

Hello,

Given the Scottish Government's declaration of a Climate Emergency and adoption of very ambitious decarbonisation targets, I would like to propose that the Scottish Government reviews its position with respect to planning regulations for truly "micro" wind turbines. Specifically, I would like to suggest that the current Scottish Government position and guidance on "micro" generation may have been written with much larger wind turbines in mind than might be relevant in the higher density, housing estate type residential context.

I am a great fan of photovoltaics, but the sun doesn't shine at night and we also have prodigious quantities of wind here in Scotland that could be harnessed to help achieve the decarbonisation objectives. Furthermore, the widespread electrification of mobility and heat will inevitably create challenges for the electricity distribution network operators that may be partly mitigated with increased residential self-generation, especially if coupled with domestic electricity storage. Indeed some electric vehicle charger manufacturers are already including the ability for their devices to adjust vehicle charging to maximise the use of self-generation, for instance from roof mounted solar or wind.

For wind however, the "Microgeneration strategy for Scotland" published 22 June 2012 (that I believe is still the latest guidance on the matter) in Section 4.1 makes various references to wind turbines that are a great deal larger than variants that could be suitable for residential applications. This suggests that truly "micro" turbines may not have been properly envisioned when the document was first written.

Furthermore, Section 6.5 in the, "Guidance on Householder Permitted Development Rights" published 24 June 2016 references "Class 6G" that's defined as, "The installation, alteration or replacement of a free-standing wind turbine within the curtilage of a dwelling" but fails to speak to turbines that are not free-standing and either attached to the building in a similar manner to an antenna, or integrated into the roofline.

To help illustrate the scale and diversity in truly "micro" scale wind technology that could be better exploited within the Scottish residential context, I have selected some examples of possible truly "micro" residential-scale wind turbine designs that are currently available in the market and may not have been originally envisioned:

Traditional turbine but roof mounted:

(‘Propellor’ form with rotor diameters in the 1.5m-1.8m range)

- <https://www.etneo.com/wp-content/uploads/2019/04/3kw-01.jpg> (image illustrating the type of residential roof-mount I'm proposing)
- <https://www.silentwindgenerator.com/en/product/silentwind-pro-48v/>
- <https://www.leadingedgepower.com/documents/LE-600-wind-turbine-datasheet-web-Aug2018.pdf>
- <http://order.phaesun.com/index.php/generators-47169/windgenerators-40897/phaesunwindgeneratorsstormyings-41225/wind-generator-phaesun-stormy-wings-600-48.html>

Vertical axis turbines:

(Various forms but they spin on a vertical axis - some straight and some helical - so have a completely different aesthetic to the observer)

- https://www.windside.com/products/ws-0_60 (34cm wide, 2.1m high and silent (e.g. 0 dB) at 2m)
- <https://www.windturbinestar.com/600wv-v-aeolos-wind-turbine.html> (2m high 1.6m diameter)

Ridge mounted turbines:

(horizontal axis devices mounted on the roof ridge - less flexible on wind direction than vertical axis but lower profile)

- https://www.windpods.com/pdf/Windpods_Brochure.pdf (70cm high and in 2.5m wide sections)
- <https://thepowercollective.ca/> (~70cm high and 1.2m wide sections)

Lamppost mounted turbine:

(Both vertical and horizontal axis alternatives, but could be mounted on all lampposts in residential areas)

- <https://www.windturbinestar.com/500wh-wind-turbines.html>
- <https://www.etneo.com/en/wind-turbine-ds300/>
- <https://www.omniflow.io/products>

Possible innovative designs that might become available within the next 5-10 years:

- <http://www.vortexbladeless.com/> (no blades - the pole wobbles slightly in the wind and motion is converted into electricity. Still a prototype)
- <https://www.jamesdysonaward.org/en-SG/2018/project/o-wind-turbine/> (vertical axis device but the whole ball spins and no blades are visible - works well independently of the wind direction)

As will hopefully be evident from the examples referenced above, (a) there is a wide range of possible technical designs, and (b) truly "micro" wind turbines do not present the same technical risks (e.g. safety, radar, telecoms interference, noise, etc.) referenced in article 6.24 in the "Guidance on Householder Permitted Development Rights". Furthermore, satellite dishes and aerials are already generally Permitted Developments and would be of a similar scale to the small wind devices I'm referring to above.

For these reasons, I would like to propose that the definition of "micro" be amended (or perhaps a new "nano" category be invented) to cover turbines that are suitable for residential roof-mounted (and not free-standing) application such that these can also benefit from Permitted Development rights and not be subject to the current exclusions that are more relevant to larger free-standing turbines.

I hope you find this suggestion to be helpful and I would be happy to explain or elaborate further if this were to be of interest to you.