

# Wind Monitoring Tower Installation

Alaska Energy Authority  
Alternative Energy and Energy Efficiency

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V3 Energy, LLC, presenting

Presentation developed by Mia Devine

# Meteorological Tower

- (Met tower)
- 100-feet tall
- Guyed tower
- Tilt-up tower



# Met Tower Kit

- Tower sections
- Grounding rods
- Anemometers
- Vane
- Temperature sensor
- Data Logger



# The Equipment

- NRG Symphonie data logger
- MMC data chip
- SCM chip
- Desiccant pack
- Sampled every 2 seconds
- Averaged every 10 minutes



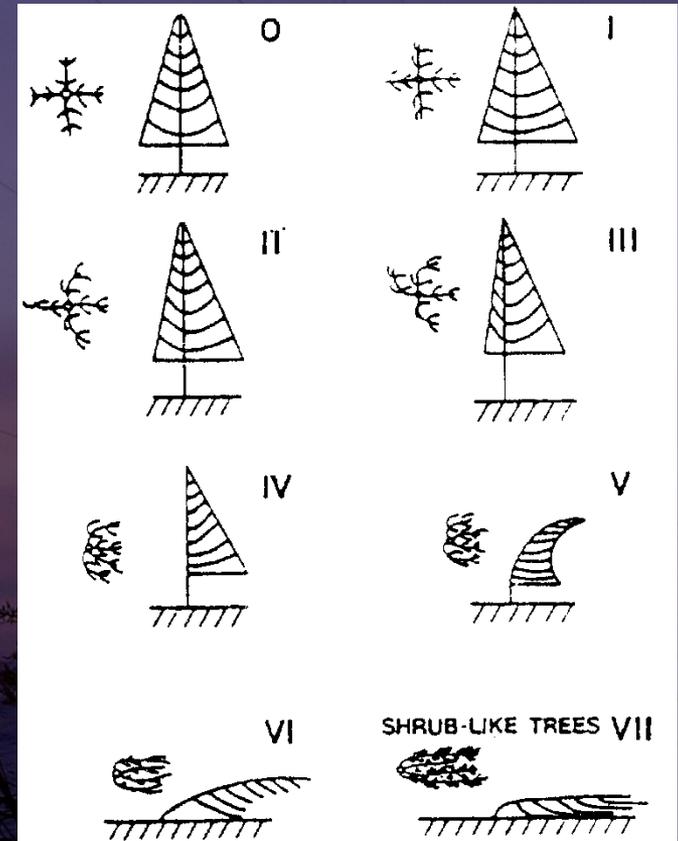
# Slope & Offset

- Transfer function converts electric signal into m/s or degree value
- Anemometer: use default slope & offset for NRG#40
- Vane: Must specify the offset!



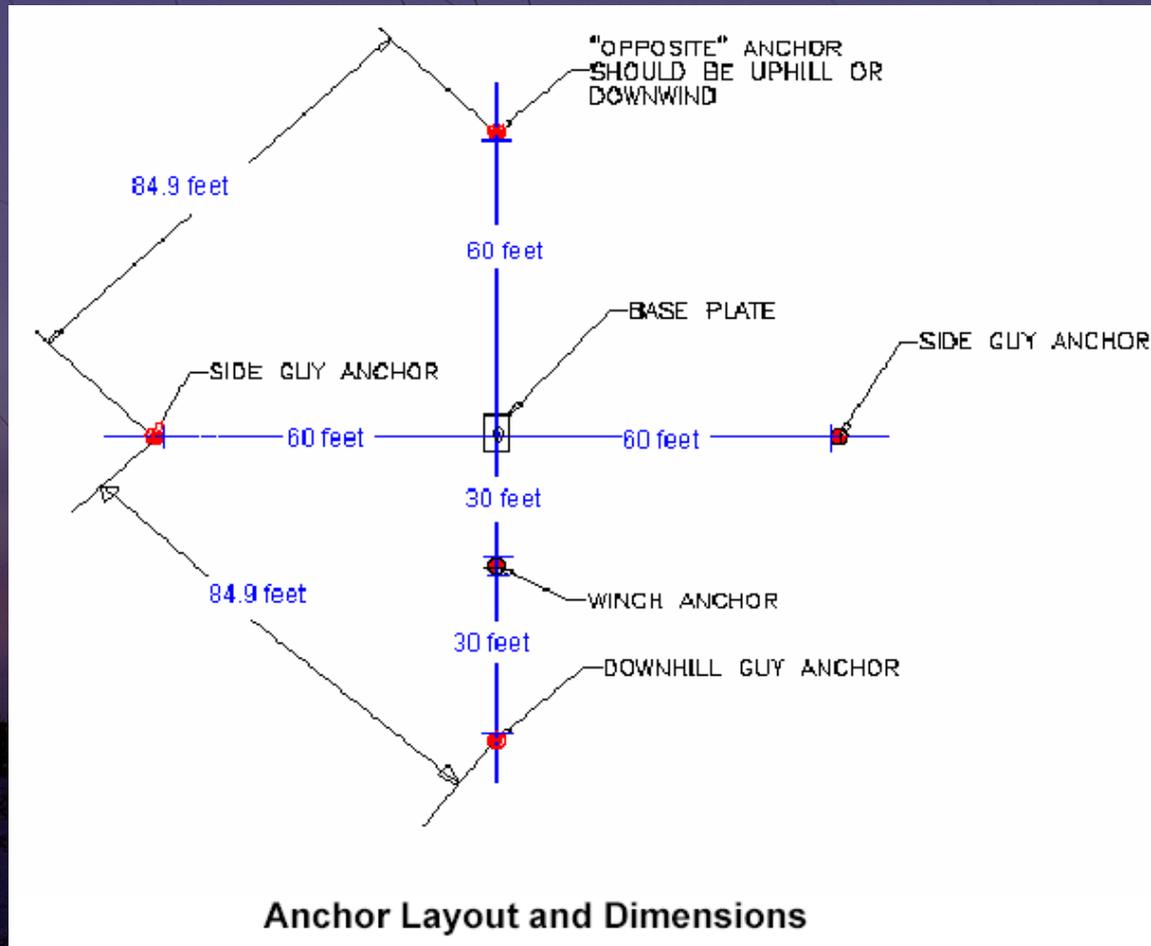
# Site Selection

- Local knowledge
- Wind-shaped vegetation
- Snow-swept areas



# General Installation Steps

- Clear the site and measure anchor points
- Layout tower uphill and downwind



# General Installation Steps

- Select Anchor Type:
  - Screw-in
  - Duckbill/ arrowhead with drive rod
  - Rock anchor



# General Installation Steps

- Install the anchors



# General Installation Steps

- Lay out main tower:
  - 10' and 5' sections
  - attachments
  - base plate



- Paint tower sections



# General Installation Steps

- Align the base plate with the anchors
- Level the base plate
- Secure the base plate with rebar



# General Installation Steps

- Horizontally assemble
  - bolt in tower section
  - slip on guy wire collars (red tag determines level)
  - elevate on tires/ blocks



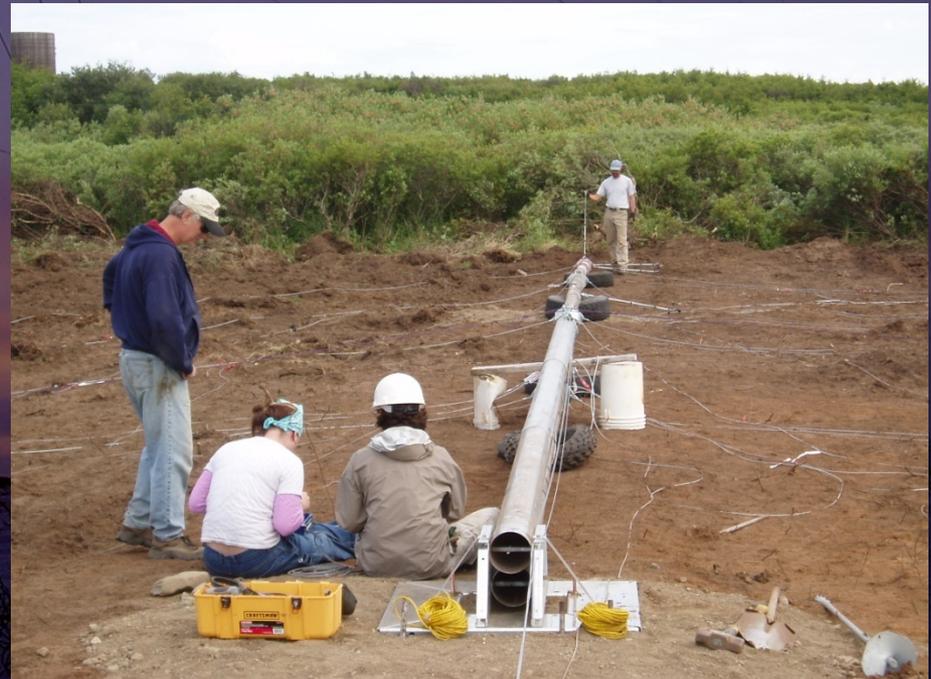
# General Installation Steps

- Assemble the gin pole
  - safety cable
  - safety ropes



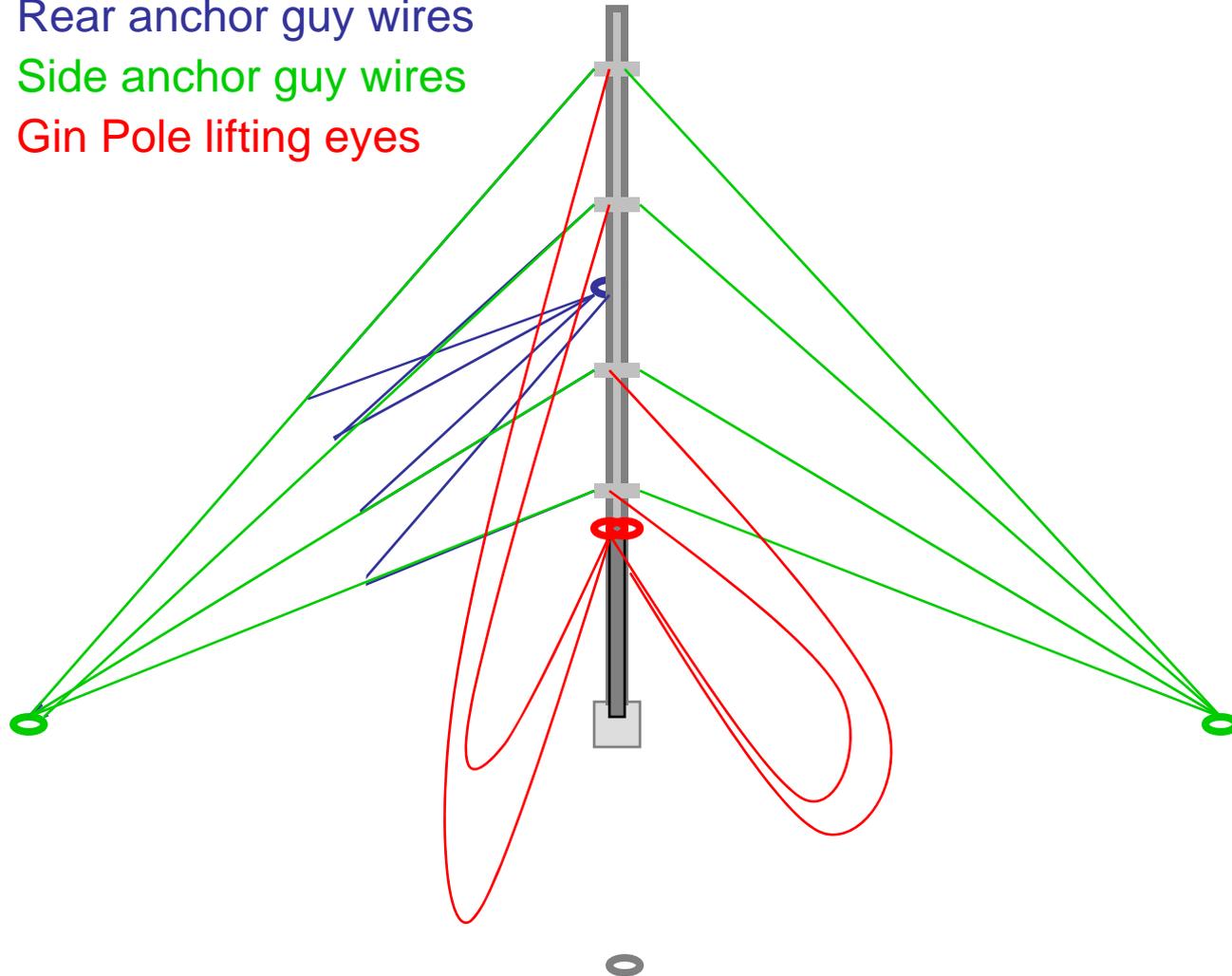
# General Installation Steps

- Lay out guy wires
  - Red tag has the lifting eye
  - Be careful not to mix up wires



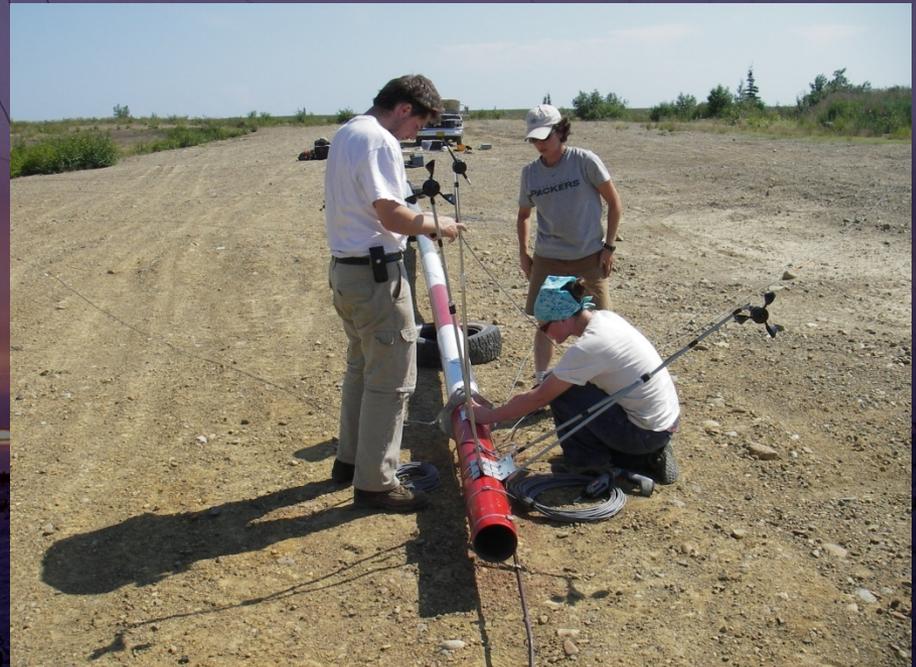
# Laying Out Guy Wires

Rear anchor guy wires  
Side anchor guy wires  
Gin Pole lifting eyes



# General Installation Steps

- Wire sensors
- Mount the booms with hose clamps
- Wrap sensor wires down the tower & tape



# General Installation Steps

- Connect the winch  
- 12 volt battery



# Other Winch Options



# General Installation Steps

- Support and raise gin pole



# General Installation Steps

- Final arrangement of booms and sensors
  - Don't stand under the tower or guy wires!



# General Installation Steps

- Erect tower while controlling side guy wires
  - positioning of people during the lift
  - 4 levels of guy wires



# General Installation Steps

- Hold tower back when nearly vertical



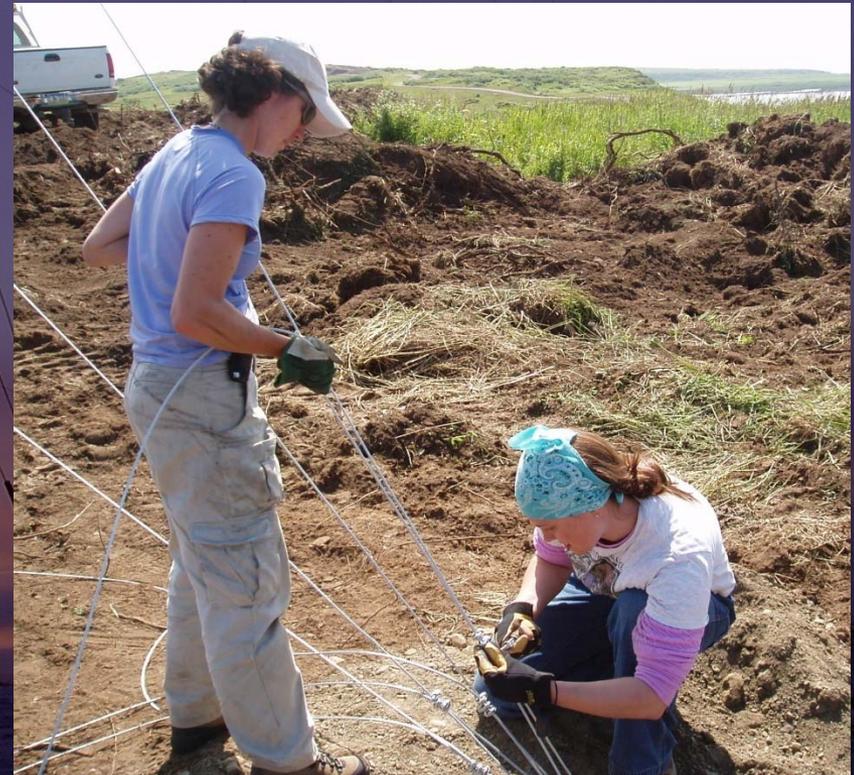
# General Installation Steps

- Move gin pole wires from winch anchor to rear/downhill anchor



# General Installation Steps

- Straighten tower by adjusting guy wire tension



# General Installation Steps

- Attach, wire, and configure data logger
- Program the vane offset



# General Installation Steps

- Clean-up and final check of site



# Summary

Photos Courtesy of Doug Vaught (V3 Energy, LLC),  
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For more information and wind data:

[www.akenergyauthority.org/programwind.html](http://www.akenergyauthority.org/programwind.html)