

2013

## Wind Power and Patent Law: How the Enforcement of Wind Technology Patents May Lead to Restricted Implementation in the US, and Necessary Solutions.

Chris Strobel

Follow this and additional works at: <https://scholarship.law.missouri.edu/jesl>



Part of the [Environmental Law Commons](#)

---

### Recommended Citation

Chris Strobel, *Wind Power and Patent Law: How the Enforcement of Wind Technology Patents May Lead to Restricted Implementation in the US, and Necessary Solutions.*, 19 J. Env'tl. & Sustainability L. 501 (2013)

Available at: <https://scholarship.law.missouri.edu/jesl/vol19/iss2/7>

This Comment is brought to you for free and open access by the Law Journals at University of Missouri School of Law Scholarship Repository. It has been accepted for inclusion in Journal of Environmental and Sustainability Law by an authorized editor of University of Missouri School of Law Scholarship Repository. For more information, please contact [bassettcw@missouri.edu](mailto:bassettcw@missouri.edu).

## **Wind Power and Patent Law: How the Enforcement of Wind Technology Patents May Lead to Restricted Implementation in the US, and Necessary Solutions.**

### **I. INTRODUCTION**

Wind power is a fast developing area of renewable energy that holds great promise for nations that want to reduce dependence on fossil fuels.<sup>1</sup> Creating wind technology requires a great investment of money and time. Renewable energy innovators typically rely on patents to protect their inventions, and use those patents to make the inventions profitable. A patent is a form of intellectual property that grants an inventor a set of exclusive rights on the patented invention for a limited period of time, usually twenty years.<sup>2</sup> Patents are territorial, meaning unless international protection is filed; a patent granted in a sovereign state is enforceable only in said state.<sup>3</sup> Since 2001, the number of patents issued related to wind power innovation has dramatically increased due to the enhanced need for clean, renewable energy technologies.<sup>4</sup>

Because of the global nature of the wind power market, patent enforcement is a valuable competitive tool for companies.<sup>5</sup> An example of this is the General Electric (“GE”) and Mitsubishi dispute, which is based

---

<sup>1</sup> *International Energy Outlook*. ENERGY INFORMATION ADMINISTRATION, 66 (2006), [http://www.eia.gov/oiaf/archive/ieo06/special\\_topics.html](http://www.eia.gov/oiaf/archive/ieo06/special_topics.html).

<sup>2</sup> *Patents: Frequently Asked Questions*, WORLD INTELLECTUAL PROPERTY ORGANIZATION [http://www.wipo.int/patentscope/en/patents\\_faq.html](http://www.wipo.int/patentscope/en/patents_faq.html) (last visited Feb. 29, 2012).

<sup>3</sup> *Id.*

<sup>4</sup> *Patenting the Winds of Innovation*, WIND SYSTEMS (Apr 2012), <http://windsystemsmag.com/article/detail/356/patenting-the-winds-of-innovation>.

<sup>5</sup> *Competition and Patents*, WORLD INTELLECTUAL PROPERTY ORGANIZATION, <http://www.wipo.int/patent-law/en/developments/competition.html>

on claims of patent infringement.<sup>6</sup> GE and Mitsubishi both produce wind turbines that use similar technology, and GE has asserted that Mitsubishi infringed its patents. According to GE, Mitsubishi attempted to import wind turbines that contained GE's patented technology.<sup>7</sup> Despite the enormous financial costs of taking the dispute all the way to the Court of Appeals for the Federal Circuit, GE chose to aggressively pursue enforcement of its patent rights. This enhanced its dominance in the wind turbine market, but held back the advancement of wind power in the U.S. by reducing competition.

In this article, I will argue patent laws hinder wind power implementation in the U.S., despite providing incentives for investment in technology and allowing the innovators to recoup research and development costs. To reach this conclusion, it is necessary to understand why different industries use and react to patent laws differently, how each industry's reaction influences enforcement, and the pace of implementation of the technology.<sup>8</sup> The pharmaceutical industry tends to favor stronger patent laws to help offset the high cost of developing and testing drugs, while the software industry favors weaker patent laws due to the fast paced nature of technology growth and the culture of reuse and improvement.<sup>9</sup> Wind technology resembles the innovative pharmaceutical industry in its use of patent law, and wind technology producers will likely use patent laws to protect their profits and exclude competitors, ultimately slowing the implementation of wind power in the U.S.

Simply yielding to the powerful nature of patent laws and accepting a slow growth of a valuable renewable energy is not a foregone result. There are viable solutions that will expedite implementation of clean energy production from wind power. Standard-setting organizations, patent pools, and compulsory licenses are alternatives that

---

<sup>6</sup> Eric Lane, *GE Rides Through Mitsubishi Attacks*, GREEN PATENT BLOG (Feb 29, 2012), <http://www.greenpatentblog.com/2012/02/24/ge-patent-rides-through-mitsubishi-attacks/>.

<sup>7</sup> *Id.*

<sup>8</sup> See generally Dan L. Burke & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1633-34 (2003).

<sup>9</sup> Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CALIF. L. REV. 1, 3-4 (2001).

do not undermine existing patent laws, and will allow for a more unrestricted implementation of wind power.

## II. IMPORTANCE OF GREEN ENERGY TECHNOLOGY IN THE U.S.

In today's energy market, renewable energy technologies that have lower environmental impact than traditional fossil fuel energy sources are more important than ever.<sup>10</sup> Renewable energy implementation in the U.S. is a top priority due to climate change, high oil prices, speculation that oil production has passed its peak, and increasing desire for energy independence from foreign nations.<sup>11</sup> Sources of energy like water, solar, biomass, geothermal, and wind are the next generation of clean energy production.<sup>12</sup>

Wind power has enormous potential as a resource.<sup>13</sup> The long term potential of wind power is five times the current output, or forty times the current electrical demand, if all available applications are put into effect.<sup>14</sup> In addition to reducing the damage to the environment caused by conventional fossil fuels, implementing wind and other renewable energies quickly and efficiently will mean greater prosperity for the U.S.

---

<sup>10</sup> See *Renewables 2011: Global Status Report*, RENEWABLE ENERGIES NETWORK, 17-18 (2011), [http://www.ren21.net/Portals/97/documents/GSR/GSR2011\\_Master18.pdf](http://www.ren21.net/Portals/97/documents/GSR/GSR2011_Master18.pdf).

<sup>11</sup> *Global Trends in Sustainable Energy Investment 2007: Analysis of Trends and Issues in the Financing of Renewable Energy and Energy Efficiency in OECD and Developing Countries*, United Nations Environment Programme, 3 (2007), [http://sefi.unep.org/fileadmin/media/sefi/docs/publications/SEFI\\_Investment\\_Report\\_2007.pdf](http://sefi.unep.org/fileadmin/media/sefi/docs/publications/SEFI_Investment_Report_2007.pdf)

<sup>12</sup> See generally, *Renewables 2011*, *supra* note 10, at 17-19.

<sup>13</sup> See generally Xi Lua et al., *Global Potential For Wind-Generated Energy*, 106 PROCEEDINGS OF THE NAT'L ACAD. OF SCI. 10933 (July 7, 2009), available at <http://www.pnas.org/content/106/27/10933>.

<sup>14</sup> *Id.*

through new job growth in the energy market,<sup>15</sup> and a lower cost for energy consumers.<sup>16</sup> Accordingly, the U.S. government has restated its commitment to renewable energy in 2011, and the Interior Department has committed to permit 10,000MW of renewable energy projects on public land in 2012.<sup>17</sup>

As of 2011, there have been substantial reductions in the cost of renewable energies, particularly in wind power where the cost has decreased eighteen percent per megawatt since 2009.<sup>18</sup> Because wind energy is cost-effective, programs like the “Green Patent Pilot Program”<sup>19</sup> offer incentives for submitting patents for renewable energy technology. Incentives like this will cause wind technology to continue its rapid growth, and patent law will be a vital tool for inventors.

---

<sup>15</sup> *Charting the Explosive Growth in Green Energy Jobs*, THINK PROGRESS (Oct 4, 2011) <http://thinkprogress.org/climate/2011/10/04/334946/explosive-growth-in-clean-energy-jobs/?mobile=nc>, last accessed Jan 29, 2013.

<sup>16</sup> Richard W. Caperton, *Wind Power Helps to Lower Electricity Prices*, CENTER FOR AMERICAN PROGRESS (Oct. 10, 2012), <http://www.americanprogress.org/issues/green/report/2012/10/10/41100/wind-power-helps-to-lower-electricity-prices/>.

<sup>17</sup> Lindsay Morris, *Obama: Sticking to “Promise of Clean Energy”*, RENEWABLE ENERGY WORLD (Jan. 25, 2012), <http://www.renewableenergyworld.com/rea/blog/post/2012/01/obama-sticking-to-promise-of-clean-energy?cmpid=SolarNL-Thursday-January26-2012>.

<sup>18</sup> Renewable Energy World Network Eds., *Renewables Investment Breaks Records*, RENEWABLE ENERGY WORLD (Aug. 29, 2011), <http://www.renewableenergyworld.com/rea/news/article/2011/08/renewables-investment-breaks-records?cmpid=SolarNL-Tuesday-August30-2011>.

<sup>19</sup> *Green Technology Pilot Program*, U.S. PATENT AND TRADEMARK OFFICE, [http://www.uspto.gov/patents/init\\_events/green\\_tech.jsp](http://www.uspto.gov/patents/init_events/green_tech.jsp) (last visited Feb. 29, 2012). Under the Green Technology Pilot Program, an applicant was able to have an application advanced out of turn (accorded special status) for examination, for applications pertaining to green technologies including greenhouse gas reduction (applications pertaining to environmental quality, energy conservation, development of renewable energy resources or greenhouse gas emission reduction). *Id.*

## III. BACKGROUND OF U.S. PATENT LAW

United States patent laws are powerful, and effectively allow a legal monopoly over a claimed invention for a limited period time.<sup>20</sup> The United States Constitution establishes protection for inventions in order to “promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”<sup>21</sup> Further, “[a]nyone who invents or discovers any new or useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof, may obtain a patent, subject to the requirements of the patent statute.”<sup>22</sup> The United States Patent & Trademark Office (“USPTO”) issues patents for U.S. inventors, and statutory law determines what rights are granted with the issue of a patent.<sup>23</sup>

A patent gives an inventor the right to exclude others from making, using, selling, offering to sell, exporting parts for assembly outside the U.S., or importing the product of a patented process into the U.S.<sup>24</sup> The inventor is granted a limited term of exclusive rights, usually twenty years, to help recoup the cost of the invention.<sup>25</sup> Patent protection offers an incentive for inventors to develop ideas that require time and investment to bring to fruition, and allow a remedy if a patent is infringed or used without permission.<sup>26</sup>

---

<sup>20</sup> *Patents*, SERGEANTS (2007), available at [http://www.google.com/url?sa=t&rct=j&q=patents%20legal%20monopoly&source=web&cd=2&ved=0CDQQFjAB&url=http%3A%2F%2Fwww.serjeants.co.uk%2Fpage\\_attachments%2F0000%2F0028%2F1\\_UK\\_Patents.pdf&ei=Us5OT92SLlmHsAKfzaX9Dw&usg=AFQjCNE1DMvZKxsUegjLB7\\_BFcZC\\_vqENw](http://www.google.com/url?sa=t&rct=j&q=patents%20legal%20monopoly&source=web&cd=2&ved=0CDQQFjAB&url=http%3A%2F%2Fwww.serjeants.co.uk%2Fpage_attachments%2F0000%2F0028%2F1_UK_Patents.pdf&ei=Us5OT92SLlmHsAKfzaX9Dw&usg=AFQjCNE1DMvZKxsUegjLB7_BFcZC_vqENw)

<sup>21</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>22</sup> 35 U.S.C. § 101 (2006).

<sup>23</sup> *General Information Concerning Patents*, U.S. PATENT AND TRADEMARK OFFICE, [http://www.uspto.gov/patents/resources/general\\_info\\_concerning\\_patents.jsp](http://www.uspto.gov/patents/resources/general_info_concerning_patents.jsp) (last modified Apr. 11, 2012).

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

Infringement of a patent occurs when another makes, uses, sells, offers to sell a patented idea, or imports a product of patented process into the U.S. during the term of the protection.<sup>27</sup> Patents are defined by the claimed limitations contained within the patent. Literal infringement occurs when every limitation of the claim is practiced by the infringer in the exact same way.<sup>28</sup> Additionally, infringement under the doctrine of equivalents can occur even if every limitation of the claim is not practiced exactly.<sup>29</sup> In that case, the difference between the opposing claims is so small that the difference is considered “insubstantial,” and there is infringement.<sup>30</sup> This is true even if the claim is different in name, form, or shape.<sup>31</sup> Infringement can be brought only in a territory in which a patent has been granted and not beyond that territory.<sup>32</sup>

U.S. patents apply broadly to all U.S. territory, but the patent statute language “within the United States” is not entirely explicative of the reach of patent law off of the coast of the continent. Theoretically, the territorial boundary referenced in 35 U.S.C. §271 includes the ocean, as well as the land, although there are no specific provisions regarding coastal waters.<sup>33</sup> The United States District Court in *Westerngeco L.L.C v. Ion Geophysical Corp.* held U.S. patent law does not extend to activities in the exclusive economic zone, which extends 200 miles from the coast.<sup>34</sup>

---

<sup>27</sup> *Id.*; 35 U.S.C. § 271(a) (2006); *see also* *Tex. Instruments, Inc. v. United States Int’l Trade Comm’n*, 805 F.2d 1558, 1560 (Fed. Cir. 1986) (suit alleging imported goods infringed on patents held by plaintiff).

<sup>28</sup> *Tex. Instruments, Inc.*, 805 F.2d at 1562.

<sup>29</sup> *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997).

<sup>30</sup> *Id.* at 23-24. The doctrine of equivalents requires that the invention “performs substantially the same function, in substantially the same way, accomplishes substantially the same result.” *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950). The limitation is considered the same even if it is different in name, form or shape. *Id.*

<sup>31</sup> *Graver Tank*, 339 U.S. at 608.

<sup>32</sup> *See* 35 U.S.C. § 271(a) (2006).

<sup>33</sup> *Id.*

<sup>34</sup> *WesternGeco L.L.C. v. Ion Geophysical Corp.*, 776 F. Supp. 2d 342 (S.D. Tex. 2011). Competitors' activities conducting marine seismic survey in the Exclusive Economic Zone (EEZ) of the United States did not occur within territory of United States for purposes of U.S. patent law, as required for patent owner's claim that devices used in

That case involved use of a device for seismic economic survey<sup>35</sup> and had no physical connection to the U.S. landmass.<sup>36</sup> If wind power arrays are installed offshore and include a technology patented in the U.S., it is unclear whether the U.S. patent holder may enforce his exclusive rights against the provider of the offshore wind technology.

Obtaining protection abroad requires a foreign patent application, which must be filed individually with the desired territories or through one of several international agreements.<sup>37</sup> International patent agreements work to harmonize laws between nations and provide a minimum level of protection to foreign applicants.<sup>38</sup> These agreements include the Paris Agreement, the European Patent Convention, the Patent Cooperation Treaty, and the Agreements on Trade Related Aspects of Intellectual Property Rights ("TRIPS").<sup>39</sup> However, in any territory where there is

---

survey infringed patents pertaining to marine seismic streamer positioning devices; Presidential Proclamation establishing EEZ explicitly acknowledged that extension of sovereign rights over EEZ did not change EEZ's character as outside territory of the United States, international law reaffirmed principle that country's EEZ retained character as outside territory of that country and largely maintained status as high seas, vessel used to conduct survey was marine vessel that did not fall within categories of items or issues subject to U.S. jurisdiction, and Congress had not enacted legislation that extended U.S. patent law to cover infringement occurring in EEZ. *Id.*

<sup>35</sup> *Id.* at 347.

<sup>36</sup> *See id.* at 347-48.

<sup>37</sup> *General Information Concerning Patents*, U.S. PATENT AND TRADEMARK OFFICE, [http://www.uspto.gov/patents/resources/general\\_info\\_concerning\\_patents.jsp](http://www.uspto.gov/patents/resources/general_info_concerning_patents.jsp) (last modified Apr. 11, 2012).

<sup>38</sup> *Id.*

<sup>39</sup> *Id.* There are a number of agreements and agencies that control international patent rights. *Id.* One such entity that controls international patent rights is the European Patent Convention ("EPC"), which was created by countries with the purpose of granting patent rights internationally. *Id.* The Paris Convention was the first intellectual property treaty, and established a union for the protection of industrial property, and is still in effect today. *Id.* The European Patent Office ("EPO") decides whether to grant patent rights, all members must recognize patents granted by the EPO, although enforcement is still country by country, and some countries require validity challenges in their own courts, or that their patent office validate a patent before allowing it to be granted. *Id.* The Patent Cooperation Treat ("PCT") allowed inventors seeking protection internationally to file locally first, and then file internationally under the PCT within 12 months. *Id.* This



patent protection, an inventor can use an existing patented technology if a license is obtained.<sup>40</sup>

A patent license allows an inventor to use existing patented technologies in a new invention without liability for infringement.<sup>41</sup> A patent license is an agreement that the holder of the patent will not sue the licensee for infringement as long as the licensee follows the terms of the agreement, which usually includes compensation.<sup>42</sup> Licenses often require use in a limited geographical area.<sup>43</sup> A license is only valid until the statutory term of patent protection ends.<sup>44</sup>

Licenses are useful because the abundance of patents in certain areas of technology often result in a “patent minefield,” which simply means there are so many overlapping patents in a single area of technology that it is nearly impossible for inventors to design and build new inventions without risking infringement of an existing patent.<sup>45</sup>

---

process can take up to the 30 months to complete but does not require individual filing in each country’s patent office, and therefore simplifies the process of filing for broad international protection. *Id.* Countries may still review the patent in their own patent office and reject it if it does not pass their requirements. *Id.* The Agreements on Trade Related Aspects of Intellectual Property Rights (TRIPS), created in 1994, incorporated the Paris Standard into the World Trade Organization. TRIPS added national treatment and most favored nation status. *Id.* The agreement also established transparent obligations, enforcement obligation and dispute settlement modalities. *Id.* Because 2010 was the first year in which the majority of patents filed in the US were filed by non US nationals, these international treaties have become more important due to the global nature of our economy, and the need to protect inventions in many different markets. *Id.*

<sup>40</sup> *Id.*

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> *General Information Concerning Patents*, U.S. PATENT AND TRADEMARK OFFICE, [http://www.uspto.gov/patents/resources/general\\_info\\_concerning\\_patents.jsp](http://www.uspto.gov/patents/resources/general_info_concerning_patents.jsp) (last modified Apr. 11, 2012).

<sup>44</sup> See *Birdsell v. Shaliol*, 112 U.S. 485, 487 (1884). “A license from the patentee to make, use, and sell machines gives the licensee the right to do so, within the scope of the license, *throughout the term of the patent*.” *Id.* (emphasis added).

<sup>45</sup> See generally Kristen Philipkoski, *Navigating a Patent Minefield*, WIRED (Aug. 4, 2004), <http://www.wired.com/medtech/health/news/2004/08/64452?currentPage=all>

Infringement can occur even if an inventor is unaware a patent already exists for his invention, and thus innovation can often be hindered by the fear of, or difficulty of working around, existing patents.<sup>46</sup> This concern affects wind power directly, and solutions to keep wind power implementation moving forward without resistance must take this into account.

Patents are protected not only by the USPTO and federal courts, but also by the International Trade Commission ("ITC"), an agency used to prevent unfair use of a patented invention outside of the federal courts.<sup>47</sup> The ITC conducts investigations into unfair importation processes,<sup>48</sup> including patented products being imported into the U.S., or patented products sold for later importation into the U.S.<sup>49</sup> Once a claim of patent infringement is validated, there are two possible remedies from the ITC: the ITC can issue an exclusion order blocking entry of the product into the U.S., or issue a cease and desist order commanding the infringer to stop selling the product outside of U.S. territories.<sup>50</sup> When another entity or person infringes a patent with no legitimate licensing agreement and there is territorial protection for a patent, the ITC and the federal courts allow the two-method approach for seeking a remedy.

---

(noting that frequently partial patenting of genes gives rise to patent infringement issues in the field of genetics).

<sup>46</sup> See 35 U.S.C. §271(a) (2006) (absence of any language in the statute regarding intent or knowledge); Charles R. McManis & David J. Friedman, *Infringement—Lack of knowledge or intent is immaterial*, 4 WEST'S FED. ADMIN. PRACTICE § 3953 (3rd ed.) ("A person may be guilty of direct infringement even though he or she had no knowledge of plaintiff's patent, nor any knowledge that there was any patent covering the invention.").

<sup>47</sup> Aly Dossa et al., *Patent Enforcement at the International Trade Commission: Is it Worth It?*, RENEWABLE ENERGY WORLD (Feb. 18, 2011), <http://www.renewableenergyworld.com/rea/news/article/2011/02/patent-issues-patent-enforcement-at-the-international-trade-commission-is-it-worth-it>.

<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

#### IV. WIND POWER TECHNOLOGY, PATENT COVERAGE, AND THE GLOBAL MARKETPLACE

##### A. *Wind Power Technology*

Wind power is the conversion of wind energy into a usable form of energy, like electricity.<sup>51</sup> There is a large amount of untapped wind power available worldwide, and both companies and nations are aggressively moving to capitalize on the market.<sup>52</sup> Wind power is highly desirable because it is clean, renewable, widely applicable, and produces no greenhouse gases like conventional fossil fuels.<sup>53</sup> Additionally, the cost of wind power is comparable to new coal or natural gas facilities.<sup>54</sup> Despite the economic and environmental advantages, wind power installations are not universally loved due to space requirement and visual aesthetics, but overall the negatives of conventional power sources far outweigh the negatives of wind power.<sup>55</sup>

Wind farms consisting of multiple wind turbine arrays are a common implementation of wind technology, harvesting power from the wind and storing it on a large scale.<sup>56</sup> A large commercial wind farm can contain up to several hundred wind turbines connected to a power

---

<sup>51</sup> *Define Wind Energy – Looking at Wind Power Basics*, ALTERNATIVE ENERGY RESOURCES (MAR. 2, 2012) <http://www.alternative-energy-resources.net/definewindenergy.html>

<sup>52</sup> See RENEWABLES 2011: GLOBAL STATUS REPORT, RENEWABLE ENERGIES NETWORK, 19-21 (2011), [http://www.ren21.net/Portals/97/documents/GSR/GSR2011\\_Master18.pdf](http://www.ren21.net/Portals/97/documents/GSR/GSR2011_Master18.pdf).

<sup>53</sup> See <http://www.technologystudent.com/energy1/wind8.htm>.

<sup>54</sup> ENERGY INFORMATION ADMINISTRATION, INTERNATIONAL ENERGY OUTLOOK, 66 (2006), available at [www.fypower.org/pdf/EIA\\_IntlEnergyOutlook\(2006\).pdf](http://www.fypower.org/pdf/EIA_IntlEnergyOutlook(2006).pdf).

<sup>55</sup> See generally, Mark Diesendorf, *Why Australia needs wind power*, 13 DISSENT 43 (2003/04) available at <http://www.sustainabilitycentre.com.au/WindPowersStrength.pdf>.

<sup>56</sup> See *The Power of Multiples: Connecting Wind Farms Can Make a More Reliable - and Cheaper - Power Source*, EUREKALERT (Nov. 21, 2007), [http://www.eurekalert.org/pub\\_releases/2007-11/ams-tp0112107.php](http://www.eurekalert.org/pub_releases/2007-11/ams-tp0112107.php).

transmission network that sends electricity to a power grid.<sup>57</sup> Greater wind speeds over the oceans means that offshore wind farms can harness more energy than land based wind farms, and accordingly, offshore wind farms are a major emerging market.<sup>58</sup> Most offshore wind farms are currently located in northern Europe, and none exist in the U.S.<sup>59</sup> This untapped market in the U.S. will likely have substantial growth for wind power in the coming years.

### B. *Wind Power Patents*

Issuance of patents related to wind power has increased by approximately 140 percent in the last seven years.<sup>60</sup> The most common wind turbine components covered by U.S. patents are controllers, rotors, blades, generators, turbine systems, transformers, power trains, and towers.<sup>61</sup> Controllers have the most patents in the U.S. and are consequently the largest portion of the “patent minefield” that new companies must navigate to avoid infringement when bringing their products to the U.S.<sup>62</sup>

Existing wind patents that cover core technologies, such as turbine blades, electrical systems, and generator technologies require great

---

<sup>57</sup> *See id.*

<sup>58</sup> *Offshore Wind Power 2010*, BTM CONSULT (Nov. 22, 2010),

<http://btm.dk/news/offshore+wind+power+2010/?s=9&p=&n=39>.

<sup>59</sup> *Id.* Offshore wind power capacity is expected to reach a total of 75 GW worldwide by 2020, with significant contributions from China and the US. *Id.*

<sup>60</sup> Carey Jordan & Stefan Schmitz, *Patent Law: The Key to Unlocking US Wind*,

RENEWABLE ENERGY WORLD (Oct. 13, 2010),

<http://www.renewableenergyworld.com/rea/news/article/2010/10/patent-law-guards-over-us-wind-sector>.

<sup>60</sup> *Id.*

<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

investment, but have a long operational life.<sup>63</sup> These are the basic components of wind power. They require the most reliability, efficiency and quality, and are integral components to all wind turbines.<sup>64</sup> Owning patent rights on these technologies is highly profitable because core technologies like turbines are fundamental technologies and they are widely implemented in wind power products.<sup>65</sup>

The new wave innovation for wind power is in control and sensor technology.<sup>66</sup> These areas of design are more focused on “performance optimization, load mitigation, and grid integration” and signal a shift towards more efficiency-enhancing inventions.<sup>67</sup> Many patents will be issued for these technologies as the market grows and the demand for efficiency increases.<sup>68</sup> Although these inventions, and their subsequent patents, are not the foundational technologies of wind power, owning these patents will allow certain companies to maintain dominance over markets that purchased core wind components from different manufacturers, because efficiency based inventions will likely apply to all installed core components. As such, owning these “optimization patents” will be very valuable, and enforcement of rights is sure to be an important competitive tactic.

---

<sup>63</sup> See Eric Lane, *Guest Post: Philip Totaro on Wind Patents and Future Trends in Wind Technology*, GREEN PAT. BLOG (Feb. 11, 2011), <http://www.greenpatentblog.com/2011/02/11/guest-post-philip-totaro-on-wind-patents-and-future-trends-in-wind-technology/>.

<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> See *Id.*

### C. *Global Competition and Restriction of the Growth of Wind Power*

Wind power has huge economic potential in the global power market.<sup>69</sup> As of 2011, there are eighty-three countries that use wind power commercially.<sup>70</sup> Over the past five years, the average growth of wind power installations has been twenty seven point six percent each year.<sup>71</sup> This year, wind power is expected to have an average annual growth rate of fifteen point seven percent.<sup>72</sup> There are currently ninety projects under construction worldwide in the third quarter of 2011.<sup>73</sup>

The competition for wind turbines in the U.S. has increased dramatically, increasing from only five manufacturers in 2003, to thirteen in 2008.<sup>74</sup> U.S.-based company General Electric (“GE”) was the leading manufacturer of wind turbines in 2008 with forty three percent of the market.<sup>75</sup> In 2008, the U.S. imported more wind power sets than any other nation, increasing importation more than 600 percent between 2003 and 2008, even with a large percent of the U.S. wind power market untapped.<sup>76</sup> Patent protection is highly desirable for a company like GE because as the

---

<sup>69</sup> *Continuing Boom in Wind Energy – 20 GW of new capacity in 2007*, GLOBAL WIND ENERGY COUNS. (Jan. 29, 2008), [http://gwec.net/index.php?id=77&L=0&tx\\_ttnews\[backPid\]=76&tx\\_ttnews\[pointer\]=13&tx\\_ttnews\[tt\\_news\]=122&cHash=5e7ba993ed](http://gwec.net/index.php?id=77&L=0&tx_ttnews[backPid]=76&tx_ttnews[pointer]=13&tx_ttnews[tt_news]=122&cHash=5e7ba993ed).

<sup>70</sup> *Renewables 2011 Global Status Report*, RENEWABLE ENERGY POLICY NETWORK (2011) [http://www.ren21.net/Portals/97/documents/GSR/GSR2011\\_Master18.pdf](http://www.ren21.net/Portals/97/documents/GSR/GSR2011_Master18.pdf).

<sup>71</sup> *BTM Forecasts 340-GW of Wind Energy by 2013*, RENEWABLE ENERGY WORLD (Mar. 27, 2009), <http://www.renewableenergyworld.com/rea/news/article/2009/03/btm-forecasts-340-gw-of-wind-by-2013>.

<sup>72</sup> *Id.*

<sup>73</sup> *U.S. Wind Industry Third Quarter Market Report October 2011*, AM. WIND ENERGY ASSOCIATION 6 (Oct. 2011), <http://www.awea.org/learnabout/publications/reports/upload/3Q-2011-AWEA-Market-Report-for-Public.pdf>.

<sup>74</sup> Andrew S. Jackson, *Wind Turbines: Industry and Trade Summary*, U.S. INT’L TRADE COMMISSION, iii (June 2009), <http://www.usitc.gov/publications/332/ITS-2.pdf>.

<sup>75</sup> *Id.*

<sup>76</sup> *Id.*

largest manufacturer enforcing its rights over competitors will allow the company to corner more of the wind market in the U.S.

The Department of Energy's desire to have wind power supply twenty percent of all U.S. electricity, including four percent from offshore wind power has other companies racing to corner the wind power market.<sup>77</sup> Wind power installation has grown rapidly in the U.S. in the last ten years, with much of the new market opening in the plains of the Midwest.<sup>78</sup> The offshore wind market is wide open as well.<sup>79</sup> To implement offshore wind power effectively, significant advances in production, cost, performance, and reliability are needed, meaning more patents will be sought.<sup>80</sup> Despite this need, and the incentives to create and patent new wind technologies, there is an emerging problem. Patent laws are likely to hinder the growth of emerging wind markets and slow the implementation of wind technology because enforcement of exclusive rights is a benefit of patent protection. Understanding how different industries react to patent laws is essential to understand why wind power favors strong patent laws, and ultimately lessens competition in the U.S. market.

---

<sup>77</sup> *Strengthening America's Energy Security with Offshore Wind*, U.S. DEP'T OF ENERGY, 1 (Feb. 2011), <http://www.nrel.gov/docs/fy11osti/49222.pdf>.

<sup>78</sup> *Who Builds These Windmills?* IN CONTEXT, <http://www.incontext.indiana.edu/2011/may-jun/article3.asp>, (last visited Mar. 2, 2012).

<sup>79</sup> See Xi Lua et al., *supra* note 13, at 10933.

<sup>80</sup> See *University Collaboration on Wind Energy*, CORNELL UNIVERSITY: DAVID R. ATKINSON CENTER FOR A SUSTAINABLE FUTURE 15 (Alan Zehnder & Zellman Warhaft eds., July 27, 2011), <http://www.sustainablefuture.cornell.edu/attachments/2011-UnivWindCollaboration.pdf>.

## V. PATENT ENFORCEMENT INDUSTRY TRENDS

A. *Patent Law in Large Industries*

Patent law has different impacts on different industries.<sup>81</sup> The impact and perception of patent law is related to “the cost of innovation, the maturity of the industry, and the relationship between inventions and marketable products.”<sup>82</sup> Two examples of industries that have a contrasting relationship with patent law are the software and pharmaceutical industries. Wind power resembles innovative pharmaceuticals. Solutions that promote implementation of wind technology should take into account that the wind power, like the pharmaceutical industry, will favor strong patent rights to protect its interests.

Many in the software industry favor the restriction of patent laws because development of software technology has unique characteristics.<sup>83</sup> The software industry advances through a “culture of reuse and incremental improvement, a lack of reliance on systems of formal documentation used in other fields, the short effective life of software innovations,” and the inherent flexibility of software.<sup>84</sup> Under the exclusion principle offered by patent protection, these industry practices are likely to lead to infringement of existing patents.<sup>85</sup> Because a patent infringer is not required to have knowledge of the patent to be liable for infringement, lack of knowledge of an existing patent is no defense for a software inventor.<sup>86</sup> Furthermore, the standard for equivalence means that software engineers cannot legitimately design around code if their product

---

<sup>81</sup> Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1892 (2002).

<sup>82</sup> *Id.*

<sup>83</sup> Cohen & Lemley, *supra* note 9, at 3–4.

<sup>84</sup> *Id.* at 4.

<sup>85</sup> *Id.* at 3–4.

<sup>86</sup> See 35 U.S.C. § 271 (2006) (absence of knowledge or intent modifier); see McManis and Friedman, *supra* note 46.



performs the same function.<sup>87</sup> Experimental use and exhaustion doctrines in patent law do not clearly allow software engineers to innovate using reverse engineering of patented software.<sup>88</sup> Copyright law is better for protecting software because a creator is not liable for infringement if a work is created independently without any knowledge of an existing copyright, thereby satisfying the “originality” requirement for copyrights.<sup>89</sup> Accordingly, patent law is not viewed favorably in the software industry.

The innovative pharmaceutical industry has a different relationship with patent law, and is arguably the best example of why patent laws are useful.<sup>90</sup> Because of the lengthy gap between discovery of a new drug, and the staggering 800 million dollar cost of bringing a new drug to the market, patent laws are critical for encouraging innovation in the pharmaceutical industry.<sup>91</sup> After discovery, and once all approval steps are satisfied, most drugs obtain only twelve years of actual patent protected market sales, except for certain allowable extensions.<sup>92</sup> Since most new drugs fail to even reach the market, research and development costs are recouped only from the drugs that do succeed.<sup>93</sup> Although generic drug companies who want access to existing patents favor weaker

---

<sup>87</sup> Cohen & Lemley, *supra* note 81, at 4.

<sup>88</sup> Cohen & Lemley, *supra* note 81, at 6.

<sup>89</sup> See e.g., *Ty, Inc. v. GMA Accessories, Inc.*, 132 F.3d 1167, 1169 (7th Cir. 1997) (“The Copyright Act forbids only copying; if independent creation results in an identical work, the creator of that work is free to sell it.”); *Keeler Brass Co. v. Cont’l Brass Co.*, 862 F.2d 1063, 1065 (4th Cir. 1988) (“[T]he defendant may rebut the presumption with evidence of independent creation.”); *Original Appalachian Artworks, Inc. v. Toy Loft, Inc.*, 684 F.2d 821, 829 (11th Cir. 1982) (“Of course, proof of access and substantial similarity raises only a presumption of copying which may be rebutted by the defendant with evidence of independent creation.”).

<sup>90</sup> MICHELE BOLDRIN & DAVID K. LEVINE, *AGAINST INTELLECTUAL MONOPOLY*, ch. 9, 1 (2007), available at <http://levine.sscnet.ucla.edu/papers/anew.all.pdf>.

<sup>91</sup> *Id.*

<sup>92</sup> *Id.*

<sup>93</sup> Henry Grabowski, *Patents and New Product Development in the Pharmaceutical and Biotechnology Industries*, 8 Geo. Pub Pol’y Rev. 7, 9 available at <http://fds.duke.edu/db/attachment/662>.

patent protection, innovative drug companies are advocates for strong patent laws to increase research investment, recoup costs, and offset lengthy testing periods where no profit is made.<sup>94</sup>

The pharmaceutical industry benefits and profits from strong patent protection, so much so that the dire need for life-saving drugs often leads governments to use compulsory licensing to circumvent patent laws, rather than lobbying for a change in the patent laws themselves.<sup>95</sup> Compulsory licensing of patented drugs is more common in third world countries, where the need for life-saving drugs outweighs the interests in the industries profit.<sup>96</sup> Despite this, pharmaceutical patents are still profitable in many countries and the industry advocates for strong patent laws to help recover costs for drug development.<sup>97</sup>

### B. *Wind Industry Reaction to Patent Laws*

Like any technology with a high cost of development, a long operational life, and stringent regulatory requirements, wind technology innovators will likely favor stronger patent laws. Greater patent protection will benefit U.S. wind technology companies for whom exclusion of foreign competitors from the untapped U.S. wind market will mean increased market share and profit. Unlike the software industry, where rapid innovation and incremental improvement of earlier technologies makes strong patent laws detrimental, the wind technology sector will benefit from strong patent laws. The laws allow inventors to recoup the

---

<sup>94</sup> *Id.*

<sup>95</sup> *Id.*

<sup>96</sup> *Decision Removes Final Patent Obstacle to Cheap Drug Imports*, WORLD TRADE ORG. (Aug. 30, 2003), [http://www.wto.org/english/news\\_e/pres03\\_e/pr350\\_e.htm](http://www.wto.org/english/news_e/pres03_e/pr350_e.htm).

<sup>97</sup> John H. Barton, *TRIPS and the Global Pharmaceutical Market*, 23 HEALTH AFFAIRS 146, 146-47 (2004), available at <http://content.healthaffairs.org/content/23/3/146.full.pdf+html>.

research and design costs, and offset loss of profit from regulatory delays. Accordingly, patent law in the wind industry is reflective of patent law in the innovative pharmaceutical industry, and a strong patent law regime will be viewed favorably.

Enforcement and litigation of wind technology in both the federal courts and the ITC will likely increase because of the large market for the technology, the amount of capital required to design and build even one functioning turbine assembly, and the power a patent gives a company to exclude its competitors. The GE and Mitsubishi dispute is an example of wind power innovators caught in the “patent minefield,” and the attempt of a large company to assert its patent rights to the fullest, similar to large companies in the pharmaceutical industry.

## VI. THE GENERAL ELECTRIC AND MITSUBISHI DISPUTE

GE manufactures and sells wind turbines to the international market. In 2009, GE was the second largest wind turbine manufacturer in the world.<sup>98</sup> GE is also the industry leader for installed wind power capacity in the U.S.<sup>99</sup> A dispute began between GE and Mitsubishi when Mitsubishi imported and installed large wind turbines in Texas.<sup>100</sup> GE sued Mitsubishi for infringement of three GE-held patents allegedly used in the imported wind turbines.<sup>101</sup> The patents at issue cover energy

---

<sup>98</sup> John Acher, *China Became Top Wind Power Market in 2009: Consultant*, REUTERS (Mar. 29, 2010), <http://www.reuters.com/article/2010/03/29/us-windenergy-market-consultant-idUSTRE62S12620100329>.

<sup>99</sup> Eric Lane, *GE Asserts Wind Power Patents Against Mitsubishi Again*, GREEN PAT. BLOG (Sept. 27, 2009), <http://www.greenpatentblog.com/2009/09/27/ge-asserts-wind-power-patents-against-mitsubishi-again/>.

<sup>100</sup> *Id.*

<sup>101</sup> *Id.* Patent Nos. 5083039, 6921985, and 7321221. *Id.*

conversion and control technologies for turbines, and represent core technologies for wind power generation from wind turbines.<sup>102</sup>

GE filed a claim with the ITC and the federal courts in Texas for patent infringement.<sup>103</sup> The ITC initially ruled GE's patents were not infringed and Mitsubishi was permitted to import the components necessary for continuing their wind farm project.<sup>104</sup> To strike back at GE, Mitsubishi also filed a counter claim against GE for infringement of one of its own patents that covered "blade-pitch-angle control device and wind power generator[s]."<sup>105</sup> GE appealed the ITC decision.<sup>106</sup> The ITC found that there was no "domestic industry" for the patent at issue, which was required to block importation, and did not stop Mitsubishi's importation of the wind turbines.<sup>107</sup> Despite this finding in the ITC, the Court of Appeals for the Federal Circuit reversed the ITC decision, and found for GE on the federal patent claim.<sup>108</sup> A jury awarded GE 170 million dollars for infringement of the patent at issue.<sup>109</sup> This case involved multiple motions over several years, which incurred substantial legal fees for both parties.<sup>110</sup> The litigation extended long enough that one of the patents at issue

---

<sup>102</sup> Lane, *supra* note 99.

<sup>103</sup> *Id.*

<sup>104</sup> Dennis Crouch, *GE Wins Wind Turbine Patent Appeal*, PATENTLY-O (Mar. 2, 2012), <http://www.patentlyo.com/patent/2012/03/ge-wins-wind-turbine-patent-appeal-usitc-must-now-determine-whether-to-block-mitsubishi-wind-turbine-imports.html>.

<sup>105</sup> Eric Lane, *GE Dodges Mitsubishi Wind Turbine Blade Pitch Angle Patent*, GREEN PATENT BLOG (July 20, 2012), <http://www.greenpatentblog.com/2012/07/20/ge-dodges-mitsubishi-wind-turbine-blade-pitch-angle-patent/> (internal quotations omitted).

<sup>106</sup> See Crouch, *supra* note 104.

<sup>107</sup> *Id.* Although the USITC found the GE patents enforceable and infringed, the ITC can only block import of the products if there is a "domestic industry" for the claimed invention. *Id.* To prove an industry exists, an industry must show that "with respect to articles protected by the patent" significant investment in plant and equipment; employment; or investment in exploitation, "including engineering, research and development, or licensing." *Id.*

<sup>108</sup> Eric Lane, *Jury Finds Mitsubishi Owes GE \$170 Million for Wind Patent Infringement*, GREEN PATENT BLOG (Mar. 20, 2012), <http://www.greenpatentblog.com/2012/03/20/jury-finds-mitsubishi-owes-ge-170-million-for-wind-patent-infringement>.

<sup>109</sup> *Id.*

<sup>110</sup> *Id.*

expired and was no longer considered by the court.<sup>111</sup> The amount at stake was evident from the massive jury award.

The GE and Mitsubishi dispute is an example of the vigorous assertion of patent rights by wind technology companies, and highlights the “patent minefield” importers can unknowingly breach when entering the U.S. market. Because GE has filed more patents than any other company in the U.S.,<sup>112</sup> it is more likely to strongly assert its patent rights if it believes an imported invention infringes one of its patents. This is especially true considering the largest wind turbine suppliers are in Europe and China, and are actively trying to enter the U.S. market.<sup>113</sup>

Despite the success of GE in defending its patents, implementation of wind power has been restricted because of the exclusion of a major player like Mitsubishi from the U.S. market.<sup>114</sup> With less competition, prices are likely to rise, and the speed of implementation domestically will be reduced. In order to avoid these problems, and maintain the benefits of patent protection, solutions that do not change existing patent laws are needed.

## VII. SOLUTIONS FOR PATENT RESTRICTION ON WIND ENERGY GROWTH

There are several options that would allow faster, less restrictive implementation of wind power in the U.S. market, and minimize

---

<sup>111</sup> See Crouch, *supra* note 104.

<sup>112</sup> *Clean Energy Patent Growth Index: 3d Quarter 2011*, CLEAN ENERGY PAT. GROWTH INDEX, <http://cepgi.typepad.com/> (Last visited 5 Mar. 2012).

<sup>113</sup> Carey Jordan & Stephan Schmitz, *Patent Law: The Key to Unlocking US Wind*, RENEWABLE ENERGY WORLD (Oct. 13, 2010), <http://www.renewableenergyworld.com/rea/news/article/2010/10/patent-law-guards-over-us-wind-sector>; see also Acher, *supra* note 98 (listing Sinoval, Goldwind, REpower in the top ten wind turbine suppliers in the global market).

<sup>114</sup> Lane, *supra* note 108.

expensive time-consuming litigation like the GE and Mitsubishi dispute. The U.S. government could exercise some of its own discretion in monitoring the market by mandating compulsory licensing, a Standard Setting Organization (“SSO”), or patent pools. Because no court has determined if offshore wind turbine installment constitutes infringement within the U.S., these solutions will focus on lowering competitive barriers resulting from domestic patent rights, rather than changing the patent laws themselves. Additionally, these solutions will benefit the wind power market by establishing standards that make integration into the current power grid faster and more uniform. Any one of these solutions would eliminate costly, wasteful and restrictive disputes like the GE and Mitsubishi action, and instead allow resources to be used for advancing the state of technology.

#### A. *Standard Setting Organizations*

Problems implementing patented technology sometimes occur when “one or more companies own proprietary rights that cover a proposed industry standard.”<sup>115</sup> This is particularly prevalent in the semiconductor, software, and telecommunication industries, where certain technologies are best suited as a common interface between all manufacturers.<sup>116</sup> In these industries, private groups establish “interface standards” that allow devices of different manufacturers to work with each other in the marketplace.<sup>117</sup> Companies benefit when a common patented technology is adopted, because after choosing one competitor’s technology as the standard, other competitors can use the technology without fear of infringement.<sup>118</sup> As a result, resources are not wasted

---

<sup>115</sup> Lemley, *supra* note 79, at 1891.

<sup>116</sup> *Id.* at 1893.

<sup>117</sup> *Id.*

<sup>118</sup> *See Id.* at 1891.

creating multiple interfaces, or working to design around a patented technology.<sup>119</sup>

SSO's create these types of standards,<sup>120</sup> and once adopted, the government or an organization enforces the standard.<sup>121</sup> The SSO reviews available technology for the standard, including patent-protected technology, and adopts the most appropriate one for the standard, even if it has patent protection.<sup>122</sup> The SSO prevents the industry from adopting a standard without a fair agreement, and requires reasonable compensation to the patent holder.<sup>123</sup>

A good example of a successful SSO is the American National Standards Institute ("ANSI"). ANSI acts to manage the administrative needs of many SSOs, and could oversee collaborative effort of finding the best standard for the industry, based on the available technology.<sup>124</sup> ANSI focuses on "essential patents", which are the inventions that otherwise would have to be infringed in order to have uniform implementation in a market.<sup>125</sup> Patents on something as fundamental as power generation would likely be considered "essential."<sup>126</sup> A patent adopted by ANSI or another SSO could be used royalty free, or licensed under an agreement that is reasonable and nondiscriminatory.<sup>127</sup> This solution would allow competitors to jump into the market with the same industry standard for wind power turbines, and allow for faster and less contentious implementation of the technology.

---

<sup>119</sup> *Id.*

<sup>120</sup> *Id.* at 1892-93.

<sup>121</sup> Lemley, *supra* note 79, at 1899.

<sup>122</sup> *Id.* at 1893.

<sup>123</sup> *Id.* at 1924.

<sup>124</sup> Todd Wilson, *Disclosure Requirements for Patent Holders Who Participate in Standards Setting Organizations*, THE IP LAW BLOG (Dec. 14, 2005), <http://www.theiplawblog.com/archives/-patent-law-disclosure-requirements-for-patent-holders-who-participate-in-standards-setting-organizations.html>.

<sup>125</sup> *Id.*

<sup>126</sup> *See id.*

<sup>127</sup> *Id.*

A SSO for wind power, either government-mandated or created voluntarily by the major players, would allow competitors like GE or Mitsubishi to use certain “essential” technologies, patented by one of the companies, for the purposes of uniform implementation of wind power.<sup>128</sup> Companies participating in an SSO must disclose patents and patent applications that relate to the development and publication of industry standards.<sup>129</sup> A wind power SSO would need to have specific disclosure policies to ensure that each member contributed any vital technology for review by the SSO.<sup>130</sup>

### B. *Compulsory Licensing*

Patent law systems frequently allow for compulsory licensing, in which a government requires the owner of a patent to license rights of use to someone else<sup>131</sup> for a variety of reasons.<sup>132</sup> Under TRIPS provisions, to obtain a compulsory license, a country must have attempted to obtain a legitimate license on reasonable commercial terms and failed.<sup>133</sup> Circumstances under which a compulsory license can be issued include:

---

<sup>128</sup> *Id.*

<sup>129</sup> *Id.*

<sup>130</sup> See Wilson, *supra* note 124. (“Each SSO has disclosure policies to ensure that patented technology makes its way into industry standards in order to advance the state of the technology.”).

<sup>131</sup> Mihály Ficsor, *Collective Management of Copyright and Related Rights*, in WIPO GUIDE ON THE LICENSING OF COPYRIGHT AND RELATED RIGHTS 101 (World Intellectual Prop. Org. [WIPO] ed., 2004).

<sup>132</sup> IPR Overview, *Paris Convention*, R.K. DEWAN & CO., <http://www.rkdeewan.com/iprOverviewTrademarkParisConvention.jsp> (last visited Mar. 6, 2012).

<sup>133</sup> TRIPS and Health Frequently Asked Questions, *Compulsory Licensing of Pharmaceuticals and TRIPS*, WORLD TRADE ORG. (Sept. 2006), [http://www.wto.org/english/tratop\\_e/trips\\_e/public\\_health\\_faq\\_e.htm](http://www.wto.org/english/tratop_e/trips_e/public_health_faq_e.htm).  
[http://www.wto.org/english/tratop\\_e/trips\\_e/public\\_health\\_faq\\_e.htm](http://www.wto.org/english/tratop_e/trips_e/public_health_faq_e.htm).



inventions funded by the government with a broad need; failure or inability of a patentee to meet demand for a patented product; and situations where refusal to grant a license leads to the inability to exploit a technological advancement.<sup>134</sup> TRIPS provides that even these requirements may be waived in certain circumstances, such as with public non-commercial use.<sup>135</sup>

The U.S. government could enact legislation requiring compulsory licensing of wind power technology, such as the turbine patents owned by GE, in order to allow more players to participate in the wind energy market. This would allow for faster implementation of the technology, and reduce waste by allowing companies to focus on inventions that promote efficiency in the current technologies, rather than expending great effort to design around patented inventions. The interest in promoting the growth of U.S. based companies like GE may be more important to the government, in which case no compulsory licenses would be issued so that U.S. companies could compete more effectively in the global market.

### *C. Patent Pools*

Another option for managing the implementation of patented wind technology is mandating "patent pools."<sup>136</sup> "A patent pool is an agreement between two or more patent owners to license one or more of their patents to each other or to a third party."<sup>137</sup> The primary advantage of patent

---

<sup>134</sup> Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), Annex 1C, § 5, art. 31, Apr. 15, 1994, 1869 U.N.T.S. 299, 33 I.L.M. 1197, *available at* [http://www.wto.org/english/docs\\_e/legal\\_e/27-trips.pdf](http://www.wto.org/english/docs_e/legal_e/27-trips.pdf) [hereinafter TRIPS Agreement].  
<sup>135</sup> *Id.*

<sup>136</sup> *Int'l Mfg. Co. v. Landon*, 336 F.2d 723, 729 (9th Cir. 1964) ("The pooling of the patents, licensing all patents in the pool collectively, and sharing royalties is not necessarily an antitrust violation. In a case involving blocking patents such an arrangement is the only reasonable method for making the invention available to the public.").

<sup>137</sup> Jeanne Clark et al., *Patent Pools: A Solution to the Problem of Access in Biotechnology Patents?*, U.S. PATENT AND TRADEMARK OFFICE 4 (Dec. 5, 2000), [http://www.uspto.gov/patents/law/patent\\_pools.pdf](http://www.uspto.gov/patents/law/patent_pools.pdf).

pools is that they allow interested parties to gather all the necessary tools to practice a certain technology, while having to obtain only one license.<sup>138</sup> This is much easier than negotiating for licenses from multiple inventors separately.<sup>139</sup>

The Manufacturers Aircraft Association is an example of a successful patent pool, which allowed uniform access to critical aircraft patents owned by the Wright Brothers and the Curtiss Company.<sup>140</sup> This agreement was crucial to allowing the U.S. to build aircraft needed for World War I.<sup>141</sup> More recently, a patent pool was created between Sony, Phillips, and Pioneer so that new devices could comply with DVD-ROM and DVD-Video interfaces without infringing on existing patents.<sup>142</sup>

A patent pool between the various manufacturers of wind power technology components would allow for faster implementation of the current technology by simplifying the licensing process for competitors who need access to multiple technologies. Benefits would include reduced risk of infringement, less time spent on litigation of intentional or unintentional infringement, a standardized technology for all markets, and better use of resources. This arrangement would also allow the patent pool contributors to obtain reasonable licensing fees for the use of their technologies.

## VIII. CONCLUSION

The rapid advancement of wind technology, the power of U.S. patent laws, and the incentive for the wind industry to enforce its patent rights like the pharmaceutical industry means implementation of wind power in the U.S. likely will be restricted. Licenses, SSOs, and patent

---

<sup>138</sup> *Id.* at 9.

<sup>139</sup> *Id.*

<sup>140</sup> *Id.* at 5.

<sup>141</sup> *Id.*

<sup>142</sup> *Id.* at 5-6.

pools are viable options that will not reduce the benefits of strong patent laws, but instead provide a way to logically circumvent the restrictions, and enable competitors to advance the implementation of wind power without wasting resources. Solutions like these are the key to mitigating disputes like the one between GE and Mitsubishi, and accelerating the implementation of wind energy in the U.S.

CHRIS STROBEL