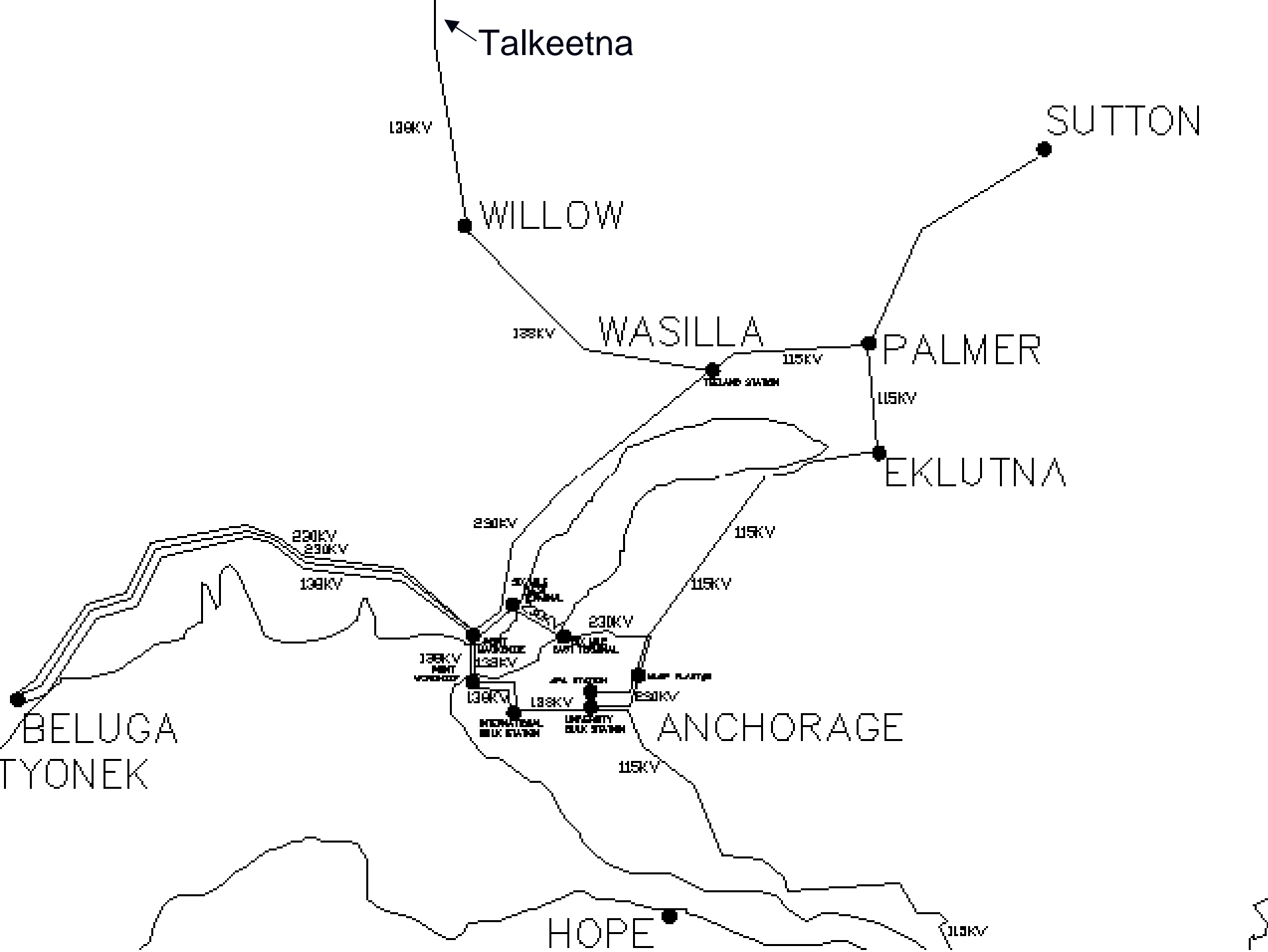




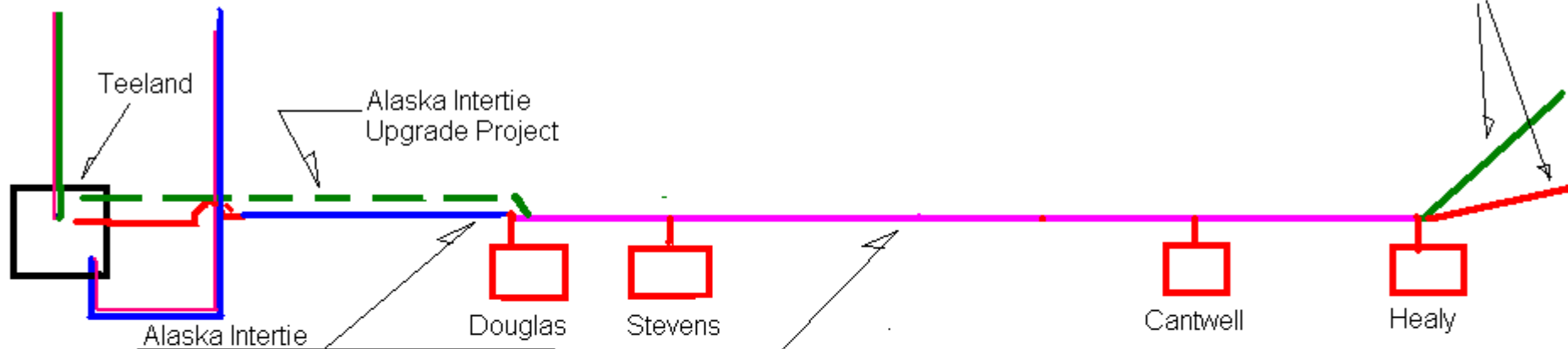
January 2006



To Point
Mackenzie

To MEA
Anderson

To Fairbanks



Alaska Intertie

Douglas

Stevens

Cantwell

Healy

Chugach

AEA

MEA

AEA

GVEA

Alaska Intertie Ownership by Line section

Framed and Operated at 230 kV

Framed and Operated at 115 kV

Framed and Operated at 138 kV

Framed at 230 kV Operated at 138 kV

New Construction Framed at 230 kV Operated at 138 kV

Framed at 345 kV Operated at 138 kV

PRESENTATION

- What is unbalanced snow loading
- Unbalanced Events
- The Snow Load Monitoring System (SLMS)
- How the system functions
- Studies past and proposed

UNBALANCED SNOW LOADING

- Stick Model

- Known Events:

January 1989

Public (Truck-Driver) At Caswell Lakes Road (~Towers 70-71)

Estimated Clearance ~12' over Caswell Lakes Road

Dec 1990

Outage Triggered Investigation Location: ???

Estimated Clearance ~7' (Estimated from Pictures)

January 1995

Public (Skier) At Structures 136-139

Estimated Clearance (2-12' above snow-pack)

December 1990



Intertie Mitigation

- February 1995
 - Analysis of Unbalanced Snow Loads
 - Several Options Including:
 - Line Monitoring (SLMS) \$1,300,000
 - Ice/Snow Melting \$2,830,000
 - Convert Insulators to Inverted V's \$3,300,000
 - Inset H-frames \$17,000,000
 - Line Monitoring (SLMS) was selected 2/13/96 and installed in 1996

Costs shown are from 1996

Snow Load Monitoring System

- Capabilities
 - Snow buildup
 - Threshold alarms
- Limitations
 - Snow pack
 - Ground clearance not measured
 - 24 samples

Major SLMS Events



December 1998

Structures 52-53, 96-98

Estimated Clearance:

- 18'-6", 19'-3"

Estimated Snow Diameter:

- 10-11"

SLMS + GROUND PATROL

- SLMS transmits to ML&P dispatch
- Ground Patrols confirm condition

Studies

- Several reports – mitigation options
- Proposed study - risk analysis

Procedure Summary

- SLMS alarm will be used to de-energize lines
- Snow Patrol