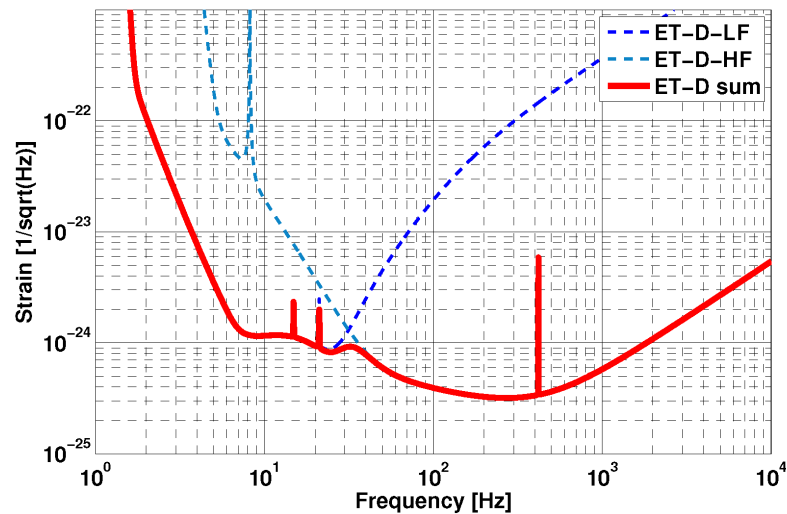


Follow up work from ET wokshop. Task:
What do we lose if we abandon the xylophone

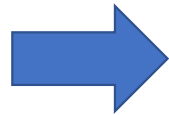
Andrew Spencer, Bryan Barr, Benno Willke, Marina Trad Nery,
Stefan Danilishin (joined in), Stefan Hild

Idea for strategy change

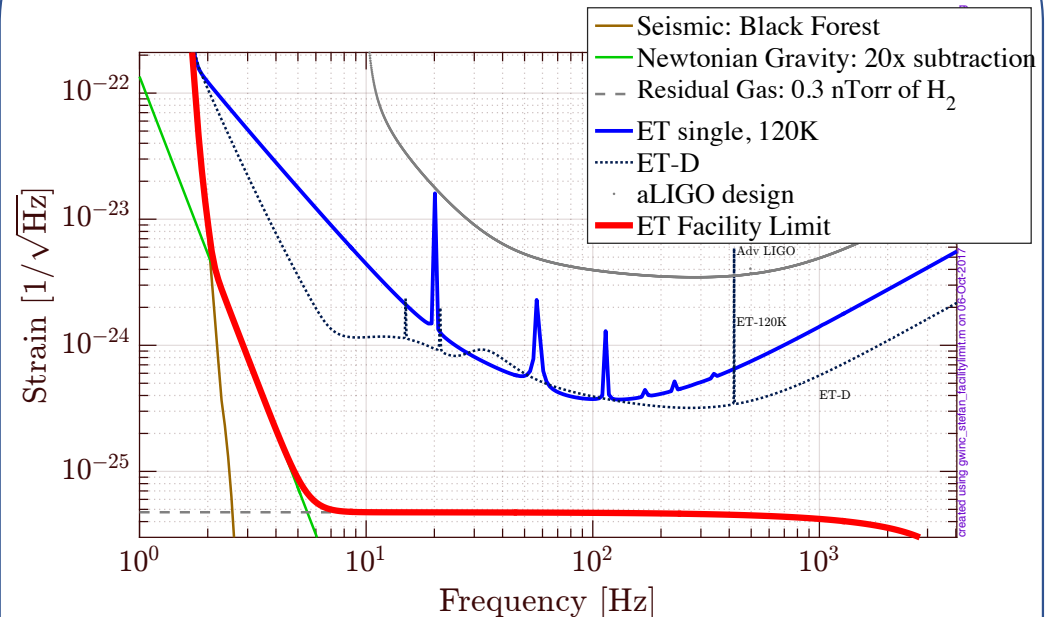
ET Design study, ca 2010



- Emphasis was set on designing long lasting infrastructure (did not go for optimistic elegance but worst case complexity).
- Resulted in very costly design

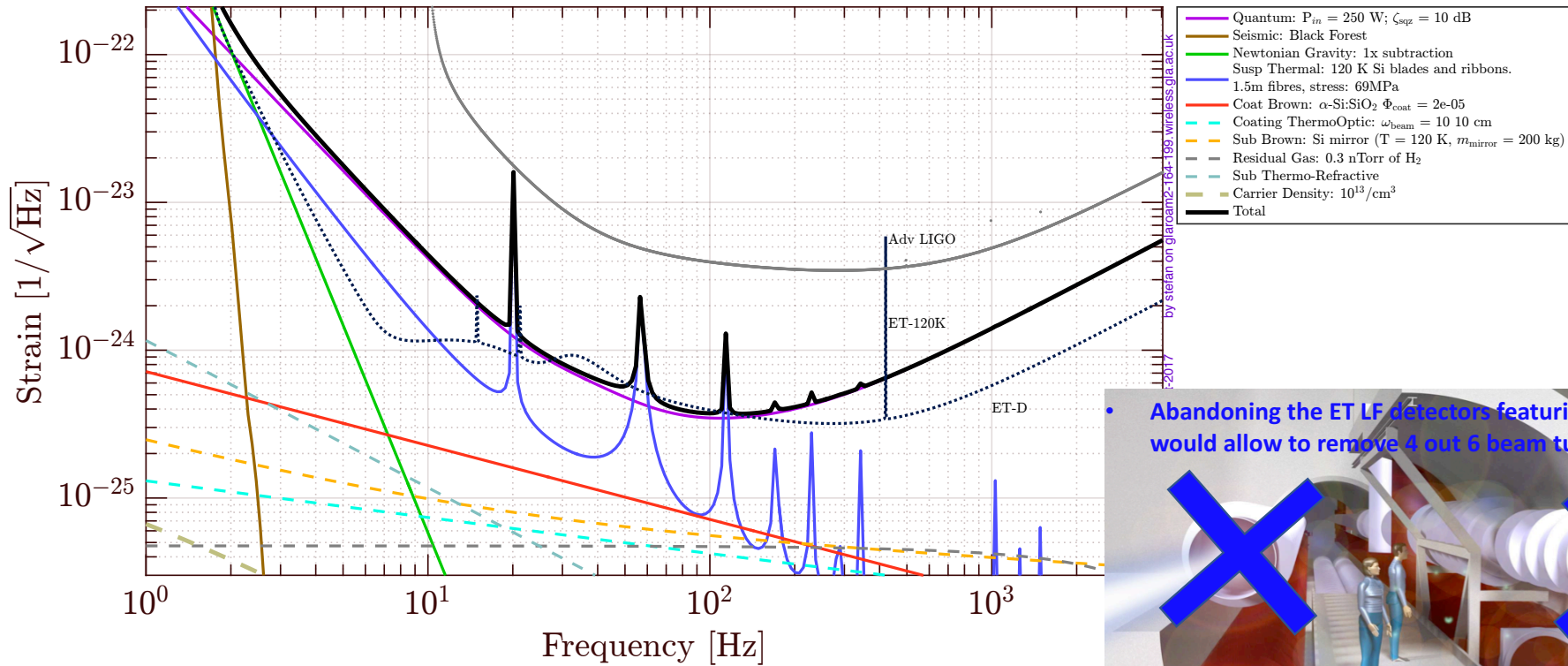


Potential way to market ET in future?

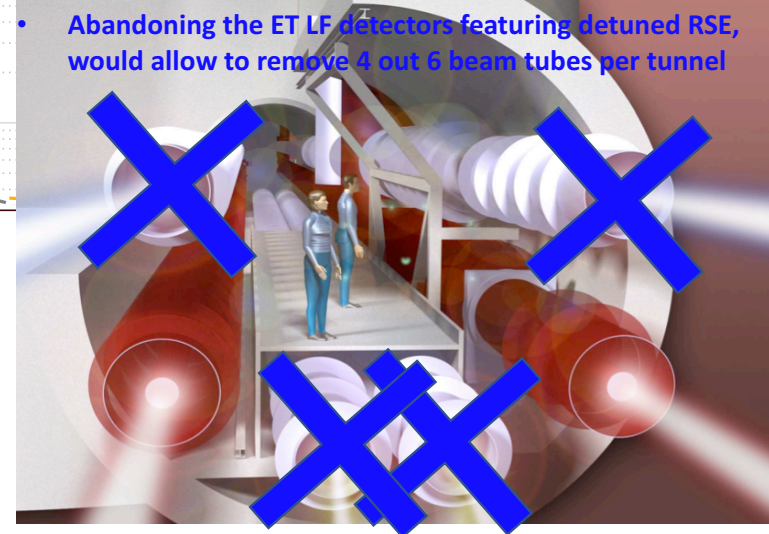


- Instead of showing a single sensitivity curve we show an initial sensitivity curve of a relative simple and cheap detector + the facility limit to highlight future potential

Single detector for all frequency



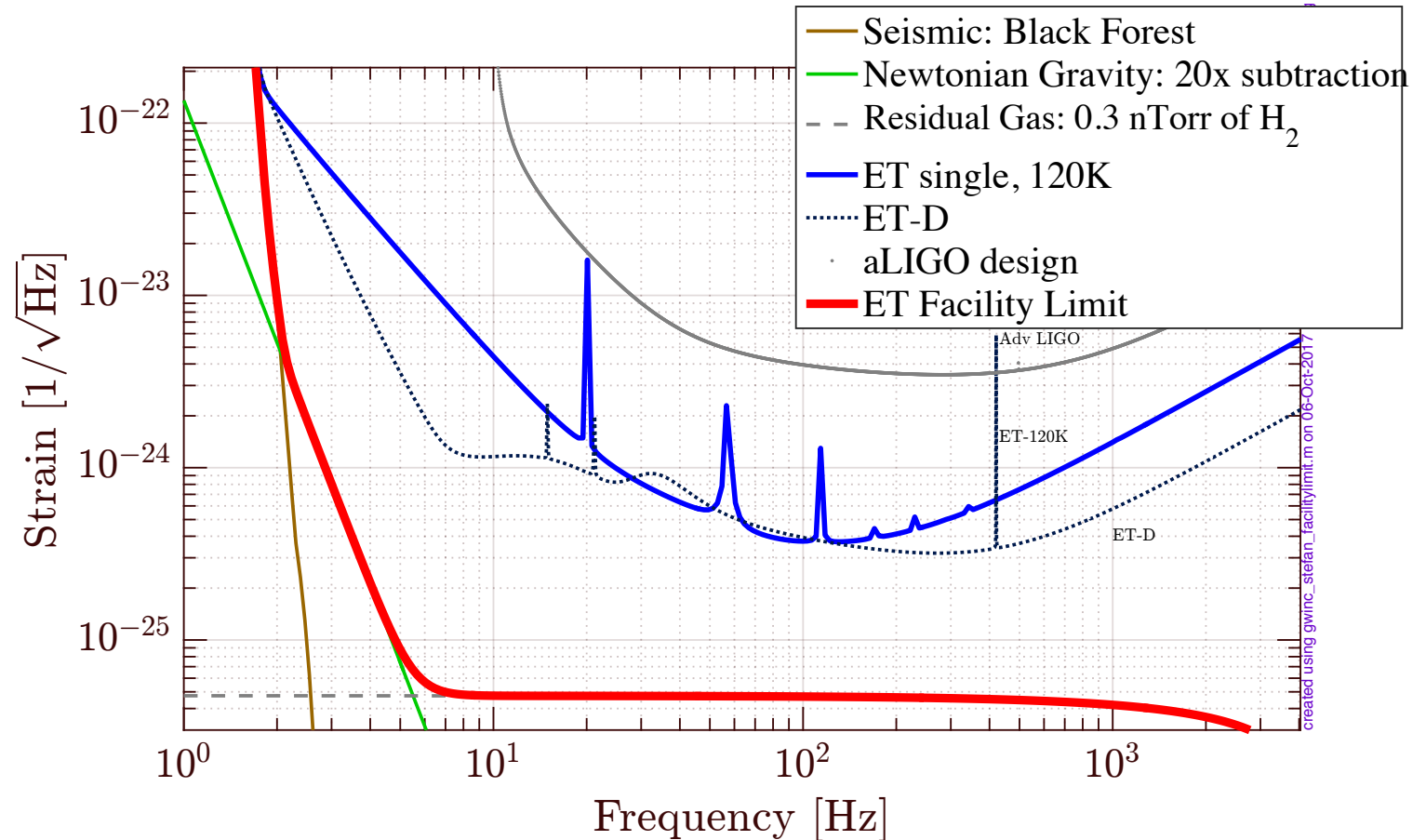
- Single detector design relies on 120K + silicon (similar to Voyager).
- 3MW, Dual Recycled Michelson, Squeezing + short filter cavity, no GG noise subtraction, etc



ET facility limit

Assume optimistically combination of:

- Seismic (same as ET-D, i.e. BFO + 17m SA)
- Newtonian noise: BFO + factor 20 subtraction
- Residual gas noise of H₂ at 4e-8mbar



Example a of a more ambitious single detector sensitivity

