after the control module commissioning. Secondary load was installed in 2010.

Gambell



1. **Community Information**
 - a. Population Served: 675 residents
 - b. Average Load: 252 kW
2. **Wind Turbines**
 - a. Installed Capacity: 300 kW
 - b. 3 - NW 100s
 - i. Date Online: October 2009
3. **Diesel Gen-Sets**
 - a. Average Diesel Plant Output: 207 kW
4. **2009 Performance Data - (Partial Year)**
 - a. Net Wind Production: 60,262 kWh
 - b. Capacity Factor: 15.1 % (Average for the months it was operational)
 - c. Net Wind Penetration: 16.9 % (Average for the months it was operational)

Gambell is a village located on the northwest cape of St. Lawrence Island, Alaska or about 200 southwest of Nome, AK. Gambell has approximately 675 residents. The wind project in Gambell, includes three NW100. A secondary load was added in 2010.

Chevak



1. **Community Information**
 - a. Population Served: 925 residents
 - b. Average Load: 272 kW
2. **Wind Turbines**
 - a. Installed Capacity: 400 kW
 - b. 4 - NW 100s
 - i. Date Online: December 2009
3. **Diesel Gen-Sets**
 - a. Average Diesel Plant Output 272 kW
4. **2009 Performance Data - (Operational in December only)**
 - a. Net Wind Production: 1,304 kWh

Chevak is a southwestern Alaska village with approximately 925 residents. The wind project includes four NW100 turbines.

Kasigluk/Nunapitchuk



1. **Community Information**
 - a. Population Served: 1118 residents
 - b. Average Load: 316 kW
2. **Wind Turbines**
 - a. Installed Capacity: 300 kW
 - b. 3 - NW 100s
 - i. Date Online: July 2006
3. **Diesel Gen-Sets**
 - a. Average Diesel Plant Output: 242 kW
4. **Other Pertinent Info**
 - a. Nunapitchuk Intertie
5. **2009 Performance Data**
 - a. Net Wind Production: 621,706 kWh
 - b. Capacity Factor: 23.6 %
 - c. Net Wind Penetration: 22.8 %

The wind project in Kasigluk also serves the community of Nunapitchuk via an electrical interties. Kasigluk is a southwestern Alaska village in the Kuskokwim River Delta, 26 miles northwest of the regional hub of Bethel. Kasigluk has approximately 500 residents. The wind project in Kasigluk, includes three NW100 turbines and displaces an average of 23% of the diesel fuel previously used for power generation. It also supplies wind power to Nunapitchuk through an intertie. A secondary load is integrated into the local recovered heat system.

Mekoryuk



1. **Community Information**
 - a. Population Served: 200 residents
 - b. Average Load: 101 kW
2. **Wind Turbines**
 - a. Installed Capacity: 200 kW
 - b. 2 - NW 100s
 - i. Date Online: Not online yet. Estimated 2011.
3. **Diesel Gen-Sets**
 - a. Average Diesel Plant Output: 101 kW
4. **2009 Performance Data - No data yet**
 - a. Net Wind Production:
 - b. Capacity Factor:
 - c. Net Wind Penetration:

Mekoryuk is a southwestern Alaska village located at the mouth of Shoal Bay on the north shore of Nunivak Island in the Bering Sea. Mekoryuk has approximately 200 residents. The wind project in Mekoryuk, includes two NW100 turbines and average displacement was estimated at 33,000 gallons per year. Wind turbines are not online yet, control module and secondary load are currently being installed.

Quinhagak



1. **Community Information**
 - a. Population Served: 660 residents
 - b. Average Load: 220 kW
2. **Wind Turbines**
 - a. Installed Capacity: 300 kW
 - b. 3 - NW 100s
 - i. Date Online: November 2010
3. **Diesel Gen-Sets**
 - a. Average Diesel Plant Output 220 kW
4. **2009 Performance Data – No data yet**
 - a. Net Wind Production:
 - b. Capacity Factor:
 - c. Net Wind Penetration:

Quinhagak is a southwestern Alaskan village situated on the Kanektok River approximately a mile from the Kuskokwim Bay. The village load has taken a drastic decline in 2010 with the closure of the fish processing plant. Some freezing continues. The wind project in Quinhagak includes three NW100 turbines, and is projected to displace 53,000 gallons of fuel a year.

2009 Statistics

	Kasigluk/ Nunapitchuk	Selawik	Toksook Bay/ Tununak/Nightmute	Savoonga
Community Information -				
Population served:	1118	846	1186	722
Average Load:	316 kW	336 kW	377 kW	266 kW
Wind Turbines Installed -				
Installed Capacity:	300 kW	260 kW	400 kW	200 kW
Type:	3- NW100	4-Entegrity65	4-NW100	2-NW100
Date Online:	Jul-06	Jun-03	(3)Nov-06, Oct-10	Nov-08
Diesel Gen-Sets -				
Average Diesel Plant Output:	242 kW	333 kW	309 kW	226 kW
2009 Performance Data -			* 3 turbines only	
Net Wind Production:	621,706 kWh	63,876 kWh	564,257 kWh	345,743 kWh
Capacity Factor:	23.6%	3.4%	22.6%	13.6%
Net Wind Penetration:	22.8%	1.7%	17.6%	14.6%
Total fuel saved in 2006	n/a	6,468	n/a	n/a
Total fuel saved in 2007	29,457	10,684	43,916	n/a
Total fuel saved in 2008	43,700	7,223	49,990	n/a
Total fuel saved in 2009	45,966	4,835	39,329	23,900
Total fuel saved thru July 2010	22,543	6,360	23,036	6,423
Total fuel saved	141,666	35,570	156,271	30,323
Total money saved	\$455,427	\$120,596	\$446,596	\$108,588

	Gambell *	Hooper Bay *	Chevak	Mekoryuk	Quinhagak
Community Information -					
Population served:	673	1160	922	195	661
Average Load:	252 kW	344 kW			
Wind Turbines Installed -					
Installed Capacity:	300 kW	300 kW	400 kW	200 kW	300 kW
Type:	3- NW100	3-NW100	4- NW100	2- NW100	3- NW100
Date Online:	Oct-09	Nov-08	Dec-09		Nov-10
Diesel Gen-Sets -					
Average Diesel Plant Output:	207 kW	308 kW			
2009 Performance Data -	* not operational the entire year			* not yet fully operational	
Net Wind Production:	60,262 kWh	310,289 kWh			
Capacity Factor:	15.1%	11.9%			
Net Wind Penetration:	16.9%	11.0%			
Total fuel saved in 2009	4633	22301	n/a		
Total fuel saved thru July 2010	8797	17660	17965		
Total fuel saved	13430	39961	17965		
Total money saved	\$48,512	\$142,446	\$58,386		

	Kasigluk/ Nunapitchuk	Rate per Gallon	Total Savings	Selawik	Rate per Gallon	Total Savings
Total fuel saved in 2006	n/a	1.87		6,468	2.44	\$15,782
Total fuel saved in 2007	29,457	2.11	\$62,154	10,684	2.79	\$29,808
Total fuel saved in 2008	43,700	3.07	\$134,159	7,223	3.97	\$28,675
Total fuel saved in 2009	45,966	3.95	\$181,566	4,835	4.61	\$22,289
Total fuel saved thru July 2010	22,543	3.44	\$77,548	6,360	3.78	\$24,041
Total fuel saved	141,666		\$455,427	35,570		\$120,596

	Toksook Bay/ Tununak/ Nightmute	Rate per Gallon	Total Savings	Savoonga	Rate per Gallon	Total Savings
Total fuel saved in 2006	n/a	1.87		n/a	1.86	
Total fuel saved in 2007	43,916	2.08	\$91,345	n/a	2.20	
Total fuel saved in 2008	49,990	3.11	\$155,469	n/a	3.05	
Total fuel saved in 2009	39,329	3.10	\$121,920	23,900	3.67	\$87,713
Total fuel saved thru July 2010	23,036	3.38	\$77,862	6,423	3.25	\$20,875
Total fuel saved	156,271		\$446,596	30,323		\$108,588

	Gambell	Rate per Gallon	Total Savings	Hooper Bay	Rate per Gallon	Total Savings
Total fuel saved in 2009	4633	4.30	\$19,922	22301	3.79	\$84,521
Total fuel saved thru July 2010	8797	3.25	\$28,590	17660	3.28	\$57,925
Total fuel saved	13430		\$48,512	39961		\$142,446

	Chevak	Rate per Gallon	Total Savings
Total fuel saved in 2009	n/a	3.50	
Total fuel saved thru July 2010	17965	3.25	\$58,386
Total fuel saved	17965		\$58,386

TOTAL GALLONS SAVED	TOTAL MONEY SAVED
435,186	\$1,380,551

* Rate per Gallon is based on the average fuel delivery price per village, per year.