



<https://www.tuge.ee>
info@tuge.ee

Quick facts

- First turbine installed in 2012
- More than 25 operational generators
- More than 30% installed abroad
- PV projects (up to 275 kW)
- Off-grid projects
- Microgrid projects
- Large scale smart grid design and implementation (160 kW PV, 50 kW wind, 220 kWh storage)



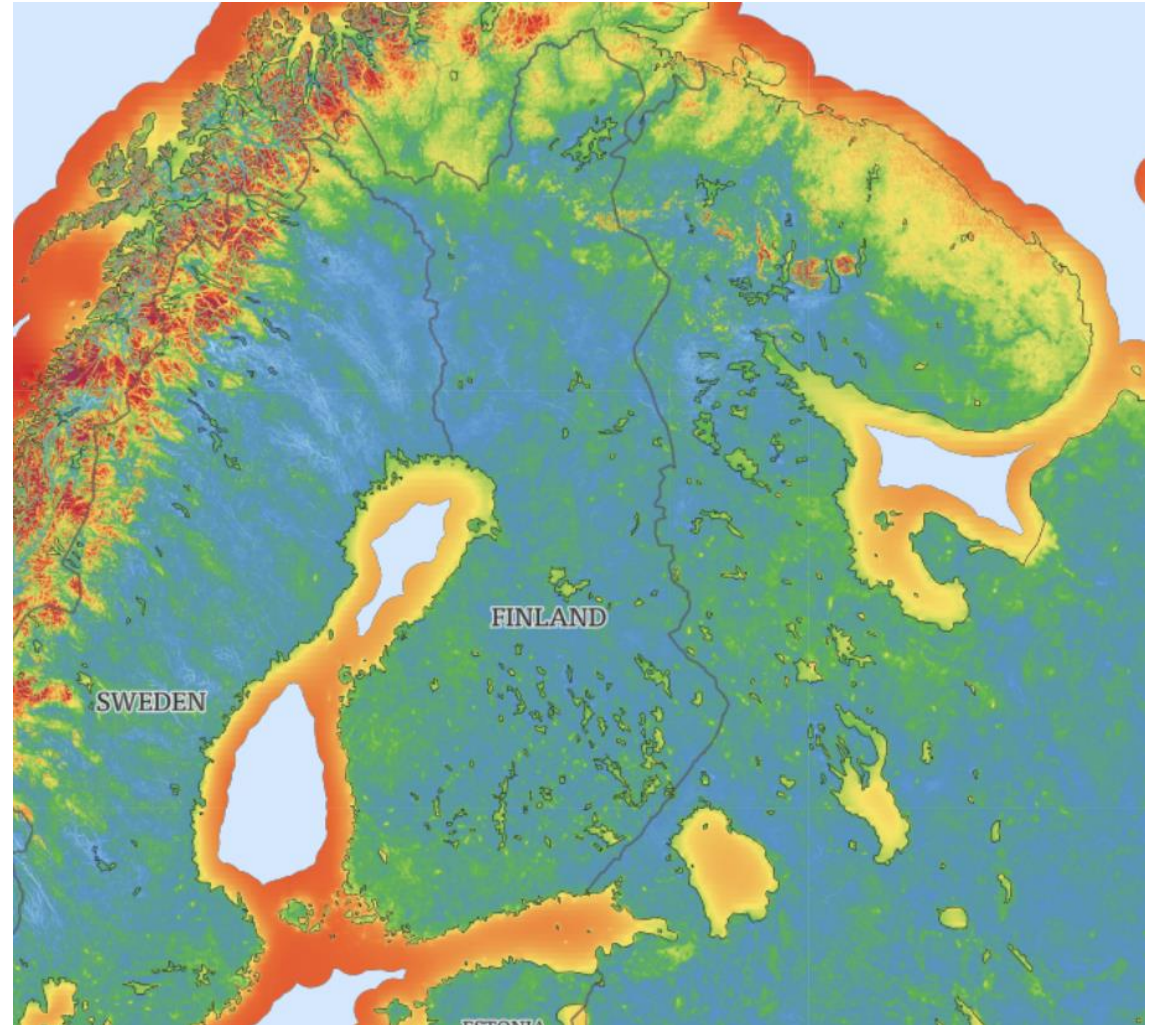
Small wind rules of thumb

- Small wind vs „big“ wind
- It is a financial investment!
- Bigger is better
- Taller is better
- It actually needs wind!



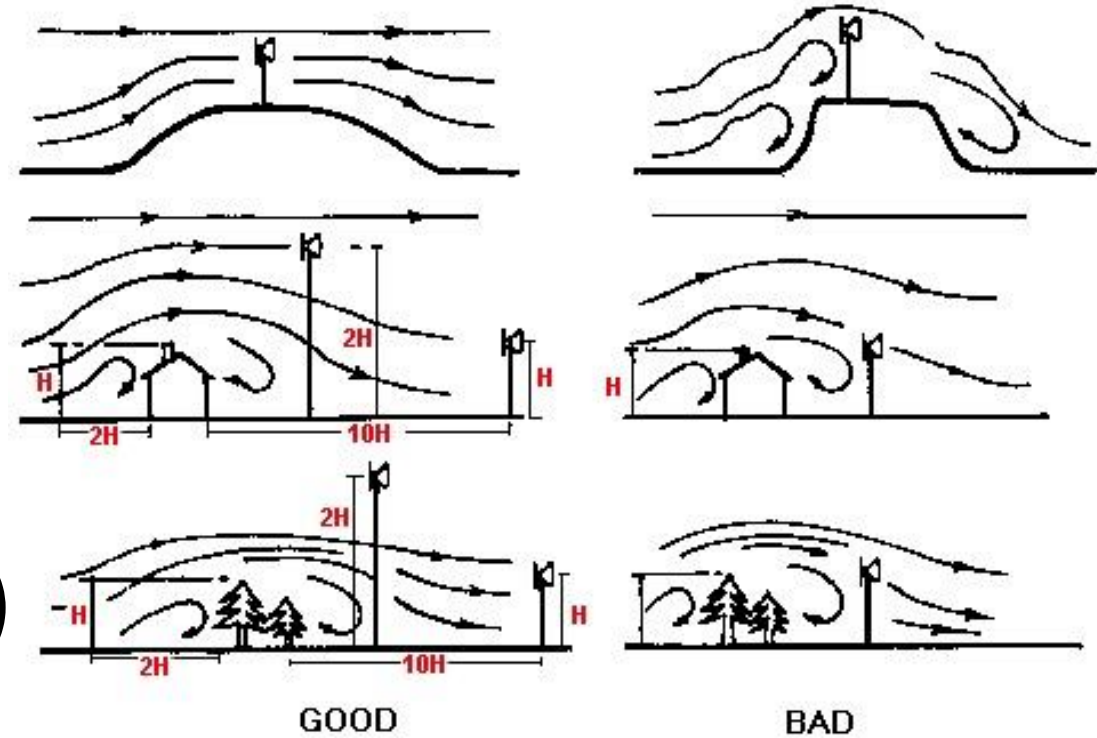
What is a good area

- Average annual wind speed
- Measurement vs wind maps
- At least 5 m/s
- Rural area
- Military



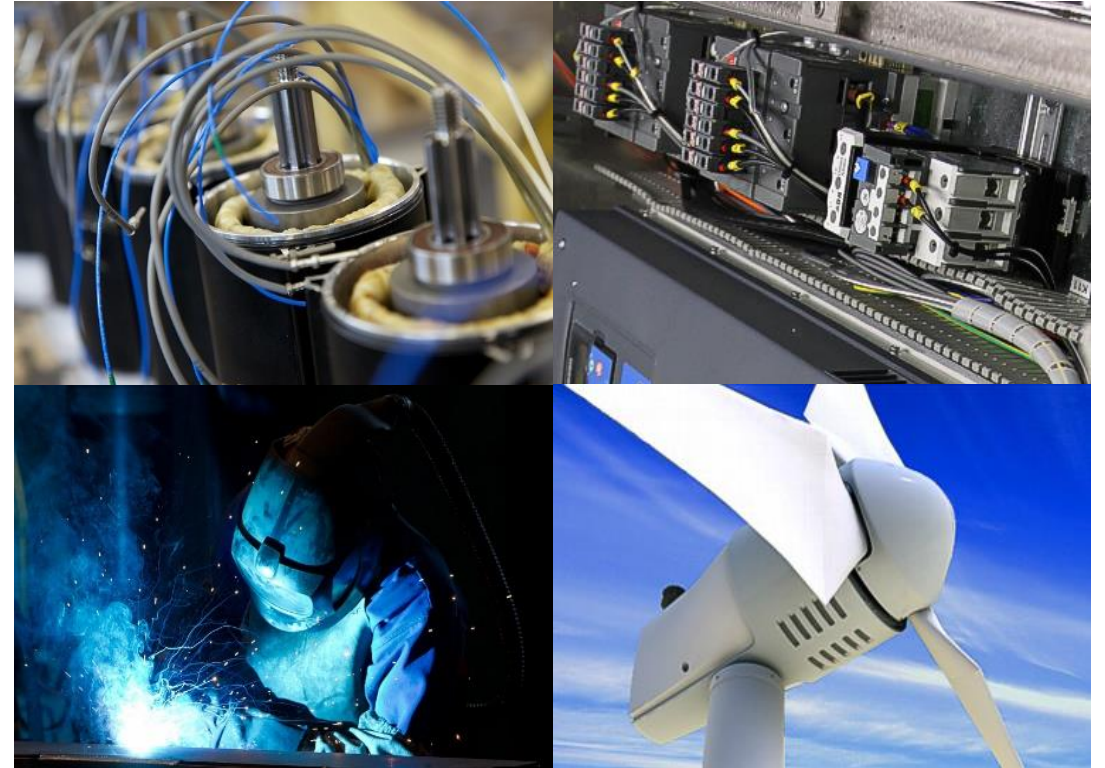
What is a good spot

- Turbulence
- No high objects nearby
- OR long distance from objects
- Accessibility (transport, cables)
- Shadowing effect



What is a good turbine

- Tested by third party
- Horizontal
- AEP vs power curve
- Grid codes
- Multiple safety systems



Financial calculations

- ROI vs initial investment
- Quality matters!
- Electricity price and inflation
- Support schemes
- Maintenance



Useful links

- <https://globalwindatlas.info>
- <https://www.meteoblue.com>
- <https://www.suncalc.org>
- <http://tuge.ee/encyclopedia>
- info@tuge.ee

THANK YOU!



TUGether with the wind