

Small Wind Power in Austria

Small Wind Conference 2018

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Mauro Peppoloni, MSc.

University of Applied Sciences Technikum Wien

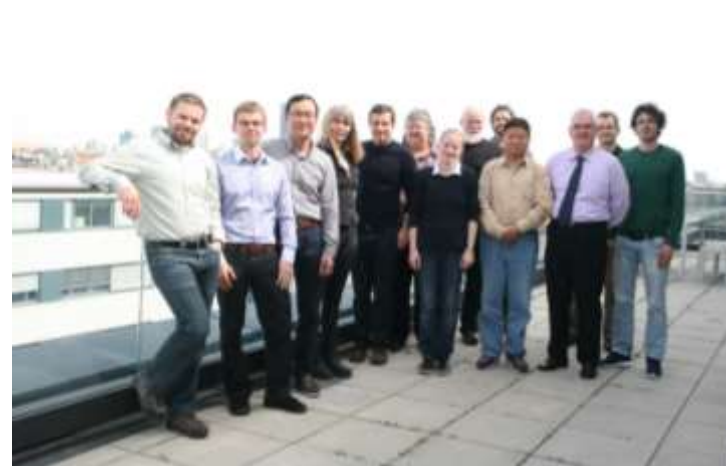
Kurt Leonhartsberger, MSc.

University of Applied Sciences Technikum Wien



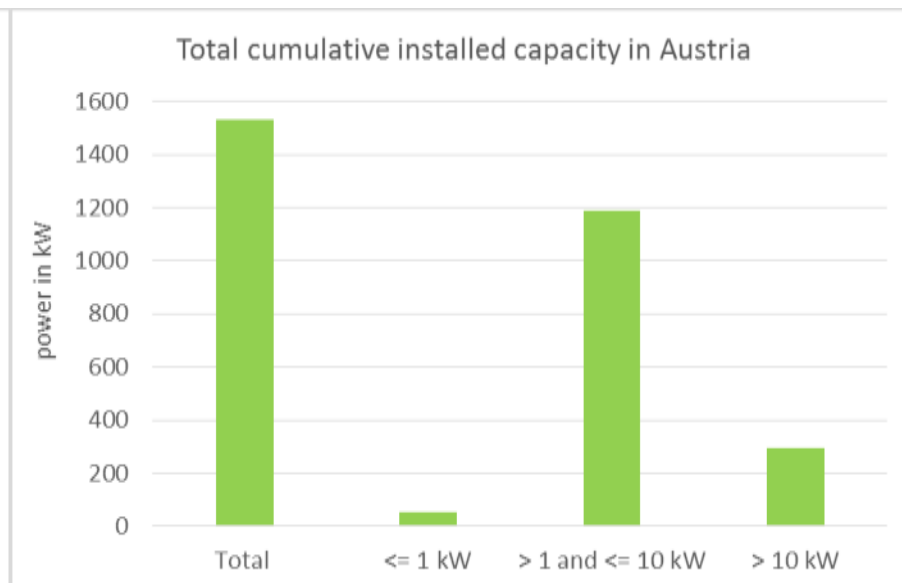
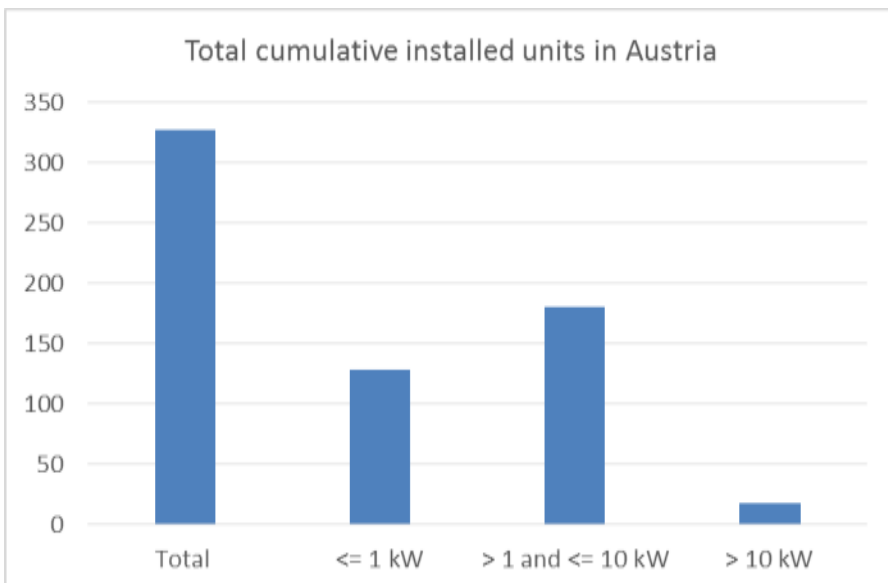
University of Applied Sciences Technikum Wien

- Department of Renewable Energy
- bachelor's degree program "Urban Renewable Energy Technologies" and master's degree program „Renewable Urban Energy Systems “ with more than 300 students
- practical research, focussing on small wind power, photovoltaics and storage systems
- participation in IEA Wind Task 27 (Small Wind Power in complex sites)
- Annual Small Wind Report referenced by WWEA

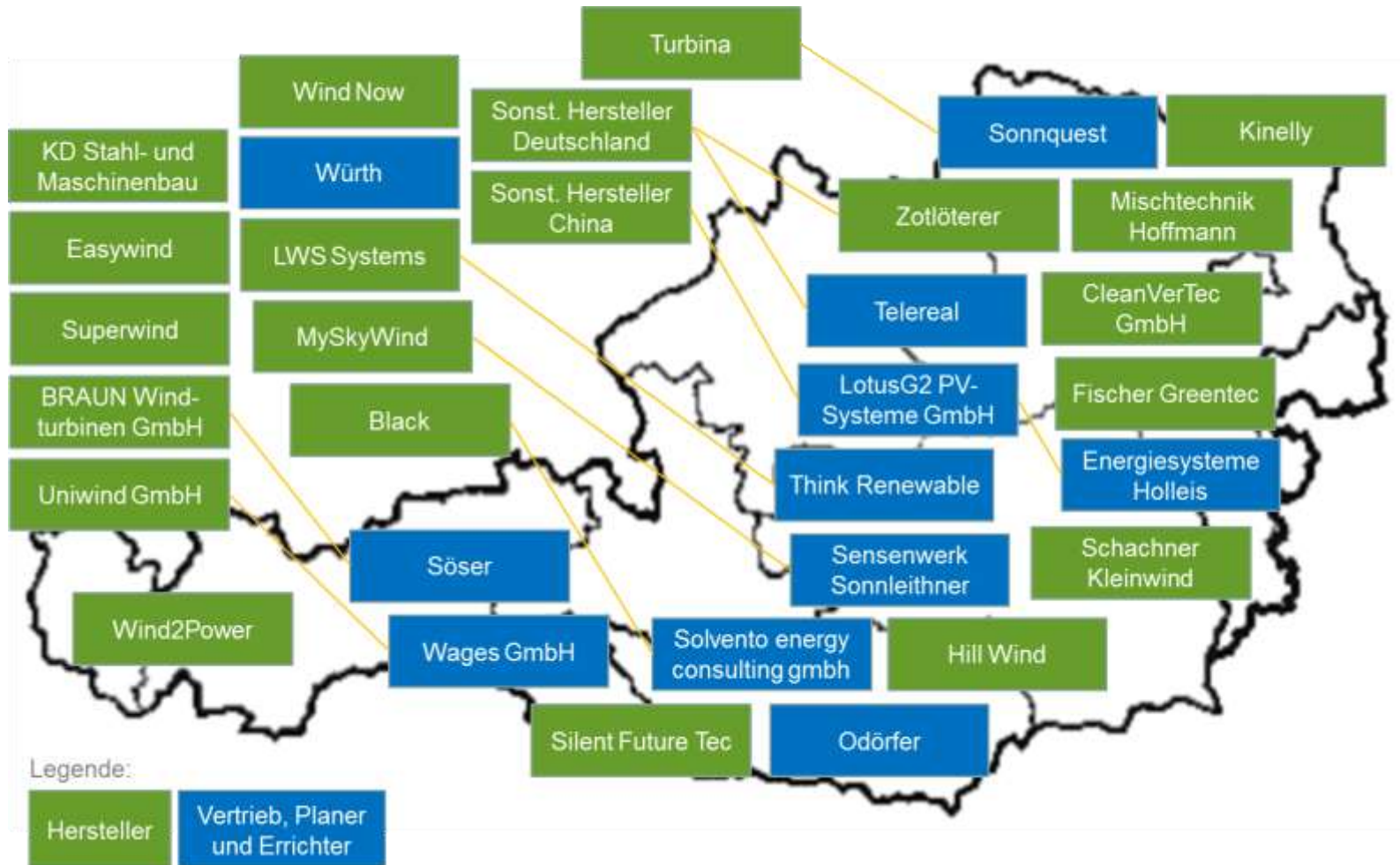


Small Wind Market in Austria

- about 330 small wind turbines (status Dec. 2016)
 - About 10 new installations 2016
- total capacity of 1.530 kW
- average size: 4,7 kW
- No performance assessment for most turbines



Small Wind Market in Austria



Incentives and Feed-in-Tarif






- The States of Upper Austria and Carinthia offered tax refunding incentives in 2014
- Feed-in-Tarif of 8,95 Cent/kWh
 - Same as for large Wind Turbines
- Self-consumption maximization the only way for economic viability
- E-Control launched a community based prosumer balancing model
 - Energy can be exchanged or traded within a balancing group

Permission of SWT





- No comprehensive permission approval procedure or national regulatory authority
- Turbine certification not required
- Turbine quality/reference not considered
- Guideline for evaluation of SWT projects provided but mostly not followed by authorities
- Permission handled by municipal bodies
- Requirements and chances of success vary between states and municipalities
 - Structural survey (Static only)
 - Aesthetic appearance
 - Environmental impact survey (birds and bats)
 - Ice throw and Ice fall
 - Distance to public property > 1.5 tip height
 - Electrical grid connection requirements
 - Acoustic assessment



Permission of SWT

	<p>Burgenland</p> <ul style="list-style-type: none"> ■ No electrical permission required up to 50 kW ■ Structural assessment required ■ Ecological assessment required in undeveloped environment
	<p>Kärnten</p> <ul style="list-style-type: none"> ■ No electrical permission required up to 5 kW ■ Simplified permission process for turbines below 5 kW ■ Installation of SWT in undeveloped environment is possible
	<p>Niederösterreich</p> <ul style="list-style-type: none"> ■ No electrical permission required up to 50 kW ■ Construction permit required for turbines of 50 kW and more ■ Community acceptance enquired by mayor before permission is give
	<p>Oberösterreich</p> <ul style="list-style-type: none"> ■ No electrical permission required up to 5 kW ■ Declaration of construction required for turbines of any size ■ Restrictions on feed in power (Own consumption maximization) ■ Simplified permission below 5 kW in residential or agriculture applications ■ Additional assessments required in ecologically sensitive areas
	<p>Salzburg</p> <ul style="list-style-type: none"> ■ No electrical permission required up to 50 kW ■ Projects have to be declared at the local construction permission authority

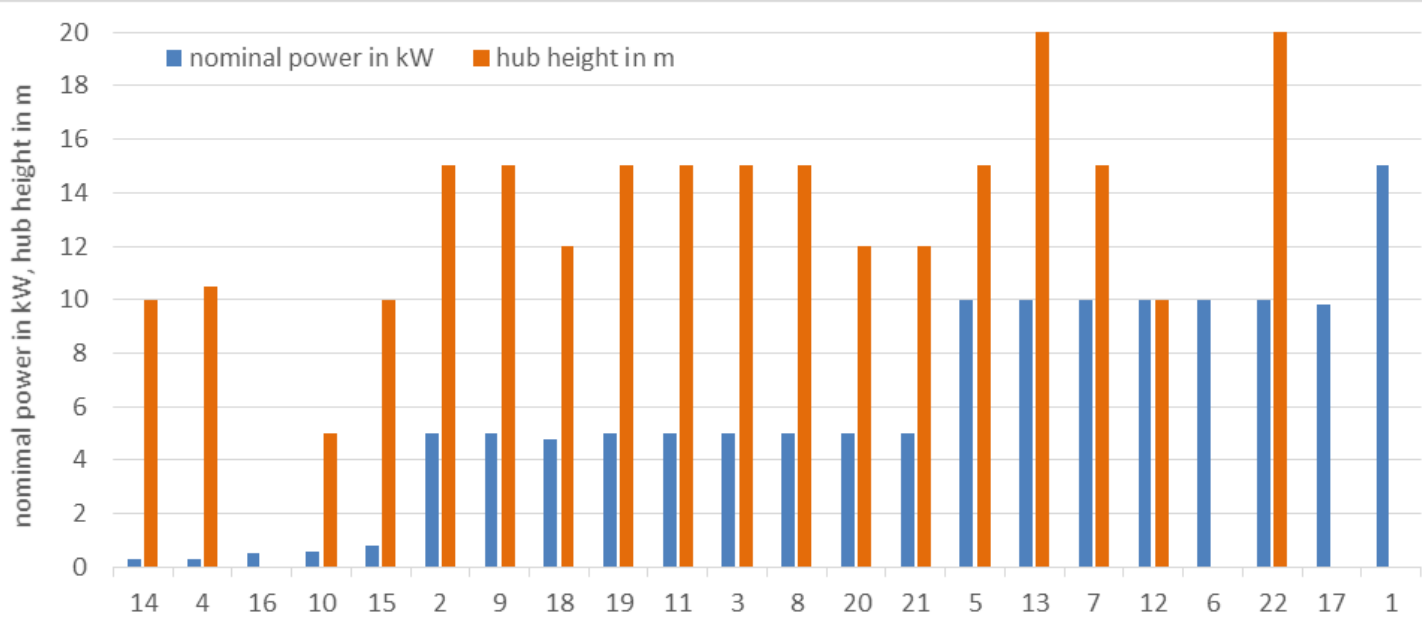
Permission of SWT

	<p>Steiermark</p> <ul style="list-style-type: none"> ■ No electrical permission required up to 200 kW ■ Construction permission required for turbines of any size
	<p>Tirol</p> <ul style="list-style-type: none"> ■ No electrical permission required up to 25 kW ■ Declaration required for turbines between 25 kW to 250 kW ■ Full permission required for turbines above 250 kW ■ Permission by local construction regulation authorities required
	<p>Vorarlberg</p> <ul style="list-style-type: none"> ■ No electrical permission required up to 100 kW ■ SWT are evaluated under similar regulations that large WT
	<p>Wien</p> <ul style="list-style-type: none"> ■ Electrical permission according to local regulations required for turbines of any size ■ Simplified permission procedure for turbines below 250 kW ■ Permission procedure mostly similar to large turbine permission ■ Additional safety considerations like icing, proximity to public land, shade flickering

Practical Experiences

Survey among 26 operators of SWT

- 13 farmers, 10 private persons, 1 community, 2 companies
- exclusively horizontal axis wind turbines
- 2 building mounted turbines
- 1 turbine not for electricity generation (operation of a pump)



Nominal power and hub heights of the SWTs operated by the survey participants
 (Source: Small Wind Report Austria 2016)



Energy Research Park Lichtenegg

Measurement Services

- long term evaluation
- power curve (according to IEC61400-12)
- acoustic emissions (according to IEC61400-11)
- power quality
- Vibrations and oscillations
- Building mounted evaluation

Guided tours

- ENERCON E66 with viewing platform
- about 1,000 visitor every year

Centre of Austrian R&D activities

- Test setup for building mounted turbines



Working Group: Small Wind Austria

- founded at the end of 2015
- targets: Austrian Small Wind Report, Austrian Small Wind Conference, joint public relations, dissemination of R&D projects, networking,...



Participating companies and scientific organizations

Trip to Austria?

Energy Research Park Lichtenegg

- <http://energieforschungspark.at>

Small Wind Conference in Vienna 2017

- <https://www.technikum-wien.at/kleinwindkraft2017/>



Austrian Small Wind Report 2016

- <https://www.technikum-wien.at/kleinwindreport>

Thank you for your attention!



Mauro Peppoloni, MSc
University of Applied Science Technikum Wien
Department for Renewable Energy
mail: mauro.peppoloni@technikum-wien.at
phone: +43 1 333 40 77-559



Kurt Leonhartsberger, MSc
University of Applied Science Technikum Wien
Department of Renewable Energy
mail: kurt.leonhartsberger@technikum-wien.at
phone: +43 664 619 25 86

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