

## Aluminium Tower for 420 kV AC OHTL

Study Committee B2

Preferential Subject 1

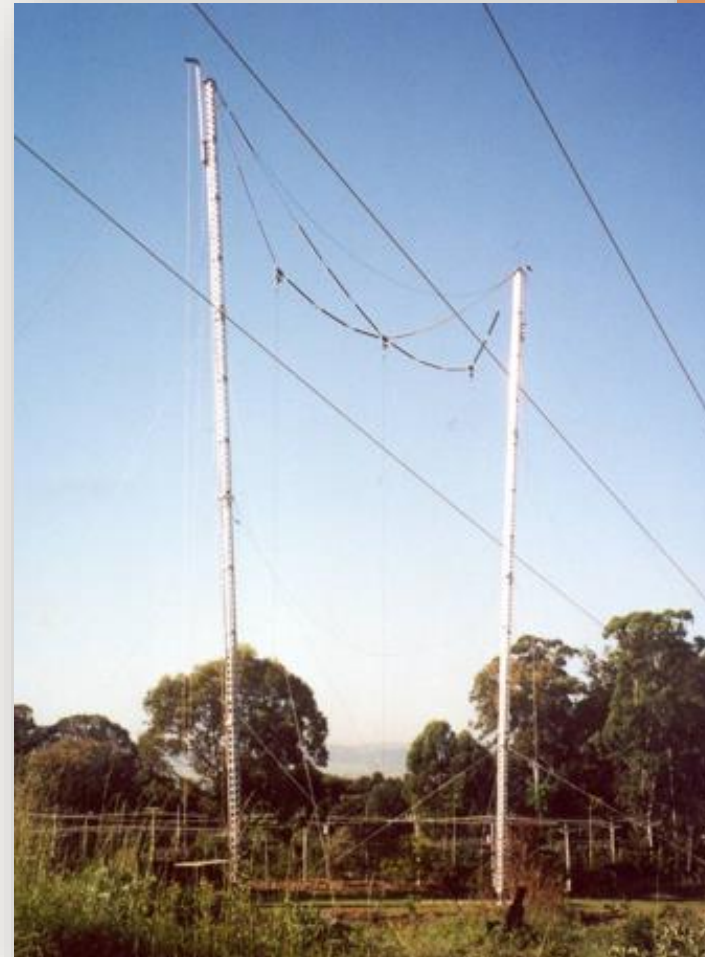
Q1.6 Why guyed modular aluminium alloy structures (like those used as ERS) were not considered as an option?

Gilles Sabatier-Olne - Norway

## Standard ERS mast on the market

- Optimized for light weight and ease of construction under emergency situations
- Typically, limited number of strength classes available – high risk of inefficient material usage
- Assumption (not checked) that we would not find a standard product with sufficient strength for 150 - 500 years return time for wind and ice loads for the required span configurations
- Not suited to equalize cable tension under uneven ice load

Group Discussion Meeting



Source SBB and Lindsey

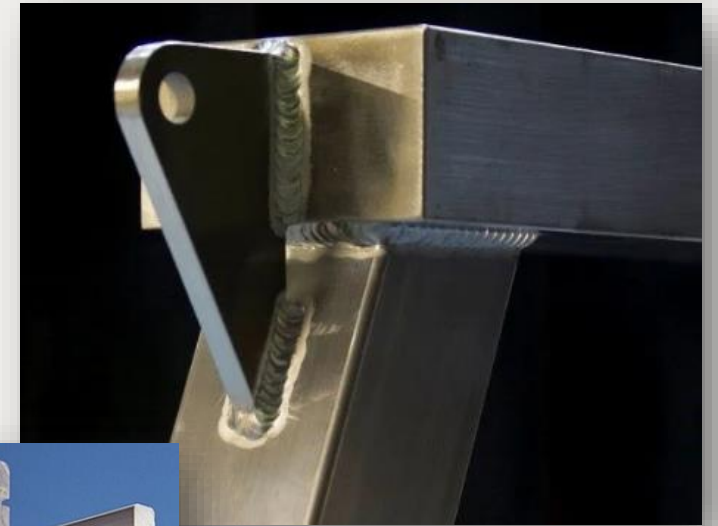


## Material and production cost - Optimize design

- Aluminium ~3 times more costly than steel
- Aluminium towers require design optimization to be economically competitive
- Optimize strength usage for each tower site specific loading - use amount of material necessary only
- Reduce production cost by selecting efficient fabrication method (limit or choose appropriate welding, cutting, drilling...)

Conclusion: develop tailor-made guyed mast structure system.

Group Discussion Meeting



Source Hydro



## Other design requirements – ERS type mast not suitable

- Horizontal flat configuration of the phase conductors
- Small footprint of the structure to facilitate spotting in rough terrain
- Limit foundation work (which is costly)

Guyed modular mast not well suited to fulfill these requirements:

- Large footprint – multiple guys
- Not suited for steep terrain
- Site selection difficult

Group Discussion Meeting



Source SBB and Lindsey

