

**Subject: Public Comment on Wind Energy Resource Specifications from Dr. P.J. (Peter) Eecen,
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I would like to thank the Wind Energy Sub-group of the Expert Group on Resource Management (EGRM) for opening for public comment the draft document "Specifications for the application of the United Nations Framework Classification for Resources (UNFC) to Wind Energy Resources".

An important ingredient of the specifications is the notion of 'Project'. Project is related to a given resource which is very applicable for oil fields, gas field, etc. It is more difficult and complex to apply the concept of Project (as it has been defined) to wind energy generation. 'Project' was a must and that means that when there is no Project, there is no resource. Furthermore, any resource is limited to the remaining lifetime of the project. In the context of renewables that does not lead to particularly useful results.

In wind energy there are accurate and validated wind resource maps indicating a huge resource. However, in a growing industry, this is not connected to projects (yet).

Since most of the resource is not connected to 'Projects', one would expect categories where the resource would fit, but this is not the case. In fact >99% of the worlds resource is not connected to Projects yet and this affects developing countries harder than the developed countries.

The F-categories in the draft document are the only categories not related to 'Projects', but in addition strictly related to technology gaps. That may be very useful for mineral resources. These are not applicable for renewables. For wind energy the majority of the resource exists in areas where at this moment in time no projects exist yet, but the technology is available. Hinderance is pace of development, regulation, permits, costs, access to grid, etc. The same holds for solar energy.

There is an urgent need to modify the F classes or define the F4.4 class where all the resources are included that are not yet connected to 'Projects'. I stress that the data for the wind resource is done in many cases to very high accuracy giving P90 confidence. Most of the wind resource is in that category and excluded from the resource as defined in this document.

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Alternative is to modify the F4.1, F2 and F3 classes to not restrict these classes to the issue of lacking technology and include the information from wind atlases etc for the estimate of existing wind resource. I have made an effort:

Category	Definition	Supporting Explanation (UNFC, Part I, Annex I)	Sub-category	Definition UNFC, Part I, Annex II)	Additional Wind Energy Context and Requirements
F4	<i>No development project or mining operation has been identified.</i>	<i>In situ (in-place) quantities that will not be produced by any current development project or mining operation.</i>	F4.1	<i>The availability of wind resources has been demonstrated by measurements and assessments. A Project is not yet defined because of policies, permits, distance to grid connection, etc. There is sufficient confidence that Projects may be developed at these locations.</i>	The required wind resource exists at the reference point which has been proven by measurements and assessments. policies, permits, distance to grid connection, etc. hinder the development at current, but there is sufficient confidence that Project will be developed.
			F4.2	<i>The availability of wind resources has been demonstrated by measurements and assessments. A Project is not yet defined because of policies, permits, distance to grid connection, etc. There is sufficient confidence that Projects may be developed at these locations.</i>	The required wind resource exists at the reference point which has been proven by measurements and assessments. policies, permits, distance to grid connection, etc. hinder the development at current. There must be significant developments in policies, permits, and regulations before Projects may be developed. Examples are changing zones for nature, shipping lanes, etc. so that there is confidence that Projects may be developed.
			F4.3	<i>The availability of wind resources has been demonstrated by measurements and assessments. A Project is not yet defined because of policies, permits, distance to grid connection, etc. There is sufficient confidence that Projects may be developed at these locations.</i>	The required wind resource exists at the reference point which has been proven by measurements and assessments. policies, permits, distance to grid connection, etc. hinder the development at current. There are good reasons that hinder the development of Projects such as exclusion zones for military, nature, shipping lanes, habitants, etc.