



Health & Safety and Remote Sensing

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Agenda

RES Overview

Background

Technical Considerations

Today's World

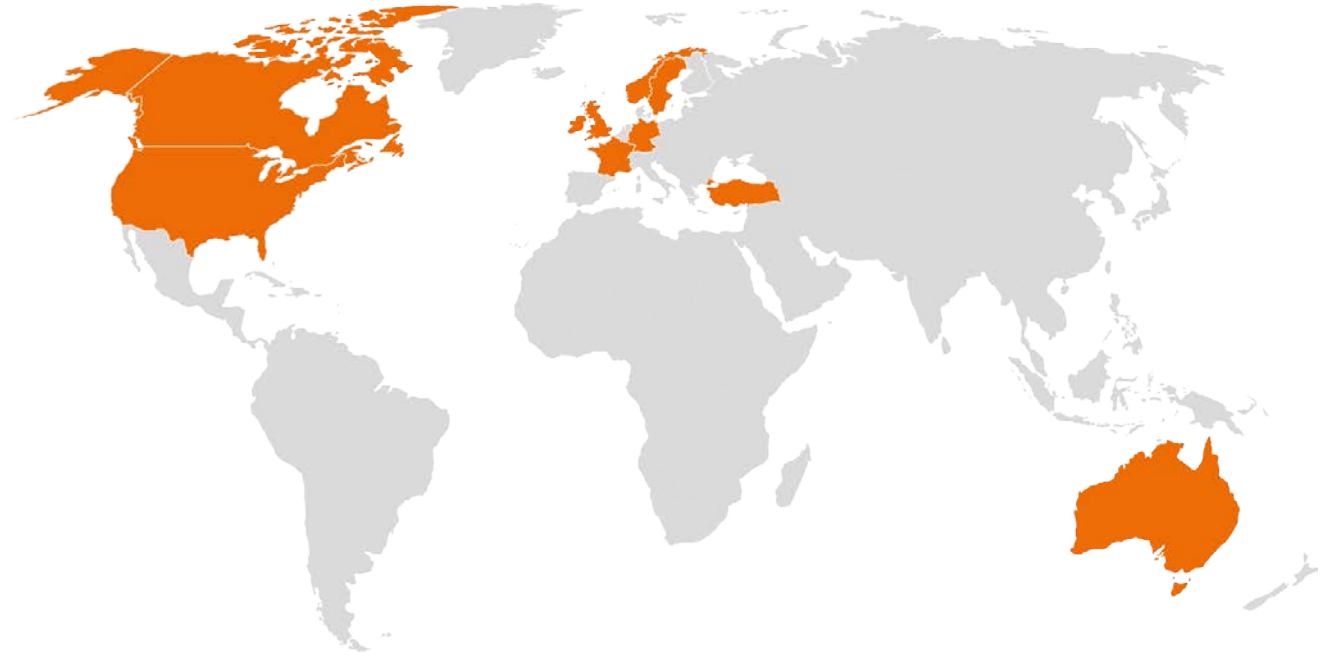
The Issue with Met Masts

The Benefit of RSDs

The Future



1200+
MASTS/RSD SYSTEMS



5

CONTINENTS

37

YEARS OF
EXPERIENCE



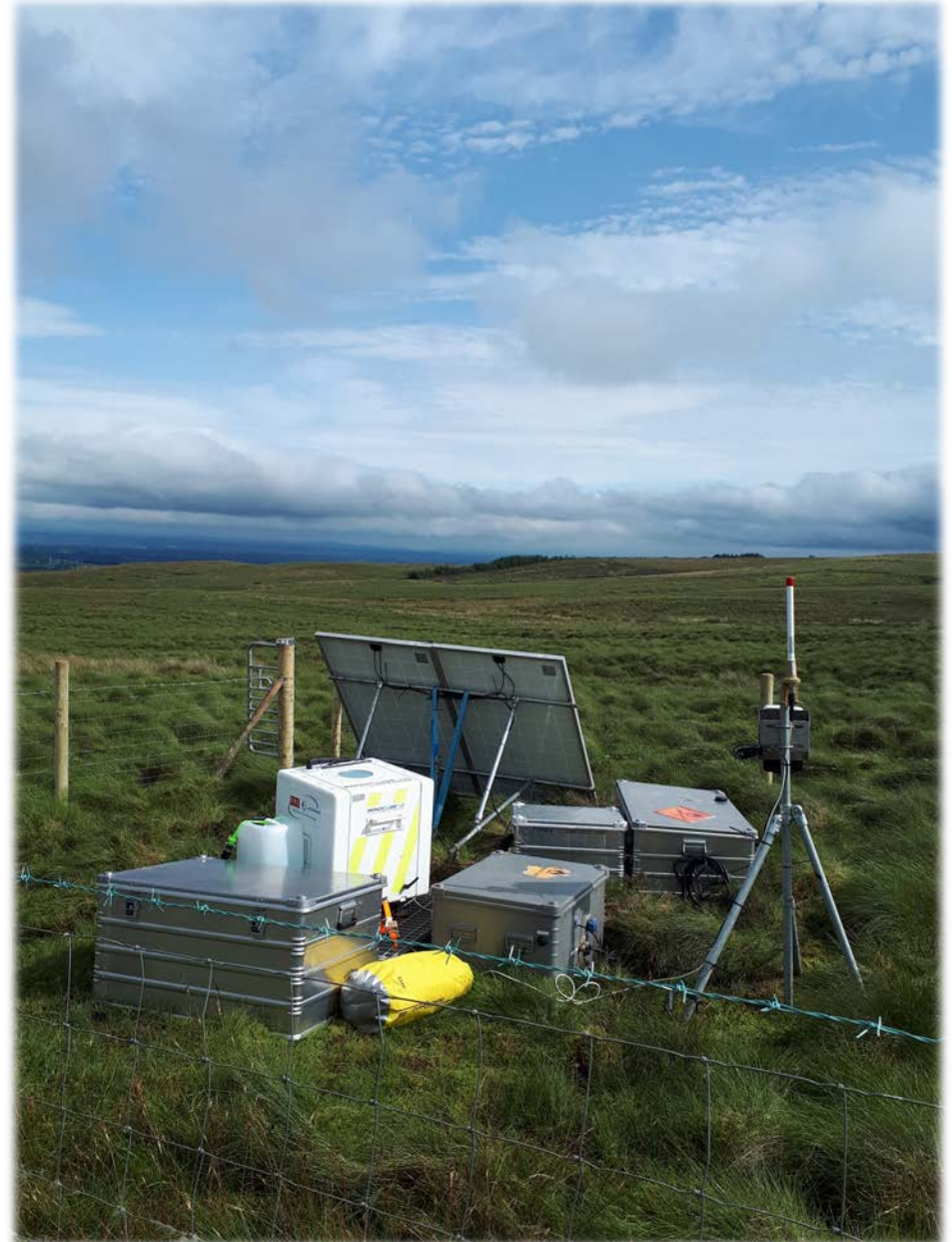
Background

- ❖ Masts still the accepted standard
- ❖ Remote sensing slowly gaining acceptance
 - Not universally accepted for wind speed measurements
 - Not generally accepted as met mast replacement
 - Data not always treated fairly



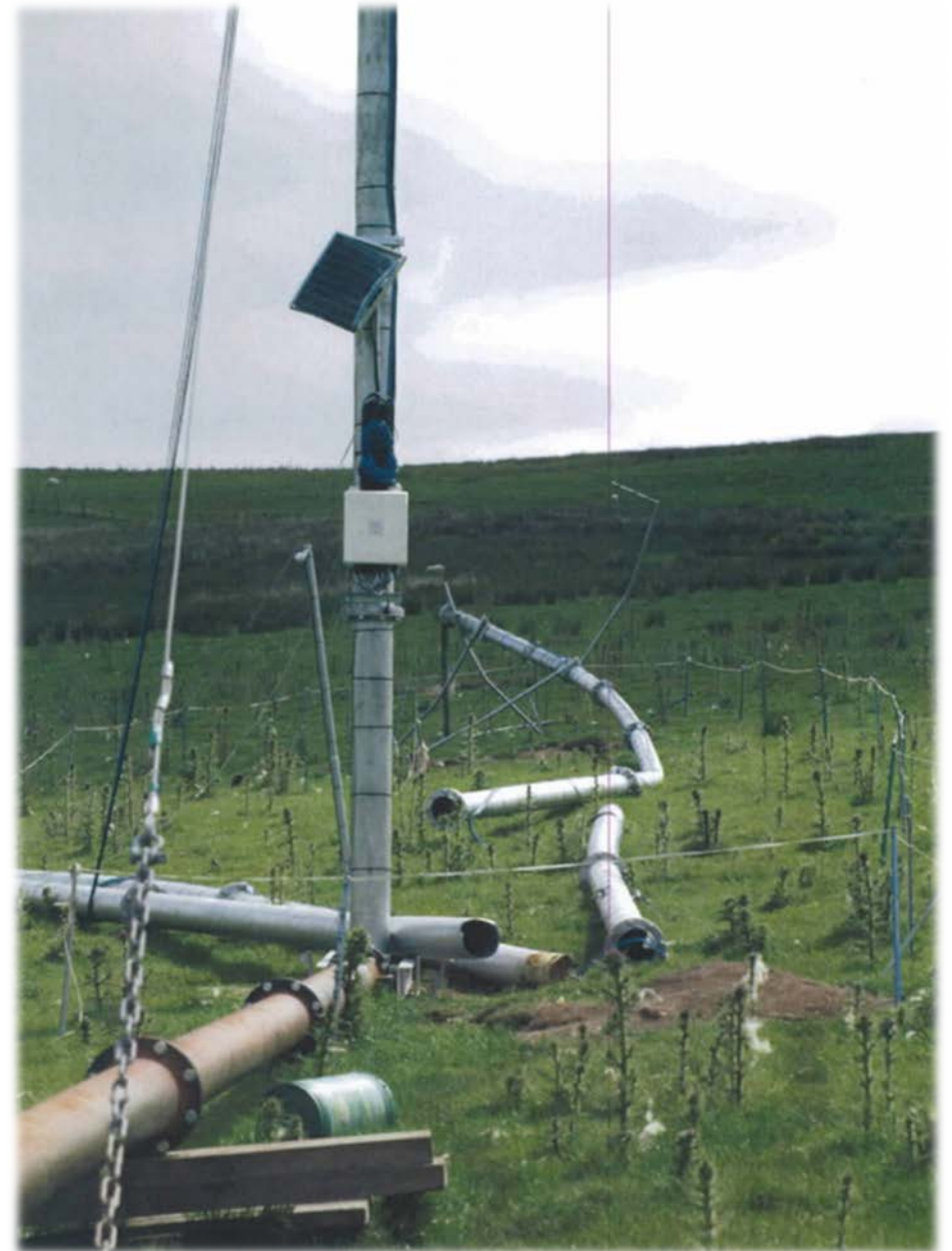
Technical Considerations

- ❖ Mast seen as “gold” standard
- ❖ RSD considered as secondary
 - RSD deployments sometimes limited
 - Data not always treated fairly
- ❖ Appropriately sited RSDs can replace met masts
 - Modelling can help
 - ID most appropriate locations
 - Correct for flow effects
 - Will not always be possible due to flow complexity



Today's World (The Imperative)

- ❖ Health and Safety is Paramount
 - Implement safest, lowest risk, option to obtain the data
- ❖ Bankable EPA report
 - Still need to finance project
- ❖ Reduced development spend
 - Optimised measurement campaign, to minimise budgets
- ❖ Reduced development timescales
 - Short lead-time deployments are necessary
- ❖ Data loss is critical
 - Requires immediate intervention



The Issue with Met Masts

- ❖ Development considerations
 - Planning permission required
- ❖ Masts can collapse
 - During install/operation/decommissioning
 - Due to ice loading or other extreme weather
- ❖ Target for vandals
- ❖ Very tall lightning conductor
- ❖ Instrument replacement
- ❖ Masts are *not* inherently dangerous
- ❖ Remove the risks associated with met masts
 - No unnecessary installations; use RSDs instead



The Issue with Met Masts



Current Situation

- ❖ Data loss is now critical
 - Data loss can affect the bankability of the measurement campaign.
- ❖ To get off-track mast measurement campaign on-track
 - Install new mast (or instruments replaced) quickly
 - with cost/delay/data loss/H&S risk
- ❖ There must be a better way
 - Obtain good data
 - Lowest risk approach (H&S)



Benefit of Remote Sensing Devices

- ❖ No lifting or lowering of mast
- ❖ No climbing required
- ❖ Mobile devices, not requiring planning permission
 - Can be placed almost anywhere and
 - Commissioned/decommissioned at short notice
 - With minimal risk
- ❖ RSDs are not immune from H&S, weather and theft risks
 - The solar panels and batteries could be stolen
 - The device could blow over (use rock anchors!)
 - Could be struck by lightning
 - The device could be towed away (if it is sitting on a trailer)
 - Fuel cells, Manual handling
- ❖ No lifting, No climbing, Swift response, Short delay



The Future

- ❖ RSDs become the standard measurement device
 - Enabling bankable energy assessment reports
 - Backed up by shorter met masts where needed



The numbers

- ❖ Data gathered on 73 incidents (6.1 % of #1200)
 - Masts (#67, 5.6 %)
 - RSDs (#6, 0.5 %)
- ❖ Unplanned maintenance (climbing) (#20, 1.7%)
- ❖ Mast collapse (#30, 2.5 %)
 - Vandalism (#13, 1.1 %)
 - Icing/wind (#9, 0.8 %)
- ❖ Ongoing maintenance
 - 6 month maintenance visits - non-zero risk
- ❖ RSD incidents
 - Vandalism (#1, 0.1 %)
 - Theft (#4, 0.3%)
 - Plant bogged down (#1, 0.3 %)



Any questions?



Thank you!

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