PO.ID 226

The Value of Independent IP Certification to Project Financiers & Wind Turbine Purchasers

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Abstract

Up until recently, intellectual property (IP) risk was not well quantified and in many cases not fully mitigated within the wind industry. While there have been some well-known court cases regarding patent infringement in the wind industry, this is a relatively new challenge which the industry faces. 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, but 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 identifies the risks, presents a case study on the mitigation and provides recommendations to turbine purchasers for TSA terms.

Patent Infringement Risks for Turbine Purchasers

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 may be unaware that this leaves them with risk exposure if the turbine supplier is sued for infringement. Consequences can include increased compliance costs of licensing all the way up to a court-ordered injunction shutting down the wind farm.

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, Enercon vs. Gamesa as well as previous matters such as GE vs. Enercon (the result of which precluded sales of Enercon turbines in the US market) and 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 reactive power control, certain methods of curtailment, etc. The most recent damage award in the GE vs. MHI matter is $169M, so consequences can be extreme.
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 $30,000 - $60,000 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.

Patent Infringement Risks for Turbine Purchasers

The current market conditions globally, but particularly in the EU, indicate the risks are far more likely to materialize than previously thought.

There are over 3,200 EU patents on horizontal-axis, utility-scale wind turbine technology
- Turbine suppliers are largest holders of patent rights
- Patents on universally utilized technologies are held by one company in some cases

Turbine sales revenue / margins for turbine suppliers is shrinking
- IP assertion is seen by some turbine suppliers as a useful mechanism to generate additional revenue and fend off or preclude competition in a given market

The EU is an increasingly litigious jurisdiction and we have seen a history of patent assertion here
- With millions at stake in royalties and damages, this is not an insignificant trend

Freedom to operate (FTO) performed by turbine suppliers is often incomplete, inadequate and not independently validated
- Turbine suppliers have historically not been willing to provide full indemnity from patent infringement liability to turbine suppliers
- Risk mitigation protocol not comprehensive or non-existent

Patent infringement liability insurance not yet widely used
- Insurance companies adverse to writing a policy if risk cannot be adequately quantified and mitigated – until now, a challenging task

Technology / IP licensing can increase compliance costs if the license fees are not already priced into project economics
- License compliance costs can induce negative margins for turbine suppliers and force them out of a market, decreasing price competition and turbine supplier selection

Case Study – Risk Mitigation

Previously, it was not possible to conduct an independent due-diligence on IP risks without there being significant caveats to the analysis from independent 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 39,900 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
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.

A risk profile is established based on an evaluation of the relevance of an individual patent to a particular turbine supplier's product / technology architecture. For instance, a specific patent may have a high degree of relevance or risk exposure for a turbine with a DFIG and a 3-stage gearbox vs. a direct-drive turbine architecture. The quantification of patents in each category and the comparison to industry averages comprises the composite risk score.

In the example shown below a due-diligence was undertaken for a turbine supplier in the EU market, which has ~3,200 issued patents of relevance. The composite risk score was quantified at 18 of 3,200 patents being high risk, indicating immediate mitigation action was required. Nevertheless, in this case, the turbine supplier was still well below the industry average in the highest risk categories of patents.

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

The protocol for risk mitigation uses existing infrastructure including independent legal counsel, validity evaluation, and patent license agreements, if necessary. The risk mitigation of the 18 identified patents found that 5 of the patents which had extremely broad claim breadth were not actually being utilized, while the other 13 patents were deemed invalid. This clean bill of health enabled the turbine supplier to obtain an intellectual property indemnity insurance policy and qualify for preferred financing.

Patent Infringement Risks for Turbine Purchasers

In order to appropriately mitigate intellectual property risks, our recommendations to safeguard turbine purchasers are:

- Either in the RFP or during TSA negotiations, full indemnity from patent infringement liability should be mandated from turbine suppliers. It should be noted that the mandating of this requirement in the RFP may lead to 'no-bids' from certain turbine suppliers who are used to providing less than full indemnity to purchasers.
- Just like the requirement for a turbine supplier to carry property & casualty insurance, making patent infringement indemnity insurance coverage mandatory can also be specified in the RFP or during TSA negotiations.
- Whether full indemnity is provided or whether insurance is obtained, an independent validation of the supplier's patent infringement risk position is possible, because IP infringement risk can be quantified. This data can be provided to developers / owners as well as the insurance providers during the TSA negotiation process.

The implications of patent infringement can be substantial, but this risk can indeed be quantified and mitigated.

OFFSHORE 2015 COPENHAGEN ORGANISED BY EWEA

EWEA Offshore 2015 – Copenhagen – 10-12 March 2015