

Innovation Can Eliminate Dependence on the PTC

Increasing the pace of technology commercialization can negate the need for a PTC

by Philip Totaro, Principal, Totaro & Associates

What if technology existed for renewable energy which negated the need for the production tax credit (PTC)? What if this technology existed, but wasn't being introduced to the market?

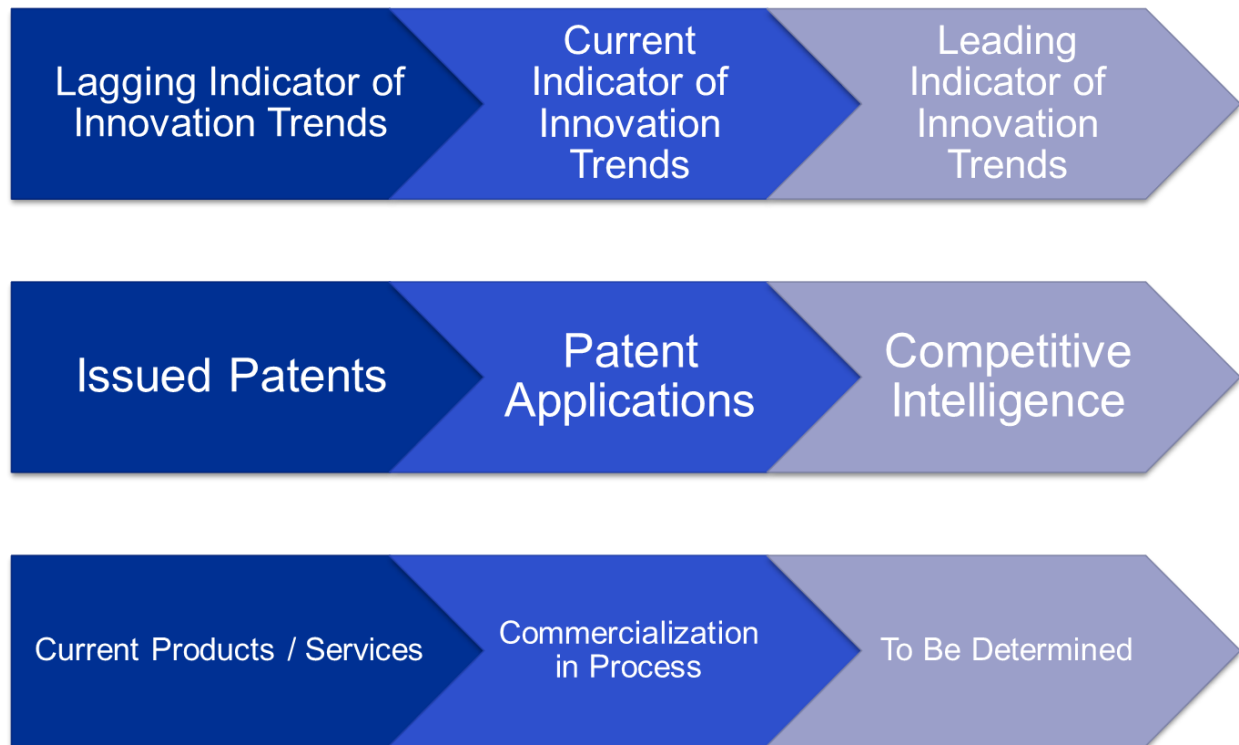
Undoubtedly, the most talked about story in renewable energy in the US thus far in 2012 has been the fight to extend the PTC. The PTC provides a 2.2¢/kW-hr tax incentive to producers of renewable energy, such as wind. Proponents have argued this is a necessary incentive to help the renewables industry become more of a mainstream percentage of the electricity production in the US.

The US Department of Energy has said in their published goals as well as throughout their funding opportunity announcements that they would like to see technology improve to the point where tax incentives are unnecessary. Current natural gas prices may make the achievement of that task difficult. However, there are many technologies which have already been prototyped, and whose introduction on wind turbines could further reduce the cost of energy for wind to a point where it would be cost competitive with gas at almost any price.

Through our groundbreaking research on the wind industry patent landscape, in which we have analyzed over 5,000 US patents and applications on horizontal-axis, utility scale wind, we have identified numerous technologies which are languishing to find a home on a commercially available wind turbine.

The analysis of the patent landscape informs us as to the new technology introduction rate by understanding the historical pace of innovation and comparing those patent protected innovations to the known deployment of various technologies on wind turbines. As indicated by the chart below, the nature of industrial equipment tends to indicate that issued patents show a historical trend of innovation.

Even though pending patent applications typically do not publish until 18 months after filing, they still provide an indication of newer technologies which have not yet been commercialized in the product offerings currently available in the market. Therefore, we see a tremendous pendency of new technologies, which have found their way into the innovation and patent prosecution process, but are not making their way into the commercial industry yet.



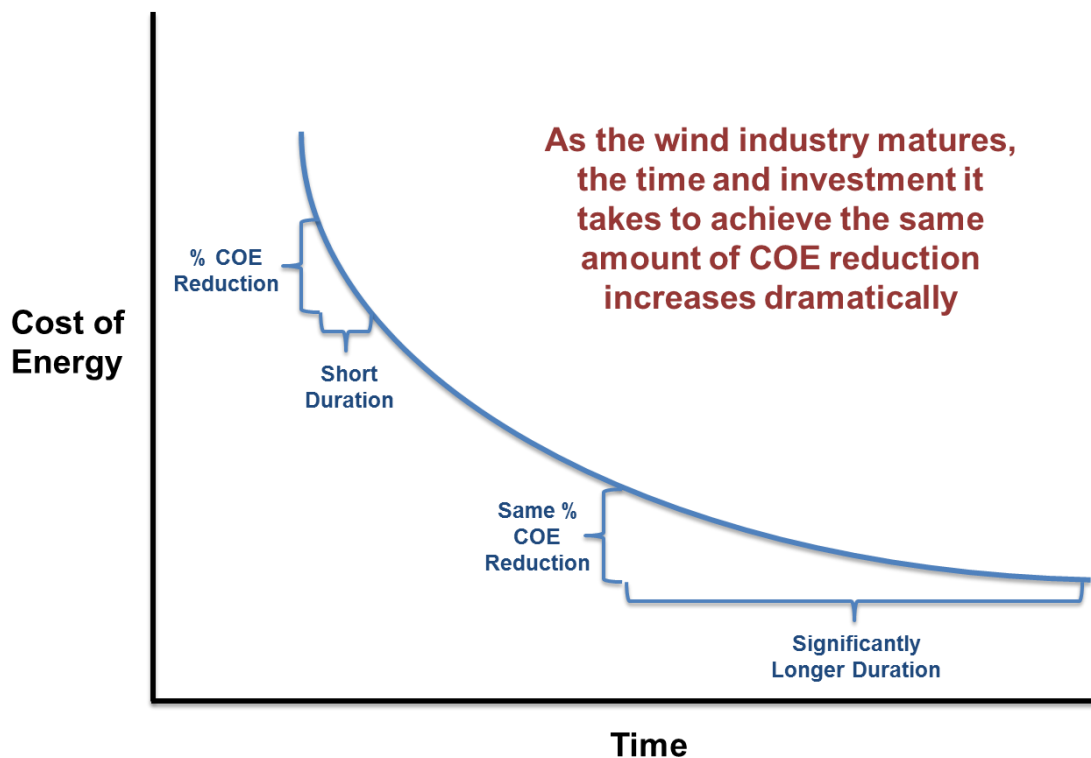
One reason for the discrepancy is that turbine OEMs are often not incentivized to introduce new technologies unless they face particular technical challenges, such as noise mitigation, O&M cost reduction, enhanced low voltage ride-through capability, or production / availability improvement. If they can sell their turbines to a developer or owner / operator who has a power purchase agreement (PPA) for the project which is high enough to for the turbine OEM to achieve their margin, then they will bid their existing fleet.

It's when PPA prices trend downwards, as we have seen in the US market, that the margins of the turbine OEMs get squeezed and they look to develop new turbine technologies / product offerings which attempt to make a step change in the production cost of energy (COE) and restore the manufacturer's profits.

Of course, the risk premium associated with the introduction of a new turbine product / platform and the R&D associated with development, testing and risk reduction can often be prohibitive to the new technology introduction process, particularly in a cost competitive and margin sensitive market.

Furthermore, the industry has matured to such an extent over the past 15 years that it currently faces a point of diminishing returns on R&D investment. There is incrementally less cost of energy benefit for every R&D dollar spent on new technology.

Wind Industry Technology Maturity



But while it takes more investment to get continued benefits, the pace of innovation in wind is actually increasing. Patent issuances and application filings are up, even as the industry continues to consolidate and more industrial conglomerates competing in the wind sector, such as GE, Siemens, Samsung and Alstom, continue to build their patent portfolios.

In the immediate term, the extension of the PTC is a fundamental necessity for the stability of the industry. Policy uncertainty does not provide the industry confidence to invest in workers, factories or new technology. However, if the currently proposed PTC phase-out becomes part of the final language of the tax credit extension legislation, we would hope the industry hears the call to arms for the development and commercialization of new technologies which can further reduce the cost of energy and eliminate the need for the PTC.

About the Author

Mr. Philip Totaro is the Principal at Totaro & Associates, a consulting firm focused on innovation strategy, market research and competitive intelligence, product development and patent search for the wind industry. To find out more or get in touch please visit www.totaro-associates.com.