The wind turbine concept that everybody has become very familiar with consists of a tower, a nacelle, which contains the power conversion system, and a rotor, which rotates about a horizontal axis turbine. There have been several innovations over the last 40 years, the introduction of pitch control in about 1985, variable speed operation in about 1995 and direct drive in about 2005. One of the most remarkable and visible aspect of wind turbine innovation has been the rapid increase in size from 100kW in 2015 to 10MW today. Is it inevitable that this variable speed pitch regulated wind turbine concept will continue on the same evolutionary path, merely getting larger and larger, or is there room for radical new concepts that are better suited to the offshore environment? The motivation, underlying ideas and potential benefits of these radical re-thinking of wind turbines will be described.