ALASKARENEWABLES

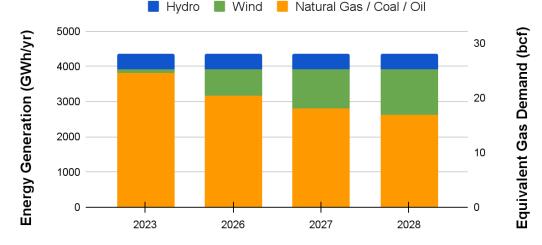
Working to harness the vast potential of renewable energy to deliver a transformative, clean, sustainable, reliable, and cost-reducing energy supply for Alaska.

Our Approach

- Community-centered
- Solution-oriented
- Technology-agnostic
- Engineering-first
- Committed to collaboration

Alaska's Wind Energy Deployment Opportunity

- Adding 400 MW of Wind Capacity could displace 8 billion cubic feet (33%) of natural gas demand per year
- Could be deployed with projects coming online yearly from 2026 to 2028
- Protects consumers from rising costs of energy and fuel scarcity



Railbelt Energy Sources

ALASKA RENEWABLES

Wind Energy Development Fundamentals

Grid Integration

Land Agreements

Wind Resource Assessment

Operations and Maintenance

Engineering

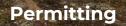
Construction

Procurement

Financing

Community Engagement

Power Purchase Agreements



ALASKA RENEWABLES

Shovel Creek Wind

airbanks

Little Mount Susitna Wind

ALASKA RENEWABLES

Shovel Creek Wind Project

- 2.5-10 miles west of Murphy Dome, near Fairbanks
- Access via Murphy Dome Extension Rd
- 60-211 MW project capacity
- 18-62 turbines

Visual Simulation

ALASKA RENEWABLES

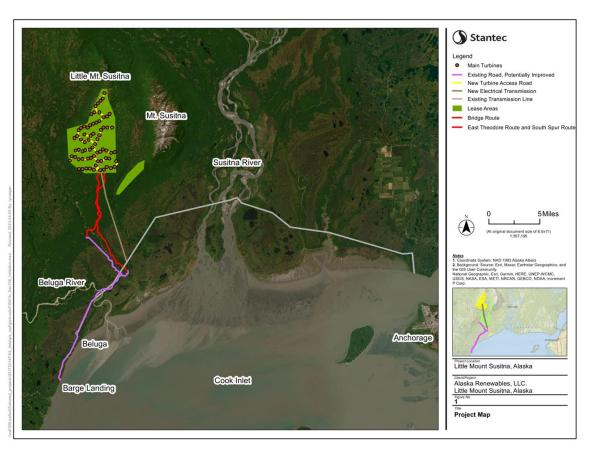
Little Mt Susitna Wind Project

- 40 miles WNW of Anchorage
- Access via barge landing in Beluga and existing gas roads
- 204 280 MW project capacity
- 45 62 turbines

Little Mount Susitna Wind Project

ALASKA RENEWABLES

- Selected from Chugach Electric's 2021 renewable energy RFP
- Studies underway to assess feasibility and economics
- Lease under evaluation by DNR
- Environmental assessments and permitting work underway
- Wind resource assessment meteorological towers and Lidar
- Preliminary engineering design and independent analyses
- Turbine suitability and selection
- Community and Indigenous engagement
- Commercial Operation of 2026

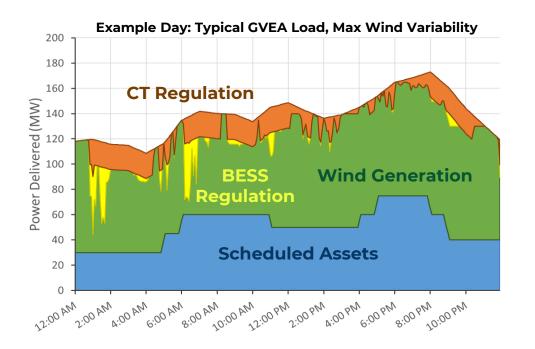


Advances in Forecast Accuracy - 24-hr Ahead

Forecast Availability Suppression A	alyże Maps			Q (0)
Power forecast for 48 hrs from 05 Oct, 2021 12 Forecast Granularity: 60 min / Revision Frequency: Updated ever				··· Actions , ' Full screen
Turbine Status				
28 Sep 21 29 Sep 21 3	5 Sep 21 1 Oct 21 :	Oct 21 5 Oct 21	4 Oct 21 8 Oct 21	6 Oct 21 7 Oct 21
Mr. Martin	Variant and	man faire of	Parto	
Power Actual vs. Forecast		— Scheduled Availability — A	wallable Capacity — Actual — R1Da	y Ahead Historical Day Ahead
-168 hr -156 hr -144 hr -132 hr	-120 hr 96 hr 84 hr	-72 hr -60 hr -48 hr -36 hr	-24 ter -12 ter 0 ter +12 t	w +24 hr +36 hr +48 hr
60 Installed Capacity	C			
State A MAN	X V .	MM A	N N A	LV.
40 A A A A A A A A A A A A A A A A A A A		I M		V.
20	$\langle \rangle$	yand V	\bigvee	
0 28 Sep 21 12:00PM 29 Sep 21 12:00PM 3	Sep 21 \$2:00PM 10ct 21 \$2:00PM 2	Oct 21 12:00PM 3 Oct 21 12:00PM	4 Oct 21 12:00PM \$ Oct 21 12:00P	M 6 Det 21 12:00PM 7 Oct 21
Power forecast deviation from actual			📕 Low (0% - 20%) 📕 Medium (20.)	01% - 50%) 📕 High (50,01% - 100%)
-168 hr -156 hr -144 hr -132 hr	-120 hr -108 hr -96 hr -84 hr	-72 hr -60 hr -48 hr -36 hr	-24 hr -12 hr 0 hr +12 h	nr +24 hr +36 hr +48 hr

Improving Wind Integration

90 MW Wind, Wind Forecasting, 46 MW BESS



Integration Approach

Scheduling

- North Pole CC scheduled at Min Load
- Healy or Intertie (Bradley/Gas) scheduled against forecasted load and wind profiles
- 2x North Pole SC on standby

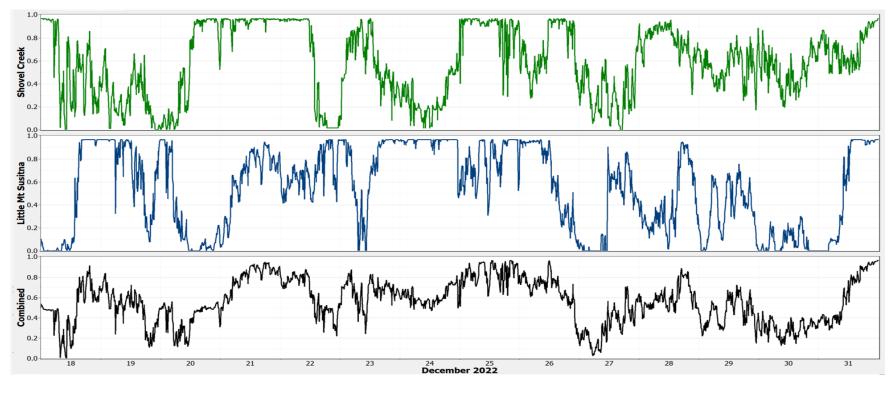
Operation

- North Pole CC regulates power against wind variability
- BESS charges/discharges based on preestablished setpoints (~1 Daily EFC)
- Wind curtailment to balance (0.7%)

Leverage the existing tools, and add right-size BESS/LDES and Ancillary Services to ensure Reliability and Stability

Diversified wind supply from multiple sites

ALASKA RENEWABLES

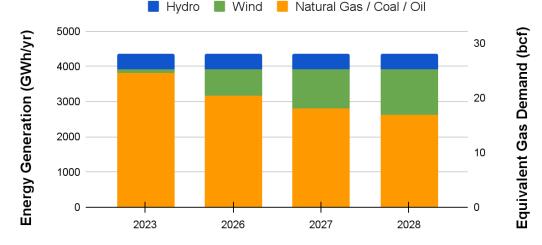


Less time at full/high wind production Less time at zero/low wind output Reduced ramp rates Higher predictability

Less need for curtailment More economic dispatch Reduced need for energy storage capacity Improved nomination of gas supply Lower maintenance costs

Alaska's Wind Energy Deployment Opportunity

- Adding 400 MW of Wind Capacity could displace 8 billion cubic feet (33%) of natural gas demand per year
- Could be deployed with projects coming online yearly from 2026 to 2028
- Protects consumers from rising costs of energy and fuel scarcity



Railbelt Energy Sources

ALASKA RENEWABLES