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The Need for Independent IP Certification

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Abstract

In the past 10 years, over 7.0€ billion in wind power projects have been put at risk of completion from patent infringement lawsuits. Up until recently, intellectual property (IP) risk was not well quantified and in many cases not fully mitigated industry-wide.

Prevailing market conditions are elevating the likelihood that assertion of IP rights will increase, and turbine purchasers share the risk of patent infringement along with the turbine suppliers. There are numerous patent protected technologies which are critical to wind integration, such as power factor control, VAR support and energy storage which are now being mandated for use. In most cases, the ISO, utility, or owner/operator is unaware that the particular solution is a proprietary and patent protected solution of a specific company.

This highlights the risks, presents a case study on the mitigation and provides recommendations to turbine purchasers for TSA terms.

Patent Infringement Affects Developers Financiers & Insurance Underwriters

In addition to their legal connotations, patents also serve to codify a commercial risk associated with the potential infringement of IP rights held by a company with potentially competing interests. Patents serve to inform a developer, financier or underwriter about the commercial liability due to the design similarity of the products or services they are sourcing. Additionally, turbine suppliers are not yet providing full indemnity from patent infringement liability in TSAs, despite obtaining full indemnity from patent infringement liability from their sub-component suppliers. Turbine purchasers are often unaware that this leaves them with risk exposure if the turbine supplier is sued for infringement. Penalties can include increased compliance costs of licensing all the way up to a court-ordered injunction shutting down the wind farm.

Independent IP Risk Mitigation Process

Previously, it was not possible to conduct an independent due-diligence on IP risks without there being significant caveats to the analysis from legal counsel or the representatives of the turbine suppliers. Independent evaluations provide unbiased judgments on viability of an IP non-infringement position held by a turbine supplier, the same way that a due-diligence and certification on the viability of that turbine meeting a P50 or living up to an availability guarantee is conducted on the technical side of a turbine purchase decision.

In order to conduct the assessment of IP infringement risk potential for a specific turbine product, it must first be recognized that there are a finite number of patents related to the technology pervasively used in the industry. The exercise begins with a comprehensive patent landscape with over 40,000 patent filings in 67 countries worldwide belonging to over 1,600 companies / assignees.

Next, an assessment of the relevance for each individual patent, classified as low, medium, medium-high, and high, was made based on a study of the patent claim breadth. This assessment serves the purpose of indicating the degree to which the patent owner has asserted their patent rights in the past, or would be able to seek licenses or otherwise enforce the patent due to usage of that patent protected technology on a particular product / technology architecture.

Low	Medium	Medium/High	High
Patent / Application is not relevent to the pervasive set of technologies and products in the industry.	May have been relevant in the past or is simply not broadly applicable. Multiple methods of design around exist.	Important filings which the industry needs to be cognizant of, but these can likely be avoided / mitigated.	Critical filing which has been asserted, licensed or enforced, or is otherwise highly likely to be in the future due to claim breadth.

This process, conventionally known as product claim mapping, results in a total number of patents which might have infringement risk exposure for a specific product architecture. IP Analyzer also identifies the companies who hold those patent rights, which helps a product manager or risk manager identify potential hot spots.

Independent IP Risk Mitigation Process… Continued

Company / Entity	L	M	M-H	H	Total
ABB	227	120	19	4	370
Enercon GMBH	1465	1436	554	67	3522
Forskningscenter Riso	26		6	3	35
General Electric / Alstom	2041	2571	562	82	5256
Mitsubishi Heavy Industries, Ltd.	935	1058	297	31	2321
REEL S.R.L. / AUTEC S.R.L.				2	2
SCHAEFFLER TECHNOLOGIES GMBH & CO., KG	9	78	2	10	99
Siemens AG	1353	1828	303	28	3512
STX Heavy Industries Co., Ltd.	18			1	19
The Wind Turbine Company	3			2	5
Vestas Wind Systems A/S	1081	1774	407	14	3276
XEMC Darwind B.V.	17	51	17	10	95
Individual Inventor(s)	1529	216	18	14	1777
Rest of Industry	11218	7414	722	36	19390
Industry Total	19922	16546	2907	304	39679

The analytical tools built to support this process show a detailed breakdown of the potential patent liability exposure of a specific turbine design to each competitor based upon the relevance assessment. This identifies the extent to which risk mitigation might be required, or else damages and / or royalties might have to be paid due to usage of patented technology which has not already been licensed.

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.

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

The composite risk score identifies the extent to which a company might have to undertake risk mitigation such as in-license of IP rights or potentially change their design to avoid a competitor patent. Because the status of patents changes over time, as does the usage of those patented technologies by competing companies, the tools developed for this review process can track & dynamically adjust the composite risk score in real-time.

Industry Risk Score				
Status	L	M	M-H	H
Issued	14,439	10,892	2,235	126
Pending	5,484	5,654	672	74
Total	19,922	16,546	2,907	304

Upon completion of an assessment, a Turbine OEM, Sub-component Supplier, Insurance Provider, Project Financier or Developer will have a quantification of the intellectual Property infringement risks which a specific product design architecture possesses. This quantification will result in appropriate measures taken to license, attempt invalidation of the infringed patents, or otherwise indemnify a project.

Conclusions

This independent IP risk mitigation review is similar to getting a type certificate on a wind turbine or sub-component. It provides an independent assessment of the intellectual property infringement risks which are pervasive in every country where wind is installed. It will be ingrained into the project finance due-diligence process.

This IP risk evaluation and certification has already become part of the project finance due-diligence process. So far this process has been instrumental in cost avoidance totaling 210€ million by mitigating IP risks which would have otherwise resulted in royalties which potentially diminish project economics.

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