



# MATANUSKA ELECTRIC ASSOCIATION, INC.

## ALASKA WIND WORKSHOP RAILBELT WIND

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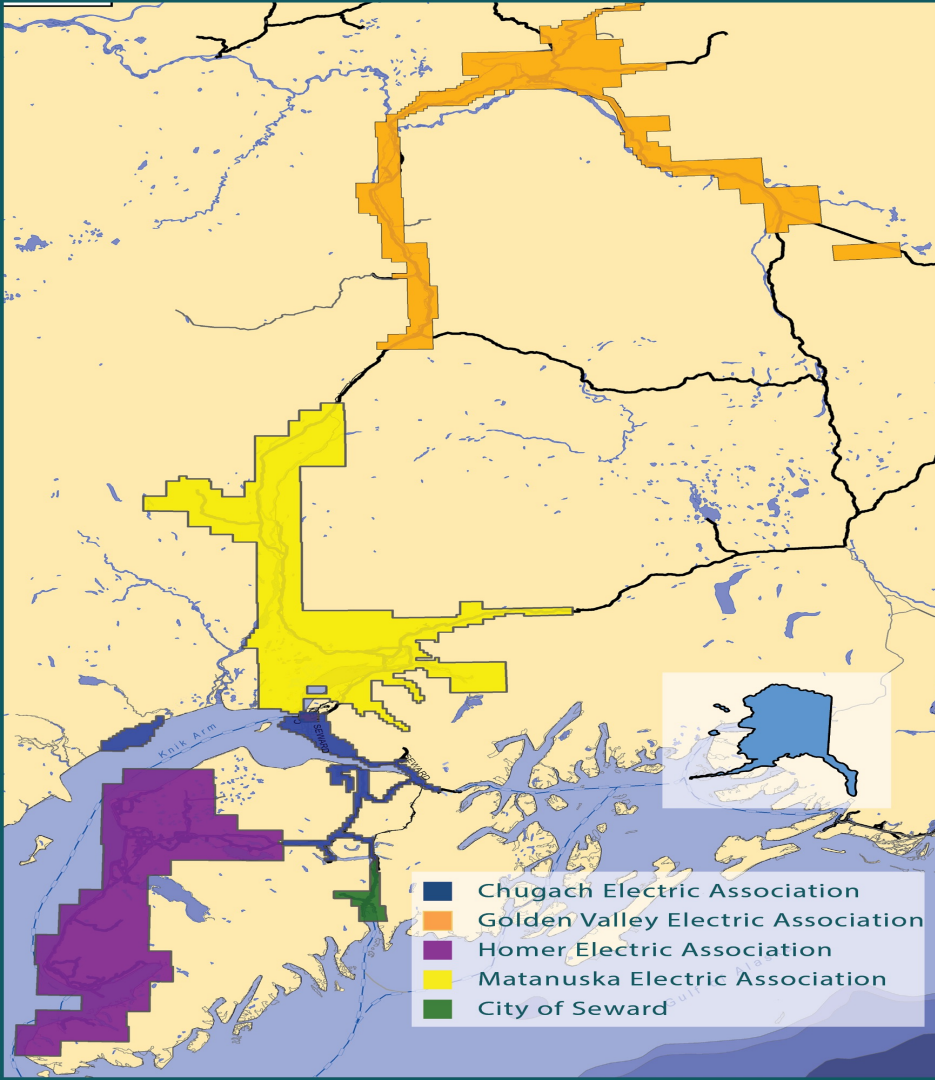


# RAILBELT WIND

- The Railbelt Electrical System
- The Railbelt Wind Study
- The Integration of Wind
- Questions

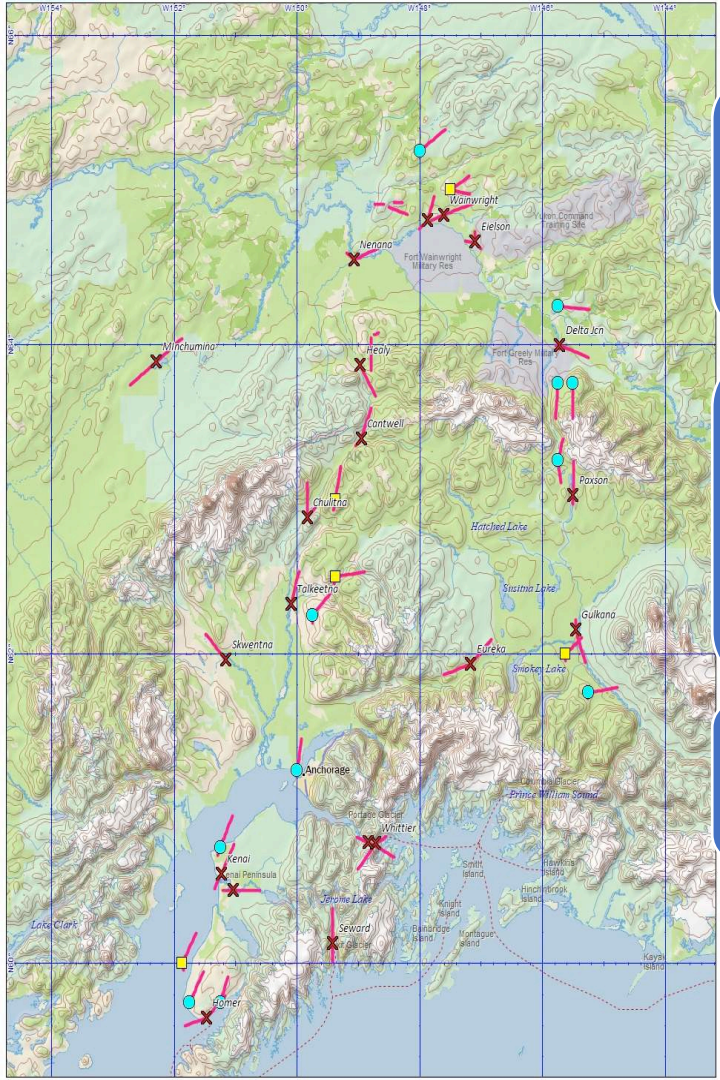
# THE RAILBELT

- Five Utilities
- Three Regions
- Single Regional Connections
- Stability Limited Transfers
- Small Generation Contingencies



# THE RAILBELT WIND STUDY

- Part of the joint utility effort looking at wind
- Phase One was to Identify potential wind resources
- Phase Two was to define these resources and the impacts of integrating a high penetration of wind onto the Railbelt system



## Reconnaissance

- Desktop Study
- Permitting Roadmap
- Land Use Study
- High altitude wind analysis (MERRA-2 and ERA-5)
- Site suggestions based on technical information

## Feasibility

- Final met tower site selection to include economic viability
- Land use agreements and permitting
- Met tower deployments and site analysis
- Conceptual design of individual sites and comprehensive deployment
- Integration studies
- Forecast modeling (as funds allow)

## Design and Construction

- Future Work

# WIND STUDY - IMPACT OF GEOGRAPHIC DIVERSITY

**Table 4b.** Annual Percent of Time at Simulated Gross Capacity Factor Ranges

GCF (%) Range	Anchor Point	Ninishka Bay	Elmendorf Moraine	Talkeetna Mtns	Phelan Creek	Eva Creek	Donnelly	Cleary Summit	Combined
0.00	7.67	9.38	9.85	7.18	7.15	5.51	7.43	6.56	0.00
0.1-10	20.82	23.23	25.82	24.95	25.99	19.26	22.02	22.15	10.16
10-20	11.93	10.53	12.37	12.81	14.14	11.43	10.45	11.07	12.91
20-30	9.11	7.91	8.36	8.45	8.90	8.76	7.68	6.69	13.23
30-40	5.51	5.14	6.02	6.03	6.37	6.07	5.45	5.06	13.24
40-50	4.43	4.30	4.89	4.11	4.79	5.46	4.84	4.27	12.83
50-60	4.35	3.95	3.77	3.48	3.32	4.39	4.14	3.97	10.97
60-70	3.73	3.84	3.14	3.18	3.09	4.02	3.92	3.34	7.82
70-80	3.86	2.92	3.23	2.90	3.12	4.10	3.78	3.80	8.24
80-90	3.90	3.69	3.69	3.40	3.18	4.90	4.50	4.62	7.68
90-100	24.68	25.11	18.87	23.50	19.93	26.11	25.80	28.46	2.91
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

# INTEGRATING WIND

- Scope is limited to looking at proposed and existing projects
- The result will be the identification of system constraints
  - Generation size
  - Transmission limits and contingencies
- Changes during islanded conditions



## CONCLUSION

- We are committed to diversifying our fuel mix
- We are actively looking at wind
- We are committed to continuing to pursue the wind option over the next few years



**QUESTIONS?**