Value of Independent IPR Certification to Project Financiers & Wind Turbine Purchasers

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The world of wind energy is quickly maturing, but one area that is rarely a topic of conversation and is often ill understood is intellectual property rights (IPR).

IPR Challenges Faced by Project Financiers and Turbine Purchasers

There was a point in time at which independent technical certification of a wind turbine architecture was not mandated. Nowadays, third-party technical certification is a necessity to secure project finance and a sensible precaution by a turbine manufacturer to avoid downstream wind project liabilities.

Property and casualty insurance against such downstream problems has emerged to close any gaps which may have been missed during the project due-diligence and the independent technical certification. These insurance policies are predicated on an operational track record of turbines and benchmarking against other manufacturers (as well as other industries) in regards to quantifiable failure rates, scope of liability claims, and contractual obligations of industrial equipment manufacturers, equipment purchasers and those who finance such projects.

Presently, independent IPR infringement risk certification is not mandated in the wind industry, or virtually any other industry where project finance is utilized. Most turbine OEMs provide their own data and validation to turbine purchasers and project financiers, but only if asked, and typically only in matters related to patent infringement litigation recognized in the public domain.

This validation from the turbine manufacturer is not an independent assessment. What most turbine OEMs do not realize or have not publicized, is that they are all infringing on one another! This information is typically ignored unless addressed to a turbine manufacturer or known by an OEM. If it is known, the potential infringement is typically kept quiet unless strategic considerations are

Additionally, turbine manufacturers are introducing another level of risk for project financiers and turbine purchasers by not providing full indemnity in turbine supply contracts specifically to limit their own liability. Most turbine OEMs do, however, mandate full indemnity from their sub-component suppliers or those sub-component suppliers are barred from participation in a competitive bid or sole source award for key components in the wind turbine.

There is an opportunity here to plug these holes with an insurance product, but that is a stop-gap measure if the insurer can't quantify IPR infringement risk. They also require an assessment of IPR infringement risk and this type of analysis is typically not a core competency. In this manner an independent assessment can provide the needed clarity.

Litigation damage awards are not insignificant, but they pale in comparison to commercial considerations and brand tarnishing resulting for perceived infringement of IPR. Looking at past precedent in the industry we can see that at one point during the Mitsubishi / GE litigation on wind turbine controls MHI had a $169M damage award liability against GE. While the matter was ultimately settled with a cross-license, ultimately GE won that battle since MHI was effectively excluded from the US market and lost billions in revenue from turbine sales.

Other considerations for project financiers and turbine purchasers to consider are as follows:

Risk	Likelihood of Occurrence / Past Precedent	Consequences to Developer / Owner
Operational wind farm (or one under construction) shut down based on injunction order from judge	Chance of occurrence is low, but still possible. Examples of other industries such as Apple injunction on Samsung cell phones precluded sales in US.	Lost production, PTC implications, as well as PR implications.
Turbine supplier sued for patent infringement	Several global intellectual property infringement matters have grabbed headlines recently including GE vs. MHI, AMSC vs. Sinovel, as well as previous matters such as GE vs. Enercon (the result of which precluded sales of Enercon turbines in the US market) as well as Enercon vs. Vestas in Europe.	Litigation can significantly diminish the turbine supply options for a turbine purchaser which will not ensure price competition. Developers / owners may also share in liability if they mandated use of an infringing technology, such as active power control, certain methods of curtailment, etc. Damage award in GE vs. MHI matter was $169M prior to settlement, so consequences can be extreme without full indemnity from suppliers.
Assertion of patent rights against turbine supplier	In the emerging market conditions where the largest block of patent holders are also major turbine OEMs, the likelihood of assertion of IP rights will increase in the coming years.	If turbine supplier is forced to take a license in competitor patent(s), the cost of the license will likely be passed on to turbine purchaser, in the range of $20,000 - $30,000 per turbine. This will adversely affect project economics.

Turbine supplier provides full indemnity on patent infringement liability in TSA.	Happening somewhat.	Even in this case, risk may not be fully understood by turbine supplier. Risk is often underestimated based on use of incomplete / inadequate risk mitigation protocol by turbine suppliers.
Turbine supplier provides partial indemnity to turbine purchaser in TSA.	Already happening.	Liability is capped at certain dollar value and developer / owner bears a portion of the financial downside in the event of patent infringement litigation / damages.

There are numerous reasons we see the potential for an increase in IPR infringement litigation in the wind industry in the future:

1) Industry Consolidation

Enjoining key competitors from gaining market share or driving up a competitor's cost to compete in the market have been strategic reasons why regional market leaders such as GE and Enercon have used IPR enforcement in the past. As worldwide markets temporarily retract, the reduced number of players in a given market will result in market share squeeze. Times of market share loss for entrenched market leaders typically results in a reaction commercially and legally in an effort to regain lost ground.

As companies merge or exit the market their technologies and the associated IPR will be redistributed. This will lead to certain technologies being identified as preferred technical solutions by purchasers as the market picks winners and losers.

The consolidation of the wind industry has already resulted in IPR asset availability resulting from market exits or strategic technology and IPR divestitures. Approximately 230 patent families representing 2.5% of all patents related to horizontal-axis, utility scale wind were available for acquisition or in-license last year. Acquisition of all patents would make the owner #7 on the list of IP asset ownership, so this is a staggering amount of technology and IPR.

Companies are willing to acquire in turnaround times like these because they are starting to get the message that having IPR in their portfolio to trade / cross-license with a competitor can avoid costly litigation. While both sides would be forced to absorb exorbitant litigation costs, the commercial losses they face as a result could restrict their investment in market cultivation.

2) ‘Standards essential’ patents

These patents cover widely used technologies, and many turbine purchasers and utilities will mandate certain key performance attributes are incorporated into a turbine offering in a RFP response. Those mandates create liabilities for the turbine manufacturers and drive up compliance costs for those manufacturers who would be required to take a license in a key technology from a competitor.

As we have seen in the past, manufacturers may price the license so high as to destroy the margins which their competitor is able to secure in a given market. The resultant inability to effectively compete on a level playing field will reduce the number of viable suppliers in the market and result in higher market prices for turbine purchasers.

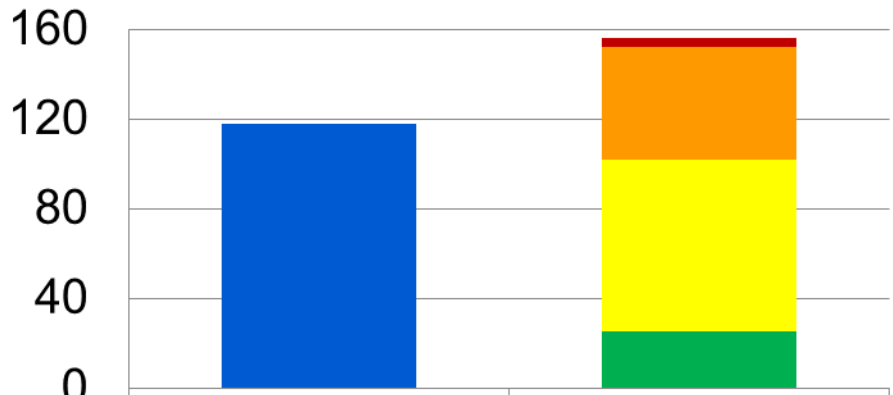
3) ‘Patent Trolls’

Non-practicing entities, who acquire IPR for the purpose of assertion licensing, are now becoming aware of the wind market as a viable opportunity for investment. Given the dearth of available assets mentioned above and an increasing knowledge of the sector, they are becoming an emerging threat to the industry.

So in order to mitigate these risks, the industry must adopt a philosophy of utilizing an independent IPR infringement risk certification as part of the project finance due-diligence process.

The process of IPR infringement risk mitigation works by starting off with a comprehensive patent landscape and catalogue of IPR and technology in the industry. This is typically the top failing of IP search firms and law firms, because lack of industry domain expertise and lack of technical subject matter expertise usually leaves an incomplete set of results for the freedom to operate (FTO) review.

From a study which was conducted, conventional patent search tools and methods were compared to a wind patent landscape which had been rigorously reviewed. Results on one category of technology indicate that the conventional patent search methodology employed by IP search firms or law firms will result in an incomplete set of results, false positive results, and results which require significant further study and examination. This last step is what leads to expensive costs of FTOs, and is typically one reason why most companies do not engage outside parties to help facilitate IPR infringement risk mitigation at all.



	Conventional	Totaro & Associates
No Classification	118	
High		4
Medium/High		50
Medium		77
Low		25

Keyword-based Prior Art Search	Search String	Totaro & Associates Patent Landscape
118 Results	"Wind Turbine" AND "Power Factor Control"	156 Results with Risk Classification (L, M, M/H, H)

Once again underscoring the importance of technical savvy, the patent claim breadth of each filing must be compared to the known use of that technology in the industry. The methodology used to assess the patent claim breadth is below:

Low
Patent / Application is not relevent to the pervasive set of technologies and products in the industry.

Medium
May have been relevant in the past or is simply not broadly applicable. Multiple methods of design around exist.

Medium/High
Important filings which the industry needs to be cognizant of, but these can likely be avoided / mitigated.

High
Critical filing which has been asserted, licensed or enforced, or is otherwise highly likely to be in the future due to claim breadth.

The comparison results in the composite risk score of a particular product which can be compared to other products previously insured or industry average data. The composite

risk score is then calculated based on the number of filings which can be classified in each risk category. These results are consolidated to provide an overall relative ranking and provide an understanding of the scope of mitigation work required, or the risk premium which can be assessed.

Patent #	Title	Component	Technology
USXXXXXXX	DC-DC CONVERTER CIRCUIT USING AN LLC CIRCUIT IN THE REGION OF VOLTAGE GAIN ABOVE UNITY	Electrical	Frequency / Voltage Regulation
USXXXXXXX	TURBINE	Drivetrain	Reliability
USXXXXXXX	A PROTECTED WIND TURBINE BLADE, A METHOD OF MANUFACTURING IT AND A WIND TURBINE	Blade	Manufacturing
USXXXXXXX	A WIND TURBINE AND A DIRECT-DRIVE GENERATOR	Generator	Efficiency

Relevance to Utility-scale WTG Industry	
M	Common technology, but design around possible.
L	Older technology, limited industry applicability.
M	Only relevant if VARTM process is used.
H	Widely used technology.

Company 1			
Risk to Product #1		Risk to Product #2	
M	Requires investigation, design alternatives exist.	M	Requires investigation, design alternatives exist.
M	Requires investigation, design alternatives exist.	L	Technology not present.
L	Technology not present.	L	Technology not present.
H	Similar design architecture.	H	Similar design architecture.

In a case study which is presented here, one particular turbine manufacturer was seeking product validation for entry into the US market. The composite risk score was quantified at 18 of 3,200 patents being high risk, indicating immediate mitigation action was required on those matters. Nevertheless, in this case, the turbine manufacturer was still well below the industry average in the highest risk categories of patents.

The detailed risk mitigation of the 18 identified patents found that 5 of the patents had extremely broad claim breadth and were not actually being utilized, while the other 13 patents were deemed invalid. This clean bill of health enabled the turbine manufacturer to obtain an intellectual property indemnity insurance policy and qualify for preferred project financing.

Risk Categories	Product		Industry Average		Composite Risk Score
	#	%	#	%	
High	18	0.6%	32	1.0%	Below Average
Medium/High	167	5.2%	224	7.0%	Below Average
Medium	1,881	58.8%	1,728	54.0%	Above Average
Low	1,134	35.4%	1,216	38.0%	Below Average
Total	3,200	100%	3,200	100%	

The protocol for risk mitigation utilizes independent legal counsel, validity evaluation, and patent license agreements, if necessary. Therefore, the existing legal infrastructure is not displaced, only more intelligently leveraged. Many times, the engagement of legal counsel is unnecessary which saves significant cost to the process for all parties involved.

Of course, there is a corollary to this methodology for other industries where project finance is used for industrial equipment purchase. Cost effective visibility to IPR infringement liability is possible and risk mitigation will bring the wind industry in-line with the mainstream.