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CLEAN TECH INTELLECTUAL PROPERTY: ECO-MARKS, GREEN PATENTS, AND GREEN INNOVATION, by **Eric L. Lane**. Oxford University Press, 2011. 276 pp. Paperback \$185

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Eric Lane identifies clean tech and clean tech intellectual property (IP) by reference to its broad social goals of “generating energy through renewable sources, boosting energy efficiency, and reducing greenhouse gas emissions” (p.1). His book is organized around four broad topics: (1) patent prosecution, portfolios and licensing; (2) clean tech patent litigation; (3) green branding, greenwashing, and enforcement of eco-marks; and (4) policies, initiatives, and debates over how best to promote development (and patenting) of clean tech (pp.ix-xii). Fortunately, and notwithstanding typical promotional over-reaching (the front inside cover calls the book the “first comprehensive review of intellectual property and clean technology”), all clean tech IP issues are not Lane’s focus.¹

Rather, and much more manageably, Lane focuses on issues of his self-proclaimed specialty, which is “helping technology companies build, grow, and manage their patent and trademark portfolios, with a particular focus on renewable energy and other areas of clean technology” (“About the Author”). Lane bases his book on personal experience and additional information gained from interviews with technology developers (“Acknowledgements”). Consequently, the book’s scope is manageable, its focus is practical, and its knowledge-base is real and well-documented with concrete examples. The book’s audience appears to be principally business people who need an exposure to these legal issues and thus may become more interested in pursuing green tech IP, the general public, and non-IP lawyers who may not have encountered the area (or IP lawyers and academics who wish to know more). As an introduction to the issues, it does a terrific job. As an explanation of how to actually make the required

business and legal decisions, however, it may be seriously lacking. The book is not (and does not appear intended to be) used as a training manual.

As Lane notes “[o]ne of the themes this book explores is the importance of green patents to small clean tech innovators, entrepreneurs, and startups” (p.4). Lane’s theme makes eminent sense, and the book fulfills the promise of this theme more than adequately. Recent survey evidence has demonstrated that entrepreneurs—particularly venture-financed startups—may rely more on patents than do other inventors, businesses, and related institutions:

While venture-backed startup executives rate the incentive value [of patents] more highly than do those at [Dunn & Bradstreet-sampled] companies, in no category are patents reported to provide even a “moderate” incentive for any of the four entrepreneurial activities about which we queried.²

Given the relatively low perceived incentive of patents even for venture-backed entrepreneurs, it is not clear why clean tech patents continue to be sought. But Lane is likely correct that there will continue to be a need (and probably an increasing need) for the patenting, licensing, and litigation strategies that he discusses. Given the existing and anticipated expansion of clean technologies and services and of the businesses that will supply them, the same is true for the importance of developing and regulating eco-marks, certification marks, and other branding strategies.

Before getting to the meat of those discussions, it bears noting that although Lane’s initial focus on definitional terminology may seem somewhat defensive for a book published in 2011, when clean tech and intellectual property measures relating to them are actually well established, his purpose in doing so is highly salutary. Many (and particularly the business and general public audience at which his book appears directed) may not understand what these categories cover. Further, because Lane’s basic premise is that clean tech IP is different from other IP areas, definition is critical.

Lane apparently believes clean tech IP is different because of three central features: (1) the diversity of technologies; (2) its reliance on R&D developed from prior green technology research and computers and semiconductors; and, particularly, (3) its “moral underpinning as a vehicle for the greater good” (p.2-3). From this premise, Lane argues that “green IP issues pose unique challenges and raise profound legal and moral questions about the nature of innovation, the best way to facilitate transfer and

deployment of clean technologies, and how to protect green consumers” (p.3).

I doubt the validity of Lane’s premises for finding that clean tech IP differs from other IP. Although clean tech IP does address a wide variety of technologies and relies on prior R&D, many complex and complementary fields of technology have been developed and some (such as medicines for neglected diseases) are morally charged. However, I agree with Lane that the magnitude of current technology needs and the nature of climate change concerns add a unique layer of moral imperative to “clean tech” that may not have existed in the development of earlier technologies such as steam engines, railroads, computers, or biotechnology. Given that moral imperative, the book not only is timely but also is very much welcome as a practical guide to developing and managing the technologies that are needed. This is particularly important in light of the debatable choice made in the context of international climate change negotiations to rely on the patent system and private markets to develop and disseminate the needed mitigation and adaptation technologies.³

Lane next notes that “many of today’s green tech inventions are derivative and incremental improvements upon prior developments in clean tech or borrow from other industries” (p.15). This raises questions that Lane briefly reviews (pp.15-20) about their patentability under traditional criteria of novelty (including inherency) and non-obviousness. Lane’s assumption of incremental innovation is important to beliefs that the patent system is well suited to assuring access to climate change technologies. For incremental innovations, existing non-patented technologies may be substitutes that impose price constraints. In contrast, for breakthrough technologies (such as a major development in carbon capture from coal-fired electric utilities), worldwide pressures to override patent rights will likely arise for measures such as outright exclusion from patentable subject matter, compulsory licensing, or competition law-based remedies.⁴ Lane describes numerous patent drafting strategies to match these doctrinal concerns, providing a concrete example of silent, swift wind turbine technology (pp.20-29). These strategies are also technology and business development strategies, as a “creative patent attorney will work with inventors to tease out” whatever may be patentable and valuable (p.21), because it presents a useful product or process that a patent owner would seek to exclude without a license.

Similarly, Lane describes the development of patent portfolios for wind-turbine and municipal waste, biomass, or coal gasification technologies (pp.30-57), noting that the size and components of a successful portfolio

will depend on the innovation space and on capturing the “key innovations that support a company’s business strategy, which often are those that differentiate the company from its competitors” (p.57). While the examples are edifying, they do not supply useful guidance for how business people or lawyers can effectively identify those features for themselves. The discussion thus serves as a good marketing tool for the kinds of services that Lane provides in his practice.

To conclude this section of his book, Lane discusses the important topic of technology transfer and licensing. He first focuses on out-licensing strategies that can overcome barriers to entry in product markets, create business efficiencies, and allow rapid scaling up of production and market access (or facilitate joint marketing arrangements), or that may avoid production entirely by having the patent owner becoming a non-practicing entity (NPE) licensor in all or only in secondary markets (pp.59-67, 70-80). He then focuses on in-licensing strategies (pp.68-70) that can avoid the need “to develop products from scratch” (p.58).

As Lane notes, because of the high costs of patent litigation, clean tech court disputes typically involve multiple technologies (from wind power to efficient light emitting diodes, LEDs, to Toyota Prius hybrids) that have been scaled, are widely commercialized, and are profitable (pp.83-85). He provides detailed descriptions of three such disputes (involving wind, LEDs, and biofuels), and notes some of the differences among them such as litigating in district court and in the International Trade Commission; the strategic use of reexamination; and litigating to promote licensing rather than to protect market share (which plaintiffs may sometimes pursue even though it may not make economic sense given the high costs of litigation) (pp.86-115). He then turns to litigation by NPEs, this time noting limits on injunctive relief (and consequent resort again to the ITC) and provision of ongoing royalties (which effectively impose a compulsory patent license at the royalty amounts set by the judge). And he notes the development, by inventors of important patents to new technology sectors—such as the smart grid—of patent licensing companies that bring suit as NPEs (pp.116-146).

In concluding this section, Lane extrapolates from these discussions to predict future patent litigation in the clean-tech area. Unsurprisingly, he focuses on wind power, LEDs, and hybrid electric (and plug-in and fully electric) vehicles. He also notes, based on market penetration, that solar thermal (solar cell and solar photovoltaic) technologies are likely to be litigated, as may be additional biofuels technologies (e.g., cellulosic ethanol from sources that do not compete with food supplies) (pp.147-150). Lane’s predictions are obvious and limited to the areas that he focuses on,

excluding other green technologies with scalable results that are likely to be litigated. Although his anecdotal discussions are well-written, it is not clear what value these discussions provide.

Lane opens the next section of the book by proclaiming that, “[i]ndeed, we stand at the dawn of the Eco-mark Era—a period in which green branding, advertising environmentally friendly products and services, and touting sustainable business practices will be pervasive and profitable” (p.151). I wholeheartedly agree with this conclusion, but again (at least to me) it seems obvious. Lane then suggests what may be the value of this section—a discussion not of whether firms will (with increasing frequency) highlight their eco-friendly practices, but of “how they will do so” (p.151).

Accordingly, the first chapter of this section discusses protection of eco-marks, the legal problem of descriptiveness as a barrier to registration, and strategies for overcoming that problem. He follows with a discussion of “greenwashing,” which he defines as “making false or misleading claims regarding purportedly environmentally friendly products, services, or practices”, and then concludes the section with a discussion of protection and enforcement of eco-marks, focusing on litigation and its effects on consumers (p.152).

Notably missing from his summary is any reference to the use of certification marks that identify not the source or origin of goods or services but their purported compliance with certification standards that may help the public to identify eco-friendly goods and services. Fortunately, it is not missing in his actual discussion (pp.153-67), which notes in the context of green mark registration the example of certification by the US Green Building Council (p.156), and discusses certification marks explicitly as a good strategy “[i]f a firm’s core business is affected by green characteristics” (p.162). Unlike the earlier patent sections, the examples in this section are used to offer some concrete advice regarding branding strategies that will avoid descriptiveness rejections—i.e., adding non-descriptive or arbitrary elements to the mark, disclaiming green terminology and separate use, as required by the registering authority, etc. (pp.156-62).

When discussing greenwashing, Lane delicately notes the market incentives for brand owners to be “tempted to make lazy, unsubstantiated green claims [or even] worse, [for] some businesses [to] try to deceive green-leaning consumers or engage in other forms of eco-mark abuse. . .” (p.168). Lane notes this “disturbing trend”, citing to a study conducted by a marketing organization⁵ that found all but one of “over 1000 self-declared ‘green’ products” to have “displayed some form of greenwash by committing at

least one of the [seven] sins” of greenwashing: (1) hidden harmful trade-offs associated with the environmental benefits claimed; (2) lack of proof or substantiation; (3) vague or otherwise unintelligible claims; (4) false labeling (to provide the impression of a third-party environmental endorsement); (5) environmentally irrelevant claims; (6) the lesser of two evils (when the claim is comparatively true but the overall impact of the product is harmful); and (7) outright fibbing (pp.168-171).

In reaction to perceived widespread greenwashing, public and private responses have emerged (pp.171-73), including the Federal Trade Commission’s guidelines for environmental marketing claims,⁶ and various websites that rate the claims and overall environmental records of particular companies.⁷ Of perhaps greater interest, Lane notes actions taken by a public certifying entity (the Department of Energy for the “EnergyStar” program) and by private individuals to seek to impose liability and corrective actions on companies falsely obtaining certifications or making false (or at least deceptive) claims—although he also notes the uncertain ability to successfully litigate such cases and the questionable effectiveness of settlements that so far have been achieved, reaching “mixed results” (pp.176-185). Lane recommends more aggressive policing of greenwashing (p.199).

This is perhaps the strongest of Lane’s chapters, as its descriptions highlight the tawdry reality and the undeveloped state of the law, although it still leaves the reader wondering how to effectively navigate the field (e.g., what will meet the FTC marketing requirements, much less how to effectively avoid—or, for those less morally inclined, skate close to without committing—the seven sins). The reader is left with the impression (which I believe is correct) that law reform is badly needed to make private litigation more effective, to encourage public action to more aggressively police greenwashing, and to adopt laws that will more effectively deter such conduct in the first instance.

This leads Lane to the chapter on enforcement of eco-marks themselves. Here, even when describing standard trademark litigation, Lane fails to provide the general reader with the basic standards (typically, an eight-factor balancing test) on which trademark infringement is found. He jumps instead to the most salient (and typical) factors that result in a preliminary injunction being issued (pp.187-88). Interestingly, Lane also notes in one example that the defendant ignored the preliminary injunction and defaulted on appearing to contest the case, resulting in a permanent injunction. This raises (but does not answer) the question of whether trademark law is also ineffective in stopping infringing sales of mass produced products from

foreign jurisdictions. His other litigation example, as it had not yet been concluded, similarly fails to provide an adequate assessment of “the actual impact on green consumers” (p.191). In contrast, Lane provides an optimistic example of a successful injunction being issued against a false use of a certification mark on biodegradable bags and food containers (pp.192-93).

In concluding his section on eco-marks, Lane also notes concerns about litigation that, because of failure to reject marks for descriptiveness, may preclude other companies from using consumer-friendly descriptive terms in their marks. He also discusses litigation that threatens the use of common, environmentally friendly symbols (like the apple) (pp.194-98).

Lane’s final set of chapters address:

(1) measures to promote development and diffusion of clean tech by sharing and pooling clean-tech patents, by providing access to green-patent data, and by accelerating green patent applications in various other countries (pp.200-226);

(2) differing views within the UN Framework Convention on Climate Change (UNFCCC) of whether the patent system hinders (or helps) clean tech development and diffusion, noting proposals (that ultimately were rejected) to weaken patent rights in regard to climate change technologies (pp.227-236); and

(3) examples of significant technology transfer deals (pp.237-48) that “may represent the beginning of a major global diffusion and deployment of clean technologies” (p.202) and which reflect Lane’s view that green patents are part of the climate change solution.

Again, Lane’s descriptions are rich, balanced, accurate, and clearly presented, and he has fairly presented differing views on the benefits or detriments of relying on the patent system to develop and disseminate needed climate change mitigation and adaptation technologies.

Nevertheless, I differ substantively from Lane regarding what appears to be his optimistic view of these developments and of the potential for “clean tech transfer [to] happen ... irrespective of IP rights” (p.202), at least to the extent that I believe is necessary to adequately address climate change. For one thing, he quotes from a study⁸ that concludes that patent rights “cannot possibly be an obstacle for the transfer of climate change technologies” to the poorest countries because they lack patent rights at all (p.248). But this

simply disregards the problem that the World Trade Organization Agreement on Trade Related Aspects of Intellectual Property Rights (the “TRIPS Agreement”) restricts compulsory licensing for export to other countries.⁹ That restriction, widely recognized to prevent low-cost generic production of medicines for transfer to the poorest countries, was overridden as a result of international pressures,¹⁰ but only for medicines and not for climate change technologies.

Nor does the fact that “global deployment of clean technologies is happening on an ever-increasing scale” or the existence of major deals between developed countries and business partners “in emerging markets such as Brazil, India, and China” (p.249) indicate that IP rights do not hinder technology transfer. We lack any good natural examples to prove these claims or a counterfactual world in which to test the alternatives.¹¹ Even Lane acknowledges that, given the lack of attractive markets and profits, “neither technology sharing mechanisms based on donating or pooling patents nor green patent databases are going to spur diffusion of clean technologies to the poorest nations” (p.216). Nor is it clear that rich countries will willingly pay the high prices to purchase and transfer patented technologies without imposing price constraints through compulsory licensing or government procurement or third-party production authorizations (or take the other actions purportedly required by their international commitments under the UNFCCC and other treaties) to meet the rapidly increasing mitigation and adaptation needs.¹²

However, I candidly admit that I lack the ability to disprove Lane’s optimism. I agree with Lane’s observation that a comprehensive study to determine if IP rights are more of an incentive or an obstacle to technology transfer may be impossible and would require “empirical patent data, global trade statistics, economic analysis, and scores of interviews with representatives from clean tech companies” that currently do not exist (p.236).¹³ Further, I believe that my disputes with Lane reflect common (and highly polarized) politico-philosophical differences that ultimately are based on fundamental faith in or skepticism towards markets or towards government intervention in them.¹⁴ So although I beg to differ, I offer this alternative perspective not as a criticism of Lane’s optimism but as a caution against un-critical acceptance of it. And we both agree that “[u]ndoubtedly, IP rights will continue to be debated as the UNFCCC talks continue in the years to come” (p.236).

Eric Lane has made a very valuable, extremely readable, and thoroughly enjoyable contribution to the field of clean technology and intellectual property that will help readers who are not already familiar with the topics

to understand why these issues matter and to get a very good feel for patent and trademark issues that are raised. Lane's ability to give the reader practical insights gained from his actual experience is the book's strength, and his clear and accessible discussions make the book very well designed for what appears to be his intended audience—business people, the general public, and non-IP lawyers who may need to know something about the IP law issues. Given that audience, it would be unfair to criticize him for not developing the book further to provide the strategic insights that would benefit the IP lawyers who will actually provide their clients with advice. But I hope he will do so, and thereby supply what seems most missing. To do so will likely require developing a treatise rather than a 250-page paperback. But it should pay off even more handsomely both in royalties from grateful IP lawyers and in client development opportunities.

ENDNOTES

¹For a discussion of additional aspects of clean tech IP, see RESEARCH HANDBOOK ON INTELLECTUAL PROPERTY AND CLIMATE CHANGE, Joshua D. Sarnoff ed., Edward Elgar Press (forthcoming 2012) (“RESEARCH HANDBOOK”).

²Stuart J.H. Graham, et al., High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey, 24 Berkeley Tech. L.J. 1255, 1285 (2009).

³See Joshua D. Sarnoff, The Patent System and Climate Change, 16 Va. J. L. & Tech. 301, 307 (2011).

⁴See, e.g., *id.* at 303 and n.5.

⁵TerraChoice Environmental Marketing, The Seven Sins of Greenwashing: Environmental Claims in Consumer Markets (Apr. 2009), available at <http://sinsofgreewashing.org/findings/greenwashing-report-2009/>.

⁶See 16 C.F.R. Part 260

⁷See, e.g., Greenwashing Index, at www.greenwashingindex.com; Greenwashing the facts, at www.greenwashingthefacts.org/main.asp?page=1184.

⁸See Copenhagen Economics A/S & The IPR Company ApS, *Are IPRs a Barrier to the Transfer of Climate Change Technology?* 5 (2009), available at http://trade.ec.europa.eu/doclib/docs/2009/february/tradoc_142371.pdf.

⁹Agreement on Trade-Related Aspects of Intellectual Property Rights, Art.31(f), Apr. 15, 1994, 33 I.L.M. 81 (December 1993 text).

¹⁰World Trade Organization, Ministerial Declaration of 14 November 2001, WT/MIN(01)/DEC/2, 41 I.L.M. 746 (2001), available at www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm; World Trade Organization, General Council Decision: Implementation of paragraph 6 of the Doha Declaration on the TRIPS Agreement and public health, WT/L/540 and Corr. 1 (Sept. 1, 2003), available at www.wto.org/english/tratop_e/trips_e/implem_para6_e.htm; World Trade Organization, Amendment of the TRIPS Agreement: Decision of 6 December 2005, WT/L/641 (Dec. 8, 2005), available at www.wto.org/english/tratop_e/trips_e/wtl641_e.htm.

¹¹See, e.g., Joshua D. Sarnoff, *Government Choices in Innovation Funding*, 61 *Emory L.J.* __ (forthcoming 2012) (proposing creation of innovation experiments).

¹²See, e.g., Sarnoff, *supra* note 3, at 327-28 (discussing failures of technology transfer obligations under the Montreal Protocol and likely future failures for the UNFCCC) (citing Jayashree Watal, “Case Study 3 India: The Issue of Technology Transfer in the Context of the Montreal Protocol”, in Veena Jha and Ulrich Hoffman eds., *ACHIEVING OBJECTIVES OF MULTILATERAL ENVIRONMENTAL AGREEMENTS: A PACKAGE OF TRADE MEASURES AND POSITIVE MEASURES*, UNCTAD/ITCD/TED/6, at 45-55 (United Nations, 2000)); Surie Moon, *Does TRIPS Art. 66.2 Encourage Technology Transfer to the LDCS?: An Analysis of Country Submissions to the TRIPS Council (1999-2007)*, Policy Brief No.2 December 2008, ICTSD, Geneva, Switzerland, available at <http://ictsd.org/i/publications/37159/> (discussing failures of developed countries to meet technology transfer obligations under the TRIPS Agreement); *Overview of IPR Practices for Publicly-funded Technologies*, Informal paper, Expert Group on Technology Transfer (2005) (discussing transfer of publicly funded inventions to private entities and reluctance of developing countries to exert leverage over such entities), available at <http://unfccc.int/ttclear/pdf/EGTT/11%20Bonn%202005/IPRandOtherIssuesAssociatedwithPublicly-FundedTech.pdf>.

¹³See, e.g., Sarnoff, *supra* note 11 (proposing additional information development).

¹⁴See Sarnoff, *supra* note 3, at 306-07, 324.

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